

OPPENHEIMER SCIENCE AND ENERGY LEADERSHIP PROGRAM

2019



COHORT 3 THINK PIECES

OSELP



Oppenheimer Science and Energy Leadership Program (OSELP)

3rd Cohort

2019 Think Pieces

We listened, we learned, we argued. And then we spoke as one.

— OSELP Cohort 3, 2019

OSELP 3rd Cohort, 2019*

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Cohort 3 Think Pieces

1. To Form a More Perfect Union . . . of National Laboratories.
2. Fostering a Collaborative and Innovative Workforce.
3. Illuminating the Role of Women at the DOE National Laboratories.
4. Oppenheimer Leadership Network: A New Enduring Element to the Oppenheimer Science and Energy Leadership Program.

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To Form a More Perfect Union . . . of National Laboratories

Ilke Arslan (ANL), on behalf of the 3rd Cohort: arslan@anl.gov.

The Motivation

The National Labs (NLs) were created to address a specific strategic threat and worked together intensely, for a time. As the threat landscape changed post-Cold War, the mission needs broadened, and led to diversified NL science, engineering, and technology portfolios. This diversification generated a natural tension of cooperation and competition between the NLs, which persists today.

This “*coopetition*” model offers significant advantages for the Nation’s S&T enterprise. Competition incentivizes innovation and excellence, while cooperation harnesses the diverse talent and resources of the NLs to address challenges that may surpass the ability of a single laboratory to resolve. However, *coopetition* may also present significant risks to the overall efficacy, impact, and health of the DOE National Laboratory system. These risks must be carefully guarded against by both DOE and the NLs to ensure an optimal balance of cooperation and competition.

The Process

On our 12 site visits, we engaged deeply and candidly with senior laboratory leadership and we reviewed the missions, strategic plans, and resources of the laboratories. In concert, we performed 10 in-depth interviews with former directors, former senior DOE leaders, and active CROs. While we acknowledge that competition is useful, and maybe even essential in the NL system, based on our observations and conversations, we believe that in some strategic areas the *coopetition* pendulum has swung too far in the direction of competition, thereby reducing the ability of the laboratories to serve the national interest. The risks include:

- A redundancy of missions, capabilities, and resources, both human and physical.
- Atomization of funding: subdividing funding into smaller buckets, creating competitive, stove-piped and single-PI research models rather than addressing the Nation’s scientific challenges that are better accomplished by larger and more diverse teams.
- Increasing fiscal pressure for the laboratories to expand their missions and/or to ensure a diversity of funding sources, rather than objectively serve the Nation’s S&T interests.
- A tendency for individual projects, programs and laboratories to establish their own marketing presence and a reluctance to promote a national brand, which results in fragmented branding and diluted or unknown contributions of the laboratories as a complex.
- Missed opportunities to attract domestic talent through more unified marketing and for researchers to collectively approach the Nation’s greatest challenges.
- Lack of understanding of research capabilities across the laboratories, which leads to missed opportunities to partner with industry and to connect researchers with common interests.

Our Recommendations

We believe that some structural reform would be beneficial to nudge and hold the balance of the *coopetition* pendulum. Our recommendations focus on people and projects:

People:

- Reinvigorate and emphasize our mission that the NLs are here to serve the Nation's interests.
- Educate our workforce about our mission and the impact of the NL complex.
- Establish a complex-wide "national brand" supported by sustained marketing campaigns that promote the NLs as a whole (e.g., similar to that accomplished by NASA).
- Develop an inter-laboratory app, across all 17 Labs, to make subject areas and people searchable to facilitate inter-laboratory collaborations.
- Develop a unified, coordinated approach to hiring, including joint hires between laboratories.
- Enable enhanced mobility of personnel within the NL complex.

Projects:

- Grow complex-wide and multi-laboratory projects using discretionary funds, and for the DOE to observe the benefits and to do similarly.
- Create larger-funded initiatives, carefully coordinated among the laboratories and programs, to address strategic gaps.
- Encourage inter-agency co-funding (e.g., programs jointly funding initiatives and projects).

