## RE: [EXTERNAL] Fwd: the rumor mill spins...

From: $\quad$ "Koizumi, Kei EOP/OSTP"(b) (6)
To: $\quad$ "Lander, Eric S. EOP/OSTP" (b) (6)
Date: $\quad$ Mon, 25 Jan 2021 11:39:03 -0500
Thanks(b) (5)
Kei Koizumi
(he/him)
Acting Director and Chief of Staff
Office of Science and Technology Policy
(b) (6)

From: Lander, Eric S. EOP/OSTP
Sent: Monday, January 25, 2021 11:01 AM
To: Koizumi, Kei EOP/OSTP (b) (6)
Subject: Fwd: [EXTERNAL] Fwd: the rumor mill spins...

Sent from my iPhone

Begin forwarded message:

From: Kumar Garg (b) (6)
Date: January 25, 2021 at 9:26:10 AM EST
To: "Lander, Eric S. EOP/OSTP" (b) (6)
Subject: [EXTERNAL] Fwd: the rumor mill spins...

Dear Eric: Flagging.
---------- Forwarded message ---------
From: Lev Facher (b) (6)
Date: Mon, Jan 25, 2021 at 7:50 AM

Subject: Re: the rumor mill spins...
To: Kumar Garg <(b) (6)

Hey Kumar -- hope you're well. Now that we have an answer here, I thought I'd ping you to say we're doing a piece on Eric Lander's nomination and what it means for the future of OSTP and, of course, for science policy writ large. Even if you don't want to talk on the record, i'd very much appreciate your insight! I'm at (b) (6) ; let me know if there's a good time to talk or just try me anytime!

Thanks in advance,

Lev

On Fri, Nov 20, 2020 at 12:51 PM Lev Facher (b) (6) wrote:
Kumar: Thanks for your help the other week getting in touch with John. Super helpful.

Off the record - I keep hearing rumblings that Peggy Hamburg, the former FDA commissioner, is in the running for the OSTP job. Does that sound like anything resembling reality to you? And also, I should ask: Any interest in your part in a second tour?

Let me know if you have a sec! Like I said, off the record. As you know STAT doesn't love to traffic in rumors so at this point we're just trying to separate fact from fiction...

Thanks,

Lev
--
Lev Facher
Washington Correspondent
Ccll/Signal/WhatsApp:(b) (6)
@levfacher

STAT Reporting from the frontiers of health and medicine
@statnews statnews.com facebook.com/statnews

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| From: | "Koizumi, Kei EOP/OSTP" (b) (6) |
| :--- | :--- |
| To: | "Lander, Eric S. EOP/OSTP" (b) (6) |
| Date: | Mon, 25 Jan 2021 11:46:25-0500 |

I am at $16^{\text {th }}$ and R NW, but my new office is (b) (6) across the hall from your temporary office and next to your future Director's office. We should start our daily cadence of check-outs. We can establish a time later, but for the next few days would 5:30 or so be good for you? I can have Dawn Mielke OSTP schedule.

Kei

Kei Koizumi
(he/him)
Acting Director and Chief of Staff
Office of Science and Technology Policy
(b) (6)

From: Lander, Eric S. EOP/OSTP
Sent: Monday, January 25, 2021 11:42 AM
To: Koizumi, Kei EOP/OSTP (b) (6)
Subject: RE: [EXTERNAL] Fwd: the rumor mill spins...

Yup. Trying to learn the Dell laptop, etc etc. Getting badged at 4.

Remind me: where are you located?

E

From: Koizumi, Kei EOP/OSTP
Sent: Monday, January 25, 2021 11:39 AM
To: Lander, Eric S. EOP/OSTP (b) (6)
Subject: RE: [EXTERNAL] Fwd: the rumor mill spins...

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Thanks(b) (5)
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Washington Correspondent
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@levfacher

STAT Reporting from the frontiers of health and medicine
@statnews statnews.com facebook.com/statnews

# [EXTERNAL] New York State Advances Reimagine Commission's Recommendations 

| From: | Harrison Marks $(\mathrm{b})(6)$ |
| :--- | :--- |
| To: | "Lander, Eric S. EOP/OSTP" <(b) (6) |
| Cc: | Jesse Marks $(\mathrm{b})(6)$ |
| Date: | Mon, 01 Feb 2021 10:19:17-0500 |

Eric - I hope you are doing well, and I am very grateful that you are now working from within government to help the country.

In case the below didn't make it to your inbox earlier, I wanted to share with you an update on the work of the Reimagine New York Commission. Thank you again for all of your support.

Sincerely,
Harrison
---------- Forwarded message ---------
From: Schmidt Futures (b) (6)
Date: Fri, Jan 29, 2021 at 13:47
Subject: New York State Advances Reimagine Commission's Recommendations


New York State of the State Agenda Advances Reimagine Commission's Recommendations to Improve Connectivity, Telehealth, Workforce Equity, and Support for the Arts. See the Background Reports Here.

## Dear Friends,

This month, New York Governor Andrew Cuomo outlined his State of the State agenda, including a series of proposals that build on the work of the Reimagine New York Commission. These proposals include first-in-the-nation policies to ensure broadband is affordable for all New Yorkers and improve access to and quality of telehealth, as well as multi-sector partnerships to help New York's workforce recover from the COVID-19 crisis and support
arts workers who are vital to the state's culture and economy.

The Commission is chaired by Eric Schmidt, co-founder of Schmidt Futures, and comprises 16 Commissioners from across the state focused on leveraging technology to build back a better and more resilient New York with greater opportunity for all. Schmidt Futures supported the Commission's efforts in collaboration with a team from Governor Cuomo's office.

## Ensuring Universal Access to Affordable, High-Speed Internet

The Commission reported to Governor Cuomo that equal access to affordable, high-speed internet connectivity is a prerequisite to building back a better and more equitable New York. Inspired by the Commission's findings, Governor Cuomo proposed a first-in-the-nation mandate that internet providers offer a low-cost, high-speed internet plan to all low-income households. To bridge the gap during the COVID-19 emergency, Schmidt Futures and the Ford Foundation will launch an emergency fund to pay for internet subscriptions for students who cannot afford them. The State will partner by expediting existing funding to help school districts purchase laptops, tablets, and other remote learning tools.

Governor Cuomo also introduced measures to promote broadband competition and consumer protection, including creating a "dig once" policy to facilitate fiber build-out and establishing a universal "broadband disclosure" that requires internet providers to clearly state all charges. Learn more here.
"New York can shine a light on what could be possible if we had a robust, diverse, competitive market to deliver affordable, fast broadband to every single home and business. This is a first and crucial step in building back a better and more just New York." Darren Walker, President of the Ford Foundation and Co-Chair of the Reimagine New York Commission's Connectivity Working Group

## Introducing Comprehensive Telehealth Legislation

Based on the Commission's recommendation, Governor Cuomo also announced comprehensive telehealth policy reform to expand access to and quality of telehealth services. The Governor's proposal would expand coverage and reimbursement for telehealth, modernize outdated regulatory limitations on the technology, and take specific steps to expand the availability of tele-care for individuals seeking treatment for mental health and substance abuse issues. This suite of regulatory and statutory changes is complemented by several initiatives to support patients and providers as they navigate telehealth services, for example through expanding training resources for providers. In partnership with the Commission, Schmidt Futures is supporting an innovative telehealth facilitator program conducted by AIRnyc and Mt. Sinai Health Partners that aims to improve comfort with and access to telehealth for underserved populations. Learn more here.

## "We can unlock the potential of telehealth going forward by changing the ways in which

New Yorkers access healthcare. This starts with comprehensive policy changes that give providers and patients greater flexibility to use telehealth as they deem appropriate." Martha Pollack, President of Cornell University and Co-Chair of the Reimagine New

York Commission's Telehealth Working Group

## Improving Workforce Development in Partnership with Employers

Governor Cuomo announced a suite of programs that will help vulnerable workers to recover from the COVID-19 pandemic and ensure employers play a role in improving workforce development opportunities. Together with the Reimagine New York Commission, the State announced an innovative "Pathways Pledge" intended to make workforces more inclusive and expand access to training and meaningful career paths for lower-income workers. Learn more here.

Already, 16 employers, representing more than 120,000 workers in New York, have signed the pledge. The founding employers are IBM, Chobani, Con Edison, Google, JPMorgan

Chase, Mastercard, AIG, Memorial Sloan Kettering, Montefiore, Globalfoundries, TEKsystems, Loretto, Cognizant, Clarkson University, Berkeley College, and Athenex.
"Jump-starting New York's economic recovery depends on creating new career
opportunities for those hit hardest by the pandemic, especially New Yorkers without a college degree. That's why I'm encouraging all New York companies to adopt the Pathways

Pledge, which commits employers to hire people based on their skills, not just their
degrees." - Ginni Rometty, Former Chairman, President, and CEO of IBM and Co-
Chair of the Reimagine New York Commission's Work Working Group

## Supporting New York's Vital Arts and Culture Workforce

Developed in partnership with the Commission, the Andrew W. Mellon Foundation and New York State announced a Creatives Rebuild Initiative. This initiative will put back to work 1,000 artists who have been impacted by the crisis and will invest in dozens of small arts organizations, in recognition of the critical role that the arts play in sustaining the cultural and economic lifeblood of New York. Learn more here.

## The Path Forward

In the coming months, the Reimagine New York Commission will support implementation of these and other initiatives critical to building back better in New York, including through the establishment of a pooled philanthropic fund. Further announcements from the Commission will be posted on its website.

In the meantime, for more detail on the State of the State, see the full book here.

Sincerely,
Schmidt Futures Team

--
(M) (b) (6) |(b) (6)


You received this message because you are subscribed to the Google Groups "Commission SF

Internal Team" group.
To unsubscribe from this group and stop receiving emails from it, send an email to commission-sf-internal-team+unsubscribe@schmidtfutures.com.
To view this discussion on the web visit
>https://groups.google.(b) (6)

## [EXTERNAL] Office of Eric Schmidt (Dinner Feb 22)

| From: | ES Team (b) (6) |
| :--- | :--- |
| To: | "Lo, Kevin C. EOP/OSTP" (b) (6) |
| Date: | Tue, 16 Feb 2021 18:09:54-0500 |

Hi Kevin,

First and foremost, nice to "meet" you.

Eric Schmidt, whom Dr. Lander knows as a friend and through the Broad Institute, may be in DC the evening of Monday, February 22 and wondered if Dr. Lander might be available for dinner anytime after 6:30pm ET?

Thank you,
Tracy

## RE: [EXTERNAL] Office of Eric Schmidt (Dinner Feb 22)

From: $\quad$ "Lo, Kevin C. EOP/OSTP" (b) (6)
To: ES Team < (b) (6) >
Date: Wed, 17 Feb 2021 11:52:37-0500

Hi Tracy,

Eric L. would be happy to meet for dinner. He should be available starting at $6: 45 \mathrm{pm}$ et. Please let me know when you have more information and I'll pass along.

Thanks so much,
Kevin

Kevin Lo (he/him)
Special Assistant
Office of Science and Technology Policy
Executive Office of the President
(b) (6)

Cell: (b) (6)

From: Lo, Kevin C. EOP/OSTP
Sent: Tuesday, February 16, 2021 6:16 PM
To: 'ES Team' (b) (6)
Subject: RE: [EXTERNAL] Office of Eric Schmidt (Dinner Feb 22)

Hi Tracy,

Thanks so much for reaching out. I'll circle back tomorrow and let you know!

Best,
Kevin

Kevin Lo (he/him)
Special Assistant
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From: $\quad$ "Lo, Kevin C. EOP/OSTP"(b) (6)
To: $\quad$ ES Team(b) (6)
Date: $\quad$ Wed, 17 Feb 2021 18:22:44-0500
Sounds good!
Kevin Lo (he/him)
Special Assistant
Office of Science and Technology Policy
Executive Office of the President
(b) (6)
Cell:(b) (6)
From: ES Team(b) (6)
Sent: Wednesday, February 17, 2021 6:05 PM
To: Lo, Kevin C. EOP/OSTP(b) (6)
Subject: Re: [EXTERNAL] Office of Eric Schmidt (Dinner Feb 22)
Wow, thanks for taking care of restaurant! :-)

Eric will probably be bringing another person, so reservation for 3 please.

On Wed, Feb 17, 2021 at 5:58 PM Lo, Kevin C. EOP/OSTP(b) (6) wrote:

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By the way, my cell is (b) (6) in case of any last minute changes.

Thank you,
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On Wed, Feb 17, 2021 at 12:24 PM Lo, Kevin C. EOP/OSTP(b) (6) > wrote:
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Date: $\quad$ Wed, 17 Feb 2021 17:58:18-0500
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Sent: Wednesday, February 17, 2021 5:45 PM
To: Lo, Kevin C. EOP/OSTP [Kevin.C.Lo@ostp.eop.gov](mailto:Kevin.C.Lo@ostp.eop.gov)
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| :--- | :--- |
| Date: | Wed, 17 Feb 2021 11:50:24-0500 |

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Office of Science and Technology Policy
Executive Office of the President
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To: "Lo, Kevin C. EOP/OSTP" (b) (6)
Date: Fri, 19 Feb 2021 13:51:06 -0500
7:30pm next Mon., Feb 22 confirmed. Let me know best address.
Eric Schmidt - no seafood
Michelle Ritter - no pork
On Wed, Feb 17, 2021 at 6:22 PM Lo, Kevin C. EOP/OSTP(b) (6)
wrote:
    Sounds good!
    Kevin Lo (he/him)
    Special Assistant
    Office of Science and Technology Policy
    Executive Office of the President
    (b) (6)
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Subject: Re: [EXTERNAL] Office of Eric Schmidt (Dinner Feb 22)

Hi Kevin,

I think I can get Eric S to DC in time for a 7:30pm EST dinner next Mon., Feb 22. He'll be flying into IAD.

Can you recommend a restaurant or location to meet? I'll be booking him a hotel in DC.

By the way, my cell is (b) (6) in case of any last minute changes.

Thank you, Tracy

On Wed, Feb 17, 2021 at 12:24 PM Lo, Kevin C. EOP/OSTP (b) (6) wrote:

Yup, done!

Kevin Lo (he/him)
Special Assistant
Office of Science and Technology Policy
Executive Office of the President
(b) (6)

Cell: (b) (6)

From: ES Team < (b) (6)
Sent: Wednesday, February 17, 2021 12:05 PM
To: Lo, Kevin C. EOP/OSTP (b) (6)
Subject: Re: [EXTERNAL] Office of Eric Schmidt (Dinner Feb 22)

Great! Can you block in his calendar for now until I can work on logistics on my end?

On Wed, Feb 17, 2021 at 11:52 AM Lo, Kevin C. EOP/OSTP (b) (6) wrote:

Hi Tracy,

Eric L. would be happy to meet for dinner. He should be available starting at $6: 45 \mathrm{pm}$ et. Please let me know when you have more information and l'll pass along.

Thanks so much,
Kevin

Kevin Lo (he/him)

Special Assistant

Office of Science and Technology Policy

Executive Office of the President
(b) (6)

Cell: (b) (6)

From: Lo, Kevin C. EOP/OSTP
Sent: Tuesday, February 16, 2021 6:16 PM
To: 'ES Team' < (b) (6)
Subject: RE: [EXTERNAL] Office of Eric Schmidt (Dinner Feb 22)

Hi Tracy,

Thanks so much for reaching out. I'll circle back tomorrow and let you know!

Best,

Kevin

Kevin Lo (he/him)

Special Assistant

Office of Science and Technology Policy

Executive Office of the President
(b) (6)

Cell.(b) (6)

From: ES Team (b) (6)
Sent: Tuesday, February 16, 2021 6:10 PM
To: Lo, Kevin C. EOP/OSTP < (b) (6)
Subject: [EXTERNAL] Office of Eric Schmidt (Dinner Feb 22)

Hi Kevin,

First and foremost, nice to "meet" you.

Eric Schmidt, whom Dr. Lander knows as a friend and through the Broad Institute, may be in DC the evening of Monday, February 22 and wondered if Dr. Lander might be available for dinner anytime after 6:30pm ET?

Thank you,

Tracy
RE: [EXTERNAL] Office of Eric Schmidt (Dinner Feb 22)
To: ES Team (b) (6)
Date: ..... Fri, 19 Feb 2021 17:47:43-0500
Hi Tracy,Address is 1350 R St NW
Kevin Lo (he/him)
Special Assistant
Office of Science and Technology Policy
Executive Office of the President
(b) (6)
Cell: (b) (6)
From: ES Team (b) (6)
Sent: Friday, February 19, 2021 1:51 PM
To: Lo, Kevin C. EOP/OSTP (b) (6)
Subject: Re: [EXTERNAL] Office of Eric Schmidt (Dinner Feb 22)
7:30pm next Mon., Feb 22 confirmed. Let me know best address.
Eric Schmidt - no seafood
Michelle Ritter - no pork
On Wed, Feb 17, 2021 at 6:22 PM Lo, Kevin C. EOP/OSTP (b) (6)
Sounds good!
Kevin Lo (he/him)
Special Assistant
Office of Science and Technology Policy
Executive Office of the President
(b) (6)

## Cell: (b) (6)

From: ES Team (b) (6)
Sent: Wednesday, February 17, 2021 6:05 PM
To: Lo, Kevin C. EOP/OSTP (b) (6)
Subject: Re: [EXTERNAL] Office of Eric Schmidt (Dinner Feb 22)

Wow, thanks for taking care of restaurant! :-)

Eric will probably be bringing another person, so reservation for 3 please.

On Wed, Feb 17, 2021 at 5:58 PM Lo, Kevin C. EOP/OSTP < (b) (6) wrote:
I'll circle back tomorrow with restaurant/location! And noted.

Thanks so much,
Kevin

Kevin Lo (he/him)
Special Assistant
Office of Science and Technology Policy
Executive Office of the President
(b) (6)

## Cell: (b) (6)

From: ES Team (b) (6)
Sent: Wednesday, February 17, 2021 5:45 PM
To: Lo, Kevin C. EOP/OSTP (b) (6)
Subject: Re: [EXTERNAL] Office of Eric Schmidt (Dinner Feb 22)

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Kevin Lo (he/him)
Special Assistant
Office of Science and Technology Policy
Executive Office of the President
(b) (6)

Cell (b) (6)

From: ES Team (b) (6)
Sent: Wednesday, February 17, 2021 12:05 PM
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Kevin Lo (he/him)
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Office of Science and Technology Policy

## Executive Office of the President

## (b) (6)

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Kevin

## Kevin Lo (he/him)

Special Assistant
Office of Science and Technology Policy
Executive Office of the President
(b) (6)

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Sent: Tuesday, February 16, 2021 6:10 PM
To: Lo, Kevin C. EOP/OSTP (b) (6)
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Thank you,
Tracy

## [EXTERNAL] Fwd: Post-Apex March 8

| From: | Eric S Lander (b) (6) |
| :--- | :--- |
| To: | "Lander, Eric S. EOP/OSTP" (b) (6) |
| Date: | Fri, 12 Mar 2021 03:47:41-0500 |

Sent from my iPhone

Begin forwarded message:

From: Thomas Kalii (b) (6) >
Date: March 12, 2021 at 12:47:26 AM EST
To: Zoe Weinberg (b) (6)
Cc: Post-Apex (b) (6)
Subject: Re: Post-Apex March 8

Here's the CEPI $\$ 3.5$ billion plan to reduce the time to vaccines to 100 days that Rajeev mentioned.
>https://cepi.net/wp-content/uploads/2021/03/CEPI_3.5_billion_investment_case_10032021.pdf<

On Sun, Mar 7, 2021 at 2:34 PM Zoe Weinberg (b) (6) > wrote:
All,

Tomorrow we'll be joined by Rajeev Venkayya, head of vaccines for Takeda and former special assistant to the president for biodefense, where he oversaw the National Strategy for Pandemic Influenza. Rajeev will be discussing long-term strategy for combatting pandemic threats, and has asked that I pass along the below background \& attached materials. We'll also have our regular briefing from Chris \& Ronit (slides attached).

See you tomorrow-
Zoe

Topic: Taking the pandemic threat off the table

Background: CEPI (Coalition of Epidemic Preparedness Innovations) has played a key role in pandemic vaccine development and the creation of COVAX to support equitable access to pandemic vaccines. This week, CEPI will release its strategy for the next five years, which will have a significant focus on pandemic preparedness. This discussion will focus on the ambitions of that strategy and the concepts and technologies underpinning it.

Readaheads (optional):

1. Another Pandemic Need Never Happen: Richard Hatchett in FT (attached)
2. Concepts to be captured CEPI's new strategy (and for more background on CEPI): >https://cepi.net/covid-19-what-next/<
3. Promoting versatile vaccine development for emerging pandemics: Barney Graham \& Nancy Sullivan in Nature Vaccines (attached). Note - this is a technical article that was published two years before the start of the pandemic. I'm providing it for those who are interested in the scientific basis of the prototype pathogen approach that we'll discuss.

You received this message because you are subscribed to the Google Groups "Post-Apex" group.

To unsubscribe from this group and stop receiving emails from it, send an email to postapex+unsubscribe@schmidtfutures.com.
To view this discussion on the web visit
>https://groups.google.com/a/(b) (6)

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To view this discussion on the web visit >https://groups.google.com(b) (6)

## [EXTERNAL] [Reimagine NY] Final report now released

| From: | Harrison Marks (b) (6) | $>$ |
| :--- | :--- | :--- |
| To: | "Lander, Eric S. EOP/OSTP" (b) (6) |  |
| Cc: | Jesse Marks (b) (6) |  |
| Date: | Wed, 31 Mar 2021 18:31:06-0400 |  |
| Eric, |  |  |

I hope you all are well! I am writing to share with you that the Reimagine New York Commission's final report, Action Plan for a Reimagined New York, was released this afternoon.

Most of all: Thank you. Thank you for meeting with us and sharing your insights as we shaped the thinking behind this 40-page Action Plan that provides findings and recommendations to reimagine a more equitable and resilient New York State.
One last request (only if you are up for it!): We would be thrilled if you could help amplify the announcement to your networks. Below is a summary of the report and example language to share via Twitter, Linkedin, email, or otherwise.
Action Plan for a Reimagined New York
Focused on three critical areas-connectivity, telehealth, and work-the Reimagine New York Commission is advancing 21 actionable recommendations, the majority of which are already being implemented by New York State and external partners.
At the heart of these findings is the commitment to connectivity—a truth that's been revealed by this pandemic through the learning losses, worker displacement, and lack of access to health care. You'll find connectivity is foundational to many of the recommendations put forward in the Commission's final report.

## Draft Social Media Captions

- General: The Reimagine NY Commission just released its final report with initiatives for universal connectivity, telehealth access \& workforce opportunities. The majority of the recommendations are already being implemented. Read the \#ReimagineActionPlan here: >https://forward.ny.gov/reimagine-new-york-commission<
- Workforce-specific: Leading NY employers signed a pledge to increase equitable worker training. \#SmallBiz gained access to resources to succeed in the digital economy. Read about these initiatives \& more in the Reimagine NY Commission's \#ReimagineActionPlan to build back better from COVID: >https://forward.ny.gov/reimagine-new-york-commission<


## Resources

- Full Report (linked here)
- One-Page Summary (linked here)
- Graphics for Social Media (link to the Google Folder with graphics)

Again, thank you!
Harrison, on behalf of the Reimagine New York Commission Team

Harrison Marks
155 W 23 St, llth Floor
New York, NY 10011
(M) (b) (6)

## [EXTERNAL] Re: OSTP orientation!

| From: | Thomas Kalil (b) (6) |
| :--- | :--- |
| To: | "Matheny, Jason G. EOP/OSTP" (b) (6) |
| Cc: | "Schmoyer, Michael W. EOP/OSTP" (b) (6) |
| Date: | Sun, 18 Apr 2021 10:56:46-0400 |
| Attachments | magic-laptop-q\&a.docx (18.96 kB); multi-agency-research.docx (20.9 kB); policy- |
| $:$ | entrepreneurship.pdf (249.85 kB); policy-readiness-062818.docx (20.09 kB) |

Absolutely - I'd be delighted to! Also - let me know if you'd ever be interested in catching up in general.

I also did a 10-minute video that is relevant - >https://www.youtube.com/watch?v=MJkhH83Bw4A<, and memos on "magic laptop" thought experiment, designing multi-agency research initiatives, policy entrepreneurship, and increasing the maturity of a policy idea.

One thing that might be useful is to have me play "20 questions" with an OSTP staffer to see if I can help them refine their idea - e.g. what do they believe that is motivating their idea, what would constitute success, what are the most relevant policy tools, what challenges and obstacles might they have to overcome, what might they consider doing next, etc?

Tom

On Sun, Apr 18, 2021 at 7:23 AM Matheny, Jason G. EOP/OSTP (b) (6) wrote:

Tom,

You and "Getting Things Done in OSTP" have a huge fan club here. Would you be willing to do a 1 hr Zoom with OSTP staff to talk about how they can succeed here?

Best wishes,

Jason

Draft June 28, 2018

## Tom Kalil

https://80000hours.org/podcast/episodes/tom-kalil-government-careers/

## Increasing the "policy readiness" of ideas

NASA and the Defense Department have developed an analytical framework called the "technology readiness level" for assessing the maturity of a technology -- from basic research to a technology that is ready to be deployed.

The premise of this memo is that it is also possible to increase the "policy readiness" level of an idea. This work can increase the chances that (1) a policy-maker will embrace an idea; (2) the idea will be successfully implemented; and (3) that the idea is "worthy" of being implemented. Examples of the work that can be done include:

1. Clear description of the problem or opportunity
2. Root cause analysis - what are the drivers of the problem?
3. Past and current efforts to address the problem

- Learning from history. If past efforts to address the problem have not been successful, what's different?

4. Learning from comparative perspective (e.g. what can we learn from the experiences of other countries?)
5. Rationale for government involvement and policy change, such as market failure, problems associated with existing policy
6. Key metrics used to evaluate progress
7. Identification and evaluation of potential policy options

- Legislation, budget, different allocation of existing budgetary resources, regulation, executive action, personnel, coalition-building of different organizations
- Evidence to support different options
- Logic model - why is it likely that a given policy change will have the desired impact?
- Benefit/cost ratio - ideally expressed as "outcome per dollar."
- Feasibility (political, administrative)
- Potential unintended consequences of policy

8. Draft the documents that are needed to (a) facilitate a decision on the idea; and (b) implement the idea, e.g.:

- Decision memo
- Executive Orders or Presidential Memoranda
- Budget proposal
- Strategy document
- Legislation
- Notice of Proposed Rulemaking
- Charter for inter-agency working group
- Job descriptions for new recruits
- Request for Proposals
- Descriptions of potential "commitments" from companies, non-profits, universities, philanthropists and foundations, state and local governments, investors, etc.

9. Critique of the idea by experts, practitioners, and stakeholders

- Can the idea be improved?
- Are there changes to the idea that need to be made to accommodate the concerns of important stakeholders?
- What are responses to critiques?
- What are the drivers of disagreements (e.g. areas of uncertainty, different interpretation of data, ideological disagreements, clashing interests of relevant groups)?
- Are there creative ways to reconcile differences of opinion and differences of interests?

10. Pilots and demonstrations to generate evidence of effectiveness, learn from real-world policy development

- "Agile" policy development - learning lessons from human-centered design and agile software development
- Pilots could be at different levels of government (e.g. federal, state, local)


## 11. If legislation

- Draft, introduce, and hold hearings on legislation
- Identify potential vehicles, such as legislation that enjoys bipartisan support (e.g. National Defense Authorization Act)

12. Communications strategy

- Most compelling language for describing the problem and the proposed solution
- Endorsements from opinion leaders, experts, groups
- Material for a speechwriter (stories, examples, quotes, facts and figures) or op-ed
- $\quad$ Q\&A - responses to most difficult critiques


## Democratizing the "idea generation" process

There are a series of steps that former policy-makers and think-tanks could take to increase the number of people that can meaningfully participate in the idea generation process. People who have expertise that is relevant to a particular policy domain might be able to describe a problem or identify a goal, but are less familiar with the tools that the government might use to address it.

1. Create library of examples of policy documents (e.g. decision memos, the documents that implement policy decisions)
2. Provide summary of different policy instruments (e.g. strengths and limitations, when and under what circumstances might one use this, canonical examples of uses of this policy instrument, etc.), with annotated bibliography for people who are interested in learning more - e.g:

- Competitively awarded grant programs
- Block or formula grants
- R\&D
- Information interventions to help people and organizations make better decisions
- Entitlements
- Loans, loan guarantees, capital stacks
- Tax policy (rates and base, simplification, tax incentives, taxes designed to address negative externalities such as price on carbon)
- Creation of civil or criminal penalties
- Increased enforcement of existing laws
- Personnel and personnel policy
- Performance management (e.g. continuous improvement)
- Human-centered design
- Improve/create digital services
- "Commitments" events
- Public-private partnerships
- Goal-setting (we will accomplish X by date Y), including "moonshots" or stretch goals
- Regulation, deregulation, regulatory reform, regulatory "sandboxes"
- International treaties
- Federal, state, local partnerships
- Mechanism design (design of markets that require matching as opposed to using prices - e.g. kidney donations)
- Encouraging self-regulation through the creation of codes of conduct
- Incentive prizes, milestone payments, Advance Market Commitments
- Evidence-based policy (tiered-evidence grant-making, "preference points" for applicants that build or use evidence, agency-wide learning agenda, expanding access to administrative data, pay for success, etc)
- Open data (make data available in machine-readable format to encourage new services)
- Creation, elimination, or restructuring of organizations
- Behavioral interventions
- Procurement
- Efforts to improve coordination of different organizations
- Advisory Committee

3. Interview experts in different policy domains to see if there are policy tools that are useful but have not been adopted outside of a particular policy domain (e.g. Advance Market Commitments have been used in global health but not outside of global health).

Draft April 11, 2021
Tom Kalil
Comments/questions welcome: (b) (6)

## National research initiatives

Summary: In some instances, the Executive Branch and Congress have worked together to promote national research initiatives. Examples include the National Nanotechnology Initiative, the Networking and Information Technology Research and Development program, the U.S. Global Change Research Program, the BRAIN Initiative, and the Materials Genome Initiative.

Although there is no "one size fits all" - some common elements include:

- An effort by OMB to determine how much the government is investing in this area, broken out by agency, and (sometimes) by topic. This is called a "cross cut." For example, the government's investment in IT R\&D is categorized in 11 different topics, such as AI, robotics, high-performance computing, cybersecurity, and high-speed networking.
- Some inter-agency forum, often under the auspices of OSTP's National Science and Technology Council, where agencies share information on current activities, look for opportunities for multi-agency collaboration, and develop agendas for future research. For the list of activities of the NSTC during the Obama Administration - see https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/NSTC/nstc org_ chart 083116.pdf. Not all of these led to multi-agency research initiatives.
- Priority-setting in an OMB/OSTP memo.
- Multi-year authorization for the effort.
- Some initiatives (particularly those authorized by Congress) have a dedicated interagency program office, others are more informal and rely on volunteer, grassroots efforts by agency program managers.
- Periodic review by external organizations such as the President's Council of Advisors on Science and Technology or the National Academies of Science, Engineering, and Medicine.


## Benefits

These multi-agency initiatives have some costs (staff of inter-agency program offices, time of EOP and OMB staff, agency time and effort, burden of Congressional reports if these are required), but there are also some benefits.

- Allows the Administration to take a "whole of government" perspective - and create a division of labor based on the missions and strengths of different agencies.
- Allows the Administration to provide a targeted increase in a particular area of research such as $\mathrm{AI} / \mathrm{ML}$, quantum computing, etc.
- Creates a forum for sharing information, eliminating unnecessary duplication of effort, fostering inter-agency collaboration, and identifying and addressing gaps in the federal government's research portfolio.
- Allows OSTP or other EOP components to tap the technical expertise of the science agencies on policy-related topics.
- Increases the chances that an initiative will survive the transition between Administrations. This is important because research initiatives can take a long time to pay off. For example, the government began investing in what later became the Internet in 1969.


## Limitations

- Even if the Administration develops a multi-agency plan, this may have limited impact on the decisions of the 12 Appropriations subcommittees.
- Unless there is a senior White House champion, the inter-agency committees can devolve into "talk shops" that have little or no impact on the Administration's budgets or policies.
- For initiatives that require formal "cross-cuts," there may be a limit to the number of them that OMB is able to do.


## Future directions

- Work with OMB to set aside some amount of funding that can be added to multi-agency initiatives as part of "passback."
- Work with Congress to create a "trust fund" in the infrastructure bill for specific multiagency initiatives, with the proviso that agencies can't obligate funding until the Administration has produced a strategy. Example would be a bioeconomy initiative, which was developed during the transition. Legislation that would authorize a bioeconomy initiative has been introduced by both the House and Senate.
- Determine whether to continue multi-agency initiatives started during the Obama Administration (BRAIN Initiative, Materials Genome Initiative), and consider launching new ones.
- Make it easier for agencies to work together on national research agendas. (Sometimes OMB is reluctant to allow OSTP to publish these since it might imply an Administration commitment to fund them. This could be addressed by agreeing on a disclaimer.)


## Appendix A: Questions that can inform the design of a research initiatives

## Context

What is the shared context that is helpful to create with policy-makers?
This might be (1) facts about the world (there is strong evidence that X is true); (2) analytical frameworks or models that are critical to understanding the idea (the private sector will underinvest in X because of "market failure" Y ); (3) normative beliefs (achieving X would be a good thing); (4) predictions - in a business as usual scenario, X is likely to be true in Y years; and (5) theories of change - e.g. if X does Y , then Z is likely to occur.

## Goal

What is the goal or goals associated with the research initiative? Are there some short or medium-term metrics associated with success?

For a non-technical audience, is there a way to describe the goal in an accessible way? For example, President Clinton talked about the potential to use nanotechnology to store the Library of Congress in a device the size of a sugar cube, detect cancerous tumors before they are visible to the human eye, and make materials that are 10X stronger than steel and a fraction of the weight.

Why is achieving the goal important from a scientific and societal point of view?

## Why now?

What has changed about the world (e.g. increased fundamental understanding, technological change) that leads us to believe that achieving a given goal is now within reach?

Is achieving the goal more urgent?

## What are examples of current barriers to achieving the goals, and what are promising research directions to overcoming these barriers?

Some government research programs are successful because they invest in a portfolio of approaches to achieve a given goal.

Which agency or agencies should take the lead on this research initiative? Why are they the right fit, given their mission and capabilities?

## What's the budget?

Is there a bottom-up rationale for a particular funding level or useful comparison?
It is also useful to develop low, medium and high scenarios, with some sense of prioritization.

## What mix of funding modalities and performers would be most appropriate? Are there particular tactics that may have an outsized impact?

See below for examples of funding modalities and tactics used by program managers.

What has already been written that would be useful background for policy-makers and the leadership of the relevant science agencies, such as workshop reports or articles on important advances?

Are there any existing (or potentially recruitable) program managers that would do a good job leading an initiative in this area?

## Appendix B: Examples of different types of research funding

1. Scale and duration of funding (individual Pls, small teams, larger centers and institutes, Focused Research Organizations.)
2. Performer (academia, industry, national labs) or specific effort to foster collaboration across sectors
3. Type of research (fundamental, applied, technology development, pilot or testbed)
4. Style of research management

- Strong program manager. Program manager identifies specific goals, choses a mix of performers most likely to achieve the goal, encourages collaboration between researchers, more likely to end funding for researchers that are under-performing.
- Investigator-driven research program. Broad solicitation. Selection done primarily by peer review. Little or no active research management.

5. Research infrastructure used by multiple research groups - such as national user facilities
6. Information technology component

- Data management
- Software for modeling and simulation
- IT infrastructure (high-performance computing, cloud, etc.)

7. ELSI (ethical, legal, societal implications)
8. Education - e.g. graduate training programs like NSF's NRT program
9. International collaboration

Beyond research - other types of support

1. Incentive prizes
2. Other "pull" or demand-side interventions - procurement, milestone payments, challenge-based acquisition, Advance Market Commitments
3. White House "call to action" to elicit private sector commitments - in the form organization A commits to take action B to help achieve goal C
4. Research commercialization - entrepreneurial education for researchers, support for incubators or accelerators

## Examples of tactics used by program managers

- Invest in massive parallelism for characterization, imaging, synthesis and fabrication
- Encourage modularity and open interfaces
- Learn from Mother Nature, either literally or as a source of inspiration
- Lower the barriers to innovation by providing shared facilities and resources
- Identify opportunities to move from "trial and error" to more predictive approaches
- Develop high-level languages to increase the productivity of designers and programmers
- Identify opportunities to solve "chicken-egg" problems (e.g. I won't invest in solving problem A unless I know that someone else is solving complementary problem B)
- $\quad$ Co-design X and Y
- $\quad$ Reduce the Size, Weight, Power and Cost of X
- Take a systems, techno-economic or "total cost of ownership" perspective to ensure that a research community is not overly fixated on addressing 10 percent of the problem
- Bring together different communities that have not worked together and provide a shared problem
- Foster agreement on a metric for measuring progress in a technical field
- Demonstrate that a new insight from physics or some other science can be reduced to practice
- Reframe a problem why being clearer on the "what" and more open to new ideas on the "how."
- Engage in intellectual arbitrage. Expose a technique or approach from community A to community B
- Promote combinatorial innovation by making it easier to combine technological building blocks


# POLICY ENTREPRENEURSHIP AT THE WHITE HOUSE 

GETTING THINGS DONE IN LARGE ORGANIZATIONS

THOMAS KALIL


#### Abstract

Policy entrepreneurs "are individuals who through their creativity, strategy, networking, and persuasive argumentation are able to bring new policy ideas into the open and promote policy change."


-Michael Mintrom
For a total of 16 years, I had the honor and privilege of working at the White House, first for President Clinton (1993-2001) and later for President Obama (2009-2017). My colleagues and I had the opportunity to help design, launch, and sustain dozens of science and technology policy initiatives. We launched major research initiatives to create the "industries of the future," such as robotics and advanced materials. We worked with Congress to give every agency the authority to support incentive prizes of up to $\$ 50$ million, and to make it easier for startups to raise capital and go public. We built coalitions of government agencies, companies, foundations, universities, and nonprofits to prepare 100,000 K-12 STEM teachers, foster more vibrant startup ecosystems all over America, advance the Maker Movement and accelerate the commercialization of federally funded research. ${ }^{1}$ On a good day we were able to serve as "policy entrepreneurs," which involved generating or spotting new ideas and taking the steps needed to identify and evaluate policy options, support a sound decisionmaking process, ensure implementation, and monitor the effectiveness of the president's policies and initiatives.

I believe that individuals who have had the opportunity to serve as policy entrepreneurs acquire tacit knowledge about how to get things done. This knowledge is difficult to share because it is more like
learning to ride a bicycle than memorizing the quadratic formula. Furthermore, the knowledge, skills, and heuristics policy entrepreneurs acquire is often dependent on the particular context they are
operating in. The intellectually honest answer to most questions about politics and policy is either "It depends" or "I'm not sure." Nevertheless, I think there is value in policy entrepreneurs and public servants sharing what they have learned.

I have a number of reasons for reflecting on what I've learned and attempting to share it. First, I have found public service very rewarding. My team and I were able to get things done that I believe are consequential and good for America's longterm future. Since most media coverage of government focuses on its dysfunctional elements (e.g., scandal, partisan gridlock, waste and inefficiency), many people never consider doing a "tour of duty" in government at some point in their career. Second, policy entrepreneurs could play a role in increasing the effectiveness of public servants who are just starting their career. They could do this by collaborating with public policy schools or fellowship programs like the Presidential Innovation Fellowship, the Presidential Management Fellowship, and the American Association for the Advancement of Science. Finally, policy entrepreneurs can help people who are advocating for change in government policy by sharing what they have learned. By sharing this information, the federal government will be less opaque and easier to understand.

This essay is a down-payment on my effort to share what my team and I have learned, and my attempt to entice the reader to consider public service at some point in their career. While some of the observations I share in this essay are specific to the White House, others may have broader relevance for aspiring changemakers working in large organizations. They also may be useful to individuals seeking to build coalitions and exert influence in ways that exceed their formal authority and require the mobilization of resources not directly under their control. That said, most of what follows is my personal opinion, so your "mileage" may vary.

I begin by describing my path to public service. To offer additional context, I describe some particulars of the internal functioning of the White House. I then offer some rules of thumb for getting things done that I believe are relevant for work in large, complex organizations, including but not limited to the U.S. federal government. I discuss various policy instruments that can be combined in different ways to move an agenda forward, and describe some lessons learned that policy entrepreneurs might wish they'd known on day one.


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## The National Nanotechnology Initiative

In the late 1990 s, I began to work with a group of federal program managers interested in nanoscale science and engineering, including the National Science Foundation's Mike Roco and the Navy's Jim Murday. At the nanoscale (a nanometer is one-billionth of a meter), materials, devices, and structures have novel and potentially useful properties (electrical, optical, mechanical, chemical, magnetic, etc.). Working together, we made the case for increased federal investment in this exciting area of research. For example, we argued that realizing the full potential of nanotechnology would require long-term research beyond the time horizons of individual firms and that the federal government could play an important role. On January 21, 2000, President Clinton gave a speech at Caltech in which he proposed almost doubling the federal investment in nanoscale science and engineering.

Since then, President Clinton's National Nanotechnology Initiative has resulted in \$23 billion in research in nanoscale science and engineering, and the development of technological breakthroughs such as lighter, stronger materials and smart anti-cancer therapeutics that destroy tumors while leaving healthy cells untouched. Dozens of other countries have started similar initiatives, and universities have created multidisciplinary institutes, centers, and graduate programs to pursue research and education in nanotechnology.

## A PATHWAY TO PUBLIC SERVICE

In 1987, I volunteered with the issues department of the Dukakis presidential campaign. A campaign is boot camp for policy wonks. Staffers in a campaign issues department learn how to gather and synthesize large amounts of information in a short period of time, write position papers and briefing memos, factcheck speeches and campaign ads, prepare candidates for debates, and manage outside networks of experts and advisors.

Although Dukakis lost in 1988, I and many of my friends from that campaign also worked on the 1992 Clinton campaign. As a result, I spent some time in Little Rock writing Clinton's position papers on science and technology. After the election, I was offered a position on the White House's newly created National Economic Council (NEC), where I had the privilege of helping to shape the national agenda for science and technology.

Over the eight years of the Clinton administration, I had the opportunity to work on a wide range of issues. My title evolved over time. I ended my tenure as the Deputy Assistant on Technology and Economic Policy, but my work focused consistently on how information and communications technologies could help us achieve other national goals. For instance, I was deeply involved in efforts to expand access to educational technology, which had four primary objectives: to connect every classroom to the Internet by 2000 , to ensure that teachers were as comfortable with a computer as they were with a chalk board, to encourage the development of high-quality online content, and to make sure that K-12 students had access to modern computers with multimedia capabilities. I pushed for the liberalization of Cold War export controls on computers, and also worked on bridging the digital divide. I was the principal White House advocate for the National Nanotechnology Initiative (see Text Box, "The National Nanotechnology Initiative"), and for an initiative to

## The BRAIN Initiative

One of the questions I often ask people is, "What ambitious goals should we aspire to meet in the $21^{\text {st }}$ century, in the same way we put astronauts on the moon and sequenced the human genome?" One person who had an answer to that question was Miyoung Chun of the Kavli Foundation. In late 2011, Miyoung had organized a workshop with a mix of researchers from neuroscience, nanotechnology, and synthetic biology. Researchers attending the workshop had concluded that there was an opportunity to do for neuroscience what the Human Genome Project had done for genetics. What was needed was an R\&D investment in new tools that would allow researchers to study the brain in action. In 2012, Miyoung and I worked to build a coalition of researchers, philanthropists, and federal agencies that were prepared to back this idea. In April 2013, President Obama unveiled his Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative, a multiagency "grand challenge" to accelerate understanding of the human brain. The BRAIN Initiative brings together the scientific community with federal and private funding partners to dramatically increase understanding of how the brain processes and encodes information. Five federal agencies have invested in the effort, with the Intelligence Advanced Research Projects Activity joining the Defense Advanced Research Projects Agency (DARPA), the National Institutes of Health, the National Science Foundation, and the Food and Drug Administration. For the BRAIN Initiative, we used the preparation of the president's budget to ramp up the federal investment from $\$ 100$ million in FY14 to more than $\$ 430$ million per year in FY17. We also expanded the coalition of organizations that were investing in the goals of the BRAIN Initiative, which included not only government agencies but companies, foundations, research universities, and nonprofits. As part of the 21 st Century Cures Act, Congress provided an additional $\$ 1.5$ billion to support National Institutes of Health participation in the BRAIN Initiative, bringing total public and private investment in the initiative to $\$ 3$ billion.
Research continues. In May 2017, researchers at Stanford and Caltech announced the development of new optical technologies that enable them to record across much of the neocortex of an awake mouse, which provides new insights into how the mammalian brain coordinates neural activity to complete voluntary behaviors. As Justin Sanchez, the DARPA program manager for this work, noted, "DARPA created the Neuro-FAST program to find new ways to see the brain, and the optical technologies we've developed now allow researchers to observe the brain in detail as it processes behavior." (http://www.darpa.mil/news-events/2017-05-18)
increase funding for long-term information technology R\&D.

During my time at the NEC, I learned the importance of developing relationships with people both inside and outside the government, and of serving as a "force multiplier" for their work. For example, one reason we were able to get so much done on educational technology is that we had great allies, including Linda Roberts, director of the Department of Education's

Office of Education Technology. My colleagues and I were able to support Linda by getting support from the president, including funding for educational technology in the president's budget, launching new initiatives with high-profile announcements, and celebrating progress. It would have been impossible to spend of all of my time on educational technology, given the portfolio of issues I was responsible for managing, but the

## The Structure and Purpose of the National Economic Council and the Office of Science Technology Policy

The National Economic Council (NEC) was created by President Clinton in January 1993 to coordinate economic policymaking processes within the White House. Located in the Office of Policy Development, it is a part of the Executive Office of the President. (EOP) Executive Order 12835, which established the NEC, lays out four principal functions:

- To coordinate policymaking for domestic and international economic issues
- To coordinate economic policy advice for the president
- To ensure that policy decisions and programs are consistent with the president's economic goals
- To monitor implementation of the president's economic policy agenda

The NEC is composed of department and agency heads whose portfolios have relevance for the U.S. economy. The NEC director coordinates the president's economic policy priorities across the administration. The hierarchy of titles for the NEC staff is inverse to most people's expectations; the director is the most junior position, followed by senior director, special assistant to the president, and deputy assistant to the president; the head of the NEC is an assistant to the president.

The White House Office of Science and Technology Policy (OSTP) was established by Congress in 1976. In addition to advising the president and the administration on the scientific and technical aspects of policy matters, OSTP coordinates interagency efforts on science and technology policy, assists with the annual analysis of federal R\&D budgets by the Office of Management and Budget, and offers expertise to inform presidential decisions with respect to federal policies, plans, and programs. The OSTP director under President Obama-also known as the president's science advisor-was Dr. John Holdren. OSTP plays a critical role in guiding "policy for science" (What investments in federal R\&D should the president prioritize?) and "science for policy" (How can the best possible science inform areas of policy such as arms control or energy and climate?).

OSTP has historically had four divisions: Science, National Security and International Affairs, Energy and Environment, and Technology. OSTP was also the home of President Obama's chief technology officer, a position held in turn by Aneesh Chopra, Todd Park, and Megan Smith.
administration was able to make progress on educational technology (and other S\&T policy issues) because we developed a network of partners inside and outside the government. These colleagues could generate ideas, implement initiatives the president had decided to support, and let us know if White House involvement was needed to keep our priorities on track.

Most recently, I served under President Obama as Deputy Director of the White House Office of Science and Technology Policy (OSTP) and Senior Advisor to the White House National Economic Council. In 2008, the Obama campaign asked me if I would be willing to lead the transition team for OSTP. In December 2008, President-elect Obama invited Dr. John Holdren to be his science advisor,
and Dr. Holdren asked me to serve as his deputy.

One thing that was different about my second tour of duty at the White House was that I was in a position to recruit and lead a team, which eventually grew to 20 OSTP staff members. Each member of my team was also collaborating with people in the White House, federal agencies, Congress, universities, foundations, companies, think tanks, professional societies, state and local governments, international organizations, etc. This significantly increased the number of policies and initiatives we were able to shape or launch using tools such as legislation, regulation, the preparation of the president's budget, proposing actions agencies could take using existing budgets and legislative authority, and public-private partnerships.

During my time at the White House, I recruited people to work at OSTP on a wide range of issues, including the following:

- Drafting and implementing President Obama's Strategy for American Innovation
- Inspiring more young people to excel in STEM education, computer science, and Maker-centered learning
- Identifying and pursuing the "moonshots" of the $21^{\text {st }}$ century, such as the President's BRAIN Initiative (see Text Box, "The BRAIN Initiative")
- Improving the environment for starting and growing a business in the United States, and increasing the diversity of America's entrepreneurial ecosystem
- Creating multiagency research initiatives in areas that had the potential to create the industries and jobs of the future, such as advanced manufacturing, the Materials Genome Initiative, the National Robotics Initiative, synthetic biology, data science, high-speed networks, next-generation wireless
technologies, and smart cities
- Using new insights from the behavioral sciences to achieve important policy objectives, such as encouraging members of the military to save more for the future
- Encouraging federal employees to use new approaches to solve problems and promote innovation, such as incentive prizes, crowdsourcing, and citizen science
- Harnessing science, technology, and innovation to meet administration goals in global development and global health
- Reducing the waiting list for organ transplants
- Strengthening U.S. leadership in the commercial sector
- Improving the regulatory environment for biotech entrepreneurs

After recruiting the members of my team, I adopted several strategies to increase their effectiveness. First, I gave them a great deal of autonomy and encouraged them to work on projects they found intrinsically motivating. I think intrinsic motivation is more effective at getting people to do their best work than micromanagement. Second, I tried to pass along what I had learned about getting things done. I would give new staff members suggestions about people to talk to, things to read, and tactics to try. Third, I was an advocate for their ideas. There are many "veto points" within the federal government, and I tried to help my staff if they had reached an impasse that required turning to senior-level decisionmakers to resolve. Finally, I fostered a collaborative environment. The members of my team genuinely enjoyed working together. They shared ideas, contacts, advice, and tactics, and were always willing to pitch in when someone on the team needed help with a project or was organizing a large White House event. When people ask me what I am most proud of
accomplishing during my service in President Obama's White House, it is definitely recruiting and empowering an amazing group of public servants and policy entrepreneurs. I am very proud of what they accomplished during President Obama's tenure, and am confident they will go on to do great things over the course of their careers.

## "INFLUENCE WITHOUT AUTHORITY" AS A JOB DESCRIPTION

I often tell people that "influence without authority" is one of the most valuable skills a White House staffer can have. That's because many of the things the White House wants to accomplish are ultimately done by someone else. The White House does not conduct scientific research, provide grants or contracts, deliver services to citizens, enforce the law, pass legislation, issue regulations, or provide appropriations to the federal government. Even when the president issues an executive order, his decisions are rarely self-executing and require implementation by one or more federal agencies.

One thought experiment that I used to pose to the members of my team is to imagine that they had 15 minutes with the president. If he thought that they had a compelling idea with strong evidence to support it and a solid implementation strategy, he was willing to pick up the phone and call anyone. If it was someone in the federal government, he could direct them to take some course of action. If it was someone outside the government, he could challenge them to do something.

My goal was to give the members of my team a sense of agency and the conviction that the status quo is changeable, not fixed and immutable. I also wanted them to appreciate the value of concreteness, to understand that things happen in the
world when individuals and organizations take concrete action in the pursuit of a goal. Effective policy entrepreneurs have the ability to identify who needs to do what to achieve their goals, which is particularly important for White House staff, given that most of what they accomplish will be implemented by someone else. For example, an OSTP staffer working on a national research initiative did not have a research lab in the White House, nor did they award grants and contracts to scientists. It usually meant they had persuaded the president to include funding for that research initiative in his budget, that Congress had approved the funding, and that designated agencies then used the funds to pursue the particular research goals.

Identifying who needed to do what to achieve a given goal (or, as we used to put it, "A does B so C") was only the first step. We also needed to answer questions such as:

- How likely was it that a given set of actors would be both willing and able to take the action we had proposed? For example, we couldn't ask an agency to take some action they didn't have the legislative authority to do, and we couldn't challenge a publicly traded firm to take some action that was contrary to the interests of its shareholders.
- If an organization was willing but not able to act, could we (or some other actor) relax the relevant constraint?
- If an organization was able but not willing to act, could we address their concerns by providing additional evidence or modifying the proposal?
- If our goal required that multiple individuals and organizations work together over an extended period of time, was there a forum where that collaboration could occur?

As discussed below, in order to exert influence without authority, OSTP staff
had to develop and maintain strong relationships with federal agencies, other White House policy councils, and external organizations such as companies, foundations, and nonprofits.

## The Critical Importance of Working Collaboratively with

## Agencies

OSTP couldn't have accomplished much without having strong relationships with key decisionmakers within federal agencies. Ideally these agencies would (a) react to the ideas OSTP proposed; (b) suggest ideas to us; and (c) implement the ideas we jointly agreed to pursue.

When these relations were working, they were based on mutual understanding, trust, candor, and reciprocity. White House staff understood the agency priorities, and vice versa. The agencies in turn believed in the White House commitment to follow up on agreed-upon action items, and to treat certain information as confidential. White House staff made sure that agency staff members were comfortable disagreeing with the White House or improving on the proposals the White House suggested.

To be functional, OSTP's relationship with agencies had to be two-way street, as opposed to a stream of one-sided requests. This meant that OSTP had to share information, and to identify things we could influence that were important and meaningful to the agencies, such as their budget, a presidential "shout out" in a speech, cooperation from other agencies, and so forth. Sometimes we took actions that were symbolic but meaningful, such as inviting agency leaders or staff to a White House event, helping them promote an initiative via OSTP social media platforms, praising something they had done-even inviting them to go bowling at the White House.

Developing strong relationships with agencies also required understanding the internal dynamics of an organization, the personalities of the senior leadership, and the agency culture. How are decisionrights allocated? What are the key internal meetings? Are there personality disputes or differences of opinion that affect how the agency operates? Which people in the agency actually follow up on something they make a commitment to do?

One step OSTP took under the Obama administration was to ask agencies to increase their capacity in areas important to OSTP. For example, Congress had provided OSTP with $\$ 2$ billion to support community colleges, so it helped the Department of Labor recruit an expert in online learning because it wanted to devote some of the funds to online learning. OSTP also worked with NASA to create a "center of excellence" for open innovation, which increased NASA's capacity to use approaches such as crowdsourcing and incentive prizes to solve problems.

## Taking Advantage of the Administration's "Bully Pulpit" and Ability to Convene

President Obama often highlighted the importance of an "all hands on deck" approach to solving problems. When actions by the federal government could not solve a particular issue, the president would often issue a "call to action" to inspire stakeholders (companies, research universities, nonprofits, foundations, state and local governments, etc.) to make specific commitments that advanced the administration's priorities.

For example, in his 2011 State of the Union Address, President Obama set the goal of preparing and recruiting 100,000 high-quality K-12 STEM teachers by 2021. To help achieve this goal, the Carnegie Corporation formed a coalition with 280 members called 100 kin 10 , and
they are currently on track to achieve this goal. President Obama used events like the White House Science Fair to highlight the progress the coalition was making and to inspire other organizations to join them. President Clinton called the coalition "a metaphor for how the world should work."

My team was involved in similar efforts, including those to accelerate the development of applications using high-speed computer networks (US IGNITE); promote entrepreneurship in communities across the country (Startup America); foster collaboration between cities and universities to develop "smart cities" (MetroLab Network); increase the number of Americans, young and old, participating in the Maker Movement (Nation of Makers); ensure that more children of military families had access to AP math and science courses (NMSI Initiative for Military Families); encourage professionals to engage in STEM mentoring for K 12 students (US2020); make computer science a new basic in the K-12 curriculum (CS for All); and reduce the waiting list for an organ transplant.

To promote these efforts, OSTP staff would draft and seek approval for a "call to action" from the president or a senior official, identify potential roles for different types of organizations, work with organizations to craft a specific and credible commitment, and organize a highprofile public event at which these commitments would be announced. For many of these initiatives, an external organization was responsible for measuring progress, expanding the coalition, and ensuring that the coalition members were learning from each other to accelerate progress. These initiatives were more likely to succeed when they had clear and compelling goals, entrepreneurial leaders, and sustained attention (as opposed to a single kickoff event) from the White House and federal agencies.

## Making a Policy Priority an

## Element of White House or Agency Initiatives

One of OSTP's goals was to identify instances where science, technology, and innovation could advance presidential priorities. For example, OSTP was able to make these three elements one of the pillars of the Presidential Policy Directive on Global Development policy; to make STEM and educational technology an element of the Presidential Study Directive on military families; and research a part of the president's executive order on mental health services for veterans and service members, all of which we believed could have a significant impact. For example, the Presidential Policy Directive on Global Development encouraged USAID to create the Global Development Lab, and to increase the role that science, technology, innovation, and partnerships played in advancing USAID's mission. The Global Development Lab became a champion of doing development differ-ently-for example, by using incentive prizes, "grand challenges," mobile technology, and Big Data. Integrating science, technology, and innovation into the administration's broader policy agenda required OSTP to develop strong relationships with other policy councils, such as the Domestic Policy Council, the National Security Council, and the National Economic Council, so we could inform new policies as they were being developed.

## TWELVE MAXIMS FOR GETTING THINGS DONE

Getting things done in government almost always requires making contextdependent judgment calls. However, I found certain observations, principles, and rules of thumb to be useful in many different contexts, which I shared with the members of my team and other OSTP staff. Below are some examples.

## 1. Have an agenda, rather than merely reacting to the agenda of others or to external events.

Policymakers are most effective when they are trying to accomplish something specific that they can clearly articulate:

- What am I trying to get done? What is the status quo? What is a more desirable future in the issue area that I care about?
- How will my project get done? What public and private actions or resources are needed to achieve my goals?
- How will I know if my idea is successful? What metrics of success can be tracked over time?
- Why do I believe this is the right thing to do, and that doing A will (or is likely to) cause B to occur?
- Whom do I need to convince of the value of my idea? Who should be involved in its implementation?
- How do I communicate the essence of my idea to a non-expert?

Finding the answers to these questions may require interacting with smart people and stakeholders inside and outside of government, and the answers may evolve over time. You may ultimately have to compromise or settle for only part of what you want. Of course, there is a happy medium between having no opinion and being overly dogmatic and unwilling to compromise or accept people's suggestions for improving your idea. In any case, if you can't ultimately answer your questions, your effectiveness will be limited.

## 2. Ask interesting questions.

Sometimes we go immediately to answers without taking time to reflect on what the right questions are. We should ask the world the questions we are asking ourselves as a way of soliciting help and ideas. OSTP has occasionally used formal
requests for information to solicit information from the public.

## 3. If you want someone to help you, make it as easy as possible.

Making it easy for people to help you is almost always a good idea. If I wanted a senior White House staff member to intervene on a given issue, for example, I wrote the e-mail I wanted them to send or developed talking points for the conversation I wanted them to have. Whenever possible, I would identify both the problem and the solution.

At OSTP we had considerable success in encouraging agencies to increase their use of prizes and challenges. We worked with Congress to pass legislation that gave all federal agencies the authority to sponsor prizes and challenges. We worked with the Office of Management and Budget to issue guidance to agencies that reduced uncertainty about the meaning of the new prize authority statute, and we worked with the General Services Administration to get providers of specialized services related to prize management on their schedule in order to reduce the time it took agencies to procure their services. Agencies dramatically increased the number of incentive prizes they sponsored because we reduced the transaction costs of doing so.

## 4. Work from the top down and the bottom up.

If you are trying to get an agency or organization to take some action, it is best to work from both the bottom (or middle) of the organization and the top. If you work an issue only from the bottom up, the lower level staff may not have deci-sion-making rights or may be overly conservative; this is particularly true for some civil servants. On the other hand, if you take only a top-down approach, you may not be able to address the arguments the
staff makes. If staff members are strongly opposed to an idea, they may not be committed to its implementation, may "slow roll" you, may roll back the initiative after you leave, or simply stop paying attention.

## 5. Understand the pros and cons of multilateralism, minilateralism, and bilateralism.

In addition to understanding the objectives of a particular policy, it can be valuable to see one's role in the policy process as a form of diplomacy. I describe three of the strategic approaches we most commonly used as bi-, mini-, and multilateralism:

- Bilateralism: One-on-one conversation with another organization. Advantages include (a) people are more candid and willing to share information in a one-on-one conversation; (b) it's easier to negotiate and to find common ground with just one other person; and (c) a senior person within an organization is generally available for a one-on-one meeting; this is true for organizations within and outside government.
- Minilateralism: A meeting between OSTP and a small group of agencies or outside organizations. This is especially useful for brokering a collaboration between two or more organizations, or for getting a small group of agencies or organizations on board before trying to build a broader coalition. Meaningful collaboration is generally much easier between two agencies than five or ten.
- Multilateralism: Large group meetings. It is harder to have successful large group meetings, as it is more difficult to reach consensus. However, large meetings are useful for sharing information or broadcasting an assignment to a group of agencies, and some decisions require broad buy-in. Large group
meetings can also be useful for building coalitions, and they may be necessary if achieving government-wide consensus on a topic is critical.


## 6. Increase the likelihood of follow-up.

People don't follow up as often as we'd like. There are some things you can try to increase follow-up:

- Ask a person when they think they can complete their assignment.
- Send them an e-mail documenting their commitment.
- Keep a list of important commitments others have made to you or put a reminder to yourself on your calendar to get in touch with them.
- Try to figure out why someone is not following up (e.g., they don't understand what you want, they are too busy, they don't really support your idea, they need someone else's collaboration and can't get it, they forget).
- Create a deadline-even an artificial one.
- Escalate the pressure (e.g., meet with their boss).


## 7. Find and recruit allies.

Find people with shared interests who can help you get your job done. Think about people with specific skill sets whom you could recruit to the federal government. Develop and manage a network of allies with aligned interests, such as:

- Idea people, especially those with specific ideas on "what, how, and who" and are willing to commit them to paper;
- Special assistants, chiefs of staff, gatekeepers, and schedulers for key principals;
- "Doers" who follow up when they agree to do something;
- Opinion-makers, key media contacts, and people with a large following;
- Foundation staff and executives; and
- Intermediary organizations that (a) can help you engage in wholesale rather than retail efforts at coalition-building; (b) are trying to scale-up an intervention that the administration supports. Kumar Garg, who joined my team in June 2009 and who became my de facto number two, had a favorite maxim while at OSTP: "find your doers." Doers are energetic and entrepreneurial people who take responsibility for the execution of an idea, even if important elements of the process are outside their job description. If they get stuck, they are willing to explain why and what help they need. Many people expressed interest in collaborating with OSTP, and Kumar would audition them by giving them a straightforward task that could be done in 15 minutes. People who passed this test would be given progressively more challenging assignments.


## 8. Think of the end at the beginning.

It usually makes sense to identify your desired results at the beginning of a policy process and to work backward from that. For example, if you want an agency to issue a request for proposals on a given technical topic, try to determine who within the agency will have to approve it and who can draft it, and ensure that they support the idea.

## 9. Save the world one document at a time (or "write it down, make it happen'").

It's likely that, at some point in the policymaking process, the policy will need to be instantiated in one or more documents in order to make and implement a decision. I often told members of my team that part of moving a decision forward is to first discover what document (or documents) need to be written so the policy can be implemented. What you're trying to do
will determine the appropriate policy lever. For example, developing a regulation like the International Entrepreneur Rule requires publishing a draft in the Federal Register, collecting public comment, and finalizing a rule that goes into the Code of Federal Regulations. If you're trying to launch a multi-agency research initiative, it may require a request for proposals that's embraced by multiple agencies and an inter-agency memorandum of understanding that allows any one of those agencies to fund submitted proposals. If your goal is to send a clear signal that something is a presidential priority, then issuing a presidential memorandum or executive order can help accomplish that. These documents also generally direct one or more agencies to take some concrete action.

Other documents useful in the development and implementation of policy include funding proposals for the president's budget, a proposal to hold a presidential event, amicus briefs on important cases, administration policy statements on proposed legislation, agency directives, fact sheets and other event press releases, and memoranda of understanding between agencies or with outside organizations.

While not all policy goals can be accomplished through documents alone, they are critical in framing a challenge or opportunity, presenting options, making a decision, and implementing that decision.

## 10. Make the schedule your friend.

High-priority events-including events in the White House held by the president, the vice president, senior advisors, and members of the Cabinet-can allow an organization to get a great deal accomplished, including:

- Signaling to the world that your issue is an administration priority;
- Creating an artificial deadline for agency and private-sector commitments;
- Working with a speechwriter to make an important point, highlight a success story, issue a call to action, or set an ambitious but achievable goal;
- Offering supporters of an initiative the opportunity to meet or hear from the president; and
- Drafting a fact sheet that can go into detail about public and private commitments.

Before you suggest holding an event, be clear what the answers are to key questions:

- What message will the event will convey?
- What is the president (or some other administration official) announcing?
- What are the deliverables?
- Is there a compelling backdrop or visual?
- Who is accompanying the president at the event?
- Who are the potential third-party validators or critics of the policy proposal that is being announced?
- If you could write the headline and the first paragraph of an article covering the event, what would it say?


## 11. Use standing meetings effectively.

Questions to ask yourself before going to a meeting include:

- What are you trying to accomplish?
- Have you worked to "pre-sell" your position to key participants in the meeting?
- Should you bring a document to help shape the discussion and signal your interest in the topic?
- Are clear next steps and assignments coming out of the meeting and captured in minutes?

Standing meetings provide another opportunity for action. One important standing meeting in the White House was the $8: 30$ senior staff meeting led by the chief of staff and attended by Dr. Holdren. It offered Dr. Holdren the opportunity to raise issues with other senior White House advisors.

## 12. Have a large and constantly growing "toolbox."

Policy entrepreneurs must be able articulate a coherent relationship between means and ends. They also need to identify the policy levers that will help achieve a given goal, such as changes in the tax code, regulatory policy, legislation, R\&D investments, etc.

Policy entrepreneurs are more likely to be able to propose the right mix of tools if they increase their understanding of how and under what circumstances they might use a given policy instrument. One hallmark of President Obama's innovation policy was to encourage experimentation with different techniques for solving problems. Examples include incentive prizes, grand challenges, multisector collaborations, harnessing behavioral insights to improve policies and programs, citizen science and crowdsourcing, human-centered design, making open data available in machine-readable format so third-party developers can create value-added services, innovative procurement tools that allow the government to partner with commercial firms and startups, and the authority to recruit top talent for a tour of duty in government.

## The "Team Kalil" Whiteboard

Most OSTP staff had never worked at the White House, and many were also new to the federal government. To help them with the "onboarding" process, I prepared several presentations and documents, one of which was called "Getting Things Done at the White House." Kumar Garg, started a list of the aphorisms in these documents and contributed some of his own.

- Schedule is your friend
- Steer, don't row
- Hours you contribute/Hours overall
- Have an opinion
- Think of the end at the beginning
- If you had 15 minutes to pitch POTUS, what is on your list and are you working on it?
- Entrepreneur = someone not limited by the resources directly under their control
- If you want people to do something, make it easy
- Write it down. Make it happen.
- Strong relationships are built on trust, mutual understanding, and reciprocity

- People never follow up
- Find your doers
- Talk to who owns the paper
- Better to light a single candle than cry out in the darkness
- You can get more done if you don't care who gets the credit
- Don't be a bottleneck
- Water on stone
- Just add talent
- We are all captives of our experience
- Do you have escalation dominance?


## Where New Ideas Come From

Policy entrepreneurs will be more effective if they are open to ideas that come from a variety of sources within and outside the government, from experts and citizens alike. Existing commitments the president made during the campaign or while in office are an excellent starting foundation, but consider too the input of advisory committees (such as PCAST, the President's Council of Advisors on Science and Technology), agency advisory committees (e.g., the Defense Science Board), or external "blue ribbon" commissions. Reports from congressional organizations such as the Congressional Budget Office or the Government Accountability Organization can provide another perspective on which administration policies to pursue, as can legislation introduced in the current or prior Congress. The National Academy of Sciences, think tanks, and academic literature can be rich repositories of ideas ready for translation to action.
Imitation of a good idea should be embraced; an idea, model, or approach that has been successful in one context can be adopted by another. For instance, former U.S. Chief Technology Officer Todd Park and serial entrepreneur Steve Blank helped encourage the translation of Silicon Valley's Lean Startup methodology to applications within the federal government. Innovative practices are often first adopted by some institutions (e.g., state and local government, universities, nonprofits) but not others, which makes it important to keep scanning the progress of other institutional actors.

Finally, good policy entrepreneurs keep their eyes and ears open to ideas from the crowd. Understand the position of stakeholders (e.g., private sector, professional societies, foundations, nonprofits) as expressed in position papers, congressional testimony, etc., and also consider using workshops and requests for information to the public to solicit citizen participation directly.

## SKILLS AND DISPOSITIONS REQUIRED FOR SUCCESS

To be successful using the above strategies requires nurturing certain learnable skills.

The Diplomat: Has the ability to act as an honest broker to resolve interagency disputes or help agencies reach consensus on a policy issue. This is critical because a lack of consensus can delay progress on an idea or initiative.

The Visionary: Has the ability to generate or spot good ideas. In the White House, this is especially valuable in the run-up to the budget, major policy addresses, and presidential or cabinet events. Effective policy entrepreneurs have the ability to get excited about others' ideas, not just their own, which dramatically increases
the number of ideas they can advocate for.

The Advocate: Has the ability to be an effective champion for the president's priorities. This requires the ability to explain in a compelling way why something is a priority and what individuals and organizations can do to advance it. This is important because presidential decisions are rarely self-executing and may require action by the Congress, federal agencies, state and local governments, the private sector, and civil society.

The Communicator: Has the skill of clear and concise oral and written communication with multiple audiences. A communicator also has a solid understanding of what different audiences are looking for (e.g., scientists and engineers vs. White House communications officers vs. an Office of Management and Budget exam-

## Relationships with Other EOP and White House Components

Getting things done often requires understanding how the rest of the Executive Office of the President operates, who else cares about the issues you work on, what constitutes success for other EOP offices, and how to communicate and work effectively with them. In some cases, OSTP staff managed the relationships with the following offices:

- Other policy councils: National Economic Council, Domestic Policy Council, National Security Council, Council of Environmental Quality
- White House Communications Office. OSTP played a key role in choosing presidential events and the "message of the day."
- Office of Public Engagement. Promoted good relationships with outside groups.
- Office of Digital Strategy. Oversaw effective use of the Internet to get the White House message out and engage the public.
- Speechwriter. Speechwriters are looking for compelling facts and figures, clear goals, moving stories about individuals, metaphors, and a framework and narrative arc for the speech.
- White House Legislative Affairs
- Office of the First Lady, Office of the Vice President
- Staff Secretary. Managed the paper flow to and from the president.
- Office of Management and Budget
- Presidential Personnel
iner). This requires having empathy for the individual you are collaborating with and the ability to ask what motivates them and how they define success in their role. It requires establishing the context needed for them to understand your idea; to avoid using jargon, special vocabulary, or acronyms they are unlikely to understand; and to know what "mental models" they use to make sense of the world.

The Student: Is comfortable as a generalist when necessary and can quickly get up to speed on a new issue. This is particularly important in an environment like the White House, where individuals may have a broad portfolio and need to respond to varied crises or external events, such as Deepwater Horizon, Fukushima, and the Ebola and Zika outbreaks.

The Recruiter: Identifies people who should be working for the government or for newly created positions. The recruiter is more likely to steer than row and, like

Tom Sawyer, is able to get colleagues and associates to help "paint the white picket fence."

The Organizer: Follows up on the status of a commitment to an action and tracks next steps.

The Connector: Builds networks of people who can help generate ideas. The connector helps prevent surprises, finds out what is really going on inside other organizations, and gets things done.

## COMMMON PITFALLS

## Spreading Yourself Too Thin

When we try to do too many things, there is a danger that we will get none of them done. We must learn instead to identify opportunities for "surgical interventions." In my case, there were a number of instances when I put in enough time to get President Obama to embrace an idea but not enough to build congressional
support. For example, for five years the president called for the creation of a "DARPA for Education" that would invest in high-risk, high-return research to develop breakthroughs in learning technologies, such as advances in artificial intelligence to create software as effective as a one-on-one tutor. ${ }^{2}$ I did not devote enough time to this initiative to build congressional support for it, so it was never enacted.

## Allowing the Urgent to Drive Out the Important

Imagine that you have 15 minutes to pitch an idea to the president, one you can seriously imagine him including in a major policy address and you spending some time to make happen. Why aren't you working on that, as opposed to devoting too much time to things that are not that important? I encouraged my team to "steer, not row," and to make sure they had a federal agency or external partner that could implement a desired initiative. They also needed to block off time to do work that was important but not urgent, to make sure that progress would continue on their biggest priorities, no matter what short-term issues arose.

## Spending Too Much Time on Reports

Before you devote a great deal of time to drafting, editing, and seeking approval of a report, ask yourself whether it is really necessary, how it will help you advance your agenda, and what additional work will be required to implement the report's recommendations. Have a clear theory of what action will flow from it. It's far more likely that something will happen if you use your document not only to articulate things someone might do but also to lay out the specific things particular people or organizations agree to do by a given date.

## Allowing Something to Drag On Indefinitely

When necessary, try to force resolution of an issue that is dragging on by resorting to escalation with your partner agency or organization. This might involve having your boss meet or communicate with their counterparts to resolve the issue or, if necessary, to prepare a decision memo for the president.

## Failing to Plan How Your Ideas and Initiatives Will Survive to the Next Administration

Some initiatives survive the transition from one administration to the next, while others are washed away like a sand castle on the beach. For example, although President Clinton unveiled the National Nanotechnology Initiative in January 2000, his last year in office, the effort was also embraced by presidents Bush and Obama. I believe this initiative has survived for more than 17 years because:

- The topic is not partisan, unlike health care, climate change, or the minimum wage;
- Congress passed a law authorizing the initiative in 2003;
- The Clinton administration created a "coordination office" charged with helping the agencies that were working together and preparing reports for Congress on the federal investment in nanoscale science and engineering; and
- There was a group of companies, industries, national labs, research universities, and scientific professional societies that supported the initiative.

These favorable conditions will not exist for all initiatives, and policymakers should therefore consider what they can do to increase the chances that their initiatives will carry on.

## Allowing People to Be Surprised

People dislike being surprised, even if it is good news. It is important to lay the groundwork before announcing a major new action by floating trial balloons for feedback, taking time to introduce a plan in a one-on-one setting before a meeting, and so forth.

## CONCLUSION

Successful policy entrepreneurs know how to wield influence that exceeds their formal authority, build coalitions, take advantage of open "policy windows," and, more generally, know how to get things done in complex environments. They also learn about the strengths and limitations of different policy tools, and about the challenges and opportunities in specific policy domains.

Although some of this information and know-how is highly context dependent, much of it is generally applicable. In fact, it could be highly useful to students interested in a career in public service who are getting a master's degree in public policy; to people participating in fellowship programs such as the American Association for the Advancement of Science or the Presidential Management Fellowship program; and to citizens seeking to shape or inform public policy.

One way to disseminate this information would be through a partnership between public policy schools and policy entrepreneurs. They could capture and synthesize information about the range of traditional and new tools policymakers are using to solve particular problems. This is important because advancing public policy requires a coherent relationship between means (the policy tools that will help achieve a given goal) and ends (the goal). More citizens and public servants will be able to propose creative solutions to important problems if they understand
what tool (or combination of tools) is likely to be successful.

[^1]
## Q. What is your favorite thought experiment?

Imagine that you have a magic laptop. The power of the laptop is that any press release that you write will come true.

You have to write a headline (goal statement), several paragraphs to provide context, and 1-2 paragraph descriptions of who is agreeing to do what (in the form organization A takes action B to achieve goal C ). The individuals or organizations could be federal agencies, the Congress, companies, philanthropists, investors, research universities, non-profits, skilled volunteers, etc. The constraint is that it has to be plausible that the organizations would be both willing and able to take the action. For example, a for-profit company is not going to take actions that are contrary to the interests of their shareholders.

What press release would you write, and why? What is that you know and believe that you think makes this a compelling idea?

## Q. What was the variant of this that you used to ask people when you worked in the White House for President Obama?

You have a 15 minute meeting in the Oval Office with President Obama, and he asks:
"If you give me a good idea, I will call anyone on the planet. It can be a conference call, so there can be more than one person on the line. What's your idea, and why are you excited about it? In order to make your idea happen, who I would need to call and what I would need to ask them to do in order to make it happen?"

## Q. What was your motivation for posing this thought experiment to people?

I've been privileged to have roles where I can occasionally serve as a "force multiplier" for other people's ideas. The best way to have a good idea is to be exposed to lots of ideas.

Also, ideas are obviously more actionable if people can not only articulate the "what" - but the "who" and the "how." Sometimes people would have the kernel of a good idea, but I would need to play 20 questions with them to refine it.

## Q. Why does this thought experiment relate to the Hamming question?

Richard Hamming was a researcher at Bell Labs who used to ask his colleagues, "What are the most important problems in your field? What are you working on?" This would annoy some of his colleagues, because it force them to confront the fact that they were working on something that they didn't think was that important.

If you really did have a magic laptop - presumably you would use it to help solve a problem that you thought was important!

## Q. How does this thought experiment relate to the concept of what sociologists call "agency?"

People develop an implicit or explicit sense for what in their environment is fixed, and what they view as potentially changeable.

One of the privileges of working for President Clinton and Obama was that, over time, my sense of what I could accomplish became more expansive. I had the ability to send the President a decision memo, and have him check the box that said "yes."

I think the thought experiment can get people to realize that many elements of the status quo are the result of human action or inaction, and therefore, are potentially changeable, as opposed to the laws of physics.

## Q. How does this thought experiment highlight the importance of coalition-building?

There are many instances in which we have a goal that requires building a coalition of individuals and organizations.

It's hard to do that if you can't identify (1) the potential members of the coalition; and (2) the mutually reinforcing actions you would like them to consider taking.

Once you have a hypothesis about the members of your coalition of the willing and able, you can begin to ask and answer other key questions as well, such as:

- Why is it in the enlightened self-interest of the members of the coalition to participate?
- Who is the most credible messenger for your idea? Who can help you convene the coalition?
- Is there something that you or someone else can do to make it easier for them to get involved?
- If a member of the coalition is willing but not able, can someone else take some action that relaxes the constraint that is preventing them from participating?
- What evidence do you have that if individual or organization $A$ took action $B$, that $C$ is likely to occur?


## Q. Is this thought experiment just relevant to policy-makers?

Not at all. I think it is relevant for any goal that you are pursuing that you believe requires concerted action by multiple individuals and organizations to accomplish.

## Q. What's the relationship between this thought experiment and Bucky Fuller's concept of a "trim tab?"

Fuller observed that a tiny device called a trim tab is designed to move a rudder, which in turn can move a giant ship like the Queen Elizabeth.

So, identifying these leverage points that can help solve important problems is incredibly useful.
For example, some environmental advocates have focused on the supply chains of large multinationals. If these companies source products that are more sustainable (e.g. cooking oils that are produced without requiring deforestation) - that can have a big impact on the environment.

## Q. What steps can people take to generate better answers to this thought experiment?

There are many things - like deep understanding of a particular problem, being exposed to both successful and unsuccessful efforts to solve important problems in many different domains, or understanding how particular organizations that you are trying to influence make decisions.

One that I've been interested in is the creation of a "toolkit" for solving problems. If, as opposed to having a hammer and looking for nails to hit, you also have a saw, a screwdriver, and a tape measure, you are more likely to have the right tool or combination of tools for the right job.

For example, during my tenure in the Obama Administration, my team and other people in the White House encouraged awareness and adoption of dozens of approaches to solving problems, such as

- Sponsoring incentive prizes, which allow agencies to set a goal without having to choose the team or approach that is most likely to be successful;
- Making open data available in machine-readable formats, and encouraging teams to develop new applications that use the data to solve a real-world problem;
- Changing federal hiring practices and recruiting top technical talent;
- Embracing modern software methodologies such as agile and human-centered design for citizen-facing digital services;
- Identifying and pursuing $21^{\text {st }}$ century moonshots;
- Using insights from behavioral science to improve policies and programs;
- Using and building evidence to increase the share of federal resources going to more effective interventions;
- Changing procurement policies so that the government can purchase products and services from startups and commercial firms, not just traditional contractors.

Of course, ideally one would be familiar with a problem-solving tactics of different types of actors (companies, research universities, foundations, investors, civil society organization) and individuals with different functional or disciplinary expertise. No one is going to master all of these tools, but you might aspire to (1) know that they exist; (2) have some heuristics about when and under what circumstances you might use them; and (3) know how to learn more about a particular approach to solving problems that might be relevant. For example, I've identified a number of tactics that I've seen foundations and non-profits use.

## Re: [EXTERNAL] Re: OSTP orientation!

From: "Schmoyer, Michael W. EOP/OSTP'(b) (6)
To: $\quad$ Thomas Kalil (b) (6)
Cc: $\quad$ Nairoby Russell (b) (6)
Date: Wed, 21 Apr 2021 17:59:21-0400
Wonderful! I will soon send a zoom appt; also will get together w peers and come up with a few
'scenario practicals' for you to choose from.
Sound good?
Sent from my iPhone
Michael W. Schmoyer, PhD
Assistant Director for Health Security Threats
Executive Office of the President
Office of Science and Technology Policy (OSTP)
EEOB, Room (b) (6)
1650 Pennsylvania Ave, NW
Washington, DC 20502
(O) (b) (6)
(C) (b) (6)
(JWICS) MSchmoyer@OSTP.EOP.IC.GOV

On Apr 21, 2021, at 4:26 PM, Thomas Kalil (b) (6) wrote:

Sounds like a plan - thanks for your help!

Tom

On Wed, Apr 21, 2021 at 12:57 PM Schmoyer, Michael W. EOP/OSTP
(b) (6) wrote:

Alright! So, what about 20 min presentation... 10 min practical exercise... with $10 \mathrm{~min} \mathrm{q} / \mathrm{a}$ ? We can end at 45 min or stay on the full hour if your spirit is with it?

I'm very excited about the Zoom!

Sent from my iPhone
Michael W. Schmoyer, PhD
Assistant Director for Health Security Threats

Executive Office of the President
Office of Science and Technology Policy (OSTP)
EEOB, Room ${ }^{(b)(6)}$
1650 Pennsylvania Ave, NW
Washington, DC 20502
(O) (b) (6)
(C) (b) (6)
(JWICS) (b) (6)

On Apr 21, 2021, at 12:59 PM, Thomas Kalil(b) (6) > wrote:

Perfect! I could be available for the entire hour - just tell me how much time you'd like.
Tom

On Wed, Apr 21, 2021 at 9:54 AM Schmoyer, Michael W. EOP/OSTP
(b) (6) $\quad v>$ wrote:

Great! How about the block for 30 APR from 12-1 EST? what would be a good length of time for you? That has about 95\% of Jason's staff available.

Best,
Michael

From: Thomas Kalil(b) (6)
Sent: Wednesday, April 21, 2021 12:43 PM
To: Schmoyer, Michael W. EOP/OSTP (b) (6)
Cc: Nairoby Russell (b) (6)
Subject: Re: [EXTERNAL] Re: OSTP orientation!

Hi Michael - delighted to work with you to set something up and glad you liked the video!

I could do

3 pm ET or later on Wednesday, April 28th
$10 \mathrm{am}-1: 30 \mathrm{pm}$ ET on Friday, April 30th

Anything in those windows work for you?

On Wed, Apr 21, 2021 at 8:49 AM Schmoyer, Michael W. EOP/OSTP
(b) (6) wrote:

Good morning Tom-
(moving Jason to the Bcc line)

This is very excitingl I'm happy to work with you to schedule a Zoom appointment for our team. I love the idea of $\mathbf{2 0}$ questions ... let's chat about how to best build that into the Zoom meeting.

It was great to watch your video ... you had me at 'Bandura.' Coincidentally, he autographed my dissertation (which was driven by Social Learning Theory) prior to my defense. Was kind of a fun thing to surprise my committee with $)$

Best,

Michael

Michael W. Schmoyer, PhD
Assistant Director for Health Security Threats

Office of Science and Technology Policy (OSTP)
Executive Office of the President

The White House

(U) (b) (6)
$(\mathrm{JWICS})(\mathrm{b})(6)$
https://www.whitehouse.gov/ostp/
<image001.png>

NOTE: The body of this email or attached documents may contain sensitive information relating to the Committee on Foreign Investment in the U.S (CFIUS). This email and its attachments may be exempt from public disclosure under the Freedom of Information Act, 5 U.S.C. 552(b). Public disclosure of this information is further prohibited by section 721(c) of the Defense Production Act, 50 U.S.C. app. 2170(c). Criminal penalties may apply.

From: Thomas Kalil(b) (6)
Sent: Sunday, April 18, 2021 10:57 AM
To: Matheny, Jason G. EOP/OSTP (b) (6)
Cc: Schmoyer, Michael W. EOP/OSTP(b) (6)
Subject: [EXTERNAL] Re: OSTP orientation!

Absolutely - I'd be delighted to! Also - let me know if you'd ever be interested in catching up in general.

I also did a 10-minute video that is relevant -
>>>>https://www.youtube.com/watch?v=MJkhH83Bw4A<<<<<, and memos on "magic laptop" thought experiment, designing multi-agency research initiatives, policy entrepreneurship, and increasing the maturity of a policy idea.

One thing that might be useful is to have me play "20 questions" with an OSTP staffer to see if I can help them refine their idea - e.g. what do they believe that is motivating their idea, what would constitute success, what are the most relevant policy tools, what challenges and obstacles might they have to overcome, what might they consider doing next, etc?

Tom

On Sun, Apr 18, 2021 at 7:23 AM Matheny, Jason G. EOP/OSTP
(b) (6) wrote:

Tom,

You and "Getting Things Done in OSTP" have a huge fan club here. Would you be willing to do a 1 hr Zoom with OSTP staff to talk about how they can succeed here?

Best wishes,

Jason

## Re: Kalil

From: "Schmoyer, Michael W. EOP/OSTP" (b) (6)
To: "Matheny, Jason G. EOP/OSTP" (b) (6)
Date: Mon, 26 Apr 2021 06:54:11-0400
Whoops, thought i had did that! (b) (5)

Sent from my iPhone

Michael W. Schmoyer, PhD
Assistant Director for Health Security Threats

Executive Office of the President
Office of Science and Technology Policy (OSTP)
EEOB, Room ${ }^{(b)}$ (6)
1650 Pennsylvania Ave, NW
Washington, DC 20502
(O) (b) (6)
(C) (b) (6)

## (b) (6)

On Apr 26, 2021, at 6:42 AM, Matheny, Jason G. EOP/OSTP (b) (6)
wrote:

Michael, (b) (5)

From: Thomas Kalil(b) (6)
Sent: Sunday, April 18, 2021 10:57 AM
To: Matheny, Jason G. EOP/OSTP(b) (6)
Cc: Schmoyer, Michael W. EOP/OSTP (b) (6)
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Best wishes,
Jason
<magic-laptop-q\&a.docx>
<multi-agency-research.docx>
<policy-entrepreneurship.pdf>
<policy-readiness-062818.docx>

## Kalil

| From: | "Matheny, Jason G. EOP/OSTP" (b) (6) |
| :--- | :--- |
| To: | "Schmoyer, Michael W. EOP/OSTP" (b) (6) |
| Date: | Mon, 26 Apr 2021 06:42:21-0400 |
| Attachments | magic-laptop-q\&a.docx (18.96 kB); multi-agency-research.docx (20.9 kB); policy- |
| $:$ | entrepreneurship.pdf (249.85 kB); policy-readiness-062818.docx (20.09 kB) |

Michael, (b) (5)

From: Thomas Kalil(b) (6)
Sent: Sunday, April 18, 2021 10:57 AM
To: Matheny, Jason G. EOP/OSTP (b) (6)
Cc: Schmoyer, Michael W. EOP/OSTP (b) (6)
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Tom

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Best wishes,
Jason

Draft June 28, 2018

## Tom Kalil -(b) (6)

https://80000hours.org/podcast/episodes/tom-kalil-government-careers/

## Increasing the "policy readiness" of ideas

NASA and the Defense Department have developed an analytical framework called the "technology readiness level" for assessing the maturity of a technology -- from basic research to a technology that is ready to be deployed.

The premise of this memo is that it is also possible to increase the "policy readiness" level of an idea. This work can increase the chances that (1) a policy-maker will embrace an idea; (2) the idea will be successfully implemented; and (3) that the idea is "worthy" of being implemented. Examples of the work that can be done include:

1. Clear description of the problem or opportunity
2. Root cause analysis - what are the drivers of the problem?
3. Past and current efforts to address the problem

- Learning from history. If past efforts to address the problem have not been successful, what's different?

4. Learning from comparative perspective (e.g. what can we learn from the experiences of other countries?)
5. Rationale for government involvement and policy change, such as market failure, problems associated with existing policy
6. Key metrics used to evaluate progress
7. Identification and evaluation of potential policy options

- Legislation, budget, different allocation of existing budgetary resources, regulation, executive action, personnel, coalition-building of different organizations
- Evidence to support different options
- Logic model - why is it likely that a given policy change will have the desired impact?
- Benefit/cost ratio - ideally expressed as "outcome per dollar."
- Feasibility (political, administrative)
- Potential unintended consequences of policy

8. Draft the documents that are needed to (a) facilitate a decision on the idea; and (b) implement the idea, e.g.:

- Decision memo
- Executive Orders or Presidential Memoranda
- Budget proposal
- Strategy document
- Legislation
- Notice of Proposed Rulemaking
- Charter for inter-agency working group
- Job descriptions for new recruits
- Request for Proposals
- Descriptions of potential "commitments" from companies, non-profits, universities, philanthropists and foundations, state and local governments, investors, etc.

9. Critique of the idea by experts, practitioners, and stakeholders

- Can the idea be improved?
- Are there changes to the idea that need to be made to accommodate the concerns of important stakeholders?
- What are responses to critiques?
- What are the drivers of disagreements (e.g. areas of uncertainty, different interpretation of data, ideological disagreements, clashing interests of relevant groups)?
- Are there creative ways to reconcile differences of opinion and differences of interests?

10. Pilots and demonstrations to generate evidence of effectiveness, learn from real-world policy development

- "Agile" policy development - learning lessons from human-centered design and agile software development
- Pilots could be at different levels of government (e.g. federal, state, local)


## 11. If legislation

- Draft, introduce, and hold hearings on legislation
- Identify potential vehicles, such as legislation that enjoys bipartisan support (e.g. National Defense Authorization Act)

12. Communications strategy

- Most compelling language for describing the problem and the proposed solution
- Endorsements from opinion leaders, experts, groups
- Material for a speechwriter (stories, examples, quotes, facts and figures) or op-ed
- $\quad$ Q\&A - responses to most difficult critiques


## Democratizing the "idea generation" process

There are a series of steps that former policy-makers and think-tanks could take to increase the number of people that can meaningfully participate in the idea generation process. People who have expertise that is relevant to a particular policy domain might be able to describe a problem or identify a goal, but are less familiar with the tools that the government might use to address it.

1. Create library of examples of policy documents (e.g. decision memos, the documents that implement policy decisions)
2. Provide summary of different policy instruments (e.g. strengths and limitations, when and under what circumstances might one use this, canonical examples of uses of this policy instrument, etc.), with annotated bibliography for people who are interested in learning more - e.g:

- Competitively awarded grant programs
- Block or formula grants
- R\&D
- Information interventions to help people and organizations make better decisions
- Entitlements
- Loans, loan guarantees, capital stacks
- Tax policy (rates and base, simplification, tax incentives, taxes designed to address negative externalities such as price on carbon)
- Creation of civil or criminal penalties
- Increased enforcement of existing laws
- Personnel and personnel policy
- Performance management (e.g. continuous improvement)
- Human-centered design
- Improve/create digital services
- "Commitments" events
- Public-private partnerships
- Goal-setting (we will accomplish X by date Y), including "moonshots" or stretch goals
- Regulation, deregulation, regulatory reform, regulatory "sandboxes"
- International treaties
- Federal, state, local partnerships
- Mechanism design (design of markets that require matching as opposed to using prices - e.g. kidney donations)
- Encouraging self-regulation through the creation of codes of conduct
- Incentive prizes, milestone payments, Advance Market Commitments
- Evidence-based policy (tiered-evidence grant-making, "preference points" for applicants that build or use evidence, agency-wide learning agenda, expanding access to administrative data, pay for success, etc)
- Open data (make data available in machine-readable format to encourage new services)
- Creation, elimination, or restructuring of organizations
- Behavioral interventions
- Procurement
- Efforts to improve coordination of different organizations
- Advisory Committee

3. Interview experts in different policy domains to see if there are policy tools that are useful but have not been adopted outside of a particular policy domain (e.g. Advance Market Commitments have been used in global health but not outside of global health).

Draft April 11, 2021
Tom Kalil
Comments/questions welcome:(b) (6)

## National research initiatives

Summary: In some instances, the Executive Branch and Congress have worked together to promote national research initiatives. Examples include the National Nanotechnology Initiative, the Networking and Information Technology Research and Development program, the U.S. Global Change Research Program, the BRAIN Initiative, and the Materials Genome Initiative.

Although there is no "one size fits all" - some common elements include:

- An effort by OMB to determine how much the government is investing in this area, broken out by agency, and (sometimes) by topic. This is called a "cross cut." For example, the government's investment in IT R\&D is categorized in 11 different topics, such as AI, robotics, high-performance computing, cybersecurity, and high-speed networking.
- Some inter-agency forum, often under the auspices of OSTP's National Science and Technology Council, where agencies share information on current activities, look for opportunities for multi-agency collaboration, and develop agendas for future research. For the list of activities of the NSTC during the Obama Administration - see https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/NSTC/nstc org_ chart 083116.pdf. Not all of these led to multi-agency research initiatives.
- Priority-setting in an OMB/OSTP memo.
- Multi-year authorization for the effort.
- Some initiatives (particularly those authorized by Congress) have a dedicated interagency program office, others are more informal and rely on volunteer, grassroots efforts by agency program managers.
- Periodic review by external organizations such as the President's Council of Advisors on Science and Technology or the National Academies of Science, Engineering, and Medicine.


## Benefits

These multi-agency initiatives have some costs (staff of inter-agency program offices, time of EOP and OMB staff, agency time and effort, burden of Congressional reports if these are required), but there are also some benefits.

- Allows the Administration to take a "whole of government" perspective - and create a division of labor based on the missions and strengths of different agencies.
- Allows the Administration to provide a targeted increase in a particular area of research such as $\mathrm{AI} / \mathrm{ML}$, quantum computing, etc.
- Creates a forum for sharing information, eliminating unnecessary duplication of effort, fostering inter-agency collaboration, and identifying and addressing gaps in the federal government's research portfolio.
- Allows OSTP or other EOP components to tap the technical expertise of the science agencies on policy-related topics.
- Increases the chances that an initiative will survive the transition between Administrations. This is important because research initiatives can take a long time to pay off. For example, the government began investing in what later became the Internet in 1969.


## Limitations

- Even if the Administration develops a multi-agency plan, this may have limited impact on the decisions of the 12 Appropriations subcommittees.
- Unless there is a senior White House champion, the inter-agency committees can devolve into "talk shops" that have little or no impact on the Administration's budgets or policies.
- For initiatives that require formal "cross-cuts," there may be a limit to the number of them that OMB is able to do.


## Future directions

- Work with OMB to set aside some amount of funding that can be added to multi-agency initiatives as part of "passback."
- Work with Congress to create a "trust fund" in the infrastructure bill for specific multiagency initiatives, with the proviso that agencies can't obligate funding until the Administration has produced a strategy. Example would be a bioeconomy initiative, which was developed during the transition. Legislation that would authorize a bioeconomy initiative has been introduced by both the House and Senate.
- Determine whether to continue multi-agency initiatives started during the Obama Administration (BRAIN Initiative, Materials Genome Initiative), and consider launching new ones.
- Make it easier for agencies to work together on national research agendas. (Sometimes OMB is reluctant to allow OSTP to publish these since it might imply an Administration commitment to fund them. This could be addressed by agreeing on a disclaimer.)


## Appendix A: Questions that can inform the design of a research initiatives

## Context

What is the shared context that is helpful to create with policy-makers?
This might be (1) facts about the world (there is strong evidence that X is true); (2) analytical frameworks or models that are critical to understanding the idea (the private sector will underinvest in X because of "market failure" Y ); (3) normative beliefs (achieving X would be a good thing); (4) predictions - in a business as usual scenario, X is likely to be true in Y years; and (5) theories of change - e.g. if X does Y , then Z is likely to occur.

## Goal

What is the goal or goals associated with the research initiative? Are there some short or medium-term metrics associated with success?

For a non-technical audience, is there a way to describe the goal in an accessible way? For example, President Clinton talked about the potential to use nanotechnology to store the Library of Congress in a device the size of a sugar cube, detect cancerous tumors before they are visible to the human eye, and make materials that are 10X stronger than steel and a fraction of the weight.

Why is achieving the goal important from a scientific and societal point of view?

## Why now?

What has changed about the world (e.g. increased fundamental understanding, technological change) that leads us to believe that achieving a given goal is now within reach?

Is achieving the goal more urgent?

## What are examples of current barriers to achieving the goals, and what are promising research directions to overcoming these barriers?

Some government research programs are successful because they invest in a portfolio of approaches to achieve a given goal.

Which agency or agencies should take the lead on this research initiative? Why are they the right fit, given their mission and capabilities?

## What's the budget?

Is there a bottom-up rationale for a particular funding level or useful comparison?
It is also useful to develop low, medium and high scenarios, with some sense of prioritization.

## What mix of funding modalities and performers would be most appropriate? Are there particular tactics that may have an outsized impact?

See below for examples of funding modalities and tactics used by program managers.

What has already been written that would be useful background for policy-makers and the leadership of the relevant science agencies, such as workshop reports or articles on important advances?

Are there any existing (or potentially recruitable) program managers that would do a good job leading an initiative in this area?

## Appendix B: Examples of different types of research funding

1. Scale and duration of funding (individual Pls, small teams, larger centers and institutes, Focused Research Organizations.)
2. Performer (academia, industry, national labs) or specific effort to foster collaboration across sectors
3. Type of research (fundamental, applied, technology development, pilot or testbed)
4. Style of research management

- Strong program manager. Program manager identifies specific goals, choses a mix of performers most likely to achieve the goal, encourages collaboration between researchers, more likely to end funding for researchers that are under-performing.
- Investigator-driven research program. Broad solicitation. Selection done primarily by peer review. Little or no active research management.

5. Research infrastructure used by multiple research groups - such as national user facilities
6. Information technology component

- Data management
- Software for modeling and simulation
- IT infrastructure (high-performance computing, cloud, etc.)

7. ELSI (ethical, legal, societal implications)
8. Education - e.g. graduate training programs like NSF's NRT program
9. International collaboration

Beyond research - other types of support

1. Incentive prizes
2. Other "pull" or demand-side interventions - procurement, milestone payments, challenge-based acquisition, Advance Market Commitments
3. White House "call to action" to elicit private sector commitments - in the form organization A commits to take action B to help achieve goal C
4. Research commercialization - entrepreneurial education for researchers, support for incubators or accelerators

## Examples of tactics used by program managers

- Invest in massive parallelism for characterization, imaging, synthesis and fabrication
- Encourage modularity and open interfaces
- Learn from Mother Nature, either literally or as a source of inspiration
- Lower the barriers to innovation by providing shared facilities and resources
- Identify opportunities to move from "trial and error" to more predictive approaches
- Develop high-level languages to increase the productivity of designers and programmers
- Identify opportunities to solve "chicken-egg" problems (e.g. I won't invest in solving problem A unless I know that someone else is solving complementary problem B)
- Co-design $X$ and $Y$
- $\quad$ Reduce the Size, Weight, Power and Cost of X
- Take a systems, techno-economic or "total cost of ownership" perspective to ensure that a research community is not overly fixated on addressing 10 percent of the problem
- Bring together different communities that have not worked together and provide a shared problem
- Foster agreement on a metric for measuring progress in a technical field
- Demonstrate that a new insight from physics or some other science can be reduced to practice
- Reframe a problem why being clearer on the "what" and more open to new ideas on the "how."
- Engage in intellectual arbitrage. Expose a technique or approach from community A to community B
- Promote combinatorial innovation by making it easier to combine technological building blocks


# POLICY ENTREPRENEURSHIP AT THE WHITE HOUSE 

GETTING THINGS DONE IN LARGE ORGANIZATIONS

THOMAS KALIL
Policy entrepreneurs "are individuals who through their creativity, strategy, networking, and persuasive argumentation are able to bring new policy ideas into the open and promote policy change."
-Michael Mintrom
For a total of 16 years, I had the honor and privilege of working at the White House, first for President Clinton (1993-2001) and later for President Obama (2009-2017). My colleagues and I had the opportunity to help design, launch, and sustain dozens of science and technology policy initiatives. We launched major research initiatives to create the "industries of the future," such as robotics and advanced materials. We worked with Congress to give every agency the authority to support incentive prizes of up to $\$ 50$ million, and to make it easier for startups to raise capital and go public. We built coalitions of government agencies, companies, foundations, universities, and nonprofits to prepare $100,000 \mathrm{~K}-12$ STEM teachers, foster more vibrant startup ecosystems all over America, advance the Maker Movement and accelerate the commercialization of federally funded research. ${ }^{1}$ On a good day we were able to serve as "policy entrepreneurs," which involved generating or spotting new ideas and taking the steps needed to identify and evaluate policy options, support a sound decisionmaking process, ensure implementation, and monitor the effectiveness of the president's policies and initiatives.

I believe that individuals who have had the opportunity to serve as policy entrepreneurs acquire tacit knowledge about how to get things done. This knowledge is difficult to share because it is more like
learning to ride a bicycle than memorizing the quadratic formula. Furthermore, the knowledge, skills, and heuristics policy entrepreneurs acquire is often dependent on the particular context they are
operating in. The intellectually honest answer to most questions about politics and policy is either "It depends" or "I'm not sure." Nevertheless, I think there is value in policy entrepreneurs and public servants sharing what they have learned.

I have a number of reasons for reflecting on what I've learned and attempting to share it. First, I have found public service very rewarding. My team and I were able to get things done that I believe are consequential and good for America's longterm future. Since most media coverage of government focuses on its dysfunctional elements (e.g., scandal, partisan gridlock, waste and inefficiency), many people never consider doing a "tour of duty" in government at some point in their career. Second, policy entrepreneurs could play a role in increasing the effectiveness of public servants who are just starting their career. They could do this by collaborating with public policy schools or fellowship programs like the Presidential Innovation Fellowship, the Presidential Management Fellowship, and the American Association for the Advancement of Science. Finally, policy entrepreneurs can help people who are advocating for change in government policy by sharing what they have learned. By sharing this information, the federal government will be less opaque and easier to understand.

This essay is a down-payment on my effort to share what my team and I have learned, and my attempt to entice the reader to consider public service at some point in their career. While some of the observations I share in this essay are specific to the White House, others may have broader relevance for aspiring changemakers working in large organizations. They also may be useful to individuals seeking to build coalitions and exert influence in ways that exceed their formal authority and require the mobilization of resources not directly under their control. That said, most of what follows is my personal opinion, so your "mileage" may vary.

I begin by describing my path to public service. To offer additional context, I describe some particulars of the internal functioning of the White House. I then offer some rules of thumb for getting things done that I believe are relevant for work in large, complex organizations, including but not limited to the U.S. federal government. I discuss various policy instruments that can be combined in different ways to move an agenda forward, and describe some lessons learned that policy entrepreneurs might wish they'd known on day one.


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## The National Nanotechnology Initiative

In the late 1990 s, I began to work with a group of federal program managers interested in nanoscale science and engineering, including the National Science Foundation's Mike Roco and the Navy's Jim Murday. At the nanoscale (a nanometer is one-billionth of a meter), materials, devices, and structures have novel and potentially useful properties (electrical, optical, mechanical, chemical, magnetic, etc.). Working together, we made the case for increased federal investment in this exciting area of research. For example, we argued that realizing the full potential of nanotechnology would require long-term research beyond the time horizons of individual firms and that the federal government could play an important role. On January 21, 2000, President Clinton gave a speech at Caltech in which he proposed almost doubling the federal investment in nanoscale science and engineering.

Since then, President Clinton's National Nanotechnology Initiative has resulted in \$23 billion in research in nanoscale science and engineering, and the development of technological breakthroughs such as lighter, stronger materials and smart anti-cancer therapeutics that destroy tumors while leaving healthy cells untouched. Dozens of other countries have started similar initiatives, and universities have created multidisciplinary institutes, centers, and graduate programs to pursue research and education in nanotechnology.

## A PATHWAY TO PUBLIC SERVICE

In 1987, I volunteered with the issues department of the Dukakis presidential campaign. A campaign is boot camp for policy wonks. Staffers in a campaign issues department learn how to gather and synthesize large amounts of information in a short period of time, write position papers and briefing memos, factcheck speeches and campaign ads, prepare candidates for debates, and manage outside networks of experts and advisors.

Although Dukakis lost in 1988, I and many of my friends from that campaign also worked on the 1992 Clinton campaign. As a result, I spent some time in Little Rock writing Clinton's position papers on science and technology. After the election, I was offered a position on the White House's newly created National Economic Council (NEC), where I had the privilege of helping to shape the national agenda for science and technology.

Over the eight years of the Clinton administration, I had the opportunity to work on a wide range of issues. My title evolved over time. I ended my tenure as the Deputy Assistant on Technology and Economic Policy, but my work focused consistently on how information and communications technologies could help us achieve other national goals. For instance, I was deeply involved in efforts to expand access to educational technology, which had four primary objectives: to connect every classroom to the Internet by 2000 , to ensure that teachers were as comfortable with a computer as they were with a chalk board, to encourage the development of high-quality online content, and to make sure that K-12 students had access to modern computers with multimedia capabilities. I pushed for the liberalization of Cold War export controls on computers, and also worked on bridging the digital divide. I was the principal White House advocate for the National Nanotechnology Initiative (see Text Box, "The National Nanotechnology Initiative"), and for an initiative to

## The BRAIN Initiative

One of the questions I often ask people is, "What ambitious goals should we aspire to meet in the $21^{\text {st }}$ century, in the same way we put astronauts on the moon and sequenced the human genome?" One person who had an answer to that question was Miyoung Chun of the Kavli Foundation. In late 2011, Miyoung had organized a workshop with a mix of researchers from neuroscience, nanotechnology, and synthetic biology. Researchers attending the workshop had concluded that there was an opportunity to do for neuroscience what the Human Genome Project had done for genetics. What was needed was an R\&D investment in new tools that would allow researchers to study the brain in action. In 2012, Miyoung and I worked to build a coalition of researchers, philanthropists, and federal agencies that were prepared to back this idea. In April 2013, President Obama unveiled his Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative, a multiagency "grand challenge" to accelerate understanding of the human brain. The BRAIN Initiative brings together the scientific community with federal and private funding partners to dramatically increase understanding of how the brain processes and encodes information. Five federal agencies have invested in the effort, with the Intelligence Advanced Research Projects Activity joining the Defense Advanced Research Projects Agency (DARPA), the National Institutes of Health, the National Science Foundation, and the Food and Drug Administration. For the BRAIN Initiative, we used the preparation of the president's budget to ramp up the federal investment from $\$ 100$ million in FY14 to more than $\$ 430$ million per year in FY17. We also expanded the coalition of organizations that were investing in the goals of the BRAIN Initiative, which included not only government agencies but companies, foundations, research universities, and nonprofits. As part of the 21 st Century Cures Act, Congress provided an additional $\$ 1.5$ billion to support National Institutes of Health participation in the BRAIN Initiative, bringing total public and private investment in the initiative to $\$ 3$ billion.
Research continues. In May 2017, researchers at Stanford and Caltech announced the development of new optical technologies that enable them to record across much of the neocortex of an awake mouse, which provides new insights into how the mammalian brain coordinates neural activity to complete voluntary behaviors. As Justin Sanchez, the DARPA program manager for this work, noted, "DARPA created the Neuro-FAST program to find new ways to see the brain, and the optical technologies we've developed now allow researchers to observe the brain in detail as it processes behavior." (http://www.darpa.mil/news-events/2017-05-18)
increase funding for long-term information technology R\&D.

During my time at the NEC, I learned the importance of developing relationships with people both inside and outside the government, and of serving as a "force multiplier" for their work. For example, one reason we were able to get so much done on educational technology is that we had great allies, including Linda Roberts, director of the Department of Education's

Office of Education Technology. My colleagues and I were able to support Linda by getting support from the president, including funding for educational technology in the president's budget, launching new initiatives with high-profile announcements, and celebrating progress. It would have been impossible to spend of all of my time on educational technology, given the portfolio of issues I was responsible for managing, but the

## The Structure and Purpose of the National Economic Council and the Office of Science Technology Policy

The National Economic Council (NEC) was created by President Clinton in January 1993 to coordinate economic policymaking processes within the White House. Located in the Office of Policy Development, it is a part of the Executive Office of the President. (EOP) Executive Order 12835, which established the NEC, lays out four principal functions:

- To coordinate policymaking for domestic and international economic issues
- To coordinate economic policy advice for the president
- To ensure that policy decisions and programs are consistent with the president's economic goals
- To monitor implementation of the president's economic policy agenda

The NEC is composed of department and agency heads whose portfolios have relevance for the U.S. economy. The NEC director coordinates the president's economic policy priorities across the administration. The hierarchy of titles for the NEC staff is inverse to most people's expectations; the director is the most junior position, followed by senior director, special assistant to the president, and deputy assistant to the president; the head of the NEC is an assistant to the president.

The White House Office of Science and Technology Policy (OSTP) was established by Congress in 1976. In addition to advising the president and the administration on the scientific and technical aspects of policy matters, OSTP coordinates interagency efforts on science and technology policy, assists with the annual analysis of federal R\&D budgets by the Office of Management and Budget, and offers expertise to inform presidential decisions with respect to federal policies, plans, and programs. The OSTP director under President Obama-also known as the president's science advisor-was Dr. John Holdren. OSTP plays a critical role in guiding "policy for science" (What investments in federal R\&D should the president prioritize?) and "science for policy" (How can the best possible science inform areas of policy such as arms control or energy and climate?).

OSTP has historically had four divisions: Science, National Security and International Affairs, Energy and Environment, and Technology. OSTP was also the home of President Obama's chief technology officer, a position held in turn by Aneesh Chopra, Todd Park, and Megan Smith.
administration was able to make progress on educational technology (and other S\&T policy issues) because we developed a network of partners inside and outside the government. These colleagues could generate ideas, implement initiatives the president had decided to support, and let us know if White House involvement was needed to keep our priorities on track.

Most recently, I served under President Obama as Deputy Director of the White House Office of Science and Technology Policy (OSTP) and Senior Advisor to the White House National Economic Council. In 2008, the Obama campaign asked me if I would be willing to lead the transition team for OSTP. In December 2008, President-elect Obama invited Dr. John Holdren to be his science advisor,
and Dr. Holdren asked me to serve as his deputy.

One thing that was different about my second tour of duty at the White House was that I was in a position to recruit and lead a team, which eventually grew to 20 OSTP staff members. Each member of my team was also collaborating with people in the White House, federal agencies, Congress, universities, foundations, companies, think tanks, professional societies, state and local governments, international organizations, etc. This significantly increased the number of policies and initiatives we were able to shape or launch using tools such as legislation, regulation, the preparation of the president's budget, proposing actions agencies could take using existing budgets and legislative authority, and public-private partnerships.

During my time at the White House, I recruited people to work at OSTP on a wide range of issues, including the following:

- Drafting and implementing President Obama's Strategy for American Innovation
- Inspiring more young people to excel in STEM education, computer science, and Maker-centered learning
- Identifying and pursuing the "moonshots" of the $21^{\text {st }}$ century, such as the President's BRAIN Initiative (see Text Box, "The BRAIN Initiative")
- Improving the environment for starting and growing a business in the United States, and increasing the diversity of America's entrepreneurial ecosystem
- Creating multiagency research initiatives in areas that had the potential to create the industries and jobs of the future, such as advanced manufacturing, the Materials Genome Initiative, the National Robotics Initiative, synthetic biology, data science, high-speed networks, next-generation wireless
technologies, and smart cities
- Using new insights from the behavioral sciences to achieve important policy objectives, such as encouraging members of the military to save more for the future
- Encouraging federal employees to use new approaches to solve problems and promote innovation, such as incentive prizes, crowdsourcing, and citizen science
- Harnessing science, technology, and innovation to meet administration goals in global development and global health
- Reducing the waiting list for organ transplants
- Strengthening U.S. leadership in the commercial sector
- Improving the regulatory environment for biotech entrepreneurs

After recruiting the members of my team, I adopted several strategies to increase their effectiveness. First, I gave them a great deal of autonomy and encouraged them to work on projects they found intrinsically motivating. I think intrinsic motivation is more effective at getting people to do their best work than micromanagement. Second, I tried to pass along what I had learned about getting things done. I would give new staff members suggestions about people to talk to, things to read, and tactics to try. Third, I was an advocate for their ideas. There are many "veto points" within the federal government, and I tried to help my staff if they had reached an impasse that required turning to senior-level decisionmakers to resolve. Finally, I fostered a collaborative environment. The members of my team genuinely enjoyed working together. They shared ideas, contacts, advice, and tactics, and were always willing to pitch in when someone on the team needed help with a project or was organizing a large White House event. When people ask me what I am most proud of
accomplishing during my service in President Obama's White House, it is definitely recruiting and empowering an amazing group of public servants and policy entrepreneurs. I am very proud of what they accomplished during President Obama's tenure, and am confident they will go on to do great things over the course of their careers.

## "INFLUENCE WITHOUT AUTHORITY" AS A JOB DESCRIPTION

I often tell people that "influence without authority" is one of the most valuable skills a White House staffer can have. That's because many of the things the White House wants to accomplish are ultimately done by someone else. The White House does not conduct scientific research, provide grants or contracts, deliver services to citizens, enforce the law, pass legislation, issue regulations, or provide appropriations to the federal government. Even when the president issues an executive order, his decisions are rarely self-executing and require implementation by one or more federal agencies.

One thought experiment that I used to pose to the members of my team is to imagine that they had 15 minutes with the president. If he thought that they had a compelling idea with strong evidence to support it and a solid implementation strategy, he was willing to pick up the phone and call anyone. If it was someone in the federal government, he could direct them to take some course of action. If it was someone outside the government, he could challenge them to do something.

My goal was to give the members of my team a sense of agency and the conviction that the status quo is changeable, not fixed and immutable. I also wanted them to appreciate the value of concreteness, to understand that things happen in the
world when individuals and organizations take concrete action in the pursuit of a goal. Effective policy entrepreneurs have the ability to identify who needs to do what to achieve their goals, which is particularly important for White House staff, given that most of what they accomplish will be implemented by someone else. For example, an OSTP staffer working on a national research initiative did not have a research lab in the White House, nor did they award grants and contracts to scientists. It usually meant they had persuaded the president to include funding for that research initiative in his budget, that Congress had approved the funding, and that designated agencies then used the funds to pursue the particular research goals.

Identifying who needed to do what to achieve a given goal (or, as we used to put it, "A does B so C") was only the first step. We also needed to answer questions such as:

- How likely was it that a given set of actors would be both willing and able to take the action we had proposed? For example, we couldn't ask an agency to take some action they didn't have the legislative authority to do, and we couldn't challenge a publicly traded firm to take some action that was contrary to the interests of its shareholders.
- If an organization was willing but not able to act, could we (or some other actor) relax the relevant constraint?
- If an organization was able but not willing to act, could we address their concerns by providing additional evidence or modifying the proposal?
- If our goal required that multiple individuals and organizations work together over an extended period of time, was there a forum where that collaboration could occur?

As discussed below, in order to exert influence without authority, OSTP staff
had to develop and maintain strong relationships with federal agencies, other White House policy councils, and external organizations such as companies, foundations, and nonprofits.

## The Critical Importance of Working Collaboratively with

## Agencies

OSTP couldn't have accomplished much without having strong relationships with key decisionmakers within federal agencies. Ideally these agencies would (a) react to the ideas OSTP proposed; (b) suggest ideas to us; and (c) implement the ideas we jointly agreed to pursue.

When these relations were working, they were based on mutual understanding, trust, candor, and reciprocity. White House staff understood the agency priorities, and vice versa. The agencies in turn believed in the White House commitment to follow up on agreed-upon action items, and to treat certain information as confidential. White House staff made sure that agency staff members were comfortable disagreeing with the White House or improving on the proposals the White House suggested.

To be functional, OSTP's relationship with agencies had to be two-way street, as opposed to a stream of one-sided requests. This meant that OSTP had to share information, and to identify things we could influence that were important and meaningful to the agencies, such as their budget, a presidential "shout out" in a speech, cooperation from other agencies, and so forth. Sometimes we took actions that were symbolic but meaningful, such as inviting agency leaders or staff to a White House event, helping them promote an initiative via OSTP social media platforms, praising something they had done-even inviting them to go bowling at the White House.

Developing strong relationships with agencies also required understanding the internal dynamics of an organization, the personalities of the senior leadership, and the agency culture. How are decisionrights allocated? What are the key internal meetings? Are there personality disputes or differences of opinion that affect how the agency operates? Which people in the agency actually follow up on something they make a commitment to do?

One step OSTP took under the Obama administration was to ask agencies to increase their capacity in areas important to OSTP. For example, Congress had provided OSTP with $\$ 2$ billion to support community colleges, so it helped the Department of Labor recruit an expert in online learning because it wanted to devote some of the funds to online learning. OSTP also worked with NASA to create a "center of excellence" for open innovation, which increased NASA's capacity to use approaches such as crowdsourcing and incentive prizes to solve problems.

## Taking Advantage of the Administration's "Bully Pulpit" and Ability to Convene

President Obama often highlighted the importance of an "all hands on deck" approach to solving problems. When actions by the federal government could not solve a particular issue, the president would often issue a "call to action" to inspire stakeholders (companies, research universities, nonprofits, foundations, state and local governments, etc.) to make specific commitments that advanced the administration's priorities.

For example, in his 2011 State of the Union Address, President Obama set the goal of preparing and recruiting 100,000 high-quality K-12 STEM teachers by 2021. To help achieve this goal, the Carnegie Corporation formed a coalition with 280 members called 100kin10, and
they are currently on track to achieve this goal. President Obama used events like the White House Science Fair to highlight the progress the coalition was making and to inspire other organizations to join them. President Clinton called the coalition "a metaphor for how the world should work."

My team was involved in similar efforts, including those to accelerate the development of applications using high-speed computer networks (US IGNITE); promote entrepreneurship in communities across the country (Startup America); foster collaboration between cities and universities to develop "smart cities" (MetroLab Network); increase the number of Americans, young and old, participating in the Maker Movement (Nation of Makers); ensure that more children of military families had access to AP math and science courses (NMSI Initiative for Military Families); encourage professionals to engage in STEM mentoring for K 12 students (US2020); make computer science a new basic in the K-12 curriculum (CS for All); and reduce the waiting list for an organ transplant.

To promote these efforts, OSTP staff would draft and seek approval for a "call to action" from the president or a senior official, identify potential roles for different types of organizations, work with organizations to craft a specific and credible commitment, and organize a highprofile public event at which these commitments would be announced. For many of these initiatives, an external organization was responsible for measuring progress, expanding the coalition, and ensuring that the coalition members were learning from each other to accelerate progress. These initiatives were more likely to succeed when they had clear and compelling goals, entrepreneurial leaders, and sustained attention (as opposed to a single kickoff event) from the White House and federal agencies.

## Making a Policy Priority an

## Element of White House or Agency Initiatives

One of OSTP's goals was to identify instances where science, technology, and innovation could advance presidential priorities. For example, OSTP was able to make these three elements one of the pillars of the Presidential Policy Directive on Global Development policy; to make STEM and educational technology an element of the Presidential Study Directive on military families; and research a part of the president's executive order on mental health services for veterans and service members, all of which we believed could have a significant impact. For example, the Presidential Policy Directive on Global Development encouraged USAID to create the Global Development Lab, and to increase the role that science, technology, innovation, and partnerships played in advancing USAID's mission. The Global Development Lab became a champion of doing development differ-ently-for example, by using incentive prizes, "grand challenges," mobile technology, and Big Data. Integrating science, technology, and innovation into the administration's broader policy agenda required OSTP to develop strong relationships with other policy councils, such as the Domestic Policy Council, the National Security Council, and the National Economic Council, so we could inform new policies as they were being developed.

## TWELVE MAXIMS FOR GETTING THINGS DONE

Getting things done in government almost always requires making contextdependent judgment calls. However, I found certain observations, principles, and rules of thumb to be useful in many different contexts, which I shared with the members of my team and other OSTP staff. Below are some examples.

## 1. Have an agenda, rather than merely reacting to the agenda of others or to external events.

Policymakers are most effective when they are trying to accomplish something specific that they can clearly articulate:

- What am I trying to get done? What is the status quo? What is a more desirable future in the issue area that I care about?
- How will my project get done? What public and private actions or resources are needed to achieve my goals?
- How will I know if my idea is successful? What metrics of success can be tracked over time?
- Why do I believe this is the right thing to do, and that doing A will (or is likely to) cause B to occur?
- Whom do I need to convince of the value of my idea? Who should be involved in its implementation?
- How do I communicate the essence of my idea to a non-expert?

Finding the answers to these questions may require interacting with smart people and stakeholders inside and outside of government, and the answers may evolve over time. You may ultimately have to compromise or settle for only part of what you want. Of course, there is a happy medium between having no opinion and being overly dogmatic and unwilling to compromise or accept people's suggestions for improving your idea. In any case, if you can't ultimately answer your questions, your effectiveness will be limited.

## 2. Ask interesting questions.

Sometimes we go immediately to answers without taking time to reflect on what the right questions are. We should ask the world the questions we are asking ourselves as a way of soliciting help and ideas. OSTP has occasionally used formal
requests for information to solicit information from the public.

## 3. If you want someone to help you, make it as easy as possible.

Making it easy for people to help you is almost always a good idea. If I wanted a senior White House staff member to intervene on a given issue, for example, I wrote the e-mail I wanted them to send or developed talking points for the conversation I wanted them to have. Whenever possible, I would identify both the problem and the solution.

At OSTP we had considerable success in encouraging agencies to increase their use of prizes and challenges. We worked with Congress to pass legislation that gave all federal agencies the authority to sponsor prizes and challenges. We worked with the Office of Management and Budget to issue guidance to agencies that reduced uncertainty about the meaning of the new prize authority statute, and we worked with the General Services Administration to get providers of specialized services related to prize management on their schedule in order to reduce the time it took agencies to procure their services. Agencies dramatically increased the number of incentive prizes they sponsored because we reduced the transaction costs of doing so.

## 4. Work from the top down and the bottom up.

If you are trying to get an agency or organization to take some action, it is best to work from both the bottom (or middle) of the organization and the top. If you work an issue only from the bottom up, the lower level staff may not have deci-sion-making rights or may be overly conservative; this is particularly true for some civil servants. On the other hand, if you take only a top-down approach, you may not be able to address the arguments the
staff makes. If staff members are strongly opposed to an idea, they may not be committed to its implementation, may "slow roll" you, may roll back the initiative after you leave, or simply stop paying attention.

## 5. Understand the pros and cons of multilateralism, minilateralism, and bilateralism.

In addition to understanding the objectives of a particular policy, it can be valuable to see one's role in the policy process as a form of diplomacy. I describe three of the strategic approaches we most commonly used as bi-, mini-, and multilateralism:

- Bilateralism: One-on-one conversation with another organization. Advantages include (a) people are more candid and willing to share information in a one-on-one conversation; (b) it's easier to negotiate and to find common ground with just one other person; and (c) a senior person within an organization is generally available for a one-on-one meeting; this is true for organizations within and outside government.
- Minilateralism: A meeting between OSTP and a small group of agencies or outside organizations. This is especially useful for brokering a collaboration between two or more organizations, or for getting a small group of agencies or organizations on board before trying to build a broader coalition. Meaningful collaboration is generally much easier between two agencies than five or ten.
- Multilateralism: Large group meetings. It is harder to have successful large group meetings, as it is more difficult to reach consensus. However, large meetings are useful for sharing information or broadcasting an assignment to a group of agencies, and some decisions require broad buy-in. Large group
meetings can also be useful for building coalitions, and they may be necessary if achieving government-wide consensus on a topic is critical.


## 6. Increase the likelihood of follow-up.

People don't follow up as often as we'd like. There are some things you can try to increase follow-up:

- Ask a person when they think they can complete their assignment.
- Send them an e-mail documenting their commitment.
- Keep a list of important commitments others have made to you or put a reminder to yourself on your calendar to get in touch with them.
- Try to figure out why someone is not following up (e.g., they don't understand what you want, they are too busy, they don't really support your idea, they need someone else's collaboration and can't get it, they forget).
- Create a deadline-even an artificial one.
- Escalate the pressure (e.g., meet with their boss).


## 7. Find and recruit allies.

Find people with shared interests who can help you get your job done. Think about people with specific skill sets whom you could recruit to the federal government. Develop and manage a network of allies with aligned interests, such as:

- Idea people, especially those with specific ideas on "what, how, and who" and are willing to commit them to paper;
- Special assistants, chiefs of staff, gatekeepers, and schedulers for key principals;
- "Doers" who follow up when they agree to do something;
- Opinion-makers, key media contacts, and people with a large following;
- Foundation staff and executives; and
- Intermediary organizations that (a) can help you engage in wholesale rather than retail efforts at coalition-building; (b) are trying to scale-up an intervention that the administration supports. Kumar Garg, who joined my team in June 2009 and who became my de facto number two, had a favorite maxim while at OSTP: "find your doers." Doers are energetic and entrepreneurial people who take responsibility for the execution of an idea, even if important elements of the process are outside their job description. If they get stuck, they are willing to explain why and what help they need. Many people expressed interest in collaborating with OSTP, and Kumar would audition them by giving them a straightforward task that could be done in 15 minutes. People who passed this test would be given progressively more challenging assignments.


## 8. Think of the end at the beginning.

It usually makes sense to identify your desired results at the beginning of a policy process and to work backward from that. For example, if you want an agency to issue a request for proposals on a given technical topic, try to determine who within the agency will have to approve it and who can draft it, and ensure that they support the idea.

## 9. Save the world one document at a time (or "write it down, make it happen'").

It's likely that, at some point in the policymaking process, the policy will need to be instantiated in one or more documents in order to make and implement a decision. I often told members of my team that part of moving a decision forward is to first discover what document (or documents) need to be written so the policy can be implemented. What you're trying to do
will determine the appropriate policy lever. For example, developing a regulation like the International Entrepreneur Rule requires publishing a draft in the Federal Register, collecting public comment, and finalizing a rule that goes into the Code of Federal Regulations. If you're trying to launch a multi-agency research initiative, it may require a request for proposals that's embraced by multiple agencies and an inter-agency memorandum of understanding that allows any one of those agencies to fund submitted proposals. If your goal is to send a clear signal that something is a presidential priority, then issuing a presidential memorandum or executive order can help accomplish that. These documents also generally direct one or more agencies to take some concrete action.

Other documents useful in the development and implementation of policy include funding proposals for the president's budget, a proposal to hold a presidential event, amicus briefs on important cases, administration policy statements on proposed legislation, agency directives, fact sheets and other event press releases, and memoranda of understanding between agencies or with outside organizations.

While not all policy goals can be accomplished through documents alone, they are critical in framing a challenge or opportunity, presenting options, making a decision, and implementing that decision.

## 10. Make the schedule your friend.

High-priority events-including events in the White House held by the president, the vice president, senior advisors, and members of the Cabinet-can allow an organization to get a great deal accomplished, including:

- Signaling to the world that your issue is an administration priority;
- Creating an artificial deadline for agency and private-sector commitments;
- Working with a speechwriter to make an important point, highlight a success story, issue a call to action, or set an ambitious but achievable goal;
- Offering supporters of an initiative the opportunity to meet or hear from the president; and
- Drafting a fact sheet that can go into detail about public and private commitments.

Before you suggest holding an event, be clear what the answers are to key questions:

- What message will the event will convey?
- What is the president (or some other administration official) announcing?
- What are the deliverables?
- Is there a compelling backdrop or visual?
- Who is accompanying the president at the event?
- Who are the potential third-party validators or critics of the policy proposal that is being announced?
- If you could write the headline and the first paragraph of an article covering the event, what would it say?


## 11. Use standing meetings effectively.

Questions to ask yourself before going to a meeting include:

- What are you trying to accomplish?
- Have you worked to "pre-sell" your position to key participants in the meeting?
- Should you bring a document to help shape the discussion and signal your interest in the topic?
- Are clear next steps and assignments coming out of the meeting and captured in minutes?

Standing meetings provide another opportunity for action. One important standing meeting in the White House was the $8: 30$ senior staff meeting led by the chief of staff and attended by Dr. Holdren. It offered Dr. Holdren the opportunity to raise issues with other senior White House advisors.

## 12. Have a large and constantly growing "toolbox."

Policy entrepreneurs must be able articulate a coherent relationship between means and ends. They also need to identify the policy levers that will help achieve a given goal, such as changes in the tax code, regulatory policy, legislation, R\&D investments, etc.

Policy entrepreneurs are more likely to be able to propose the right mix of tools if they increase their understanding of how and under what circumstances they might use a given policy instrument. One hallmark of President Obama's innovation policy was to encourage experimentation with different techniques for solving problems. Examples include incentive prizes, grand challenges, multisector collaborations, harnessing behavioral insights to improve policies and programs, citizen science and crowdsourcing, human-centered design, making open data available in machine-readable format so third-party developers can create value-added services, innovative procurement tools that allow the government to partner with commercial firms and startups, and the authority to recruit top talent for a tour of duty in government.

## The "Team Kalil" Whiteboard

Most OSTP staff had never worked at the White House, and many were also new to the federal government. To help them with the "onboarding" process, I prepared several presentations and documents, one of which was called "Getting Things Done at the White House." Kumar Garg, started a list of the aphorisms in these documents and contributed some of his own.

- Schedule is your friend
- Steer, don't row
- Hours you contribute/Hours overall
- Have an opinion
- Think of the end at the beginning
- If you had 15 minutes to pitch POTUS, what is on your list and are you working on it?
- Entrepreneur = someone not limited by the resources directly under their control
- If you want people to do something, make it easy
- Write it down. Make it happen.
- Strong relationships are built on trust, mutual understanding, and reciprocity

- People never follow up
- Find your doers
- Talk to who owns the paper
- Better to light a single candle than cry out in the darkness
- You can get more done if you don't care who gets the credit
- Don't be a bottleneck
- Water on stone
- Just add talent
- We are all captives of our experience
- Do you have escalation dominance?


## Where New Ideas Come From

Policy entrepreneurs will be more effective if they are open to ideas that come from a variety of sources within and outside the government, from experts and citizens alike. Existing commitments the president made during the campaign or while in office are an excellent starting foundation, but consider too the input of advisory committees (such as PCAST, the President's Council of Advisors on Science and Technology), agency advisory committees (e.g., the Defense Science Board), or external "blue ribbon" commissions. Reports from congressional organizations such as the Congressional Budget Office or the Government Accountability Organization can provide another perspective on which administration policies to pursue, as can legislation introduced in the current or prior Congress. The National Academy of Sciences, think tanks, and academic literature can be rich repositories of ideas ready for translation to action.
Imitation of a good idea should be embraced; an idea, model, or approach that has been successful in one context can be adopted by another. For instance, former U.S. Chief Technology Officer Todd Park and serial entrepreneur Steve Blank helped encourage the translation of Silicon Valley's Lean Startup methodology to applications within the federal government. Innovative practices are often first adopted by some institutions (e.g., state and local government, universities, nonprofits) but not others, which makes it important to keep scanning the progress of other institutional actors.

Finally, good policy entrepreneurs keep their eyes and ears open to ideas from the crowd. Understand the position of stakeholders (e.g., private sector, professional societies, foundations, nonprofits) as expressed in position papers, congressional testimony, etc., and also consider using workshops and requests for information to the public to solicit citizen participation directly.

## SKILLS AND DISPOSITIONS REQUIRED FOR SUCCESS

To be successful using the above strategies requires nurturing certain learnable skills.

The Diplomat: Has the ability to act as an honest broker to resolve interagency disputes or help agencies reach consensus on a policy issue. This is critical because a lack of consensus can delay progress on an idea or initiative.

The Visionary: Has the ability to generate or spot good ideas. In the White House, this is especially valuable in the run-up to the budget, major policy addresses, and presidential or cabinet events. Effective policy entrepreneurs have the ability to get excited about others' ideas, not just their own, which dramatically increases
the number of ideas they can advocate for.

The Advocate: Has the ability to be an effective champion for the president's priorities. This requires the ability to explain in a compelling way why something is a priority and what individuals and organizations can do to advance it. This is important because presidential decisions are rarely self-executing and may require action by the Congress, federal agencies, state and local governments, the private sector, and civil society.

The Communicator: Has the skill of clear and concise oral and written communication with multiple audiences. A communicator also has a solid understanding of what different audiences are looking for (e.g., scientists and engineers vs. White House communications officers vs. an Office of Management and Budget exam-

## Relationships with Other EOP and White House Components

Getting things done often requires understanding how the rest of the Executive Office of the President operates, who else cares about the issues you work on, what constitutes success for other EOP offices, and how to communicate and work effectively with them. In some cases, OSTP staff managed the relationships with the following offices:

- Other policy councils: National Economic Council, Domestic Policy Council, National Security Council, Council of Environmental Quality
- White House Communications Office. OSTP played a key role in choosing presidential events and the "message of the day."
- Office of Public Engagement. Promoted good relationships with outside groups.
- Office of Digital Strategy. Oversaw effective use of the Internet to get the White House message out and engage the public.
- Speechwriter. Speechwriters are looking for compelling facts and figures, clear goals, moving stories about individuals, metaphors, and a framework and narrative arc for the speech.
- White House Legislative Affairs
- Office of the First Lady, Office of the Vice President
- Staff Secretary. Managed the paper flow to and from the president.
- Office of Management and Budget
- Presidential Personnel
iner). This requires having empathy for the individual you are collaborating with and the ability to ask what motivates them and how they define success in their role. It requires establishing the context needed for them to understand your idea; to avoid using jargon, special vocabulary, or acronyms they are unlikely to understand; and to know what "mental models" they use to make sense of the world.

The Student: Is comfortable as a generalist when necessary and can quickly get up to speed on a new issue. This is particularly important in an environment like the White House, where individuals may have a broad portfolio and need to respond to varied crises or external events, such as Deepwater Horizon, Fukushima, and the Ebola and Zika outbreaks.

The Recruiter: Identifies people who should be working for the government or for newly created positions. The recruiter is more likely to steer than row and, like

Tom Sawyer, is able to get colleagues and associates to help "paint the white picket fence."

The Organizer: Follows up on the status of a commitment to an action and tracks next steps.

The Connector: Builds networks of people who can help generate ideas. The connector helps prevent surprises, finds out what is really going on inside other organizations, and gets things done.

## COMMMON PITFALLS

## Spreading Yourself Too Thin

When we try to do too many things, there is a danger that we will get none of them done. We must learn instead to identify opportunities for "surgical interventions." In my case, there were a number of instances when I put in enough time to get President Obama to embrace an idea but not enough to build congressional
support. For example, for five years the president called for the creation of a "DARPA for Education" that would invest in high-risk, high-return research to develop breakthroughs in learning technologies, such as advances in artificial intelligence to create software as effective as a one-on-one tutor. ${ }^{2}$ I did not devote enough time to this initiative to build congressional support for it, so it was never enacted.

## Allowing the Urgent to Drive Out the Important

Imagine that you have 15 minutes to pitch an idea to the president, one you can seriously imagine him including in a major policy address and you spending some time to make happen. Why aren't you working on that, as opposed to devoting too much time to things that are not that important? I encouraged my team to "steer, not row," and to make sure they had a federal agency or external partner that could implement a desired initiative. They also needed to block off time to do work that was important but not urgent, to make sure that progress would continue on their biggest priorities, no matter what short-term issues arose.

## Spending Too Much Time on Reports

Before you devote a great deal of time to drafting, editing, and seeking approval of a report, ask yourself whether it is really necessary, how it will help you advance your agenda, and what additional work will be required to implement the report's recommendations. Have a clear theory of what action will flow from it. It's far more likely that something will happen if you use your document not only to articulate things someone might do but also to lay out the specific things particular people or organizations agree to do by a given date.

## Allowing Something to Drag On Indefinitely

When necessary, try to force resolution of an issue that is dragging on by resorting to escalation with your partner agency or organization. This might involve having your boss meet or communicate with their counterparts to resolve the issue or, if necessary, to prepare a decision memo for the president.

## Failing to Plan How Your Ideas and Initiatives Will Survive to the Next Administration

Some initiatives survive the transition from one administration to the next, while others are washed away like a sand castle on the beach. For example, although President Clinton unveiled the National Nanotechnology Initiative in January 2000, his last year in office, the effort was also embraced by presidents Bush and Obama. I believe this initiative has survived for more than 17 years because:

- The topic is not partisan, unlike health care, climate change, or the minimum wage;
- Congress passed a law authorizing the initiative in 2003;
- The Clinton administration created a "coordination office" charged with helping the agencies that were working together and preparing reports for Congress on the federal investment in nanoscale science and engineering; and
- There was a group of companies, industries, national labs, research universities, and scientific professional societies that supported the initiative.

These favorable conditions will not exist for all initiatives, and policymakers should therefore consider what they can do to increase the chances that their initiatives will carry on.

## Allowing People to Be Surprised

People dislike being surprised, even if it is good news. It is important to lay the groundwork before announcing a major new action by floating trial balloons for feedback, taking time to introduce a plan in a one-on-one setting before a meeting, and so forth.

## CONCLUSION

Successful policy entrepreneurs know how to wield influence that exceeds their formal authority, build coalitions, take advantage of open "policy windows," and, more generally, know how to get things done in complex environments. They also learn about the strengths and limitations of different policy tools, and about the challenges and opportunities in specific policy domains.

Although some of this information and know-how is highly context dependent, much of it is generally applicable. In fact, it could be highly useful to students interested in a career in public service who are getting a master's degree in public policy; to people participating in fellowship programs such as the American Association for the Advancement of Science or the Presidential Management Fellowship program; and to citizens seeking to shape or inform public policy.

One way to disseminate this information would be through a partnership between public policy schools and policy entrepreneurs. They could capture and synthesize information about the range of traditional and new tools policymakers are using to solve particular problems. This is important because advancing public policy requires a coherent relationship between means (the policy tools that will help achieve a given goal) and ends (the goal). More citizens and public servants will be able to propose creative solutions to important problems if they understand
what tool (or combination of tools) is likely to be successful.

[^3]
## Q. What is your favorite thought experiment?

Imagine that you have a magic laptop. The power of the laptop is that any press release that you write will come true.

You have to write a headline (goal statement), several paragraphs to provide context, and 1-2 paragraph descriptions of who is agreeing to do what (in the form organization A takes action B to achieve goal C ). The individuals or organizations could be federal agencies, the Congress, companies, philanthropists, investors, research universities, non-profits, skilled volunteers, etc. The constraint is that it has to be plausible that the organizations would be both willing and able to take the action. For example, a for-profit company is not going to take actions that are contrary to the interests of their shareholders.

What press release would you write, and why? What is that you know and believe that you think makes this a compelling idea?

## Q. What was the variant of this that you used to ask people when you worked in the White House for President Obama?

You have a 15 minute meeting in the Oval Office with President Obama, and he asks:
"If you give me a good idea, I will call anyone on the planet. It can be a conference call, so there can be more than one person on the line. What's your idea, and why are you excited about it? In order to make your idea happen, who I would need to call and what I would need to ask them to do in order to make it happen?"

## Q. What was your motivation for posing this thought experiment to people?

I've been privileged to have roles where I can occasionally serve as a "force multiplier" for other people's ideas. The best way to have a good idea is to be exposed to lots of ideas.

Also, ideas are obviously more actionable if people can not only articulate the "what" - but the "who" and the "how." Sometimes people would have the kernel of a good idea, but I would need to play 20 questions with them to refine it.

## Q. Why does this thought experiment relate to the Hamming question?

Richard Hamming was a researcher at Bell Labs who used to ask his colleagues, "What are the most important problems in your field? What are you working on?" This would annoy some of his colleagues, because it force them to confront the fact that they were working on something that they didn't think was that important.

If you really did have a magic laptop - presumably you would use it to help solve a problem that you thought was important!

## Q. How does this thought experiment relate to the concept of what sociologists call "agency?"

People develop an implicit or explicit sense for what in their environment is fixed, and what they view as potentially changeable.

One of the privileges of working for President Clinton and Obama was that, over time, my sense of what I could accomplish became more expansive. I had the ability to send the President a decision memo, and have him check the box that said "yes."

I think the thought experiment can get people to realize that many elements of the status quo are the result of human action or inaction, and therefore, are potentially changeable, as opposed to the laws of physics.

## Q. How does this thought experiment highlight the importance of coalition-building?

There are many instances in which we have a goal that requires building a coalition of individuals and organizations.

It's hard to do that if you can't identify (1) the potential members of the coalition; and (2) the mutually reinforcing actions you would like them to consider taking.

Once you have a hypothesis about the members of your coalition of the willing and able, you can begin to ask and answer other key questions as well, such as:

- Why is it in the enlightened self-interest of the members of the coalition to participate?
- Who is the most credible messenger for your idea? Who can help you convene the coalition?
- Is there something that you or someone else can do to make it easier for them to get involved?
- If a member of the coalition is willing but not able, can someone else take some action that relaxes the constraint that is preventing them from participating?
- What evidence do you have that if individual or organization $A$ took action $B$, that $C$ is likely to occur?


## Q. Is this thought experiment just relevant to policy-makers?

Not at all. I think it is relevant for any goal that you are pursuing that you believe requires concerted action by multiple individuals and organizations to accomplish.
Q. What's the relationship between this thought experiment and Bucky Fuller's concept of a "trim tab?"

Fuller observed that a tiny device called a trim tab is designed to move a rudder, which in turn can move a giant ship like the Queen Elizabeth.

So, identifying these leverage points that can help solve important problems is incredibly useful.
For example, some environmental advocates have focused on the supply chains of large multinationals. If these companies source products that are more sustainable (e.g. cooking oils that are produced without requiring deforestation) - that can have a big impact on the environment.

## Q. What steps can people take to generate better answers to this thought experiment?

There are many things - like deep understanding of a particular problem, being exposed to both successful and unsuccessful efforts to solve important problems in many different domains, or understanding how particular organizations that you are trying to influence make decisions.

One that I've been interested in is the creation of a "toolkit" for solving problems. If, as opposed to having a hammer and looking for nails to hit, you also have a saw, a screwdriver, and a tape measure, you are more likely to have the right tool or combination of tools for the right job.

For example, during my tenure in the Obama Administration, my team and other people in the White House encouraged awareness and adoption of dozens of approaches to solving problems, such as

- Sponsoring incentive prizes, which allow agencies to set a goal without having to choose the team or approach that is most likely to be successful;
- Making open data available in machine-readable formats, and encouraging teams to develop new applications that use the data to solve a real-world problem;
- Changing federal hiring practices and recruiting top technical talent;
- Embracing modern software methodologies such as agile and human-centered design for citizen-facing digital services;
- Identifying and pursuing $21^{\text {st }}$ century moonshots;
- Using insights from behavioral science to improve policies and programs;
- Using and building evidence to increase the share of federal resources going to more effective interventions;
- Changing procurement policies so that the government can purchase products and services from startups and commercial firms, not just traditional contractors.

Of course, ideally one would be familiar with a problem-solving tactics of different types of actors (companies, research universities, foundations, investors, civil society organization) and individuals with different functional or disciplinary expertise. No one is going to master all of these tools, but you might aspire to (1) know that they exist; (2) have some heuristics about when and under what circumstances you might use them; and (3) know how to learn more about a particular approach to solving problems that might be relevant. For example, I've identified a number of tactics that I've seen foundations and non-profits use.

## RE: [EXTERNAL] Re: OSTP orientation!

From: "Schmoyer, Michael W. EOP/OSTP" < (b) (6)
To: $\quad$ Thomas Kalil < (b) (6)
Cc: $\quad$ Nairoby Russell (b) (6)
Date: $\quad$ Thu, 29 Apr 2021 11:03:39-0400

Hi Tom-

We have a couple examples ... let me see if I can grab Jason to see if he has thoughts (Dr. Lander is doing his confirmation hearing right now, so we're a little thin). And yes, it would be helpful for you to have the Zoom info, would it? Sorry about that!

## $x=1$

Hi there,

Michael Schmoyer is inviting you to a scheduled ZoomGov meeting.

## Join Zoom Meeting

One tap mobile: US: (b) (6) or
(b) (6)

Meeting URL: https://pitc.zoomgov.com(b) (6)

Meeting ID:
(b) (6)

Passcode:
(b) (6)

Join by Telephone
For higher quality, dial a number based on your current location.
Dial:
US: $(\mathrm{b})(6) \quad$ or $(\mathrm{b})(6) \quad$ or (b) (6) $\quad$ or (b) (6)
(b) (6)
Meeting ID: $\quad$ (b) (6)
Passcode:
International numbers

Join from an H.323/SIP room system

| H.323: | (b) (6) | (US West) |
| :---: | :---: | :---: |
|  | (b) (6) | (US East) |
| Meeting ID: | (b) (6) |  |
| Passcode: | (b) (6) |  |
| SIP: | (b) (6) |  |
| Passcode: | (b) (6) |  |

From: Thomas Kalil(b) (6)
Sent: Thursday, April 29, 2021 10:53 AM
To: Schmoyer, Michael W. EOP/OSTP(b) (6)
Cc: Nairoby Russell(b) (6)
Subject: Re: [EXTERNAL] Re: OSTP orientation!

Hi Michael,

Looking forward to tomorrow! Is there a Zoom link I should use? Let me know if you have any volunteers for case studies. :-)

Tom

On Wed, Apr 21, 2021 at 2:59 PM Schmoyer, Michael W. EOP/OSTP (b) (6) $\quad v>$ wrote:

Wonderful! I will soon send a zoom appt; also will get together w peers and come up with a few 'scenario practicals' for you to choose from.
Sound good?
Sent from my iPhone

## Michael W. Schmoyer, PhD

Assistant Director for Health Security Threats

Executive Office of the President
Office of Science and Technology Policy (OSTP)
EEOB, Room ${ }^{\text {(b) (6) }}$
1650 Pennsylvania Ave, NW
Washington, DC 20502
(O) (b) (6)
(C) (b) $(6)$
(JWICS) (b) (6)

On Apr 21, 2021, at 4:26 PM, Thomas Kalil (b) (6) > wrote:
Sounds like a plan - thanks for your help!

Tom

On Wed, Apr 21, 2021 at 12:57 PM Schmoyer, Michael W. EOP/OSTP
(b) (6) $>$ wrote:

Alright! So, what about 20 min presentation... 10 min practical exercise...with 10 min $\mathrm{q} / \mathrm{a}$ ? We can end at 45 min or stay on the full hour if your spirit is with it?
I'm very excited about the Zoom!
Sent from my iPhone

Michael W. Schmoyer, PhD
Assistant Director for Health Security Threats
Executive Office of the President
Office of Science and Technology Policy (OSTP)
EEOB, Room ${ }^{(b)}$ (6)
1650 Pennsylvania Ave, NW
Washington, DC 20502
(O) (b) (6)
(C) (b) (6)
(JWICS) (b) (6)

On Apr 21, 2021, at 12:59 PM, Thomas Kalil(b) (6) wrote:

Perfect! I could be available for the entire hour - just tell me how much time you'd like.

Tom

On Wed, Apr 21, 2021 at 9:54 AM Schmoyer, Michael W. EOP/OSTP
(b) (6)
wrote:
Great! How about the block for 30 APR from 12-1 EST? what would be a good length of time for you? That has about 95\% of Jason's staff available.
Best,
Michael

From: Thomas Kalil(b) (6)
Sent: Wednesday, April 21, 2021 12:43 PM
To: Schmoyer, Michael W. EOP/OSTP(b) (6)
Cc: Nairoby Russell (b) (6)
Subject: Re: [EXTERNAL] Re: OSTP orientation!
Hi Michael - delighted to work with you to set something up and glad you liked the video!

I could do
3 pm ET or later on Wednesday, April 28th
$10 \mathrm{am}-1: 30 \mathrm{pm}$ ET on Friday, April 30th
Anything in those windows work for you?

On Wed, Apr 21, 2021 at 8:49 AM Schmoyer, Michael W. EOP/OSTP

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(b) (6) > wrote:
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Good morning Tom-
(moving Jason to the Bcc line)

This is very exciting! I'm happy to work with you to schedule a Zoom appointment for our team. I love the idea of 20 questions ... let's chat about how to best build that into the Zoom meeting.

It was great to watch your video ... you had me at 'Bandura.' Coincidentally, he autographed my dissertation (which was driven by Social Learning Theory) prior to my defense. Was kind of a fun thing to surprise my committee with $)$

Best,
Michael

Michael W. Schmoyer, PhD
Assistant Director for Health Security Threats

Office of Science and Technology Policy (OSTP)
Executive Office of the President
The White House
(a) $(\mathrm{b})(6)$
(U) $(\mathrm{b})(6)$
$(\mathrm{JWICS})(\mathrm{b})(6)(6)$
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From: Thomas Kalil(b) (6)
Sent: Wednesday, April 21, 2021 12:43 PM
To: Schmoyer, Michael W. EOP/OSTP(b) (6) >
Cc: Nairoby Russell (b) (6)
Subject: Re: [EXTERNAL] Re: OSTP orientation!
Hi Michael - delighted to work with you to set something up and glad you liked the video!

I could do
3 pm ET or later on Wednesday, April 28th
10 am - 1:30 pm ET on Friday, April 30th
Anything in those windows work for you?