The DOE National Laboratories, in collaboration with U.S. universities and industry, have long led the world in scientific and technological innovation. This leadership has yielded profound and world-changing discoveries, ensuring U.S. economic competitiveness on the global stage and guarding our critical national security interests. In order to remain at the forefront, we believe the recommendations from this Think Piece can unify and strengthen the National Laboratory complex from the "inside out," so that they remain the crown jewels of the U.S. scientific enterprise.

Fostering a Collaborative and Innovative Workforce

Remaining competitive by building prepared, capable and inclusive global communities

Kris Munch (NREL), on behalf of the 3rd Cohort: Kristin.Munch@nrel.gov.

The Problem

The continued success of the National Laboratories (NLs) depends on building a skilled, collaborative, innovative workforce that can exploit the benefits of open international science and emerging technologies, that can produce ground-breaking advances on multiple fronts, and that can ensure national security.

The most valuable resource of the NL complex is people. Attracting talented staff is a perennial struggle: each year, the NLs need to hire *thousands* of scientists, engineers, and operations staff across a broad range of disciplines. This is a complex-wide problem.

Salaries in the NLs are not keeping pace with the private sector, especially in the STEM fields: this needs to be addressed; but, in addition to shoring up the financial incentives, we need to identify what it is that motivates talented individuals to seek opportunities within the NLs. (There is a very interesting comment about what motivates women to join the NLs in the following Think Piece titled “Illuminating the Role of Women at the Department of Energy National Laboratories”.)

The original *raison d'être* for the NLs was obvious: there was an immediate, existential threat. This motivated many of the Nation’s best and brightest to join the NLs. Even though the NLs today remain on the cutting edge of bringing forth to society the scientific and technology solutions to today’s more diverse set of threats, it is harder to communicate that we are the “scientific first responders” to an increasing array of challenges.

An increasing reliance on foreign nationals to fill critical gaps in our workforce creates various vulnerabilities. It is eternally and fundamentally important to strengthen the career pathways from the U.S. educational system into the NLs. There are numerous existing DOE avenues for nurturing STEM development, including opportunities spanning K-12 through college, to teacher- and workforce-development programs. In a changing society, we need to regularly review the effectiveness of these existing programs.

How do we adapt our recruiting strategies so that they meet our present and future needs?

The Opportunity

Our mission still motivates. We see an opportunity to reinvigorate and to better communicate our message to targeted audiences. By doing so, we will better attract high-school through post-graduate students to join the NLs.

We see an opportunity to perform a data-based review of existing programs. This will provide crucial information that can be used to assess their effectiveness in delivering talent and to estimate their return

on investment. We can identify the crucial areas of the NL workforce that could benefit from additional, suitably tailored programs.

Building on such a review, we can and will imagine opportunities to pilot creative new approaches towards establishing complex-wide recruitment programs, and to create new pathways into the NLs that are both broad in scope, scalable, and that encompass the career path from undergraduate, to graduate, to full-time employment within the NLs.

Our Recommendations/Planned Actions

Rather than a collection of separate institutions, we recommend promoting the NLs as a synergistic whole in recruiting efforts. College students might find appealing new scholarship programs that provide summer internships at multiple labs during a single summer or throughout their college years, or that provide to a cohort of talented undergraduate students the opportunity to visit a selection of the NLs. Such programs would reveal the impressive size and scope of the NLs to a targeted audience, leading to a network of colleagues distributed across the complex.

To provide career pathways from our grass roots, namely from US educational institutions, into the NL complex, we need to be creative and flexible; particularly to under-represented demographics, who, merely from a return-on-investment perspective, remain an under-tapped national resource.

We recommend innovative scholarship opportunities. A new “scholarship for service” program, for example, modelled on other government education/employment programs, could provide college tuition and support in return for NL service. Such a scholarship would enhance the reach of the DOE STEM initiative by establishing a national lab complex-wide program that is both broad in scope and scalable: encompassing a science career path from undergraduate to graduate to laboratory employment.