On Wed, Apr 21, 2021 at 8:49 AM Schmoyer, Michael W. EOP/OSTP (b) (6) wrote:

Good morning Tom-
(moving Jason to the Bcc line)

This is very exciting! I'm happy to work with you to schedule a Zoom appointment for our team. I love the idea of 20 questions ... let's chat about how to best build that into the Zoom meeting.

It was great to watch your video ... you had me at 'Bandura.' Coincidentally, he autographed my dissertation (which was driven by Social Learning Theory) prior to my defense. Was kind of a fun thing to surprise my committee with $)$

Best,
Michael

Michael W. Schmoyer, PhD
Assistant Director for Health Security Threats

Office of Science and Technology Policy (OSTP)
Executive Office of the President
The White House
(0)(b) (6) /(C) (b) (6) /(V) (b) (6)

| (U)(b) (6) |
| :--- |
| (JWICS)(b) $(6)$ |
| https://www.whitehouse.gov/ostp/ |
| <image001.png> | /(6)

NOTE: The body of this email or attached documents may contain sensitive information relating to the Committee on Foreign Investment in the U.S (CFIUS). This email and its attachments may be exempt from public disclosure under the Freedom of Information Act, 5 U.S.C. 552(b). Public disclosure of this information is further prohibited by section 721(c) of the Defense Production Act, 50 U.S.C. app. 2170(c). Criminal penalties may apply.

## From: Thomas Kalil(b) (6)

Sent: Sunday, April 18, 2021 10:57 AM
To: Matheny, Jason G. EOP/OSTP(b) (6)
Cc: Schmoyer, Michael W. EOP/OSTP(b) (6)
Subject: [EXTERNAL] Re: OSTP orientation!
Absolutely - I'd be delighted to! Also - let me know if you'd ever be interested in catching up in general.

I also did a 10-minute video that is relevant -
$\ggg \gg$ https://www.youtube.com/watch?v=MJkhH83Bw4A<<<<<<, and memos on "magic laptop" thought experiment, designing multi-agency research initiatives, policy entrepreneurship, and increasing the maturity of a policy idea.

One thing that might be useful is to have me play " 20 questions" with an OSTP staffer to see if I can help them refine their idea - e.g. what do they believe that is motivating their idea, what would constitute success, what are the most relevant policy tools, what challenges and obstacles might they have to overcome, what might they consider doing next, etc?

Tom

On Sun, Apr 18, 2021 at 7:23 AM Matheny, Jason G. EOP/OSTP (b) (6) $>$ wrote:

Tom,
You and "Getting Things Done in OSTP" have a huge fan club here. Would you be willing to do a 1 hr Zoom with OSTP staff to talk about how they can succeed here?
Best wishes, Jason

## [EXTERNAL] Re: Address?

$\begin{array}{ll}\text { From: } & \text { Thomas Kalil (b) (6) } \\ \text { To: } & \text { "Schmoyer, Michael W. EOP/OSTP" (b) (6) }\end{array}$
Date: Wed, 12 May 2021 19:26:50-0400

I was happy to do it - great questions!

Tom Kalil
(b) (6)


On Wed, May 12, 2021 at 11:44 AM Schmoyer, Michael W. EOP/OSTP
(b) (6) wrote:

Hi Tom-

Thank you again for the wonderful presentation! Would you mind providing me a good mailing address so we might send you a quick note?

Thanks so much,

Michael

Michael W. Schmoyer, PhD

Assistant Director for Health Security Threats

Office of Science and Technology Policy (OSTP)

Executive Office of the President

## The White House


https://www.whitehouse.gov/ostp/


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## RE: [EXTERNAL] reducing infectious diseases' impact

From "Hebbeler, Andrew M. EOP/OSTP"(b) (6)
:
To: Mike Fisher (b) (6)
Cc: "Segre, Julie A. EOP/OSTP" (b) (6) "Wolinetz, Carrie D. EOP/OSTP"

| (b) (6) | "Schmoyer, Michael W. EOP/OSTP" |
| :---: | :---: |
| (b) (6) | , "Waterman, Paige E. EOP/OSTP" |
| (b) (6) | , "Guerra, Stephanie L. EOP/OSTP" |
| (b) (6) | , "McKelvey, Greg G. Jr. EOP/OSTP" |
| (b) (6) | , "Sheehan, Jerry R. EOP/OSTP" |
| (b) (6) |  |

Date: Wed, 02 Jun 2021 17:19:22-0400
Hi Mike: Great chatting with you too, and thanks for sending these resources! Would be great to hear how your discussions with Doug and India go.
+others FYSA, in case these FAS/D1P docs aren't already on their radar.

Thanks again!
Andrew

From: Mike Fisher (b) (6)
Sent: Wednesday, June 2, 2021 8:59 AM
To: Hebbeler, Andrew M. EOP/OSTP(b) (6)
Subject: [EXTERNAL] reducing infectious diseases' impact

Hi Andrew,

Thank you again for talking with me the other week. Following up on our conversation, if any additional OSTP priorities have crystallized beyond pandemic preparedness / taking measures to reduce the impact of infectious diseases, it would be great to schedule another call.

And regarding pandemic preparedness / infectious diseases, just sharing six FAS Day One papers in our portfolio that may be of interest to you and your team (happy to prepare a brief on any of these or work with the authors to further develop ideas in a direction you are pursuing):

Preventing the Next Pandemics: An Upstream Approach to Novel National Security Threats

Shift from reacting to disease outbreaks - which is economically devastating - to detecting, addressing, and mitigating the major upstream factors that contribute to the emergence of diseases prior to an outbreak.

## Improving Federal Management of Wildlife Movement and Emerging Infectious Disease

Reduce the risk of emerging infectious diseases entering the United States, offer greater protection to citizens from zoonotic diseases, and protect American biodiversity from losses due to wildlife diseases.

## A National Bioeconomy Manufacturing and Innovation Initiative

Ramp up cross-cutting, cutting-edge research and development across the areas of healthcare, food \& agriculture, energy, environment, and industrial applications to develop fundamental and publicly available tools, and bolster American biomanufacturing.

## Open Access to Federally-funded Research Data

Accelerate scientific progress by (i) requiring scientists who receive federal funding to share their research data and (ii) directing federal research agencies to coordinate to build an International Research Data Commons that allows research data to be easily discovered and shared.

## Creating a COVID-19 Commission on Public Health Misinformation

Examine our nation's response to the 2020 pandemic using a mechanism that is modeled on the 9/11 Commission, with one Commission focusing on public health communication and messaging that would assess the information about the pandemic: what was made publicly available, how the information affected our societal response, and what should be done to limit the impact of false and dangerously misleading information moving forward.

## A National Strategy to Counter COVID-19 Misinformation

Establish an office at the Department of Health and Human Services dedicated to countering COVID19 misinformation.

Also possibly of interest, on Friday I'll be meeting with Doug Friedman of BioMADE and India HookBarnard of the Engineering Biology Research Consortium to discuss the potential of sourcing policy ideas from the synbio community.

Thanks again, Andrew, and looking forward to talking again soon!

Best,

Mike

Michael A. Fisher, Ph.D.
Senior Fellow
Federation of American Scientists

1112 16th Street NW, Suite 400
Washington, DC 20036

Email: (b) (6)
Linkedln: bit.ly/MAFisher
Twitter: @mykfish
Join up to contribute your expertise to the science and technology knowledge-base for policymakers: Congressional Science Policy Initiative

## [EXTERNAL] Re: Rules



Date: Sun, 20 Jun 2021 10:07:13-0400

Thanks, Eric. We are very excited to have you and we look forward to adhering perfectly to all of these rules. Adding Diana so she also has the details. Thank you again for putting the effort in to find a path forward.

On Sat, Jun 19, 2021 at 7:00 PM Lander, Eric S. EOP/OSTP (b) (6) > wrote: Hi Jared:

Good to talk. WH Legal says that I can attend in my personal capacity. The relevant rules for identifying me are below. Please take care concerning identifying me, especially as noted in the bold below.

Best,
Eric

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## biographical details about yourself, and which does not give any greater prominence to your official title/position over your other biographical details. If the organizer asks that you

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```
Jared Cohen | Tel:(b) (6) | Twitter: @jaredcohen | Linked-In
My Books:
Life After Power (Simon & Schuster - Forthcoming)
Accidental Presidents (Simon & Schuster)
The New Digital Age - Co-authored w/Eric Schmidt (Knopf)
Children of Jihad (Gotham Books/Penguin)
One Hundred Days of Silence: America and the Rwanda Genocide (Rowman & Littlefield)
```


## [EXTERNAL] Re: Rules

## From Diana Skurka (b) (6)

:
To: "Lander, Eric S. EOP/OSTP" (b) (6)
Cc: "Lo, Kevin C. EOP/OSTP" (b) (6)
Adam Topper (b) (6) > Jared Cohen (b) (6)
Date: Mon, 21 Jun 2021 08:25:42-0400

Thrilled that you are able to join Eric. These details have been noted on our end.

On Sun, Jun 20, 2021 at 10:07 AM Jared Cohen (b) (6) wrote:
Thanks, Eric. We are very excited to have you and we look forward to adhering perfectly to all of these rules. Adding Diana so she also has the details. Thank you again for putting the effort in to find a path forward.

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```
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One Hundred Days of Silence: America and the Rwanda Genocide (Rowman \& Littlefield)

## Diana Skurka

Senior Manager \& Head of Community

## (b) (6)

>http://schmidtfutures.com/<

## [EXTERNAL] Re: Rules

From Adam Topper(b) (6)
:
To: $\quad$ Diana Skurka (b) (6)
Cc: "Lander, Eric S. EOP/OSTP"(b) (6) , "Lo, Kevin C. EOP/OSTP" (b) (6) , Lori Lander (b) (6) Jared Cohen (b) (6)

Date: Mon, 21 Jun 2021 11:29:24-0400

Thanks for sharing all of these details with us, Eric, we are very excited to have the family attend again this year.

Our programs are scheduled to go to the printer this week and we want to ensure that your information is included. Will you be able to share your personal bio and headshot by Wednesday, June 23?

Many thanks,
Adam Topper
Office of Eric Schmidt
Schmidt Futures

On Mon, Jun 21, 2021 at 8:25 AM Diana Skurka(b) (6) > wrote:
Thrilled that you are able to join Eric. These details have been noted on our end.

On Sun, Jun 20, 2021 at 10:07 AM Jared Cohen(b) (6) > wrote:
Thanks, Eric. We are very excited to have you and we look forward to adhering perfectly to all of these rules. Adding Diana so she also has the details. Thank you again for putting the effort in to find a path forward.

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Diana Skurka
Senior Manager \& Head of Community (b) (6)
>http://schmidtfutures.com/<

## Re: [EXTERNAL] Re: Rules

From Adam Topper (b) (6)
:
To: "Lo, Kevin C. EOP/OSTP" (b) (6)
Cc: Diana Skurka (b) (6) >, "Lander, Eric S. EOP/OSTP" (b) (6) , Lori Lander (b) (6) Jared Cohen
(b) (6) >, Yellowstone Weekend Info (b) (6) >

Date: Wed, 23 Jun 2021 13:59:28-0400

Not a problem at all. We will not include a title with his biography.

Thank you very much!

Adam

On Wed, Jun 23, 2021 at 1:58 PM Lo, Kevin C. EOP/OSTP (b) (6) > wrote:

Dear Adam:

Might we actually just list Eric as just Eric Lander?

Due to the below rules, specifically this one "You may not use your official title or position in a way that could suggest that you are speaking in your official capacity," we figured that it's safer to just list Eric with just his name and no title!

Please let me know if that's okay.

Thanks so much!
Kevin

```
Kevin Lo (he/him)
Special Assistant
Office of Science and Technology Policy
Executive Office of the President
(b) (6)
Cell:(b) (6)
```

From: Adam Topper (b) (6)
Sent: Wednesday, June 23, 2021 1:54 PM
To: Diana Skurka(b) (6)
Cc: Lander, Eric S. EOP/OSTP $<(\mathrm{b})(6) \quad>$; Lo, Kevin C. EOP/OSTP
(b) (6) ; Lori Lander (b) (6) ; Jared Cohen
(b) (6) ; Yellowstone Weekend Info(b) (6)

Subject: [EXTERNAL] Re: Rules

Hi Eric,

We've received your biography and headshot - thank you for coordinating.

Our program packets are being sent to the printers tomorrow and I want to confirm if you would like us to include your current title, or not list any title under your name in the packets. As a reminder, these packets are not promotional and are exclusively for attendees to use while they are at the Yellowstone Weekend.

If you would like us to include your current title, can you confirm that the below title is permissible? I can confirm that your biography contains at least three additional biographical details about yourself, and does not give any greater prominence to your official title/position over your other biographical details as suggested by White House Counsel.

We plan to list your title as: Director, White House Office of Science and Technology Policy.

Many thanks,

Adam Topper

Office of Eric Schmidt

Schmidt Futures

On Mon, Jun 21, 2021 at 11:29 AM Adam Topper (b) (6) > wrote:

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Jared Cohen | Tel:(b) (6) | Twitter: @jaredcohen | Linked-In

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Diana Skurka
Senior Manager \& Head of Community
(b) (6)
>>http://schmidtfutures.com/<<;

## RE: [EXTERNAL] Re: Rules

```
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:
To: Adam Topper(b) (6) >, Diana Skurka(b) (6) >
Cc: "Lander, Eric S. EOP/OSTP"(b) (6) >, Lori Lander
(b) (6) Jared Cohen(b) (6) , Yellowstone Weekend Info
(b) (6)
Date: Wed, 23 Jun 2021 13:58:25 -0400
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Cc: Lander, Eric S. EOP/OSTP \((\mathrm{b})(6)\)
\begin{tabular}{ll} 
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Diana Skurka<br>Senior Manager \& Head of Community<br>(b) (6)<br>>http://schmidtfutures.com/<

## Re: [EXTERNAL] Re: Rules

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:
To: "Lo, Kevin C. EOP/OSTP" < (b) (6) >
Cc: Adam Topper (b) (6) , Diana Skurka
(b) (6) , "Lander, Eric S. EOP/OSTP" (b) (6)

Lori Lander (b) (6) >, Yellowstone Weekend Info (b) (6)

Date: Wed, 23 Jun 2021 14:00:11-0400

We will list him however you would like us to list him

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Kevin

Kevin Lo (he/him)

Special Assistant

## Office of Science and Technology Policy

Executive Office of the President
(b) $(6)$

Cell: (b) (6)

## From: Adam Topper (b) (6)

Sent: Wednesday, June 23, 2021 1:54 PM
To: Diana Skurka < (b) (6)
Cc: Lander, Eric S. EOP/OSTP (b) (6) >; Lo, Kevin C. EOP/OSTP
(b) (6) ; Lori Lander (b) (6) Jared Cohen
(b) (6) ; Yellowstone Weekend Info(b) (6)

Subject: [EXTERNAL] Re: Rules

Hi Eric,

We've received your biography and headshot - thank you for coordinating.

Our program packets are being sent to the printers tomorrow and I want to confirm if you would like us to include your current title, or not list any title under your name in the packets. As a reminder, these packets are not promotional and are exclusively for attendees to use while they are at the Yellowstone Weekend.

If you would like us to include your current title, can you confirm that the below title is permissible? I can confirm that your biography contains at least three additional biographical details about yourself, and does not give any greater prominence to your official title/position over your other biographical details as suggested by White House Counsel.

We plan to list your title as: Director, White House Office of Science and Technology Policy.

Many thanks,

Adam Topper

Office of Eric Schmidt

Schmidt Futures

On Mon, Jun 21, 2021 at 11:29 AM Adam Topper (b) (6) wrote:

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On Mon, Jun 21, 2021 at 8:25 AM Diana Skurka(b) (6) wrote:

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On Sun, Jun 20, 2021 at 10:07 AM Jared Cohen (b) (6)
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Thanks, Eric. We are very excited to have you and we look forward to adhering perfectly to all of these rules. Adding Diana so she also has the details. Thank you again for putting the effort in to find a path forward.

On Sat, Jun 19, 2021 at 7:00 PM Lander, Eric S. EOP/OSTP
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Hi Jared:

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Best,
Eric

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- You should make a disclaimer that the views expressed are your personal views and are not necessarily the views/positions of the White House, the Administration or the US government.
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- Please ensure that the organizer of this event is aware that you are participating solely in your personal capacity, and does not advertise the event in a way that suggests otherwise. Importantly, please inform the organizer not to identify you by your official title or position in any promotional matorials, or on any wobsite or invitation, except that your official title or position can be used as part of a bio which also contains at least three additional biographical details about yourself, and which does not give any greater prominence to your official title/position over your other biographical details. If the organizer asks that you provide a bio for use in connection with this event, please send it to me so that I can review and approve it.
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Jared Cohen | Tel: (b) (6) | Twitter: @jaredcohen | Linked-In

My Books:

Life After Power (Simon \& Schuster - Forthcoming)
Accidental Presidents (Simon \& Schuster)

The New Digital Age - Co-authored w/Eric Schmidt (Knopf)

Children of Jihad (Gotham Books/Penguin)

One Hundred Days of Silence: America and the Rwanda Genocide (Rowman \& Littlefield)

## Diana Skurka

Senior Manager \& Head of Community

## (b) (6)

>>http://schmidtfutures.com/<<;

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Diana Skurka
Senior Manager \& Head of Community
(b) (6)
>http://schmidtfutures.com/<

## [EXTERNAL] Optimizing H-1B fees for domestic STEM training programs

| From: | Doug Rand (b) (6) |
| :---: | :---: |
| To: | "Nice, Amy M. EOP/OSTP" (b) (6) >, "Matheny, Jason G. |
|  | EOP/OSTP" (b) (6) >, "Alstott, Jeffrey D. EOP/NSC" |
|  | (b) (6) , "Lynch, Justin R. EOP/OSTP" |
|  | (b) (6) |
| Cc: | Lindsay Milliken [lmilliken@fas.org](mailto:lmilliken@fas.org) |
| Date: | Fri, 25 Jun 2021 10:32:29-0400 |
| Attachments | Building an Evergreen Billion-Dollar Fund for STEM.pdf ( 1.04 MB ) |
| : |  |
| Hi Jason, Amy, Jeff, and Justin, |  |
| Lindsay Millike of interest to y without increa | n and I have a new paper out this week from the FAS Day One Project, which might be -it's a way to raise a lot more money for domestic STEM education and training ing appropriations: |

Building an Evergreen \$1 Billion Fund for Science and Technology Career Advancement: How to Expand H-1B Fees for Innovative Workforce Training and Inclusive Graduate STEM Education (summary here, and full paper attached)

We provide a brief history of the $\mathrm{H}-1 \mathrm{~B}$ fee-based funding stream for STEM training and education, which was created by Congress in the late 1990s but has not been meaningfully updated in the succeeding decades.

We argue that Congress should increase the fees paid by $\mathrm{H}-1 \mathrm{~B}$ employers to reflect (a) the increase in inflation over the past two decades, as well as (b) the ability of major corporations, which are often the most prolific sponsors of $\mathrm{H}-1 \mathrm{~B}$ workers, to pay more than small businesses. An updated three-tier fee schedule could raise over $\$ 1$ billion each year for domestic STEM talent development.

We also provide recommendations for how the executive branch can use the existing $\mathrm{H}-1 \mathrm{~B}$ fund to launch innovative programs that advance U.S. economic competitiveness and diversify the STEM talent pipeline-two mutually reinforcing goals:

- Reestablishing the TechHire Initiative to rapidly train U.S. workers for in-demand technology jobs
- Establishing a new Advanced Research Projects Agency-Labor (ARPA-L) to conduct high-impact R\&D programs that create breakthroughs to meet America's workforce challenges
- Significantly increasing the number of graduate research fellowships dedicated to students in STEM fields who completed their undergraduate education at emerging research universities
- Significantly increasing the number of faculty training grants in STEM fields where a dearth of professors has created a bottleneck for graduate education (e.g. artificial intelligence)

Please don't hesitate to send us any immediate questions or feedback, and we would be happy to discuss any of these ideas in more detail.

Thanks and take care,
Doug

Doug Rand
Senior Fellow
Federation of American Scientists
(b) (6)

Bio / Linkedln / Twitter

## Building an Evergreen \$1 Billion Fund for Science and Technology Career Advancement

How to Expand H-1B Fees for Innovative Workforce Training and Inclusive Graduate STEM Education

Lindsay Milliken Doug Rand

## June 2021

## Summary

The $\mathrm{H}-1 \mathrm{~B}$ visa for "specialty occupation" workers has become a significant element of the U.S. employment-based immigration system. Less well-known is that employers of $\mathrm{H}-1 \mathrm{~B}$ workers annually pay hundreds of millions of dollars for domestic education and training programs in science, technology, engineering, and mathematics (STEM), administered by the Department of Labor (DOL) and the National Science Foundation (NSF). This fee-based funding stream was created in the late 1990s and has not been meaningfully updated by Congress in the succeeding decades. It is mandatory funding, tied to a continuous flow of $\mathrm{H}-1 \mathrm{~B}$ filing fees rather than the annual congressional appropriations process. Both the Obama and Trump administrations seized on this unique pot of money for advancing education and training priorities for Americans without new legislation or appropriations.

The Biden administration can take even greater advantage of this funding to launch innovative programs that advance U.S. economic competitiveness and diversify the STEM talent pipeline-two mutually reinforcing goals. Specifically, in this paper we recommend:

- Reestablishing the TechHire Initiative to rapidly train U.S. workers for in-demand technology jobs
- Establishing a new Advanced Research Projects Agency-Labor (ARPA-L) to conduct high-impact R\&D programs that create breakthroughs to meet America's workforce challenges
- Significantly increasing the number of graduate research fellowships dedicated to students in STEM fields who completed their undergraduate education at non-R1 universities
- Significantly increasing the number of faculty training grants in STEM fields where a dearth of professors has created a bottleneck for graduate education (e.g. artificial intelligence)

In addition, Congress should increase the fees paid by H-1B employers to reflect (a) the increase in inflation over the past two decades, as well as (b) the ability of major corporations, which are often the most prolific sponsors of $\mathrm{H}-1 \mathrm{~B}$ workers, to pay more than small businesses.

## Background

## A Brief History of the ACWIA Fee Account for STEM training

In the 1990s, the technology sector was growing rapidly and the demand for high-skill workers was quickly outpacing supply. The $\mathrm{H}-1 \mathrm{~B}$ visa, first enacted at the beginning of the decade, was becoming a popular option to bring in such skilled workers. In 1997, the number of applications for H -1Bs exceeded the established cap of 65,000 visas for the first time. The next year, demand was so high that the cap was reached within days of the opening date for new filings - and this has been the case nearly every year since.

Congress considered legislation to increase the $\mathrm{H}-1 \mathrm{~B}$ cap, but faced strong bipartisan opposition, as well as pushback from labor unions and professional associations. As a compromise, along with raising the caps for three years, Congress established a special fee for sponsors ("petitioners") of $\mathrm{H}-1 \mathrm{~B}$ workers which would be deposited into a new fund called the " $\mathrm{H}-1 \mathrm{~B}$ Nonimmigrant Petitioner Account." Because these provisions were included in the American Competitiveness and Workforce Improvement Act of 1998, immigration practitioners often refer to "ACWIA fees" and the "ACWIA fund."

Originally, the ACWIA fee amounted to $\$ 500$ per qualifying petition. The fee was increased twice since its creation: once in 2000 (to $\$ 1,000$ ) and once in 2004 (to its current level of $\$ 1,500$ ). The 2004 adjustment also specified for the first time that employers with 25 employees or fewer would pay a lower rate of $\$ 750$ per qualifying petition. Congress mandated that the funds be distributed primarily to DOL and NSF to support domestic STEM education and technical skills training programs. The current distribution of funds is as follows (see the Appendix for full statutory details):

- 50 percent to the Secretary of Labor for job training programs;
- 30 percent to the Director of NSF for scholarships for low-income students enrolled in STEM programs;
- 10 percent to the Director of NSF for a direct matching grant program that funds public-private partnerships in K-12 education;
- 5 percent to the Secretary of Homeland Security to improve processing employment-based temporary visa and green card petitions; and
- 5 percent to the Secretary of Labor to decrease the processing time for labor certification applications.

With this money, DOL has relatively wide latitude to make competitive grants to businesses, businessrelated nonprofit organizations, education and training providers (such as community colleges), "entities involved in administering the workforce development system," and economic development agencies. These grants are intended to support job training programs that help both unemployed and employed workers learn new skills to obtain a job or promotion, especially in industries experiencing significant growth. To determine these in-demand industries, the Secretary of Labor must consult with state workforce investment boards and take into account sectors that are "projected to add substantial numbers of new jobs"; "are being transformed by technology and innovation requiring new skill sets for workers"; "are new and emerging businesses that are projected to grow"; or "have a significant impact on the economy overall or on the growth of other industries and economic sectors."

NSF, on the other hand, has more statutory restrictions on how it can use its allocated ACWIA fees. Scholarships for low-income individuals pursuing associate, undergraduate, or graduate STEM degrees cannot exceed $\$ 10,000$ per year for up to four years, although up to $50 \%$ of this funding stream ( $15 \%$ of the total ACWIA fund) may be used for "undergraduate programs for curriculum development, professional and workforce development, and to advance technological education."

NSF's K-12 STEM education grants ( $10 \%$ of the total H-1B fund) must be awarded to public-private partnerships that serve one or more of the following purposes specified by Congress:

- Support the development and implementation of standards-based instructional materials, models, and related student assessments that enable K-12 students to acquire an understanding of STEM, and to develop critical thinking skills;
- Provide systemic improvement in training K-12 teachers and education for students in STEM;
- Support the professional development of K-12 STEM teachers in the use of technology in the classroom;
- Stimulate system-wide K-12 reform of STEM in rural, economically disadvantaged regions;
- Provide externships and other opportunities for students to increase their appreciation and understanding of STEM, including summer institutes sponsored by an institution of higher education for students in grades 7-12;
- Foster partnerships of industry, educational institutions, and community organizations to address the educational needs of disadvantaged communities;
- Provide college preparatory support to expose and prepare students for careers in STEM; and
- Provide for carrying out certain NSF systemic reform activities.


## Programs currently funded by ACWIA fees

Both NSF and DOL provide publicly-available data on the ACWIA fees that are spent on the agencies' programs. Table 1 includes the total amount of funding received by NSF and DOL from fiscal years (FY) 2010 to 2021 as noted in the agencies' annual budget requests

Table 1: Total ACWIA fee receipts received by NSF and DOL, FY 2010-2021

| Fiscal Year | Department of Labor <br> Receipts | National Science Foundation <br> Receipts | Total Funding |
| :---: | :---: | :---: | :---: |
| 2010 | $\$ 114,026,000$ | $\$ 91,220,000$ | $\$ 205,246,000$ |
| 2011 | $\$ 130,975,000$ | $\$ 106,110,000$ | $\$ 237,085,000$ |
| 2012 | $\$ 161,232,000$ | $\$ 128,990,000$ | $\$ 290,222,000$ |
| 2013 | $\$ 143,466,000$ | $\$ 120,940,000$ | $\$ 264,406,000$ |
| 2014 | $\$ 161,401,000$ | $\$ 132,490,000$ | $\$ 293,891,000$ |
| 2015 | $\$ 175,029,000$ | $\$ 143,000,000$ | $\$ 318,029,000$ |
| 2016 | $\$ 139,644,000$ | $\$ 138,800,000$ | $\$ 278,444,000$ |
| 2017 | $\$ 160,200,000$ | $\$ 141,070,000$ | $\$ 301,270,000$ |
| 2018 | $\$ 150,000,000$ | $\$ 155,990,000$ | $\$ 305,990,000$ |
| 2019 | $\$ 195,899,000$ | $\$ 156,720,000$ | $\$ 352,619,000$ |
| 2021, request | $\$ 194,000,000$ | $\$ 157,000,000$ | $\$ 351,000,000$ |

Source: These figures came from the annual budget requests for DOL and NSF.

NSF currently uses its money from ACWIA fees to fund two programs: Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM) and Innovative Technology Experiences for Students and Teachers (ITEST). By the end of FY 2018, the agency had received almost $\$ 2$ billion in cumulative ACWIA fees to support scholarships, as well as K-12 students and teachers.

NSF must allocate three-quarters of its ACWIA receipts ( 30 percent of the total account) to scholarships for lower-income students pursuing associate's, bachelor's, and advanced STEM degrees. Through the SSTEM program, NSF makes grants to higher education institutions (about 90 in FY 2019) which then award scholarships of $\$ 10,000$ per year for up to 4 years. Between FY 1999 and 2018, the S-STEM program resulted in 87,890 scholarships for U.S. students (including both citizens and permanent residents).

ITEST is the program through which NSF allocates the quarter of its ACWIA fee receipts (10 percent of the total account) for K-12 STEM education. From FY 2009 to FY 2018, ITEST served over 1 million students and over 55,000 teachers.

More information about these funding levels of these programs can be found in Table 2.
Table 2: Funding of NSF's S-STEM and ITEST programs, FY 2010-2019

| Year | S-STEM funding | ITEST funding |
| :---: | :---: | :---: |
| 2010 | $\$ 75,960,000$ | $\$ 20,850,000$ |
| 2011 | $\$ 77,670,000$ | $\$ 18,620,000$ |
| 2012 | $\$ 72,570,000$ | $\$ 21,590,000$ |
| 2013 | $\$ 83,980,000$ | $\$ 31,510,000$ |
| 2014 | $\$ 109,340,000$ | $\$ 37,230,000$ |
| 2015 | $\$ 140,540,000$ | $\$ 44,350,000$ |
| 2017 | $\$ 84,380,000$ | $\$ 35,110,000$ |
| 2018 | $\$ 156,400,000$ | $\$ 35,860,000$ |
| 2019 | $\$ 34,240,000$ |  |
| \$20,000 |  |  |

Source: Funding levels from the FY 2021 NSF budget request.

Although the nature and amount of these scholarships are fixed in statute, Congress does provide the NSF Director wide discretion to spend up to 50 percent of the current S-STEM funds "for undergraduate programs for curriculum development, professional and workforce development, and to advance technological education," all of which "may be used for purposes other than scholarships." This means that an annual amount of around $\$ 50$ million is available for such supporting programs.

## Department of Labor

Over the past decade, DOL has used its ACWIA fee receipts to fund a series of job training initiatives, usually tied to a presidential priority. DOL has cumulatively received about $\$ 2.5$ billion in ACWIA fees to train professionals in the United States. The Secretary of Labor has wide discretion to designate "high growth industries and economic sectors" as targets for this funding, based on the following factors:

- The sectors are projected to add substantial numbers of new jobs to the economy;
- The sectors are being transformed by technology and innovation requiring new skill sets for workers;
- The sectors include new and emerging businesses that are projected to grow; or
- The sectors in question have a significant impact on the economy overall or on the growth of other industries and economic sectors.

Using ACWIA fees, the Obama administration issued funding opportunity announcements for programs to support job training for the long-term unemployed ("Ready to Work"), coding bootcamps ("TechHire"), and apprenticeship programs, among other priorities. The Trump administration also used these funds to support its efforts to expand apprenticeship programs ("Closing the Skills Gap").

The Ready to Work program (RTW) was launched in 2014 as a response to those who lost their jobs during the Great Recession and remained under- or unemployed as the economy recovered. DOL is in the middle of evaluating the success of this program and is expected to complete its study by May 2022. In 2017, the agency released an interim report that examined the first year of grantees' operations in Maryland, California, New York, and Washington. The programs provided specialized, one-on-one counseling to the participants and coordinated with local occupational training programs and employers in relevant sectors.

TechHire was established in 2015 and has aimed to build talent pipelines in technology sectors throughout the country. Initial funding for the program amounted to $\$ 100$ million in grants to support partnerships that train young adults and other disadvantaged groups, such as people with disabilities, individuals with limited proficiency in English, and those with criminal records. A full evaluation on the benefits of the program is expected from DOL in September 2021.

Closing the Skills Gap awarded grants to 28 public-private partnerships in early 2020 that amounted to almost $\$ 100$ million. The program aims to achieve "large-scale expansions of apprenticeships in industries including advanced manufacturing, healthcare, and information technology." Likely because the Closing the Skills Gap program is still so new, there are no studies announced to evaluate its impact yet.

For more information about the DOL programs funded by ACWIA fees, see Table 3 on the next page.

Table 3: Funding levels of ACWIA programs at DOL, 2011-2020

| Year | Program | Purpose | Amount |
| :---: | :---: | :---: | :---: |
| 2011 | H-1B TechnicalSkills Training <br> Grants | "To provide education, training, and job placement assistance in the occupations and industries for which employers are using $\mathrm{H}-1 \mathrm{~B}$ visas to hire foreign workers, and the related activities necessary to support such training" | \$240,000,000 |
|  | Jobs and <br> Innovation <br> Accelerator <br> Challenge | "To support the development of approximately 20 high-growth industry clusters" and help them achieve "outcomes such as commercialization, business formation, expansion of existing businesses, job creation, and exports" | \$20,000,000 |
| 2012 | N/A | N/A | N/A |
| 2013 | Make it in America Challenge | "To support the development and implementation of a regionally driven economic development strategy that accelerates job creation by encouraging re-shoring of productive activity by U.S. firms, fostering increased Foreign Direct Investment, encouraging U.S. companies to keep or expand their businessesand jobs - in the United States, and training local workers to meet the needs of those businesses" | \$20,000,000 |
|  | Youth <br> CareerConnect Program | "To provide high school students with education and training that combines rigorous academic and technical curricula focused on specific in-demand occupations and industries for which employers are using H-1B visas to hire foreign workers as well as the related activities necessary to support such training to increase participants' employability in $\mathrm{H}-1 \mathrm{~B}$ in-demand industries and occupations" | \$100,000,000 |
| 2014 | H-1B Ready to Work Partnership Grants | "To provide long-term unemployed workers with individualized counseling, training and supportive and specialized services leading to rapid employment in occupations and industries for which employers use $\mathrm{H}-1 \mathrm{~B}$ visas to hire foreign workers" | \$150,000,000 |
| 2015 | American <br> Apprenticeship Initiative | "To provide a catalyst in supporting a uniquely American Apprenticeship system that meets our country's particular economic, industry and workforce needs" | \$100,000,000 |
| 2016 | America's Promise Job Driven Grant Program | "To develop and expand regional partnerships and training opportunities particularly for middle- to high-skilled $\mathrm{H}-1 \mathrm{~B}$ industries and occupations, ensuring that communities fully maximize their Federal, state and local funds to build a competitive workforce" | \$100,000,000 |
|  | Strengthening Working Families Initiative | "To support evidence-based strategies or innovations based on these models that remove a range of barriers to training, including child care and other needs that working families face, by investing in education and skills training in combination with customized participant supportive services" | \$25,000,000 |


|  | TechHire <br> Partnership Grants | "To equip individuals with the skills they need through innovative approaches that can rapidly train workers for and connect them to well-paying, middle- and high-skilled, and high-growth jobs across a diversity of $\mathrm{H}-1 \mathrm{~B}$ industries such as Information Technology (IT), healthcare, advanced manufacturing, financial services, and broadband" | \$100,000,000 |
| :---: | :---: | :---: | :---: |
| 2017 | N/A | N/A | N/A |
| 2018 | Scaling <br> Apprenticeship <br> Through Sector- <br> Based Strategies | "To accelerate the expansion of apprenticeships to new industry sectors reliant on $\mathrm{H}-1 \mathrm{~B}$ visas, to promote the large-scale expansion of apprenticeships across the nation, and to increase apprenticeship opportunities for all Americans" | \$150,000,000 |
| 2019 | Apprenticeships: Closing the Skills Gap | "To promote apprenticeships as a significant workforce solution in filling current middle- and high-skilled job vacancies and closing the skills gap between employer workforce needs and the skills of the current workforce" | \$100,000,000 |
| 2020 | $\begin{aligned} & \frac{\text { H-1B One }}{\text { Workforce Grant }} \\ & \underline{\text { Program }} \end{aligned}$ | To fill critical shortages in economic regions by encouraging "states and economic regions to work with industry stakeholders to develop dynamic workforce strategies that train workers and jobseekers for middle- to highskilled H-1B occupations in key industry sectors," such as "Information Technology (IT), advanced manufacturing, and transportation that are being transformed by technological advancements and automation," as well as "other industries of the future that include artificial intelligence (AI), quantum information sciences (QIS), 5G/advanced communications, and biotechnology" | \$150,000,000 |
|  | H-1B Rural Healthcare Grant Program | "To alleviate healthcare workforce shortages by creating sustainable employment and training programs in healthcare occupations (including behavioral and mental healthcare) serving rural populations" | \$40,000,000 |

Source: The DOL Employment and Training Administration funding opportunities page.

## Plan of Action

## Recommendations for High-impact STEM Education and Training Programs

As currently authorized by Congress, the ACWIA fees yield an approximately $\$ 350$ million annual fund for STEM education and training that is essentially on autopilot, funded by employers rather than taxpayers. The Biden administration has an opportunity to focus DOL and NSF on using these funds to advance its top priorities of economic recovery and racial equity.

Specifically, DOL can ramp up the TechHire initiative for in-demand technology jobs and establish a new Advanced Research Projects Agency—Labor (ARPA-L) to conduct high-impact R\&D programs that create breakthroughs to meet America's workforce challenges. NSF can significantly increase both the number of graduate STEM research fellowships dedicated to underserved students as well as the number of faculty training grants in fields where a dearth of professors has created a bottleneck for graduate education (e.g., artificial intelligence).

## Reestablish the TechHire Initiative

The TechHire initiative, described in more detail above, has already demonstrated the value of involving technology companies in rapid STEM training programs. One of the first TechHire grants was awarded to LaGuardia Community College and helped them form a partnership with state and federal agencies, along with software development and training companies. The goal was to provide intensive training in tech skills to low-income young adults and as of 2019, over 80 percent of students in the bootcamp graduated. Retention was over 90 percent. This is just one of the 39 partnerships established by the program, which serves communities in 25 states.

No further DOL funds have been awarded to the TechHire initiative since its inception in 2015, however. Especially as our country embraces an increasingly tech-focused work environment, further tech skills training will be essential. We recommend allocating $\$ 50$ million per year to the TechHire initiative to sustain it and establish new public-private partnerships across the country. To encourage high-impact outcomes, the revitalized TechHire initiative could make grants above a certain award amount (e.g., \$2 million) contingent on demonstration of wage gains following training, and could allow non-profits (not only workforce boards) to serve as the lead applicant.

## Establish a new Advanced Research Projects Agency—Labor (ARPA-L)

With the nature of work changing rapidly, one federal initiative that could significantly boost the United States' long-term competitiveness in high-impact industries would be the development of an Advanced Research Projects Agency for the Department of Labor (ARPA-L). According to a Day One proposal developed by former Defense Advanced Research Projects Agency (DARPA) Director Arati Prabhakar and Coursera executive Jeff Kaplan, ARPA-L would drive innovation in workforce training and labor market outcomes, where major research efforts are currently lacking. By weaving research advances together with lessons from the real world, ARPA-L aims to catalyze high-impact R\&D focused on creating powerful, scalable approaches to pressing workforce issues including unemployment and market disruption. With
the support of Congress and the White House, this new organization should be housed within the Department of Labor in order to best deliver bold advances that ultimately change what's possible for America's workers.

The ARPA model is known for its success in creating radically better approaches to hard problems by conducting solutions-oriented R\&D. DOD's DARPA, now in its seventh decade, conducted the pivotal R\&D for new military capabilities such as stealth and precision strike and, more broadly, for new information technologies from the internet to artificial intelligence. DARPA's track record inspired the establishment of the Department of Energy's ARPA-E and the Office of the Director of National Intelligence's IARPA. Both of these ARPAs are well underway, with robust portfolios of R\&D programs and encouraging results. They demonstrate that it is possible to adapt the DARPA model for different public purposes.

Though this ARPA model has been highly successful for national security and energy research, it has not yet been implemented for the improvement of workforce training and education programs. ARPA-L would be an innovative addition to DOL, particularly because the agency's current budget does not include any funding for workforce training research and development. Some potential research and development areas to close the skills gap include:

- Develop and validate diagnostic systems to improve skills assessment and enable workers to better understand how their skill set matches the needs of employers.
- Demonstrate accelerated skill development that uses information about an individual (e.g., age, initial skill level, and prior experience) to devise an individualized training regimen for interest and expertise.
- Explore and evaluate new ways to personalize and accelerate the training process by building on advances in learning science and neuroscience.
- Advance and test the effectiveness of emerging innovations like human-computer interaction and mixed reality for training for complex tasks.
- Experiment with and assess alternative certifications and micro-credentialing programs to train and upskill youth and displaced adult workers around the country while connecting participants directly to employers.

In addition, ARPA-L would support timely labor market data collection and analysis to evaluate the research and training programs. Conducting labor market analysis with ARPA-L would help with the development of innovative training programs, as well as allowing employers, employees, and the federal government to respond to economic changes. Some examples of useful analyses include:

- Experimenting with and testing data tools for each worker, combining information on local job postings, wages, and training requirements with information about credentialing and training services to offer workers the most meaningful and actionable information for their career goals in real time.
- Assembling data from public and private sources on regional labor trends and testing their effectiveness in enabling employers to make more impactful, targeted, and timely investments in local workforce development opportunities.
- Collecting and analyzing diverse datasets to identify targeted, effective leverage points for innovative labor policy interventions.

Allocating \$100 million per year from the ACWIA fund to kickstart ARPA-L would put the United States on a much better path to supporting U.S. workers and sustained wage growth in our changing national and global economy. This can be accomplished administratively in the immediate term, with Congress authorizing and appropriating a larger program after a strong track record has been established.

## Optimize STEM graduate fellowships for students from emerging research universities

Higher education R\&D funding is scarce, and is not distributed equitably. The American Physical Society found that in 2018 , out of more than 600 colleges and universities that received federal science funding, 22 percent received over 90 percent of the funds. These institutions serve only 43 percent of all students and only 34 percent of underrepresented minority students in the United States. This distribution of funds means that two thirds of underrepresented minority students and almost 70 percent of students who receive Pell grant funding have significantly fewer opportunities to engage in cutting-edge scientific research.

Without undergraduate research experiences afforded by federal R\&D funding, students at emerging research universities are then less competitive for future NSF-funded opportunities at any university, such as graduate fellowships. "Emerging research institution" (i.e., non-R1) is a category that includes geographically diverse state schools and nearly all minority-serving institutions.

NSF already uses the ACWIA fund to address this problem in part, through the S-STEM program described above. Colleges and universities apply for competitive grants to "increase the number of low-income students who graduate and contribute to the American innovation economy with their STEM knowledge," for example through innovative curricula. While these institution-level awards have merit, they create a patchwork of programs for which the lion's share of low-income STEM students are ineligible at any given point in time.

In contrast, consider the prestigious NSF Graduate Research Fellowship program, where individual students directly apply for three years of financial support, with an annual stipend of $\$ 34,000$ plus $\$ 12,000$ to the university where they pursue their graduate-level STEM education. Based on an increase in appropriations, Congress doubled the total number of such fellowships over the past decade (from around 1,000 to 2,000 ).

To lower barriers to graduate STEM education for outstanding students of all backgrounds, NSF should consider allocating \$50 million of its ACWIA funds to an individual-level scholarship program - like the NSF Graduate Research Fellowships-open to students who obtained their undergraduate degree from an emerging research institution. To be clear, these fellows could pursue their graduate degree at any research university, whether R1 or emerging.

For its part, Congress should lift the statutory cap of $\$ 10,000$ for such scholarships, which gets smaller in real terms with each passing year.

## DAY ONE PROJECT

## Increase the number of faculty training grants in critical STEM fields

The demand for faculty in cutting-edge fields, such as AI, is rising rapidly. According to a report by the Center for Security and Emerging Technology (CSET), the number of bachelor's degrees in computer science and engineering almost tripled between 2009 and 2017. In addition, the enrollment for introductory courses in Al in 2017 was three to five times higher than in 2012. The flow of faculty moving from institutions of higher education to industry has also increased dramatically, so it has become quite difficult to properly support the rising number of U.S. students interested in an education in AI.

This dearth of qualified professors represents a major long-term constraint on Al education in the United States, and will no doubt constrain U.S. competitiveness in other advanced fields as they develop in unexpected directions in the future.

Therefore, NSF should consider allocating another $\$ 25$ million from its ACWIA funding stream to incentivize universities to create new faculty positions in STEM fields where there is a teaching bottleneck. To that end, NSF could expand and adapt its Faculty Early Career Development (CAREER) Program, which provides awards of up to $\$ 400,000$ over five years to promising faculty members.

## Recommendations for Congress: Growing the Pie

As described above, the ACWIA fund can significantly advance STEM education and training priorities in the United States, without any further action by Congress, through optimal use of the existing \$350 million annual funding flow.

But the size of that flow is somewhat arbitrary, and ought to grow. This is especially important now that experts are warning that China has the resources to surpass the United States in AI and other STEM fields over the next few years. Congress should therefore increase the size of the pie by raising H-1B fees in an equitable way.

Currently, the ACWIA fee structure has two tiers based on the size of the employer filing the petition. Congress set the fees at $\$ 750$ for employers with at most 25 U.S. employees and $\$ 1,500$ for employers with more than 25 U.S. employees. However, this fee structure has not changed since 2004-during which time inflation has increased by over 30 percent-and it also does not take into account the financial resources of major corporations that hire the great majority of $\mathrm{H}-1 \mathrm{~B}$ workers.

Congress should update the fee structure so that (a) the two current fee tiers are increased $30 \%$ to account for past inflation; (b) a new fee tier is added for companies larger than the Small Business Administration's 500-employee threshold for a "small business"; and c) all fees are automatically indexed to inflation in the future.

Table 4: Recommendations for modernized ACWIA fee structure

| Employer size | Current fee | Proposed fee |
| :---: | :---: | :---: |
| Up to 25 employees | $\$ 750$ | $\$ 1,000$ |
| Between 26 and 500 employees | $\$ 1,500$ | $\$ 2,000$ |
| Above 500 employees | $\$ 1,500$ | $\$ 5,000$ |

Higher fees for large companies were recommended by Microsoft in 2012, when it published a proposal for Congress to allocate additional 20,000 H-1B visas for professionals in STEM fields and to require large companies to pay a fee of $\$ 10,000$ for each petition. Microsoft also proposed recapturing unused green cards and allocating 20,000 of them annually for STEM professionals. Sponsors for these green cards would pay $\$ 15,000$. These new funds, which would amount to about $\$ 500$ million per year, would then be dedicated to domestic STEM education programs.

It is important to note that H-1B petitions in certain circumstances are exempt from ACWIA fees. These exemptions include petitions from:

- Institutions of higher education;
- Nonprofit entities related to or affiliated with institutions of higher education;
- Nonprofit research organizations or governmental research organizations;
- Primary or secondary educational institutions; or
- Nonprofit entities that engage in "an established curriculum-related clinical training program for students."

Fees are also not required for most $\mathrm{H}-1 \mathrm{~B}$ extensions under any kind of employer.

With these details in mind, we calculated the estimated revenue that would be generated by the modernized fee structure proposed above. We referred to USCIS data on current H-1B employers, annual rates of the submission of petitions, as well as USCIS's analysis of petitions from small entities (at most 500 employees) and "non-small" entities (above 500 employees).

We estimate that a modernized ACWIA fee structure could bring in around \$1 billion per year, or about triple the current revenue level. The data and our estimates can be found in Table 5 and Table 6 below.

Table 5: Calculation of current ACWIA fee revenue and estimated increases from recommended policy changes (FY 2020 data) ${ }^{1}$

| Petitions filed | Estimated number of <br> petitions submitted | Average fee paid | Total fees |
| :---: | :---: | :---: | :---: |
| Petitions without fee <br> exemptions (63.5\%) | 271,141 | $\$ 1,475.25$ | $\sim \$ 400,000,000$ |
| Petitions with a fee <br> exemption (36.5\% | 156,104 |  |  |
| Total number of <br> petitions filed | 427,245 |  |  |

Table 6: Estimated increases in ACWIA fee revenue from recommended policy changes ${ }^{2}$

| Petitions by employer <br> size | Estimated number of <br> petitions submitted | Proposed fee | Estimated total revenue |
| :---: | :---: | :---: | :---: |
| 25 or fewer employees | 19,912 | $\$ 1,000$ | $\$ 19,912,041$ |
| $26-500$ employees | 85,948 | $\$ 2,000$ | $\$ 171,895,782$ |
| More than 500 <br> employees | 161,681 | $\$ 5,000$ | $\$ 808,406,892$ |
| Total | $\mathbf{2 6 7 , 5 4 1 ^ { 3 }}$ | $\mathbf{N / A}$ | $\$ 1,000,214,715$ |

## Conclusion

As China and other countries ramp up spending to boost their own domestic research and development capabilities, the United States must act to maintain its global scientific and technological leadership.

[^6]Since its creation two decades ago, the ACWIA fund has been a valuable and reliable resource to support STEM workforce training and education programs at DOL and NSF. Congress should grow this annual funding stream to $\$ 1$ billion-at no cost to taxpayers—by modernizing the ACWIA fee structure to keep up with inflation and reflect the size of the large corporations petitioning for most $\mathrm{H}-1 \mathrm{~B}$ professionals.

Even before Congress takes these overdue actions, the administration should allocate the existing annual flow of ACWIA funds to expand the TechHire initiative, institutionalize a new ARPA-L, support a new generation of underserved STEM graduate students, and eliminate faculty bottlenecks in critical STEM fields.

The time is ripe to seize this opportunity to harness America's home-grown STEM talent to accelerate innovation and power the nation's inclusive economic growth.

## Appendix: Current and Proposed Statutory Authorities for the H-1B Nonimmigrant Petitioner Account (ACWIA fund)

(Aligned statutory revisions appear as redlines.)

## 8 USC §1184. Admission of nonimmigrants

(c) $[. .$.
(9) (A) The Attorney General ${ }^{4}$ shall impose a fee on an employer (excluding any employer that is a primary or secondary education institution, an institution of higher education, as defined in section 1001(a) of title 20, a nonprofit entity related to or affiliated with any such institution, a nonprofit entity which engages in established curriculum-related clinical training of students registered at any such institution, a nonprofit research organization, or a governmental research organization) filing before a petition under paragraph (1)-
(i) initially to grant an alien nonimmigrant status described in section 1101(a)(15)(H)(i)(b) of this title;
(ii) to extend the stay of an alien having such status (unless the employer previously has obtained an extension for such alien); or
(iii) to obtain authorization for an alien having such status to change employers.
(B) For each such petition, $t$ 干he amount of the fee shall be:
(i) $\$ 1,000$ for any employer with not more than 25 full-time equivalent employees who are employed in the United States (determined by including any affiliate or subsidiary of such employer);
(ii) $\$ 2,000$ for any employer with more than 25 and not more than 500 full-time equivalent employees who are employed in the United States (determined by including any affiliate or subsidiary of such employer); or
(iii) $\$ 5,000$ for any employer with more than 500 full-time equivalent employees who are employed in the United States (determined by including any affiliate or subsidiary of such employer).
\$1,500 for each such petitionexcept that the feeshall be half the amount for each such petition by any employer with net more than 25 full-time equivalent employees who are employed in the United States (determined by including any affiliate or subsidiary of such employer).
(C) The Secretary may adjust a premium fee under this subparagraph (B) on a biennial basis by the percentage (if any) by which the Consumer Price Index for All Urban Consumers for the month of June preceding the date on which such adjustment takes effect exceeds the Consumer Price Index for All Urban Consumers for the same month of the second preceding calendar year. The provisions of section 553 of title 5 shall not apply to an adjustment authorized under this subparagraph.

[^7](DE) Fees collected under this paragraph shall be deposited in the Treasury in accordance with section 1356(s) of this title.
(10) An amended $\mathrm{H}-1 \mathrm{~B}$ petition shall not be required where the petitioning employer is involved in a corporate restructuring, including but not limited to a merger, acquisition, or consolidation, where a new corporate entity succeeds to the interests and obligations of the original petitioning employer and where the terms and conditions of employment remain the same but for the identity of the petitioner.
(11) (A) Subject to subparagraph (B), the Secretary of Homeland Security or the Secretary of State, as appropriate, shall impose a fee on an employer who has filed an attestation described in section $1182(\mathrm{t})$ of this title-
(i) in order that an alien may be initially granted nonimmigrant status described in section 1101(a)(15)(H)(i)(b1) of this title; or
(ii) in order to satisfy the requirement of the second sentence of subsection (g)(8)(C) for an alien having such status to obtain certain extensions of stay.
(B) The amount of the fee shall be the same as the amount imposed by the Secretary of Homeland Security under paragraph (9), except that if such paragraph does not authorize such Secretary to impose any fee, no fee shall be imposed under this paragraph.
(C) Fees collected under this paragraph shall be deposited in the Treasury in accordance with section 1356(s) of this title.

## 8 USC §1356. Disposition of moneys collected under the provisions of this subchapter

## (s) H-1B Nonimmigrant Petitioner Account

## (1) In general

There is established in the general fund of the Treasury a separate account, which shall be known as the "H-1B Nonimmigrant Petitioner Account". Notwithstanding any other section of this subchapter, there shall be deposited as offsetting receipts into the account all fees collected under paragraphs (9) and (11) of section 1184(c) of this title.

## (2) Use of fees for job training

4050 percent of amounts deposited into the H-1B Nonimmigrant Petitioner Account shall remain available to the Secretary of Labor until expended for demonstration programs and projects described in section 3224a of title 29.

## (3) Use of fees for low-income scholarship program and national security priorities

4530 percent of the amounts deposited into the H-1B Nonimmigrant Petitioner Account shall remain available to the Director of the National Science Foundation until expended for (a) scholarships described in section 1869c of title 42 for low-income students enrolled in a program of study leading to a degree in mathematics, engineering, or computer science and (b) graduate scholarships, faculty development awards, and other programs at the Director's discretion, that promote national predominance in fields that are essential to the national security of the United States.
(4) National Science Foundation competitive grant program for K-12 math, science and technology education

## (A) In general

10 percent of the amounts deposited into the $\mathrm{H}-1 \mathrm{~B}$ Nonimmigrant Petitioner Account shall remain available to the Director of the National Science Foundation until expended to carry out a direct or matching grant program to support private-public partnerships in K-12 education.

## (B) Types of programs covered

The Director shall award grants to such programs, including those which support the development and implementation of standards-based instructional materials models and related student assessments that enable K-12 students to acquire an understanding of science, mathematics, and technology, as well as to develop critical thinking skills; provide systemic improvement in training $\mathrm{K}-12$ teachers and education for students in science, mathematics, and technology; support the professional development of $\mathrm{K}-12$ math and science teachers in the use of technology in the classroom; stimulate system-wide K-12 reform of science, mathematics, and technology in rural, economically disadvantaged regions of the United States; provide externships and other opportunities for students to increase their appreciation and understanding of science, mathematics, engineering, and technology (including summer institutes sponsored by an institution of higher education for students in grades 7-12 that provide instruction in such fields); involve partnerships of industry, educational institutions, and community organizations to address the educational needs of disadvantaged communities; provide college preparatory support to expose and prepare students for careers in science, mathematics, engineering, and technology; and provide for carrying out systemic reform activities under section 1862(a)(1) of title 42.
(5) Use of fees for duties relating to petitions
2.55 percent of the amounts deposited into the $\mathrm{H}-1 \mathrm{~B}$ Nonimmigrant Petitioner Account shall remain available to the Secretary of Homeland Security until expended to carry out duties under paragraphs (1) and (9) of section 1184(c) of this title related to petitions made for nonimmigrants described in section 1101(a)(15)(H)(i)(b) of this title, under paragraph (1)(C) or (D) of section $1154{ }^{-5}$ of this title related to petitions for immigrants described in section 1153(b) of this title.

## (6) Use of fees for application processing and enforcement

For fiscal year 1999, 4 percent of the amounts deposited into the H-1B Nonimmigrant Petitioner Account shall remain available to the Secretary of Labor until expended for decreasing the processing time for applications under section $1182(\mathrm{n})(1)$ of this title and for carrying out section 1182(n)(2) of this title. Beginning with fiscal year 2000, 2.55 percent of the amounts deposited into the $\mathrm{H}-1 \mathrm{~B}$ Nonimmigrant Petitioner Account shall remain available to the Secretary of Labor until expended for decreasing the processing time for applications under section 1182(n)(1) of this title and section 1182(a)(5)(A) of this title.

29 USC §3224a. Job training grants
(1) In general

The Secretary of Labor shall use funds available under section 1356(s)(2) of title 8 to award grants to eligible entities to provide job training and related activities for workers to assist them in obtaining or upgrading employment in industries and economic sectors identified pursuant to paragraph (4) that are projected to experience significant growth and ensure that job training and related activities funded by such grants are coordinated with the public workforce investment system.
(2) Use of funds
(A) Training provided

Funds under this section may be used to provide job training services and related activities that are designed to assist workers (including unemployed and employed workers) in gaining the skills and competencies needed to obtain or upgrade career ladder employment positions in the industries and economic sectors identified pursuant to paragraph (4).
(B) Enhanced training programs and information

In order to facilitate the provision of job training services described in subparagraph (A), funds under this section may be used to assist in the development and implementation of model activities such as developing appropriate curricula to build core competencies and train workers, identifying and disseminating career and skill information, and increasing the integration of community and technical college activities with activities of businesses and the public workforce investment system to meet the training needs for the industries and economic sectors identified pursuant to paragraph (4).
(3) Eligible entities

Grants under this section may be awarded to partnerships of private and public sector entities, which may include-
(A) businesses or business-related nonprofit organizations, such as trade associations;
(B) education and training providers, including community colleges and other communitybased organizations; and
(C) entities involved in administering the workforce development system, as defined in section 3102 of this title, and economic development agencies.

## (4) High growth industries and economic sectors

For purposes of this section, the Secretary of Labor, in consultation with State workforce investment boards, shall identify industries and economic sectors that are projected to experience significant growth, taking into account appropriate factors, such as the industries and sectors that-
(A) are projected to add substantial numbers of new jobs to the economy;
(B) are being transformed by technology and innovation requiring new skill sets for workers;
(C) are new and emerging businesses that are projected to grow; or
(D) have a significant impact on the economy overall or on the growth of other industries and economic sectors.

## (5) Equitable distribution

In awarding grants under this section, the Secretary of Labor shall ensure an equitable distribution of such grants across geographically diverse areas.
(6) Leveraging of resources and authority to require match
(A) Leveraging of resources

In awarding grants under this section, the Secretary of Labor shall take into account, in addition to other factors the Secretary determines are appropriate-
(i) the extent to which resources other than the funds provided under this section will be made available by the eligible entities applying for grants to support the activities carried out under this section; and
(ii) the ability of such entities to continue to carry out and expand such activities after the expiration of the grants.
(B) Authority to require match

The Secretary of Labor may require the provision of specified levels of a matching share of cash or noncash resources from resources other than the funds provided under this section for projects funded under this section.
(7) Performance accountability

The Secretary of Labor shall require grantees to report on the employment outcomes obtained by workers receiving training under this section using indicators of performance that are consistent with other indicators used for employment and training programs administered by the Secretary, such as entry into employment, retention in employment, and increases in earnings. The Secretary of Labor may also require grantees to participate in evaluations of projects carried out under this section.

## 42 USC §1869c. Low-income scholarship program

(1) Establishment

The Director of the National Science Foundation (referred to in this section as the "Director") shall award scholarships to low-income individuals to enable such individuals to pursue associate, undergraduate, or graduate level degrees in mathematics, engineering, or computer science.
(2) Eligibility
(A) In general

To be eligible to receive a scholarship under this section, an individual-
(i) must be a citizen of the United States, a national of the United States (as defined in section 1101(a) of title 8), an alien admitted as a refugee under section 1157 of title 8, or an alien lawfully admitted to the United States for permanent residence;
(ii) shall prepare and submit to the Director an application at such time, in such manner, and containing such information as the Director may require; and
(iii) shall certify to the Director that the individual intends to use amounts received under the scholarship to enroll or continue enrollment at an institution of higher
education (as defined in section 1001(a) of title 20) in order to pursue an associate, undergraduate, or graduate level degree in mathematics, engineering, computer science, or other technology and science programs designated by the Director.
(B) Ability

Awards of scholarships under this section shall be made by the Director solely on the basis of the ability of the applicant, except that in any case in which 2 or more applicants for scholarships are deemed by the Director to be possessed of substantially equal ability, and there are not sufficient scholarships available to grant one to each of such applicants, the available scholarship or scholarships shall be awarded to the applicants in a manner that will tend to result in a geographically wide distribution throughout the United States of recipients' places of permanent residence.
(3) Limitation

The amount of a scholarship awarded under this section shall be determined by the Director, except that the Director shall not award a scholarship in an amount exceeding $\$ 10,000$ per year. The Director may renew scholarships for up to 4 years.
(4) Funding

The Director shall carry out this section only with funds made available under section 1356(s)(3) of title 8. The Director may use no more than 50 percent of such funds for undergraduate programs for curriculum development, professional and workforce development, and to advance technological education. Funds for these other programs may be used for purposes other than scholarships.
(5) Federal Register

Not later than 60 days after December 8, 2004, the Director shall publish in the Federal Register a list of eligible programs of study.

## 42 USC §1862. [NSF] Functions

(a) Initiation and support of studies and programs; scholarships; current register of scientific and engineering personnel
The Foundation is authorized and directed-
(1) to initiate and support basic scientific research and programs to strengthen scientific research potential and science education programs at all levels in the mathematical, physical, medical, biological, social, and other sciences, and to initiate and support research fundamental to the engineering process and programs to strengthen engineering research potential and engineering education programs at all levels in the various fields of engineering, by making contracts or other arrangements (including grants, loans, and other forms of assistance) to support such scientific, engineering, and educational activities and to appraise the impact of research upon industrial development and upon the general welfare;

# DAY ONE PROJECT 



## About the Authors

Lindsay Milliken is a Policy Analyst for Science, Technology, and Innovation at the Federation of American Scientists. She supports the Congressional Science Policy Initiative and the Technology and Innovation Initiative. Previously, she worked as a Legislative Research Assistant at Lewis-Burke Associates, a government relations firm specializing in science policy and higher education. Lindsay received her BA in Political Science with a minor in Physics from American University in Washington, DC. During her time at AU, she worked at the National Association of Biomedical Research, which supports the humane use of animal models in medical research. Her research interests include artificial intelligence, high skill immigration policy, and finding creative ways to support evidence-based policymaking on Capitol Hill.

Doug Rand is a Senior Fellow and Director of the Technology and Innovation Initiative at the Federation of American Scientists, focusing on the intersection of immigration policy and artificial intelligence (AI) in advancing the nation's national security and economic growth. Doug is the co-founder of Boundless, a technology company that empowers families to navigate the immigration system more confidently, rapidly, and affordably. Doug served in the Obama White House for over six years as Assistant Director for Entrepreneurship in the Office of Science and Technology Policy, with a portfolio spanning inclusive high-growth entrepreneurship, access to capital, clean energy innovation, commercialization of federally funded research, and high-skill immigration. Doug was co-founder and CEO of the innovative publishing company Playscripts, Inc., as well as a co-founder of the theater review aggregator StageGrade. He is a graduate of Yale Law School and the Yale School of Management, and received Master's and undergraduate degrees from Harvard, where he studied evolutionary biology. As a writer, Doug's plays have been performed thousands of times worldwide.

## About the Day One Project



PROJECT

The Day One Project is dedicated to democratizing the policymaking process by working with new and expert voices across the science and technology community, helping to develop actionable policies that can improve the lives of all Americans, and readying them for Day One of the next presidential term. For more about the Day One Project, visit dayoneproject.org.

The views and opinions expressed in this proposal are those of the author(s) and do not reflect the views and opinions of the Day One Project or its S\&T Leadership Council.

## Re: [EXTERNAL] reducing infectious diseases' impact

From: "Hebbeler, Andrew M. EOP/OSTP" (b) (6)
To: $\quad$ Mike Fisher (b) (6)
Cc: "Schmoyer, Michael W. EOP/OSTP" (b) (6)
Date: Fri, 25 Jun 2021 16:48:27-0400

Hi Mike: Connecting you with Michael. We'd love if you could help arrange a briefing by the preventing the next pandemic authors. Thank you!

Sent from my iPhone

On Jun 25, 2021, at 9:30 AM, Schmoyer, Michael W. EOP/OSTP
(b) (6) wrote:

Hi Andrew-

I would be interested in connecting with the author(s) for Preventing the Next Pandemics: An Upstream Approach to Novel National Security Threats
Relates to epi forecasting/modeling work I'm doing

Thanks for asking,
mws

From: Hebbeler, Andrew M. EOP/OSTP(b) (6)
Sent: Friday, June 25, 2021 8:28 AM
To: DL OSTP HLS(b) (6) v>; DL OSTP Biorisk
(b) (6)

Subject: FW: [EXTERNAL] reducing infectious diseases' impact

FYI - does anyone want to hear from any of the day one paper authors? Happy to connect you with Mike if so.....

From: Mike Fisher (b) (6)
Sent: Friday, June 25, 2021 8:22 AM
To: Hebbeler, Andrew M. EOP/OSTP <(b) (6)
Subject: Re: [EXTERNAL] reducing infectious diseases' impact

Morning Andrew, hope your week has gone well! Just wanted to re-up re any crystallization of OSTP priority issues in the life sciences / modern biotechnology / synbio space, or if you or any of your colleagues would find it useful to work with the authors of any of the infectious diseases-related Day One papers to further develop ideas in a direction you are pursuing.

Best,

Mike

On Tue, Jun 15, 2021 at 3:33 PM Mike Fisher (b) (6) > wrote:
Hi Andrew, just wanted to update you on our conversations with Doug and India. There is mutual interest in pursuing a collaboration that makes sense for both our orgs. Our next step is to put together some ideas about research and analysis projects / convenings we could potentially collaborate on in advance of our next conversation with EBRC.

Have your OSTP priorities around life sciences / modern biotechnology / synbio been shaping up (outside of reducing the impacts of infectious diseases)? Some ideas we have been mulling over include...

- updating the U.S. framework for the regulation of genetically engineered products
- a framework for a National Synthetic Biology Initiative (inspired by the National Artificial Intelligence Initiative, overseeing and implementing the U.S. AI strategy - Al.gov)
- maximizing the contributions of foreign nationals to U.S. engineering biology while maintaining scientific integrity
- promoting ethical use of engineering biology practices
- leveraging the use of standards and standardization in the synthetic biology industry and biomanufacturing
...and it would be great to get your feedback on whether any of these, or perhaps others not on the list, are priority issues.

Also curious if any follow-on regarding those six Day One resources re pandemic preparedness / infectious diseases is in order. Let us know!

Hope you're holding up okay!

Best,

Mike

On Wed, Jun 2, 2021 at 5:19 PM Hebbeler, Andrew M. EOP/OSTP (b) (6) > wrote:

Hi Mike: Great chatting with you too, and thanks for sending these resources! Would be great to hear how your discussions with Doug and India go.
+others FYSA, in case these FAS/D1P docs aren't already on their radar.

Thanks again!
Andrew

From: Mike Fisher (b) (6)
Sent: Wednesday, June 2, 2021 8:59 AM
To: Hebbeler, Andrew M. EOP/OSTP < (b) (6)
Subject: [EXTERNAL] reducing infectious diseases' impact

Hi Andrew,
Thank you again for talking with me the other week. Following up on our conversation, if any additional OSTP priorities have crystallized beyond pandemic preparedness / taking measures to reduce the impact of infectious diseases, it would be great to schedule another call.

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Thanks again, Andrew, and looking forward to talking again soon!

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## Mike

Michael A. Fisher, Ph.D.
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Federation of American Scientists
1112 16th Street NW, Suite 400
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## Email (b) (6)

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## RE: [EXTERNAL] Optimizing H-1B fees for domestic STEM training programs

```
From "Alstott, Jeffrey D. EOP/NSC" (b) (6)
:
To: Doug Rand (b) (6) >, "Nice, Amy M. EOP/OSTP" (b) (6)
    "Matheny, Jason G. EOP/OSTP" (b) (6) >, "Lynch, Justin R.
    EOP/OSTP"(b) (6)
Cc: Lindsay Milliken(b) (6)
Date: Fri, 25 Jun 2021 13:42:01-0400
Many thanks, Doug!
Jeff
```

From: Doug Rand (b) (6)
Sent: Friday, June 25, 2021 10:32 AM
To: Nice, Amy M. EOP/OSTP (b) (6) ; Matheny, Jason G. EOP/OSTP
(b) (6) ; Alstott, Jeffrey D. EOP/NSC(b) (6)

Lynch, Justin R. EOP/OSTP (b) (6)
Cc: Lindsay Milliken (b) (6)
Subject: [EXTERNAL] Optimizing $\mathrm{H}-1 \mathrm{~B}$ fees for domestic STEM training programs

Hi Jason, Amy, Jeff, and Justin,

Lindsay Milliken and I have a new paper out this week from the FAS Day One Project, which might be of interest to you-it's a way to raise a lot more money for domestic STEM education and training without increasing appropriations:

Building an Evergreen \$1 Billion Fund for Science and Technology Career Advancement: How to Expand H-1B Fees for Innovative Workforce Training and Inc/usive Graduate STEM Education (summary here, and full paper attached)

We provide a brief history of the $\mathrm{H}-1 \mathrm{~B}$ fee-based funding stream for STEM training and education, which was created by Congress in the late 1990s but has not been meaningfully updated in the succeeding decades.

We argue that Congress should increase the fees paid by $\mathrm{H}-1 \mathrm{~B}$ employers to reflect (a) the increase in inflation over the past two decades, as well as (b) the ability of major corporations, which are
often the most prolific sponsors of $\mathrm{H}-1 \mathrm{~B}$ workers, to pay more than small businesses. An updated three-tier fee schedule could raise over \$1 billion each year for domestic STEM talent development.

We also provide recommendations for how the executive branch can use the existing $\mathrm{H}-1 \mathrm{~B}$ fund to launch innovative programs that advance U.S. economic competitiveness and diversify the STEM talent pipeline-two mutually reinforcing goals:

- Reestablishing the TechHire Initiative to rapidly train U.S. workers for in-demand technology jobs
- Establishing a new Advanced Research Projects Agency-Labor (ARPA-L) to conduct high-impact R\&D programs that create breakthroughs to meet America's workforce challenges
- Significantly increasing the number of graduate research fellowships dedicated to students in STEM fields who completed their undergraduate education at emerging research universities
- Significantly increasing the number of faculty training grants in STEM fields where a dearth of professors has created a bottleneck for graduate education (e.g. artificial intelligence)

Please don't hesitate to send us any immediate questions or feedback, and we would be happy to discuss any of these ideas in more detail.

Thanks and take care,
Doug

Doug Rand
Senior Fellow
Federation of American Scientists
(b) (6)

Bio / Linkedln / Twitter

## Re: [EXTERNAL] reducing infectious diseases' impact

| From: | Mike Fisher $(\mathrm{b})(6)$ |
| :--- | :--- |
| To: | "Schmoyer, Michael W. EOP/OSTP" (b) (6) |
| Cc: | "Hebbeler, Andrew M. EOP/OSTP" (b) (6) |
| Date: | Sun, 27 Jun 2021 10:16:21-0400 |

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## RE: [EXTERNAL] reducing infectious diseases' impact

From "Guerra, Stephanie L. EOP/OSTP" (b) (6)
:
To: Mike Fisher (b) (6) , "Schmoyer, Michael W. EOP/OSTP" (b) (6)

Cc: $\quad$ "McKelvey, Greg G. Jr. EOP/OSTP" (b) (6)
Date: Mon, 28 Jun 2021 20:31:27-0400

Thanks Mike- piggybacking off of Michael's priorities l'd also like to better understand:

- What triggers a signal from noise in this type of system and how that leads to a targeted prevention approach
- How the infrastructure and/or capacity building could also be leveraged for detecting accidental/deliberate threats

Best,
Steph

From: Mike Fisher (b) (6)
Sent: Monday, June 28, 2021 6:40 PM
To: Schmoyer, Michael W. EOP/OSTP(b) (6) >
Cc: Guerra, Stephanie L. EOP/OSTP(b) (6) >; McKelvey, Greg G. Jr.
EOP/OSTP < (b) (6) >
Subject: Re: [EXTERNAL] reducing infectious diseases' impact

Thanks for this, Michael - we'll see what Alex's availability is like on the 9th.

Greg, Steph - if you have additional questions or points of interest you'd like us to share with Alex ahead of time, please don't hesitate to pass along.

Have a good one,

Mike

On Mon, Jun 28, 2021 at 5:18 PM Schmoyer, Michael W. EOP/OSTP
(b) (6) wrote:

Hi Mike-

I'm actually trying to be on leave that week, but how do things look on the $9^{\text {th }}$ ? I'm also cc'ing Greg and Steph as they would likely be interested.

For me, I'm most attracted to 1 ) an overall summary brief on the paper (and the rationale for his perspective) and 2) a deeper dive on elements pertaining to predictive analytics/forecasting/modeling as it relates to early indications/warnings of emerging biological threats.

Thanks for helping this come together, Michael

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Sent: Monday, June 28, 2021 1:33 PM
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Subject: Re: [EXTERNAL] reducing infectious diseases' impact

Hi Michael (bcc to save inbox: Andrew),

We reconnected with Alex Dehgan, the author of Preventing the Next Pandemics: An Upstream Approach to Novel National Security Threats, and he's looking forward to delivering a briefing on the paper.

Can you suggest three time blocks that work well for you on July 6th, or other days that same week / week after?

Also, would you like us to prepare an agenda for the briefing, or is a more freeform Q\&A-style session better for you?

Lastly, are there any questions about the paper that you have for Alex that you'd like us to get to him ahead of the briefing, or specific points he raises in the paper that you'd especially like him to speak to?

Thank you,

Mike

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Cc: "Guerra, Stephanie L. EOP/OSTP" < (b) (6) "McKelvey, Greg G. Jr. EOP/OSTP" (b) (6)
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Morning Andrew, hope your week has gone well! Just wanted to re-up re any crystallization of OSTP priority issues in the life sciences / modern biotechnology / synbio space, or if you or any of your colleagues would find it useful to work with the authors of any of the infectious diseases-related Day One papers to further develop ideas in a direction you are pursuing.

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To: Mike Fisher (b) (6)
Cc: "McKelvey, Greg G. Jr. EOP/OSTP" (b) (6) >, "Guerra, Stephanie L. EOP/OSTP" (b) (6)

Date: Mon, 28 Jun 2021 17:18:48-0400
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Date: Tue, 29 Jun 2021 09:29:25-0400

Hi all,

Alex is not available on 7/9; are there any days / time blocks that would work for you the week of July 12?

Best,

Mike

On Mon, Jun 28, 2021 at 9:10 PM Mike Fisher (b) (6) wrote:
Got it; thanks Steph!

On Mon, Jun 28, 2021 at 8:31 PM Guerra, Stephanie L. EOP/OSTP
(b) (6) > wrote:

Thanks Mike- piggybacking off of Michael's priorities I'd also like to better understand:

- What triggers a signal from noise in this type of system and how that leads to a targeted prevention approach
- How the infrastructure and/or capacity building could also be leveraged for detecting accidental/deliberate threats

Best,

Steph

From: Mike Fisher (b) (6)
Sent: Monday, June 28, 2021 6:40 PM
To: Schmoyer, Michael W. EOP/OSTP(b) (6)
Cc: Guerra, Stephanie L. EOP/OSTP < (b) (6) >; McKelvey, Greg
G. Jr. EOP/OSTP < (b) (6)

Subject: Re: [EXTERNAL] reducing infectious diseases' impact

Thanks for this, Michael - we'll see what Alex's availability is like on the 9th.