We recommend a better framing of the employee experience. Presenting the NL complex as a national treasure, both historically and contemporaneously, will fortify the onboarding of new employees. By reminding existing staff that they are part of a great scientific complex that serves the Nation’s interest, staff will be motivated to remain and our crucial knowledge base will be sustained. (By creating the Oppenheimer Leadership Network – see last Think Piece – the future leaders of the NLs will see future opportunities within the NL complex!)

To review the effectiveness of existing programs, and to assess the feasibility of the above suggestions and other recruitment innovations, we recommend the creation of a task force that i) will review data on the effectiveness of existing programs, and will collect additional data where it is lacking; ii) shall solicit and consider innovative approaches to recruitment and retention; and iii) shall propose a variety of pilot programs.

illuminating the Role of Women at the Department of Energy National Laboratories

Marcey Hoover (SNL), on behalf of the 3rd Cohort: mlhoove@sandia.gov.

The Problem

Although the overall U.S. workforce is about 50% female, the workforce at the National Laboratories (NLs) is only about 30% female. The statistics for research staff are even lower: women make up only about 18% of these ranks, in contrast to the percentages of women in physical science (39%), computer science (25%), and engineering (14%) in the U.S. workforce. The same trend holds true in research and technical management at the NLs: only about 18% of these posts are held by women.

This under-representation of women is unfortunate. It diminishes the long history of accomplishments by women. Our workforce and leadership should mirror that of our society's. We must create equitable opportunities within the NLs for our Nation's most talented individuals, half of which are male and half of which are female. By doing so, we will increase our collective success.

We see an opportunity to illuminate the rich history of women's contributions to the DOE mission so that inspiring women may serve as role models and to communicate DOE's intent to attract women into the NL workforce.

It is not that we want women *per-se*. What we suggest is that the NLs should hire the best; and, statistically, half of the best are female.

The Opportunity

Of the fifteen OSELP 3rd Cohort members, two-thirds are women, leading our group to experience a significantly different gender balance in our OSELP interactions than what we most often encounter day-to-day. That the 3rd Cohort was majority female may have resulted in differences — as compared to previous cohorts — in how our cohort was perceived during the site visits, what issues or observations piqued our interest, and the type of questions we asked the leadership.

During our site visits, we learned of significant steps that have been taken to highlight the early history and impact of women; however, we found gaps in how the more recent history is documented, shared and celebrated for the periods after World War II. As an example, the DOE Women in Energy timeline has significant gaps after the 1950s that can and should be filled with notable events and accomplishments. There is an opportunity to fill these historical gaps and tell the stories of great women as motivation for others to come to the NLs.

In addition, there is perhaps a greater opportunity to share these stories in a collective way that rises above a single laboratory. For example: it may be well known at Oak Ridge that geneticist Lee Russell was the first to discover that the Y chromosome determines maleness in mammals; it may be well known at Brookhaven that chemist Joanna Fowler was responsible for synthesizing today's most commonly used PET radiotracer; and it may be well known at Los Alamos that computational biologist Bette Korber delineated the genetic characteristics of HIV. We found that depictions of stories like those of Lee, Joanna and Bette tend to be individualistic and held within a local laboratory, rather than being elevated in a thematic way and telling the larger collective arc of impact that these women have made more broadly.

There is an opportunity to tell these and other stories in a thematic way, and to perhaps uncover additional inspirational stories, in a fashion akin to the NASA's *Hidden Figures* effort, and to draw upon the deep history of women's contributions — both past and present — to create a stronger sense of community and to attract others to the laboratory complex.

Throughout the OSELP experience, and during our exchanges with laboratory leadership in the areas of workforce and diversity, we learned about many individual-laboratory initiatives to develop networks and retain women already at the NLs. We learned about many initiatives to encourage young women to pursue science, technology, engineering and math (STEM) careers. However, we did not find much evidence of cross-laboratory initiatives, strategies or products.

We believe there is an opportunity for more sharply targeted efforts, so that we can attract a new generation of women to join the NLs, to retain the current workforce, and to improve the representation of women at the NLs.