Greg, Steph - if you have additional questions or points of interest you'd like us to share with Alex ahead of time, please don't hesitate to pass along.

Have a good one,

Mike

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## Email: (b) (6)

LinkedIn: bit.ly/MAFisher
Twitter: @mykfish
Join up to contribute your expertise to the science and technology knowledge-base for policymakers: Congressional Science Policy Initiative

## RE: [EXTERNAL] reducing infectious diseases' impact

From "Schmoyer, Michael W. EOP/OSTP'(b) (6)
:
To: Mike Fisher (b) (6) , "Guerra, Stephanie L. EOP/OSTP" (b) (6)

Cc: "McKelvey, Greg G. Jr. EOP/OSTP" (b) (6)
Date: Tue, 29 Jun 2021 09:34:39-0400
Good morning-
How about:
-between 1030 and 130 on the $13^{\text {th }}$
-between 1100 and 300 on the 14th
Best,
Michael

From: Mike Fisher (b) (6)
Sent: Tuesday, June 29, 2021 9:29 AM
To: Guerra, Stephanie L. EOP/OSTP(b) (6)
Cc: McKelvey, Greg G. Jr. EOP/OSTP (b) (6) ; Schmoyer, Michael W. EOP/OSTP(b) (6)
Subject: Re: [EXTERNAL] reducing infectious diseases' impact

Hi all,

Alex is not available on 7/9; are there any days / time blocks that would work for you the week of July 12?

Best,

Mike

On Mon, Jun 28, 2021 at 9:10 PM Mike Fisher (b) (6) wrote:

Got it; thanks Steph!

Thanks Mike- piggybacking off of Michael's priorities I'd also like to better understand:

- What triggers a signal from noise in this type of system and how that leads to a targeted prevention approach
- How the infrastructure and/or capacity building could also be leveraged for detecting accidental/deliberate threats

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Greg, Steph - if you have additional questions or points of interest you'd like us to share with Alex ahead of time, please don't hesitate to pass along.

Have a good one,
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Hi Mike-

I'm actually trying to be on leave that week, but how do things look on the $9^{\text {th }}$ ? I'm also cc'ing Greg and Steph as they would likely be interested.

For me, I'm most attracted to 1) an overall summary brief on the paper (and the rationale for his perspective) and 2) a deeper dive on elements pertaining to predictive analytics/forecasting/modeling as it relates to early indications/warnings of emerging biological threats.

Thanks for helping this come together, Michael

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We reconnected with Alex Dehgan, the author of Preventing the Next Pandemics: An Upstream Approach to Novel National Security Threats, and he's looking forward to delivering a briefing on the paper.

Can you suggest three time blocks that work well for you on July 6th, or other days that same week / week after?

Also, would you like us to prepare an agenda for the briefing, or is a more freeform Q\&A-style session better for you?

Lastly, are there any questions about the paper that you have for Alex that you'd like us to get to him ahead of the briefing, or specific points he raises in the paper that you'd especially like him to speak to?

Thank you,
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We will rally the authors and touch back early next week re briefing on the preventing the next pandemic paper. Happy to do it!

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Relates to epi forecasting/modeling work I'm doing

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(b) $(6)$

Sent: Friday, June 25, 2021 8:28 AM
To: DL OSTP HLS (b) (6) $\quad$; DL OSTP Biorisk
(b) (6)

Subject: FW: [EXTERNAL] reducing infectious diseases' impact

FYI - does anyone want to hear from any of the day one paper authors?
Happy to connect you with Mike if so.....

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Morning Andrew, hope your week has gone well! Just wanted to re-up re any crystallization of OSTP priority issues in the life sciences / modern biotechnology / synbio space, or if you or any of your colleagues would find it useful to work with the authors of any of the infectious diseasesrelated Day One papers to further develop ideas in a direction you are pursuing.

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Have your OSTP priorities around life sciences / modern biotechnology / synbio been shaping up (outside of reducing the impacts of infectious diseases)? Some ideas we have been mulling over include...

- updating the U.S. framework for the regulation of genetically engineered products
- a framework for a National Synthetic Biology Initiative (inspired by the National Artificial Intelligence Initiative, overseeing and implementing the U.S. AI strategy - AI.gov)
- maximizing the contributions of foreign nationals to U.S. engineering biology while maintaining scientific integrity
- promoting ethical use of engineering biology practices
- leveraging the use of standards and standardization in the synthetic biology industry and biomanufacturing
...and it would be great to get your feedback on whether any of these, or perhaps others not on the list, are priority issues.

Also curious if any follow-on regarding those six Day One resources re pandemic preparedness / infectious diseases is in order. Let us know!

Hope you're holding up okay!
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And regarding pandemic preparedness / infectious diseases, just sharing six FAS Day One papers in our portfolio that may be of interest to you and your team (happy to prepare a brief on any of these or work with the authors to further develop ideas in a direction you are pursuing):

Preventing the Next Pandemics: An Upstream Approach to Novel National Security Threats
Shift from reacting to disease outbreaks - which is economically devastating - to detecting, addressing, and mitigating the major
upstream factors that contribute to the emergence of diseases prior to an outbreak.

Improving Federal Management of Wildlife Movement and Emerging Infectious Disease
Reduce the risk of emerging infectious diseases entering the United States, offer greater protection to citizens from zoonotic diseases, and protect American biodiversity from losses due to wildlife diseases.

A National Bioeconomy Manufacturing and Innovation Initiative Ramp up cross-cutting, cutting-edge research and development across the areas of healthcare, food \& agriculture, energy, environment, and industrial applications to develop fundamental and publicly available tools, and bolster American biomanufacturing.

Open Access to Federally-funded Research Data
Accelerate scientific progress by (i) requiring scientists who receive federal funding to share their research data and (ii) directing federal research agencies to coordinate to build an International Research Data Commons that allows research data to be easily discovered and shared.

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Michael A. Fisher, Ph.D.

## Senior Fellow

Federation of American Scientists
1112 16th Street NW, Suite 400
Washington, DC 20036

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## Re: [EXTERNAL] Re: Rules

| From: | Adam Topper(b) (6) $>$ |
| :--- | :--- |
| To: | "Lo, Kevin C. EOP/OSTP" (b) (6) |
| Date: | Thu, 01 Jul 2021 16:26:24-0400 |

Hi Kevin,

Can you confirm if Eric will have a security detail with him or not? And if yes, do you have an idea on how many agents will be with him?

Thank you!

On Wed, Jun 23, 2021 at 1:58 PM Lo, Kevin C. EOP/OSTP(b) (6) > wrote:

Dear Adam:

Might we actually just list Eric as just Eric Lander?

Due to the below rules, specifically this one "You may not use your official title or position in a way that could suggest that you are speaking in your official capacity," we figured that it's safer to just list Eric with just his name and no title!

Please let me know if that's okay.

Thanks so much!
Kevin

Kevin Lo (he/him)

Special Assistant

Office of Science and Technology Policy
Executive Office of the President
(b) $(6)$

Cell (b) (6)

## From: Adam Topper (b) (6)

Sent: Wednesday, June 23, 2021 1:54 PM
To: Diana Skurka(b) (6)
Cc: Lander, Eric S. EOP/OSTP (b) (6) ; Lo, Kevin C. EOP/OSTP
(b) (6) ; Lori Lander (b) (6) Jared Cohen
(b) (6) Yellowstone Weekend Info(b) (6)

Subject: [EXTERNAL] Re: Rules

Hi Eric,

We've received your biography and headshot - thank you for coordinating.

Our program packets are being sent to the printers tomorrow and I want to confirm if you would like us to include your current title, or not list any title under your name in the packets. As a reminder, these packets are not promotional and are exclusively for attendees to use while they are at the Yellowstone Weekend.

If you would like us to include your current title, can you confirm that the below title is permissible? I can confirm that your biography contains at least three additional biographical details about yourself, and does not give any greater prominence to your official title/position over your other biographical details as suggested by White House Counsel.

We plan to list your title as: Director, White House Office of Science and Technology Policy.

Many thanks,

Adam Topper

Office of Eric Schmidt

Schmidt Futures

On Mon, Jun 21, 2021 at 11:29 AM Adam Topper (b) (6) wrote:

Thanks for sharing all of these details with us, Eric, we are very excited to have the family attend again this year.

Our programs are scheduled to go to the printer this week and we want to ensure that your information is included. Will you be able to share your personal bio and headshot by

Wednesday, June 23?

Many thanks,

Adam Topper

Office of Eric Schmidt

Schmidt Futures

On Mon, Jun 21, 2021 at 8:25 AM Diana Skurke(b) (6) > wrote:

Thrilled that you are able to join Eric. These details have been noted on our end.

On Sun, Jun 20, 2021 at 10:07 AM Jared Cohen (b) (6) > wrote:

Thanks, Eric. We are very excited to have you and we look forward to adhering perfectly to all of these rules. Adding Diana so she also has the details. Thank you again for putting the effort in to find a path forward.

On Sat, Jun 19, 2021 at 7:00 PM Lander, Eric S. EOP/OSTP
(b) (6) > wrote:

Hi Jared:

Good to talk. WH Legal says that I can attend in my personal capacity. The relevant rules for identifying me are below. Please take care concerning identifying me, especially as noted in the bold below.

Best,
Eric

- You are not authorized to speak in an official capacity on behalf of the US government.
- You should make a disclaimer that the views expressed are your personal views and are not necessarily the views/positions of the White House, the Administration or the US government.
- You may not use your official titlc or position in a way that could suggest that you are speaking in your official capacity.
- Please ensure that the organizer of this event is aware that you are participating solely in your personal capacity, and does not advertise the event in a way that suggests otherwise. Importantly, please inform the organizer not to identify you by your official title or position in any promotional matorials, or on any wobsite or invitation, except that your official title or position can be used as part of a bio which also contains at least three additional biographical details about yourself, and which does not give any greater prominence to your official title/position over your other biographical details. If the organizer asks that you provide a bio for use in connection with this event, please send it to me so that I can review and approve it.
- If you plan to provide a paper or publish any materials (including PowerPoint slides) as part of this engagement, please ensure that they do not contain non-public information, alert you to any concerns over the display of your official position or title, and provide an appropriate disclaimer if needed.
- You may not make any use of your official US government photograph, or any United States or Executive Office of the President logos.
- You may not use any official time or resources to prepare for or participate in this event. You must take personal leave or otherwise establish that you are not working pursuant to your supervisor's/office's policies if the event occurs when you would otherwise be on duty.
- You may not use or release non-public US government information.

Jared Cohen | Tel:(b) (6) | Twitter: @jaredcohen | Linked-In

My Books:

Life After Power (Simon \& Schuster - Forthcoming)
Accidental Presidents (Simon \& Schuster)

The New Digital Age - Co-authored w/Eric Schmidt (Knopf)

Children of Jihad (Gotham Books/Penguin)

One Hundred Days of Silence: America and the Rwanda Genocide (Rowman \& Littlefield)

Diana Skurka
Senior Manager \& Head of Community
(b) (6)
>>http://schmidtfutures.com/<<;

## Re: [EXTERNAL] reducing infectious diseases' impact

From Mike Fisher (b) (6)
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To: "Schmoyer, Michael W. EOP/OSTP" (b) (6) >
Cc: "Guerra, Stephanie L. EOP/OSTP" (b) (6) , "McKelvey, Greg G. Jr. EOP/OSTP" (b) (6)
Date: Tue, 06 Jul 2021 12:23:56-0400

Hi Michael, apologies for the delay in response on our end. Folks have been in and out around the holiday weekend and we've been trying to lock down a time with Alex; we will circle back as soon as we have clarity on his schedule. Thank you for your patience!

Best,

Mike

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-between 1030 and 130 on the $13^{\text {th }}$
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Twitter: @mykfish
Join up to contribute your expertise to the science and technology knowledge-base for policymakers: Congressional Science Policy Initiative

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Michael A. Fisher, Ph.D.
Federation of American Scientists
Senior Fellow and Director, Congressional Science Policy Initiative
1112 16th Street NW, Suite 400

Washington, DC 20036

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Join up to contribute your expertise to the science and technology knowledge-base for policymakers: Congressional Science Policy Initiative
[EXTERNAL] PLEASE READ: Yellowstone Weekend Itinerary

## \& Pre-Departure Logistical FAQ

| From: | Adam Topper $\langle(\mathrm{b})(6)$ |
| :--- | :--- |
| To: | Lori Lander $(\mathrm{b})(6)$ |
|  | (b) $(6)$ |
| Cc: | "Lo, Kevin C. EOP/OSTP" $(\mathrm{b})(6)$ |
|  | (b) $(6)$ |
| Date: | Sun, 11 Jul 2021 10:00:00 -0400 |
| Attachments | Yellowstone Weekend_PRE DEPARTURE LOGGISTICAL FAQ .pdf (166.52 kB); Yellowstone Weekend Info |
| $:$ | Yellowstone Weekend_AGENDA .pdf (159.24 kB) |
|  |  |

On behalf of your hosts, Eric Schmidt and Jared Cohen, we are so looking forward to welcoming you next week to the 10th Annual Yellowstone Weekend!

This email contains critical details related to your travel, accommodations and participation, which we ask you to review in full before your scheduled departure.

Attached, you will find the following information:

- Schedule of Events \& Venue Location Map
- Pre-Departure Logistical FAQ

TRAVEL
Your party's travel details are as follows:

- Inbound Flight to BZN: Schmidt Futures Charter from Dulles International Airport, departing at 10:00am ET, please arrive no later than 8:45 am ET.
- Outbound Flight from BZN: Schmidt Futures Charter from BZN departing at 10:00am MT and arriving to Dulles International Airport at 3:30pm ET


## ACCOMMODATIONS

Your traveling party's accommodation will be as follows: [Address]

- [Eric and Lori Lander]: 12B Echo Lane: Bedroom 5: King Bed, Bath (Lower Level)
- [Jessica Lander]: 12B Echo Lane: Bedroom 4: Queen Bed, Bath (Lower Level)


## Listed here are the other Yellowstone Weekend guests that you will be housed with:

Senator Matteo Renzi, Agnese Landini, and Mathias Cormann

## ACTIVITIES

Please note that if you would still like to sign up for an activity you may do so at the Yellowstone Club on Thursday evening at the Welcome Dinner.

- If you are interested in participating in one of our morning activity offerings on Friday or Saturday, please read page 8 and follow the sign-up instructions in order to confirm your participation.
- If you have been notified that the Spa is your scheduled afternoon activity on Friday or Saturday, please email spa@yellowstoneclub.com or call 406-995-7909 x 1718 to confirm your specific appointment time and type of treatment.


## In addition, please allow us to highlight a few critical policies and logistical details that require action from your end:

## COVID-19

- Guests ages 12 or older are required to provide proof of full vaccination against COVID-19 by emailing digital copies or photos of your party's vaccine cards to info@yellowstoneweekend.com by today.
- For our international and unvaccinated attendees (including children), we will require proof of a negative PCR test taken 72 hours prior to the event. This applies to vaccinated and unvaccinated members of your traveling party. Please submit this to info@yellowstoneweekend.com prior to arrival or show your paperwork to a member of our concierge team upon arrival in Bozeman.
- All attendees will receive a rapid COVID test prior to the start of Yellowstone Weekend. By July 14, each member of your traveling party is required to pre-register by creating an account prior to being tested. Please use THIS LINK to register in advance of your departure. Your testing location will depend on your confirmed flight details, please refer to pages 1-2 of our Pre-Departure Logistical FAQ for these details.


## Yellowstone Weekend 2021 Schedule of Events

## THURSDAY, JULY 15

- 12:00pm - 4:00pm: Guest Arrivals
- 6:00pm - 7:30pm: Night Under the Stars Welcome Reception
- 7:30pm-9:00pm: Dinner
- 9:00pm-11:00pm: Dessert Reception


## FRIDAY, JULY 16

- 8:00am-9:00am: Breakfast
- 9:00am - 12:30pm: Sessions
- 12:30pm - 2:00pm: Lunch \& The Lightning Round Session
- 2:30pm - 4:30pm: Activities
- $6: 30 \mathrm{pm}-9: 30 \mathrm{pm}$ : Family Rodeo Evening: Dinner, Activities \& Concert
- 10:00pm on: After Hours Party
- *8:00am - $5: 00 \mathrm{pm}$ : Optional COVID testing will be available for any guest who would like to opt into being tested daily while attending Yellowstone Weekend or requires testing prior to their outbound travel.*


## SATURDAY, JULY 17

- 8:00am - 9:00am: Breakfast
- 9:00am - 12:30pm: Sessions
- 12:30pm - 2:00pm: Lunch
- $2: 30 \mathrm{pm}-4: 30 \mathrm{pm}$ : Activities
- 5:30pm - 6:30pm: Teach Me Something Session
- 6:30pm - 7:30pm: Sunset Reception
- 7:30pm - 10:00pm: Closing Dinner
- 10:15pm on: After Hours Party
- *8:00am - 5:00 pm: Optional COVID testing will be available for any guest who would like to opt into being tested daily while attending Yellowstone Weekend or requires testing prior to their outbound travel.*


## SUNDAY, JULY 18

- 7:30am-9:30am: Breakfast
- 7:30am - 10:00am: Guest Departures



## YELLOWSTONE <br> weekend

Please note that you will receive our session descriptions, the guest list, additional details on our special evening events, venue locations and much more as you board the charter from our departure locations. If you and your traveling party are flying commercially or via a private charter that has not been arranged by the Yellowstone Weekend team, your program book will be found in your pre-assigned accomodations upon arrival at the Yellowstone Club.

Yellowstone Club Venue Location Map


YELLOWSTONE
WEEKEND

## Yellowstone Weekend 2021 Pre-Departure Logistical FAQ

## COVID POLICY

We will implement the following COVID-19 safety precautions listed below during Yellowstone Weekend, in accordance with Yellowstone Club rules and CDC guidance applicable to large gatherings like ours. Please contact the Yellowstone Weekend team at info@yellowstoneweekend.com for any questions you or your traveling party have about any of our outlined safety precautions.

Prior to Yellowstone Weekend:

- In accordance with the Yellowstone Weekend policy, guests ages 12 or older are required to provide proof of full vaccination against COVID-19 by emailing digital copies or photos of your party's vaccine cards to info@yellowstoneweekend.com by July 9. We will provide this information to the Yellowstone Club in advance of your arrival to facilitate a smooth arrival. If you or any member of your traveling party are unable to provide us with advance proof of vaccination, please reach out to the Yellowstone Weekend team at info@yellowstoneweekend.com.
- For our international and unvaccinated attendees (including children above the age of 2), we will require proof of a negative PCR test taken 72 hours prior to the event. This applies to vaccinated and unvaccinated members of your traveling party. Please send this info@yellowstoneweekend.com prior to arrival or show your paperwork to a member of our concierge team upon arrival in Bozeman.

During Yellowstone Weekend:

- All attendees (including children above the age of 2) will receive a rapid COVID test prior to the start of Yellowstone Weekend. Our testing partner for the event is Ambulnz. By July 14, each member of your traveling party is required to pre-register by creating an account prior to being tested. Please use the following link to register in advance of your departure https://app.rrtesting.com(b) (6) For those bringing children, there is an option to add those family members to your account. Once you have been tested, you will receive your test results via text \& email within 15 minutes of administration.
- For our guests who are departing from one of our pre-arranged charter city locations, you and all members of your traveling party will receive a rapid COVID test at the FBO prior to boarding the aircraft. Your required arrival time for your departure FBO in order to efficiently and effectively facilitate pre-boarding testing has been included in your traveling party's attached itinerary.


YELLOWSTONE WEEKEND

- For our guests who are traveling commercially, upon arrival into Bozeman your pre-arranged ground transportation will be directed to the Bozeman FBO to facilitate rapid COVID testing.
- For our travelers arriving via private charter that has been arranged on your end, upon arrival into Bozeman you will be rapid COVID tested at the Bozeman FBO.
- For our travelers driving to the Yellowstone Club, you will be directed to Cabin 5 on the Yellowstone Club's property to facilitate rapid COVID testing upon arrival on July 15.
- In the unique circumstance that you or a member of your traveling party will be arriving prior to July 15 , the event start, you will be directed to Cabin 5 on the Yellowstone Club's property to facilitate rapid COVID testing on July 15.
- You and all members of your traveling party will be required to wear a mask on our private charters in accordance with the FAA. You will be required to wear a mask at all times while at the FBO, during the boarding and deplaning process and for the duration of the flight.
- While on site at the Yellowstone Club, fully vaccinated attendees will not be required to wear masks or socially distance. Unvaccinated attendees (including children) will be required to wear masks and socially distance in accordance with CDC public health guidance for large gatherings.
- Staff, vendors, and others on-site at Yellowstone Weekend will follow generally similar safety precautions as guests.
- An on-site medical consultant will be present throughout the event to serve as a resource should you require coordination in obtaining medical assistance.


## SOCIAL MEDIA \& STRICT CONFIDENTIALITY

Our core principle is to ensure that Yellowstone Weekend maintains its 10 year tradition of being both a comfortable and strictly confidential environment for all guests to relax and speak freely. Since Yellowstone Weekend's inception, the event has successfully gone without a media or social media related leak. We ask that you refrain from mentioning the weekend, its participants or the content discussed on social media, or in public remarks or to non-Yellowstone Weekend attendees. Please help us maintain this operating standard by adhering to our confidentiality and social media policy. All discussions during the weekend will also be under the Chatham House Rules.

## VENUE

The Yellowstone Club is nestled in the rocky mountains, just west of the famed Gallatin River near the northwest corner of Yellowstone National Park and the picturesque mountain town of Big Sky, Montana. 15,200 rolling acres are surrounded by 10,000 foot peaks, world-class skiing and blue-ribbon trout streams. Yet as beautiful and untouched as its surroundings, the

Yellowstone Club is approximately one hour from Bozeman, Montana, giving members and their guests access from major metropolitan areas throughout the country by either commercial airline or private jet service.

## ATTIRE

The attire for the weekend is relaxed and casual. The average temperature at the Yellowstone Club during the month of July is around $75^{\circ} \mathrm{F}$ with a high of $85^{\circ} \mathrm{F}$ and a low of $50^{\circ} \mathrm{F}$. The mornings are crisp and clear, with warm and breezy afternoons and cool nights. As the evenings are a bit cooler, we recommend you pack a sweater or jacket.

For our Thursday and Friday evening events, we recommend that you wear flat, non-heeled shoes as the event will take place outdoors on an earthy surface. Our Saturday evening event is the sole evening with an increased sense of formality.

For our optional morning activities, please pack athletic clothes, comfortable shoes and socks. For our afternoon activities, please refer to our activity specific recommended packing list.

## TRAVEL

Please find your confirmed flight details for you and your traveling on the attached itinerary. Reservations on our charters or via a commercial route must be confirmed in advance of departure with the Yellowstone Weekend team in order for us to be prepared for your arrival.

If you and your traveling party are confirmed on one of our charters departing from EWR, IAD, SFO or LAX or on July 15 , greeters will meet you upon arrival at the FBO to provide you personalized luggage tags with your name and accommodation details.

If you and your traveling party are confirmed on one of our charters on July 18, a valet will arrive at your Yellowstone residence 3 hours prior to your scheduled charter departure time to pick up your luggage and deliver it to the appropriate charter. A second car will pick up you and your party 2 hours prior to the scheduled charter departure time.

If you are traveling via your own personal charter, please provide your aircraft tail number. arrival date and time, and departure date and time so that we are able to set up ground transportation for you and your traveling party.

If you are traveling commercially on any leg of your iourney, please make sure you have finalized your flight details with Jill Catling: JCatling@tzell.com and copy
info@yellowstoneweekend.com so that we can set up ground transportation for you and your traveling party.

Our confirmed charter timing and the FBO locations for arrivals on July 15 and departures on July 18 are noted below.

## LOS ANGELES

Los Angeles LAX (FBO: Signature Flight Support, 6201 West Imperial Hwy, Los Angeles, CA 90045, Ph: +1-310-410-9605)

Thursday, July 15
Passenger Arrival Time (for pre-flight flight testing \& check in): Please refer to your personalized itinerary for your required arrival time
Departs: LAX Los Angeles, 10:15 AM Local Time
Arrives: BZN Bozeman, 2:00 PM Local Time
Appx Flight Time: 2 hours, 30 minutes
Time Change: +1.0 hour
Sunday, July 18
Departs: BZN Bozeman, 11:00 AM Local Time
Arrives: LAX Los Angeles, 12:30 PM Local Time
Appx Flight Time: 2 hours, 30 minutes
Time Change: -1.0 hour

## NEW YORK CITY

Newark EWR (FBO: Signature Flight Support, 15 Brewster Road, Newark, NJ 07114, Ph:
+1-973-624-1660)
Thursday, July 15
Passenger Arrival Time (for pre-flight flight testing \& check in): Please refer to your personalized itinerary for your required arrival time
Departs: EWR Newark, 12:30 PM Local Time
Arrives: BZN Bozeman, 2:30 PM Local Time
Appx Flight Time: 3 hours, 54 minutes
Time Change: - 2.0 hours
Sunday, July 18
Departs: BZN Bozeman, 12:30 PM Local Time
Arrives: EWR Newark, 6:00 PM Local Time

Appx Flight Time: 3 hours, 30 minutes
Time Change: +2.0 hours

## SAN FRANCISCO

San Francisco SFO (FBO: Signature Flight Support, 1052 North Access Road, San Francisco, CA 94128, Ph. +1-650-877-6800)
Thursday, July 15
Passenger Arrival Time: 9:00 AM Local Time
Departs: SFO San Francisco, 10:30 AM Local Time
Arrives: BZN Bozeman, 1:30 PM Local Time
Appx Flight Time: 1 hour, 55 minutes
Time Change: +1.0 hour
Sunday, July 18
Departs: BZN Bozeman, 11:45 AM Local Time
Arrives: SFO San Francisco, 12:45 PM Local Time
Appx Flight Time: 2 hours
Time Change: -1.0 hour

## WASHINGTON DC

Dulles IAD (FBO: Signature Flight Support, 23950 Wind Sock Drive, Sterling, VA 20166, Ph: +1-703-572-0001)

Thursday, July 15
Passenger Arrival Time (for pre-flight flight testing \& check in): Please refer to your personalized itinerary for your required arrival time
Departs: IAD Dulles, 10:00 AM Local Time
Arrives: BZN Bozeman, 12:00 PM Local Time
Appx Flight Time: 3 hours, 42 minutes
Time Change: -2.0 hours
Sunday, July 18
Departs: BZN Bozeman, 10:00 AM Local Time
Arrives: IAD Dulles, 3:30 PM Local time
Appx Flight Time: 3 hours, 18 minutes
Time Change: +2.0 hours


YELLOWSTONE
WEEKEND

## GROUND TRANSPORTATION

We will provide ground transportation for you and your traveling party around the Yellowstone Club. Once you arrive in Bozeman, the Yellowstone Weekend team will meet you at the airport and coordinate all your ground transportation to the Yellowstone Club and throughout the weekend. This applies to all arrivals, no matter the method. For your departure, the same method of transportation applies.

Throughout the weekend, cars will be pre-stationed at all homes every morning and at all events throughout the weekend for easy access. If you have any ground transportation needs throughout the event, please contact the Yellowstone Weekend Transportation team at 855-233-3907.

All cars will be equipped with phone chargers and water. If you are traveling with a young child, we will have forward-facing car seats readily available at the Bozeman hangar. Due to liability reasons, we ask that you self-install the car seat into your assigned vehicle.

## ACCOMMODATIONS

All guests will be staying in luxurious, mountain-style homes often with dramatic views of the surrounding area. In keeping with the collaborative spirit of the weekend, most guests will share private homes with other participants (each guest will have his/her own bedroom and bathroom). Some guests will have their own homes due to the size of their families and/or the size of the particular home. Your housing assignment, as well as details on other guests you will be sharing a home with, can be found in your traveling party's attached itinerary.

All homes are equipped with washers, dryers, and detergent. There will be basic groceries and amenities / toiletries provided in each home, along with drinks (coffee, tea, juice, soda, beer and wine). The kitchen is fully stocked with cookware and utensils.

All homes are outfitted with Wi-Fi. Passwords will be located inside the home.

## FOOD

Breakfast, lunch and dinner will be provided for our guests at the various event venues, as well as for children and nannies at the Kids Club throughout the event. As the Yellowstone Club does not operate like a hotel, please note that room service is not an available amenity on the property. Our food options are healthy, mountain-inspired American fare. There will be vegetarian, vegan, and gluten-free options, as well as pre-arranged accommodations for all previously flagged dietary restrictions.

Meals will be provided for our guests' security details/staff who are attending at pre-assigned venues and locations. Further information on times and locations have been sent directly to those for whom this applies.

## MEDICAL CONCIERGE \& EMERGENCY ASSISTANCE

A private medical consultant will be present throughout the event to serve as a resource should you require coordination in obtaining any medical assistance. The medical concierge will be equipped with basic first aid supplies, inclusive of supplies to help alleviate altitude sickness. If you feel unwell during your time with us, please find one of our team members who can show you to Cabin 5 which is located within a brief walking distance of our day time venue.

The Yellowstone Club has a full-time paramedic on duty and a medical unit adjacent to the onsite fire station. In the case of a medical emergency, please contact the Yellowstone Club emergency team at 406-993-2002. The nearest hospital is Big Sky Medical Center located at 334 Town Center Avenue, Big Sky.

## WELLNESS LOUNGE

We have dedicated a private and comfortable room during the daytime sessions next to the Barn to accommodate nursing mothers. Please find one of our team members who can show you Cabin 4 which is a private space located within a brief walking distance from our daytime session venue. The lounge will be equipped with a small refrigerator, a pump with multiple accessories, electrical outlets and a selection of teas and snacks.

## CONNECTIVITY \& PRIVATE SPACE

There will be Wi-Fi in all event venue locations. While on-site at any of our event venue locations, please connect to the network named Yellowstone Weekend; there will be no password to get connected.

There is cell phone coverage at the Yellowstone Club, but please note that it can be spotty based on your location on the property. AT\&T has the most reliable coverage, and all major US networks should work, if roaming is enabled. International guests should be able to roam on AT\&T.

If you are in need of a private space to take a phone call during the event, please find one of our team members who can show you Cabin 1 which is located within a brief walking distance from our daytime session venue.

## GYM

There are 3 fitness centers on-site (which are operational 24 hours a day). Rainbow Gym includes an outdoor lap pool and hot tub, the Village Core gym includes 4 hot tubs and the Camphouse gym includes a hot tub, an outdoor pool, and tennis courts. Fitness centers are for use by ages 16+ and pools are accessible for all ages.

## MORNING ACTIVITIES

If you are interested in participating in one of our morning activity offerings, please read through the below details and follow the sign-up instructions in order to confirm your participation.

## HIIT (High Intensity Interval Training)

Friday, July 16 and Saturday, July 17 from 7:00am - 8:00am
Meet at YC Core. This class is held outside, weather permitting.
Each session of this very popular cardiovascular exercise class is different as the instructor bases the class on the specific participants' wants, needs, and skill levels.
Please email fitness@yellowstoneclub.com to reserve your spot. Charges for this class are billed individually and should kindly be arranged at the time reservations are made.
Please bring: Athletic clothes, Comfortable shoes

## Personal Training

Personal trainers will be available by reservation (based on availability), both at Yellowstone Club fitness facilities and guest residences. Please email fitness@yellowstoneclub.com if you are interested in using these services. Charges for personal training are billed individually and should kindly be arranged at the time reservations are made and appointments are limited. Please bring: Comfortable shoes, Athletic clothes

## Yoga

Friday, July 16 and Saturday, July 17 from 7:00am - 8:00am
Meet poolside at Camphouse. In inclement weather, meet at Yoga Movement Studio.
Pre-registration is required. Please email fitness@yellowstoneclub.com to reserve your spot. This class is a wonderful blend of "Hatha" and "Vinyasa" yoga. Progressing through various poses will connect movement to breath with conscious intention and awareness. Each dynamic class will leave the participant feeling stronger, and empowered both mentally and physically! All levels are welcome to join.
Please bring: Athletic clothes, Comfortable workout socks or footwear


YELLOWSTONE
WEEKEND

## AFTERNOON ACTIVITIES

If you have signed up for an afternoon activity, you will be able to find your confirmed activity for Friday and Saturday on your traveling party's attached itinerary. Please note that you will be asked to sign a waiver prior to participating in your assigned activity.

If you have not signed up for an activity. please advise our team of your preferences prior to arrival or on Thursday evening at our Night Under the Stars Welcome event. As capacity for all of our activities is quite limited at this stage, we will do our best to confirm something for you as we are able.

## Archery

The 3D archery course is located on Eglise Mountain, just a short drive from the Warren Miller Lodge. This experience begins at the practice range, where archers are taught the basics of using a bow and take some shots on the bullseye targets to get comfortable. From the practice range, the group heads out onto the 3D course. The course takes archers through a range of 3D animal targets on a slightly maintained mountain trail. The trail has rocks, uneven dirt, rugged terrain, and at times tall grass; sturdy tennis shoes or hiking boots are recommended. Please bring: Baseball hat, Sturdy closed toe shoes, Long pants [highly recommended], Rain jacket, Sunglasses

## Five Star Shooting

This form of clay target shooting uses five stations and multiple clay target launchers to provide a complete experience. Come out and shoot with our certified shooting instructors. There is a variety of target options ranging from those who have never held a shotgun to the experienced sportsman.
Please bring: Baseball hat, Sunglasses [sunglasses or safety glasses are required], Sturdy closed shoes, Rain jacket, Extra layers of clothing

## Fly Fishing

Montana is one of the last strongholds of truly wild trout, and Yellowstone Club delivers the solitary beauty and passion it takes to pursue them like nowhere else. With an estimated 900 fish per mile in the streams, one can catch over 20 fish a day. A Montana fishing license is included.
Please bring: Baseball hat [required], Polarized sunglasses [required], Extra clothing layers, Rain jacket

## Hanging Out

For our attendees who are not inclined to join our afternoon outdoor pursuits activities, we have arranged a location to relax, take in the fresh mountain air and enjoy one another's company and conversation.

## Hiking and Zip Lining

Yellowstone Club guides will lead a hike through a wooded trail on the mountain from the top of the gondola up to the top of Eglise Rock -- and if you'd like, enjoy an exhilarating zip line ride high above the trees, too. The trail is rated moderate and is a $2-3$ hour experience with breathtaking views.
Please bring: Sunglasses, Long sleeved shirts, Rain jacket, Sturdy closed toe shoes, Hiking socks, Backpack

## Horseback Riding

Expand your opportunity to explore the beautiful Montana wilderness by spending the afternoon on horseback. Participants do not need to be experienced equestrians. Beginners are welcome! Please bring: Sunglasses, Long pants or jeans (required), Extra clothing layers, Rain jacket, Athletic shoes / hiking boots / boots with a heel [required]

## Moon Hikes

On Friday, July 16, explore the light of the New Moon when the stars are the brightest as you discover Yellowstone's beautiful trails. You can also join us on Saturday, July 17, as you walk 2 miles and explore Big Sky's finest hiking trails under the illumination of the full moon. Light snacks and water will be provided.
Please bring: Sunglasses, Long sleeved shirts, Rain jacket, Sturdy closed toe shoes, Hiking socks

Mountain Biking
Learn how to ride a mountain bike and enjoy miles of trails right here at Yellowstone Club. All abilities and ages are welcome, and you can join us to enjoy a leisurely tour, or charge the downhill. Discover a great variety of trails, ranging from flowy downhill to technical single-track. Please bring: Sunglasses or goggles, Sturdy closed shoes, Activewear clothing, Tall socks, Rain jacket, Extra layers of clothing

Spa
The skilled therapists at Yellowstone Club Spa take a holistic approach to your well-being and will pamper you with a relaxing, customized treatment. If you have been notified that the Spa is your scheduled afternoon activity on either Friday or Saturday, please email spa@yellowstoneclub.com or call 406-995-7909 $\times 1718$ to confirm your specific appointment time and type of treatment. The Spa Concierge will have your name with your reservations and ready to assist.


YELLOWSTONE WEEKEND

## Wine Tasting

Join our renowned, guest sommelier for an intensive tasting session. Attendees will leave not only with a great taste in their mouth, but a better understanding of the world of wine and the ability to make an educated guess as to what the wine is they are drinking. And perhaps, a greater appreciation for the subtleties that make wine so special.

## CHILDREN

We look forward to welcoming all spouses and significant others. Unfortunately due to limited space, we do not have room for children to attend sessions. However, we would like to include all family members and children in Friday's Rodeo Night and hope your family will plan on joining us there.

Youth services programs will be provided for the families of conference attendees. Children of all ages are welcome. All activities are tailored to their age and interests and are facilitated by professional caregivers at the Yellowstone Club. Activities include, but are not limited to: indoor/ outdoor playtime, arts and crafts, nature walks, story time, puppet shows, learning games, basketball, T-ball, kickball, tag, soccer, badminton, volleyball, archery, orienteering, golf, hiking, and mountain biking.

We are also happy to be able to offer in-home babysitting services on a part-time or full-time basis through the Yellowstone Club's child care program. We strongly encourage that babysitting requests be made in advance by emailing babysitting@yellowstoneclub.com. After you have arrived at the Club, if you desire to make a last-minute request for babysitting services, we will do our best to accommodate you. Please call our Yellowstone Weekend Concierge Team at 855-233-3906 for assistance.

Our confirmed schedule of events for children ages 1-12 at the Kids Club, known as 20 Below, can be found below. Please note that in advance of dropping your child off. the Yellowstone Club requires you as the parent of the child complete this waiver: https://waiver.smartwaiver.com/w/5df128db4e9b7/web/. This will ensure an efficient drop off process for you and the team at 20 Below. Please note that their nanny policy does not apply to Yellowstone Weekend attendees, and your accompanying nannies are welcome to stay with your child while they are at 20 Below.

## Thursday, July 15 <br> All Ages

6:00 PM Drop-off at 20 Below
6:00 - 10:00 PM Dinner \& Activities
10:00 PM Pick-up at 20 Below

## Friday, July 16

```
Ages 1-5
9:00 AM Drop-off at 20 Below
9:00 - 10:00 AM Welcome Project
10:00 - 12:00 PM Outdoor Activities (nature walk & art project)
12:00 - 1:00 PM Lunch at 20 Below
1:00 - 2:30 PM Break
2:30 - 5:00 PM Outdoor Activities & Crafts (scavenger hunt)
5:00 PM Pick-up at 20 Below
Ages 6-12
9:00 AM Drop-off at 20 Below
9:00 - 10:30 AM Games and Activities
10:30 - 12:30 PM Outdoor Activities (gondola scavenger hunt)
12:30 - 1:30 PM Lunch at 20 Below
1:30 - 4:30 PM Line Dance Instruction
4:30 PM Pick-up at 20 Below
```


## Saturday, July 17

Ages 1-5
9:00 AM Drop-off at 20 Below
9:00 - 10:00 AM Welcome Project
10:00 - 12:00 PM Outdoor Activities (art project)
12:00 - 1:00 PM Lunch in 20 Below
1:00 - 2:30 PM Break
2:30-4:30 PM Outdoor Activities
5:00 PM Pick-up at 20 Below
6:00 PM Drop-off at 20 Below
6:00-9:00 PM Evening Event (movie night)
9:00 PM Pick-up at 20 Below
Ages 6-12
9:00-9:30 AM Meet at 20 Below
9:30 - 12:00 PM Outdoor Activities (survival skills)
12:00 - 1:00 PM Lunch
1:00 - 5:00 PM Outdoor Activities \& Games
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## Re: [EXTERNAL] reducing infectious diseases' impact

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To: "Schmoyer, Michael W. EOP/OSTP" (b) (6)
Cc: "Guerra, Stephanie L. EOP/OSTP" (b) (6) , "McKelvey, Greg G. Jr. EOP/OSTP" (b) (6) , Joshua Schoop (b) (6)

Date: Tue, 20 Jul 2021 16:56:08-0400

Great, just sent a calendar event for 2:30pm ET Tue 7/27 with a zoom link. Looking forward to it! Best, Mike

On Tue, Jul 20, 2021 at 1:25 PM Schmoyer, Michael W. EOP/OSTP
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Hi Mike-
Not a problem. Early afternoons of MON/TUE/WED are good for me.
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Michael

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Relates to epi forecasting/modeling work I'm doing

Thanks for asking,
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Reduce the risk of emerging infectious diseases entering the United States, offer greater protection to citizens from zoonotic diseases, and protect American biodiversity from losses due to wildlife diseases.

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#### Abstract

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Biology Research Consortium to discuss the potential of sourcing policy ideas from the synbio community.

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## RE: [EXTERNAL] reducing infectious diseases' impact

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Michael A. Fisher, Ph.D.
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Senior Fellow and Director, Congressional Science Policy Initiative
1112 16th Street NW, Suite }40
Washington, DC }2003
    Email:(b)(6)@
    LinkedIn: bit.ly/MAFisher
    Twitter: @mykfish
    Join up to contribute your expertise to the science and technology knowledge-base for
    policymakers: Congressional Science Policy Initiative
    Michael A. Fisher, Ph.D.
    Federation of American Scientists
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```

1112 16th Street NW, Suite 400
Washington, DC 20036

## Email: (b) (6)

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Michael A. Fisher, Ph.D.<br>Federation of American Scientists<br>Senior Fellow and Director, Congressional Science Policy Initiative<br>1112 16th Street NW, Suite 400<br>Washington, DC 20036<br>Email: (b) (6)<br>Linkedln: bit.ly/MAFisher<br>Twitter: @mykfish<br>Join up to contribute your expertise to the science and technology knowledge-base for policymakers: Congressional Science Policy Initiative

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Federation of American Scientists
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1112 16th Street NW, Suite 400
Washington, DC 20036

## Email (b) (6)

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[^11]Email: (b) (6)
LinkedIn: bit.ly/MAFisher
Twitter: @mykfish
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## Re: [EXTERNAL] reducing infectious diseases' impact

From Mike Fisher(b) (6)
:
To: "Schmoyer, Michael W. EOP/OSTP" (b) (6)
Cc: "Guerra, Stephanie L. EOP/OSTP" (b) (6) >, "McKelvey, Greg G. Jr. EOP/OSTP" (b) (6) >, Joshua Schoop (b) (6)

Date: Tue, 20 Jul 2021 11:52:01-0400

Hi all, apologies for the delay in getting a briefing on Preventing the Next Pandemics: An Upstream Approach to Novel National Security Threats on the books. Might you have availability for the briefing next week? If you send some time blocks that could work for you, we can schedule. Thank you again for your patience!

Best,

Mike

On Tue, Jul 6, 2021 at 12:23 PM Mike Fisher (b) (6) wrote:
Hi Michael, apologies for the delay in response on our end. Folks have been in and out around the holiday weekend and we've been trying to lock down a time with Alex; we will circle back as soon as we have clarity on his schedule. Thank you for your patience!

Best,

Mike

On Tue, Jun 29, 2021 at 9:34 AM Schmoyer, Michael W. EOP/OSTP
(b) (6) > wrote:

Good morning-
How about:
-between 1030 and 130 on the $13^{\text {th }}$

Best,
Michael

From: Mike Fisher (b) (6)
Sent: Tuesday, June 29, 2021 9:29 AM
To: Guerra, Stephanie L. EOP/OSTP(b) (6)
Cc: McKelvey, Greg G. Jr. EOP/OSTP (b) (6) ; Schmoyer,
Michael W. EOP/OSTP(b) (6)
Subject: Re: [EXTERNAL] reducing infectious diseases' impact

Hi all,

Alex is not available on 7/9; are there any days / time blocks that would work for you the week of July 12?

Best,

Mike

On Mon, Jun 28, 2021 at 9:10 PM Mike Fisher (b) (6) wrote:

Got it; thanks Steph!

On Mon, Jun 28, 2021 at 8:31 PM Guerra, Stephanie L. EOP/OSTP
(b) (6) > wrote:

Thanks Mike- piggybacking off of Michael's priorities l'd also like to better understand:

- What triggers a signal from noise in this type of system and how that leads to a targeted prevention approach
- How the infrastructure and/or capacity building could also be leveraged for detecting accidental/deliberate threats

Best,

Steph

From: Mike Fisher (b) (6)
Sent: Monday, June 28, 2021 6:40 PM
To: Schmoyer, Michael W. EOP/OSTP (b) (6)
Cc: Guerra, Stephanie L. EOP/OSTP (b) (6) ; McKelvey,
Greg G. Jr. EOP/OSTP (b) (6)
Subject: Re: [EXTERNAL] reducing infectious diseases' impact

Thanks for this, Michael - we'll see what Alex's availability is like on the 9th.

Greg, Steph - if you have additional questions or points of interest you'd like us to share with Alex ahead of time, please don't hesitate to pass along.

Have a good one,

Mike

On Mon, Jun 28, 2021 at 5:18 PM Schmoyer, Michael W. EOP/OSTP
(b) (6) wrote:

Hi Mike-

I'm actually trying to be on leave that week, but how do things look on the $9^{\text {th }}$ ? I'm also cc'ing Greg and Steph as they would likely be interested.

For me, I'm most attracted to 1) an overall summary brief on the paper (and the rationale for his perspective) and 2) a deeper dive on elements pertaining to predictive analytics/forecasting/modeling as it relates to early indications/warnings of emerging biological threats.

Thanks for helping this come together,

Michael

From: Mike Fisher (b) (6)
Sent: Monday, June 28, 2021 1:33 PM
To: Schmoyer, Michael W. EOP/OSTP (b) (6)
Subject: Re: [EXTERNAL] reducing infectious diseases' impact

Hi Michael (bcc to save inbox: Andrew),

We reconnected with Alex Dehgan, the author of Preventing the Next Pandemics: An Upstream Approach to Novel National Security Threats, and he's looking forward to delivering a briefing on the paper.

Can you suggest three time blocks that work well for you on July 6th, or other days that same week / week after?

Also, would you like us to prepare an agenda for the briefing, or is a more freeform Q\&A-style session better for you?

Lastly, are there any questions about the paper that you have for Alex that you'd like us to get to him ahead of the briefing, or specific points he raises in the paper that you'd especially like him to speak to?

Thank you,

Mike

On Sun, Jun 27, 2021 at 10:16 AM Mike Fisher(b) (6) wrote:

Good to know; thanks Michael!

- Mike

On Sun, Jun 27, 2021 at 6:59 AM Schmoyer, Michael W. EOP/OSTP (b) (6) > wrote:

That sounds great, thanks Mike. Related, I'm chairing an interagency working group that is along these lines ... there may be a second request for a follow-on brief to a larger group.

Best,

Michael

From: Mike Fisher (b) (6)
Sent: Friday, June 25, 2021 5:51 PM

To: Hebbeler, Andrew M. EOP/OSTP(b) (6)
Cc: Schmoyer, Michael W. EOP/OSTP (b) (6)
Subject: Re: [EXTERNAL] reducing infectious diseases' impact

Hi Andrew, and nice to be connected, Michael -

We will rally the authors and touch back early next week re briefing on the preventing the next pandemic paper. Happy to do it!

Have a nice weekend,

Mike

On Fri, Jun 25, 2021 at 4:48 PM Hebbeler, Andrew M. EOP/OSTP (b) (6) > wrote:

Hi Mike: Connecting you with Michael. We'd love if you could help arrange a briefing by the preventing the next pandemic authors. Thank you! Sent from my iPhone

On Jun 25, 2021, at 9:30 AM, Schmoyer, Michael W. EOP/OSTP
(b) (6) > wrote:

Hi Andrew-

I would be interested in connecting with the author(s) for Preventing the Next Pandemics: An Upstream Approach to Novel National Security Threats

Relates to epi forecasting/modeling work I'm doing

Thanks for asking,
mws

From: Hebbeler, Andrew M. EOP/OSTP

## (b) (6)

Sent: Friday, June 25, 2021 8:28 AM
To: DL OSTP HLS (b) (6) DL OSTP Biorisk
(b) $(6)$

Subject: FW: [EXTERNAL] reducing infectious diseases' impact

FYI - does anyone want to hear from any of the day one paper authors? Happy to connect you with Mike if so.....

From: Mike Fisher (b) (6)
Sent: Friday, June 25, 2021 8:22 AM
To: Hebbeler, Andrew M. EOP/OSTP
(b) (6)

Subject: Re: [EXTERNAL] reducing infectious diseases' impact

Morning Andrew, hope your week has gone well! Just wanted to re-up re any crystallization of OSTP priority issues in the life sciences / modern biotechnology / synbio space, or if you or any of your colleagues would find it useful to work with the authors of any of the infectious diseasesrelated Day One papers to further develop ideas in a direction you are pursuing.

Best,

Mike

On Tue, Jun 15, 2021 at 3:33 PM Mike Fisher(b) (6) > wrote:

Hi Andrew, just wanted to update you on our conversations with Doug and India. There is mutual interest in pursuing a collaboration that makes sense for both our orgs. Our next step is to put together some ideas about research and analysis projects / convenings we could potentially collaborate on in advance of our next conversation with EBRC.

Have your OSTP priorities around life sciences / modern biotechnology / synbio been shaping up (outside of reducing the impacts of infectious diseases)? Some ideas we have been mulling over include...

- updating the U.S. framework for the regulation of genetically engineered products
- a framework for a National Synthetic Biology Initiative (inspired by the National Artificial Intelligence Initiative, overseeing and implementing the U.S. Al strategy - AI.gov)
- maximizing the contributions of foreign nationals to U.S. engineering biology while maintaining scientific integrity
- promoting ethical use of engineering biology practices
- leveraging the use of standards and standardization in the synthetic biology industry and biomanufacturing
...and it would be great to get your feedback on whether any of these, or perhaps others not on the list, are priority issues.

Also curious if any follow-on regarding those six Day One resources re pandemic preparedness / infectious diseases is in order. Let us know!

Hope you're holding up okay!

Best,

Mike

On Wed, Jun 2, 2021 at 5:19 PM Hebbeler, Andrew M. EOP/OSTP (b) (6) > wrote:

Hi Mike: Great chatting with you too, and thanks for sending these resources! Would be great to hear how your discussions with Doug and India go.
+others FYSA, in case these FAS/D1P docs aren't already on their radar.

Thanks again!

Andrew

## From: Mike Fisher (b) (6)

Sent: Wednesday, June 2, 2021 8:59 AM
To: Hebbeler, Andrew M. EOP/OSTP
(b) (6) >

Subject: [EXTERNAL] reducing infectious diseases' impact

Hi Andrew,

Thank you again for talking with me the other week. Following up on our conversation, if any additional OSTP priorities have crystallized beyond pandemic preparedness / taking measures to reduce the impact of infectious diseases, it would be great to schedule another call.

And regarding pandemic preparedness / infectious diseases, just sharing six FAS Day One papers in our portfolio that may be of interest to you and your team (happy to prepare a brief on any of these or work with the authors to further develop ideas in a direction you are pursuing):

Preventing the Next Pandemics: An Upstream Approach to Novel National Security Threats

Shift from reacting to disease outbreaks - which is economically devastating - to detecting, addressing, and mitigating the major upstream factors that contribute to the emergence of diseases prior to an outbreak.

Improving Federal Management of Wildlife Movement and Emerging Infectious Disease

Reduce the risk of emerging infectious diseases entering the United States, offer greater protection to citizens from zoonotic diseases, and protect American biodiversity from losses due to wildlife diseases.


#### Abstract

A National Bioeconomy Manufacturing and Innovation Initiative

Ramp up cross-cutting, cutting-edge research and development across the areas of healthcare, food \& agriculture, energy, environment, and industrial applications to develop fundamental and publicly available tools, and bolster American biomanufacturing.

\section*{Open Access to Federally-funded Research Data}

Accelerate scientific progress by (i) requiring scientists who receive federal funding to share their research data and (ii) directing federal research agencies to coordinate to build an International Research Data Commons that allows research data to be easily discovered and shared.


## Creating a COVID-19 Commission on Public Health Misinformation

Examine our nation's response to the 2020 pandemic using a mechanism that is modeled on the 9/11 Commission, with one Commission focusing on public health communication and messaging that would assess the information about the pandemic: what was made publicly available, how the information affected our societal response, and what should be done to limit the impact of false and dangerously misleading information moving forward.

## A National Strategy to Counter COVID-19 Misinformation

Establish an office at the Department of Health and Human Services dedicated to countering COVID-19 misinformation.

Also possibly of interest, on Friday I'll be meeting with Doug Friedman of BioMADE and India Hook-Barnard of the Engineering Biology Research Consortium to discuss the potential of sourcing policy ideas from the synbio community.

Thanks again, Andrew, and looking forward to talking again soon!

Best,

Mike

Michael A. Fisher, Ph.D.
Senior Fellow
Federation of American Scientists
1112 16th Street NW, Suite 400
Washington, DC 20036

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## --

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Federation of American Scientists
Senior Fellow and Director, Congressional Science Policy Initiative
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Washington, DC 20036

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Washington, DC 20036

## Email: (b) (6)

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Twitter: @mykfish
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## RE: [EXT] FW: [EXTERNAL] Invitation: Preventing the Next Pandemics Briefing @ Tue Jul 27, 2021 2:30pm - 3pm (EDT)

(b) (6)

From: "Schmoyer, Michael W. EOP/OSTP" (b) (6)
To: $\quad$ "Cox, Carly S" (b) (6)
Date: Tue, 27 Jul 2021 10:35:40-0400
Hi there-
Of course, he is mostly welcome to join.
Best,
Michael
-----Original Message-----
From: Cox, Carly S (b) (6)
Sent: Tuesday, July 27, 2021 9:52 AM
To: Schmoyer, Michael W. EOP/OSTP (b) (6)
Subject: RE: [EXT] FW: [EXTERNAL] Invitation: Preventing the Next Pandemics Briefing @ Tue Jul 27, 2021 2:30pm - 3pm (EDT) (b) (6)

Hi Michael,
Thanks very much for including me in this meeting. It is much appreciated.
Unfortunately, I have a scheduling conflict during this time; I'm supporting one of ARPA-H listening sessions, and the task lead is sick, and her second is having tech issues. That leaves me to fill in this afternoon. Is there any way lan could come to the briefing and fill me in afterwards?

Thanks for the understanding,
Carly
------Original Appointment-----
From: (b)(6) M Fisher, FAS-(b)(6) M Fisher, FAS
Sent: Tuesday, July 27, 2021 7:30 AM
To: (b)(6) M Fisher, FAS Cox, Carly S
Subject: [EXT] FW: [EXTERNAL] Invitation: Preventing the Next Pandemics Briefing @ Tue Jul 27, 2021 2:30pm - 3pm (EDT) (b) (6)

When: Tuesday, July 27, 2021 2:30 PM-3:00 PM (UTC-05:00) Eastern Time (US \& Canada).
Where:
>>https://us06web.zoom.us(b) (6) <<
*** This email originated outside of IDA. Please verify that you recognize the sender and know the content is safe before proceeding. ***

## From: (b)(6) M Fisher, FAS

Sent: Tuesday, July 20, 2021 8:55:49 PM UTC
To: (b)(6) M Fisher, FAS McKelvey, Greg G. Jr. EOP/OSTP; Schmoyer, Michael W. EOP/OSTP; Guerra, Stephanic L. EOP/OSTP; Joshua Schoop

Subject: [EXTERNAL] Invitation: Preventing the Next Pandemics Briefing @ Tue Jul 27, 2021 2:30pm - 3pm (EDT)(b) (6)

When: Tuesday, July 27, 2021 6:30 PM-7:00 PM.
Where:
\>>https://us06web.zoom.us(b) (6)

You have been invited to the following event.
Preventing the Next Pandemics Briefing
When Tue Jul 27, 2021 2:30pm - 3pm Eastern Time - New York
Where
>>https://us06web.zoom.(b) (6)
(map<>>https://www.google.(b) (6)
Calendar (b) (6)