During many of our site visits, we heard references to the presumed over-riding value proposition for careers at the NLs to be one of work-life balance. In contrast, from our personal discussions between the women of the 3rd Cohort, we identified that our motivations are driven by the opportunity to work with outstanding people and to contribute to important and big challenges — as only the NLs can offer. Highlighting the opportunity for women to perform impactful work — in science, technology, and for the National interest, and to work with extraordinary people — would be a compelling message (in addition to sharing the message of work/life balance).

Our Recommendations/Planned Actions

The OSELP 3rd Cohort will coordinate with prior OSELP cohorts and the NLs' chief diversity officers, communications officers, human resource (HR) directors, the DOE Office of Public Affairs, historians, and the National Museum of Nuclear Science & History to illuminate the role of women at the NLs.

Leveraging the willingness of these entities to apply their talents, we plan to support and align with an overarching diversity & inclusion (D&I) and/or recruiting effort to showcase the current roles and women by:

- Providing input to the “History of Women at the Energy Department” timeline and energy.gov/women website.
- Creating a permanent museum exhibit, with a scalable travel option, that can be used across the NLs and that will contribute to D&I conversations, celebrations, and education.
- Developing a recruiting video to attract women to the NLs by aligning with a recruiting strategy that echoes the “Bigger Than Me” video.
- Participating in regional National Laboratory Days.
- Contributing to new gender-partnership programs, and providing additional material for DOE's Women@Energy online profiles, new-hire onboarding materials, DOE-sponsored podcasts, and audio stories.

We also propose a laboratory-wide workshop to illuminate the historical and present role of women at the NLs. This workshop, which would include HR and D&I leadership and OSELP alumni, would showcase and recognize the accomplishments of women at the laboratories, would be a forum for HR and D&I officers to vet strategy and receive feedback, and would serve to address findings from the Summit on Diversity & Inclusion for Technical Leaders in the DOE Laboratories (COACH initiative).

Oppenheimer Leadership Network: A New Enduring Element to the Oppenheimer Science and Energy Leadership Program

Thomas Kirchstetter (LBNL), on behalf of the 3rd Cohort: twkirchstetter@lbl.gov.

Opportunity

To establish a formal and active network of Oppenheimer alumni to collaboratively engage on strategic issues that will further the ambition of the Oppenheimer Science and Energy Leadership Program (OSELP).

The OSELP cohorts include a diverse cross-section of emerging leaders from across the National Laboratories (NLs). Each participant has gained an accelerated exposure to and appreciation of the NL system. The Think Pieces developed by the 3rd Cohort presented herein evolved during the course of our visits to 12 laboratories, during which time we engaged deeply and candidly with senior laboratory leadership and extensively reviewed the missions, strategic plans, and resources of the NLs.

Our Think Pieces share striking similarities to those of prior cohorts, suggesting that we, the emerging leadership, broadly agree about the risks and opportunities facing the NL system and our Nation. That each cohort has identified and grappled with common themes suggests that they are strategically important, complex, and not amendable to being addressed through simple solutions.

At the end of this the third year of the OSELP program, the 14 members of the 3rd Cohort will join the previous 30 members of prior cohorts in returning to our home institutions and to focus on our site-specific leadership roles. The insights gained will almost assuredly increase our effectiveness toward that end. Most members of prior cohorts have remained in the NL system and some have earned promotions to higher levels of leadership.

However, cohort members largely disband following their OSELP year. *This is a lost opportunity.*

To leverage the momentum of the cohort and continue our leadership development in the interest of the NLs, we propose the formation of an Oppenheimer Leadership Network (OLN).

Oppenheimer alumni will form, self-assemble, and run the OLN. We envision an efficient process that will produce in-time deliverables, help address strategic issues for the system, and promote the value of the NL complex. Initial actions that draw from the current Think Pieces may include: i) publishing a journal article, curating website content, and organizing a laboratory-wide workshop that illuminates the role of women in the NLs; ii) developing a DOE “National Laboratory brand” as a strategy to attract tomorrow’s workforce, to promote partnerships with industry and universities, and to increase public support; and iii) evaluating workforce mobility across the laboratories as part of a strategy to improve the culture of trust, to strengthen inter-laboratory collaboration, and to aid in workforce retention. These and other activities will be defined in collaboration with the NL leadership teams.