Who * (b)(6) M Fisher, FAS- organizer

* McKelvey, Greg G. Jr. EOP/OSTP
* (b) (6)
* Guerra, Stephanie L. EOP/OSTP
* Joshua Schoop
more details

```
><>>https://calendar.google.(b) (6)
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>>https://us06web.zoom.(b) (6)
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s://www.google.(b) (6)


Yes<>>https://calendar.google(b) (6)


You are receiving this courtesy email at the accoun(b) (6) because you are an attendee of this event.

To stop receiving future updates for this event, decline this event. Alternatively you can sign up for a Google account at >>https://calendar.google.(b) (6) ontrol your notification settings for your entire calendar.

Forwarding this invitation could allow any recipient to send a response to the organizer and be added to the guest list, or invite others regardless of their own invitation status, or to modify your RSVP. Learn More<>>https://support.google.con(b) (6) <<>.

## RE: [EXTERNAL] Fwd: conflict of interest/consultant role



From: Krieger, Julia N. EOP/OSTP
Sent: Wednesday, September 8, 2021 12:04 PM
To: Kalil, Tom A. EOP/OSTP (b) (6)
Cc: Wallace, Rachel A. EOP/OSTP (b) (6) ; Koizumi, Kei EOP/OSTP
(b) (6) Parker, Lynne E. EOP/OSTP (b) (6)

Matheny, Jason G. EOP/OSTP (b) (6) Nelson, Alondra R. EOP/OSTP
(b) (6) ; DeBlanc-Knowles, Tess K. EOP/OSTP (b) (6)

Venkatasubramanian, Suresh EOP/OSTP
(b) (6) ; Anzola, Andres D. EOP/OSTP
(b) (6)

Subject: RE: [EXTERNAL] Fwd: conflict of interest/consultant role

Thank you, Tom.(b) (5)
(b) (5)
(b) $(5)$
(b) (5)
please let me know your thoughts.

## Julia Krieger

Communications Director
Office of Science and Technology Policy
Executive Office of the President
(b) (6)
(b) (6)

From: Kalil, Tom A. EOP/OSTP
Sent: Wednesday, September 8, 2021 11:56 AM
To: Krieger, Julia N. EOP/OSTP(b) (6)
Cc: Wallace, Rachel A. EOP/OSTP (b) (6) ; Koizumi, Kei EOP/OSTP
(b) (6)

Subject: RE: [EXTERNAL] Fwd: conflict of interest/consultant role


From: Krieger, Julia N. EOP/OSTP
Sent: Wednesday, September 8, 2021 11:43 AM
To: Kalil, Tom A. EOP/OSTP (b) (6)
Cc: Wallace, Rachel A. EOP/OSTP (b) (6) ; Koizumi, Kei EOP/OSTP
(b) (6)

Subject: RE: [EXTERNAL] Fwd: conflict of interest/consultant role

Thank you, Tom, and great chatting with you just now. (b) (5)
(b) (5)

Happy to discuss further.

Best,
Julia

## Julia Krieger

Communications Director
Office of Science and Technology Policy
Executive Office of the President
(b) (6)
$\square$

From: Kalil, Tom A. EOP/OSTP
Sent: Wednesday, September 8, 2021 11:34 AM
To: Krieger, Julia N. EOP/OSTP (b) (6)
Subject: FW: [EXTERNAL] Fwd: conflict of interest/consultant role

FYI - will call to discuss.
$\qquad$ Forwarded message
---------
From: Elizabeth MacBride (b) (6)
Date: Wed, Sep 8, 2021 at 8:23 AM
Subject: conflict of interest/consultant role
To: Thomas Kalil (b) (6)

Hi Tom,

I noticed you are listed as a consultant in the White House Office of Science and Technology Policy. I wondered if this is a paid role and whether it is a conflict of interest given your role at Schmidt Futures and Eric's public lobbying?
>https://www.wsj.com/articles/tech-industry-seeks-bigger-role-in-defense-not-everyone-is-on-board-
11631019600?mod=politics_lead_pos4\&mod=djemCapitalJournalDaybreak<

I'm writing a short piece about the military-industrial complex's shift toward China, planning to post it this afternoon.

## Elizabeth

Elizabeth MacBride (she/her/hers)
Journalist/Writer/Editor
Journalist in Residence, Legatum Center for Development and Entrepreneurship at MIT
Founder, Times of Entrepreneurship
$\geq$ www.timesofe.com/introduction<
| M: (b) (6) | @editoremacb

Order my new book


Sent via Superhuman

FW: [EXTERNAL] Fwd: conflict of interest/consultant role


From: Krieger, Julia N. EOP/OSTP
Sent: Wednesday, September 8, 2021 12:04 PM
To: Kalil, Tom A. EOP/OSTP (b) (6)
Cc: Wallace, Rachel A. EOP/OSTP (b) (6) Koizumi, Kei EOP/OSTP
(b) (6) Parker, Lynne E. EOP/OSTP(b) (6)

Matheny, Jason G, EOP/OSTP(b) (6) ; Nelson, Alondra R. EOP/OSTP

| (b) (6) | DeBlanc-Knowles, Tess K. EOP/OSTP < (b) (6) |
| :--- | :--- |
| (b) (6) | Venkatasubramanian, Suresh EOP/OSTP |
| (b) (6) ; Anzola, Andres D. EOP/OSTP <br> Subject: RE: [EXTERNAL] Fwd : conflict of interest/consultant role  |  |

Thank you, Tom. (b) (5)

(b) (5)
(b) (5)
please let me know your thoughts.

Julia Krieger
Communications Director
Office of Science and Technology Policy
Executive Office of the President
(b) (6)

From: Kalil, Tom A. EOP/OSTP
Sent: Wednesday, September 8, 2021 11:56 AM
To: Krieger, Julia N. EOP/OSTP (b) (6)
Cc: Wallace, Rachel A. EOP/OSTP (b) (6) ; Koizumi, Kei EOP/OSTP
(b) (6)

Subject: RE: [EXTERNAL] Fwd: conflict of interest/consultant role


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Sent: Wednesday, September 8, 2021 11:43 AM
To: Kalil, Tom A. EOP/OSTP (b) (6)
Cc: Wallace, Rachel A. EOP/OSTP (b) (6) $\quad>$; Koizumi, Kei EOP/OSTP
(b) (6)

Subject: RE; [EXTERNAL] Fwd: conflict of interest/consultant role

Thank you, Tom, and great chatting with you just now. (b) (5)
(b) (5)

Happy to discuss further.

Best,
Julia

Julia Krieger
Communications Director
Office of Science and Technology Policy
Executive Office of the President
(b) (6)

From: Kalil, Tom A. EOP/OSTP
Sent: Wednesday, September 8, 2021 11:34 AM
To: Krieger, Julia N. EOP/OSTP (b) (6)
Subject: FW: [EXTERNAL] Fwd: conflict of interest/consultant role

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To: Thomas Kalil (b) (6)

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>https://www.wsj.com/articles/tech-industry-seeks-bigger-role-in-defense-not-everyone-is-on-board-
11631019600 ?mod=politics_lead pos4\&mod=djemCapitalJournalDaybreak<

I'm writing a short piece about the military-industrial complex's shift toward China, planning to post it this afternoon.

Elizabeth

Elizabeth MacBride (she/her/hers)
Joumalist/Witer/Editor
Joumalist in Residence, Legatum Center for Development and Entrepreneurship at MIT
Founder, Tmes of Entrepreneurship
>www.timesofe.com/introduction<
$|\mathrm{M}:(\mathrm{b})(6) \quad|$ @editoremacb

Order my new book


Sent via Superhuman

RE: [EXTERNAL] Fwd: conflict of interest/consultant role


Date: Wed, 08 Sep 2021 13:33:27-0400

That works for me, thanks! Kei/team, please let me know if that works for you (b) (5)

Julia Krieger
Communications Director
Office of Science and Technology Policy
Executive Office of the President
(b) $(6)$

From: Wallace, Rachel A. EOP/OSTP
Sent: Wednesday, September 8, 2021 1:21 PM
To: Krieger, Julia N. EOP/OSTP (b) (6) Kalil, Tom A. EOP/OSTP
(b) (6)

Cc: Koizumi, Kei EOP/OSTP (b) (6) ; Parker, Lynne E. EOP/OSTP
(b) (6) ; Matheny, Jason G. EOP/OSTP (b) (6)

Nelson, Alondra R. EOP/OSTP(b) (6) DeBlanc-Knowles, Tess K.
EOP/OSTP (b) (6) >; Venkatasubramanian, Suresh EOP/OSTP
(b) (6) Anzola, Andres D. EOP/OSTP
(b) (6)

Subject: RE: [EXTERNAL] Fwd: conflict of interest/consultant role

Some slight adjustments below:


Thanks!!
Rachel

From: Krieger, Julia N. EOP/OSTP
Sent: Wednesday, September 8, 20211:05 PM
To: Wallace, Rachel A. EOP/OSTP (b) (6) ; Kalil, Tom A. EOP/OSTP
(b) (6) $>$
Cc: Koizumi, Kei EOP/OSTP(b) (6)
; Parker, Lynne E. EOP/OSTP
(b) (6) ; Matheny, Jason G. EOP/OSTP(b) (6)

Nelson, Alondra R. EOP/OSTP(b) (6) ; DeBlanc-Knowles, Tess K.
EOP/OSTP (b) (6) ; Venkatasubramanian, Suresh EOP/OSTP
(b) (6) Anzola, Andres D. EOP/OSTP
(b) (6)

Subject: RE: [EXTERNAL] Fwd: conflict of interest/consultant role

Thanks, Rachel. (b) (5)


Julia Krieger
Communications Director
Office of Science and Technology Policy
Executive Office of the President

## (b) (6)

From: Wallace, Rachel A. EOP/OSTP
Sent: Wednesday, September 8, 2021 12:42 PM
To: Krieger, Julia N. EOP/OSTP (b) (6) ; Kalil, Tom A. EOP/OSTP
(b) (6)

Cc: Koizumi, Kei EOP/OSTP (b) (6) > Parker, Lynne E. EOP/OSTP
(b) (6) Matheny, Jason G. EOP/OSTP(b) (6)

Subject: RE: [EXTERNAL] Fwd: conflict of interest/consultant role


Rachel

From: Krieger, Julia N. EOP/OSTP
Sent: Wednesday, September 8, 2021 12:04 PM
To: Kalil, Tom A. EOP/OSTP(b) (6) >
Cc: Wallace, Rachel A. EOP/OSTP (b) (6) ; Koizumi, Kei EOP/OSTP
(b) (6)
; Parker, Lynne E. EOP/OSTP(b) (6)
Matheny, Jason G. EOP/OSTP (b) (6) ; Nelson, Alondra R. EOP/OSTP
(b) $(6)$
; DeBlanc-Knowles, Tess K. EOP/OSTP(b) (6)
$\begin{array}{rr} & \text { Venkatasubramanian, Suresh EOP/OSTP } \\ \text { (b) (6) } & \text { Anzola, Andres D. EOP/OSTP }\end{array}$
(b) (6)

Subject: RE: [EXTERNAL] Fwd: conflict of interest/consultant role

Thank you, Tom. (b) (5)

(b) (5)
please let me know your thoughts.

Julia Krieger
Communications Director
Office of Science and Technology Policy
Executive Office of the President
(b) (6)

From: Kalil, Tom A. EOP/OSTP
Sent: Wednesday, September 8, 2021 11:56 AM
To: Krieger, Julia N. EOP/OSTP (b) (6)
Cc: Wallace, Rachel A. EOP/OSTP (b) (6) Koizumi, Kei EOP/OSTP
(b) (6)

Subject: RE: [EXTERNAL] Fwd: conflict of interest/consultant role


From: Krieger, Julia N. EOP/OSTP
Sent: Wednesday, September 8, 2021 11:43 AM
To: KaliI, Tom A. EOP/OSTP (b) (6)
Cc: Wallace, Rachel A. EOP/OSTP (b) (6) Koizumi, Kei EOP/OSTP
(b) (6)

Subject: RE; [EXTERNAL] Fwd: conflict of interest/consultant role

Thank you, Tom, and great chatting with you just now. (b) (5)
$\square$

Best,
Julia

Julia Krieger
Communications Director
Office of Science and Technology Policy
Executive Office of the President
(b) (6)

From: KaliI, Tom A. EOP/OSTP
Sent: Wednesday, September 8, 2021 11:34 AM
To: Krieger, Julia N. EOP/OSTP (b) (6)
Subject: FW: [EXTERNAL] Fwd: conflict of interest/consultant role

FYI - will call to discuss.
.-------------
From: Elizabeth MacBride (b) (6)
Date: Wed, Sep 8, 2021 at 8:23 AM
Subject: conflict of interest/consultant role
To: Thomas Kalil (b) (6)

Hi Tom,

I noticed you are listed as a consultant in the White House Office of Science and Technology Policy. I wondered if this is a paid role and whether it is a conflict of interest given your role at Schmidt Futures and Eric's public lobbying?
>https://www.wsj.com/articles/tech-industry-seeks-bigger-role-in-defense-not-everyone-is-on-board-
11631019600 ?mod=politics_lead pos4\&mod=djemCapitalJournalDaybreak<

I'm writing a short piece about the military-industrial complex's shift toward China, planning to post it this afternoon.

Elizabeth

Elizabeth MacBride (she/her/hers)
Joumalist/Witer/Editor
Joumalist in Residence, Legatum Center for Development and Entrepreneurship at MIT
Founder, Tmes of Entrepreneurship
>www.timesofe.com/introduction<
$|\mathrm{M}:(\mathrm{b})(6) \quad|$ @editoremacb

Order my new book


Sent via Superhuman

# [EXTERNAL] Schmidt Futures Bioeconomy: manufacturing science and capacity 

From: Mary Maxon [mmaxon@schmidtfutures.com](mailto:mmaxon@schmidtfutures.com)
To: $\quad$ "Lander, Eric S. EOP/OSTP" (b) (6)
Date: Wed, 17 Nov 2021 13:44:51-0500

Hi Eric,

I hope this message finds you well. A lot of things have been happening, and at least some of them have been good!

With help from the State Department, I represented the US on a COP26 panel last week organized by the OECD focused on innovation for global net zero. Not surprisingly, there is European skepticism about the role of biotechnology in achieving net zero, but thanks to the plant-based meats story ( $75 \%$ less water, $95 \%$ less land, $87 \%$ lower GHG emissions per burger compared to cow) and biobased chemicals production (now 20\% of the chemicals market and growing 10-20\% per year) in the US, I had a decent rebuttal.

I've had some zoom/email exchanges with Frances Arnold (whom I met in the Galapagos just before I joined OSTP in 2009) about the new Schmidt Futures bioeconomy effort, and she mentioned that you were aware of it too. During my leave of absence at Schmidt Futures (started in August), I'm leading a program in two parts: 1) a PCAST-like Task Force to opine on solutions to the challenges that prevent successful translation of (largely non-biomedical) synthetic biology research advances to economic and economic benefit, and 2) a grantmaking effort aimed to implement Task Force recommendations as appropriate for philanthropy.

The Task Force is working on an interim report that is planned for release in the first week in December, timed in response to WH requests, OMB passback, the OSTP Advanced Manufacturing RFI deadline (Dec 17), and Congressional recess (Dec 10). The full strategy is targeted for March 2022, which happens to coincide nicely with the 10 year anniversary of the National Bioeconomy Blueprint, a policy document that has served as a model around the world, as my OECD and Global Bioeconomy Summit experiences over the years have confirmed.

I plan to send you the interim report during the first week of December, and it is my hope that you might be interested in a briefing thereafter at a convenient time for you and Eric Schmidt. If so, please let me know!

Best regards,
-Mary

Mary E. Maxon, Ph.D. (she/hers)
Senior Fellow
mmaxon@schmidtfutures.com
Schmidt Futures

## [EXTERNAL] Schmidt Futures bioeconomy interim report

| From: | Mary Maxon [mmaxon@schmidtiutures.com](mailto:mmaxon@schmidtiutures.com) |
| :---: | :---: |
| To: | "Lander, Eric S. EOP/OSTP" (b) (6) , Frances H. Arnold |
|  | (b) (6) $>$, Cathie Woteki (b) (6) |
|  | (b) (6) |
| Date: | Wed, 01 Dec 2021 13:57:56-0500 |
| Attachments | Bioeconomy Task Force Interim Report 12.1.21.pdf (1.23 MB) |
| : |  |

I was thrilled to see that PCAST organized a biomanufacturing session for Monday's meeting, and it was fantastic! The presentations and the questions from the PCAST members were really great.

Congrats!

As some of you know, I've been at Lawrence Berkeley National Lab since leaving OSTP in 2012 and was recently asked by Schmidt Futures to lead an effort to identify funding opportunities to advance the US bioeconomy. Eric Schmidt is very engaged in this effort and met with the Task Force a number of times since the Task Force kicked off on October 13. The first product from this effort, Public and Private Funding Opportunities to Advance a Circular U.S. Bioeconomy and Maintain U.S. Biotechnology Competitiveness (attached), was released this morning, and early coverage of it ishere. It was great to hear several of Monday's speakers make points that are similar to the ones that are detailed in the report!

If there is interest in a briefing(s), please feel free let me know!

Best regards,
-Mary
-
Mary E. Maxon, Ph.D. (she/hers)
Senior Fellow
mmaxon@schmidtfutures.com
Schmidt Futures

# PUBLIC AND PRIVATE FUNDING OPPORTUNITIES TO ADVANCE A CIRCULAR U.S. BIOECONOMY AND MAINTAIN U.S. BIOTECHNOLOGY COMPETITIVENESS 

Interim Report Informed by the Schmidt Futures Bioeconomy Task Force

December 1, 2021

## About this Project

To seed the next wave of innovation in synthetic biology and the bioeconomy, Schmidt Futures launched the Task Force on Synthetic Biology and the Bioeconomy in October 2021 as part of a program to advance transformative bio-based and bio-enabled applications in areas such as clean energy, industry, agriculture, and health. Members of the Task Force are subject matter experts from academic disciplines, including physics, ethics, and synthetic biology; venture capitalists and industry leaders from both small and large companies; and leaders from biotechnology consortia.

Given the breadth of topics to address relating to the bioeconomy, this interim report is focused on identifying research needs for advancing biologically-based production and assessing infrastructure needs to support the U.S. bioeconomy. A follow up strategy document, planned for the spring 2022, will provide recommendations for additional topics, such as talent/workforce development, policy modernization, and catalytic actions to spur innovation. As Schmidt Futures contemplates its 2022 strategy document, input on this interim report and ideas for stakeholder convenings are welcomed. All input should be directed at the program co-leads listed below.

For this interim report, the Task Force members met regularly to debate a range of topics and developed two novel research products that informed the recommendations made. Information gathering for this report included interviews of more than 50 experts, literature reviews, and input from meetings and webinars. Schmidt Futures would like to broadly acknowledge and thank the many individuals that contributed to this effort, in addition to the Task Force members who dedicated their time to participate in this effort.

## Task Force Members:

Andrea Hodgson, Co-lead
ahodyson@) schmidifutures.com

Mary Maxon, Co-lead
mmaxon@schmidtfutures.com

| Jun Axup | Sunil Chandran | Kat Knauer <br> Stephanie Batchelor |
| :--- | :--- | :--- |
| Mike Fero | Deepti Tanjore |  |
| Patrick Boyle | Michele Goodwin | Frank Tate |
| Rob Carlson | India Hook-Barnard | Alexander Titus |
| Luis Cascão-Pereira | Sean Hunt | Christopher Voigt |
| Gaurab Chakrabarti | Ganesh Kishore | Paige Waterman |
|  |  |  |
| Joe Alper, Science Writer | Kathryn Hamilton, Research Associate |  |

With the exception of Schmidt Futures program co-leads, all members participated in their personal capacity. While the report generally reflects the observations, insights, and recommendations of the group, it should not be assumed that every member will have agreed with everything expressed herein.

## Executive Summary

In the nearly 50 years since the first genetic engineering experiments, the United States has become the world's biotechnology powerhouse, with the resulting biology-based economy - the bioeconomy-generating nearly $\$ 960$ billion in economic activity in 2016 , about 5 percent of U.S. GDP, ${ }^{1}$ with more than half of the total generated outside the biomedical sector, including the agricultural and industrial biotechnology sectors. Over the next two decades or less, a well-developed bioeconomy has the potential to transform manufacturing processes to use renewable biomass rather than petroleum to make the products of modern society, and in doing so, reduce the nation's dependence on fossil fuels, revitalize U.S. manufacturing and employment across the nation, create a more resilient supply chain, improve the nation's health, and contribute significantly to the goal of creating a net zero greenhouse gas economy. However, decentralized leadership, inadequate talent development, insufficient investment in both fundamental research and developing bioprocessing infrastructure, and international competition put the United States at risk of forfeiting that world-leading position and squandering the entrepreneurial drive and capital market interest that is trying to expand the bioeconomy. Without concrete action to address these concerns, the nation's economy, its national security, the health of its residents, and its opportunity to move to a net zero economy that creates good-paying jobs and keeps them in the country are in peril.

Schmidt Futures, a philanthropic initiative of Eric and Wendy Schmidt, convened a Task Force to chart a course for achieving the promise of platform technologies such as synthetic biology and artificial intelligence to contribute to what has recently been projected to become a future $\$ 4$ trillion global bioeconomy. The Task Force deliberated the roadblocks and focused on identifying opportunities for translating basic science research into products for the general public by enabling large scale production of exciting bioeconomy products that are ready to move out of the lab, such as:

- a new generation of plastics that degrade to harmless chemicals in seawater and soil
- biologically produced, carbon-neutral cement
- alternative food protein sources that use less water and land and produce fewer greenhouse gas emissions
- climate change resilient plants, including salt- and drought-resistant crops
- textiles and dyes whose production slashes carbon dioxide emissions and reduces toxic waste
- soil microbes that reduce fertilizer use, improve the health of soils, and remove carbon dioxide from the atmosphere

This report from Schmidt Futures makes recommendations for public and private action that fall into two broad categories: foundational science and technology challenges and scale-up capacity bioproduction ${ }^{2}$ infrastructure. These categories emerged as a consequence of the fact that most U.S. foundational life sciences research funded today is curiosity and discovery driven, not application driven, which results in these "non-academic" challenges that limit the ability to realize bioproduction goals going unexplored and underdeveloped in the United States. In addition, because other countries are investing in solving these challenges, U.S. companies are taking their technologies overseas for production and commercialization, a situation that if continued, promises to yield the same "innovate here, produce there" outcome that did so much damage to the U.S. manufacturing sector and the people it employed.

[^12]Recommendations snapshot:

1. The U. S. government should commit to remaining the global leader in biobased science and scale up manufacturing by establishing and funding a 5 -year, $\$ 600$ million $^{3}$ Bioproduction Science Initiative (BSI) that expands budgets and remits of relevant science agencies focused on advancing foundational science and technology development for current and future bioproduction, and is focused on addressing unmet research needs that hinder the translation of innovative technologies.

- The National Science Foundation (NSF) should serve as the lead agency for BSI and establish two regional innovation accelerators (RIAs) a year focused on bioproduction.
- The RIAs should forge new partnerships with relevant federal science agencies to build on existing expertise, leverage earlier investments, and enable coordination for research acceleration.

2. The U.S. government should invest $\$ 1.2$ billion $^{4}$ in an extensive and flexible bioproduction infrastructure-one that can process multiple feedstocks using multiple organisms to produce multiple products at multiple scales-over two years to expand domestic bioproduction capacity in an equitable and strategic manner. Additional funding for maintaining and sustaining these investments will be needed over time.

- The Department of Commerce should undertake a comprehensive assessment of existing facilities and functionality, building from the work of this Task Force, to identify and realize opportunities for appropriate and equitable placement of future facilities.
- A network of 10-15 new and refurbished bioproduction facilities, provided with incentives for early-stage technology development, will accelerate the transition from laboratory technologies to commercial deployment.
- Additionally, the Department of Commerce should explore other financial incentives, such as those embodied in the CHIPS Act, to provide capital for small and large companies to meet their infrastructure needs.

3. To remain globally competitive, the U.S. government should establish and sustain creative public-private partnerships with the goal of reducing the time it takes to successfully scale new products from several years to months.

- The Department of Commerce should incentivize partnerships between companies with deep artificial intelligence expertise and those with biomanufacturing facilities to provide services, facilities, and expertise for innovators.

[^13]
# Public and Private Funding Opportunities to Advance a Circular U.S. Bioeconomy and Maintain U.S. Biotechnology Competitiveness 

Interim Report Informed by the Schmidt Futures Bioeconomy Task Force

In the nearly 50 years since Herbert Boyer and Stanley Cohen conducted the first genetic engineering experiments, the United States has become the world's biotechnology powerhouse, with the resulting biology-based economy-the bioeconomy-generating nearly $\$ 960$ billion in economic activity in 2016, alone, about 5 percent of U.S. GDP, ${ }^{5}$ and fostering the growth of private industry and vibrant startup ecosystem. However, decentralized leadership, inadequate talent development, insufficient investment in both fundamental research and developing bioprocessing infrastructure, and international competition put the United States at risk of forfeiting that world-leading position. Without action to address these concerns, the nation's economy, its national security, its residents' health, and its opportunity to move to a net zero carbon economy that creates good-paying jobs and keeps them in the country are in peril.

> Net zero refers to the balance between the amoun of greenhouse gas the nation produces and the amount it removes from the atmosphere through innovation. We reach net zero when the amount we add is no more than the amonnt taken away.

The United States has the science and engineering knowledge base, commercial and venture capital interest, plentiful renewable raw materials, an energized workforce and innovative that wants to address the perils of climate change, a small and growing segment of consumers demanding and willing to pay a premium for products that are less harmful to the environment, and other resources to jump start a concerted national effort to grow the bioeconomy far beyond its size today. Indeed, our gamechanging expertise at manipulating and harnessing the building blocks of life can drive the global transition of using renewable biomass resources to replace the role of petroleum products and other nonrenewable materials in driving economic activity. Should the nation capitalize on this opportunity and its many strengths, particularly its global leadership in genetic engineering, molecular biology, and biotechnology, as well as its strong position in artificial intelligence, the result will:

- enable the nation to reach its goal of establishing a net zero greenhouse gas emissions economy by 2050,
- lead to a healthier and more sustainable nation and planet,
- address food and water security,
- reduce the nation's dependence on foreign resources, reduce its balance of trade deficit, and strengthen and add resilience to the nation's supply chains,
- revitalize urban and rural economies and create economic opportunities for marginalized communities,
- capture the lion's share of what is projected to be a $\$ 4$ trillion global industry ${ }^{6}$ that will affect almost all human endeavors and wellbeing, and
- enable the U.S. bioeconomy to lead history's fourth industrial revolution, one as pivotal as the invention of the steam engine, the age of science and mass production, and the rise of digital technology.

[^14]Making this transition from a petroleum economy to a bioeconomy is not a pipedream, nor is there an intractable tradeoff between reducing ecological impact and growing economic opportunity. Rather, it is the well-considered conclusion of a broad swatch of the scientific community and entrepreneurs that the bioeconomy offers an important option to address climate change while also strengthening and growing the U.S. economy. Indeed, the U.S. government has invested over $\$ 5$ billion over the past 15 years in research support for the bioeconomy, and the U.S. Department of Energy (DOE) projects that the United States could sustainably produce more than 1.3 billion tons of renewable biomass a yearwithout affecting food, animal feed, and export demands-while transitioning to low-carbon input agriculture and forestry that nurtures soil health. With a concerted and coordinated effort involving the federal government, academia, and the private sector, the transition to a bioeconomy has the potential to: ${ }^{7}$

- create 1.I million high-paying and intellectually satisfying jobs,
- keep $\$ 260$ billion dollars a year of economic activity from going overseas,
- contribute to the prosperity of rural, urban, and underserved and marginalized communities across the nation by using locally produced biomass for regional bioproduction,
- replace the transportation fuels that longhaul air travel and shipping might require even after electrification of the nation's transportation sector,
- produce chemicals and bioproducts from renewable biomass rather than from traditional chemical manufacturing, and produce entirely new materials that only nature can make economically,
- create a dependable, economic, and resilient domestic supply chain for producing and distributing all biobased products,
- develop large-scale, low-energy use DNA-based data storage to better capture the tremendous growth in data generated by human activity,
- raise the nutritional value of food and improve soil health, while reducing agriculture's greenhouse gas footprint, nitrogen runoff, and pesticide use,
- use marsh lands and forests more efficiently to improve their carbon- and water-holding capacity,
- create salt-tolerant, drought-tolerant, and disease-resistant crops to increase the resilience of agriculture, and
- reduce annual U.S. carbon dioxide emissions by 450 million tons, nearly 10 percent of the nation's emissions, or more, while also creating the possibility of developing biological processes that remove carbon dioxide from the atmosphere.

In addition, given the creativity of researchers in the public and private sectors, a biology-based economy, relying on the ability of nature to perform chemistry that humans have yet to master at scale, is likely to produce entirely new materials and production processes, just as the petrochemical-based economy has done. In fact, synthetic organic chemistry performed by humans may be reaching the limits of the possible and that nature is capable of extending the range of available chemicals and materials. Examples of bioeconomy products, available today, that are less damaging to the environment and less wasteful of precious resources include: ${ }^{8}$

[^15]- plant-based meat substitutes with a much smaller environmental footprint,
- textiles, dyes, carpeting, and furniture whose production slashes carbon dioxide emissions and energy use,
- synthetic leather made by fungus,
- soil microbes that reduce fertilizer use, improve the health of soils, and remove carbon dioxide from the atmosphere,
- cosmetics and personal care items made from sustainable bioproduced chemicals with smaller greenhouse gas footprints and that do not rely on sourcing from animals,
- a new generation of plastics that degrade to harmless chemicals in seawater and soil,
- enzymes that improve efficiency and reduce energy use in traditional industries such as pulp and paper bleaching, textile processing, and food processing,
- biologically produced cement,
- sustainable fish feed made from methane,
- biodegradable and compostable plastic containers whose production is associated with a 200 percent reduction in greenhouse gases,
- high-performance biodegradable lubricants and greases,
- polyurethane foam from algae oils left over from omega-3 fatty acid production, and
- tailored enzymes that enable washing clothes in cold water.

At the same time, making this transition is not easy or inexpensive. This interim report, based on input from a Task Force ${ }^{9}$ comprising experts covering a broad range of interests and expertise, provides a roadmap the nation can follow that will enable the United States to maintain its dominant global position in harnessing the modern molecular biology revolution and establish an equitable, vibrant and sustainable, circular bioeconomy that will provide economic, social, environmental, human health, and national security benefits for decades to come. Schmidt Futures will release a more comprehensive plan to power the growth of the U.S. bioeconomy in March 2022. This interim report focuses on steps to address foundational scientific and technological research needs and establish robust national capabilities for end-to-end bioproduction.

Before getting to the heart of our argument and the steps the nation needs to take, it is useful to define the terms bioeconomy, circular bioeconomy, and bioproduction. For the purposes of this report, we are using the definition of the bioeconomy developed by the National Academy of Sciences, Engineering, and Medicine in its 2020 report, Safeguarding the Bioeconomy:
"The U.S. bioeconomy is economic activity that is driven by research and innovation in the life sciences and biotechnology, and that is enabled by technological advances in engineering and in computing and information sciences."

This report borrows from a number of sources for our definition of a circular bioeconomy:

> A circular bioeconomy is one that forgoes the traditional linear economic model of
> "take-make-consume-throw away" for one that uses the power of biotechnology, design for bioproduction, and advanced analytics and information technology to create processes that result in a sustainable and regenerative economic cycle in which waste producis serve as inputs to create highly valued products and materials, that are used as

[^16]long as possible, and reused without drawing down limited resources or generating wastes that are disposed into the almosphere, landfills, or rivers, lakes, and oceans.

Finally, while some reports use the term biomanufacturing, this report uses the term bioproduction to be more forward-looking and inclusive of the variety of industrial and agricultural processes that commercial entities will use to make their products:

> Bioproduction is the use of biological systems, including plants, microbial consortia, individual living cells, and or parts of living cells (known as cell-free systems), to produce commercially important products from biomass feedstocks and carhon dioxide int a broad range of economic sectors including health, mutrition, agriculture, industrial applications.

Note that this report does not focus directly on addressing the needs of the biopharmaceutical and biomedical sectors of the bioeconomy, though investments in foundational research for bioproduction outlined later could also benefit the biopharmaceutical and biomedical sector, just as biomedical research produced the very genetic tools and discoveries that are enabling the rest of the bioeconomy. Those areas are well-funded by both government and the private sector and have a significant installed infrastructure that differs from non-biomedical applications given manufacturing practices and regulatory specifications, among other things. In fact, leadership in the bioeconomy is in some ways a byproduct of sustained investment in biomedical sciences, suggesting that broader investment in non-medical bioproduction could drive even faster growth of the bioeconomy.

## Moving Beyond Biofuels and Renewable Energy

Most media coverage of the nation's efforts to reduce greenhouse gas emissions and get to a net zero economy centers on renewable energy solutions such as electrification of the transportation industry. Certainly, renewable energy complemented by improving energy efficiency must play a significant role in moving to net zero, but the fact is, displacing fossil fuels with renewable energy can only address 55 percent of the nation's carbon emissions. Addressing the other 45 percent of the nation's carbon emissions requires changing the way we manufacture consumer and industrial products and the way we grow our food, and this provides an opportunity for the bioeconomy to contribute in significant ways.

A critical piece for addressing that opportunity is to enable of biobased chemicals to serve as the constituents of an estimated 96 percent of U.S.-manufactured products. In fact, that transition is already starting to happen, and some biobased chemicals already outcompete petrochemicals in several categories, generating at least $\$ 125$ billion annually and accounting today for somewhere between 17 and 25 percent of U.S. fine chemical revenues. U.S. Department of Agriculture's (USDA) BioPreferred program has identified about 20,000 biobased products in commercial production.

One advantage bioproduction of chemicals has is the cost of building a bioproduction facility, which in many respects with current technologies is similar to a brewery. For example, bioproduction facilities with current technologies cost from $\$ 100,000$ to $\$ 200$ million, depending on its size, complexity, and ability to handle multiple production processes. The relatively low cost of a bioproduction facility means that the return on capital should be quite attractive to the capital markets. Experts consulted for this report expect operating expenses for a bioproduction facility to be relatively low as well.

In addition, because of the varied nature of biomass and its localized production, the most functional and economical way to build a biomass-to-chemicals industry is to co-locate biomass processing facilities close to their feedstock. For example, a bioprocessing facility could be located adjacent to a municipal waste treatment facility to turn that waste into chemicals, or as one U.S. company is doing, locating a bioproduction facility adjacent to a Chinese steel mill and uses its industrial emissions as a feedstock for bioproduction. ${ }^{10} \mathrm{Co}$-locating bioprocessing facilities and their biomass feedstocks would create economic growth distributed across the nation and address the policy goal of revitalizing the economies of rural communities, as well as those that now-or once did rely on fossil fuel production and those struggling because traditional manufacturing jobs disappeared. Adapting to the different nature of regionally produced biomass will require basic research on process control, and getting biomass to regional processing centers will require innovation in logistics.

## Why Now?

Aside from the critical role that a circular bioeconomy must play in achieving the goal of reaching net zero by 2050 , there is another compelling argument for a national investment in developing a circular bioeconomy: international competition and the risk of losing an opportunity to revitalize U.S. manufacturing. For the past several decades, the United States has been following an "innovate here, produce there" model, rather than the "innovate here, produce here" model that capitalized on the nation's comparative advantage over other nations in innovation to become a manufacturing powerhouse and the world's wealthiest economy. The "innovate here, produce there" model cost the nation the opportunity to fully capitalize on the electronics revolution and the explosive growth in photovoltaic deployment, two sectors that U.S. innovation made possible but have largely benefited manufacturers in China, Japan, and Korea, at least in part because of lower costs of labor that are not expected to be as an big issue with bioproduction. The result has been a loss of manufacturing capacity, jobs, and economic benefits, as well as the supply chain snafus that developed in 2020, caused inflation to spike in 2021, and costs U.S. businesses hundreds of millions of dollars.

Today, the United States is in danger of having the same thing happen with bioproduction. Because of underinvestment in process development research, process engineering, bioproduction infrastructure, and workforce development, a number of U.S. innovators in the bioproduction space are having to rely on testbed and bioproduction facilities in Mexico and Europe, turn to talent located in Europe to develop bioproduction processes at scale, and export their intellectual property in order to manufacture their products, just as their predecessors in the electronics and photovoltaic sectors did. Moreover, the existing bioeconomy that has developed in the U.S. Midwest around corn processing could be in peril if the demand for fuel ethanol and high fructose corn syrup were to decrease. Therefore, using the existing biomass resources to produce innovative products with sustainable markets could help ensure continued growth of the Midwest segment of the bioeconomy.

In addition, international competitors have clearly and explicitly described their intent to dominate the global stage in the 21 st century using biotechnology, and are investing to implement associated long-term strategic goals. India and China, in particular, have clearly stated their intention to become a dominant global power via domestic development and mastery of biotechnology. To avoid falling behind and losing America's current advantage in biotechnology and molecular biology, the United States must begin to plan and execute on the same multi-decadal timescales as our competitors.

[^17]At the same time, dozens of recent reports, hearings, and developing legislation suggest the time is right to capitalize on the current momentum in support of revitalizing technology-based manufacturing in the United States. According to a recent Congressional Research Report focused specifically on the U.S. bioeconomy, Congress over the past few years has introduced several pieces of legislation directly related to the bioeconomy, including the Bioeconomy Research and Development Act of 2020, which was reintroduced in 2021; the Engineering Biology Research and Development Act of 2019; and the Securing American Leadership in Science and Technology Act of 2020, which was also reintroduced in 2021. The Senate has also passed the United States Innovation and Competition Act of 2021, which included the Bioeconomy Research and Development Act of 2021. These legislative efforts, if signed into law, would provide an excellent foundation for supporting the continued growth of the bioeconomy. Bioeconomy research would also fit under the provisions of the recently signed Infrastructure Investment and Jobs Act, otherwise known as the bipartisan infrastructure deal, as well as the recently announced, U.S.-led Net Zero World Initiative and the 2018 National Strategic Plan for Advanced Manufacturing.

Together, pending legislation represents a good starting point for supporting the nation's bioeconomy, but capitalizing on the full potential that the bioeconomy represents requires the U.S. government to make a more substantial commitment. Our subsequent report will consider recommendations for specific policy actions the federal government should take to further activate the U.S. bioeconomy-perhaps legislation analogous to the Creating Helpful Incentives to Produce Semiconductors for America (CHIPS) for America Act and the Facilitating American-Built Semiconductors (FABS) Act.

## What's the Hold Up?

While the benefits of building a bioeconomy for the 21 st century and beyond are both obvious and undeniable, the United States has a great deal of work ahead to address scientific, technological, infrastructure, and commercialization hurdles to turn potential into reality. Some of this work to address the scientific and technological hurdles is ongoing in academic and private sector laboratories, and to fully realize its potential requires the type of foundational research, development, and infrastructure support at which the federal government excels. For example, the U.S. government has a history of funding industrial revolutions by enabling the connection of digital design and simulation with manufacturing. The most notable examples are CAD/CAM for mechanical engineering and airplane manufacturing and the layout and simulation tools for designing semiconductor chips.

The molecular biology revolution, for that matter, owes its existence to federal funding of biomedical research, and federally funded research has already led to great progress in synthetic biology - the direct engineering of microbes and plants. However, there is a need, for example, to better generate, organize, catalog, and share all the data on the genes, proteins, and biosynthetic pathways that microbes and plants use. Doing so will enable bioengineers to use a wide array of digital design and production technologies for biotechnology that are the logical equivalent of those used by the industries that produced iPhones, Teslas, and 787 s . Such capabilities would enable bioproduction facilities to accommodate the variable response of living systems that make them more difficult to scale than massproducing cars or mobile phones. There is little doubt, too, that federal research support in this area will create additional platform technologies that lead to serendipitous advances, just as it did for DNA sequencing, DNA synthesis, and genome editing.

Infrastructure hurdles may be the bigger barrier to commercializing research advances. One significant barrier is the limited U.S. capacity of testbed and intermediate-scale facilities that innovators
require to demonstrate they can scale-up their laboratory successes and produce enough bioproduct needed for the necessary testing and validation steps. Another barrier in this realm is the situation where innovators seeking to manufacture their biobased products at scale must deal with a patchwork of bespoke facilities and processes that were most likely not built with their products in mind. Investment in a network of new testbed facilities, as well as establishing data and technology transfer standards akin to application programming interfaces used in the software industry would allow direction application of data from the laboratory to high-performance bioproduction, would help new products reach markets faster. So, too, would developing biotechnology operating systems that can drive experiments, optimize production processes, facilitate technology transfer implementation, and serve to integrate basic product development with systems that manage customer-facing production and compliance. Given the variability of biomass composition biomanufacturers need standardization of tasks ranging from data gathering and annotation to root cause analysis, which together facilitate the use of modern process development and management tools in the same way that the chemical industry deals with much smaller variability in its raw materials.

Beyond that, there are the one-time costs involved in transitioning from a petroleum-based throw-away economy to a circular bioeconomy, costs estimated to total around $\$ 145$ billion over the next 30 years $^{11}$-or a little over 25 percent of the new federal spending included in the bipartisan infrastructure bill-but these are limited in duration and repaid multiple times over once the transition is complete. As the old saying goes, if we stopped doing things the old, unsustainable way-in this case, turning sequestered carbon in the form of oil, natural gas, and coal, into carbon dioxide and other products that cause environmental damage and endanger life on Earth-we could more than afford to do things a better way.

Another constraint on developing bioproduction capabilities here is that there is a severe shortage of bioprocess engineering talent in the United States, one that raises the need for education in bioprocess engineering at all levels, from community college to graduate school. While our subsequent report will dive more fully into workforce needs, suffice it to say that other countries are actively addressing this issue. The European Union, for example, has high quality chemical engineering and process development research and training programs, and U.S. companies are increasingly forced to rely on foreign-trained talent. It is common today to hear companies say they have to rely on Dutch process engineers, for example, when trying to hire for their facilities.

Finally, there are regulatory and policy considerations that the nation needs to modernize to support the bioeconomy. Our subsequent report will discuss ways to address those, and will also define a set of bioeconomy-related grand challenges and actions that would benefit a range of communities and set forth a plan to implement them.

## What Do We Need to Do to Enable a U.S. Circular Bioeconomy?

The research, development, and infrastructure opportunities that this report highlights and makes recommendations for public and private action fall into two broad categories: foundational science and technology challenges and end-to-end bioproduction capacity (see Figure 1). Addressing the major scientific and technological challenges to creating a circular bioeconomy and moving toward a net zero would enable the country to unlock the wealth of knowledge, entrepreneurial drive, and venture capital resources that few if any other nations possess together. Increasing end-to-end bioproduction capacity

[^18]would enable the nation to return to the innovate here, produce here model that would grow the U.S. bioeconomy and create millions of high-paying bioproduction jobs.


FIGURE 1 Relationship between developing foundational science \& technology capabilities, developing bioproduction capacity, and net zero goals. The green arrows designate a pathway to net zero that relies on bioproduction and reflects the subject matter of this report. The blue arrow represents other paths to net zero that do not depend on bioproduction.
Credit: This figure was created with the assistance of Sifang Chen, Ph.D., a postdoctoral fellow with the Engineering Biology Research Consortium
U.S. government funding in these areas would be directed to address challenges and eliminate barriers that would unleash the power and capabilities of the private sector to create markets and drive economic prosperity, and also address the national imperative to move to a sustainable net zero carbon economy that benefits all Americans. In addition, federal investments in foundational science and technology have a long history of leading to unanticipated future applications, including the research that led to the molecular biology revolution that serves as the bedrock of the bioeconomy.

At the same time, there is a key role for industry to play in these efforts, particularly in terms of sharing knowledge and expertise through research partnerships with government and academia. For example, fostering partnerships between large technology companies with expertise in artificial intelligence and bioproduction companies, with knowledge of scale-up challenges and the ability to generate copious data on their processes, could dramatically reduce the time that it takes to reach commercial production capacity. In fact, much of the startup and investment activity in the bioeconomy has focused on the confluence of automation, software, and biology.

Certainly, other organizations have developed roadmaps that are broadly supportive of funding foundational science and technology research that would aid in developing a vibrant, bioeconomy. In particular, the Engineering Biology Research Consortium has produced several roadmaps targeted at specific areas of basic research relevant to the bioeconomy, including its most recent on engineering biology and materials science. ${ }^{12}$ What makes this effort different is its specific focus on research and development activities needed to expand end-to-end bioproduction capacity on the scale needed to evolve the U.S. bioeconomy toward a circular bioeconomy and to accelerate the transition to a net zero economy.

[^19]
## FOUNDATIONAL SCIENCE AND TECHNOLOGY CHALLENGES

Achieving the biggest return on the nation's investments, both past and future, requires the U.S. government to accelerate research in foundational bioengineering and bioproduction. Up to this point, federal research support has enabled researchers to develop an ever-growing set of tools, such as CRISPR; to manipulate DNA at will and use those tools to develop plants, microorganisms, and cell-free systems capable of producing a wide range of commercially valuable chemicals and materials. Now, to advance the nation's bioproduction capabilities, research and development efforts need to focus on creating rational design for bioproduction processes that would involve the following:

- modeling, designing, and testing metabolic pathways to make molecules and products that do not exist in nature,
- developing the rules, data analysis tools, computer modeling capabilities, and data-driven approaches to model building, that would enable biotechnologists to rapidly identify and produce the exact genetic modifications in the most suitable organism or cell-free system required to create those pathways and generate the desired biochemical product,
- conducting data-driven discovery using emerging machine learning and artificial intelligence approaches now being employed by chemical engineers, materials scientists, and some early adopters in industrial biotechnology,
- accurately projecting laboratory-scale results to industrial-scale processes, and
- doing all of this in a matter of days and weeks instead of months and years.

Concurrent with that effort should be research aimed at extending existing DNA production methodology to enable manufacturing entire genes or even whole genomes with high fidelity. This effort would include developing genetic tools for precisely editing plant and microbial genomes at multiple sites simultaneously to improve existing metabolic pathways and create new ones as part of rational design. Given the importance of biomass to the future bioeconomy, there needs to be a greater research emphasis on plant genomics and higher throughput genomic manipulations of plant genomes, such as the successful National Science Foundation (NSF)-funded effort to assemble, annotate, and compare 26 diverse maize genomes, in order to increase the productivity of food and feed crops and to develop varieties that be grown on marginal lands. Another research goal should be to identify organisms, and even collections of organisms that work together, that could serve as new "chassis" for bioproduction, expanding the breadth of products that can be manufactured routinely.

Creating the biobased systems capable of producing valuable chemicals and materials is only a start. What must happen next is for process and chemical engineers to develop the systems and capabilities needed to produce biobased products on a commercial scale. An analogy would be turning a home-based, one-carboy beer fermenter into a full-fledged brewery capable of producing enough beer to stock every liquor store, bar, and restaurant. While there are a number of companies already skilled at doing this for existing products, the vibrant domestic start up ecosystem is struggling to develop and access these capabilities for a number of reasons, which are detailed below in the section on increasing end-to-end bioproduction capacity.

Scaling biobased production from the benchtop to commercial scale is not straightforward at present owing to a number of factors, including the inherent variability that comes from working with a living organism, and research is needed to develop methods of dealing with the variability and increasing the efficiency of what can be extracted from biological feedstocks. In addition, the government can create a market for the individual carbon fractions that bioproduction would generate, from one carbon to six carbon, as well as lignin for aromatics, to create a carbon building-block pipeline
for the bioeconomy as these fractions can plug into existing value chains and infrastructure (Figure 2). Research into the tolerance for impurities and blends of biomass will also enable this transition. ${ }^{13}$


FIGURE 2 A hypothetical biomass-utilizing, carbon building-block pipeline would produce carbon feedstocks for production of the wide range of consumer and industrial products.
Credit: Luis Cascão-Pereira
This is one place where modeling and simulation capabilities need to play a larger role than is possible today. To support the development of those capabilities, funding is needed to establish an easily accessible national computational and database infrastructure that would better support the design-build-test-learn process common in engineering for biology by enabling better simulation. This infrastructure would provide process engineers with the ability to perform scale-up experiments and refine operating conditions before moving a laboratory-based process to pilot plant scale and then on to commercial production scale. Currently, scale-up is an expensive and time-consuming process that would benefit from a concerted research effort focused specifically on optimizing and standardizing bioproduction scale-up processes.

An area that has not gotten much attention, but definitely needs it to enable a future circular bioeconomy, centers on how to process the varied feedstocks that will be available to biotechnologists, including forest-based biomass of many types, grasses and crops, agriculture and aquaculture byproducts, food production byproducts and waste, municipal waste, waste water, and carbon dioxide produced by other processes, among others depending on where a bioproduction facility would be located and even what season it is when production occurs.

Biomass feedstock variability can make any attempts at pre-determining optimal process conditions futile. Bioproduction facilities can learn from the petroleum industry, which uses advanced computer modeling to tune process conditions and fully convert each batch of crude into a preestablished suite of chemicals. By applying the same type of analytic tools and modeling capabilities, bioproduction facilities will be able to adapt their processes to accommodate the variability in biomass feedstocks that result from seasonal and geographic variation.

Once the nation has enabled feedstock flexibility or further developed the capabilities to use diverse sources of renewable biomass to power the bioeconomy, there may be an opportunity to use one of society's most vexing waste problems, plastics. Researchers are working on ideas for how to

[^20]deconstruct existing plastics into smaller molecules that could then serve as feedstocks for biological processes. One advantage of this approach is that there is an already existing collection and sorting system for plastics. However, the processes needed to break down plastics into usable feedstocks are a relatively new and developing technology, and research is needed on how to best use that feedstock in combination with biomass feedstocks. That being said, major polymer producers around the globe are investing in chemical recycling infrastructure and anticipating some of these processes coming to fruition in the next 15 years. It behooves the United States to make larger strategic investments now to capitalize on this alternative feedstock.

The nation's extensive expertise in biotechnology and artificial intelligence puts the United States in an ideal position to address the research needs listed above with appropriate government support. However, our analysis of federal spending to support the research needed to develop a vibrant U.S. circular bioeconomy reveals that such spending has been flat for years (Figure 3). ${ }^{14}$ That situation must change, and change now, if the nation is truly serious about rebuilding its manufacturing capabilities, creating millions of good-paying jobs spread equitably across the nation, and reaching the goal of building a net zero economy. The magnitude of the funding needed to accomplish that goal is likely to be a fraction of the cost of the recently passed bipartisan infrastructure deal, and the return on that investment will more than justify it.

Agency Name

- AGENCY FOR INTERNATIONAL DEVELOPMENT (USAID)
- DEPARTMENT OF AGRICULTURE (USDA)
- DEPARTMENT OF COMMERCE (DOC)
- DEPARTMENT OF DEFENSE (DOD)
- DEPARTMENT OF ENERGY (DOE)
- DEPARTMENT OF HEALTH AND HUMAN SERVICES (HHS) - DEPARTMENT OF HOMELAND SECURITY (OHS) - DEPARTMENT OF THE INTERIOR (DOI) - ENVIRONMENTAL PAOTECTION AGENCY (EPA) - national aeronautics and space administratio. - NATIONAL SCIENCE FOUNDATION (NSF)


FIGURE 3 Federal research funding for bioeconomy-related areas by federal agency (2006-2021).
Method: The above visualization was created using USASpending.gov, the official open data source on federal spending. The award type selected was grants that exclude services such as consulting, military contracts, and IT infrastructure modernization. Research was done using the terms "biomass, biotechnology (biotech), biofuels, feedstock, bioeconomy, bionutrients, bioprocessing, biomanufacturing, synthetic biology, cell-free synthesis, cellular agriculture, downstream processing, scale-up manufacturing, biological technologies, and solid-state fermentation." The Awarding Agencies selected were the Department of Agriculture (USDA), Department of Commerce (DOC), Department of the Interior (DOI), Department of Defense (DOD), Department of Energy (DOE), National Aeronautics and Space Administration (NASA), Department of Health and Human Services (HHS), Agency for International Aid (USAID), Department of Homeland Security (DHS), Environmental Protection Agency (EPA), National Science Foundation (NSF), Department of Veterans Affairs (VA), and the Smithsonian Institute.
Credit: Kathryn Hamilton and John Haley, Aurora North America

[^21]
## END-TO-END BIOPRODUCTION CAPACITY

While the scientific, engineering, and technology communities are ready to tackle the foundational science and technology challenges discussed above over the next five years with appropriate support, establishing a nationwide, end-to-end bioproduction capacity to move from the desktop to commercial production requires a larger-scale effort-and commitment on the part of the U.S. government-that will play out over the next 3 to 15 years. This effort will require advances in several areas, including research and development, infrastructure development, science and regulatory policy, and strategies to develop alternative feedstocks. One area that has received some attention concems the risks that future biotechnology products might pose. The National Academies of Sciences, Engineering, and Medicine has examined this subject in detail and concluded that there are no new or unique risk endpoints associated with current or future products of the bioeconomy that the scientific community and regulators have not had to address already, but that the complexity, scope, scale, and tempo of bioeconomy products that are likely to come before regulators may stress regulatory agencies in terms of capacity and expertise. ${ }^{15}$

## Development, Testbeds, and Deployment

In biotechnology, product and process are highly integrated. Process innovation at universities in Europe is much more advanced, while it is largely non-existent in the United States, where manufacturing is considered an industry of the past that is not exciting for students or faculty. Indeed, it is difficult to hire true process engineering talent in the United States, and though biological engineers coming out of university are ready to work in microbiology or synthetic biology, they are not properly trained to scale technology or work on process design.

To incentivize industry and academia to pursue innovation that offers 10 -fold improvements in bioproduction technology - the scale needed to achieve a commercially viable alternative to a petroleum-based economy-funding should be directed to addressing grand challenges in bioproduction, with relevant metrics of success, that the nation's research community could address within a 5 -year timeframe, much as the semiconductor and nanotechnology industries addressed their grand challenges with federally funded initiatives. Often, bioproduction needs improvements beyond using fermentation, a place where chemical engineers could play a vital role by applying the skills they developed for chemical production to a new industry with tremendous growth prospects and societal benefits.

Aside from dedicating funds to addressing grand challenges in bioprocessing and bioproduction, another step would be to follow the model used by the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs to create the nanolithography industry. Increasing SBIR/STTR funds dedicated to bioprocessing and bioproduction improvement by 10 -fold would spur innovation, as would developing mechanisms to ease the transition out of the SBIR/STTR funding model and changing the statutory requirements regarding commercialization assistance that may hinder small business commercialization prospects and business development in the long run. ${ }^{16}$

Also needed in this realm is support for what are known as testbed facilities or sandboxes: scaleup facilities with expertise available with which to contract to help rapidly transfer scale-up knowledge to innovators. The Bioindustrial Manufacturing and Design Ecosystem, or BioMADE, is one example.

[^22]This institute, with a focus on catalyzing and reducing the risk of investments in relevant infrastructure, is supported by a seven-year award that includes at least $\$ 87.5$ million in federal funds from the Department of Defense (DoD) and more than $\$ 180$ million in cost sharing from non-federal sources. This and similar facilities would serve the bioproduction industry in the same way that ARPANET paved the way for the internet to develop. Other examples include the National Cancer Institute's Nanotechnology Characterization Laboratory, which provides analytical expertise needed to commercialize nanotechnology-based products but that are too expensive for small companies to afford and require hard-to-find expertise, and the National Renewable Energy Laboratory's National Wind Technology Center, which provides field validation sites and composites manufacturing pilot facilities that have played a critical enabling role in the advancement of wind energy technology that has benefited the entire industry. A network of such industry-enabling facilities will offer the ability to evaluate multiple bioengineering technologies with a fail-fast approach.

## Infrastructure Development

An important sticking point today in translating laboratory research to commercial production is the paucity of testbed facilities where innovators develop their scale-up procedures and innovative manufacturing technologies in partnership with experts in process and chemical engineering that will enable them to bring their products to market faster and at reduced costs. The National Institute of Standards and Technology (NIST) established the National Institute for Innovation in Manufacturing Biopharmaceuticals (NIIMBL) as a public-private partnership in 2016 to address just that challenge for the biopharmaceutical industry. Investing in the fundamental science of bioprocessing in the precompetitive space, as NIIMBL is doing for biopharmaceutical production, will benefit the entire industry, both in terms of the knowledge gained and by providing innovators with the opportunity to demonstrate that their processes are reproducible at an intermediate scale before the capital markets will step in to fund building a commercial-scale facility. The federal government can play a catalytic role here by establishing a network of regional testbed facilities-facilities that can process multiple feedstocks using multiple organisms to produce multiple products at multiple scales-enabling innovators to work out their scale-up processes and generate the performance data that would lay the groundwork for moving to commercial production. Doing so would reduce the risk that currently keeps the capital markets on the sidelines.

While there are domestic contract bioproduction facilities, many of them serve the biopharmaceutical industry and thus operate under GMP standards. Because of the fees these for-profit contract facilities charge, bioeconomy startups have difficulty competing with biopharmaceutical companies when trying to develop products that have a lower price per pound than a biomedical product or even a cosmetic ingredient. The federal government has made a significant down payment toward addressing some of the needed bioproduction capacity limitations. BioMADE is the newest example of a public-private partnership testbed bioproduction facility that, once built, will be dedicated to address some of the needs of the bioeconomy. Another such facility, the Advanced Biofuels and Bioproducts Process Development Unit (ABPDU) was funded in 2009 as part of the American Recovery and Reinvestment Act as an infrastructure investment. This DOE facility, located at Lawrence Berkeley National Laboratory, is so in demand today that it is turning away potential customers. Despite these initial federal bioproduction investments, many companies are now forced to go to contract manufacturers in Belgium, Canada, China, Germany, India, Mexico, the Netherlands, Slovakia, Slovenia, and elsewhere to access needed infrastructure that is not available domestically. In addition, there is no comprehensive, publicly available resource that documents the location and functionality of
existing domestic bioproduction facilities, as exists in Europe. ${ }^{17}$ As a consequence, this Task Force has produced an initial compilation of existing bioproduction facilities and infrastructure that might serve as the basis of a future public database demonstrating the location and whether the asset is publicly or privately affiliated (Figure 4).


FIGURE 4 Public and Private Affiliated Bioproduction Facilities. The green, teal, and navy-blue colors respectively represent biomanufacturing plants that are privately owned, university-affiliated, or public assets. The filled and empty circles respectively represent if the plant operations are active or not/unknown.
Credit: This figure was created with the assistance of Albert Hinman, Ph.D., a postdoctoral fellow with the Engineering Biology Research Consortium

Regarding international competitiveness, if U.S. leadership is the goal, it is imperative for the United States to act now to establish more of these facilities given that other nations have already taken this step. The United Kingdom, for example, has established the National Biologics Manufacturing Centre, Centre for Process Innovation, and Industrial Biotechnology Innovation Centre to aid its nascent bioproduction industry. In the solar energy field, the failure of the federal government to help fledgling companies get past the intermediate stage of development played a significant role in China's rise as the world's predominant supplier of photovoltaic cells. If the United States does not act now and over the next five years to invest in bioproduction infrastructure strategically and aggressively, the same could happen to the U.S. bioeconomy.

Beyond funding the testbed facilities, the federal government could expand bioproduction capacity by incentivizing the use of existing scale-up infrastructure housed within established companies. The U.S. government could also implement tax breaks, subsidies, loan guarantee programs and other financial incentives for further investment in bioprocessing infrastructure and for retrofitting existing facilities, including existing idled cellulosic ethanol and pharmaceutical facilities, as well as other corn-to-ethanol facilities pivoting to additional bioproduction opportunities.

In addition, the U.S. government could support a nascent bioproduction hardware industry, perhaps by creating plug-and-play centers that provide a continuous stream of bioproduction partners.

[^23]Such centers could also have a research focus of working toward designing modular production systems that would enable companies to expand production relatively easily as demand for their produces increases. Currently, many startup companies in the bioeconomy are having to design and build their own hardware, such as novel bioreactors, to improve process yields because venture capital shies away from funding standalone equipment manufacturing firms.

## RECOMMENDATIONS

The discussion above describes the key assets the United States possesses and the critical areas of research, development, and infrastructure needs that the nation must develop further to fully capitalize on those assets. As alluded to earlier in the report, there are regulatory and policy considerations that are essential elements of a holistic strategy for support the US bioeconomy. This Task Force will inform a holistic strategy in March 2022, but here we focus on the specific actions needed to move laboratory successes into testbeds and eventually into commercial production scales to advance the current U. S. bioeconomy and to build the necessary foundation for a future circular U.S. bioeconomy that moves toward net zero greenhouse gas emissions. We identified the following three needs; 1) establish a strategic bioproduction research initiative to catalyze private and public sector innovations needed to overcome existing barriers to translation; 2) establish and sustain creative public-private partnerships to unlock the decades of tacit knowledge and data within industry to accelerate technology translation; 3) create and sustain a network of next-generation bioproduction testbeds through infrastructure investments to stem the trend of off-shore technology loss.

Recommendations:

1. The U. S. government should commit to remaining the global leader in biobased science and scale up manufacturing by establishing and funding a 5 -year, $\$ 600$ million ${ }^{18}$ Bioproduction Science Initiative (BSI) that expands budgets and remits of relevant science agencies focused on advancing foundational science and technology development for current and future bioproduction, and is focused on addressing unmet research needs that hinder the translation of innovative technologies.

Broadly speaking, innovation in bioproduction capability can be achieved by improving predictability of living systems at scale and enabling modularity in bioproduction. Federal science agencies have made initial efforts toward these priorities, but bolder and larger efforts are needed to catalyze necessary innovation. The BSI should enable research focused on the priorities articulated in detail in this report and summarized at a high-level here:

- Creating software-enabled metabolic pathway design programs grounded in rules, data, and simulation capabilities for generating novel molecules and products.
- Expanding genetic and characterization tools for microbes, plants, and animal cells with proven or high potential for bioproduction, including those for reading, multiplexed editing, and writing whole genomes.
- Developing microfluidic and digital tools to enable a predictive understanding of potential successes of transitions from laboratory-scale to industrial-scale processes through simulations, testing, data collection, and iteration.

[^24]- Enabling circularity through development of next-generation bioproduction capabilities, including modular production hardware, novel software control systems, upstream flexibility in processing local, and expanded feedstocks repertoires, as well as innovating downstream processing and formulation activities for future biological inputs.

The National Science Foundation (NSF) should serve as the lead agency for BSI and establish two regional innovation accelerators (RIAs) a year focused on bioproduction. NSF supports fundamental research and education in all non-medical fields of science and engineering, and its stated mission is "to promote the progress of science, to advance the national health, prosperity, and welfare, and to secure the national defense." Given this program's inclusive remit, NSF is the ideal home for this multi-disciplinary bioproduction science initiative. Through the RIAs and complementary traditionally funded research, NSF can implement the research priorities described above, expand existing relevant commitments, forge new innovative industry partnerships, and advance their preliminary explorations of circular bioeconomy research.

The RIAs should forge new partnerships with relevant federal science agencies to build on existing expertise, leverage earlier investments, and enable coordination for research acceleration.
The FY2022 NSF Budget Request to Congress ${ }^{19}$ describes the RIAs to be a vehicle for partnerships (industry, academies, state and local governments), but partnership between federal agencies is not included in that description. Enabling partnerships between agencies with existing expertise could further accelerate the bioeconomy and serve to begin breaking down the silos across application areas. For example, the RIAs could work with Department of Energy (DOE) programs such as the ABPDU, the Agile BioFoundry, and the Feedstock-Conversion Interface Consortium, as well as USDA's Feedstock Flexibility program to advance foundational research expanding the array of future bioeconomy feedstock options.
2. The U.S. government should invest $\$ 1.2$ billion ${ }^{20}$ in an extensive and flexible bioproduction infrastructure-one that can process multiple feedstocks using multiple organisms to produce multiple products at multiple scale-over two years to expand domestic bioproduction capacity in an equitable and strategic manner. Additional funding for maintaining and sustaining these investments will be needed over time.

To maximize the potential of the U. S. bioeconomy and regain competitiveness, additional pilotand intermediate-scale facilities with inherent flexibility and modularity are needed and must be prioritized.

> The Department of Commerce should undertake a comprehensive assessment of existing facilities and functionality, building from the work of this Task Force, to identify and realize opportunities for appropriate and equitable placement of future facilities. Considerations for implementing this expansion include access to feedstock, a trained workforce (or where a potential workforce could be developed with training/re-skilling programs),

[^25]academic and industrial partners to operate these facilities, and considerations for where this new industrial activity could most benefit communities.

A network of 10-15 new and refurbished bioproduction facilities, provided with incentives for early-stage technology development, will accelerate the transition from laboratory technologies to commercial deployment.
Previous federal bioproduction infrastructure investments such as the DOE's ABPDU, established with the American Recovery and Reinvestment Act, NIST's NIIMBL, DOD's Advanced Regenerative Manufacturing Institute, have proven valuable in generating important returns on federal investment since they were brought online, and the new DoD BioMADE facility is expected to deliver significant returns as well. However, these assets are insufficient to meet the growing demand by U.S. innovators who are increasingly forced to develop their technologies in foreign countries.

Additionally, Commerce should explore other financial incentives, such as those embodied in the CHIPS Act, to provide capital for small and large companies to meet their infrastructure needs.
Such incentives could be in the form of tax incentives and loan guarantees to enable companies to fund their own new facilities and/or acquire and refurbish existing infrastructure as their technology reaches maturation. This approach has the potential to revitalize communities whose existing bio- or chemical refineries have gone unused.
3. To remain globally competitive, the $\mathbf{U}$. S. government should establish and sustain creative public-private partnerships with the goal of reducing the time it takes to successfully scale new products from several years to months.

Given the lack of relevant academic research programs, most U.S. expertise in bioproduction exists in companies and in the few publicly-funded facilities currently in operation. Therefore, action is needed to unlock the decades of valuable tacit knowledge and data within industry to accelerate technology translation and unleash a wave of innovation.

The Department of Commerce should incentivize partnerships between companies with deep artificial intelligence expertise and those with biomanufacturing facilities to provide services, facilities, and expertise for innovators.
Beneficial new public private partnerships could help address scale-up barriers that innovators face, such as lack of access to bioproduction facilities, inexperience to transition technology across scales, and transfer know-how and tacit knowledge. Participation in these partnerships could be contingent upon dedicating a percentage of bioproduction hours to serve the larger bioeconomy community and enable its products to be economically competitive from the outset or by providing training opportunities/internships for the future bioeconomy workforce.

## Concluding remarks

A convergence in platform technologies such as artificial intelligence and synthetic biology has the potential to accelerate biotechnology solutions in a wide range of economic sectors and advance the United States toward a resilient, sustainable net zero economy. As a result of the U. S. government's incredible foundational investments that led to the creation of biotechnology, the nation is in an ideal position to capitalize on that investment by building an economy rooted in biotechnology, Indeed, as the world embraces a circular bioeconomy, the United States should leverage its unmatched biotechnology
expertise to capture a leadership position in a global circular bioeconomy grounded in biotechnology, which most countries are failing to do. To do that, however, the U.S. government needs to make additional investments to facilitate the transition from laboratory scale to commercial scale.

As this report spells out, the U.S. bioeconomy is poised to deliver significantly substantial economic and public benefit, but U. S. government investments in bioeconomy-related research have remained stagnant for the last several years despite the rapid rise of new enabling capabilities such as artificial intelligence and genome editing tools that could greatly accelerate achievement of a possible $\$ 4$ trillion future global bioeconomy. However, a strategic new investment on the order of $\$ 2$ billion for bioproduction research and development and infrastructure support is required to realize this potential over the next 5 years.

The lack of domestic bioproduction facilities and a public database such as the European Pilots4U hinders U.S. industry access to assets that can help mature its technologies. In fact, several U.S. companies with novel technologies have moved their efforts overseas because of the lack of domestic capacity, thus allowing other countries to capture technology rights that would otherwise stay in the United States. It is imperative that the United States address this capacity gap now, and the recommendations above provide a roadmap for doing that just that. In addition, the opportunity exists for creating a novel "business-to-business" information technology infrastructure that the proposed bioproduction scaling facilities could implement, enabling innovators to design their innovative technologies with compatibility for scaling in mind.

In summary, biotechnology, through innovation in bioproduction capabilities, should be another tool in the toolbox for a net zero future by providing better bioproduction processes, innovative technologies that are cleaner and safer for workers and their communities, and applications for fighting and adapting to climate change. This is the time for the United States to make the needed investments and seize the once in a lifetime opportunity to create a future circular bioeconomy based on this "next big thing."

## Re: [EXTERNAL] Re: Following up

From: $\quad$ "Ho, Elaine P. EOP/OSTP" (b) (6)
To: $\quad$ Faith Savaiano (b) (6)
Date: $\quad$ Mon, 06 Dec 2021 10:54:42 -0500

| (b) (6) |  |
| :--- | :--- |
| - |  |
| Elaine P. Ho (she/her) |  |
| Deputy Chief of Staff, Workforce |  |
| Senior Advisor, Science and Society |  |
| Office of Science \& Technology Policy \| White House |  |
| (b) (6) (b) (6) |  | | (1) |
| :--- |

## From: Faith Savaiano (b) (6)

Date: Monday, December 6, 2021 at 10:54 AM
To: "Ho, Elaine P. EOP/OSTP" (b) (6)
Subject: Re: [EXTERNAL] Re: Following up

Great, I'll give you a call! What's the best number for me to reach you on?

On Mon, Dec 6, 2021 at 10:50 AM Ho, Elaine P. EOP/OSTP (b) (6) wrote:
Hi Faith - I have about 10 minutes if you're free.

You can call me on my cell and then loop Sara in?
--
Elaine P. Ho (she/her)
Deputy Chief of Staff, Workforce
Senior Advisor, Science and Society
Office of Science \& Technology Policy | White House
(b) (6) (b) (6)

From: Faith Savaiano (b) (6)
Date: Monday, December 6, 2021 at 9:46 AM

## To: "Ho, Elaine P. EOP/OSTP" <(b) (6)

## Subject: Re: [EXTERNAL] Re: Following up

No worries - 10:45 would work on my end, but if amenable to you, I was hoping to include my colleague, Sara, as well? I'm happy to set up a Zoom link or I can just try to merge calls with her cell, depending on what works best for you?

Thanks!
Faith

On Mon, Dec 6, 2021 at 9:12 AM Ho, Elaine P. EOP/OSTP (b) (6) > wrote:
Faith - Thanks so much for the quick reply.

Incredulously, my 2:30 has gotten taken between yesterday and this morning.
Can I try and give you a call when you may have an opening? I have a window at 10:45 and 3:30/3:45.

If either one of those work, let me know what your number is and we will connect!
Thanks
Elaine
--
Elaine P. Ho (she/her)
Deputy Chief of Staff, Workforce
Senior Advisor, Science and Society
Office of Science \& Technology Policy | White House
(b) (6) | (b) (6)

From: Faith Savaiano (b) (6)
Date: Monday, December 6, 2021 at 9:05 AM
To: "Ho, Elaine P. EOP/OSTP" (b) (6)
Cc: Faith Savaiano < (b) (6)
Subject: Re: [EXTERNAL] Re: Following up
Hi Elaine,
Hope you had a great weekend and not a problem at all! 2:30pm sounds great - want me to send a Zoom along?

Best,

Faith

On Sun, Dec 5, 2021 at 9:19 AM Ho, Elaine P. EOP/OSTP (b) (6) > wrote:
Faith!

Sorry for my delay! It's taken me all week to catch up from taking time off during Thanksgiving@

Let's see if you and I can catch up on Monday. Does 11 or $2: 30$ work?

We can discuss future placement of DCTOs, like Raffi, and the Sloan role (and the request for Day One to do an open solicitation).

Thanks!
Elaine

Elaine P. Ho (she/her)
Deputy Chief of Staff, Workforce
Senior Advisor, Science and Society
Office of Science \& Technology Policy | White House

## (b) $(6)$ <br> (b) $(6)$

## From: Faith Savaiano (b) (6)

Date: Monday, November 29, 2021 at 12:26 PM
To: "Ho, Elaine P. EOP/OSTP" (b) (6)
Cc: Sara Schapiro (b) (6)
Subject: Re: [EXTERNAL] Re: Following up

Hi Elaine,

No problem, completely understand! Might you have more availability Friday of this week, and if not, perhaps next Monday or Tuesday?

We truly appreciate your support and effort on the Sloan role - we're eager to be supportive there however we best can be. As it relates to Raffi's role and others like it, is it a fair characterization that we should expect not to engage in additional fellowships for the time being? The reason I want to confirm is because we will scope other agency placements where our program can augment public interest tech policy expertise but thought that Raffi's position would be particularly high impact, should there be an opportunity for us to be supportive.

Thanks as always for your time!

Best,
Faith

Error! Filename not specified.

Faith Savaiano (she/her)
Project Manager
(b) (6)

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On Mon, Nov 29, 2021 at 10:57 AM Ho, Elaine P. EOP/OSTP (b) (6) wrote:

Faith - hope you had a great Thanksgiving.

Thanks so much for the information below. I will keep names close hold and will only share aggregate numbers with our general counsel.

As for our 3 pm today, would you mind if we rescheduled? My Monday turned out to busier than I anticipated!

In the short term, I wanted to continue to express OSTP's interest in the Sloan opportunity. I'll continue working with our Energy team to see how best to move forward there.

Thanks so much, and I'll bein touch.

Elaine
-
Elaine P. Ho (she/her)
Deputy Chief of Staff, Workforce
Senior Advisor, Science and Society
Office of Science \& Technology Policy | White House
(b) (6)
(b) (6)

From: Faith Savaiano (b) (6)

## To: "Ho, Elaine P. EOP/OSTP" (b) (6)

Subject: Re: [EXTERNAL] Re: Following up

Hi Elaine,

Thank you for the offer to connect - I just sent along an invitation for 3 pm on Monday Nov 29, but I can definitely adjust should things have shifted on your end. I'm also sharing below our most recent list of fellowship placements, including their agency and a brief description of their assignment. For context, we have only shared this information with our philanthropic funders for the purposes of impact reporting, and so for purposes of our fellows' privacy, I might ask that you not share this list too widely beyond those on your team for whom it would be helpful. In addition to those below, we are actively in the process of recruiting or placing 22 additional placements over the next several months, including additional assignments at ED, DOE, CEQ, and USDA.

Thank you again, and I hope you have a great holiday!

Best,
Faith


Error! Filename not specified.

Faith Savaiano (she/her)
Project Manager
(b) (6)

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On Sat, Nov 20, 2021 at 6:17 AM Ho, Elaine P. EOP/OSTP (b) (6) wrote:

Thanks for the note, Faith.

Let's find a time after Thanksgiving to chat about Sloan, if you're ok with that? I'm open between 2-3:30 on Monday?

Also, thanks for the data you shared. Are you able to give me a more granular breakdown by agency/component?

Much appreciated!
Elaine

Elaine P. Ho (she/her)
Deputy Chief of Staff, Workforce
Senior Advisor, Science and Society
Office of Science \& Technology Policy | White House
(b) (6) | (b) (6)

From: Faith Savaiano (b) (6)
Date: Thursday, November 18, 2021 at 5:37 PM
To: "Ho, Elaine P. EOP/OSTP" (b) (6)
Subject [EXTERNAL] Re: Following up

Hi Elaine,

My sincerest apologies, I missed the part of your email asking about speaking today. Might you have time in the first part of next week to connect on the Sloan role?

To answer your question about our dispersal of fellows across other agencies,(b) (4)


Our team is pulling together a document that we believe might be helpful to you and your team in illustrating our government-wide model and the myriad ways we're supporting different agencies with pathways and strategies for accessing diverse technical talent, so I will also circle back with that shortly.

Sorry again for missing today's window to talk and thanks for your time!

Best,
Faith

Error! Filename not specified.

Faith Savaiano (she/her)
Project Manager
(b) (6)

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On Wed, Nov 17, 2021 at 6:08 AM Ho, Elaine P. EOP/OSTP
(b) (6) > wrote:

Faith -

Good to talk wth you and Sara on Monday. I have a few updates for you.

Sadly, we are not ale to move forward with Raffi. We still are interested in the Sloan opportunity, and I'd like to have a brief conversation about that, if you're available. Thursday at 1 or 2:30 work for you?

On a different but related note, do you think you could provide me with some data of how many Day One fellows are at the different federal agencies, and other components of the WH? (How many Energy fellows are you placing in DoE?)

Thanks so much.

Let's talk soon
Elaine
--
Elaine P. Ho (she/her)
Deputy Chief of Staff, Workforce
Senior Advisor, Science and Society
Office of Science \& Technology Policy | White House
(b) $(6)$
| (b) (6)

## Faith Savaiano <br> Project Manager <br> she/her

## (b) (6)

Error! Filename not specified.

## Faith Savaiano

Project Manager
she/her
(b) (6)

Error! Filename not specified.

Faith Savaiano
Project Manager
she/her


## Re: [EXTERNAL] Re: Follow up on learning agendas initiatives

From: "Eller, Christina Ciocca C. EOP/OSTP'(b) (6)<br>To: "Wallace, Rachel A. EOP/OSTP" (b) (6)<br>Date: Mon, 06 Dec 2021 10:50:05-0500<br>Yes that's right, thank you!

Christina

Sent from my iPhone

On Dec 6, 2021, at 10:47 AM, Wallace, Rachel A. EOP/OSTP
(b) (6) $>$ wrote:

Christina,

It was for the attached, correct?

Rachel

From: Eller, Christina Ciocca C. EOP/OSTP
Sent: Monday, December 6, 2021 9:35 AM
To: Wallace, Rachel A. EOP/OSTP(b) (6) >
Subject: FW: [EXTERNAL] Re: Follow up on learning agendas initiatives

Hi, Rachel,

Pls see below Alondra's approval of the Wednesday event for which I submitted a 3A last week. The calendar opened back up so l'd like to push it back through. Could you please recommend how I should proceed to reactivate the 3A process?

Thanks!
Christina

From: Nelson, Alondra R. EOP/OSTP
Sent: Monday, December 6, 2021 9:30 AM
To: Eller, Christina Ciocca C. EOP/OSTP (b) (6)
Subject: RE: [EXTERNAL] Re: Follow up on learning agendas initiatives

Yes, I approve. Please let me know what you learn and how it goes.
All the best,
Alondra

From: Eller, Christina Ciocca C. EOP/OSTP
Sent: Monday, December 6, 2021 9:30 AM
To: Nelson, Alondra R. EOP/OSTP $<(\mathrm{b})(6)$
Subject: FW: [EXTERNAL] Re: Follow up on learning agendas initiatives

Hi, Alondra,

Josh Schoop at Day One is asking me to moderate a panel with chief evaluation officers on evidence use in the USG. (b) (5) Since the RS meeting with Eric got pushed, there is no longer a conflict.

Thanks so much,

## Christina

From: Joshua Schoop(b) (6)
Sent: Tuesday, November 30, 2021 11:28 AM
To: Eller, Christina Ciocca C. EOP/OSTP (b) (6)
Subject: [EXTERNAL] Re: Follow up on learning agendas ínitiatives

Hi Christina, I wanted to refresh to see if you might have a chance for a quick chat? As we are rounding out our participants for next week's webinar, I wanted to see if you might be up for participating? We have had some trouble pinning down a moderator for our panel with the chief evaluation officers, and we thought you would be perfect, if you are indeed willing!

Let me know, and thank you.
Josh

On Fri, Nov 19, 2021 at 11:53 AM Joshua Schoop(b) (6) > wrote:
Hi Christina,

Our team enjoyed the discussion with Todd a couple of weeks back, and I am remiss for not following up sooner to share updates on what we have been working on since we spoke last summer.

We have continued to push on talent and support of EBP and learning agendas, and have organized an upcoming webinar to spotlight opportunities and strategies for agencies (see description attached). In addition, we are launching a couple of other related initiatives to support Kelly/OES with fellows and provide technical assistance to agencies looking to onboard IPAs to augment evaluation and data talent.

I wanted to see if you might have some time early next week or after the holiday to catch up on what we have been developing? We'd like to hear how we could complement your work and continue to further your goals at OSTP. Let me know if you are up for a chat and have some windows that could work.

Thank you, Josh

Joshua Schoop, Ph.D.
Federation of American Scientists
Principal Director for Technology and Innovation
Director of Day One Project
1112 16th Street NW, Suite 600
Washington, DC 20036
Email:(b) (6)
Mobile: (b) (6)

[^26]
## Summit for Democracy "Day 0" Tech Event Today at 1pm ET: "Democracy-Affirming Technology: How Innovation Can Be Used to Support Democratic Values"




Date: Wed, 08 Dec 2021 10:19:43-0500
Friends and Colleagues,

I wanted to share with you a component of President Biden's Summit for Democracy we've been working on that I think may be of interest to you today: an official Summit for Democracy "Day 0"

## Event on "Democracy-Affirming Technology: How Innovation Can Be Used to Support Democratic Values."

Dr. Eric Lander, the President's Science Advisor and Office of Science and Technology Policy Director will be the USG Cabinet official providing opening remarks and hosting this session, which will also bring together government officials -- such as Jeppe Kofod, Minister of Foreign Affairs, Denmark and Rt. Hon. Nadine Dorries, U.K. Secretary of State for Digital, Culture, Media, and Sport (DCMS) - as well as technologists from academia, the private sector, and civil society working to build and advance technologies that have the potential to uplift democratic values. We'll be talking about the work we're doing across the democratic innovation ecosystem on democracy-affirming technologies.

The event will be livestreamed to the public from 1 pm to $2: 15 \mathrm{pm}$ ET on the State Department Summit for Democracy website; https://www.state gov/summit-for-democracy/. It will then lead into a conversation on the Future of the Internet.

I hope you will be able to tune in! Below is the information from the State Department website as well for your interest.

My best,

Lindsay

Lindsay P. Gorman
Senior Policy Advisor for Technology Strategy
The Office of Science and Technology Policy | White House
(b) (6)
(mobile)

## Panel Discussion on DemocracyAffirming Technology: How Innovation Can Be Used to Support Democratic Values $1: 00 \mathrm{pm}-2: 15 \mathrm{pm}$

Since the optimism of the early Internet age, where many thought that new technologies would be liberalizing by their very nature, authoritarians have been hard at work making technology work for autocracy. And today, democracies face pressing questions about
the role of technology in democratic life. It's an untested proposition whether technologies built with democratic values at their core - "democracy-affirming technology" - can be as powerful, profitable, or even as entertaining as those which threaten to undermine rules-based governance today. Innovation around democracy affirming technologies seeks to test that proposition. This virtual side event will focus on technologies that asymmetrically advantage democratic values. It will explore the inner workings of such technologies, how they can be used to defend against digital authoritarianism, and how they can be productively harnessed and governed through global democratic cooperation.
Introductory remarks by Jeppe Kofod - Minister of Foreign Affairs, Denmark
Opening remarks by Dr. Eric Lander - Director, White House Office of Science and
Technology Policy
Moderated by Jeanne Meserve - Journalist

## Speakers:

- Rt. Hon. Nadine Dorries - MP, Secretary of State for Digital, Culture, Media and Sport, Government of the United Kingdom
- Dr. Roya Ensafi - Assistant Professor of Computer Science and Engineering, University of Michigan
- Rami Nakhla - Senior Manager of Public Affairs and Impact, Truepic
- 'Gbenga Sesan - Executive Director, Paradigm Initiative


## [EXTERNAL] Clean Energy Transition Impact Fellowship

| From: | Faith Savaiano $(\mathrm{b})(6)$ |
| :--- | :--- |
| To: | "Ho, Elaine P. EOP/OSTP" $(\mathrm{b})(6)$ |
| Cc: | Sara Schapiro $(\mathrm{b})(6)$ |
| Date: | Fri, 17 Dec 2021 17:23:02-0500 |
| Attachments | Day One Talent Hub Fellowship Recruitment Process.pdf (104.49 kB); Impact Fellow, |
| $:$ | The White House Office of Science and Technology Policy_Clean Energy |
|  | Transition.docx (18.5 kB) |
|  |  |
| Hi Elaine, |  |

I hope this finds you well! Like we had previously discussed, I wanted to share a draft position description for your team's reaction, as well as the outline of our fellowship vetting and recruiting processes. From here, it would be great to receive any feedback on the position itself and any other information you'd want to be part of the vetting process once it's activated, though I defer to you on what you see as the most helpful next steps.

Happy to connect on the phone about this, and please let me know if we can provide any further information that would be helpful for you or Costa!

Thanks and have a great weekend,

Faith

## Faith Savaiano

Manager, Education, Workforce \& Talent
she/her

## (b) (6)

## DAY จNE TALENT HUB

## Vetting Prospective Candidates for Impact Fellowship Positions

The Day One Talent Hub is an effort to connect diverse, emerging leaders in science, technology, and innovation with federal agencies who are seeking that expertise to augment their existing teams. The process outlined below describes the activities the Day One Talent Hub conducts to identify candidates from the science and technology community who meet the technical and soft skills qualifications necessary to excel in a tour of service. Through this process, the Day One Talent Hub team aims to rapidly and nimbly respond to the needs of agency partners, while maintaining a commitment to an intentional, equitable process that includes and uplifts diverse technical experts.

## Selection Process



## DAY ONE

TALENT HUB


## DAY $\bigcirc$ NE TALENT HUB



## Inclusion Goals

The following are inclusion goals for the Federation of American Scientists' (FAS) Day One Talent Hub, which serve as benchmarks for the team's success in recruiting diverse scientific and technical experts into tours of service. Note: The Day One Talent Hub collects related demographic data on a voluntary basis from individuals who complete our Talent Hub interest forms, resulting in an incomplete picture of the full community with whom we engage.

- At least $33 \%$ of our candidate pool will include individuals underrepresented in science and technology fields, including women, non-binary, disabled, Black, Latinx, Indigenous/Native, and Pacific Islander individuals, as well as veterans.
- Federal agency slates will include at least $50 \%$ individuals underrepresented in science and technology fields, as defined above.
- For opportunities that allow, Talent Hub will engage partner organizations to garner referrals of individuals who come from a diversity of educational backgrounds, including community colleges and work-based learning pathways.


## Evaluative Criteria

## DAY ONE TALENT HUB

The following criteria are determined and incorporated into the fellowship application process in coordination with federal agency partners, who determine the specific capacities and competencies needed.

## Requirements

- U.S. citizen or national
- Subject matter expertise in specific fields
- Educational level needs
- Relocation or remote
- Career level/work experience
- Commitment to public service
- Ability to pass a federal background check


## Core Competencies (flexible)

Impact Fellows bring technical expertise into their roles that are unique to each position. In addition to those relevant hard skills, the Day One Talent Hub also evaluates candidates based on other demonstrated abilities that allow individuals to be successful and effective in any government position. To that end, we assess each candidate against a series of core competencies including, for example:


# Impact Fellow, The White House Office of Science and Technology Policy: Clean Energy Transition 

Washington, D.C. - Full Time
FAS' Day One Project is working to develop and implement innovative and actionable ideas in science and technology policy that have a significant impact on the nation. The Day One Talent Hub is seeking a Clean Energy Transition Impact Fellow for a full-time, paid, 12-month program to enter the White House Office of Science and Technology Policy (OSTP). Achieving net-zero emissions no later than 2050 requires the massive-scale deployment of clean energy technologies, much of which exist today, but advances in technology are still needed. This fellow will have the unique opportunity to engage with OSTP and senior White House officials to leverage their technical and policy expertise in support of advancing key priorities within the Biden-Harris Administration's clean energy agenda.

## Responsibilities

The Clean Energy Transition Impact Fellow will play a critical role in developing OSTP's Energy Transition Roadmaps which will detail energy pathways to net-zero emissions, identify gaps in the clean energy transition, make the case for critical support for energy R\&D, and generate solutions to accelerate deployment of clean energy technologies now while also investing in the future to make sure America leads the world in clean energy technologies for the 21st century. Additionally, the fellow will support OSTP in rethinking what energy science and technology should look like for the next 75 years, including cultivating an energy science and technology ecosystem that is diverse, inclusive, and equitable.

The Clean Energy Transition Impact Fellow will work closely with OSTP Energy Division senior officials, other OSTP officials, and other Federal agencies to develop national science and technology clean energy roadmaps and will provide other support to advance the Administration's agenda such as:

- Conducting substantive research, modeling, and analysis; prepare reports, briefings, talking points, and correspondences;
- Maintaining awareness of national and international issues and White House positions on energy topics affecting the fellow's area of expertise in order to provide timely and informed advice and analysis to OSTP and senior White House officials;
- Developing policy plans and approaches, socializing those concepts and incorporating feedback, and working with parties inside and outside the government to advance policy objectives;
- Synthesizing data from a wide variety of sources, including stakeholders outside the U.S. government, and presenting their analysis of this information and recommendations to members of the Administration; and
- Working both independently and closely as a member or leader of a team in a deadineoriented environment.


## Experience and Qualifications

The Day One Talent Hub and its partners at OSTP are seeking an entrepreneurial, experienced, and resourceful individual who brings a deep understanding of a specific energy sector, critical technology, systems integration, or a combination of these areas.

Strong candidates should have some of the following experience and qualifications:

- Modeling, mapping, and visualization of current and potential future energy production, demand, technology deployment, and systems integration;
- Analysis of energy technology performance targets, technical limits, techno-economic factors, and innovation and adoption pathways;
- Assessment of technical systems integration challenges and opportunities for individual or multiple technologies and sectors;
- An understanding of the public and private clean energy innovation and policy ecosystem;
- Commitment to public service, diversity, equity, and inclusion and pursuing it within the mission of the Day One Project and the Biden-Harris Administration; and
- Must be a U.S. citizen.

This fellowship will provide salary and benefits for the entirety of the 12-month duration at an annual rate of $\$ X X X X$ per year.

## How to Apply

To apply, please complete our application form.

## Commented [1]: Can OSTP team validate

 this?
## Commented [2]: We will determine exact range, but likely something around in the GS-14/GS-5

Commented [3]: Forthcoming upon confirmation of position description details.

## Re: [EXTERNAL] Clean Energy Transition Impact Fellowship



```
Date: Thu, 23 Dec 2021 07:42:10-0500
Faith - Apologies for my delay in getting back to you.
This all looks great, especially the vetting and recruitment process.
We hope to connect with our Energy team today or soon to get a read on the description.
Let's plan on connecting in the new year! Happy holidays!
Best,
Elaine
-
Elaine P. Ho (she/her)
Deputy Chief of Staff, Workforce
Senior Advisor, Science and Society
Office of Science & Technology Policy | White House
(b) (6) | (b) (6)
```


## From: Faith Savaiano (b) (6)

Date: Friday, December 17, 2021 at 5:23 PM
To: "Ho, Elaine P. EOP/OSTP" (b) (6)
Cc: Sara Schapiro (b) (6) , Natalie Ward (b) (6)
Subject: [EXTERNAL] Clean Energy Transition Impact Fellowship

Hi Elaine,

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Happy to connect on the phone about this, and please let me know if we can provide any further information that would be helpful for you or Costa!

Thanks and have a great weekend,
Faith

## Faith Savaiano

Manager, Education, Workforce \& Talent
she/her
(b) (6)


## FW: [EXTERNAL] Clean Energy Transition Impact Fellowship

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From: "Ho, Elaine P. EOP/OSTP" (b) (6) >
To: "Saltiel, Sarah C. EOP/OSTP"(b) (6) v>
Date: Thu, 23 Dec 2021 07:46:14-0500
Attachments Day One Talent Hub Fellowship Recruitment Process.pdf (104.49 kB); Impact Fellow,
: The White House Office of Science and Technology Policy_Clean Energy
    Transition.docx (18.5 kB)
```

Sharing.
Elaine P. Ho (she/her)
Deputy Chief of Staff, Workforce
Senior Advisor, Science and Society
Office of Science \& Technology Policy | White House
(b) (6) | (b) (6)

From: Faith Savaiano (b) (6)
Date: Friday, December 17, 2021 at 5:23 PM
To: "Ho, Elaine P. EOP/OSTP" (b) (6)
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Faith

Faith Savaiano
Manager, Education, Workforce \& Talent she/her
(b) (6)


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- Conducting substantive research, modeling, and analysis; prepare reports, briefings, talking points, and correspondences;
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- Developing policy plans and approaches, socializing those concepts and incorporating feedback, and working with parties inside and outside the government to advance policy objectives;
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The Day One Talent Hub and its partners at OSTP are seeking an entrepreneurial, experienced, and resourceful individual who brings a deep understanding of a specific energy sector, critical technology, systems integration, or a combination of these areas.

Strong candidates should have some of the following experience and qualifications:

- Modeling, mapping, and visualization of current and potential future energy production, demand, technology deployment, and systems integration;
- Analysis of energy technology performance targets, technical limits, techno-economic factors, and innovation and adoption pathways;
- Assessment of technical systems integration challenges and opportunities for individual or multiple technologies and sectors;
- An understanding of the public and private clean energy innovation and policy ecosystem;
- Commitment to public service, diversity, equity, and inclusion and pursuing it within the mission of the Day One Project and the Biden-Harris Administration; and
- Must be a U.S. citizen.

This fellowship will provide salary and benefits for the entirety of the 12-month duration at an annual rate of $\$ X X X X$ per year.

## How to Apply

To apply, please complete our application form.

## Commented [1]: Can OSTP team validate

 this?
## Commented [2]: We will determine exact range, but likely something around in the GS-14/GS-5

Commented [3]: Forthcoming upon confirmation of position description details.

## DAY จNE TALENT HUB

## Vetting Prospective Candidates for Impact Fellowship Positions

The Day One Talent Hub is an effort to connect diverse, emerging leaders in science, technology, and innovation with federal agencies who are seeking that expertise to augment their existing teams. The process outlined below describes the activities the Day One Talent Hub conducts to identify candidates from the science and technology community who meet the technical and soft skills qualifications necessary to excel in a tour of service. Through this process, the Day One Talent Hub team aims to rapidly and nimbly respond to the needs of agency partners, while maintaining a commitment to an intentional, equitable process that includes and uplifts diverse technical experts.

## Selection Process



## DAY ©NE

TALENT HUB


## DAY จNE TALENT HUB



## Inclusion Goals

The following are inclusion goals for the Federation of American Scientists' (FAS) Day One Talent Hub, which serve as benchmarks for the team's success in recruiting diverse scientific and technical experts into tours of service. Note: The Day One Talent Hub collects related demographic data on a voluntary basis from individuals who complete our Talent Hub interest forms, resulting in an incomplete picture of the full community with whom we engage.

- At least $33 \%$ of our candidate pool will include individuals underrepresented in science and technology fields, including women, non-binary, disabled, Black, Latinx, Indigenous/Native, and Pacific Islander individuals, as well as veterans.
- Federal agency slates will include at least $50 \%$ individuals underrepresented in science and technology fields, as defined above.
- For opportunities that allow, Talent Hub will engage partner organizations to garner referrals of individuals who come from a diversity of educational backgrounds, including community colleges and work-based learning pathways.


## Evaluative Criteria

## DAY ONE TALENT HUB

The following criteria are determined and incorporated into the fellowship application process in coordination with federal agency partners, who determine the specific capacities and competencies needed.

## Requirements

- U.S. citizen or national
- Subject matter expertise in specific fields
- Educational level needs
- Relocation or remote
- Career level/work experience
- Commitment to public service
- Ability to pass a federal background check


## Core Competencies (flexible)

Impact Fellows bring technical expertise into their roles that are unique to each position. In addition to those relevant hard skills, the Day One Talent Hub also evaluates candidates based on other demonstrated abilities that allow individuals to be successful and effective in any government position. To that end, we assess each candidate against a series of core competencies including, for example:


## Re: [EXTERNAL] Clean Energy Transition Impact Fellowship

```
From "Ho, Elaine P. EOP/OSTP" (b) (6)
:
To: Faith Savaianc(b) (6)
Cc: "Saltiel, Sarah C. EOP/OSTP"(b) (6) Sara Schapiro
(b) (6) Natalie Ward (b) (6)
Date: Wed, }05\mathrm{ Jan 2022 15:12:41 -0500
I can't on Friday, but how does 2 pm on Monday look?
Elaine P. Ho (she/her)
Deputy Chief of Staff, Workforce
Senior Advisor, Science and Society
Office of Science & Technology Policy | White House
(b) (6) | (b) (6)
```

From: Faith Savaiano (b) (6)
Date; Wednesday, January 5, 2022 at 10:38 AM
To: "Ho, Elaine P. EOP/OSTP" (b) (6)
cc: "Saltiel, Sarah C. EOP/OSTP" (b) (6) , Sara Schapiro
(b) (6) , Natalie Ward (b) (6)

Subject: Re: [EXTERNAL] Clean Energy Transition Impact Fellowship

Hi Elaine,

Likewise, I hope you found some time to relax over the holidays and happy New Year!

Thank you for sharing this, it's quite helpful, and some folks are already coming to mind from our talent pool whom we'd want to encourage to apply. Might you have some availability on Friday before 11:30am or after $3: 30 \mathrm{pm}$ to connect? If not perhaps we can look to early next week?

Looking forward to moving ahead with this role!

Best,

Faith

On Wed, Jan 5, 2022 at 9:56 AM Ho, Elaine P. EOP/OSTP(b) (6) wrote:
Faith -

Happy new year! I hope you were able to enjoy a bit of a respite over the holiday season.

I wanted to circle back on the Sloan Energy role. Thanks so much for your patience with us.

Our Energy Team had an opportunity over the last month to refine its scope and charge. Attached is a description of the senior role they would be looking for.

Additionally, I wanted to include some language on some of the technical stuff that may be helpful:

OSTP values and is committed to sustaining and promoting diversity. We welcome, embrace, and respect diversity of people, identities, backgrounds, and cultures and are committed to fostering an organizational culture of diversity and inclusion.

The selectee must be a U.S. citizen or national; be at least 18 years old and able to obtain and maintain an Executive Office of the President (EOP) favorable security TS-level determination as a prerequisite to appointment. Any appointment with OSTP is conditional until the selectee passes a drug screen and a suitability and/or security background investigation. Any offer EOP management extends prior to a favorable security determination is merely tentative, and the EOP expressly reserves the right to rescind the conditional offer at any time. Please note that all EOP staff members are subject to random drug testing.

Happy to connect this week or soonest to figure out next steps!
Elaine
--
Elaine P. Ho (she/her)
Deputy Chief of Staff, Workforce
Senior Advisor, Science and Society
Office of Science \& Technology Policy | White House
(b) (6) $\quad 1$ (b) (6)

## From: Faith Savaiano <(b) (6)

Date: Friday, December 17, 2021 at 5:23 PM
To: "Ho, Elaine P. EOP/OSTP" (b) (6)

## Cc: Sara Schapiro (b) (6) Natalie Ward (b) (6)

Subject: [EXTERNAL] Clean Energy Transition Impact Fellowship
Hi Elaine,

I hope this finds you well! Like we had previously discussed, I wanted to share a draft position description for your team's reaction, as well as the outline of our fellowship vetting and recruiting processes. From here, it would be great to receive any feedback on the position itself and any other information you'd want to be part of the vetting process once it's activated, though I defer to you on what you see as the most helpful next steps.

Happy to connect on the phone about this, and please let me know if we can provide any further information that would be helpful for you or Costa!

Thanks and have a great weekend,

Faith

## Faith Savaiano

Manager, Education, Workforce \& Talent
she/her
(b) (6)

Error! Filename not specified.


## Re: [EXTERNAL] Clean Energy Transition Impact Fellowship

```
From Faith Savaiano <(b) (6)
:
To: "Ho, Elaine P. EOP/OSTP" (b) (6)
Cc: "Saltiel, Sarah C. EOP/OSTP"(b) (6) >, Sara Schapiro
    (b) (6) Natalie Ward (b) (6)
```

Date: Wed, 05 Jan 2022 15:34:49-0500

That worked great on our end, so I went ahead and sent a Zoom invitation to everyone on this thread.
Please let me know if I can adjust in any way or add additional folks, and we're looking forward to speaking to you then!

Best,
Faith

On Wed, Jan 5, 2022 at 3:12 PM Ho, Elaine P. EOP/OSTP (b) (6) $>$ wrote:

I can't on Friday, but how does 2 pm on Monday look?
-

Elaine P. Ho (she/her)

Deputy Chief of Staff, Workforce

Senior Advisor, Science and Society

Office of Science \& Technology Policy | White House
(b) $(6) \quad$ (b) (6)

From: Faith Savaiano (b) (6)
Date: Wednesday, January 5, 2022 at 10:38 AM

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## Elaine

## Elaine P. Ho (she/her)

Deputy Chief of Staff, Workforce

Senior Advisor, Science and Society

Office of Science \& Technology Policy | White House

## (b) (6) <br> (b) (6)

From: Faith Savaiano (b) (6)
Date: Friday, December 17, 2021 at 5:23 PM
To: "Ho, Elaine P. EOP/OSTP" (b) (6) > (b)(6) Sara Schapiro, FAS, Natalie Ward <(b) (6)

Subject: [EXTERNAL] Clean Energy Transition Impact Fellowship

Hi Elaine,

I hope this finds you well! Like we had previously discussed, I wanted to share a draft position description for your team's reaction, as well as the outline of our fellowship vetting and recruiting processes. From here, it would be great to receive any feedback on the position itself and any other information you'd want to be part of the vetting process once it's activated, though I defer to you on what you see as the most helpful next steps.

Happy to connect on the phone about this, and please let me know if we can provide any further information that would be helpful for you or Costa!

Thanks and have a great weekend,

Faith
-

## Faith Savaiano

Manager, Education, Workforce \& Talent
she/her

## (b) (6)

```
Error! Filename not specified
```


## Faith Savaiano

Manager, Education, Workforce \& Talent
she/her

## (b) (6)

## Faith Savaiano

Manager, Education, Workforce \& Talent she/her
(b) (6)


## Re: [EXTERNAL] Clean Energy Transition Impact Fellowship

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From: "Ho, Elaine P. EOP/OSTP" (b) (6)
To: Faith Savaiano(b) (6) >
Cc: "Saltiel, Sarah C. EOP/OSTP"(b) (6) >, Sara Schapiro
    (b) (6) ,Natalie Ward (b) (6)
Date: Wed, 05 Jan 2022 09:56:03 -0500
Attachments OSTP Senior Clean Energy Transition Fellow Description - 2021-2022 010422
: SB[1].docx (21.76 kB)
Faith -
```

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I wanted to circle back on the Sloan Energy role. Thanks so much for your patience with us.

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Elaine

[^27]
## From: Faith Savaiano (b) (6)

Date: Friday, December 17, 2021 at 5:23 PM

## To: "Ho, Elaine P. EOP/OSTP" (b) (6)

Cc: Sara Schapiro (b) (6) >, Natalie Ward (b) (6)
Subject: [EXTERNAL] Clean Energy Transition Impact Fellowship

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Happy to connect on the phone about this, and please let me know if we can provide any further information that would be helpful for you or Costa!

Thanks and have a great weekend,
Faith

## Faith Savaiano

Manager, Education, Workforce \& Talent she/her
(b) (6)


## OSTP Senior Clean Energy Transition Fellow Description

## Application deadline: TBD

## Overview

The White House Office of Science and Technology Policy (OSTP) is seeking Senior Clean Energy Transition Fellows to join its team in the Biden-Harris Administration. As laid out in President Biden's letter to OSTP Director Dr. Eric Lander, science and technology is at the core of so many of the country's most pressing issues. The mission of OSTP is to maximize the benefits of science and technology to advance health, prosperity, security, environmental quality, and justice for all Americans. This is especially relevant for the transition to a clean and equitable energy system, and science and technology are essential to achieving the President's goal of a net zero greenhouse gases economy no later than 2050.

Senior Clean Energy Transition Fellows are part of the OSTP Energy Division and report to the Energy Division Director, Dr. Sally Benson. Senior Clean Energy Fellows will provide senior-level subject matter expertise and leadership to advance a clean and equitable energy system, which aligns with the priorities of the Biden-Harris Administration. The Senior Clean Energy Transition Fellow will be a key member of the team and will work closely with Energy Division Director Dr. Sally Benson and Principal Assistant Director Dr. Costa Samaras to advance the efforts of OSTP leadership and the team. This position is based in Washington, DC.

Achieving net zero emissions no later than 2050 requires massive-scale deployment of clean energy technologies, much of which exist today, but advances in technology are still needed, Reaching net zero emissions requires technologies that are currently in various stages of development. Some are ready or nearly ready and need policies to pull them to market, while some are still in the lab. Developing a National Net-Zero Innovation Plan will accelerate the integration of existing technologies and deliver the remaining solutions needed to get the job done.

OSTP's National Net-Zero Innovation Plan will map out the science-based approaches to deliver net zero emissions, identify gaps and make the case for critical support for R\&D to accelerate deployment of clean energy technologies now, make sure the new technologies are available when they're needed, and invest in the future to make sure America leads the world in clean energy technologies for the 21st century. OSTP Clean Energy Transition Fellows will play a critical role in developing these analyses, as well as help rethink what energy science and technology should look like for the next 75 years, including by creating an energy science and technology ecosystem that is diverse, inclusive, and equitable.

## Job Responsibilities

To advance the Administration's agenda, OSTP Senior Clean Energy Transition Fellows will

- Lead and conduct substantive research, modeling, and analysis; prepare and review reports, briefings, talking points, and correspondences
- Effectively communicate with OSTP Leadership, other White House senior leaders, and other senior stakeholders about energy transition policy issues.
- Maintain awareness of national and international issues and White House positions on energy topics affecting the Fellow's area of expertise in order to provide timely and informed advice and analysis to OSTP and senior White House officials. The work involves the development of policy plans and approaches, socializing those concepts and
incorporating feedback, and working with parties inside and outside the government to advance policy objectives.
- Synthesize data from a wide variety of sources, including stakeholders outside the U.S. government, and presenting their analysis of this information and recommendations to members of the Administration.
- Work both independently and closely as a member or leader of a team in a deadlineoriented environment.


## Specific Tasks and Objectives

Work closely with OSTP Energy Division senior officials, other OSTP officials, and other Federal agencies to develop National Net-Zero Innovation Plans and will provide other support to include:

- Identifying game-changing innovations in science, technology, and policy that will help meet our Net-Zero goals.
- Technical modeling, analysis, and support for clean energy transition assessments and other activities that OSTP participates in related to the Administration's clean energy initiatives.
- Research, analyze, and develop written materials (briefings, memos, visuals, etc.) on various policy topics.
- Coordination, where appropriate, across the Executive Office of the President and Agencies relevant to meeting OSTP's goals and priorities.
- Other tasks, as assigned, to support and collaborate with OSTP staff to advance specific policy goals, projects, and initiatives.


## Knowledge, Skills, and Capabilities

OSTP Clean Energy Innovation Fellows will have a deep understanding of a specific energy sector, critical technology, systems integration, or a combination of these areas. Specific skills desired include some or all of the following, but are not limited to:

- Understanding of one or more of the energy sectors: electricity, buildings, industry, and transportation.
- Modeling, mapping, and visualization of current and potential future energy production, demand, technology deployment, and systems integration
- Analysis of energy technology performance targets, technical limits, technoeconomic factors, and innovation and adoption pathways
- Assessment of technical systems integration challenges and opportunities for individual or multiple technologies and sectors
- An understanding of the public and private clean energy innovation and policy ecosystem
- Strong written and verbal communication, with experience producing policy memoranda or compiling program research reports related to energy
- Experience presenting complex topics to a variety of audiences


## Education Requirement:

- M.S., M.B.A, J.D., Ph.D. or terminal degree preferred.


## Conditions of employment

- This position will be based onsite at OSTP, which is located in the Eisenhower Executive Office Building in Washington, DC.
- Must be a U.S. citizen or national.
- Must be at least 18 years old; Selective Service registration if a male born after December 31, 1959.
- All OSTP employees are subject to pre-employment and random drug tests.
- Must be able to obtain a favorable security determination

Other:
Commitment to public service, diversity, equity and inclusion and pursuing it within the mission of the White House Office of Science and Technology Policy; OSTP values and is committed to sustaining and promoting diversity. We welcome, embrace, and respect diversity of people, identities, backgrounds, and cultures and are committed to fostering an organizational culture of diversity and inclusion.

Application Information: Please submit a resume and letter of interest to XXX by YYY.

## Re: [EXTERNAL] Re: Have time for a quick chat?

From: "Ho, Elaine P. EOP/OSTP"(b) (6) >
To: Faith Savaiano (b) (6) >
Cc: $\quad$ "Cotton, Rachel F. EOP/OSTP" (b) (6)
Date: Wed, 26 Jan 2022 12:17:34-0500

Thanks, Faith. I'll send an invite to all of us for 9 am tomorrow!

Elaine P. Ho (she/her)
Deputy Chief of Staff, Workforce
Senior Advisor, Science and Society
Office of Science \& Technology Policy | White House
(b) (6)
(b) (6)

From: Faith Savaiano (b) (6)
Date: Wednesday, January 26, 2022 at 12:16 PM
To: "Ho, Elaine P. EOP/OSTP" (b) (6)
Cc: "Cotton, Rachel F. EOP/OSTP" (b) (6)
Subject: [EXTERNAL] Re: Have time for a quick chat?

Hi Eileen (and Rachel!),

No problem - I'm unfortunately conflicted at that time this afternoon, but would be happy to connect tomorrow at 9am? It would also be great to include my director, Sara, in the conversation too, if amenable to you both.

Thanks,
Faith

On Wed, Jan 26, 2022 at 11:55 AM Ho, Elaine P. EOP/OSTP(b) (6) > wrote:
Hi Faith -

I was hoping that you would have a few minutes to talk with me, and our general counsel, Rachel Cotton.

I realize this is a bit late notice, but any chance you have time later this afternoon, at 3:30 pm, or Thursday, at 9 am or 1 pm ?

Thanks so much,
Elaine

Elaine P. Ho (she/her)
Deputy Chief of Staff, Workforce
Senior Advisor, Science and Society
Office of Science \& Technology Policy | White House
(b) (6) | (b) (6)

## Faith Savaiano

Manager, Education, Workforce \& Talent
she/her

## (b) (6)



## Have time for a quick chat?

From: "Ho, Elaine P.EOP/OSTP" (b) (6) >
To: $\quad$ Faith Savaiano (b) (6)
Cc: $\quad$ "Cotton, Rachel F. EOP/OSTP" (b) (6)
Date: Wed, 26 Jan 2022 11:55:09-0500
Hi Faith -

I was hoping that you would have a few minutes to talk with me, and our general counsel, Rachel Cotton.

I realize this is a bit late notice, but any chance you have time later this afternoon, at $3: 30 \mathrm{pm}$, or Thursday, at 9 am or 1 pm ?

Thanks so much,
Elaine

Elaine P. Ho (she/her)
Deputy Chief of Staff, Workforce
Senior Advisor, Science and Society
Office of Science \& Technology Policy | White House
(b) (6)
(b) (6)

## [EXTERNAL] Re: Have time for a quick chat?

From: $\quad$ Faith Savaiano (b) (6)
To: $\quad$ "Ho, Elaine P. EOP/OSTP" (b) (6)
Cc: $\quad$ "Cotton, Rachel F. EOP/OSTP" $<$ (b) (6)
Date: Wed, 26 Jan 2022 12:16:37-0500
Hi Eileen (and Rachel!),

No problem - I'm unfortunately conflicted at that time this afternoon, but would be happy to connect tomorrow at 9 am? It would also be great to include my director, Sara, in the conversation too, if amenable to you both.

Thanks,
Faith

On Wed, Jan 26, 2022 at 11:55 AM Ho, Elaine P. EOP/OSTP (b) (6)
wrote:
Hi Faith -

I was hoping that you would have a few minutes to talk with me, and our general counsel, Rachel Cotton.

I realize this is a bit late notice, but any chance you have time later this afternoon, at $3: 30 \mathrm{pm}$, or Thursday, at 9 am or 1 pm ?

Thanks so much,
Elaine
-

Elaine P. Ho (she/her)

Deputy Chief of Staff, Workforce

Senior Advisor, Science and Society

Office of Science \& Technology Policy | White House

## (b) (6) <br> (b) (6)

## Faith Savaiano

Manager, Education, Workforce \& Talent
she/her
(b) (6)
$\square$

## RE: [EXTERNAL] Connecting OSTP <> Dept of ED on Schedule A(r) Hiring

| From | "Cotton, Rachel F. EOP/OSTP" (b) (6) |
| :---: | :---: |
| : |  |
| To: | Faith Savaiano(b) (6) "Ho, Elaine P. EOP/OSTP" |
|  | (b) (6) > , "Soldner, Matthew" (b) (6) |
| Cc: | Sara Schapiro (b) (6) |
| Date: | Fri, 28 Jan 2022 16:15:20-0500 |
| Thank | ou so much for the introduction, Faith! |

Matt, I would be deeply grateful if you could connect me to the appropriate person in your agency to discuss the fellowship authority. Thank you so much in advance for your assistance.

Sincerely,

Rachel Cotton
General Counsel, OSTP

From: Faith Savaiano (b) (6) >
Sent: Friday, January 28, 2022 2:44 PM
To: Ho, Elaine P. EOP/OSTP (b) (6) ; Cotton, Rachel F. EOP/OSTP
(b) (6) Soldner, Matthew (b) (6)

Cc: Sara Schapiro (b) (6)
Subject: [EXTERNAL] Connecting OSTP <> Dept of ED on Schedule A(r) Hiring

Hi Elaine and Rachel,

It was great speaking with you both the other day. I'm pleased to connect you to Matt Soldner, who is the Commissioner for NCEE within the Department of Ed, as well as the Chief Evaluation Officer there. Our team is in the process of placing an Impact Fellow on Matt's team, and he will be able to introduce you to the best folks within the agency to speak to about the fellowship authority used to place fellows there.

Thank you so much, Matt, and if we can be helpful in further connecting any dots for anyone, please let us know.

Best,

Faith

Faith Savaiano
Manager, Education, Workforce \& Talent she/her
(b) $(6)$


## RE: [EXTERNAL] Connecting OSTP <> Dept of ED on Schedule A(r) Hiring

```
From "Cotton, Rachel F. EOP/OSTP" (b) (6)
:
To: "Ho, Elaine P. EOP/OSTP"(b) (6) "Soldner, Matthew"
    (b) (6)
Date: Sun, 30 Jan 2022 21:11:44-0500
(Removing the FAS folks)
Matt,
```

If you would be available sometime tomorrow or Tuesday, I'd be grateful. Tomorrow, I am free at
1:30, 2:30, and 4:30; and Tuesday, I'm free from 11-12:30, 1-2, and after 4pm - but am happy to try
to make time if another window works better for you. Just let me know.
Thanks in advance for your time!
All the best,

Rachel

From: Cotton, Rachel F. EOP/OSTP
Sent: Friday, January 28, 2022 4:15 PM
To: 'Faith Savaiano' (b) (6) ; Ho, Elaine P. EOP/OSTP (b) (6)
Soldner, Matthew(b) (6)
Cc: Sara Schapiro (b) (6)
Subject: RE: [EXTERNAL] Connecting OSTP $<>$ Dept of ED on Schedule A(r) Hiring

Thank you so much for the introduction, Faith!

Matt, I would be deeply grateful if you could connect me to the appropriate person in your agency to discuss the fellowship authority. Thank you so much in advance for your assistance.

Sincerely,

Rachel Cotton

General Counsel, OSTP

From: Faith Savaiano (b) (6)
Sent: Friday, January 28, 2022 2:44 PM
To: Ho, Elaine P. EOP/OSTP (b) (6) ; Cotton, Rachel F. EOP/OSTP
(b) (6) ; Soldner, Matthew (b) (6)

Cc: Sara Schapiro(b) (6)
Subject: [EXTERNAL] Connecting OSTP $<>$ Dept of ED on Schedule $A(r)$ Hiring

Hi Elaine and Rachel,

It was great speaking with you both the other day. I'm pleased to connect you to Matt Soldner, who is the Commissioner for NCEE within the Department of Ed, as well as the Chief Evaluation Officer there. Our team is in the process of placing an Impact Fellow on Matt's team, and he will be able to introduce you to the best folks within the agency to speak to about the fellowship authority used to place fellows there.

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Best,
Faith

Faith Savaiano
Manager, Education, Workforce \& Talent
she/her
(b) (6)

## FW: [EXTERNAL] technical talent for federal government teams

From: $\quad$ "Hebbeler, Andrew M. EOP/OSTP" (b) (6)
To: $\quad$ "Ho, Elaine P. EOP/OSTP" (b) (6)
Date: Mon, 31 Jan 2022 14:55:01-0500

Elaine (b) (5)
Thanks!

From: Mike Fisher (b) (6)
Sent: Monday, January 31, 2022 1:38 PM
To: Hebbeler, Andrew M. EOP/OSTP (b) (6)
Subject: [EXTERNAL] technical talent for federal government teams

Hi Andrew,

I've been doing some work with the Day One Talent Hub team at the Federation of American Scientists, which supports the development and placement of technical talent in federal agencies to help build agencies' scientific and technical capacity. To date, the Talent Hub has identified, onboarded, and placed $10+$ fellows into high-impact roles across the federal government.

We are working to place experts with federal agency teams that are in need of their skill-sets and the additional capacity they bring. The experts' tours of service can be fully funded by policy fellowships.

We would appreciate the opportunity to hear what the most urgent needs might be in your office, and identify how possibly taking on a fellow could help.

Let me know if you have time to connect on this - hope you're well!

Best,

Mike

To date, FAS' Day One Talent Hub has identified, onboarded, and placed more than 10 fellows into high-impact roles across the federal government. These talent placements include:



## RE: [EXTERNAL] Connecting OSTP <> Dept of ED on Schedule A(r) Hiring

```
From "Soldner, Matthew" (b) (6)
;
To: "Cotton, Rachel F. EOP/OSTP"(b) (6) , "Ho, Elaine P. EOP/OSTP"
(b) (6)
Date: Mon, 31 Jan 2022 12:45;48-0500
Hi Rachel!
```

I could do Tuesday from 1:30-2:00 PM, if that time is still free on your calendar?

If so, please send along an invite to the video conferencing software of your choice $)_{\text {... we use }}$ Teams, and I know that can be troublesome for folks in EOP.

Matt

From: Cotton, Rachel F. EOP/OSTP (b) (6)
Sent: Sunday, January 30, 2022 9:12 PM
To: Ho, Elaine P. EOP/OSTP (b) (6) Soldner, Matthew
(b) $(6)$

Subject: RE: [EXTERNAL] Connecting OSTP <> Dept of ED on Schedule A(r) Hiring

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.
(Removing the FAS folks)

Matt,

If you would be available sometime tomorrow or Tuesday, I'd be grateful. Tomorrow, I am free at 1:30, 2:30, and 4:30; and Tuesday, I'm free from 11-12:30, 1-2, and after 4pm - but am happy to try to make time if another window works better for you. Just let me know.

Thanks in advance for your time!

All the best,

Rachel

From: Cotton, Rachel F. EOP/OSTP
Sent: Friday, January 28, 2022 4:15 PM
To: 'Faith Savaiano' < (b) (6) Ho, Elaine P. EOP/OSTP (b) (6)
Soldner, Matthew (b) (6)
Cc: Sara Schapiro (b) (6)
Subject: RE: [EXTERNAL] Connecting OSTP $<>$ Dept of ED on Schedule A(r) Hiring

Thank you so much for the introduction, Faith!

Matt, I would be deeply grateful if you could connect me to the appropriate person in your agency to discuss the fellowship authority. Thank you so much in advance for your assistance.

Sincerely,

Rachel Cotton
General Counsel, OSTP

From: Faith Savaiano (b) (6)
Sent: Friday, January 28, 2022 2:44 PM
To: Ho, Elaine P. EOP/OSTP (b) (6) > Cotton, Rachel F. EOP/OSTP
(b) (6) ; Soldner, Matthew (b) (6) >

Cc: Sara Schapiro (b) (6)
Subject: [EXTERNAL] Connecting OSTP <> Dept of ED on Schedule A(r) Hiring

Hi Elaine and Rachel,

It was great speaking with you both the other day. I'm pleased to connect you to Matt Soldner, who is the Commissioner for NCEE within the Department of Ed, as well as the Chief Evaluation Officer there. Our team is in the process of placing an Impact Fellow on Matt's team, and he will be able to introduce you to the best folks within the agency to speak to about the fellowship authority used to place fellows there.

Thank you so much, Matt, and if we can be helpful in further connecting any dots for anyone, please let us know.

Best,

Faith

Faith Savaiano
Manager, Education, Workforce \& Talent she/her
(b) $(6)$


## Re: [EXTERNAL] technical talent for federal government teams

```
From: "Ho, Elaine P. EOP/OSTP" (b) (6)
To: "Hebbeler, Andrew M. EOP/OSTP"(b) (6) >
Cc: "Saltiel, Sarah C. EOP/OSTP"(b) (6)
Date: Mon, 31 Jan 2022 14:55:58-0500
Andrew-(b) (5) Copying Sarah if you'd like
to discuss while I'm out.
```

Elaine P. Ho (she/her)
Deputy Chief of Staff, Workforce
Senior Advisor, Science and Society
Office of Science \& Technology Policy | White House
$\begin{array}{ll}\text { (b) }(6) & \text { (b) }(6)\end{array}$

From: "Hebbeler, Andrew M. EOP/OSTP" (b) (6)
Date: Monday, January 31, 2022 at 2:55 PM
To: "Ho, Elaine P. EOP/OSTP"(b) (6)
Subject: FW: [EXTERNAL] technical talent for federal government teams

## Elaine: (b) (5)

Thanks!

From: Mike (b) (6)
Sent: Monday, January 31, 2022 1:38 PM
To: Hebbeler, Andrew M. EOP/OSTP (b) (6)
Subject: [EXTERNAL] technical talent for federal government teams

Hi Andrew,

I've been doing some work with the Day One Talent Hub team at the Federation of American Scientists, which supports the development and placement of technical talent in federal agencies to help build agencies' scientific and technical capacity. To date, the Talent Hub has identified, onboarded, and placed $10+$ fellows into high-impact roles across the federal government.

We are working to place experts with federal agency teams that are in need of their skill-sets and the additional capacity they bring. The experts' tours of service can be fully funded by policy fellowships.

We would appreciate the opportunity to hear what the most urgent needs might be in your office, and identify how possibly taking on a fellow could help.

Let me know if you have time to connect on this - hope you're well!

Best,

Mike
***
To date, FAS' Day One Talent Hub has identified, onboarded, and placed more than 10 fellows into high-impact roles across the federal government. These talent placements include:


## Re: [EXTERNAL] Checking in

From: $\quad$ "Ho, Elaine P. EOP/OSTP" (b) (6)
To: $\quad$ Faith Savaiano (b) (6)
Cc: $\quad$ Sara Schapiro (b) (6)
Date: Fri, 11 Feb 2022 17:00:59-0500
How about Friday 2:30?

Elaine P. Ho (she/her)
Deputy Chief of Staff, Workforce
Senior Advisor, Science and Society
Office of Science \& Technology Policy | White House
(b) (6)
(b) (6)

From: Faith Savaiano (b) (6)
Date: Friday, February 11, 2022 at 4:43 PM
To: "Ho, Elaine P. EOP/OSTP" (b) (6)
cc: Sara Schapiro (b) (6)
Subject: Re: [EXTERNAL] Checking In

Hi Elaine,

Absolutely, makes a lot of sense and happy to do whatever works best. Perhaps next Friday before 11am or after 1 pm ?

Thanks, as always, for your time!

Best,
Faith

On Fri, Feb 11, 2022 at 4:27 PM Ho, Elaine P. EOP/OSTP (b) (6) > wrote:

Hi Faith - Thanks for checking in - much appreciated.

If you don't mind, could we meet later in the week? My hope is that some of the dust settles around Eric's resignation and that we are able to turn our attention to other substantive matters. We hopefully will have an update for you - as a follow up to our last conversation with our general counsel, Rachel Cotton.

Thanks, Elaine
--
Elaine P. Ho (she/her)
Deputy Chief of Staff, Workforce
Senior Advisor, Science and Society
Office of Science \& Technology Policy | White House
(b) (6)
| (b) (6)

## From: Faith Savaiano (b) (6)

Date: Friday, February 11, 2022 at 4:05 PM
To: "Ho, Elaine P. EOP/OSTP" (b) (6)

## Cc: Sara Schapiro (b) (6)

Subject: [EXTERNAL] Checking In

Hi Elaine,

I hope that this finds you well; you and your colleagues have been on our minds with the news this week, and I hope the coming weekend proves to be a relaxing and enjoyable one.

Acknowledging that there might be a lot happening on your end, I wanted to reach out and see if you might be amenable to scheduling a brief check-in early next week at your convenience. We could provide a status update on a couple of fellowship positions, as well as lay out some next steps.

Please let me know if there might be a good time, and we look forward to connecting!

Thanks,

Faith

## Faith Savaiano

Manager, Education, Workforce \& Talent
she/her

Error! Filename not specified.

## Faith Savaiano

Manager, Education, Workforce \& Talent
she/her
(b) (6)
$3=$

## [EXTERNAL] Checking In

From: $\quad$ Faith Savaiano (b) (6)
To: "Ho, Elaine P. EOP/OSTP" (b) (6)
Cc: $\quad$ Sara Schapiro (b) (6)
Date: Fri, 11 Feb 2022 16:05:17-0500
Hi Elaine,

I hope that this finds you well; you and your colleagues have been on our minds with the news this week, and I hope the coming weekend proves to be a relaxing and enjoyable one.

Acknowledging that there might be a lot happening on your end. I wanted to reach out and see if you might be amenable to scheduling a brief check-in early next week at your convenience. We could provide a status update on a couple of fellowship positions, as well as lay out some next steps.

Please let me know if there might be a good time, and we look forward to connecting!

Thanks,

Faith
-
Faith Savaiano
Manager, Education, Workforce \& Talent
she/her
(b) (6)

## Re: [EXTERNAL] Checking in

| From: | Faith Savaiano $(\mathrm{b})(6)$ |
| :--- | :--- |
| To: | "Ho, Elaine P. EOP/OSTP" (b) (6) |
| Cc: | Sara Schapiro $(\mathrm{b})(6)$ |
| Date: | Mon, 14 Feb 2022 11:19:42-0500 |
| Hi Elaine, |  |

Hope you had a good weekend! Apologies that this got by me last week, but I just sent along an invitation for Friday at $2: 30 \mathrm{pm}$. Please let me know if anything has shifted and looking forward to speaking to you then.

Best,
Faith

On Fri, Feb 11, 2022 at 5:01 PM Ho, Elaine P. EOP/OSTP (b) (6) > wrote:
How about Friday 2:30?
--

Elaine P. Ho (she/her)

Deputy Chief of Staff, Workforce

Senior Advisor, Science and Society

Office of Science \& Technology Policy | White House
(b) $(6)$
(b) (6)

From: Faith Savaiano (b) (6) @
Date: Friday, February 11, 2022 at 4:43 PM

```
To: "Ho, Elaine P. EOP/OSTP" (b) (6)
Cc: Sara Schapiro (b) (6)
Subject: Re: [EXTERNAL] Checking In
Hi Elaine,
Absolutely, makes a lot of sense and happy to do whatever works best. Perhaps next Friday before 11am or after 1 pm ?
```

Thanks, as always, for your time!

Best,

Faith

```
On Fri, Feb 11, 2022 at 4:27 PM Ho, Elaine P. EOP/OSTP < (b) (6)
> wrote:
Hi Faith - Thanks for checking in - much appreciated.
```

If you don't mind, could we meet later in the week? My hope is that some of the dust settles around Eric's resignation and that we are able to turn our attention to other substantive matters. We hopefully will have an update for you - as a follow up to our last conversation with our general counsel, Rachel Cotton.

Thanks
Elaine

Elaine P. Ho (she/her)
Deputy Chief of Staff, Workforce
Senior Advisor, Science and Society
Office of Science \& Technology Policy | White House

## (b) (6)

(b) (6)

From: Faith Savaiano (b) (6)
Date: Friday, February 11, 2022 at 4:05 PM
To: "Ho, Elaine P. EOP/OSTP" (b) (6) >
Cc: Sara Schapiro < (b) (6)
Subject: [EXTERNAL] Checking In

Hi Elaine,

I hope that this finds you well; you and your colleagues have been on our minds with the news this week, and I hope the coming weekend proves to be a relaxing and enjoyable one.

Acknowledging that there might be a lot happening on your end, I wanted to reach out and see if you might be amenable to scheduling a brief check-in early next week at your convenience. We could provide a status update on a couple of fellowship positions, as well as lay out some next steps.

Please let me know if there might be a good time, and we look forward to connecting!

Thanks,

Faith

Faith Savaiano
Manager, Education, Workforce \& Talent
she/her
(b) (6)

Error! Filename not specified.

## Faith Savaiano

Manager, Education, Workforce \& Talent
she/her

## (b) (6)

## Faith Savaiano

Manager, Education, Workforce \& Talent
she/her
(b) (6)


## [EXTERNAL] Re: Mental note...

From: $\quad$ Faith Savaiano $(\mathrm{b})(6)$
To: $\quad$ "Ho, Elaine P. EOP/OSTP" < (b) (6)
Date: $\quad$ Tue, 15 Feb 2022 12:54:52-0500
Hi Elaine - Absolutely, that was actually on my list, as well!
Looking forward to it,
Faith

On Tue, Feb 15, 2022 at 10.04 AM Ho, Elaine P. EOP/OSTP (b) (6) wrote:

Hi Faith - Before I forget, let's plan on talking about Jennee Kuang when we connect on Friday.

Thanks!

Elaine
--

Elaine P. Ho (she/her)

Deputy Chief of Staff, Workforce

Senior Advisor, Science and Society

Office of Science \& Technology Policy | White House
(b) (6) (b) (6)

## Faith Savaiano

Manager, Education, Workforce \& Talent
she/her
(b) (6)


## Mental note...

## From: $\quad$ "Ho, Elaine P. EOP/OSTP" (b) (6)

To: Faith Savaiano < (b) (6) >
Date: Tue, 15 Feb 2022 10:04:12-0500

Hi Faith - Before I forget, let's plan on talking about Jennee Kuang when we connect on Friday.

Thanks!
Elaine
--
Elaine P. Ho (she/her)
Deputy Chief of Staff, Workforce
Senior Advisor, Science and Society
Office of Science \& Technology Policy | White House
(b) (6) (b) (6)

## [EXTERNAL] Reaching Out from FAS' Day One Talent Hub

| From: | Talent Hub $(\mathrm{b})(6)$ |
| :--- | :--- |
| Cc: | Faith Savaiano $(\mathrm{b})(6)$ |
|  | Michalak $(\mathrm{b})(6)$ |
| Date: | Fri, 11 Mar 2022 08:30:00 -0500 |
| Attachments | FAS' Day One Talent Hub Fellows Fund One Pager.pdf (89.09 kB) |
| $:$ |  |
| Hello, |  |

We hope this email finds you well! As someone who has engaged with our team in the past, we wanted to reach out to make sure you heard about our upcoming FAS Impact Fellowship opportunities through our FAS' Day One Talent Hub.

Our team is scaling its work to place $50+$ science and tech experts across federal agencies in 2022 through our FAS Impact Fellowship (more information attached). Right now, the Talent Hub team is seeking federal partners who are interested in hosting an FAS Impact Fellow on their teams.

We wanted to share that our team will be considering any submissions made through this form by March 25th for its first round of priority fellowship placements, many of which are fully-funded. Agencies can also request general federal hiring technical assistance or share a hiring need at any time through this same form.

We will evaluate agency talent needs on a quarterly basis, and the next deadline for submission will be in June. As a note, if you have already connected with our team on a specific talent need this year, there's no need to fill the form out unless things have shifted for you.

Please let us know if we can answer any immediate questions you may have about this. Our Talent Hub team would be happy to connect further, should that be of interest to you.

Best,

FAS' Day One Talent Hub


## DAY ©NE <br> TALENT HUB

## Talent Hub \& FAS Impact Fellowship

Since its launch in March 2021, the Federation of American Scientists' (FAS) Day One Talent Hub (Talent Hub) has built a pathway for federal leaders to access diverse, leading scientific and technological experts interested in a "tour of service" in the federal government. The initiative - and its flagship component, the FAS Impact Fellowship - is a continuation of FAS' core belief that science and technology expertise must have a seat at the policymaking table as our nation confronts some of the greatest scientific and social challenges of our time.

The Talent Hub works with agency collaborators to help rapidly identify, match, and deploy scientific and technical talent into agencies tasked with shaping policy and delivering critical services to the American people. From education to clean energy, immigration to wildfire resilience, national security to fair housing, FAS Impact Fellows now serve across a variety of federal agencies and offices as subject matter experts who augment existing government teams. Building on its successful first year, the Talent Hub will be placing 50+ scientific and technical experts across the federal government in 2022 and is seeking federal agency partners who are interested in hosting an FAS Impact Fellow.

With the support of a diverse coalition of philanthropic partners, the Talent Hub will work with agency partners to address their specific talent needs and deploy effective technical experts eager to bring their skills into public service. In addition to placing FAS Impact Fellows, the Talent Hub will also provide resources and consultation to federal agencies so that their ability to utilize their own flexible hiring pathways outlives the placement of any single fellow.

To submit your interest in receiving an FAS Impact Fellow or to request support on your federal hiring needs, visit our Government Talent Support Form here.

```
From "Zunker, Diana C. EOP/OSTP"(b) (6)
:
To: Faith Savaiano(b) (6)
Cc: Faith Savaiano(b) (6) > "Wallace, Rachel A. EOP/OSTP"
    (b) (6)
Date: Fri, 17 Jun 2022 09:57:11-0400
Thank you Faith!
Diana Zunker
Administrative Officer
(b) (6)
From: Faith Savaiano(b) (6)
Sent: Friday, June 17, 2022 9:44 AM
To: Zunker, Diana C. EOP/OSTP(b) (6)
Cc: Faith Savaiano(b) (6) Wallace, Rachel A. EOP/OSTP
(b) (6)
Subject: [EXTERNAL] Re: Amendment to Amy Nice Agreement
```

Hi Diana,

I hope you've also been well! Confirming receipt of this, and I will revert back shortly, after circling up with our team.

Thanks,
Faith

On Fri, Jun 17, 2022 at 7:40 AM Zunker, Diana C. EOP/OSTP(b) (6) wrote:

Good morning Faith,

I hope all is well. We would like to extend Amy's Fellowship through July 17, 2022. This will allow time for the completion of Amy's position as a direct hire. If this is acceptable to FAS, attached is the amendment for signature. The word doc reflects the tracked changes. Please let me know if you have any questions.

Thank you kindly,
Diana

## कiana है-unker

Administrative Officer
Office of Science and Technology Policy
Executive Office of the President
(b) (6)

## Faith Savaiano

Associate Director, Social Innovation
she/her
(b) (6)

## RE: [EXTERNAL] Re: Amendment to Amy Nice Agreement *signed

| From: | "Zunker, Diana C. EOP/OSTP"(b) (6) | $>$ |
| :--- | :--- | :--- |
| To: | Faith Savaiano(b) (6) | "Wallace, Rachel A. EOP/OSTP"(b) (6) |
| Cc: | (b) (6) | $>$, Sara Schapiro(b) (6) |$\quad$ Daniel Correa

Attached please find the amendment signed by OSTP. Many thanks to all.

Thank you again,
Diana

Diana Zunker
Administrative Officer

## (b) (6)

From: Faith Savaianc(b) (6)
Sent: Tuesday, June 21, 2022 3:58 PM
To: Zunker, Diana C. EOP/OSTP (b) (6)
Cc: Wallace, Rachel A. EOP/OSTP (b) (6)
Daniel Correa
(b) (6)

Sara Schapiro (b) (6)
Subject: Re; [EXTERNAL] Re: Amendment to Amy Nice Agreement

Hi there,

Please find the FAS-signed version of the agreement attached. We'll standby for the fully-executed version, and please let us know if anything else would be helpful!

Thanks,
Faith

On Tue, Jun 21, 2022 at 11:53 AM Zunker, Diana C. EOP/OSTP (b) (6)
wrote:

Hi Faith,
Thank you!!

Diana Zunker
Administrative Officer

## (b) $(6)$

From: Faith Savaiano(b) (6)
Sent: Tuesday, June 21, 2022 11:45 AM
To: Zunker, Diana C. EOP/OSTP (b) (6)
Cc: Faith Savaiano(b) (6) Wallace, Rachel A. EOP/OSTP
(b) (6) ; Daniel Correa (b) (6) ; Sara Schapiro
(b) (6)

Subject: Re: [EXTERNAL] Re: Amendment to Amy Nice Agreement

Hi Diana,

I just wanted to send you an update that we'll be signing and sending the extension agreement to you shortly. Thanks for your patience!

All best,
Faith

On Fri, Jun 17, 2022 at 9:58 AM Zunker, Diana C. EOP/OSTP(b) (6)
wrote:
Thank you Faith!

Diana Zunker
Administrative Officer
(b) $(6)$

From: Faith Savaiano(b) (6)
Sent: Friday, June 17, 2022 9:44 AM
To: Zunker, Diana C. EOP/OSTP (b) (6)
Cc: Faith Savaiano < (b) (6) Wallace, Rachel A. EOP/OSTP

## (b) (6)

Subject: [EXTERNAL] Re: Amendment to Amy Nice Agreement

Hi Diana,

I hope you've also been well! Confirming receipt of this, and I will revert back shortly, after circling up with our team.

Thanks,
Faith

On Fri, Jun 17, 2022 at 7:40 AM Zunker, Diana C. EOP/OSTP (b) (6)
wrote:
Good morning Faith,
I hope all is well. We would like to extend Amy's Fellowship through July 17, 2022. This will allow time for the completion of Amy's position as a direct hire. If this is acceptable to FAS, attached is the amendment for signature. The word doc reflects the tracked changes.
Please let me know if you have any questions,

Thank you kindly,
Diana
©)iana हैunker
Administrative Officer
Office of Science and Technology Policy
Executive Office of the President
(b) (6)

## Faith Savaiano

Associate Director, Social Innovation
she/her
(b) (6)

Faith Savaiano
Associate Director, Social Innovation she/her
(b) (6)


Faith Savaiano
Associate Director, Social Innovation she/her
(b) (6)

## AMENDMENT 1

## MEMORANDUM OF AGREEMENT BETWEEN

## THE FEDERATION OF AMERICAN SCIENTISTS (FAS) AND

## THE OFFICE OF SCIENCE AND TECHNOLOGY POLICY (OSTP) EXECUTIVE OFFICE OF THE PRESIDENT

Authority: This Agreement is entered into under the authority of the authorizing legislation of OSTP, including 42 U.S.C. §§ 6616(c)(3) and 6617(a)(4).

Background and Purpose: The Office of Science and Technology Policy (OSTP), is responsible for policy formulation associated with the scientific and technical issues of national concern, including life sciences, telecommunications, technology, space and aeronautics, the environment, social, behavioral and educational sciences, physical sciences and engineering, national security, homeland security, the economy and international affairs, and intellectual property.

The Federation of American Scientists (FAS), shares a mutual interest in these topics and benefits from cooperative efforts in formulating these policies. FAS provides science-based analysis of and solutions to protect against catastrophic threats to national and international security. Founded in November 1945, FAS is devoted to the belief that scientist, engineers, and other technically trained people have the ethical obligation to ensure that the technologcal fruits of their intellect and labor are applied to the benefit of humankind.

To carry out the responsibilities required, OSTP seeks the services of individuals highly experienced in scientific and technical issues. The purpose of this Agreement is to provide for the temporary placement of a FAS Impact Fellow, with the prerequisite qualifications, on a non-reimbursable assignment to OSTP.

The Fellow will work closely with senior officials across the White House and key agencies, in collaboration with leaders from industry and the philanthropic sector, to accomplish the following goals:

- Serve as OSTP's subject matter expert in, and community liaison for, national security S\&T workforce topics.
- Lead National Science and Technology Council (NSTC) processes associated with National Security and International Affairs (NSIA) workforce topics, including STEM immigration, deemed export controls, MAVNI restoration, clearance reform, and hiring authorities,
- Represent OSTP in National Security Council workforce-related IPCs.
- Lead National Science and Technology Council (NSTC) processes associated with international workforce topics.

FAS will provide an individual selected for its FAS Impact Fellowship program to work in OSTP. OSTP's wide range of engagement on issues of relevance to science and technology often cut across the programmatic and disciplinary lines of security, environment, life/physical sciences and technology. The FAS Impact Fellow will have responsibility for engaging the federal sector and the greater scientific community on identified cross cutting issues to identify and follow-up on areas of need for coordination, cohesiveness, targeted action.

Arrangements: FAS will assign the FAS Impact Fellow listed below to OSTP for the period specified. The Assignment with OSTP began on June 21, 2021. This agreement may be terminated by either party via a 30-day notice in writing of its intention to terminate the assignment. In the event of poor performance, misconduct or loss of security clearance/suitability determination, this agreement may be terminated immediately, with no requirement for prior notice. Any formal modification to this initial agreement must be jointly agreed to, and will be prepared by the requesting party and forwarded through
the appropriate channels for signature of both parties to the agreement. The assignment will be extended through July 17, 2022, but FAS may terminate the agreement sooner if funding is no longer available or if continuing the arrangement is no longer in the interests of FAS. OSTP will appoint the FAS Fellow as a non-reimbursable fellow. FAS agrees to pay the Fellow compensation directly for the duration of the assignment, including up to $\$ 0$ (per annum) in approved travel and related expenses, and OSTP agrees to pay for all additional approved travel and related costs incurred by the FAS Fellow in his official capacity

## NAME

Name Amy Nice

## PERIOD

June 21, 2021 - July 17, 2022

FAS will directly provide Ms. Amy Nice a stipend as compensation of (b) (4), (b) (6) to be paid in monthly installments, including living expenses and insurance that are the responsibility of Ms. Nice. In addition, FAS will provide a travel budget to be paid on a reimbursement basis for approved travel of up to ${ }^{(0)(4) .(0)(0)}$

Fellows are required to be free agents who work for OSTP, subject to the agreement and the ethics determinations of OSTP. Fellows may not provide special considerations of any kind to FAS, their affiliated organizations, or any entity contributing to the Fellow's income. During the course of their fellowships with OSTP. Fellows are prohibited from participating personally and substantially in any particular matter involving specific parties in which the FAS, their affiliated organizations, or any entity contributing to the Fellow's income is a party or represents a party before the Federal government. To maintain the integrity of the program, as well as to underscore that the fellowship is a learning experience, the Fellow's duty of loyalty (fiduciary duty) is to OSTP and the Fellow shall be subject to the Federal ethics laws guiding OSTP. It is important that Fellows adhere to this principle and avoid any conflict of interest or even the appearance of a conflict of interest.

Key Requirements: The selectee must be a U.S. citizen or national; be at least 18 years old and able to obtain and maintain an Executive Office of the President (EOP) favorable security TS-level determination as a prerequisite to appointment. Any appointment with OSTP is conditional until the selectee passes a drug screen and a suitability and/or security background investigation. Any offer EOP management extends prior to a favorable security determination is merely tentative, and the EOP expressly reserves the right to rescind the conditional offer at any time. Please note that all EOP staff members are subject to random drug testing.

## OSTP Liaison

Diana Zunker
Administrative Officer
Office of Science and Technology Policy
Executive Office of the President
Washington, DC 20504
Phone: (b) (6)
Fax: (202) 456-6022

| DIANA ZUNKER |
| :--- |
| SignatureDigitally signed by DIANA <br> ZUNKER <br> Date: 2022.06.21 16:1927-0400' |
| Date |

## FAS Liaison

Faith Savaiano
Project Manager, Day One Project
Federation of American Scientists
1112 16 $^{\text {th }}$ Street NW
Washington, DC 20036
Phone: (b) (6)
Fax: N/A


## AUTHORIZATION OF MEMORANDUM OF AGREEMENT:

## OSTP:

| RACHEL | Digitally signed ty ACCHEL |
| :---: | :---: |
| WALLACE | WatLece Date: 2022.06.21 18:33:37-04\%00 |

Rachel Wallace Date
Deputy General Counsel and Chief Operating Officer
Office of Science and Technology Policy

## FAS:



## RE: For your Signature: [EXTERNAL] Re: Amendment to Amy Nice Agreement

From: $\quad$ "Zunker, Diana C. EOP/OSTP"(b) (6)<br>To: $\quad$ "Wallace, Rachel A. EOP/OSTP" (b) (6)<br>Date: Tue, 21 Jun 2022 21:04:11-0400<br>Thank you Rachell<br>Diana Zunker<br>Administrative Officer<br>(b) (6)

From: Wallace, Rachel A. EOP/OSTP (b) (6)
Sent: Tuesday, June 21, 2022 6:34 PM
To: Zunker, Diana C. EOP/OSTP (b) (6)
Subject: RE: For your Signature: [EXTERNAL] Re: Amendment to Amy Nice Agreement

Here you go, Diana. Thanks.

Rachel

From: Zunker, Diana C. EOP/OSTP(b) (6)
Sent: Tuesday, June 21, 2022 4:22 PM
To: Wallace, Rachel A. EOP/OSTP (b) (6)
Subject: For your Signature: [EXTERNAL] Re: Amendment to Amy Nice Agreement

Hi Rachel,

Attached for your signature is Amy's extension through July 17, 2022. I have reviewed and signed.

Thank you,
Diana

Diana Zunker

## Administrative Officer

(b) (6)

From: Faith Savaiano(b) (6)
Sent: Tuesday, June 21, 2022 3:58 PM
To: Zunker, Diana C. EOP/OSTP (b) (6)
Cc: Wallace, Rachel A. EOP/OSTP (b) (6) ; Daniel Correa
(b) (6) Sara Schapiro(b) (6)

Subject: Re: [EXTERNAL] Re: Amendment to Amy Nice Agreement

Hi there,

Please find the FAS-signed version of the agreement attached. We'll standby for the fully-executed version, and please let us know if anything else would be helpful!

Thanks,
Faith

On Tue, Jun 21, 2022 at 11:53 AM Zunker, Diana C. EOP/OSTP (b) (6)
wrote:
Hi Faith,
Thank you!!

Diana Zunker
Administrative Officer
(b) (6)

From: Faith Savaiano(b) (6)
Sent: Tuesday, June 21, 2022 11:45 AM
To: Zunker, Diana C. EOP/OSTP(b) (6)
Cc: Faith Savaiano (b) (6) >; Wallace, Rachel A. EOP/OSTP
(b) (6) ; Daniel Correa (b) (6) Sara Schapiro
(b) $(6)$

Subject: Re: [EXTERNAL] Re: Amendment to Amy Nice Agreement

Hi Diana,

I just wanted to send you an update that we'll be signing and sending the extension agreement to you shortly. Thanks for your patience!

All best, Faith

On Fri, Jun 17, 2022 at 9:58 AM Zunker, Diana C. EOP/OSTP(b) (6) wrote:

Thank you Faith!

Diana Zunker
Administrative Officer

## (b) $(6)$

From: Faith Savaiano (b) (6)
Sent: Friday, June 17, 2022 9:44 AM
To: Zunker, Diana C. EOP/OSTP (b) (6)
Cc: Faith Savaiano(b) (6) ;Wallace, Rachel A. EOP/OSTP
(b) (6)

Subject: [EXTERNAL] Re: Amendment to Amy Nice Agreement

Hi Diana,

I hope you've also been well! Confirming receipt of this, and I will revert back shortly, after circling up with our team.

Thanks,
Faith

On Fri, Jun 17, 2022 at 7:40 AM Zunker, Diana C. EOP/OSTP (b) (6)
wrote:
Good morning Faith,
I hope all is well. We would like to extend Amy's Fellowship through July 17, 2022. This will allow time for the completion of Amy's position as a direct hire. If this is acceptable to FAS, attached is the amendment for signature. The word doc reflects the tracked changes.
Please let me know if you have any questions.
Thank you kindly,
Diana
©iana ふ̌unker
Administrative Officer
Office of Science and Technology Policy
Executive Office of the President
(b) (6)

## Faith Savaiano

Associate Director, Social Innovation she/her
(b) (6)


## Faith Savaiano

Associate Director, Social Innovation she/her
(b) (6)
$\square$

## Faith Savaiano

Associate Director, Social Innovation she/her
(b) (6)

## For your Signature: [EXTERNAL] Re: Amendment to Amy Nice Agreement

| From: | "Zunker, Diana C. EOP/OSTP'(b) (6) |
| :---: | :---: |
| To: | "Wallace, Rachel A. EOP/OSTP" (b) (6) |
| Date: | Tue, 21 Jun 2022 16:21:48-0400 |
| Attachments | Nice Amendment 1_06162022 dzsigned.pdf (328.86 kB); RE: Please Review: Nice |
| ; | Draft Amendment 1 ( 44.54 kB ); Please Review: Nice Draft Amendment 1 ( 317.44 kB ) |

Attached for your signature is Amy's extension through July 17, 2022. I have reviewed and signed.

Thank you,
Diana

Diana Zunker
Administrative Officer
(b) (6)

From: Faith Savaiano(b) (6)
Sent: Tuesday, June 21, 2022 3:58 PM
To: Zunker, Diana C. EOP/OSTP(b) (6)
Cc: Wallace, Rachel A. EOP/OSTP(b) (6) Daniel Correa
(b) (6) ; Sara Schapiro (b) (6)

Subject: Re: [EXTERNAL] Re: Amendment to Amy Nice Agreement

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Diana Zunker
Administrative Officer

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From: Faith Savaiano (b) (6)
Sent: Tuesday, June 21, 2022 11:45 AM
To: Zunker, Diana C. EOP/OSTP (b) (6)
Cc: Faith Savaiano (b) (6) ; Wallace, Rachel A. EOP/OSTP
$\begin{array}{lll}\langle(\mathrm{b})(6) & \text { Daniel Correa (b) (6) } & \text {; Sara Schapiro } \\ \text { (b) }(6) & > & \end{array}$
Subject: Re: [EXTERNAL] Re: Amendment to Amy Nice Agreement

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To: Zunker, Diana C. EOP/OSTP < (b) (6)
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Please let me know if you have any questions.

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Diana

## ©ianta हैunkor

Administrative Officer
Office of Science and Technology Polícy
Executive Office of the President (b) (6)
-

## Faith Savaiano

Associate Director, Social Innovation she/her
(b) (6)
$\square$

Faith Savaiano
Associate Director, Social Innovation
she/her
(b) (6)
$\square$

Faith Savaiano
Associate Director, Social Innovation she/her
(b) (6)

## Please Review: Nice Draft Amendment 1

| From: | "Zunker, Diana C. EOP/OSTP" $(\mathrm{b})(6)$ |
| :--- | :--- |
| To: | "Wallace, Rachel A. EOP/OSTP" (b) (6) |
| Date: | Thu, 16 Jun 2022 15:05:09-0400 |
| Attachments | Nice Draft Amendment 1.docx (31.84 kB); Nice Signed Agreement Jun2021- |
| : | Jun2022.pdf (226.08 kB) |
|  |  |
| Hi Rachel, |  |

Attached for your review is the amendment to extend Amy's fellowship through July 17, 2022. (b) (5)

Once you have cleared the amendment, I will reach out to FAS for the extension request.

Thank you,
Diana

## © Triana Eेumker

Administrative Officer
Office of Science and Technology Policy
Executive Office of the President
(b) (6)

## MEMORANDUM OF AGREEMENT

BETWEEN

## THE FEDERATION OF AMERICAN SCIENTISTS (FAS)

 AND
## THE OFFICE OF SCIENCE AND TECHNOLOGY POLICY (OSTP) EXECUTIVE OFFICE OF THE PRESIDENT

Authority: This Agreement is entered into under the authority of the authorizing legislation of OSTP, including 42 U.S.C. $\S \S 6616(\mathrm{c})(3)$ and $6617(\mathrm{a})(4)$.

Background and Purpose: The Office of Science and Technology Policy (OSTP), is responsible for policy formulation associated with the scientific and technical issues of national concern, including life sciences, telecommunications, technology, space and aeronautics, the environment, social, behavioral and educational sciences, physical sciences and engineering, national security, homeland security, the economy and international affairs, and intellectual property,

The Federation of American Scientists (FAS), shares a mutual interest in these topics and benefits from cooperative efforts in formulating these policies. FAS provides science-based analysis of and solutions to protect against catastrophic threats to national and intemational security. Founded in November 1945, FAS is devoted to the belief that scientist, engineers, and other technically trained people have the ethical obligation to ensure that the technological fruits of their intellect and labor are applied to the benefit of humankind.

To carry out the responsibilities required, OSTP seeks the services of individuals highly experienced in scientific and technical issues. The purpose of this Agreement is to provide for the temporary placement of a FAS Impact Fellow, with the prerequisite qualifications, on a non-reimbursable assignment to OSTP.

The Fellow will work closely with senior officials across the White House and key agencies, in collaboration with leaders from industry and the philanthropic sector, to accomplish the following goals:

- Serve as OSTP's subject matter expert in, and community liaison for, national security S\&T workforce topics.
- Lead National Science and Technology Council (NSTC) processes associated with National Security and International Affairs (NSIA) workforce topics, including STEM immigration, deemed export controls, MAVNI restoration, clearance reform, and hiring authorities.
- Represent OSTP in National Security Council workforce-related IPCs.
- Lead National Science and Technology Council (NSTC) processes associated with intemational workforce topics.

FAS will provide an individual selected for its FAS Impact Fellowship program to work in OSTP. OSTP's wide range of engagement on issues of relevance to science and technology often cut across the programmatic and disciplinary lines of security, environment, life/physical sciences and technology. The FAS Impact Fellow will have responsibility for engaging the federal sector and the greater scientific community on identified cross cutting issues to identify and follow-up on areas of need for coordination, cohesiveness, targeted action.

Arrangements: FAS will assign the FAS Impact Fellow listed below to OSTP for the period specified. The Assignment with OSTP will begin on June 21, 2021. This agreement may be terminated by either party via a 30-day notice in writing of its intention to terminate the assignment. In the event of poor performance, misconduct or loss of security clearance/suitability determination, this agreement may be terminated immediately, with no requirement for prior notice. Any formal modification to this initial agreement must be jointly agreed to, and will be prepared by the requesting party and forwarded through the appropriate channels for signature of both parties to the agreement. The assignment is scheduled to end June 20, 2022, but FAS may terminate the agreement sooner if funding is no longer available or if
continuing the arrangement is no longer in the interests of FAS. OSTP will appoint the FAS Fellow as a non-reimbursable fellow. FAS agrees to pay the Fellow compensation directly for the duration of the assignment, including up to $\$ 0$ (per annum) in approved travel and related expenses, and OSTP agrees to pay for all additional approved travel and related costs incurred by the FAS Fellow in his official capacity

## NAME

Name Amy Nice

## PERIOD

June 21, 2021 - June 20, 2022

FAS will directly provide Ms. Amy Nice a stipend as compensation of (b) (4), (b) (6) to be paid in monthly installments, including living expenses and insurance that are the responsibility of Ms. Nice. In addition, FAS will provide a travel budget to be paid on a reimbursement basis for approved travel of up to $\$ 0$ (per annum).

Fellows are required to be free agents who work for OSTP, subject to the agreement and the ethics determinations of OSTP. Fellows may not provide special considerations of any kind to FAS, their affiliated organizations, or any entity contributing to the Fellow's income. During the course of their fellowships with OSTP, Fellows are prohibited from participating personally and substantially in any particular matter involving specific parties in which the FAS, their affiliated organizations, or any entity contributing to the Fellow's income is a party or represents a party before the Federal government. To maintain the integrity of the program, as well as to underscore that the fellowship is a learning experience, the Fellow's duty of loyalty (fiduciary duty) is to OSTP and the Fellow shall be subject to the Federal ethics laws guiding OSTP. It is important that Fellows adhere to this principle and avoid any conflict of interest or even the appearance of a conflict of interest.

Key Requirements: The selectee must be a U.S. citizen or national; be at least 18 years old and able to obtain and maintain an Executive Office of the President (EOP) favorable security TS-level determination as a prerequisite to appointment. Any appointment with OSTP is conditional until the selectee passes a drug screen and a suitability and/or security background investigation. Any offer EOP management extends prior to a favorable security determination is merely tentative, and the EOP expressly reserves the right to rescind the conditional offer at any time. Please note that all EOP staff members are subject to random drug testing.

## OSTP Liaison

Diana Zunker
Administrative Officer
Office of Science and Technology Policy
Executive Office of the President
Washington, DC 20504
Phone: (b) (6)
Fax: (202) 456-6022

| ANA |  |
| :---: | :---: |
| ZU | Dateie 2020.0.1.16. |

Signature
Date

## FAS Liaison

Faith Savaiano
Project Manager, Day One Project
Federation of American Scientists
$11121^{\text {th }}$ Street NW
Washington, DC 20036
Phone: (b) (6)
Fax: N/A

| Faith | Digitally signed by Faith <br> Savaiano |
| :--- | :--- |
| Savaiano | Date: 2021.06 .16 |
| $12: 40: 34-04^{\prime} 00$ |  |
| Signature |  |

## AUTHORIZATION OF MEMORANDUM OF AGREEMENT:

| OSTP: |  |
| :---: | :---: |
| STACY | Digitally signed by STACY MURPHY |
| MURPHY | Date: 2021.06. 16 14:34:52 $-04^{\prime} 00^{\prime}$ |
| Stacy Murphy | Date |
| Operations Manag |  |
| Office of Science and Technology Policy |  |


| FAS: |  |  |
| :--- | :--- | :--- |
| Daniel | Digitally signed by  <br> Daniel Correa  <br> Correa Date: 2021.06 .16 <br>  $12: 22: 29-04^{\prime} 00^{\prime}$ |  |
| Daniel Correa |  | Date |
| Acting President |  |  |
| Federation of American Scientists |  |  |

AMENDMENT 1


[APG]


## RE: Please Review: Nice Draft Amendment 1

From: $\quad$ Wallace, Rachel A. EOF/OSTP"(b) (6)
To: $\quad$ "Zunker, Diana C. EOP/OSTP" (b) (6)
Date: Thu, 16 Jun 2022 15:47:31-0400
I clear. Thanks, Diana.

From: Zunker, Diana C. EOP/OSTP(b) (6)
Sent: Thursday, June 16, 2022 3:05 PM
To: Wallace, Rachel A. EOP/OSTP(b) (6)
Subject: Please Review; Nice Draft Amendment 1

Hi Rachel,

Attached for your review is the amendment to extend Amy's fellowship through July 17, 2022. (b) (5)

Once you have cleared the amendment, i will reach out to FAS for the extension request.

Thank you,
Diana

## ©iona Ěumker

Administrative Officer
Office of Science and Technology Policy
Executive Office of the President
(b) (6)

AMENDMENT 1


## (b) $(5),(b)(6)$



## Re: [EXTERNAL] Re: Heather Tallis Fellowship Extension