Most of this work will be coordinated by email, phone calls, and web conferencing services. We propose to organize a biennial in-person conference of alumni from all Oppenheimer cohorts, including participation of available NL leadership, that will serve as a forum at which products of the OLN and new cohort Think Pieces are presented, and ongoing and emerging issues are discussed.

Process

With the backing and recognition of the NLDC to add this new element to the OSELP, members of the 3rd cohort will host a webinar inviting all Oppenheimer alumni to initiate the OLN. A charter will be developed that sets forth OLN's purpose, composition and operating structure. A steering committee of a few members from each cohort will be selected, and 2 members to serve as point-of-contacts (POCs) to interact with the NL leadership will be designated.

Following definition of new activities in coordination with appropriate chairs of the leadership teams (e.g., the CRO chair), the OLN will self-organize into working groups.

Benefits

The addition of these program elements will capitalize on the momentum gained from the OSELP experience and increase the likelihood that OSELP alumni will continue to function as a growing network, that they will remain in the laboratory system, and that they will remain engaged with leadership activities. Further, the OLN will serve as a new intellectual resource that will supplement the current leadership bodies in serving DOE and will steward the laboratory system into the future.



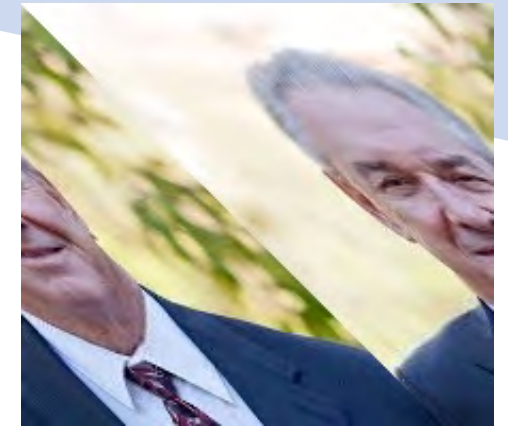
Reflections from Oppenheimer Science and Energy Leadership Program – Cohort 3

Presented to NLDC

Wednesday, December 11, 2019

INL Office, Washington, DC

We thank the National
Laboratory Directors and
CROs for this opportunity

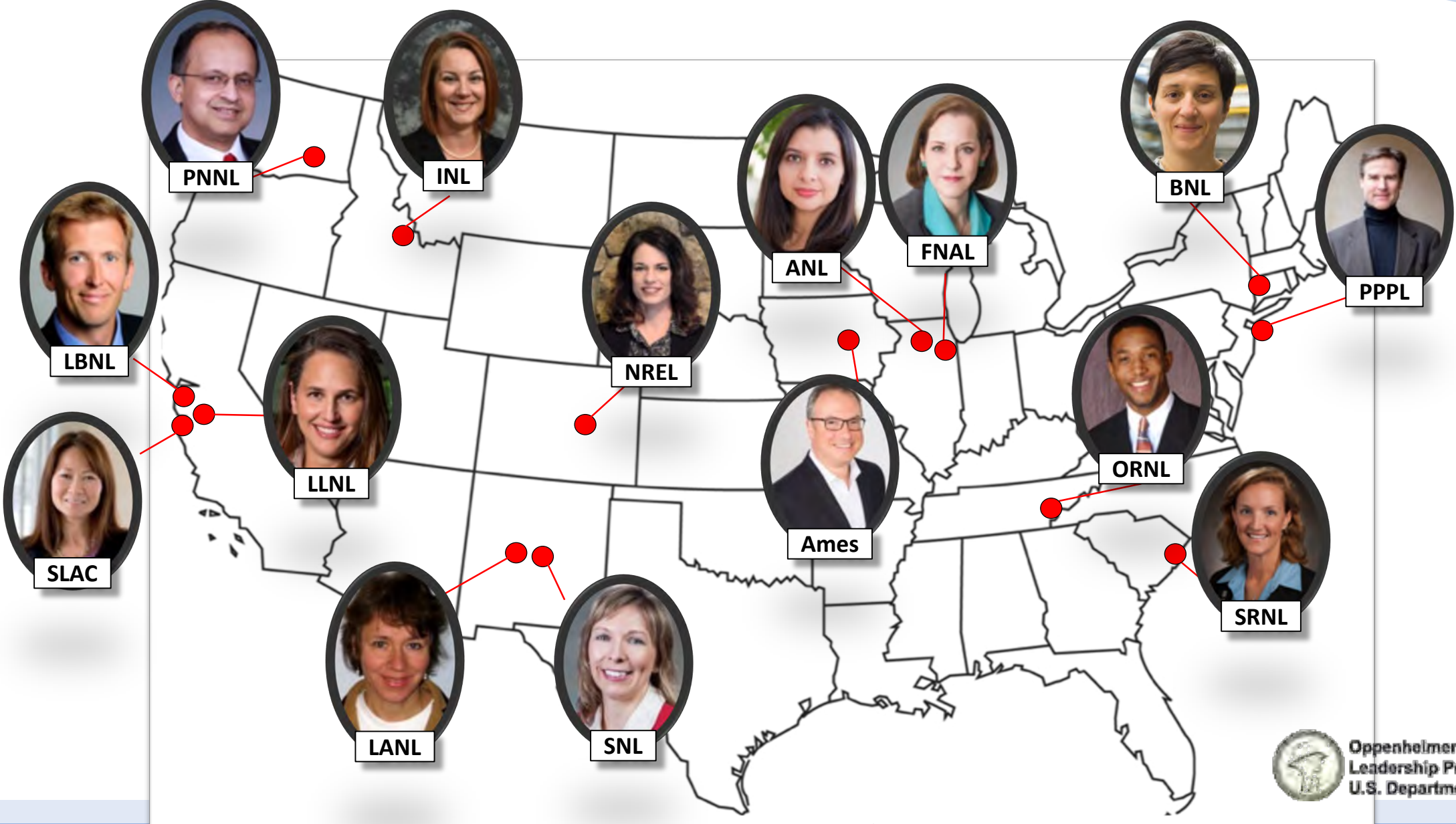


• Special Thanks to OSELP Coordinator and Mentors

- Kevin Doran, Coordinator
- Mike Knotek, Mentor
- Teeb Al-Samarrai, Mentor
- Sig Hecker, Mentor
- Jill Hruby, Mentor
- Charles McMillan, Mentor
- Lynn Orr, Mentor
- Adam Cohen, Mentor
- Venkatesh Narayanamurti, Mentor
- Norm Augustine, Mentor



Cohort 3 Represents 15 of 17 National Laboratories

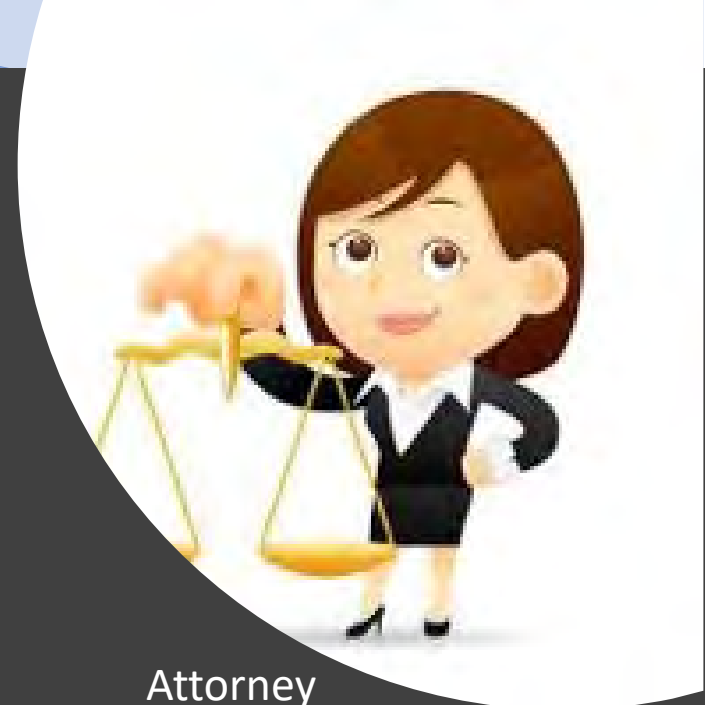




Facilities and Operations



Directors



Attorney



Scientist/Engineers

Cohort 3 – A Broad Range of Roles across the Complex



Managers

"What if, and I know this sounds kooky, we communicated with the employees."