```
From Faith Savaiano(b) (6)
:
To: "Zunker, Diana C. EOP/OSTP" (b) (6)
Cc: "Wallace, Rachel A. EOP/OSTP" (b) (6) , Jordan Mixter
    (b) (6)
Date: Mon, 27 Jun 2022 16:05:28-0400
Hi Diana,
```

Our team has gotten a chance to do an internal review and the agreement looks good, with one minor amendment that Dan Correa is now CEO of FAS. Would it be possible to make that change? (We could also make the change in the Word document version you shared on our side, and then send it through our signing process, if easier.)

Thanks,
Faith

On Mon, Jun 27, 2022 at 11:45 AM Zunker, Diana C. EOP/OSTP (b) (6)
wrote:
Thank you Faith!

Diana Zunker
Administrative Officer
(b) (6)

From: Faith Savaiano (b) (6)
Sent: Monday, June 27, 2022 11:45 AM
To: Zunker, Diana C. EOP/OSTP (b) (6)
Cc: Wallace, Rachel A. EOP/OSTP (b) (6)
Subject: [EXTERNAL] Re: Heather Tallis Fellowship Extension

Hi Diana,

Thanks for your note! I will take this back to our team for review - barring any points of feedback, I'll return the FAS-signed version once completed.

Best,
Faith

On Mon, Jun 27, 2022 at 11:14 AM Zunker, Diana C. EOP/OSTP
(b) (6) wrote:

Good moming Faith,

OSTP would like to extend Heather's fellowship for an additional year. Please find attached, the extension agreement for FAS's approval and signature. Attached in tracked changes are the updates made to the current agreement and if no changes are required and amendable to FAS, the PDF for electronic signature. If any additional changes are made please email to me for review before finalizing for signature.

Please let me know if you have any questions.

Thank you,
Diana

## क)iana Ěunker

Administrative Officer

Office of Science and Technology Policy
Executive Office of the President

## (b) (6)

## Faith Savaiano

Associate Director, Social Innovation
she/her

## (b) (6)



Faith Savaiano
Associate Director, Social Innovation
she/her
(b) (6)


## RE: [EXTERNAL] Re: Heather Tallis Fellowship Extension

From: "Zunker, Diana C. EOP/OSTP"(b) (6)
To: $\quad$ Faith Savaiano(b) (6)
Cc: $\quad$ "Wallace, Rachel A. EOP/OSTP"(b) (6)
Date: Mon, 27 Jun 2022 11:45:52-0400
Thank you Faith!
Diana Zunker
Administrative Officer
(b) (6)
From: Faith Savaiano (b) (6)
Sent: Monday, June 27, 2022 11:45 AM
To: Zunker, Diana C. EOP/OSTP(b) (6)
Cc: Wallace, Rachel A. EOP/OSTP(b) (6)
Subject: [EXTERNAL] Re: Heather Tallis Fellowship Extension
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## ©iana Žunker

Administrative Officer
Office of Science and Technology Policy
Executive Office of the President

## Faith Savaiano

Associate Director, Social Innovation
she/her


## RE: [EXTERNAL] Re: Heather Tallis Fellowship Extension

| From: | "Zunker, Diana C. EOP/OSTP" ${ }^{(b)(6)}$ |
| :---: | :---: |
| To: | Faith Savaiano (b) (6) > |
| Cc: | "Wallace, Rachel A. EOP/OSTP" (b) (6) > Jordan Mixter |
|  | (b) (6) |
| Date: | Mon, 27 Jun 2022 19:01:00-0400 |
| Attachments | Tallis Extension Agreement 06272022 (2).pdf (84.36 kB); Tallis Draft Extension |
| : | Agreement 06272022 (2).docx (34.49 kB) |
| Hi Faith, |  |
| I made the change to the agreement. Attached is the PDF for signature. |  |
| Thank you, |  |
| Diana |  |
| Diana Zunker |  |
| Administrative | Officer |

## (b) (6)

From: Faith Savaiano(b) (6)
Sent: Monday, June 27, 2022 4:05 PM
To: Zunker, Diana C. EOP/OSTP(b) (6)
Cc: Wallace, Rachel A. EOP/OSTP (b) (6) >i Jordan Mixter (b) (6)

Subject: Re: [EXTERNAL] Re: Heather Tallis Fellowship Extension

Hi Diana,

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wrote:

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## Diana Zunker

Administrative Officer

## (b) $(6)$

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## Diana Kunkor

Administrative Officer
Office of Science and Technology Policy
Executive Office of the President

## (b) (6)

Faith Savaiano
Associate Director, Social Innovation she/her
(b) (6)
$\square$

Faith Savaiano
Associate Director, Social Innovation
she/her
(b) (6)

## MEMORANDUM OF AGREEMENT BETWEEN

## THE FEDERATION OF AMERICAN SCIENTISTS (FAS) AND

## THE OFFICE OF SCIENCE AND TECHNOLOGY POLICY (OSTP)

 EXECUTIVE OFFICE OF THE PRESIDENTAuthority: This Agreement is entered into under the authority of the authorizing legislation of OSTP, including 42 U.S.C. $\S \S 6616$ (c)(3) and 6617(a)(4).

Background and Purpose: The Office of Science and Technology Policy (OSTP), is responsible for policy formulation associated with the scientific and technical issues of national concern, including life sciences, telecommunications, technology, space and aeronautics, the environment, social, behavioral and educational sciences, physical sciences and engineering, national security, homeland security, the economy and international affairs, and intellectual property.

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To carry out the responsibilities required, OSTP seeks the services of individuals highly experienced in scientific and technical issues. The purpose of this Agreement is to provide for the temporary placement of a FAS Impact Fellow, with the prerequisite qualifications, on a non-reimbursable assignment to OSTP

The Fellow will work closely with senior officials across the White House and key agencies, in collaboration with leaders from industry and the philanthropic sector. to accomplish the following goals:

- Implement a strategic scientific approach, globally focused but community sensitive, to US government efforts to protect and conserve biodiversity and the benefits that Nature provides to people (ecosystem services);
- Work to ensure that US government efforts in global conservation are rooted in biodiversity and conservation science knowledge;
- Work with OSTP colleagues to utilize scientific knowledge and policy tools to preserve biodiversity, create jobs, respect cultural traditions, mitigate and adapt to climate change, and enhance resilience to environmental and economic changes.

FAS will provide an individual selected for its FAS Impact Fellowship program to work in OSTP. OSTP's wide range of engagement on issues of relevance to science and technology often cut across the programmatic and disciplinary lines of security, environment, life/physical sciences and technology. The FAS Impact Fellow will have responsibility for engaging the federal sector and the greater scientific community on identified cross cutting issues to identify and follow-up on areas of need for coordination, cohesiveness, targeted action.

Arrangements: FAS will assign the FAS Impact Fellow listed below to OSTP for the period specified with the option of renewing the agreement. The Assignment with OSTP will begin on August 16, 2022. This agreement may be terminated by either party via a 30 -day notice in writing of its intention to terminate the assignment. In the event of poor performance, misconduct or loss of security clearance/suitability determination, this agreement may be terminated immediately, with no requirement for prior notice. Any formal modification to this initial agreement must be jointly agreed to, and will be prepared by the requesting party and forwarded through the appropriate channels for signature of both
parties to the agreement. The assignment is scheduled to end August 15, 2023, but FAS may terminate the agreement sooner if funding is no longer available or if continuing the arrangement is no longer in the interests of FAS. OSTP will appoint the FAS Fellow as a non-reimbursable fellow. FAS agrees to pay the Fellow compensation directly for the duration of the assignment, including up tc ${ }^{\text {b) (4). (b) (b) }}$ (per annum) in approved travel and releted expenses, and OSTP agrees to pay for all additional approyed travel and related costs incurred by the FAS Fellow in his official capacity

## NAME

PERIOD
Name Heather Tallis
August 16, 2022 - August 15, 2023
FAS will directly provide Dr . Heather Tallis a stipend as compensation of(b) (4). (b) (6) to be paid in monthly instalments. Living expenses and insurance during the duration of the contract are the responsibility of Dr, Tallis. In addition, FAS will provide a travel budget to be paid on a reimbursement basis for approved travel of up to ${ }^{(\mathrm{b})}{ }^{(4) \text {. (b) (6) (per annum). }}$

Fellows are required to be free agents who work for OSTP, subject to the agreement and the ethics determinations of OSTP. Fellows may not provide special considerations of any kind to FAS, their affiliated organizations, or any entity contributing to the Fellow's income. During the course of their fellowships with OSTP, Fellows are prohibited from participating personally and substantially in any particular matter involving specific parties in which the FAS, their affiliated organizations, or any entity contributing to the Fellow's income is a party or represents a party before the Federal government. To maintain the integrity of the program, as well as to underscore that the fellowship is a learning experience, the Fellow's duty of loyalty (fiduciary duty) is to OSTP and the Fellow shall be subject to the Federal ethics laws guiding OSTP. It is important that Fellows adhere to this principle and avoid any conflict of interest or even the appearance of a conflict of interest.

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## OSTP Liaison

## Diana Zunker

Administrative Officer
Office of Science and Technology Policy
Executive Office of the President
Washington, DC 20504
Phone: (b) (6)
Fax: (202) 456-6022

## FAS Liaison

## Faith Savaiano

Project Manager, Day One Project
Federation of American Scientists
$11126^{\text {th }}$ Street NW
Washington, DC 20036
Phone: (b) (6)
Fax: N/A

Signature Date

Signature Date

AUTHORIZATION OF MEMORANDUM OF AGREEMENT:

OSTP:
$\overline{\text { Rachel Wallace Date Daniel Correa }}$
Deputy General Counsel and Chief Operating Officer CEO
Office of Science and Technology Policy

FAS:

Federation of American Scientists
[APG]

## MEMORANDUM OF AGREEMENT BETWEEN

## THE FEDERATION OF AMERICAN SCIENTISTS (FAS)

 AND
## THE OFFICE OF SCIENCE AND TECHNOLOGY POLICY (OSTP) EXECUTIVE OFFICE OF THE PRESIDENT

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The Fellow will work closely with senior officials across the White House and key agencies, in collaboration with leaders from industry and the philanthropic sector, to accomplish the following goals:

- Implement a strategic scientific approach, globally focused but community sensitive, to US government efforts to protect and conserve biodiversity and the benefits that Nature provides to people (ecosystem services);
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FAS will provide an individual selected for its FAS Impact Fellowship program to work in OSTP. OSTP's wide range of engagement on issues of relevance to science and technology often cut across the programmatic and disciplinary lines of security, environment, life/physical sciences and technology. The FAS Impact Fellow will have responsibility for engaging the federal sector and the greater scientific community on identified cross cutting issues to identify and follow-up on areas of need for coordination, cohesiveness, targeted action.

Arrangements: FAS will assign the FAS Impact Fellow listed below to OSTP for the period specified with the option of renewing the agreement. The Assignment with OSTP will begin on August 16, 2022. This agreement may be terminated by either party via a 30-day notice in writing of its intention to terminate the assignment. In the event of poor performance, misconduct or loss of security clearance/suitability determination, this agreement may be terminated immediately, with no requirement for prior notice. Any formal modification to this initial agreement must be jointly agreed to, and will be prepared by the requesting party and forwarded through the appropriate channels for signature of both
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NAME
Name Heather Talllis

PERIOD
August 16, 2022 - August 15, 2023

FAS will directly provide Dr. Heather Tallis a stipend as compensation of (b) (4). (b) (6) to be paid in monthly installments. Living expenses and insurance during the duration of the contract are the responsibility of Dr. Tallis. In addition, FAS will provide a travel budget to be paid on a reimbursement basis for approved travel of up to ${ }^{(b){ }^{(4), ~(b) ~(6) ~}}$ (per annum).

Fellows are required to be free agents who work for OSTP, subject to the agreement and the ethics determinations of OSTP. Fellows may not provide special considerations of any kind to FAS, their affiliated organizations, or any entity contributing to the Fellow's income. During the course of their fellowships with OSTP, Fellows are prohibited from participating personally and substantially in any particular matter involving specific parties in which the FAS, their affiliated organizations, or any entity contributing to the Fellow's income is a party or represents a party before the Federal government. To maintain the integrity of the program, as well as to underscore that the fellowship is a learning experience, the Fellow's duty of loyalty (fiduciary duty) is to OSTP and the Fellow shall be subject to the Federal ethics laws guiding OSTP. It is important that Fellows adhere to this principle and avoid any conflict of interest or even the appearance of a conflict of interest.

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## OSTP Liaison

Diana Zunker
Administrative Officer
Office of Science and Technology Policy
Executive Office of the President
Washington, DC 20504
Phone: (b) (6)
Fax: (202) 456-6022
Signature Date

## FAS Liaison

Faith Savaiano
Project Manager, Day One Project
Federation of American Scientists
$11121^{\text {th }}$ Street NW
Washington, DC 20036
Phone: (b) (6)
Fax: N/A

Date

## AUTHORIZATION OF MEMORANDUM OF AGREEMENT:

## OSTP:

Rachel Wallace $\quad$ Date
Deputy General Counsel and Chief Operating Officer
Office of Science and Technology Policy

FAS:

Daniel Correa
Date
CEO
Federation of American Scientists

## For Your Signature: Heather Tallis Fellowship Extension

| From: | "Zunker, Diana C. EOP/OSTP" $(\mathrm{b})(6)$ |
| :--- | :--- |
| To: | "Wallace, Rachel A. EOP/OSTP" (b) (6) |
| Date: | Tue, 05 Jul 2022 17:01:52-0400 |
| Attachments | Tallis Extension Agreement $06272022(2)$ dz.pdf (324.46 kB); RE: Please Review: |
| : | Heather Tallis Extension Agreement $(87.55 \mathrm{kB})$ |
|  |  |
| Hi Rachel, |  |

Attached is Heather's extension agreement for your signature.

Thank you.
Diana

Diana Zunker
Administrative Officer
(b) (6)

From: Faith Savaiano (b) (6)
Sent: Tuesday, July 5, 2022 4:30 PM
To: Zunker, Diana C. EOP/OSTP (b) (6)
Cc: Wallace, Rachel A. EOP/OSTP (b) (6) ; Jordan Mixter (b) (6)

Subject: Re: [EXTERNAL] Re: Heather Tallis Fellowship Extension

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Administrative Officer
Office of Science and Technology Policy
Executive Office of the President
(b) (6)

## Faith Savaiano

Associate Director, Social Innovation she/her
(b) (6)

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| From: | "Wallace, Rachel A. EOP/OSTP"(b) (6) |
| :--- | :--- |
| To: | "Zunker, Diana C. EOP/OSTP" (b) (6) |
| Date: | Tue, 05 Jul 2022 17:23:05-0400 |
| Attachments: | Tallis Extension Agreement $06272022(2)$ dz rw.pdf ( 337.92 kB ) |
| Here you go, Diana. I signed the attached. |  |
| Thanks! |  |
| Rachel |  |

From: Zunker, Diana C. EOP/OSTP(b) (6)
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Office of Science and Technology Policy
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she/her
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$\square$

Faith Savaiano
Associate Director, Social Innovation she/her
(b) (6)

## MEMORANDUM OF AGREEMENT <br> BETWEEN

## THE FEDERATION OF AMERICAN SCIENTISTS (FAS)

 AND
## THE OFFICE OF SCIENCE AND TECHNOLOGY POLICY (OSTP) EXECUTIVE OFFICE OF THE PRESIDENT

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## NAME <br> Name Heather Tallis

PERIOD
August 16, 2022 - August 15, 2023
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## OSTP Liaison

Diana Zunker
Administrative Officer
Office of Science and Technology Policy
Executive Office of the President
Washington, DC 20504
Phone: (b) (6)
Fax: (202) 456-6022
$\frac{\text { DIANA ZUNKER }}{\substack{\text { Digitally signed by DIANA } \\ \text { zUNER } \\ \text { Date: 2022.07.05 16:5:58 -0400' }}}$ Signature

## FAS Liaison

## Faith Savaiano

Project Manager, Day One Project
Federation of American Scientists
$11121^{\text {th }}$ Street NW
Washington, DC 20036
Phone: (b) (6)
Fax: N/A


Signature

## AUTHORIZATION OF MEMORANDUM OF AGREEMENT:

## OSTP: <br> RACHEL Digitally signed by RACHEL <br> WALLACE <br> Rachel Wallace <br> Deputy General Counsel and Chief Operating Officer <br> Office of Science and Technology Policy

## FAS:



Daniel Correa
Date
CEO
Federation of American Scientists

## RE: For Your Signature: Heather Tallis Fellowship Extension

From: $\quad$ "Zunker, Diana C. EOP/OSTP" (b) (6)
To: $\quad$ "Wallace, Rachel A. EOP/OSTP" < (b) (6)
Date: Tue, 05 Jul 2022 17:40:57-0400

Thank you Rachel!

Diana Zunker
Administrative Officer
(b) (6)

From: Wallace, Rachel A. EOP/OSTP (b) (6)
Sent: Tuesday, July 5, 2022 5:23 PM
To: Zunker, Diana C. EOP/OSTP (b) (6)
Subject: RE: For Your Signature: Heather Tallis Fellowship Extension

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Thanks!
Rachel

From: Zunker, Diana C. EOP/OSTP(b) (6)
Sent: Tuesday, July 5, 2022 5:02 PM
To: Wallace, Rachel A. EOP/OSTP (b) (6)
Subject: For Your Signature: Heather Tallis Fellowship Extension

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\section*{Diana}

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Administrative Officer
Office of Science and Technology Policy
Executive Office of the President

\section*{(b) (6)}

\section*{Faith Savaiano}

Associate Director, Social Innovation
she/her
(b) (6)


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\hline Date: & Tue, 05 Jul 2022 17:42:33-0400 \\
\hline Attachments & Tallis Extension Agreement Aug2022-Aug2023.pdf (360.06 kB) \\
\hline : & \\
\hline \multicolumn{2}{|l|}{Hi Faith,} \\
\hline \multicolumn{2}{|l|}{I had a great long weekend, I hope you did as well. Attached is the extension agreement signed by} \\
\hline \multicolumn{2}{|l|}{OSTP.} \\
\hline \multicolumn{2}{|l|}{Many thanks,} \\
\hline \multicolumn{2}{|l|}{Diana} \\
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\hline Administrative & Officer \\
\hline
\end{tabular}
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Background and Purpose: The Office of Science and Technology Policy (OSTP), is responsible for policy formulation associated with the scientific and technical issues of national concern, including life sciences, telecommunications, technology, space and aeronautics, the environment, social, behavioral and educational sciences, physical sciences and engineering, national security, homeland security, the economy and international affairs, and intellectual property,

The Federation of American Scientists (FAS), shares a mutual interest in these topics and benefits from cooperative efforts in formulating these policies. FAS provides science-based analysis of and solutions to protect against catastrophic threats to national and intemational security. Founded in November 1945, FAS is devoted to the belief that scientist, engineers, and other technically trained people have the ethical obligation to ensure that the technologcal fruits of their intellect and labor are applied to the benefit of humankind.

To carry out the responsibilities required, OSTP seeks the services of individuals highly experienced in scientific and technical issues. The purpose of this Agreement is to provide for the temporary placement of a FAS Impact Fellow, with the prerequisite qualifications, on a non-reimbursable assignment to OSTP.

The Fellow will work closely with senior officials across the White House and key agencies, in collaboration with leaders from industry and the philanthropic sector, to accomplish the following goals:
- Implement a strategic scientific approach, globally focused but community sensitive, to US government efforts to protect and conserve biodiversity and the benefits that Nature provides to people (ecosystem services);
- Work to ensure that US government efforts in global conservation are rooted in biodiversity and conservation science knowledge;
- Work with OSTP colleagues to utilize scientific knowledge and policy tools to preserve biodiversity, create jobs, respect cultural traditions, mitigate and adapt to climate change, and enhance resilience to environmental and economic changes.

FAS will provide an individual selected for its FAS Impact Fellowship program to work in OSTP. OSTP's wide range of engagement on issues of relevance to science and technology often cut across the programmatic and disciplinary lines of security, environment, life/physical sciences and technology. The FAS Impact Fellow will have responsibility for engaging the federal sector and the greater scientific community on identified cross cutting issues to identify and follow-up on areas of need for coordination, cohesiveness, targeted action.

Arrangements: FAS will assign the FAS Impact Fellow listed below to OSTP for the period specified with the option of renewing the agreement. The Assignment with OSTP will begin on August 16, 2022. This agreement may be terminated by either party via a 30 -day notice in writing of its intention to terminate the assignment. In the event of poor performance, misconduct or loss of security clearance/suitability determination, this agreement may be terminated immediately, with no requirement for prior notice. Any formal modification to this initial agreement must be jointly agreed to, and will be prepared by the requesting party and forwarded through the appropriate channels for signature of both
parties to the agreement. The assignment is scheduled to end August 15, 2023, but FAS may terminate the agreement sooner if funding is no longer available or if continuing the arrangement is no longer in the interests of FAS. OSTP will appoint the FAS Fellow as a non-reimbursable fellow. FAS agrees to pay the Fellow compensation directly for the duration of the assignment, including up to \({ }^{(b){ }^{(6)} \text { (b) (b) }}\) (6) (per annum) in approved travel and related expenses, and OSTP agrees to pay for all additional approved travel and related costs incurred by the FAS Fellow in his official capacity

NAME
Name Heather Tallis

PERIOD
August 16, 2022 - August 15, 2023

FAS will directly provide Dr. Heather Tallis a stipend as compensation of(b) (4), (b) (6) to be paid in monthly installments. Living expenses and insurance during the duration of the contract are the responsibility of Dr. Tallis. In addition, FAS will provide a travel budget to be paid on a reimbursement basis for approved travel of up to \({ }^{(b){ }^{(4), ~(b) ~(6) ~}}\) (per annum).

Fellows are required to be free agents who work for OSTP, subject to the agreement and the ethics determinations of OSTP. Fellows may not provide special considerations of any kind to FAS, their affiliated organizations, or any entity contributing to the Fellow's income. During the course of their fellowships with OSTP, Fellows are prohibited from participating personally and substantially in any particular matter involving specific parties in which the FAS, their affiliated organizations, or any entity contributing to the Fellow's income is a party or represents a party before the Federal government. To maintain the integrity of the program, as well as to underscore that the fellowship is a learning experience, the Fellow's duty of loyalty (fiduciary duty) is to OSTP and the Fellow shall be subject to the Federal ethics laws guiding OSTP. It is important that Fellows adhere to this principle and avoid any conflict of interest or even the appearance of a conflict of interest.

Key Requirements: The selectee must be a U.S. citizen or national; be at least 18 years old and able to obtain and maintain an Executive Office of the President (EOP) favorable security TS-level determination as a prerequisite to appointment. Any appointment with OSTP is conditional until the selectee passes a drug screen and a suitability and/or security background investigation. Any offer EOP management extends prior to a favorable security determination is merely tentative, and the EOP expressly reserves the right to rescind the conditional offer at any time. Please note that all EOP staff members are subject to random drug testing.

\section*{OSTP Liaison}

Diana Zunker
Administrative Officer
Office of Science and Technology Policy
Executive Office of the President
Washington, DC 20504
Phone: (b) (6)
Fax: (202) 456-6022
\(\frac{\text { DIANA ZUNKER }}{\substack{\text { Digitally signed by DIANA } \\
\text { zUNER } \\
\text { Date: 2022.07.05 16:5:58 -0400 }}}\)\begin{tabular}{l} 
Signature
\end{tabular}

\section*{FAS Liaison}

Faith Savaiano
Project Manager, Day One Project
Federation of American Scientists
\(11121^{\text {th }}\) Street NW
Washington, DC 20036
Phone: (b) (6)
Fax: N/A


\section*{AUTHORIZATION OF MEMORANDUM OF AGREEMENT:}

OSTP:
RACHEL
WALLACE

Digitally signed by RACHEL
WALLACE
Date: 2022.07.05 17:22:39 \(-0400^{\prime}\)

Rachel Wallace
Deputy General Counsel and Chief Operating Officer
Office of Science and Technology Policy

\section*{FAS:}
\begin{tabular}{|c|c|}
\hline \[
(6)(6)
\] & \\
\hline Daniel Correa CEO & Date \\
\hline Federation of \(A\) & \\
\hline
\end{tabular}

\title{
[EXTERNAL] Re: Invite to Join Office of Science and Technology Policy Briefing on Recent Legislative Victories
}
\begin{tabular}{ll} 
From: & Matt Hourihan (b) (6) \\
To: & "Lo, Kevin C. EOP/OSTP" (b) (6) \\
Date: & Tue, 23 Aug 2022 19:36:47-0400
\end{tabular}

Kevin, thank you very much.
Matt

On Tue, Aug 23, 2022 at 6:16 PM Lo, Kevin C. EOP/OSTP(b) (6) wrote:
Dear Mr. Hourihan:

On behalf of Dr. Alondra Nelson, head of the White House Office of Science and Technology Policy, I am writing to invite you to a closed-press briefing to discuss the recent slate of BidenHarris legislative victories, including the Inflation Reduction Act. the CHIPS and Science Act, and the PACT Act.

The briefing will include an overview of these key pieces of legislation and the exciting ways they will impact the future of science and technology, followed by a chance to listen to any comments you might have about how to leverage this historic opportunity.

If you'd like to attend, please RSVP here.

With best wishes,
Kevin Lo

Deputy Chief of Staff
White House Office of Science and Technology Policy

Matt Hourihan
Federation of American Scientisis
1112 16th Street NW, Suite 600
Washington, DC 20036
(b) (6)

\section*{Re: [EXTERNAL] Congratulations!}

\section*{From: \(\quad\) "Prabhakar, Arati EOP/OSTP" (b) (6)}

To: Mary Maxon <mmaxon@schmidtfutures.com>
Date: Mon, 10 Oct 2022 09:07:43-0400

Thanks, Mary! l've thought of you and especially your work on the 2012 report in recent weeks. Appreciate the good wishes and offer of help.

Best,
Arati

On Oct 7. 2022, at 7:04 PM, Mary Maxon <mmaxon@schmidlfutures.com> wrote:

Hello Arati!

Congratulations!! I am so excited that you are now confirmed and I wish you the very, very best.

Greetings from Brussels, where the EU Bioeconomy Conference in celebration of the 10 year anniversary of their EU Bioeconomy Strategic Plan just ended (they beat us in 2012 by a mere few weeks!). Ministers from around the EU mentioned the new "Biden bioeconomy EO" in their prepared remarks, and I, the sole American invited, was peppered with questions about Section 12 of the EO and how it would be initiated. With the release of China's bioeconomy plan this summer, it seems that they are feeling new pressures for fruitful new collaborations.

If I can be of help from my perch in CA, please don't hesitate to let me know.

Best regards,
-Mary
--
Mary E. Maxon, Ph.D. (she/hers)
Executive Director, BioFutures
mmaxon@schmidtfutures.com

2412 Massachusetts Avenue NW
Washington |DC 20008
Tel:(b) (6)
>https://www.schmidtfutures.com/our-work/biofutures/<
\(\square \square \square\)

\section*{Email delay Re: [EXTERNAL] Congratulations!}
From: Mary Maxon <mmaxon@schmidtfutures.com>
To: \(\quad\) "Prabhakar, Arati EOP/OSTP"(b) (6)
Date: Mon, 10 Oct 2022 09:07:47-0400
I am traveling and will respond ASAP. If your message is
related to the Schmidt Futures BioFutures Program, please contact
Andrea Hodgson at (b) (6)
Thank you for your patience,
-Mary
-
Mary E. Maxon, Ph.D. (she/hers)
Executive Director, BioFutures
mmaxon@schmidtfutures.com

\section*{2412 Massachusetts Avenue NW}

Washington | DC 20008

Tel:(b) (6)
>https://www.schmidtfutures.com/our-work/biofutures/<
[image:
https:///h4.googleusercontent.com/2VWm2IZk3buDx5hOUa6DQu8Txgke-n09uyO7gYZv82L86J2jerN1QHXJzAaU2GQawH-
khTcTyzby4NkaNDbYGoyXlez1F_HLcz0s8PYU_3kylbHESSIG6kw0xYwUjD0D8NNgEGb5]

\section*{Fwd: [EXTERNAL] Congratulations!}
\begin{tabular}{ll} 
From: & "Prabhakar, Arati EOP/OSTP" (b) (6) \\
To: & "Aidinoff, Marc F. EOP/OSTP" (b) (6) \\
Date: & Mon, 10 Oct 2022 09:08:34-0400 \\
Do you know Mary?(b) (5) & . Just FYI below.
\end{tabular}

Begin forwarded message:

From: "Prabhakar, Arati EOP/OSTP"(b) (6)
Date: October 10, 2022 at 9:07:43 AM EDT
To: Mary Maxon <mmaxon@schmidffutures.com>
Subject: Re: [EXTERNAL] Congratulations!

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Appreciate the good wishes and offer of help.
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If I can be of help from my perch in CA, please don't hesitate to let me know.
Best regards,
-Mary
--
Mary E. Maxon, Ph.D. (she/hers)
Executive Director, BioFutures
mmaxon@schmidtfutures.com
2412 Massachusetts Avenue NW

Washington |DC 20008
Tel: (b) (6)
>https://www.schmidttutures.com/our-work/biofutures/<
\(\square \longrightarrow\)

\title{
[EXTERNAL] Fwd: OSTP's Dr. Prabhakar to Deliver Major Speech at AAAS
}
\begin{tabular}{ll} 
From: & Arati Prabhakar(b) (6) \\
To: & "Prabhakar, Arati EOP/OSTP" (b) (6) \\
Date: & Wed, 19 Oct 2022 14:59:05 -0400
\end{tabular}
.-.----------- Forwarded message
From: Daniel Correa < (b) (6)
Date: Tue, Oct 18, 2022 at 8:46 PM
Subject: Fwd: OSTP's Dr. Prabhakar to Deliver Major Speech at AAAS
To: Arati Prabhakar (b) (6)

Hi Arati - Great to see this! Hoping to join.

Would love to catch up if you ever have a moment (happy to direct such an inquiry to your work email). Hope you are settling in.

Thanks,
Dan
——_ Forwarded message -_-_-
From: Sudip Parikh, CEO(b) (6)
Date: Tue, Oct 18, 2022 at 7:31 PM
Subject: OSTP's Dr. Prabhakar to Deliver Major Speech at AAAS
To:


The American Association for the Advancement of Science (AAAS) is very pleased to invite you to attend an event featuring Dr. Arati Prabhakar on Achieving America's Aspirations on Friday, October 21 from 3:00 to 5:00 P.M. ET.

Earlier this month, the White House Office of Science and Technology Policy (OSTP) welcomed Dr. Arati Prabhakar as its new Director and President Biden's Chief Advisor on Science and Technology. At this event, Dr. Prabhakar will speak about the aims of U.S. science and technology today, followed by a fireside chat. There will be an opportunity to network immediately following the formal programming.

The event will be held at the AAAS headquarters in Washington, D.C. (1200 New York Avenue NW). If you are able to join us, RSVP by Wednesday, October 19 at 5:00 P.M. ET: >https://engage.aaas.org/3yCTtm 7 <. Please note, this invitation is non-transferable.

We will follow up with more details shortly. We hope you will join us for this important talk.

\author{
Sudip S. Parikh, Ph.D.
}

CEO, American Association for the Advancement of Science
Executive Publisher, Science Family of Journals

\title{
Fwd: [EXTERNAL] Fwd: OSTP's Dr. Prabhakar to Deliver Major Speech at AAAS
}

From: \(\quad\) "Prabhakar, Arati EOP/OSTP" (b) (6)
To: (b)(6) Dan Correa, FAS email
Date: Fri, 21 Oct 2022 12:31:14-0400

Dan, hi from my OSTP email. Please use this now for work matters.

I hope to see you there today! And look forward to talking. It will be a while as l'm in the flood of first meetings.

Best,
Arati

Begin forwarded message

From: Arati Prabhakar (b) (6)
Date: October 19, 2022 at 2:59:35 PM EDT
To: "Prabhakar, Arati EOP/OSTP" (b) (6)
Subject: [EXTERNAL] Fwd: OSTP's Dr. Prabhakar to Deliver Major Speech at AAAS
------- Forwarded message
From: Daniel Correa (b) (6)
Date: Tue, Oct 18, 2022 at 8:46 PM
Subject: Fwd: OSTP's Dr. Prabhakar to Deliver Major Speech at AAAS
To: Arati Prabhakar (b) (6)

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We will follow up with more details shortly. We hope you will join us for this important talk.

Sudip S. Parikh, Ph.D.
CEO, American Association for the Advancement of Science
Executive Publisher, Science Family of Journals

\section*{Stakeholder Spreadsheet}
\begin{tabular}{|c|c|}
\hline From: & "Parsons, Nate S. EOP/OSTP" (b) (6) \\
\hline \multirow[t]{2}{*}{To:} & "Ramzanali, Asad EOP/OSTP"(b) (6) , "Kimmerling, Erica P \\
\hline & EOP/OSTP" \({ }^{(b)(6)}\) \\
\hline Date: & Thu, 15 Dec 2022 11:44:23-0500 \\
\hline Attachments & OSTP Stakeholders December 2022.xlsx (23.86 kB) \\
\hline : & \\
\hline \multicolumn{2}{|l|}{Hey Asad,} \\
\hline \multicolumn{2}{|l|}{As I mentioned earlier this week, I am attaching a stakeholder spreadsheet (b) (5)} \\
\hline & (b) (5) \\
\hline & \\
\hline \multicolumn{2}{|l|}{Let me know if you have any next steps on this!} \\
\hline Nate & \\
\hline
\end{tabular}
\begin{tabular}{|c|c|c|c|c|}
\hline First Name & Last Name & Email & Title & Type of Organization \\
\hline Ann & Gates & (b) (6) & Provost at the University at Texas El Paso, the only Hispanic Serving Institution that is also a R1 institution. Ann Gates is a leader in CS Education and equity and founded the CAHSI Alliance of Hispanic Serving Institutions. & Academia \\
\hline Juan & Gilbert & (b) (6) & Andrew Banks Family Preeminence Endowed Professor \& Chair Computer \& Information Science \& Engineering Department at University of Florida & Academia \\
\hline Evelynn & Hammonds & (b) (6) & Former Dean of Harvard College; Professor of the History of Science and Professor of African and African-American Studies at Harvard & Academia \\
\hline Freeman & Hrabowski & (b) (6) u & President Emeritus of University of Maryland, Baltimore County; leader in STEM equity & Academia \\
\hline Kaye & Husbands Fealing & (b) (6) & Dean and Ivan Allen Jr. Chair, Ivan Allen College of Liberal Arts at Georgia Tech & Academia \\
\hline Shirley Ann & Jackson & (b) (6) & President Emeritus of RPI; STEM equity pioneer & Academia \\
\hline Maria & Klawe & (b) (6) & President of Harvey Mudd College; former Dean of the School of Engineering and Applied Science at Princeton University; STEM equity advocate & Academia \\
\hline Peter & McPherson & (b) (6) & \begin{tabular}{l}
**Out-going President of the Association of Public \& Land-Grant Universities (APLU); \\
(b) (5)
\end{tabular} & Academia \\
\hline Vernon & Morris & (b) (6) & Senior scientist associated who also worked on the study that characterized funding disparities at NSF. He is also part of NSF's Committee on Equal Opportunities in Science and Engineering & Academia \\
\hline Francisco & Rodriguez & (b) (6) & Chancellor of the Los Angeles Community College District & Academia \\
\hline Kimberly & Scott & (b) (6) & Professor of women and gender studies at Arizona State University (ASU) and the founding executive director of ASU's Center for Gender Equity in Science and Technology (CGEST). & Academia \\
\hline Barbara & Snyder & (b) (6) & President of the American Association of Universities (AAU); (b) (5) & Academia \\
\hline Heather & Wilson & (b) (6) & President of the Alliance of Hispanic Serving Research Universities & Academia \\
\hline Mark & Becke & & Incoming APLU President & Academia \\
\hline David & Skorton & & President, American Academy of Medical Colleges & Academia \\
\hline Keith & Yamamoto & (b) (6) & Vice Chancellor for Science Policy and Strategy, UCSF & Academia \\
\hline Chris & Carter & (b) (6) & government relations, LeHigh University & Academia \\
\hline Katherine & Jordan & & CMU Graduate Student Assembly & Academia \\
\hline Mildred & Garcia & (b) (6) & President, American Association of State Colleges and Universities & Academia \\
\hline Jose & Cabrales & (b) (6) & VP and COS, AASCU & Academia \\
\hline Walter G. & Bumphus & (b) (6) & President, Am Association of Community Colleges & Academia \\
\hline Dan & Arvizu & & Chancellor and Chief Executive of the New Mexico State University System and PCAST Member & Academia \\
\hline Peter & McPherson & & President of the American Association of Public and Land Grant Universities & Academia \\
\hline Eloy & Ortiz Oakley & & President and CEO College Futures Foundation and Former Chancellor of California Community Colleges & Academia \\
\hline & & & HBCUs (b) (5) & Academia \\
\hline & & & AANHPI (b) (5) & Academia \\
\hline & & & MSIs & Academia \\
\hline Gilda & Barabino & (b) (6) & President, Olin College of Engineering and President, American Association for the Advancement of Science (AAAS) & Academia/ Professional Association \\
\hline Johanna & Chao Kreilick & (b) (6) & President of the Union of Concerned Scientists (UCS) & Advocacy \\
\hline Meredith & Gibson & (b) (6) & CEO of the Association for Women in Science; (b) (5) & Advocacy \\
\hline Wendy & Naus & (b) (6) & Executive Secretary of the Consortium of Social Science Associations (COSSA) & Advocacy \\
\hline Sudip & Parikh & (b) (6) & \begin{tabular}{l}
CEO of the American Association for the Advancement of Science (AAAS); \\
(b) (5)
\end{tabular} & Advocacy \\
\hline Wendy & Streitz & & President of the Council on Government Relations & Advocacy \\
\hline Ted & Mitchell & & American Council on Education & Advocacy \\
\hline Mary & Woolley & (b) (6) & Research!America; (b) (5) & Advocacy \\
\hline Christopher & Austin & (b) (6) & President, United for Medical Research, Assoc. Dir, Federal Strategy, JH (b) (5) & Advocacy \\
\hline LaVarne & Burton & (b) (6) & Chair, Natıonal Health Council \& President \& CEO of American Kıdney Fund (b) (5) & Advocacy \\
\hline Esther & Krofah & (b) (6) & Executive VP, FasterCures & Advocacy \\
\hline Lynn & Marquis & (b) (6) & Director, Coalition for Life Sciences; (b) (5) & Advocacy \\
\hline Peter & DeYoe & (b) (6) & President of The Science Coalition (TSC); (b) (5) & Advocacy \\
\hline Kevin & Kregel & (b) (6) & President, Federation of American Societies for Experimental Biology \& Exec VP and Provost, U. of lowa; (b) (5) & Advocacy \\
\hline France & Cordova & (b) (6) & President, Science Philanthropy Aliance & Advocacy \\
\hline Julia & Jester & (b) (6) & AAU also co-chair, Coalition for National Science Funding & Advocacy \\
\hline Erin & Heath & (b) (6) & AAAS also co-chair, Coalition for National Science Funding & Advocacy \\
\hline Juliane & Baron & (b) (6) & FABBS also co-chair Coalition for National Science Funding & Advocacy \\
\hline Miriam & Quintal & Quintal, Miriam (b) (6) & L-B also co-chair Coalition for National Science Funding & Advocacy \\
\hline Leland & Cogliani & (b) (6) & L-B, co-chair of Energy Sciences Coalition & Advocacy \\
\hline Deborah & Wince-Smith & & President, Council on Competitiveness & Advocacy \\
\hline Christopher & Nelson & & President of the Association of Science and Technology Centers & Advocacy \\
\hline Antonio & Tijerino & (b) (6) & President, Hispanic Heritage Foundation. (b) (5) & Advocacy \\
\hline Laurie & Locasio & laurie.locascio@nist.gov & Director, National Institute of Standards and Technology & Government \\
\hline Asmeret & Berhe & asmeret.berhe@science.doe.gov & Director of the Office of Science at the Department of Energy & Government \\
\hline Sethuraman & Panchanathan & & Director of the National Science Foundation & Government \\
\hline James L. & Moore III & & (new) NSF Assistant Dir. of Education and Human Resources & Government \\
\hline Erwin & Gianchandani & egiancha@nsf.gov & Assistant Director for Technology, Information, and Partnerships at the National Science Foundation (NSF) & Government \\
\hline Brian & Stone & bstone@nsf.gov & NSF, Chief of Staff & Government \\
\hline Josh & Shiode & josh.shiode@science.doe.gov & (new) DOE Office of Science Chief of Staff & Government \\
\hline Jason & Boehm & jason.boehm@nist.gov & NIST Chief of Staff & Government \\
\hline John & Neuffer & (b) (6) & President and CEO of the Semiconductor Industry Association (SIA) & Industry \\
\hline \multirow[t]{4}{*}{Lisa} & Chambers & (b) (6) & Tech Corps - (b) (5) & Non-profit \\
\hline & & & Center for a New American Security & Non-profit \\
\hline & & & \multirow[t]{2}{*}{Center for Security and Emerging Technology} & Non-profit \\
\hline & & & & Non-profit \\
\hline
\end{tabular}
\begin{tabular}{|c|c|c|c|c|}
\hline & & & Center for Strategic and International Studies & Non-profit \\
\hline Sal & Khan & & Founder and CEO of the Khan Academy & Non-profit \\
\hline John & Anderson & (b) (6) & President of the National Academy of Engineering & Professional Association \\
\hline Thomas & Connelly & (b) (6) & President of the American Chemical Society & Professional Association \\
\hline Victor & Dzau & (b) (6) & President of the National Academy of Medicine; (b) (5) & Professional Association \\
\hline Randy & Fiser & (b) (6) & Executive Director and CEO of the American Geophysical Union (AGU); (b) (5) & Professional Association \\
\hline Michael & Maloney & (b) (6) & CEO of the American Institute of Physics; (b) (5) & Professional Association \\
\hline Marcia & McNutt & (b) (6) & President of the National Academy of Sciences (NAS) & Professional Association \\
\hline Raj & Pandya & (b) (6) & Director of Thriving Earth Exchange, a program from the American Geophysical Union (b) (5) & Professional Association \\
\hline Joy & Connolly & & President of the American Council of Learned Societies (ACLS) & Professional Association \\
\hline Susan & Lozier & & President of AGU & Professional Association \\
\hline Stefano & Bertuzzi & (b) (6) & CEO, American Society for Microbiology; (b) (5) & Professional Association \\
\hline Daniel & McQuillen & & Infectious Diseases Society of America President; & Professional Association \\
\hline Crispin & Taylor & (b) (6) & CEO, American Society of Plant Biologists & Professional Association \\
\hline Elizabeth & Stuhlberg & (b) (6) & Science Policy Manager, ASA/CSSA/Soil Science Society & Professional Association \\
\hline Tom & Wang & (b) (6) & staff officer for NASEM Committee on Science Engineering and Public Policy & Professional Association \\
\hline Matt & Hourihan & (b) (6) & Federation of American Scientists staff (b) (5) & Professional Association \\
\hline
\end{tabular}
\begin{tabular}{|c|c|c|c|c|c|}
\hline First Name & Last Name & Email & Organization & Job Title & Questions \& Comments \\
\hline Julia & Jester & (b) (6) & AAU & AVP & \\
\hline Rajul & Pandya & (b) (6) & AGU & VP Community Science & \\
\hline Sudip & Parikh & (b) (6) & American Assn for the Advancement of Science & CEO & \\
\hline Joanne & Carney & (b) (6) & American Association for the Advancement of Science & Chief Government Relations Officer & \\
\hline Erin & Heath & (b) (6) & American Association for the Advancement of Science & Director of Federal Relations & \\
\hline Matt & Dembicki & (b) (6) & American Association of Community Colleges & Associate VP, Communications & \\
\hline Joy & Connolly & (b) (6) & American Council of Learned Societies & President & \\
\hline Lexi & Shultz & (b) (6) & American Geophysical Union & VP, Science Policy And Government Relations & \\
\hline Michael & Moloney & (b) (6) & American Institute of Physics & CEO & \\
\hline Stefano & Bertuzzi & (b) (6) & American Society for Microbiology & Chief Executive Officer & \\
\hline Deborah & Altenburg & (b) (6) & APLU & Associate VP for Research Policy and Government Relations & \\
\hline Vernon & Morris & (b) (6) & Arizona State University & Foundation Professor and Director of SMNS & I am likely going to need to to attend remotely. Will that be possible? \\
\hline Christopher & Austin & (b) (6) & Associate Director, Federal Strategy & Johns Hopkins University \& Medicine & \\
\hline Lynn & Marquis & (b) (6) & Coalition for the Life Sciences & Executive Director & \\
\hline Wendy & Naus & (b) (6) & COSSA & Executive Director & \\
\hline Lara & Hansen & (b) (6) & EcoAdapt & Chief Scientist and Executive Director & \\
\hline Leland & Cogliani & (b) (6) & Energy Sciences Coalition & Co-Chair & \\
\hline Juliane & Baron & (b) (6) & FABBS & Executive Director & \\
\hline Kevin & Kregel & (b) (6) & FASEB (Federation of American Societies for Experimental Biology) & President & Thanks for the invitation. In addition to my role as the current president of FASEB, I am also the Provost at the University of lowa. The legislative pieces to be discussed at the briefing will be extremely impactful for R1 universities such as ours. \\
\hline Matt & Hourihan & (b) (6) & Federation of American Scientists & Associate Director for R\&D and Advanced Industry & \begin{tabular}{l}
What is current OSTP thinking on the quadrennial strategy elements of CHIPS? \\
Are there any updates on the forthcoming strategies for advanced manufacturing or in-space manufacturing?
\end{tabular} \\
\hline Kaye & Husbands Fealing & (b) (6) & Georgia Institute of Technology & Dean & \\
\hline Susan & Lozier & (b) (6) & Georgia Institute of Technology & Dean, College of Sciences & \\
\hline Peter & DeYoe & (b) (6) & Harvard University & Associate Director for Legislative Affairs & \\
\hline Evelynn & Hammonds & (b) (6) & Harvard University & Professor & \\
\hline Kimberly & Scott & (b) (6) & Henry Luce Foundation & Sr. Equity Strategist & \\
\hline Antonio & Tljerino & (b) (6) & Hispanic Heritage Foundation & President \& CEO & \\
\hline Nikki & Cooley & (b) (6) & Institute for Tribal Environmental Professionals (ITEP) & Climate Program Co-Mamager \& Interim Assistant Director & \\
\hline Francisco & Rodriguez & (b) (6) & Los Angeles Community College District & Chancellor & \\
\hline Jerry & Melillo & (b) (6) & Marine Biological Laboratory & Distinguished Scientist & \\
\hline John & Anderson & (b) (6) & National Academy of Engineering & President & \\
\hline Victor & Dzau & (b) (6) & national academy of medicine & President & \\
\hline Marcia & McNutt & (b) (6) & National Academy of Sciences & President & \\
\hline Shirley Ann & Jackson & (b) (6) & Rensselaer Polytechnic Institute & President Emerita & \\
\hline Mary & Woolley & (b) (6) & Research!America & President \& CEO & \\
\hline France & Cordova & (b) (6) & Science Philanthropy Alliance & President & Congratulations -- big victories for science! \\
\hline Lisa & Chambers & (b) (6) & TECH CORPS & National Executive Director & \\
\hline Roberto & Osegueda & (b) (6) & The University of Texas at El Paso & VP-Research & \\
\hline Michell & McIntyre & (b) (6) & Union of Concerned Scientists & Deputy Director \& Policy Director, Center for Science \& Democracy & \\
\hline Genna & Reed & (b) (6) & Union of Concerned Scientists & Director of Policy Analysis & \\
\hline Juan & Gilbert & (b) (6) & University of Florida & Professor and Chair & \\
\hline Ann & Gates & (b) (6) & University of Texas at El Paso & Senior Vice Provost for Academic Affairs & \\
\hline Kristie & Ebi & (b) (6) & University of Washington & Professor, Center for Health and the Global Environment & \\
\hline
\end{tabular}

\begin{tabular}{|c|c|c|c|c|c|c|}
\hline & Opportunity, & & & \multirow[t]{2}{*}{Co-Founder and Chairman} & \multirow[t]{2}{*}{(b) (6)} & \multirow[t]{2}{*}{N/A} \\
\hline Lincoln Network & \multicolumn{2}{|l|}{} & Garrett Johnson & & & \\
\hline Education & Opportunity, & Higher Ed & Lezli Baskerville & ¢ & & N/A \\
\hline National Association of State CTOs & \multirow[t]{3}{*}{\({ }_{\text {General }}\)} & Professional Association & Michael Leahy & \multicolumn{2}{|l|}{Vice President (b) (6)} & N/A \\
\hline \multirow[t]{2}{*}{National Center for College Students with Disabilities} & & Professional Association & Wendy Harbour & \multicolumn{2}{|l|}{Associate Executive Director for Programs and Developmen (b) (6)} & N/A \\
\hline & & & & & & Annual Meeting \\
\hline \multirow[b]{2}{*}{National Science Teaching Association} & \multirow[b]{2}{*}{Opportunity} & \multirow[b]{2}{*}{Professional Association} & \multirow[b]{2}{*}{Erika Shugart} & \multirow{3}{*}{Executive Director} & & March 22-25, 2023 \\
\hline & & & & & \multirow[t]{2}{*}{(b) (6)} & Atlanta, 6 A \\
\hline & & & & & & Annual Convention \\
\hline \multirow[b]{2}{*}{National Society of Black Engineers} & \multirow[t]{2}{*}{Opportunity,
Democracy} & \multirow[b]{2}{*}{Professional Association} & \multirow[b]{2}{*}{Janeen Uzzell} & \multirow[b]{2}{*}{ceo} & \multirow[b]{2}{*}{(b) (6)} & \multirow[t]{2}{*}{Mansas City, MO} \\
\hline & & & & & & \\
\hline & & & & & & Annual Professional Engineers Conference \\
\hline & & & & & & August 2-4, 2023 \\
\hline National Society of Professional Engineers & General & Professional Association & Monika Schulz & Executive Director and CEO & (b) (6) & Louisville, KY \\
\hline Natural Resources Defense Council & Climate & Advocacy & Manish Bapna & President and CEO & (b) (6) & N/A \\
\hline Partnership on Al & Democracy & Advocacy & Rebecca Finlay & ceo & (b) (6) & N/A \\
\hline Research!America & Research & Advocacy & Mary Woolley & President & \multirow[t]{2}{*}{(b) (6)} & Bi-weekly talks from guest speaker \\
\hline \multirow[t]{3}{*}{Science Philanthropy Alliance} & \multirow[t]{2}{*}{General} & \multirow[t]{3}{*}{Professional Association} & \multirow[t]{2}{*}{France Cordova} & \multirow[t]{3}{*}{President} & & \multirow[t]{2}{*}{\begin{tabular}{l}
N/A \\
Annual Awards Dinner
\end{tabular}} \\
\hline & & & & & & \\
\hline & & & & & & November 2023 \\
\hline Semiconductor Industry Association & Competitiveness & Professional Association & Jimmy Goodrich & \multirow[t]{3}{*}{Vice President, Global Policy
Interim President} & \multirow[t]{3}{*}{\[
\begin{aligned}
& \text { (b) (6) } \\
& \text { (b) }(6)
\end{aligned}
\]} & \\
\hline \multirow[t]{3}{*}{Software \& Information Industry Association} & \multirow[t]{2}{*}{Competitiveness} & \multirow[t]{2}{*}{Professional Association} & \multirow[t]{2}{*}{Christopher Mohr} & & & \multirow[t]{2}{*}{\begin{tabular}{l}
Annual Information and Media Summit \\
February 23-24, 2023 \\
Orlando, FL
\end{tabular}} \\
\hline & & & & & & \\
\hline & & & & & & Annual Conference \\
\hline Society for Advancing Chicanos and Native Americans in & Opportunity, & & & & & Annual Conference \\
\hline Science (SACNAS) & Democracy & Professional Association & Charla Lambert & President & (b) (6) & Portland, OR \\
\hline & & & & & & National Convention \\
\hline & Opportunity, & \multirow{4}{*}{Professional Association} & \multirow{3}{*}{Chris Wikie} & \multirow{4}{*}{cEo} & & Nov. 1-5, 2023 \\
\hline \multirow[t]{3}{*}{Society of Hispanic Professional Engineers} & \multirow[t]{2}{*}{Democracy} & & & & \multirow[t]{3}{*}{(b) (6)} & \multirow[t]{2}{*}{Salt Lake City, UT Annual Meeting} \\
\hline & & & & & & \\
\hline & Opportunity, & & & & & October 26-28, 2023 \\
\hline Society of Women Engineers & Democracy & Professional Association & Karen Horting & Executive Director and CEO & (b) (6) & Los Angeles, CA \\
\hline The Science Coalition & General & Advocacy & Peter Devoe & President & (b) (6) & N/A \\
\hline Union of Concerned Scientists & General & Professional Association & Johanna Chao Kreilick & President & (b) (6) & N/A \\
\hline World Resources Institute & Climate & Advocacy & Ani Dasgupta & President and CEO & (b) (6) & N/A \\
\hline
\end{tabular}

Organization
National Academy of Engineering
National Academy of Medicine
National Academy of Medicine
National Academy of Science
National Telecommunications and Information
Administration
\(\begin{array}{ll}\text { Sector } & \text { Point of Contact } \\ \text { USG-Adjacent } & \text { John Anderson }\end{array}\)
USG-Adjacent
USG-Adjacent
USG-Adjacent
Professional Association
\begin{tabular}{l} 
Email \\
(b) 6 \\
\hline
\end{tabular}
(b) \((6)\)
(b) \((6)\)
(b) \((6)\)

Annual/Major Events
Organizati AA Policy Sector Point of C(Title Email \begin{tabular}{l} 
Annual/ Last OSTP Engagement \\
Major \\
Events
\end{tabular}
Organizati AA Policy Sector Point of C(Title Email \begin{tabular}{l} 
Annual/ Last OSTP Engagement \\
Major \\
Events
\end{tabular}
Organization AA Policy Sector Point of Contact Title Email \(\quad\)\begin{tabular}{l} 
Annual/Major \\
Events
\end{tabular} Last OSTP Engagement

\section*{[EXTERNAL] Fwd: Congrats and welcome to gov!}
\begin{tabular}{ll} 
From: & Eric \(S\) Lander \((\mathrm{b})(6)\) \\
To: & "Koizumi, Kei EOP/OSTP" <(b) (6) \\
Date: & Fri, 22 Jan 2021 14:07:01-0500
\end{tabular}
------------------
From: Eric S Lander (b) (6)
Date: Fri, Jan 22, 2021 at 1:49 PM
Subject: Re: Congrats and welcome to gov!
To: <michelle.holko@nih.gov>

Thank you for your message.

If you would like to correspond about topics related to my position in the White House or the Office of Science and Technology Policy, please email me here: (b) (6)
(b) (6) (I am unable to use my Broad Institute email account for such matters.)

Best,
Eric


Eric Lander
President and Director
415 Main Street
Cambridge MA 02142
(b) (6)
(b) (6)


Eric Lander
President and Director
415 Main Street
Cambridge MA 02142
(b) (6)

\section*{RE: [EXTERNAL] Re: Congrats from MAA! We want to share your story}
\begin{tabular}{|c|c|}
\hline \multicolumn{2}{|l|}{From "Koizumi, Kei EOP/OSTP" (b) (6)} \\
\hline : & \\
\hline \multirow[t]{3}{*}{} & Sira Dooley Fairchild (b) (6) , Ed Wyatt \\
\hline & (b) (6) , Jared Smith (b) (6) > , Lee McGuire \\
\hline & (b) (6) \\
\hline Date: & Fri, 22 Jan 2021 18:17:04-0500 \\
\hline \multicolumn{2}{|l|}{Thanks, I'd recommend deferring this one. It would be a great story to tell just after Dr. Lander is confirmed by the Senate. It could be part of his post-confirmation press tour. Placing this in an OSTP file.} \\
\hline \multicolumn{2}{|l|}{Kei} \\
\hline \multicolumn{2}{|l|}{Kei Koizumi} \\
\hline \multicolumn{2}{|l|}{(he/him)} \\
\hline \multicolumn{2}{|l|}{Acting Director and Chief of Staff} \\
\hline \multicolumn{2}{|l|}{Office of Science and Technology Policy} \\
\hline (b) (6) & \\
\hline
\end{tabular}

From: Sira Dooley Fairchild (b) (6)
Sent: Friday, January 22, 2021 4:37 PM
\begin{tabular}{ll} 
To: Ed Wyatt \((\mathrm{b})(6)\) & ; Jared Smith \((\mathrm{b})(6)\) \\
McGuire \((\mathrm{b})(6)\) & ; Koizumi, Kei EOP/OSTP \((\mathrm{b})(6)\)
\end{tabular}

Subject: [EXTERNAL] Re: Congrats from MAA! We want to share your story

Hi all,

Please see below for an interview request from MAA!

Best,
Sira

\section*{---------- Forwarded message ---------}

From: Kaylynn Yankovich < (b) (6)
Date: Fri, Jan 22, 2021 at 12:03 PM
Subject: Congrats from MAA! We want to share your story
To: (b) (6) , (b) (6)

Dr. Eric Lander,

My name is Kaylynn Yankovich and I am reaching out to you on behalf of the Mathematical Association of America.

First off, congratulations on your nomination as Director of the OSTP and serving as the Presidential Science Advisor! We are all looking forward to your leadership, elevating the role of science in the White House, as well as bringing your persistence or as Mr. Cervini says your "ability to get people to really think big," to bring about growth and change to our nation.

In 1974, the MAA sponsored you to participate in the International Mathematical Olympiad, and you helped win the US a silver medal. More than ever, we need stories like yours to showcase to students in middle and high school, and ones pursuing mathematics as a degree, how math opens up many doors. Your journey in our mathematical competitions and competing internationally will allow students to see themselves in you. Quite frankly, you are the perfect example of "know no bounds" and your story is exactly what we need to encourage the next generation of students to pursue STEM fields.

I was hoping to get 20-30 minutes of your time to answer a few questions. I want to tell your story, your journey participating in our math competitions, competing internationally, and get your advice, to help thousands of students understand that they also have the potential to do extraordinary things.

Please let me know the best date/times that work for you. I will work around your schedule.

I am looking forward to hopefully talking with you soon.
Best,
Kaylynn

Kaylynn Yankovich
Manager of Communications and Marketing
Mathematical Association of America
Phone:(b) (6)
maa.org

Sira Dooley Fairchild
Office of the Director
Pronouns: she/her/hers
\(\square\)

\section*{[EXTERNAL] Fwd: The Weekend (September 23-26th)}
```

From: Sira Dooley Fairchild (b) (6)
To: "Koizumi, Kei EOP/OSTP" (b) (6) >, "Lo, Kevin C. EOP/OSTP"
(b) (6)
Date: Wed, 10 Feb 2021 15:45:19-0500
Attachments Weekend AGENDA 2019 Final (2).pdf (114.97 kB); 2021 Weekend Preliminary
: Timeline .pdf (117.23 kB)
Hi Kei and Kevin,
Eric asked that I forward this invitation to you for discussion. This is an event which is very similar to the Yellowstone event which I forwarded to you a few weeks ago.

```

Best,
Sira
----------- Forwarded message \(\qquad\)
From: Margot McGinness \(<\) (b) (6)
Date: Wed, Feb 10, 2021 at 1:18 PM
Subject: The Weekend (September 23-26th)
To: Eric Lander, Ph.D. (b) (6) >
Cc: Eric Lander, Ph.D. (b) (6)

\section*{Dear Eric:}

Congratulations!! The announcement was a highlight of the new year and I couldn't be more thrilled to have you at the helm of science for our country - especially with an Administration making it such a priority.

We very much missed coming together last fall and seeing you for our annual Weekend in Aspen. As we look toward September and continue to monitor COVID-19 with experts in the field, we are hopeful that circumstances will permit us to safely come together for The Weekend 2021.

In the meantime, we invite you to reserve The Weekenddates on your calendar (September 23-27th). We plan to bring together a very select group of leaders and visionaries for in-depth and thought-provoking discussions on many of the very issues that have been at the forefront of our minds.

I've attached a copy of the 2021 timeline of events as well as the 2019 agenda as a reminder of the caliber and depth of our Weekend agenda. As we continue to monitor COVID-19, we are also planning top tier health and
safety protocols and other carefully designed preparations. Please feel free to reach out to me for more details, questions or updates.

On behalf of all the co-hosts, we very much are looking forward to another extraordinary gathering and hope you will be a part of it again.

All my best,

Margot

\section*{Margot McGinness}

\section*{Executive Director}

The Weekend
(b) (6)

Office: (b) (6)

\footnotetext{
Sira Dooley Fairchild
Pronouns: she/herhers
}
\(\qquad\)


7:00 PM

\section*{cockiall feceprion \& alluer}

Opening Cocktail Reception \& Dinner \(>\) Hotel Jerome
Evening Comedy Performance \(>\) Steve Martin \& Martin Short

\section*{FRIDAN, SEPTEMBEER 20}

6:30-7:00 AM 7:00 AM

8:00-8:50 AM
THE HEALIHCARE MARKETPLACE moderated by Andrew Ross Sorkin
MARK BERTOLINI Former Chairman \& CEO, Aetna
SYLVIA BURWELL Former Secretary, US Department of Health and Human Services | President, American University
SEEMA VERMA Administrator, Centers for Medicare \& Medicaid Services
EMMA WALMSLEY CEO, GlaxoSmithKline
8:50-9:40 AM
GLOBAL ECONOMIC OUTLOOK moderated by David Rubenstein
MOHAMED EL-ERIAN Chief Economic Adviser, Allianz
LAURENCE FINK Chairman \& CEO, BlackRock
MELLODY HOBSON Co-CEO \& President, Ariel Investments, LLC
TIDJANE THIAM CEO, Credit Suisse Group AG
9:40-10:10 AM
CRISPR \& THE HUMMAN GENOME moderated by Siddhartha Mukherjee
JENNIFER DOUDNA Li Ka Shing Chancellor's Professor in Biomedical and Health Sciences, UC Berkeley
10:10-10:25 AM
10:25-11:05 AM
AI \& HUMMANITY moderated by Eric Schmidt
NICK BOSTROM Professor, University of Oxford
GREG BROCKMAN Co-Founder \& CTO, OpenAI
FEI-FEI LI Co-Director, Human-Centered Al Institute, Stanford University
MUSTAFA SULEYMAN Co-Founder, DeepMind
11:05-11:55 AM

GEN. DAVID PETRAEUS Former Director, CIA | Former Commander in Afghanistan, US \& International Forces | Former
KARIM SADJADPOUR Senior Fellow, Middle East Program, Carnegie Endowment for International Peace

Health \& Wellness Seminar with GWYNETH PALTROW, EMERAN MAYER \& ROBYNNE CHUTKAN; Golf Clinic with JUSTIN LEONARD; Tennis with MONICA SELES, JAMES BLAKE \& NICK BOLLETTIERI; Portraits by
BRIGITTE LACOMBE; Hiking with ANNABELLE BOND; Biking with GENERAL DAVID PETRAEUS; and Golf.

HAL HARVEY CEO, Energy Innovation LLC
JOHN KERRY Former Secretary of State, US Department of State
VIEN TRUONG Climate Justice Advocate

12:30 PM
IRAN: TENSSION II THE MIDDLE EAST moderated by Fareed Zakaria
THOMAS FRIEDMAN Foreign Affairs Columnist, The New York Times Commander, US Central Command

CLARISSA WARD Chief International Correspondent, CNN
2:00 pm ACTIVITIES \& SEMIINARS
cockiall heceprion \& anluen
6:30 PM
CLIIMATE CHANGE moderated by Laurene Powell Jobs

Cocktail Reception \& Dinner by David Chang > St. Regis Ballroom
Evening Musical Performance > Macklemore

SAIUROAY, SEPTEMBEF 21
6:30-7:00 AM
7:00 AM
8:00-8:45 AM
SPOTLIGHT ON MENTAL HEALTH moderated by David Agus
JOSHUA GORDON Director, National Institute of Mental Health
BERNARD J. TYSON Chairman \& CEO, Kaiser Permanente
LEANNE WILLIAMS Director, Stanford Center for Precision Mental Health \& Wellness
8:45-9:40 AM
TECH \& INNOVATION: CHINA moderated by Zanny Minton Beddoes
CHARLES CHAO Chairman \& CEO, Sina Corp.
JEAN LIU President, Didi Chuxing
NEIL SHEN Founding \& Managing Partner, Sequoia Capital China
XING WANG Founder \& CEO, Meituan Dianping
9:40-10:10 AM ELECTIUN SECURITY moderated by Frances Townsend
CHRISTOPHER KREBS Director, Cybersecurity and Infrastructure Security Agency, US Department of Homeland Security
10:10-10:25 AM Break
10:25-11:10 AM

MIKE ALLEN Founder \& Executive Editor, AXIOS Media
MIKE BARNICLE Journalist, MSNBC
KARL ROVE Former Deputy Chief of Staff \& Former Senior Advisor to President George W. Bush, The White House
THE FUTURE OF TELEUISION with Mike Allen
REED HASTINGS CEO, Netflix
11:40-12:10 PM CRIM|||NAL JUSTICE moderated by Van Jones
MEEK MILL Recording Artist | President, Dream Chasers Records
MICHAEL RUBIN Founder \& Executive Chairman, Fanatics | Co-chair, REFORM Alliance
12:35 PM
LUUCHEON DISCUSSION Moderated by David Ignatius
GENERAL JAMES MATTIS Former Secretary of Defense, US Department of Defense
afternoon ACTIVITIES \& SEMIINARS
Book Discussion of Face to Face: The Art of Human Connection with BRIAN GRAZER AND DAVID CHANG; Golf Clinic with JUSTIN LEONARD; Tennis with JAMES BLAKE \& NICK BOLLETTIERI; Portraits by BRIGITTE LACOMBE; Hiking with ANNABELLE BOND; Biking with GENERAL DAVID PETRAEUS; Golf and Fly Fishing.
6:15 pm COCKTAIL RECEPION \& DININER
Closing Night BBO - St. Regis Terrace
Followed by a Special Screening > Harriet with Cynthia Erivo, interviewed by Bozoma Saint John

THE
WEEK END

\section*{THE WEEKEND 2021}

September 23-26 \({ }^{\text {th }}\)

PRELIMINARY TIMELINE OF EVENTS

\section*{HOSTED BY:}

Mukesh Ambani
Eli Broad
John Doerr
Robert Kraft
Yuri Milner
Eric Schmidt
Ariel Emanuel \&
Patrick Whitesell

Margot McGinness Exccutioc Director

\section*{Thursday, September \(23^{\text {rd }}\)}

7:00 PM

Friday, September \(24^{\text {th }}\)
\begin{tabular}{ll} 
8:00 AM & Morning Discussions \\
12 Noon & Newsmaker Luncheon Discussion \\
\(2: 30\) PM & Outdoor Activities and Seminars \\
\(6: 30\) PM & Dinner \& Entertainment
\end{tabular}

Saturday, September \(25^{\text {th }}\)
8:00 AM
12 Noon
2:30 PM

6:30 PM
Sunday, September 26
AM Morning Departures

Opening Dinner

Dinner \& Entertainment

Morning Discussions
Newsmaker Luncheon Discussion
Outdoor Activities and Seminars
Dinner \& Entertainment

\section*{[EXTERNAL] NYTimes: The Coming Technology Boom}

\author{
From: \(\quad\) Eric S Lander (b) (6) \\ To: \(\quad\) "Lander, Eric S. EOP/OSTP" (b) (6) \\ Date: Thu, 11 Feb 2021 22:27:39-0500 \\ The Coming Technology Boom \\ >https://www.nytimes.com/2021/02/11/opinion/science- \\ technology.html?referringSource=articleShare \(<\)
}

Sent from my iPhone

\section*{[EXTERNAL] Thoughts}

\section*{From:}

To:
Date:
Attachments: \(\quad\) Draft thoughts re ARPA-H (21.03.2021).docx (39.75 kB)

Draft, Deliberative, Not for Distribution


Draft, Deliberative, Not for Distribution


Draft, Deliberative, Not for Distribution


Draft, Deliberative, Not for Distribution


Draft, Deliberative, Not for Distribution


\section*{Draft, Deliberative, Not for Distribution}


Draft, Deliberative, Not for Distribution


\section*{[EXTERNAL] Tom Freedman}
```

From: Todd Golub (b) (6)
To: "Lander, Eric S. EOP/OSTP" (b) (6)
Date: Mon, 28 Jun 2021 21:27:22-0400
Hi Eric,
Tom Freedman reached out regarding a client of Freedman Consulting that he thought would be wellaligned with the Biden administration's science goals. I suggested that he email you at your OSTP address.

```

This is simply a heads up that he may be reaching out; may be a call worth taking.

Best,
Todd

\section*{Re: [EXTERNAL] Tom Freedman}
```

From: "Lander, Eric S. EOP/OSTP" (b) (6)
To: Todd Golub (b) (6)
Date: Mon, 28 Jun 2021 21:34:35-0400
Hi Todd
Thanks for the heads up.
Sending best wishes and looking forward to talking soon
E
Sent from my iPhone
> On Jun 28, 2021, at 9:29 PM, Todd Golub(b) (6) > wrote:
>
>
> Hi Eric,
>
> Tom Freedman reached out regarding a client of Freedman Consulting that he thought would be well-aligned with the Biden administration's science goals. I suggested that he email you at your OSTP address.
$>$
$>$ This is simply a heads up that he may be reaching out; may be a call worth taking.
$>$
> Best,
> Todd

```

\section*{[EXTERNAL] Kacy <> Chris}

From Jordan Blashek (b) (6)
:
To: "Gerst, Kacy"(b) (6) , "McGuire, Chris R. EOP/OSTP"
(b) (6)

Date: Fri, 06 Aug 2021 18:13:37-0400

Chris and Kacy, connecting you here.

Chris is at the NSC, and Kacy is at DARPA. You are both working on similar issues, and I think would have a lot to discuss.

Chris, Kacy has informed a lot of my thinking on the sovereign wealth fund.

Hope you have a chance to connect.

Jordan

\section*{[EXTERNAL] Kalil OSTP e-mail address}
```

From: Thomas Kalil (b) (6)
To: Raylene Yung <(b) (6)
Cc: "Kalil, Tom A. EOP/OSTP" (b) (6)
Date: Fri, 20 Aug 2021 22:46:21-0400
Hi Raylene,
I am helping out OSTP on a part time basis - so drop me a note when you are at GSA! Also - if there is anything I can do to be helpful - let me know.

```

Tom

\title{
[EXTERNAL] Re: INTERVIEW REQUEST: from Walter Isaacson x Amanpour \& Company, PBS + CNN International
}
\begin{tabular}{ll} 
From & "Bradford, Marion" (b) (6) \\
\(:\) & \\
To: & "Koizumi, Kei EOP/OSTP" (b) (6) \\
Cc: & Lee McGuire (b) (6) \\
& (b) (6) , OSTP Press Office \\
& Sira Dooley Fairchild (b) (6) , Megan Mandosa-Hayes (b) (6) \\
& (b) (6)
\end{tabular}

Date: Wed, 15 Sep 2021 09:20:13-0400

Thank you, Kei! Standing by and please don't hesitate if you need anything in meantime.
Marion

On Sep 15, 2021, at 9:14 AM, Koizumi, Kei EOP/OSTP (b) (6) > wrote:
Hello, colleagues. A short note to let you know we are considering and will respond back shortly.

Kei

Kei Koizumi
(he/him)
Chief of Staff
Office of Science and Technology Policy
(b) (6)
(no texts)

From: Bradford, Marion (b) (6)
Sent: Wednesday, September 15, 2021 9:08 AM
To: Lee McGuire (b) (6) ; OSTP Press Office
(b) \((6)\)

Cc: Koizumi, Kei EOP/(b) (6) Megan Mandosa-Hayes
```

(b) (6) Sira Dooley Fairchild (b) (6)
ESLOffice(b) (6)
Subject: [EXTERNAL] Re: INTERVIEW REQUEST: from Walter Isaacson x Amanpour \& Company,
PBS + CNN International

```

Thanks, Lee.

Is there anything you need on my end to help streamline?

We are flexible on timing tomorrow. Hoping there's a window in his schedule.

Really appreciate your help coordinating -

Thanks,
Marion

Marion Bradford
Producer, Amanpour \& Company


From: Lee McGuire (b) (6)
Sent: Wednesday, September 15, 2021 8:49 AM


Subject: Re: INTERVIEW REQUEST: from Walter Isaacson x Amanpour \& Company, PBS + CNN International

Thanks Marion -- adding the OSTP press email address for their awareness as well. Lee

\footnotetext{
Lee McGuire (He/him/his)
Chief Communications Officer, Broad Institute of MIT and Harvard
Megan Mandosa-Hayes, Senior Administrative Assistant (She/herhers)
}

On Wed, Sep 15, 2021 at 8:36 AM Bradford, Marion(b) (6) > wrote:
Hi Kei \& team - just putting this to the top of the inbox.
Is there any chance Dr. Lander could join our cohost Walter Isaacson at some point tomorrow 9/16?

We'd love to talk the latest in the pandemic, the new biostrategy plan, and more in a taped not live \(1 \times 1\) Zoom interview.

Thank you!
Marion

Marion Bradford
Producer, Amanpour \& Company
(b) (6)
(b) (6)
(b) (6)

From: Bradford, Marion (b) (6)
Sent: Tuesday, September 14, 2021 4:11 PM
To: Koizumi, Kei EOP/OSTP (b) (6) >; Lee McGuire
(b) (6)

Cc: Megan Mandosa-Hayes (b) (6) ; Sira Dooley Fairchild
(b) (6) ; ESLOffice (b) (6)

Subject: Re: INTERVIEW REQUEST: from Walter Isaacson x Amanpour \& Company, PBS + CNN International

Hi Kei, hope this finds you well.

I write in hopes Dr. Lander might have time this Thursday \(9 / 16\) to join our cohost Walter Isaacson for our show Amanpour \& Company. We'd love to discuss the new biosecurity plan and more.

Same as when Dr. Lander joined Walter for our show previously: this is a taped not live 1 xl long form interview via Zoom. The conversation would last about 25 minutes
and approximately 17 minutes would go to air across the States on PBS and globally on CNN International.

Thanks for your timely consideration -
Marion

Marion Bradford
Producer, Amanpour \& Company
(b) \((6)\)

From: Koizumi, Kei EOP/OSTP (b) (6)
Sent: Tuesday, January 26, 2021 10:16 PM
To: Bradford, Marion (b) (6) Lee McGuire (b) (6)
Cc: Megan Mandosa-Hayes (b) (6) ; Sira Dooley Fairchild
(b) (6) ; ESLOffice (b) (6)

Subject: RE: INTERVIEW REQUEST: from Walter Isaacson x Amanpour \& Company, PBS + CNN International

Thank you for reaching out, Marion. We regret we're unable to accept such invitations for public engagements for Dr. Lander at this time, until he is confirmed by the Senate to his new position in DC you would like to ask him about. Thank you, and please reach out again after he is confirmed by the Senate as OSTP Director.

Kei

Kei Koizumi
(he/him)

Acting Director and Chief of Staff
Office of Science and Technology Policy

\section*{(b) (6)}

From: Bradford, Marion (b) (6)
Sent: Tuesday, January 26, 2021 9:50 AM
To: Lee McGuire (b) (6) >; Koizumi, Kei EOP/OSTP

\section*{(b) (6)}


Subject: [EXTERNAL] Re: INTERVIEW REQUEST: from Walter Isaacson x Amanpour \&
Company, PBS + CNN International

Thanks, Lee.

Hi Kei,

I'm a producer with Amanpour \& Company - the PBS / CNN International global affairs show. I work with cohost Walter Isaacson. Dr. Lander has joined our show before. I'm writing in hopes he might have time to join Walter again to discuss his new position in DC and more.

This is a taped, not live, one - on - one long form interview with Walter Isaacson. We'd tape via Zoom and take about 25 minutes of his time total on the day. Approximately 17 minutes go to air .We broadcast every weeknight across the States on PBS as well as globally on CNN International.

Is there any chance Dr. Lander might have a window in the morning on Thursday or Friday this week? We also could do the morning on Monday \(2 / 1\) next week.

Thank you!

Marion

Marion Bradford
Producer, Amanpour \& Company

\section*{(b) 6 )}

From: Lee McGuire (b) (6)
Sent: Tuesday, January 26, 2021 9:45 AM
To: Bradford, Marion (b) (6) ; Koizumi, Kei EOP/OSTP
(b) (6)

Cc: Megan Mandosa-Hayes (b) (6) ; Sira Dooley Fairchild
(b) (6) \(\quad\) ESLOffice < (b) (6)

Subject: Re: INTERVIEW REQUEST: from Walter Isaacson x Amanpour \& Company, PBS +
CNN International

CAUTION: This email originated from outside of WNET. Do not follow guidance, click links, or open attachments unless you recognize the sender and know the content is safe.

Hi Marion! Eric is now officially in DC and we're routing all media requests there - cc:ing Kei Koizumi, who can take it from here.

Lee

Hi Dr. Lander,

I realize you're beyond busy right now but just checking in again in hopes you might have time to join our cohost Walter Isaacson for our show Amanpour \& Company again? We were hoping you might have time in the morning one day later this week or on Monday \(2 / 1\).

Thank you for your consideration.
Marion

Marion Bradford
Producer, Amanpour \& Company
(b) (6)


From: Bradford, Marion (b) (6)
Sent: Tuesday, January 19, 2021 9:25 AM
To: (b) (6) g (b) (6)
Cc: Lee McGuire (b) (6) >; Megan Mandosa-Hayes
(b) (6) ; Sira Dooley Fairchild (b) (6)

\section*{ESLOffice (b) (6) >}

Subject: INTERVIEW REQUEST: from Walter Isaacson \(\times\) Amanpour \& Company, PBS + CNN International

Hi Eric,

Marion Bradford here - Walter Isaacson's producer with Amanpour \& Company. Congratulations on your new role with the Biden administration. It's an exciting and hopeful time, as you've said: science is back! I realize you must be beyond busy right now but might you have a window to spare in the morning of Monday \(1 / 25\) ? We were hoping you could do an 8a ET or 8:30a ET roll on Monday \(1 / 25\) next week to discuss the significance of bringing the role of science advisor to the cabinet, your priorities in the position and of the incoming administration, and more. This would be a one-on-one long form conversation with Walter via Zoom. We'd ask for 30 minutes of your time total on the day. The segment would air that same night Monday \(1 / 25\) across the States on PBS as well as globally on CNN International. If not Monday, perhaps later on that week or the following? Thank you as always for your consideration-

All my best,
Marion

Marion Bradford
Producer, Amanpour \& Company

\section*{(b) (6)}

\section*{[EXTERNAL] Re: Questions on viral sequencing}
```

From Kei Koizumi(b) (6)
:
To: Sira Dooley Fairchild(b) (6) , "Koizumi, Kei EOP/OSTP"
(b) (6)
Cc: Lee McGuire (b) (6)
Justine Levin-Allerhand
(b) (6) , Ed Wyatt (b) (6) , Jared Smith
(b) (6)
Date: Wed, 20 Jan 2021 19:15:21-0500

```
(adding my new OSTP address, please discard this one)

Thanks for sending. I recommend declining, as these questions are being asked of Eric in his capacity as OSTP Director and presidential science advisor, not in his personal capacity. The Biden administration would need to determine its position on these questions (with Dr. Lander's input, of course) before he can talk to the press about them.

Kei

On Wed, Jan 20, 2021 at 12:49 PM Sira Dooley Fairchild < (b) (6) > wrote:
Hi all,

Please see below for a press request from Bloomberg News!

Best,
Sira

Forwarded message
From: John Lauerman (BLOOMBERG/ NEWSROOM:) (b) (6)
Date: Wed, Jan 20, 2021 at 12:41 PM
Subject: Questions on viral sequencing
To: (b) (6)

Hi Dr. Lander: John Lauerman from Bloomberg News here, how are you?
Congratulations on your appointment as science adviser. Very exciting
time for those of us who follow the sequencing landscape. As soon as I
read of this, I began thinking of how your presence would make a
difference in the situation of viral sequencing in the U.S. I have a
few questions I hope you could answer on the phone or by email. Are
there plans to increase variant sequencing or to make it a more consistent part of the U.S. pandemic response? Will you build out the SPHERES program or replace it? Are there any particular technologies you'd like to see deployed? Do you have an investment figure in mind? Can you describe what kind of risks we're taking by not using sequencing more regularly? Would you like to see the US rank higher in per capita sequencing. Thanks very much, look forward to hearing from you, John Lauerman, Bloomberg News

John Lauerman, Bloomberg News
100 Summer St. Boston MA 02110
tel. (b) (6)
>http://www.bloomberg.com<
>http://www.bloomberg.com/prognosis<

Sira Dooley Fairchild
Office of the Director
Pronouns: she/herhers
\(\cdots 1\)

\section*{RE: Bill Gates tweet}


Date: Thu, 21 Jan 2021 18:32:57-0500

Thank you, Christine and hello everyone. OSTP will have an official Twitter handle, through which ESL will communicate in his official roles. That account has not been established yet, and will likely remain relatively quiet until he is confirmed by the Senate. In good news, he was officially nominated yesterday afternoon.

Kei

Kei Koizumi
(he/him)
Acting Director and Chief of Staff
Office of Science and Technology Policy
(b) (6)

From: Christine Heenan (b) (6)
Sent: Thursday, January 21, 2021 5:22 PM
To: Jared Smith (b) (6) >; Justine Levin-Allerhand
\begin{tabular}{lrl} 
(b) (6) & Lee McGuire(b) (6) & Ed Wyatt \\
\hline\((\mathrm{b})(6)\) & Koizumi, Kei EOP/OSTP (b) (6) &
\end{tabular}

Subject: [EXTERNAL] RE: Bill Gates tweet

Thanks Jared. We'll make sure ESL acknowledges.

Noting that Ron Klain has shifted to @WHCOS on twitter, I am wondering whether we should reserve an "official" twitter handle for Eric in his govt role? (I note that @whsa is taken by a gentleman in Portugal with 77 followers). Kei, thoughts on this?

From: Jared Smith(b) (6)
Sent: Thursday, January 21, 2021 3:39 PM


Subject: Bill Gates tweet

Guessing you all saw this, but just in case not, I figured I'd flag this one:
>https://twitter_com/BillGates/status/1352333862144077824<

Bill Gates @BillGates - 1h
It's great to see President Biden elevate science leadership to a level position. Congratulations ©eric lander.

\section*{Oric Lander @eric_lander - Jan 15}

Humbled and excited to serve as WH science advisor for Presidentelect @JoeBiden. He has assembled a diverse team of brilliant scientists and is elevating the role of science. So much to be done, and it will take everyone working together. \#Scienceisback!
[] 360
\(037 K\)

Jared Smith
Managing Principal
Cell(b) (6)
PRECISION | precisionstrategies.com
2020 PRWeek Awards | Outstanding Small Agency
2020 Global \& North American SABRE Awards | Public Affairs Agency of the Year

\section*{[EXTERNAL] Re: People! (A quick note to help you keep track of 4 people we mentioned)}
```