We Visited 12 of 17 National Laboratories and DOE HQ

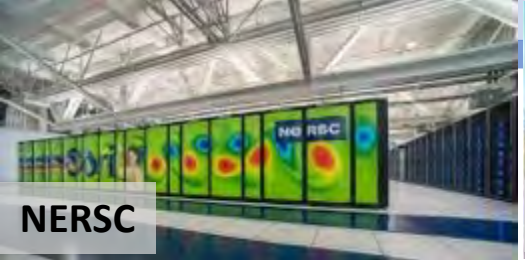


Interactions at All Levels





OLCF



NERSC



ALS



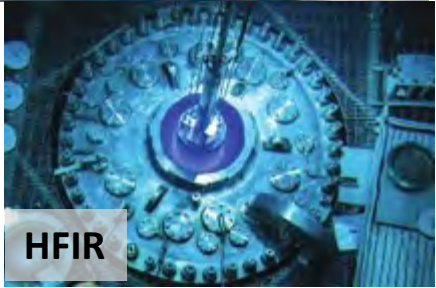
ALCF



APS



SNS



HFIR



TMF



NSLS-II



CNMS



SSRL



CFN



CINT



LCLS/FACET-II/LCLS-II



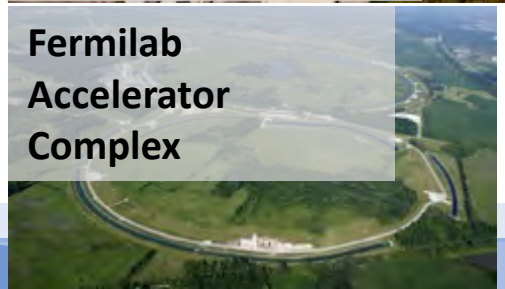
CNM



EMSL



JGI



Fermilab Accelerator Complex

World Class User Facilities

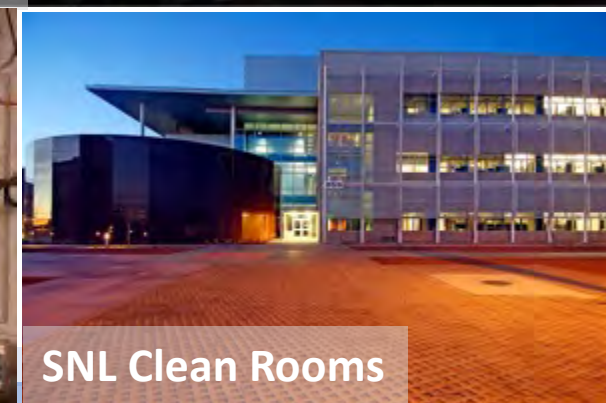
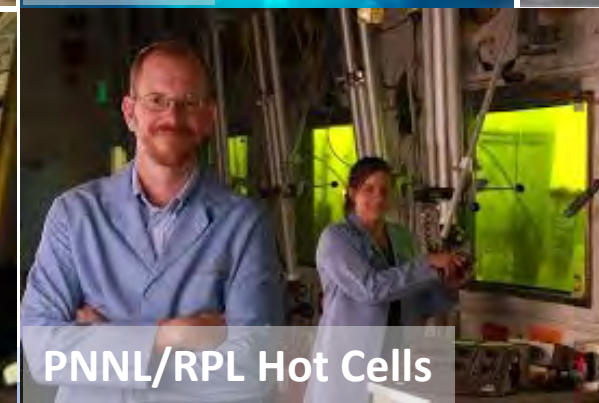
Applied Energy Programs