From Kei Koizumi (b) (6)
:
To: Eric S Lander(b) (6) , "Koizumi, Kei EOP/OSTP"
(b) (6)
Cc: Kristen Zarrelli (b) (6)
Date: Thu, 21 Jan 2021 08:40:28-0500
( + OSTP address, - this address from now on please)
Eric,

```
Thank you. Sending these into the OSTP system. I have worked with(b)(6) PII and I think highly
of him. I know of (b)(6) PII and (b)(6) PII by reputation.
Kei
On Thu, Jan 21, 2021 at \(7: 41\) AM (b) (6) > wrote:
Richard was very high on these four people - and I take his judgment seriously. Two CVs below. (b)(6) PII could be IPA'd. Less clear for others.

Begin forwarded message:

From: Richard Danzig (b) (6)
Subject: People! (A quick note to help you keep track of 4 people we mentioned)
Date: January 13, 2021 at \(9: 10: 12\) PM EST
To: Eric Lander (b) (6)
(b)(6) PII
(b)(6) PII

Follow up at some later point.
Richard

Richard Danzig
(b) (6)

Washington DC 20008
(b) (6)
(b) (6)

\section*{Re: [EXTERNAL] Re: A quick question}
\begin{tabular}{ll} 
From: & "Lander, Eric S. EOP/OSTP" (b) (6) \\
To: & Ed Scolnick (b) (6) \\
Date: & Sun, 07 Feb 2021 14:49:28-0500 \\
Thanks, Eric &
\end{tabular}

From: Ed Scolnick (b) (6)
Date: Sunday, February 7, 2021 at 2:47 PM
To: "Lander, Eric S. EOP/OSTP" (b) (6)
Subject: Re: [EXTERNAL] Re: A quick question

USA.
Sent from my iPad

On Feb 7, 2021, at 2:45 PM, Lander, Eric S. EOP/OSTP(b) (6) wrote:
Thanks re citizenship. By where she's working, I meant to ask: Pfizer in US or Pfizer abroad?

From: Ed Scolnick < (b) (6)
Date: Sunday, February 7, 2021 at 2:44 PM
To: "Lander, Eric S. EOP/OSTP" (b) (6)
Subject: [EXTERNAL] Re: A quick question

Yes USA citizen. Pfizer. If you want phone numbers and email,I will ask ker if it is ok to give to you. I have all such information. Ed

Sent from my iPad

On Feb 7, 2021, at 2:05 PM, Lander, Eric S. EOP/OSTP(b) (6)
wrote:
Ed:

Do you know (or can you find out) whether (b)(6) PII is a US citizen (presumably dual) and where she's working now?

Thanks,
Eric

\section*{[EXTERNAL] Re: (b)(6) PII - MIT Alum Interest in OSTP}
\begin{tabular}{ll} 
From: & \((\mathrm{b})(6)\) PlI \\
To: & (b) (6) \\
Date: & "Lander, Eric S. EOP/OSTP" (b) (6) \\
Attachments: & (b)(6) PII -CV.pdf (249.74 kB); ATT00001.htm (12.26 kB)
\end{tabular}

Dear Professor Lander,
I hope you are doing well! This is (b)(6) PII - I interviewed you back in \(2018{ }^{\text {prof( })}\) (b)(6) PII
(b)(6) PII It was one of my favorite interviews (I still smile when I remember you talking about your dog Mochi!) and far and away our most popular video. I recently graduated (b)(6) PII while I wait to begin my Fulbright research fellowship in the Brazilian Amazon before starting my PhD. Unfortunately, my Fulbright has been delayed due to COVID-19.

As an undergrad I interned at OSTP (b)(6) PII
learned a great deal, and enjoyed contributing to the future of our nation's science policy. I am writing to apply to work at OSTP beginning this summer until I begin my Fulbright Fellowship, which tentatively will begin in Oct 2021. I would love the opportunity to contribute to OSTP under the new administration, and be a part of the exciting work that lies ahead.

I have attached my CV and can provide references (Prof. Markus Buehler and Chloé Kontos, former director of the NSTC) if needed.
Thank you very much for your consideration. I look forward to hearing back from you.
Respectfully,

\section*{(b)(6) PII}
\(\begin{array}{lll}\text { On Jan 20, 2021, at 9:27 PM, (b)(6) PII } & \text { (b) (6) }\end{array}\)
Dear Professor Lander,
I hope you are doing well! This is (b)(6) PII - I interviewed you back in 2018 . It was one of my favorite interviews (I still smile when I remember you talking about your dog Mochi!) and far and away our most popular video. I recently graduated (b)(6) PII while I wait to begin my Fulbright research fellowship in the Brazilian Amazon before starting my PhD. Unfortunately, my Fulbright has been delayed due to COVID-19.

As an undergrad I interned at \(\operatorname{OSTP}(\mathrm{b})(6) \mathrm{PII}\)
I learned a great deal, and enjoyed contributing to the future of our nation's science policy. I am writing to apply to work at OSTP beginning this summer until I begin my Fulbright Fellowship, which tentatively will begin in Sept/Oct 2021. I would love the opportunity to contribute to OSTP under the new administration, and be a part of the exciting work that lies ahead.

I have attached my CV and can provide references (Prof. Markus Buehler and Chloé Kontos, former director of the NSTC) if needed.

Thank you very much for your consideration. I look forward to hearing back from you.

Respectfully,


\section*{\((b)(6)\) \\ }


\section*{[EXTERNAL] Fwd: Pfizer's COVID-19 vaccine reduces viral load}
\begin{tabular}{ll} 
From: & Eric S Lander(b) (6) \\
To: & "Lander, Eric S. EOP/OSTP"(b) (6) \\
Date: & Thu, 11 Feb 2021 09:51:25-0500 \\
(b) (5) &
\end{tabular}

Sent from my iPhone

Begin forwarded message:

From: Eric S Lander (b) (6)
Date: February 11, 2021 at 9:38:10 AM EST
To: (b) (6)
eric=(b) (6)
Subject: Re: Pfizer's COVID-19 vaccine reduces viral load

Thank you for your message. I am currently on leave from the Broad Institute and am not regularly monitoring this email address.
- If you would like to correspond about topics related to my position in the White House or Office of Science and Technology Policy, please email me here: (b) (6) (I am unable to use my Broad Institute email account for such matters)
- If you wish to discuss matters related to the leadership or management of the Broad Institute of MIT and Harvard, you may reach someone in the office of Todd Golub, Director of the Broad Institute, here:(b) (6)

Thank you, Eric


Eric Lander
Founding Director, Broad Institute of MIT and Harvard (on leave)
415 Main Street
Cambridge MA 02142
(b) (6)

\section*{Re: [EXTERNAL] NYT -Wbat My Parents Taught Me}

From: \(\quad\) Eric \(S\) Lander \(<(b)(6)\)
To: "Lander, Eric S. EOP/OSTP" (b) (6)
Date: Thu, 25 Feb 2021 17:21:33-0500

Thank you for your message. I am currently on leave from the Broad Institute and am not regularly monitoring this email address.
- If you would like to correspond about topics related to my position in the White House or Office of Science and Technology Policy, please email me here: (b) (6)
(I am unable to use my Broad Institute email account for such matters)
- If you wish to discuss matters related to the leadership or management of the Broad Institute of MIT and Harvard, you may reach someone in the office of Todd Golub, Director of the Broad Institute, here: (b) (6)

Thank you,
Eric


Eric Lander
Founding Director, Broad Institute of MIT and Harvard (on leave)
415 Main Street
Cambridge MA 02142
(b) (6)
(b) \((6)\)

\section*{OSTP orientation!}

From: "Matheny, Jason G. EOP/OSTP" (b) (6) >
To: \(\quad(b)(6)\) Kalil, Thomas Email
Cc: "Schmoyer, Michael W. EOP/OSTP" (b) (6)
Date: \(\quad\) Sun, 18 Apr 2021 10:23:05-0400

Tom,
You and "Getting Things Done in OSTP" have a huge fan club here. Would you be willing to do a 1 hr Zoom with OSTP staff to talk about how they can succeed here?
Best wishes,
Jason

\section*{Re: [EXTERNAL] Re: OSTP orientation!}
From: "Schmoyer, Michael W. EOP/OSTP" (b) (6)
To: \(\quad\) Thomas Kalil (b) (6)
Cc: \(\quad\) Nairoby Russell (b) (6)
Date: Wed, 21 Apr 2021 17:59:21-0400
Wonderful! I will soon send a zoom appt; also will get together w peers and come up with a few
'scenario practicals' for you to choose from.
Sound good?
Sent from my iPhone
Michael W. Schmoyer, PhD
Assistant Director for Health Security Threats
Executive Office of the President
Office of Science and Technology Policy (OSTP)
EEOB, Room(b) (6)
1650 Pennsylvania Ave, NW
Washington, DC 20502
(O) (b) (6)
(C) (b) (6)
(JWICS) (b) (6)

On Apr 21, 2021, at 4:26 PM, Thomas Kalil (b) (6) wrote:

Sounds like a plan - thanks for your help!

Tom

On Wed, Apr 21, 2021 at 12:57 PM Schmoyer, Michael W. EOP/OSTP
(b) (6) \(>\) wrote:

Alright! So, what about 20 min presentation... 10 min practical exercise...with \(10 \mathrm{~min} \mathrm{q} / \mathrm{a}\) ? We can end at 45 min or stay on the full hour if your spirit is with it?

I'm very excited about the Zoom!

Sent from my iPhone
Michael W. Schmoyer, PhD
Assistant Director for Health Security Threats

Executive Office of the President
Office of Science and Technology Policy (OSTP)
EEOB, Room \({ }^{(b)}{ }^{(6)}\)
1650 Pennsylvania Ave, NW
Washington, DC 20502
(O) (b) (6)
(C) (b) (6)
(JWICS)(b) (6)

On Apr 21, 2021, at 12:59 PM, Thomas Kalil(b) (6) > wrote:

Perfect! I could be available for the entire hour - just tell me how much time you'd like.
Tom

On Wed, Apr 21, 2021 at 9:54 AM Schmoyer, Michael W. EOP/OSTP
(b) (6) > wrote:

Great! How about the block for 30 APR from 12-1 EST? what would be a good length of time for you? That has about 95\% of Jason's staff available.

Best,
Michael

From: Thomas Kalil(b) (6)
Sent: Wednesday, April 21, 2021 12:43 PM
To: Schmoyer, Michael W. EOP/OSTP (b) (6)
Cc: Nairoby Russell (b) (6)
Subject: Re: [EXTERNAL] Re: OSTP orientation!

Hi Michael - delighted to work with you to set something up and glad you liked the video!

I could do

3 pm ET or later on Wednesday, April 28th

10 am - 1:30 pm ET on Friday, April 30th

Anything in those windows work for you?

On Wed, Apr 21, 2021 at 8:49 AM Schmoyer, Michael W. EOP/OSTP
(b) (6) wrote:

Good morning Tom-
(moving Jason to the Bcc line)

This is very exciting! I'm happy to work with you to schedule a Zoom appointment for our team. I love the idea of 20 questions ... let's chat about how to best build that into the Zoom meeting.

It was great to watch your video ... you had me at 'Bandura.' Coincidentally, he autographed my dissertation (which was driven by Social Learning Theory) prior to my defense. Was kind of a fun thing to surprise my committee with - )

Best,

Michael

Michael W. Schmoyer, PhD
Assistant Director for Health Security Threats

Office of Science and Technology Policy (OSTP)
Executive Office of the President

The White House

https://www.whitehouse.gov/ostp/
<image001.png>

NOTE: The body of this email or attached documents may contain sensitive information relating to the Committee on Foreign Investment in the U.S (CFIUS). This email and its attachments may be exempt from public disclosure under the Freedom of Information Act, 5 U.S.C. 552(b). Public disclosure of this information is further prohibited by section 721(c) of the Defense Production Act, 50 U.S.C. app. 2170(c). Criminal penalties may apply.

From: Thomas Kalil(b) (6)
Sent: Sunday, April 18, 2021 10:57 AM
To: Matheny, Jason G. EOP/OSTP (b) (6)
Cc: Schmoyer, Michael W. EOP/OSTP (b) (6)
Subject: [EXTERNAL] Re: OSTP orientation!

Absolutely - I'd be delighted to! Also - let me know if you'd ever be interested in catching up in general.

I also did a 10-minute video that is relevant >>>>https://www.youtube.com/watch?v=MJkhH83Bw4A<<<<<, and memos on "magic laptop" thought experiment, designing multi-agency research initiatives, policy entrepreneurship, and increasing the maturity of a policy idea.

One thing that might be useful is to have me play "20 questions" with an OSTP staffer to see if I can help them refine their idea - e.g. what do they believe that is motivating their idea, what would constitute success, what are the most relevant policy tools, what challenges and obstacles might they have to overcome, what might they consider doing next, etc?

Tom

On Sun, Apr 18, 2021 at 7:23 AM Matheny, Jason G. EOP/OSTP
(b) (6) \(\quad>\) wrote:

Tom,

You and "Getting Things Done in OSTP" have a huge fan club here. Would you be willing to do a 1 hr Zoom with OSTP staff to talk about how they can succeed here?

Best wishes,

Jason

\section*{Re: [EXTERNAL] Blogpost}

From: Justine Levin-Allerhand (b) (6)
To: \(\quad\) "Lander, Eric S. EOP/OSTP'(b) (6)
Cc: Jesse Souweine (b) (6)
Date: \(\quad\) Mon, 31 May 2021 11:46:14-0400

Eric,

Perfect! I will direct folks to the blog on the OSTP website once it is posted. Also, I hope it is picked up in the media!

Best,
Justine

On May 31, 2021, at 10:41 AM, Lander, Eric S. EOP/OSTP (b) (6)
wrote:

Dear Justine
So glad it was meaningful to you!
The plan is to post on the blog on the OSTP website on WhiteHouse.gov (which I hope will exist by Wed), so that it can be readily shared. I'm hoping it will be of interest to many people.
We're also planning to share with a reporter from AP who writes about religion.
With warmest wishes
Eric

Sent from my iPhone

On May 31, 2021, at 10:32 AM, Justine Levin-Allerhand < (b) (6) > wrote:

Dear Eric,

This is meaningful on so many levels and such an amazing research story! Thank you for sharing. I look forward to seeing photos of one of the original printing press versions of Pirkei Avot under your hand as you take the next step on your journey for tikun olam.
Warm regards,
Justine
p.s. the subject of the email is "blogpost". Do you know where you intend on posting this essay? I know a number of people would really enjoy reading your piece.

On May 31, 2021, at 6:16 AM, Lander, Eric S. EOP/OSTP
(b) (6) wrote:

Dear Justine and Jesse:

First, thank you both so much for all your help and support in getting through Senate confirmation! It meant so much to me.

The current plan is for the Vice-President to administer my oath of office on Wednesday. When the VP's office asked what book I wanted to use for the ceremony, the question triggered an evening of family discussion followed by a research expedition on my part.

I wrote a short essay on my choice of book, which I thought would be meaningful to both of you.

It would be great to see you each when I am back in Cambridge on weekends.

With warmest wishes,
Eric
<Blogpost re Book for Swearing In v7.docx>

Justine Levin-Allerhand, Ph.D.
EVP, Development, Business and External Relations
Broad Institute of MIT and Harvard
75 Ames Street, Room 6023
Cambridge, MA 02142
E(b) (6)
\(P(b)(6)\)
giving.broadinstitute.org

Justine Levin-Allerhand, Ph.D.
EVP, Development, Business and External Relations
Broad Institute of MIT and Harvard
75 Ames Street, Room 6023
Cambridge, MA 02142
E(b) (6)
P(b) (6)
giving.broadinstitute.org

\section*{Re: [EXTERNAL] Re: Invitation from President Martin}
\begin{tabular}{ll} 
From: & Sira Dooley Fairchild (b) (6) \\
To: & "Lo, Kevin C. EOP/OSTP" (b) (6) \\
Date: & Wed, 09 Jun 2021 13:21:02-0400 \\
Attachments: & Eric Lander HD 2021 Invitation.pdf (197.7 kB) \\
& \\
I'm sorry about that! Let me know if it comes through this time.
\end{tabular}

On Wed, Jun 9, 2021 at 1:20 PM Lo, Kevin C. EOP/OSTP(b) (6) wrote:
Lost the attachment in transit! Can you resend?

Thank you!

Kevin Lo (he/him)
Special Assistant
Office of Science and Technology Policy
Executive Office of the President
(b) (6)

Cell (b) (6)

From: Sira Dooley Fairchild (b) (6)
Sent: Wednesday, June 9, 2021 6:51 AM
To: Lo, Kevin C. EOP/OSTP (b) (6)
Subject: [EXTERNAL] Re: Invitation from President Martin

Hi Kevin,

Forwarding the Amherst College honorary doctorate letter!

Best,

Sira
---------- Forwarded message ---------
From: President's Office (b) (6)
Date: Tue, Jan 19, 2021 at 5:19 PM
Subject: Invitation from President Martin
To: (b)(6) Eric Lander (Broad Institute)>
Cc: Bett Schumacher (b) (6)

Dear Dr. Lander,

Please find attached an invitation from Biddy Martin, President of Amherst College.

Warmly,

Molly Whalen

\section*{Molly Whalen}

Executive Assistant to the President for Communications and Special Projects
Amherst College | 100 Converse Hall | Amherst, MA 01002
(b) (6) \(\quad\) direct) \(\quad \mid \quad\) (b) (6)

\section*{(b) (6)}
pronouns: she, her, hers

Sira Dooley Fairchild
Pronouns: she/her/hers

Sira Dooley Fairchild
Pronouns: she/her/hers
\(x-1\)

January 19, 2021
Eric Lander
Founding Director, Broad Institute of MIT and Harvard
The Broad Institute
415 Main Street
Cambridge, MA 02142
Dear Eric,
On the enthusiastic recommendation of our Board of Trustees and on behalf of our faculty, students, and staff, I write to invite you to receive an honorary degree from Amherst College.

With this honor, we wish to celebrate your multitude of accomplishments as a scientist, teacher, and public servant. Your path-blazing contributions to genomics, including your work on the Human Genome Project and your development of a molecular taxonomy of cancer, have changed and continue to change the face of what is possible in medical and scientific research. With a goal no less lofty than exploring all aspects of the human genome and its applications in medicine, your research is literally reconceiving the disciplines within which you work. As a professor and mentor, your extraordinary ability to render complex things comprehensible has inspired a new generation of scientists to pursue their curiosity intrepidly. As an advisor on science and technology to President Obama and now as President-elect Biden's nominee to lead the Office of Science and Technology Policy, your vision has guided, and will continue to guide, policy for our nation. The work of the Broad Institute, which you co-founded and continue to direct, has single-handedly made in-person higher education possible at institutions in the Commonwealth and the wider northeast during the pandemic. The arc and commitment of your career will make your appearance on campus memorable for the members of the class of 2021 and our entire college community.

We do not yet have a confirmed date for Commencement 2021 and we realize it is possible that we will not be able to gather in person this spring or summer. If we are unable to gather in person this year, we would like to honor you the following year, in May 2022. The date may be uncertain but our admiration and respect for you is not! Traditionally, on the day before Commencement each honorand gives a talk on a topic of their choosing to graduating seniors and families and that evening the Board of Trustees and I welcome honorary degree recipients to

Eric Lander
January 19, 2021
Page 2
a reception and dinner. We look forward to being able to confirm all the details, including the date of the ceremony and the title and description of your talk before too long.

Because we do not disclose the identity of our honorands until shortly before Commencement Weekend, I ask that you please keep this invitation confidential. I look forward to hearing from you and hope you will honor Amherst with your acceptance.

With warm regards,


Biddy Martin

\section*{RE: [EXTERNAL] Re: Invitation from President Martin}
\begin{tabular}{ll} 
From: & "Lo, Kevin C. EOP/OSTP"(b) (6) \\
To: & Sira Dooley Fairchild (b) (6) \\
Date: & Wed, 09 Jun 2021 13:25:38-0400
\end{tabular}

Got it. Thanks!

Kevin Lo (he/him)
Special Assistant
Office of Science and Technology Policy
Executive Office of the President
(b) (6)

Cell.(b) (6)

From: Sira Dooley Fairchild(b) (6)
Sent: Wednesday, June 9, 2021 1:21 PM
To: Lo, Kevin C. EOP/OSTP(b) (6)
Subject: Re: [EXTERNAL] Re: Invitation from President Martin

I'm sorry about that! Let me know if it comes through this time.
```

On Wed, Jun 9, 2021 at 1:20 PM Lo, Kevin C. EOP/OSTP(b) (6) wrote:
Lost the attachment in transit! Can you resend?
Thank you!
Kevin Lo (he/him)
Special Assistant
Office of Science and Technology Policy
Executive Office of the President
(b) (6)
Cell (b) (6)
From: Sira Dooley Fairchild (b) (6)
Sent: Wednesday, June 9, 2021 6:51 AM
To: Lo, Kevin C. EOP/OSTP(b) (6)
Subject: [EXTERNAL] Re: Invitation from President Martin

```

Hi Kevin,

Forwarding the Amherst College honorary doctorate letter!

Best,
Sira
----------- Forwarded message ---------
From: President's Office(b) (6) >
Date: Tue, Jan 19, 2021 at 5:19 PM
Subject: Invitation from President Martin
To: (b)(6) Eric Lander (Broad Institute)
Cc: Bett Schumacher (b) (6)

Dear Dr. Lander,

Please find attached an invitation from Biddy Martin, President of Amherst College.

Warmly,

Molly Whalen

Molly Whalen
Executive Assistant to the President for Communications and Special Projects Amherst College | 100 Converse Hall | Amherst, MA 01002
\(\begin{array}{llll}(\mathrm{b})(6) & \text { (direct) } & \text { (b) (6) }\end{array}\)
(b) (6)
pronouns: she, her, hers

Sira Dooley Fairchild
Pronouns: she/her/hers

Sira Dooley Fairchild
Pronouns: she/her/hers
\(\rightarrow-1\)

\title{
[WARNING: UNSCANNABLE EXTRACTION \\ FAILED][EXTERNAL] Fwd: A message from British Airways about your flight BA 112 to London Heathrow
}

\author{
From: \(\quad\) Sira Dooley Fairchild (b) (6) \\ To: \(\quad\) "Lo, Kevin C. EOP/OSTP" (b) (6) \\ Date: Tue, 06 Jul 2021 11:57:36-0400
}
---------- Forwarded message ---------
From: British Airways <customerservices@messages.ba.com>
Date: Mon, Jul 5, 2021 at 3:49 AM
Subject: A message from British Airways about your flight BA 112 to London Heathrow
To: (b)(6) Lander, Eric (Broad Inst)


\section*{A message from British Airways about your flight to London Heathrow}

\section*{Booking Reference: (b) (6)}

\author{
Dear Customer
}

\section*{Action required before you fly to the UK}

Please be aware that you must meet the UK Government requirements to be able to travel. If you're travelling with others, you must ensure everyone is aware of these requirements.

\section*{Essential information to enter England from overseas}

Everyone entering England from overseas (including UK nationals and residents) must provide proof of a negative COVID-19 test taken within 3 days of departure to England. The test must meet the rules and standards outlined by the UK Government.

Fill in your Passenger Locator Form up to 48 hours before arrival. You must declare all countries you have visited or transited through in the 10 days prior to your arrival on your Passenger Locator Form.

Before departure check the list of red, amber, and green countries, as the list can change regularly.

\section*{Red list passengers}

Book a managed quarantine package

\section*{Complete a passenger locator form}

You can only enter if you are a British or Irish National, or you have residence rights in the UK. You must enter through a designated port and quarantine in a government approved hotel for 10 days.

\section*{Amber list passengers}

\section*{Book tests for day 2 and 8}

\section*{Complete a passenger locator form}

Make plans to self-quarantine in private accommodation for 10 full days after arrival (or full duration of stay if less than 10 days)

\section*{Green list passengers}

\section*{Book a test for day 2}

\section*{Complete a passenger locator form}

These measures apply to all persons (including UK nationals and residents) arriving in England from outside the common travel area comprising the United Kingdom, Ireland, the Isle of Man, and the Channel Islands. The British Overseas Territories are not in the common travel area. Public health requirements may vary depending on whether you are staying in England, Northern Ireland, Scotland or Wales

Failure to comply with these measures is a criminal offence and you could be fined. There are a limited set of exemptions from these measures. Check the list of exemptions carefully. You may be fined if you fraudulently claim an exemption.

\section*{During your journey}

You'll need to always wear a face mask, in the airport and on board, unless you qualify for the government exemption list. US Federal law also requires children aged 2 years and above to wear masks. Please be aware that you can't wear a face shield instead of a mask.

\section*{Other important information}
- To complete the Passenger Locator Form, you need your booking reference for your testing and quarantine arrangements. You'll also need to add your
flight number.
- If you're making a flight connection, you'll still need to ensure you follow the rules for transferring. Find out more here.
- If you're unable to travel, please don't come to the airport. Our Booking with Confidence commitment means you can change your booking for free through Manage My Booking or cancel for a voucher. For holiday bookings, date changes or voucher requests must be made at least 3 weeks before travel. You can also contact us.
- You can find the latest information on ba.com/COVID-19.

Thank you for your understanding. We look forward to welcoming you on board.

British Airways


Sira Dooley Fairchild
Pronouns: she/herhers
\(x=1\)

\section*{[EXTERNAL] A fishery issue of Mexico/US and scientific information}
\begin{tabular}{ll} 
From: & Joel Sohn \(\langle(\mathrm{b})(6)\) \\
To: & "Lander, Eric S. EOP/OSTP" (b) (6) \\
Cc: & Joel Sohn \((\mathrm{b})(6)\) \\
Date: & Tue, 27 Jul 2021 13:37:37-0400 \\
& \\
Dear Eric, &
\end{tabular}

I am quite aware of how busy you must be. Strangely our paths cross at Rock U., on quantitative genetics of height, sexual maturation genetics, etc. and Wally's lab.

By accident of life I came across (I had been making collections of the market squid for a project with Dan Hartl) a rather depressing situation in Sonora, MX concerning its fishery, particularly the artisanal fishery It involves as usual conservation, harvest, scientific information wrongly interpreted, American/Mexican politics, etc.

I have been a commercial fisherman for most of my life as well as a member of the Biolabs in different capacities and recognize and try to balance the rival greeds of conservation and harvest.

In your office is there anyone who can discuss this with me. We can do a great deal of good for both countries

Sincerely yours,

Joel Sohn,
OEB
Biolabs
(b) (6)

\section*{RE: [EXTERNAL] Re: Meeting}
```

To: Jordan Blashek(b) (6) ,Gilman Louie (b) (6)
Cc: Patty Wong(b) (6) , Gilman Louie (b) (6)

```

Date: Tue, 27 Jul 2021 12:44:13-0400

Thanks, Gilman and Jordan. Wednesday August 4 from 10am-11am is the only time all week that works for both Tarun and Jason. So the good news is we're a go for

From: Jordan Blashek (b) (6)
Sent: Monday, July 26, 2021 9:49 PM
To: Gilman Louie (b) (6)
Cc: McGuire, Chris R. EOP/OSTP (b) (6) Patty Wong
(b) (6) Gilman Louie (b) (6)

Subject: Re: [EXTERNAL] Re: Meeting

Hi Everyone

I could make August 3rd work. If the fourth ends up being better, please go ahead without me.

All the best,
Jordan

On Mon, Jul 26, 2021 at 8:38 PM Gilman Louie (b) (6) > wrote:

Chris,

I can make either of those dates/times work. Just let us know what works for you.

Gilman

Sent from my iPhone

On Jul 26, 2021, at 8:19 PM, McGuire, Chris R. EOP/OSTP
(b) (6) > wrote:

Gilman/Patty, and Jordan,

Circling back with you given some shifting calendars on our end. Can you let me know your availability on both Tuesday August 3 from 11am to noon, and Wednesday August 4 from 10am-11am? Those look like the only times Jason and Tarun are both free that week unfortunately Tarun will now be traveling on August 5-6 so that constrains us some. If those times don't work we can stick with the original time of August 5 from 4pm-5pm with just Jason, who is excited to meet and discuss.

Thanks much for your help!

Best,

Chris

Chris McGuire
Senior Advisor for International Security
Office of Science and Technology Policy
Executive Office of the President

\section*{(b) (6)}
(b) (6)

From: Gilman Louie (b) (6)
Sent: Friday, July 23, 2021 4:41 PM
To: McGuire, Chris R. EOP/OSTP (b) (6)
Jordan Blashek
(b) (6)

Cc: Patty Wong (b) (6) >; Gilman Louie (b) (6)
Subject: Re: [EXTERNAL] Re: Meeting

Thanks Jordan and Chris. I'm looking forward to discussing this further.

Gilman

From: Chris McGuire \(<\) (b) (6)
Date: Friday, July 23, 2021 at 3:48 PM
To: Jordan Blashek (b) (6)
Cc: Patty Wong \(\langle\) (b) \((6) \quad\) Gilman Louie (b) (6) , Gilman
Louie (b) (6)
Subject: Re: [EXTERNAL] Re: Meeting

Thanks a lot, Jordan. This is very helpful. Will forward to others here and circle back with confirmation on the time and date soon. Greatly looking forward to speaking as well.

Best,

Chris

Sent from my iPhone

On Jul 23, 2021, at 3:16 PM, Jordan Blashek (b) (6) > wrote:

Chris,

Attached is a brief on the initiative. We're looking forward to discussing live with you in a few weeks at the EEOB. In the meantime, happy to provide any additional information you need.

Have a great weekend.

All the best,
Jordan

On Wed, Jul 21, 2021 at 12:03 PM Gilman Louie (b) (6)
wrote:
Great. Will do.

\section*{Gilman}

Sent from my iPhone

On Jul 21, 2021, at 8:30 AM, McGuire, Chris R. EOP/OSTP
(b) (6) wrote:

Great, thanks so much Jordan and Patty. This is really helpful. Let's hold Thursday, August 5 from 4-5pm for now, if that works for you two. I'll circle back with folks here and propose this time, and try to nail something down shortly.

I'll be in touch soon. Thanks again for your help!

Best,

Chris

From: Jordan Blashek (b) (6)
Sent: Wednesday, July 21, 2021 8:20 AM
To: Patty Wong (b) (6)
Cc: McGuire, Chris R. EOP/OSTP (b) (6)
Gilman Louie (b) (6) >
Subject: [EXTERNAL] Re: Meeting

Hi Chris,

It's nice to meet you and I'm looking forward to having a conversation in person!

I can be available and in DC on both Thursday and Friday during the times that Patty suggested.

All the best,
Jordan
wrote:

Hi Chris - Gilman can be available for the following:

Wednesday, Aug 4, open to schedule the morning up to 12pm ET
Thursday, Aug 5, open to schedule 3-5pm ET
Friday, Aug 6, open to schedule the morning up to 11am ET

Best,
Patty

Patty Wong
Alsop Louie Partners
(b) \((6)\)
o) \((b)(6) \quad\) (new number)
c) \((b)(6)\)

From: McGuire, Chris R. EOP/OSTP (b) (6)
Sent: Tuesday, July 20, 2021 2:59 PM
To: Gilman Louie (b) (6)
Cc: Jordan Blashek (b) (6) > Patty Wong
(b) \((6)\) (b) (6)

Subject: RE: Meeting

Gilman,

Perfect, that works well. Happy to include Jordan. Thanks so much for checking with Chris too. Appreciate you pulling those notes together, that will be really helpful.

Patty and Jordan - if you could tell me what your availability looks like the week of August 2-6 that would be great. Right now August 5 and 6 in particular look relatively open. I'll then check with our folks to try to pin down a time when everyone is available. Gilman and I had previously discussed having the meeting in person, if that works for you all.

Best,

Chris
---
Chris McGuire
Senior Advisor for International Security
Office of Science and Technology Policy
Executive Office of the President

\section*{(b) (6)}
(b) (6)

\section*{From: Gilman Louie (b) (6)}

Sent: Tuesday, July 20, 2021 4:58 PM
To: McGuire, Chris R. EOP/OSTP (b) (6)
Cc: Jordan Blashek (b) (6) ; Patty Wong
(b) (6)

Subject: [EXTERNAL] Re: Meeting

Chris,

Great! Patty can set up a good time on my end. I will check to see Chris's interest in doing this as well. I would like to include Jordan Balshek from Schmidt Futures who is working on this initiative. I'm cc: him on this thread. We can get you some draft notes by the end of the week.

Gilman

From: Chris McGuire (b) (6)
Date: Tuesday, July 20, 2021 at 10:53 AM

\section*{To: Gilman Louie (b) (6)}

Subject: Meeting

Hi Gilman,

I chatted with Jason yesterday and he's definitely interested in talking with you about the initiative that we discussed on Friday. I know we had talked about targeting the first week of August (Aug 2-6) for a meeting here at EEOB, and ideally we can arrange something with you, Jason, Tarun, and hopefully Laura Rosenberger. It would be great to have Chris \(D\) join as well if he is available and interested - if there are any other key people on your end let me know.

When you have a chance, tell me what your schedule looks like that week and I can see what works for all three of those folks on my end. If Chris wants to come too let me know and we'll be sure to find a time that works for him as well. Also, if you have any written products that you could share in advance of the meeting which outline your vision for the initiative, where it currently stands, how we could help, and any other key info, that would definitely be useful.

Looking forward to talking more!

Best,

Chris

Chris McGuire
Senior Advisor for International Security
Office of Science and Technology Policy
Executive Office of the President

\section*{(b) (6)}
(b) (6)

\section*{RE: [EXTERNAL] Re: Meeting}

\section*{To: Jordan Blashek (b) (6)}

Date: \(\quad\) Thu, 29 Jul 2021 14:36:36-0400

Jordan,

Understood - really sorry this landed on the third. I had a long talk with Gilman about it the other week,

From: Jordan Blashek (b) (6)
Sent: Thursday, July 29, 2021 2:28 PM
To: McGuire, Chris R. EOP/OSTP(b) (6)
Subject: Re: [EXTERNAL] Re: Meeting

Hi Chris,

Thanks so much. I'll fill the form out now.

Unfortunately, I don't think I'll be able to make it as I'll be with Eric Schmidt that day discussing the concept with him as well. If our plans change, then l'll certainly make every effort to join the meeting. I believe very deeply in this effort, so l'm eager to hear your feedback.

All the best, Jordan

On Thu, Jul 29, 2021 at 11:00 AM McGuire, Chris R. EOP/OSTP
(b) (6) > wrote:

Hi Jordan - Just in case your schedule changes, here is the WAVES link for the meeting next week. If you think there's a chance you might be able to make it, feel free to put in your info now just so you're in the system. Of course, if you can't make it, no worries at all.
https://events.whitehouse.gov/(b) (6)
Thanks again for helping make this happen!

Best,

Chris
.
Chris McGuire
Senior Advisor for International Security
Office of Science and Technology Policy
Executive Office of the President

\section*{(b) (6)}
(b) (6)

From: Gilman Louie (b) (6)
Sent: Tuesday, July 27, 2021 1:30 PM
To: McGuire, Chris R. EOP/OSTP (b) (6) >; Jordan Blashek
(b) \((6)\)

Cc: Patty Wong(b) (6)
>; Gilman Louie (b) (6)
Subject: Re: [EXTERNAL] Re: Meeting

Chris,

Fantastic. I'll work with Jordan to make sure that I capture his thoughts in our meeting.

Thanks,

Gilman

From: Chris McGuire (b) (6)
Date: Tuesday, July 27, 2021 at 12:55 PM
To: Jordan Blashek(b) (6) Gilman Louie (b) (6)
Cc: Patty Wong (b) (6)
Gilman Louie(b) (6)
Subject: RE: [EXTERNAL] Re: Meeting

Thanks, Gilman and Jordan. Wednesday August 4 from 10am-11am is the only time all week that works for both Tarun and Jason. So the good news is we're a go for that time, and I'll send around an invite and WAVES info shortly.

Apologies Jordan - we'll plan to go forward with that time, and if you can shift things around and attend just let me know. I thought that having in an person conversation would be best (particularly if you're cleared, Jordan), but if we don't care if the conversation is in a secure space I can look into organizing a call-in option for you.

Best,

Chris

From: Jordan Blashek (b) (6)
Sent: Monday, July 26, 2021 9:49 PM
To: Gilman Louie (b) (6)
Cc: McGuire, Chris R. EOP/OSTP (b) (6) Patty Wong
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Thanks much for your help!

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Chris
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Senior Advisor for International Security
Office of Science and Technology Policy
Executive Office of the President

\section*{(b) (6)}


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Sent: Friday, July 23, 2021 4:41 PM
To: McGuire, Chris R. EOP/OSTP (b) (6) ; Jordan
Blashek (b) (6)
Cc: Patty Wong (b) (6) >; Gilman Louie (b) (6)
Subject: Re: [EXTERNAL] Re: Meeting

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Gilman

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\section*{Gilman Louie(b) (6)}

Subject: [EXTERNAL] Re: Meeting

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Jordan

On Tue, Jul 20, 2021 at 6:04 PM Patty Wong (b) (6)
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Patty

Patty Wong
Alsop Louie Partners
(b) (6)
o) (b) (6) (new number)
c) (b) (6)

From: McGuire, Chris R. EOP/OSTP
(b) (6) >

Sent: Tuesday, July 20, 2021 2:59 PM
To: Gilman Louie(b) (6) >
Cc: Jordan Blashek (b) (6) Patty Wong
(b) (6)

Subject: RE: Meeting

Gilman,

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\(\qquad\)
Chris McGuire
Senior Advisor for International Security
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Executive Office of the President

\section*{(b) (6)}
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Sent: Tuesday, July 20, 2021 4:58 PM
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Subject: [EXTERNAL] Re: Meeting

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Gilman

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Date: Tuesday, July 20, 2021 at 10:53 AM

\section*{To: Gilman Louie(b) (6)}

Subject: Meeting

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Looking forward to talking more!

Best,

Chris
---
Chris McGuire
Senior Advisor for International Security
Office of Science and Technology Policy
Executive Office of the President

\section*{(b) (6)}
(b) \((6)\)

\section*{Re: [EXTERNAL] Re: Meeting}

From: Jordan Blashek (b) (6)
To: \(\quad\) "McGuire, Chris R. EOP/OSTP" (b) (6)
Date: Wed, 04 Aug 2021 16:42:36-0400

Likewise! Talk soon.

On Wed, Aug 4, 2021 at 4:42 PM McGuire, Chris R. EOP/OSTP
(b) (6) > wrote:

Jordan - Apologies, I had forgotten to add you to the event. Just sent it to you. Look forward to chatting tomorrow!

Chris

From: Jordan Blashek < (b) (6)
Sent: Wednesday, August 4, 2021 3:31 PM
To: McGuire, Chris R. EOP/OSTP < (b) (6)
Subject: Re: [EXTERNAL] Re: Meeting

Chris,

I heard the meeting went well today. I'm looking forward to connecting to hear more.

I'm not sure I got the calendar invite though. Would you mind sending it again?

Jordan

On Mon, Aug 2, 2021 at 08:39 McGuire, Chris R. EOP/OSTP
(b) (6) wrote:

Great! Just sent you a calendar invite. Talk soon.

From: Jordan Blashek (b) (6)
Sent: Friday, July 30, 2021 12:02 PM
To: McGuire, Chris R. EOP/OSTP (b) (6)
Subject: Re: [EXTERNAL] Re: Meeting

That works great for me! Let's do a call. I'm looking forward to it.

On Thu, Jul 29, 2021 at 2:54 PM McGuire, Chris R. EOP/OSTP
(b) (6)
> wrote:

\title{
Next Thursday works well on my end. How is 11:30? We could do a Zoom, or I'm at (b) (6) - either is fine with me. Let me know and l'll send a calendar invite.
}

Chris

From: Jordan Blashek (b) (6)
Sent: Thursday, July 29, 2021 2:51 PM
To: McGuire, Chris R. EOP/OSTP(b) (6)
Subject: Re: [EXTERNAL] Re: Meeting

Chris, that would be excellent. Let me know if you have some time next Thursday. I'm free most of the day, so can make anything work that's convenient for you.

On Thu, Jul 29, 2021 at 2:41 PM McGuire, Chris R. EOP/OSTP
(b) (6) wrote:

Jordan,

Very much understand - really sorry this landed on Aug 4, it was just difficult to coordinate schedules. I had a long talk with Gilman about the initiative the other week and I share your enthusiasm. I'm glad you all are pushing this, and am looking forward to discussing further.

I hope your meeting with Eric goes well. If it would be helpful to schedule a call late next week so the two of us can touch base and swap notes, I would be happy to. Just let me know.

Best,

Chris
---

Chris McGuire

Senior Advisor for International Security
Office of Science and Technology Policy

Executive Office of the President

\section*{(b) (6)}
(b) (6)

From: Jordan Blashek (b) (6)
Sent: Thursday, July 29, 2021 2:28 PM
To: McGuire, Chris R. EOP/OSTP (b) (6)
Subject: Re: [EXTERNAL] Re: Meeting

Hi Chris

Thanks so much. I'll fill the form out now.

Unfortunately, I don't think I'II be able to make it as I'll be with Eric Schmidt that day discussing the concept with him as well. If our plans change, then I'll certainly make every effort to join the meeting. I believe very deeply in this effort, so I'm eager to hear your feedback.

All the best, Jordan

On Thu, Jul 29, 2021 at 11:00 AM McGuire, Chris R. EOP/OSTP (b) (6) > wrote:

Hi Jordan - Just in case your schedule changes, here is the WAVES link for the meeting next week. If you think there's a chance you might be able to make it, feel free to put in your info now just so you're in the system. Of course, if you can't make it, no worries at all.
https://events.whitehouse.gov/(b) (6)

Thanks again for helping make this happen!

Best,

Chris

Chris McGuire
Senior Advisor for International Security
Office of Science and Technology Policy
Executive Office of the President
(b) (6)

From: Gilman Louie (b) (6)
Sent: Tuesday, July 27, 2021 1:30 PM
To: McGuire, Chris R. EOP/OSTP (b) (6) ; Jordan
Blashek (b) (6)
Cc: Patty Wong(b) (6) Gilman Louie (b) (6)
Subject: Re: [EXTERNAL] Re: Meeting

Chris,

Fantastic. I'll work with Jordan to make sure that I capture his thoughts in our meeting.

Thanks,

Gilman

\section*{From: Chris McGuire (b) (6)}

Date: Tuesday, July 27, 2021 at 12:55 PM
To: Jordan Blashek < (b) (6) , Gilman Louie (b) (6)

Cc: Patty Wong (b) (6)
Gilman Louie (b) (6)
Subject: RE: [EXTERNAL] Re: Meeting

Thanks, Gilman and Jordan. Wednesday August 4 from 10am-11am is the only time all week that works for both Tarun and Jason. So the good news is we're a go for that time, and I'll send around an invite and WAVES info shortly.

Apologies Jordan - we'll plan to go forward with that time, and if you can shift things around and attend just let me know. I thought that having in an person conversation would be best (particularly if you're cleared, Jordan), but if we don't care if the conversation is in a secure space I can look into organizing a call-in option for you.

Best,

Chris

From: Jordan Blashek (b) (6)
Sent: Monday, July 26, 2021 9:49 PM
To: Gilman Louie (b) (6)
Cc: McGuire, Chris R. EOP/OSTP (b) (6) ; Patty Wong
(b) (6) >; Gilman Louie (b) (6)

Subject: Re: [EXTERNAL] Re: Meeting

Hi Everyone,

I could make August 3rd work. If the fourth ends up being better, please go ahead without me.

All the best,

Jordan

On Mon, Jul 26, 2021 at 8:38 PM Gilman Louie (b) (6)

Chris,

I can make either of those dates/times work. Just let us know what works for you.

Gilman

Sent from my iPhone

On Jul 26, 2021, at 8:19 PM, McGuire. Chris R. EOP/OSTP
(b) (6) wrote:

Gilman/Patty, and Jordan,

Circling back with you given some shifting calendars on our end. Can you let me know your availability on both Tuesday August 3 from 11am to noon, and Wednesday August 4 from 10am-11am? Those look like the only times Jason and Tarun are both free that week - unfortunately Tarun will now be traveling on August 5-6 so that constrains us some. If those times don't work we can stick
with the original time of August 5 from \(4 \mathrm{pm}-5 \mathrm{pm}\) with just Jason, who is excited to meet and discuss.

Thanks much for your help!

Best,

Chris
---

Chris McGuire

Senior Advisor for International Security

Office of Science and Technology Policy

Executive Office of the President
(b) (6)

From: Gilman Louie (b) (6)
Sent: Friday, July 23, 2021 4:41 PM
To: McGuire, Chris R. EOP/OSTP (b) (6)
Jordan Blashek (b) (6)
Cc: Patty Wong (b) (6)
; Gilman Louie
(b) \((6)\)

Subject: Re: [EXTERNAL] Re: Meeting

Thanks Jordan and Chris. I'm looking forward to discussing this further.

Gilman

From: Chris McGuire (b) (6)
Date: Friday, July 23, 2021 at 3:48 PM
To: Jordan Blashek (b) (6)
Cc: Patty Wong (b) (6) >, Gilman Louie (b) (6)
Gilman Louie (b) (6)
Subject: Re: [EXTERNAL] Re: Meeting

Thanks a lot, Jordan. This is very helpful. Will forward to others here and circle back with confirmation on the time and date soon. Greatly looking forward to speaking as well.

Best,

Chris

Sent from my iPhone

On Jul 23, 2021, at 3:16 PM, Jordan Blashek
(b) (6) wrote:

Chris,

Attached is a brief on the initiative. We're looking forward to discussing live with you in a few weeks at the EEOB. In the meantime, happy to provide any additional information you need.

Have a great weekend.

All the best, Jordan

On Wed, Jul 21, 2021 at 12:03 PM Gilman Louie(b) (6)
wrote:

Great. Will do.

Gilman

Sent from my iPhone

On Jul 21, 2021, at 8:30 AM, McGuire, Chris R. EOP/OSTP
(b) (6) > wrote:

Great, thanks so much Jordan and Patty. This is really helpful. Let's hold Thursday, August 5 from 4-5pm for now, if that works for you two. I'll circle back with folks here and propose this time, and try to nail something down shortly.

I'll be in touch soon. Thanks again for your help!

Best,

Chris

From: Jordan Blashek (b) (6) >
Sent: Wednesday, July 21, 2021 8:20 AM
To: Patty Wong (b) (6)
Cc: McGuire, Chris R. EOP/OSTP
(b) (6) ; Gilman Louie
(b) (6)

Subject: [EXTERNAL] Re: Meeting

Hi Chris,

It's nice to meet you and I'm looking forward to having a conversation in person!

I can be available and in DC on both Thursday and Friday during the times that Patty suggested.

All the best,
Jordan

On Tue, Jul 20, 2021 at 6:04 PM Patty Wong (b) (6)

Hi Chris - Gilman can be available for the following:

Wednesday, Aug 4, open to schedule the morning up to 12 pm ET

Thursday, Aug 5, open to schedule 3-5pm ET

Friday, Aug 6, open to schedule the morning up to 11am ET

Best,

Patty

Patty Wong

Alsop Louie Partners
(b) (6)
o) (b) (6) (new number)
c) (b) (6)

From: McGuire, Chris R. EOP/OSTP
(b) (6)

Sent: Tuesday, July 20, 2021 2:59 PM
To: Gilman Louie (b) (6) >
Cc: Jordan Blashek (b) (6) ; Patty Wong
(b) (6)

Subject: RE: Meeting

Gilman,

Perfect, that works well. Happy to include Jordan. Thanks so much for checking with Chris too. Appreciate you pulling those notes together, that will be really helpful.

Patty and Jordan - if you could tell me what your availability looks like the week of August 2-6 that would be great. Right now August 5 and 6 in particular look relatively open. I'll then check with our folks to try to pin down a time when everyone is available. Gilman and I had previously discussed having the meeting in person, if that works for you all.

Best,

Chris
\(\qquad\)

Chris McGuire

Senior Advisor for International Security

Office of Science and Technology Policy

Executive Office of the President
(b) (6)

From: Gilman Louie (b) (6)
Sent: Tuesday, July 20, 2021 4:58 PM
To: McGuire, Chris R. EOP/OSTP
(b) (6)

Cc: Jordan Blashek (b) (6)
Patty Wong
(b) (6)

Subject: [EXTERNAL] Re: Meeting

Chris,

Great! Patty can set up a good time on my end. I will check to see Chris's interest in doing this as well. I would like to include Jordan Balshek from Schmidt Futures who is working on this initiative. I'm cc: him on this thread. We can get you some draft notes by the end of the week.

Gilman

From: Chris McGuire < (b) (6)
Date: Tuesday, July 20, 2021 at 10:53 AM
To: Gilman Louie(b) (6)
Subject: Meeting
```

Hi Gilman,

```

I chatted with Jason yesterday and he's definitely interested in talking with you about the initiative that we discussed on Friday. I know we had talked about targeting the first week of August (Aug 2-6) for a meeting here at EEOB, and ideally we can arrange something with you, Jason, Tarun, and hopefully Laura Rosenberger. It would be great to have Chris \(D\) join as well if he is available and interested - if there are any other key people on your end let me know.

When you have a chance, tell me what your schedule looks like that week and I can see what works for all three of those folks on my end. If Chris wants to come too let me know and we'll be sure to find a time that works for him as well. Also, if you have any written products that you could share in advance of the meeting which outline your vision for the initiative, where it currently stands, how we could help, and any other key info, that would definitely be useful.

\section*{Looking forward to talking more!}

\section*{Best,}

Chris

\section*{Chris McGuire}

Senior Advisor for International Security

Office of Science and Technology Policy
Executive Office of the President (b) (6)
<America's Future Fund 20210721.pdf>

\section*{[EXTERNAL]}
\begin{tabular}{lll} 
From: & Thomas Kalil (b) (6) & \\
To: & "Kalil, Tom A. EOP/OSTP" (b) (6) & \\
Date: & Thu, 19 Aug 2021 13:43:17-0400 \\
Attachments: & marketshaping-talkingpoints.docx (15.4 kB) \\
(b)(60 J Farrar (Wellcome) & \\
\hline
\end{tabular}
>https://wellcome.org/what-we-do/our-work/good-clinical-trials-collaboratives
>https://www.goodtrials.org/about<
(b)(6) A. Phillip (Broad Inst.)

Market shaping talking points

Market-shaping should be playing a greater role in U.S. science + technology policy energy/climate goals

Concrete steps that DOE, national labs and external partners could play to realize this steps

\section*{1. Background}

\section*{2. Market-shaping}
- Demand for innovation as opposed to the supply
- Outcome - as opposed to specifying the how or the who
- Contingent on success. Loan guarantees
- Information asymmetry

Incentive prizes
Milestone payments - SpaceX - Energy Act of 2020
Advance Market Commitments
Contract for differences - UK
Aggregation of private sector demand - wireless submeter. Purchasing consortia.
Reverse auction
Other fields - UNICEF

\section*{3. Energy/climate}

2040/2050 goals
Not a substitute for traditional R\&D funding - but complement

\section*{4. Why}
- Requires more work up front on design than a grant - clearer about what constitute victory conditions - issues associated with design that are more art than science
- Cadre of people inside and outside who know how to do this? Economists or people who understand markets, subject matter experts
- Legal, budget and appropriations issues - not a barrier to getting started

\section*{5. Next steps}
- Identify areas where plausible these market-shaping mechanisms could accelerate progress - 0.5 gigaton or more - create multidisciplinary teams
- Build this into the Earth Shot process
- Have every relevant office do at least one
- Strengthen DOE internal and external capacity design these mechanisms:
- Labs - energy analysis divisions
- Targeted recruiting
- Field offices
- External partnerships - USAID - McKinsey, BCG, universities
- Use OT - not grants/not contracts. Training. Rick Dunn
- Identify any legal, budget or policy barriers

Please submit ideas, questions, suggestions on the following to XXX

With respect to market-shaping interventions for energy/climate
1. Is there anything you or your organization might be willing to do to increase effective utilization of these approaches?
2. What advice or suggestions do you have for the Department of Energy and the Administration?
3. Is there a specific technology or innovation that you think would be a strong candidate for a market-shaping intervention? Why?
\begin{tabular}{lll} 
From: & Shelby Castellanos & \\
Sent: & Thu, 19 Aug 2021 08:14:12-0500 & \\
To: & Tony Lee;(b) (6) & Kalil, Tom A. EOP/OSTP \\
Subject: & [EXTERNAL] Government Market-Shaping
\end{tabular}
\(+=====================================================1\)
This email is confidential and may be privileged. If you have received it in error, please notify us immediately, delete the email, and do not copy it, disclose its contents or use it for any purpose.
\begin{tabular}{lll} 
From: & Michael Fleming & \\
Sent: & Thu, 19 Aug 2021 08:15:30-0500 & \\
To: & Michael Fleming;Tony Lee(b) (6) & \\
EOP/OSTP;Kirk Rieckhoff & & \\
Subject: & [EXTERNAL] Government Market-Shaping &
\end{tabular}
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\section*{Passcode: (b) (6)}

\section*{mm Tips:}
mm can be used for either video conferencing meetings or audio only meetings.
ecting the optimal audio conferencing option for joining Zoom meetings:
)m enables users to select one of three options for joining audio on your Zoom meeting: Computer Audio, Phone Ca
1 Call Me.

I Me:
2 "Call me" option is not available for all countries.

\section*{t the best desktop audio:}
ien joining a Zoom meeting from a Desktop computer, use the "Computer Audio" option.
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\(t\) better audio performance in low bandwidth areas or host a phone audio only meeting:
ocations with limited bandwidth and network coverage, join Zoom meetings with phone audio only using dial-in nbers provided in the Zoom meeting invite.
inect to Zoom from non-McKinsey room video conferencing systems:
connect from VC systems capable of dialing into internet VC services, dial the SIP address (E.g. 7317259679@ ımcrc.com) or H. 323 IP address (E.g. 162.255.37.11) referenced above, using an in-room video system and passwors |uired. Note: SIP/IP calling may be blocked by external firewalls. Please visit Zoom's support page for more ormation.

This email is confidential and may be privileged. If you have received it in error, please notify us immediately, delete the email, and do not copy it, disclose its contents or use it for any purpose.
\begin{tabular}{ll} 
From: & (b)(6) I Sharma (FAS) \\
Sent: & Fri, 20 Aug 2021 08:39:14-0500 \\
To: & (b)(6)I Sharma (FAS)Andrew Sosanya;Khan, Saif M. EOP/NSC;Eric B;McGuire, Chris \\
R. EOP/OSTP;Daniel Correa;Friedersdorf, Lisa E. EOP/OSTP \\
Subject: & [EXTERNAL] Updated invitation: Day One Project / Heterogeneous Computing @ \\
Wed Sep 1, 2021 12:30pm -1pm (EDT)(b)(6) McGuire, Christopher OSTP \\
Attachments: & invite.ics
\end{tabular}

This event has been changed.

\section*{Day One Project / Heterogeneous Computing}

When Changed: Wed Sep 1, 2021 12:30pm - 1pm Eastern Time - New York
Joining info
Join Zoom Meeting us06web.zoom.us(b) (6) ... (ID) (b) (6) passcode: (b) 6 )

Join by phone
(US)(b) (6)
Joining instructions
Calendar (b)(6) McGuire, Christopher OSTP
Who - (b)(6)I Sharma (FAS) - organizer
- Andrew Sosanya
- Khan, Saif M. EOP/NSC
- Eric B
- McGuire, Chris R. EOP/OSTP
- Daniel Correa
- (b)(6) Friedersdorf, Lisa OSTP
more details "
Going (b)(6) McGuire, Christopher OSTP )? Yes - Maybe - No more options »
```

Invitation from Google Calendar

```

You are receiving this courtesy email at the accoun(b)(6) McGuire, Christopher OSTP because you are an attendee of this event.

To stop receiving future updates for this event, decline this event. Alternatively you can sign up for a Google account at
\(>\mathrm{https}: / /\) calendar google.com/calendar/< and control your notification settings for your entire calendar.
Forwarding this invitation could allow any recipient to send a response to the organizer and be added to the guest list, or invite others regardless of their own invitation status, or to modify your RSVP. Learn More.

\section*{Lowering the cost of clinical trials}

\section*{From: "Kalil, Tom A. EOP/OSTP" (b) (6)}

To: "Lauer, Michael (NIH/OD) [E]" <michael.lauer@nih.gov>, (b)(6) A Phillip (Broad Institute)
Cc: "Bridges, Nancy (NIH/OD) [C]" <nancy.bridges2@nih.gov>,(b)(6) Itkowsky, Liz (Broad)
Date: Sat, 21 Aug 2021 13:51:06-0400

Hi Michael,

As we discussed, I wanted to introduce you to Anthony Philippakis at the Broad - who shares your interest in lowering the cost of clinical trials and increasing their impact.

Anthony, Michael (as you probably know) is NIH's Deputy Director for Extramural Research, has written extensively on this topic, and is also a cardiologist!

Nancy - I have cc:ed Liz, who helps Anthony with his schedule. I am happy to join - but don't let my schedule be a bottleneck.

Tom
[EXTERNAL] Out of Office Re: Lowering the cost of clinical trials

From: \(\quad\) Anthony Philippakis (b) (6)
To: \(\quad\) "Kalil, Tom A. EOP/OSTP" (b) (6)
Date: Sat, 21 Aug 2021 13:52:10-0400

I will be out of office until August 24th. I apologize for any delays in replying.

\section*{[EXTERNAL] Re: Letter from Eric re: patents}
\begin{tabular}{ll} 
From: & Jesse Souweine (b) (6) \\
To: & "Dooley Fairchild, Sira M. EOP/OSTP" (b) (6) \\
Cc: & "Lander, Eric S. EOP/OSTP" (b) (6) \\
Date: & Mon, 23 Aug 2021 10:51:42-0400 \\
Thanks so much - l'll share within Broad to make sure we implement these changes.
\end{tabular}

One question - if you can get me contact info for Sue Lomas at Bessemer, that would be helpful.

Thanks!

Jesse

On Wed, Aug 18, 2021 at 5:19 PM Dooley Fairchild, Sira M. EOP/OSTP
(b) (6) wrote:

Dear Jesse,

Hope you're well! Please find attached a letter from Eric regarding his patents.

Please let us know if you have any questions.

Best,
Sira

Sira Dooley Fairchild, Ph.D (she/her)
Senior Advisor for Management

\section*{Executive Office of the President}

Office of Science and Technology Policy

\section*{(b) (6)}

\section*{Cell: (b) (6)}

\section*{RE: [EXTERNAL] Re: Letter from Eric re: patents}
```

From: "Dooley Fairchild, Sira M. EOP/OSTP" (b) (6)
To: Jesse Souweine (b) (6)
Cc: "Lander, Eric S. EOP/OSTP"(b) (6)
Date: Tue, 24 Aug 2021 11:50:08-0400
Thanks so much, Jesse!
Sue's contact details are:
Sue Lomas of Bessemer Trust Co. of Delaware, N.A.
E-mail(b) (6)
Phone (b) (6)
Best,
Sira
From: Jesse Souweine (b) (6)
Sent: Monday, August 23, 2021 10:52 AM
To: Dooley Fairchild, Sira M. EOP/OSTP (b) (6)
Cc: Lander, Eric S. EOP/OSTP (b) (6)
Subject: [EXTERNAL] Re: Letter from Eric re: patents
Thanks so much - I'll share within Broad to make sure we implement these changes.
One question - if you can get me contact info for Sue Lomas at Bessemer, that would be helpful.
Thanks!
Jesse
On Wed, Aug 18, 2021 at 5:19 PM Dooley Fairchild, Sira M. EOP/OSTP
(b) (6) wrote:
Dear Jesse,
Hope you're well! Please find attached a letter from Eric regarding his patents.
Please let us know if you have any questions.

```

Best,
Sira

Sira Dooley Fairchild, Ph.D (she/her)
Senior Advisor for Management
Executive Office of the President
Office of Science and Technology Policy
(b) (6)

Cell (b) (6)
\begin{tabular}{ll} 
From: & Michael Fleming \\
Sent: & Thu, 26 Aug 2021 14:10:52-0500 \\
To: & Tony Lee;(b) (6) \\
Subject: & [EXTERNAL] Government Market-Shaping Tom A. EOP/OSTP;Kirk Rieckhoff
\end{tabular}
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\section*{(b) \({ }^{(6)}\)}

\section*{Passcode: (b) (6)}

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ne computer audio connection during your Zoom meeting is poor, you can switch your audio to "Phone Call" or "Cal !".

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connect from VC systems capable of dialing into internet VC services, dial the SIP address (E.g. 7317259679@ رmcrc.com) or H. 323 IP address (E.g. 162.255.37.11) referenced above, using an in-room video system and passwort juired. Note: SIP/IP calling may be blocked by external firewalls. Please visit Zoom's support page for more गrmation.

This email is confidential and may be privileged. If you have received it in error, please notify us immediately, delete the email, and do not copy it, disclose its contents or use it for any purpose.

\section*{[EXTERNAL] Fwd: Introductions}

From: \(\quad\) Eric \(S\) Lander \(<(b)\) (6)
To: \(\quad\) "Lander, Eric S. EOP/OSTP" (b) (6)
Date: Sat, 04 Sep 2021 13:43:29-0400
---------- Forwarded message ---------
From: Eric S Lander (b) (6)
Date: Sun, Feb 14, 2021 at 9:45 AM
Subject: RE: Introductions
To: (b)(6) Whitty, Chris UK Govt>

Thank you for your message. I am currently on leave from the Broad Institute and am not regularly monitoring this email address.
- If you would like to correspond about topics related to my position in the White House or Office of Science and Technology Policy, please email me here(b) (6)
(I am unable to use my Broad Institute email account for such matters)
- If you wish to discuss matters related to the leadership or management of the Broad Institute of MIT and Harvard, you may reach someone in the office of Todd Golub, Director of the Broad Institute, here: (b) (6)

Thank you,
Eric
\(\qquad\)


Eric Lander
Founding Director, Broad Institute of MIT and Harvard (on leave)
415 Main Street
Cambridge MA 02142

\section*{(b) (6)}


Eric Lander
Founding Director, Broad Institute of MIT and Harvard (on leave)
415 Main Street
Cambridge MA 02142
(b) \((6)\)

\section*{[EXTERNAL] Fwd: US Bioeconomy and the global landscape}

From: \(\quad\) Eric \(S\) Lander (b) (6)
To: "Lander, Eric S. EOP/OSTP" (b) (6)
Date: Sat, 04 Sep 2021 13:43:50-0400
--------- Forwarded message
From: Eric S Lander (b) (6)
Date: Sun, Feb 7, 2021 at 8:00 PM
Subject: Re: US Bioeconomy and the global landscape
To:(b)(6) Koizumi, Kei

Thank you for your message. I am currently on leave from the Broad Institute and am not regularly monitoring this email address.
- If you would like to correspond about topics related to my position in the White House or Office of Science and Technology Policy, please email me here.(b) (6)
(I am unable to use my Broad Institute email account for such matters)
- If you wish to discuss matters related to the leadership or management of the Broad Institute of MIT and Harvard, you may reach someone in the office of Todd Golub, Director of the Broad Institute, here: (b) (6)

Thank you,
Eric
\(\qquad\)


Eric Lander
Founding Director, Broad Institute of MIT and Harvard (on leave)
415 Main Street
Cambridge MA 02142

\section*{(b) (6)}


Eric Lander
Founding Director, Broad Institute of MIT and Harvard (on leave)
415 Main Street
Cambridge MA 02142
(b) \((6)\)

\section*{[EXTERNAL] Fwd: Call}

From: \(\quad\) Eric S Lander (b) (6)
To: \(\quad\) "Lander, Eric S. EOP/OSTP" (b) (6)
Date: Sat, 04 Sep 2021 13:38:30-0400
--------- Forwarded message
From: Eric S Lander (b) (6)
Date: Sat, Jan 30, 2021 at 10:13 PM
Subject: Re: Call
To: Patrick Collison (b) (6)

Great. Look forward to talking. Best, E

On Jan 30, 2021, at 9:43 PM, Patrick Collison (b) (6) wrote:

Perfect. We can use my Zoom if you like. >https://stripe.zoom.us(b) (6) Or happy to use your setup of choice.

Eric S Lander (b) (6) schrieb am Sa. 30. Jan. 2021 um 18:06:
Hi Patrick:

That's kind of you to say.

Would tomorrow 5pm Eastern/ 2pm Pacific work for you? If not, let me know what might!

Vaccine escape has been on my mind as well.

Best,
Eric

On Jan 30, 2021, at 8:40 PM, Patrick Collison (b) (6) wrote:

Hi Eric --

Congratulations on your recent appointment. For whatever it's worth, l've been telling people that I don't think there exists someone better for Biden to have chosen.

I was wondering if you had 30 minutes to hop on the phone to briefly discuss two topics:
- When we met, we discussed in brief terms the idea of this new institute that Silvana and I are starting. Well, we're now ready to go, and would love to run some of our initial hypotheses by you.
- As you may recall, Silvana and I worked on FastGrants.org last year. With respect to COVID, we're now somewhere close to where we were last year -- we fear that people might be significantly underpricing the probability that things will trend significantly worse than "the world" currently expects. In particular, with the recent South African (and to a lesser extent Brazilian) data, it no longer looks clear that the current vaccines will be sufficient to end the pandemic. We're increasingly of the view that an ongoing vaccine supply chain effort, with multiple doses against multiple variants, will be required. It's also now clear that unless we vaccinate the whole world the mutational characteristics of Sars-CoV-2 are such that there's a good chance that we see repeated vaccine escape. We'd love to run some of our thinking by you and see if there's any way that we can help with any of the work that's being planned at the federal level. (We have a few ideas of our own too that we can share.)

Cheers,

Patrick


Eric Lander
Founding Director, Broad Institute of MIT and Harvard (on leave)
415 Main Street
Cambridge MA 02142
(b) (6)

\section*{[EXTERNAL] Fwd: conflict of interest/consultant role}
\begin{tabular}{ll} 
From: & Thomas Kalil (b) (6) \\
To: & "Kalil, Tom A. EOP/OSTP" (b) (6) \\
Date: & Wed, 08 Sep 2021 11:29:49-0400
\end{tabular}

--------- Forwarded message
 \(\qquad\)

From: Elizabeth MacBride (b) (6)
Date: Wed, Sep 8, 2021 at 8:23 AM
Subject: conflict of interest/consultant role
To: Thomas Kalil (b) (6)

Hi Tom,

I noticed you are listed as a consultant in the White House Office of Science and Technology Policy. I wondered if this is a paid role and whether it is a conflict of interest given your role at Schmidt Futures and Eric's public lobbying?
>https://www.wsj.com/articles/tech-industry-seeks-bigger-role-in-defense-not-everyone-is-on-board11631019600?mod=politics_lead_pos4\&mod=djemCapita|JournalDaybreak<

I'm writing a short piece about the military-industrial complex's shift toward China, planning to post it this afternoon.

Elizabeth

\section*{Elizabeth MacBride (she/her/hers) \\ Journalist/Writer/Editor \\ Journalist in Residence, Legatum Center for Development and Entrepreneurship at MIT \\ Founder, Times of Entrepreneurship \\ >www.timesofe.com/introduction<}

\title{
| M: (b) (6)
}

Order my new book
x

Sent via Superhuman

\section*{[EXTERNAL] Vaccine card}
\begin{tabular}{ll} 
From: & Sira Dooley Fairchild \(\quad\) @(b) (6) \\
To: & "Lander, Eric S. EOP/OSTP" < (b) (6) \\
Date: & Mon, 20 Sep 2021 14:27:22 -0400
\end{tabular}


\section*{Request for information on biometric technologies - Due by}

\section*{5PM ET on Jan. 15}

From: "Marda, Nik R. EOP/OSTP" (b) (6)
To: Kumar Garg (b) (6) , Yonadav Shavit (b) (6)
Date: Fri, 08 Oct 2021 16:46:04-0400

Hi Kumar, Yo,

It was great chatting with both of you a couple weeks ago! I wanted to follow up with some news from OSTP that the two of you may find interesting.

Today, OSTP posted a Federal Register Notice (FRN) to announce a Request for Information (RFI) on
Public and Private Sector Uses of Biometric Technologies. The purpose of this RFI is to understand the extent and variety of biometric technologies used for the recognition of individuals and the inference of cognitive or emotional states.

OSTP invites input from any interested stakeholders, including industry and industry association groups; civil society and advocacy groups; federal agencies and state, local, and tribal governments; academic researchers; technical practitioners specializing in AI and biometrics; and the general public. OSTP especially encourages submissions from parties developing biometric technologies, parties acquiring and using such technologies, and communities impacted by their use.

Comments are being accepted until 5PM ET on January 15, 2022, via the process outlined in the FRN ( 86 FR 56300). Please refer to the FRN for more details on the RFI. We encourage you to share this RFI widely with others who may be interested in submitting comments.

Sincerely,
Nik
--
Nik Marda
Junior Policy Advisor for AI
Office of Science and Technology Policy
Executive Office of the President
Office (b) (6)```


[^0]:    ABOUT THE AUTHORS
    Thomas Kalil is a Senior Advisor to the Eric and Wendy Schmidt Group and Entrepreneur-inResidence at UC Berkeley. Tom has also served at the White House for sixteen years for President Clinton and President Obama. During that time, he and the members of his team have helped design, launch and sustain dozens of science, technology and innovation initiatives.

[^1]:    1. The Maker Movement is a grassroots community of people that are interested in being producers of things, not just consumers. New tools and technologies such as laser cutters and open source electronics are enabling individuals and small teams to design and make just about anything.
    2. DARPA stands for Defense Advanced Research Projects Agency, which is an agency of the U.S. Department of Defense responsible for the development of breakthrough technologies for national security.
[^2]:    ABOUT THE AUTHORS
    Thomas Kalil is a Senior Advisor to the Eric and Wendy Schmidt Group and Entrepreneur-inResidence at UC Berkeley. Tom has also served at the White House for sixteen years for President Clinton and President Obama. During that time, he and the members of his team have helped design, launch and sustain dozens of science, technology and innovation initiatives.

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[^4]:    --
    Jared Cohen | Tel:(b) (6) Twitter: @jaredcohen | Linked-In

[^5]:    Jared Cohen | Tel:(b) (6) | Twitter: @jaredcohen | Linked-In

[^6]:    ${ }^{1}$ Our data examines the number of petitions filed by employers of different sizes. The number of petitions submitted is higher than the number of employers submitting petitions as many employers file several petitions per year. Our method takes the percentage of petitions filed without any fee exemptions and applies it to the number of petitions filed by employers of varying sizes. Because USCIS data includes petitions filed by employers of an unknown size, our model extrapolates the ratio of employers with at most 25 employees to employers with more than 25 employees to estimate how many of those petitions filed by employers of unknown size fit into these two categories. We also used the Small Entity Analysis for the USCIS Fee Schedule to estimate how many petitions were submitted by employers with more than 500 employees and extrapolated from this number to estimate the number of petitions filed by employers with more than 25 employees but at most 500.
    ${ }^{2}$ This model uses data sourced from USCIS reports on H-1B petitions, approved H-1B petitions by employer, and USCIS' small entity analysis for the agency's fee schedule.
    ${ }^{3}$ This estimated total number of petitions without fee exemptions $(267,541)$ is slightly different than the total number of petitions without exemptions ( 271,141 ) provided by USCIS for FY 2020 because we had to estimate the number of petitions submitted by employers with 26-500 employees and by employers with greater than 500 employees based on the imperfect data available to us. There is currently no published data source on the number of petitions submitted by employers with more than 500 employees, but because our estimate is close to the total number of non-exempt petitions submitted, we posit that our model is within an acceptable range of accuracy in determining the number of petitions submitted by employers of the sizes we specified.

[^7]:    ${ }^{4}$ Following the creation of the Department of Homeland Security (DHS), instances of "Attorney General" now refer to the DHS Secretary.

[^8]:    --
    Michael A. Fisher, Ph.D.
    Federation of American Scientists
    Senior Fellow and Director, Congressional Science Policy Initiative
    1112 16th Street NW, Suite 400
    Washington, DC 20036

    ## Email: (b) (6)

    LinkedIn: bit.ly/MAFisher
    Twitter: @mykfish
    Join up to contribute your expertise to the science and technology knowledge-base for policymakers: Congressional Science Policy Initiative

[^9]:    A National Strategy to Counter COVID-19 Misinformation

    Establish an office at the Department of Health and Human Services dedicated to countering COVID-19 misinformation.

[^10]:    A National Bioeconomy Manufacturing and Innovation Initiative

    Ramp up cross-cutting, cutting-edge research and development across the areas of healthcare, food \& agriculture, energy, environment, and industrial applications to develop fundamental and publicly available tools, and bolster American biomanufacturing.

[^11]:    --
    Michael A. Fisher, Ph.D.
    Federation of American Scientists
    Senior Fellow and Director, Congressional Science Policy Initiative
    1112 16th Street NW, Suite 400
    Washington, DC 20036

[^12]:    ${ }^{1}$ Given that bioeconomy revenues have grown by more than 10 percent annually for decades, the 2021 estimate for the US bioeconomy could be close to $\$ 1.5$ trillion
    ${ }^{2}$ Bioproduction refers to biologically based production, which is also called biomanufacturing.

[^13]:    ${ }^{3}$ Compared to the U.S. bioeconomy, which accounts for 5.1 percent of U.S. GDP, the semiconductor industry accounts for 1.2 percent of U. S. GDP, and the CHIPS Act proposed a $\$ 30 \mathrm{M}$ annual R\&D investment in semiconductor research and development for the next 5 years. A commensurate investment for bioproduction would amount to $\$ 120 \mathrm{M}$ annually for R\&D investment over 5 years.
    ${ }^{4}$ Estimates for new bioproduction facilities with existing technologies range from $\$ 100,000-\$ 200$ million and implementing new flexible, modular next-generation facilities will likely fall on the higher end. This Task Force considers $\$ 1.2 \mathrm{~B}$ as an estimate to enable the expansion of the bioproduction infrastructure called for in this report that covers pilot, intermediate, and large-scale needs.

[^14]:    ${ }^{5}$ Given that bioeconomy revenues have grown by more than 10 percent annually for decades, the 2021 estimate for the US bioeconomy could be close to $\$ 1.5$ trillion
    ${ }^{6} \mathrm{https}: / /$ www.mckinsey.com/industries/life-sciences/our-insights/the-bio-revolution-innovations-transforming-economies-societies-and-our-lives

[^15]:    ${ }^{7}$ An extensive list of bioeconomy products that are on the market, under development, or early-stage concepts is available at https://www.futurebioengineeredproducts.org/refs/market-status/
    ${ }^{8}$ For an extensive listing of companies with products either on the market or in development as of 2018, see http://go.bio.org/rs/490-EHZ-999/images/BIO_Chemical_Companies_Report_2018_FINAL_pdf

[^16]:    ${ }^{\text {s }}$ https://schmidtfutures.com/task-force-on-synthetic-biology-and-the-bioeconomy/

[^17]:    ${ }^{10}$ Matsakas, M., Gao, Q., Jansson, S., Rova, U.. and Christakopoulos, P. 2017. Green conversion of municipal solid wastes into fuels and chemicals, Electronic Journal of Biotechnology 26:69-83. https://doi.org/10.1016/j. ejbt.2017.01.004.

[^18]:    ${ }^{\text {" }}$ Williams, J. H., Jones, R., Haley, B., Kwok, G., Hargreaves, J., Farbes, J., et al. (2021). Carbon-neutral pathways for the United States. AGU Advances, 2, e2020AV000284. https://doi,org/10.1029/2020AV000284

[^19]:    ${ }^{12}$ The Engineering Biology Research Consortium's roadmaps are available at https://roadmap.ebrc.org/

[^20]:    ${ }^{13}$ Narani, A., Coffman, P., Gardner, J., Li, C., Ray, A. E., Hartley, D. S., Stettler, A., Konda, N. V. S. N. M., Simmons, B., Pray, T. R., and Tanjore, D. Predictive modeling to de-risk biobased manufacturing by adapting to variability in lignocellulosic biomass supply. Bioresource Technology, 2017 Nov;243:676-685. doi:10.1016/j.biortech.2017.06.156.

[^21]:    ${ }^{14}$ It's worth noting that investments by HHS (likely related to COVID-19) and DOD (for BioMADE) account for a significant increase for 2021.

[^22]:    ${ }^{15}$ National Academies of Sciences, Engineering, and Medicine 2017. Preparing for Future Products of Biotechnology. Washington, DC: The National Academies Press. https://doi.org/10.17226/24605
    ${ }^{16}$ National Academies of Sciences, Engineering, and Medicine. 2020. Review of the SBIR and STTR Programs at the Department of Energy. Washington, DC: The National Academies Press, https://doi.org/10.17226/25674

[^23]:    ${ }^{17} \mathrm{https}: / / b i o p i l o t s 4 u . e \mathrm{u} /$

[^24]:    ${ }^{18}$ Compared to the U.S. bioeconomy, which accounts for 5.1 percent of U.S. GDP, the semiconductor industry accounts for 1.2 percent of U. S. GDP, and the CHIPS Act proposed a $\$ 30 \mathrm{M}$ annual R\&D investment in semiconductor research and development for the next 5 years. A commensurate investment for bioproduction would amount to $\$ 120 \mathrm{M}$ annually for R\&D investment over 5 years.

[^25]:    ${ }^{19} \mathrm{https}: / / \mathrm{www} . \mathrm{nsf.gov} /$ about/budget/fy2022/pdf/52_fr2022.pdf
    ${ }^{20}$ Estimates for new bioproduction facilities with existing technologies range from $\$ 100,000-\$ 200$ million and implementing new flexible, modular next-generation facilities will likely fall on the higher end. This Task Force considers $\$ 1.2 \mathrm{~B}$ as an estimate to enable the expansion of the bioproduction infrastructure called for in this report that covers pilot, intermediate, and large-scale needs.

[^26]:    Joshua Schoop, Ph.D.
    Federation of American Scientists
    Principal Director for Technology and Innovation
    Director of Day One Project
    1112 16th Street NW, Suite 600
    Washington, DC 20036
    Email: (b) (6)
    Mobile: (b) (6)
    <Final3A_CioccaEller_FAS_12.8.21.pdf>

[^27]:    Elaine P. Ho (she/her)
    Deputy Chief of Staff, Workforce
    Senior Advisor, Science and Society