National Security Programs



EM Programs



Mission Facilities

Candid Conversations



We are Grateful for the Breadth and Depth of the Program

- Laboratory and DOE interactions
 - **All levels at Labs**
 - **DOE Site Offices**
 - **DOE HQ and White House OSTP**
- Past, present, and future of the lab complex
- Candid conversations on the challenges, risk, and opportunities at each lab
- Perspectives and connections we could not have gained on our own or within one year

We are Grateful for the Support

- NLDC
- The labs we visited
 - SMEs
 - Hosts
 - Protocol Officers and Visit Coordinators
- CROs/others we interviewed for our think pieces
- OSELP Coordinators and Mentors
- Our Labs – for accommodating our time away and affording us flexibility to participate



Thank You for the Opportunity



Cohort 3 Think Pieces



- OSELP experience led us to reflect on several themes and topics:
 - **A cohesive lab complex**
 - **Workforce of the future**
 - **The role of women in the national labs**
 - **Establishing an active Oppenheimer Leadership Network**
- Our “think pieces” are a collection of shared thoughts and ideas that we hope are useful to the NLDC and the complex



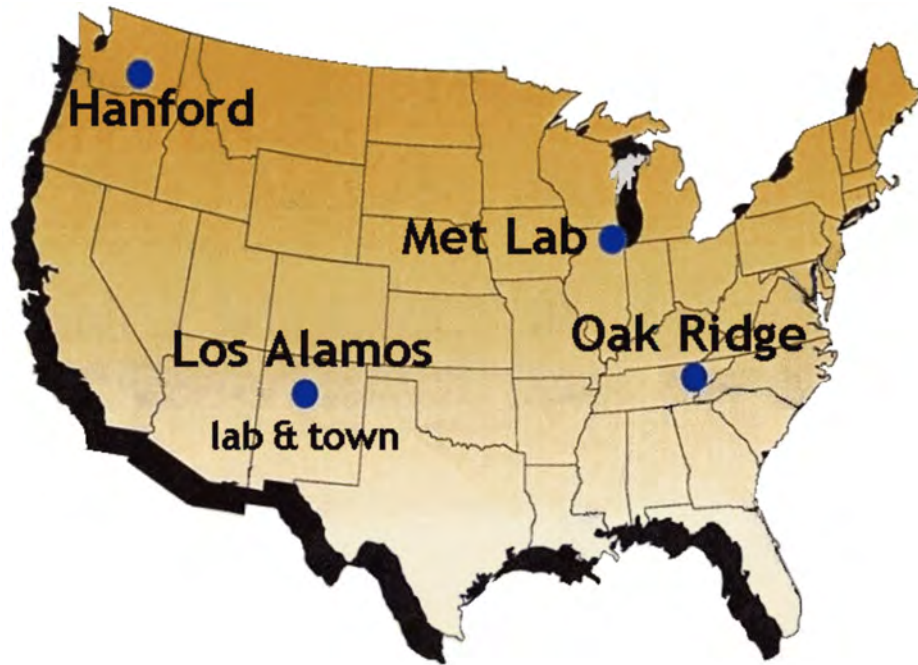
To Form a More Perfect Union... ...of National Laboratories

Oppenheimer Science and Energy Leadership Program

Cohort 3

The mission space of each lab has evolved over time

Manhattan Project



DOE



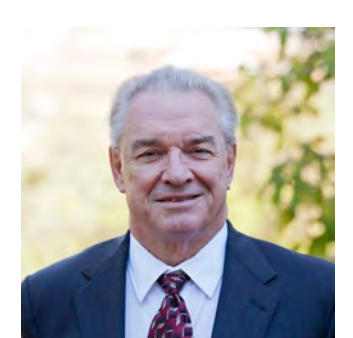
We see the need to create an enterprise-wide approach to optimize alignment of the National Laboratory system, while maintaining diversity to secure global science and technology leadership

The Process

Conversations with
10 leaders

Analysis of responses
& position papers

Recommendations
determined



Interviewed former DOE leadership and lab directors, and current CROs

Conversations with
10 leaders

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graph TD; A[Conversations with 10 leaders] --> B[Analysis of responses & position papers]; B --> C[Recommendations determined];
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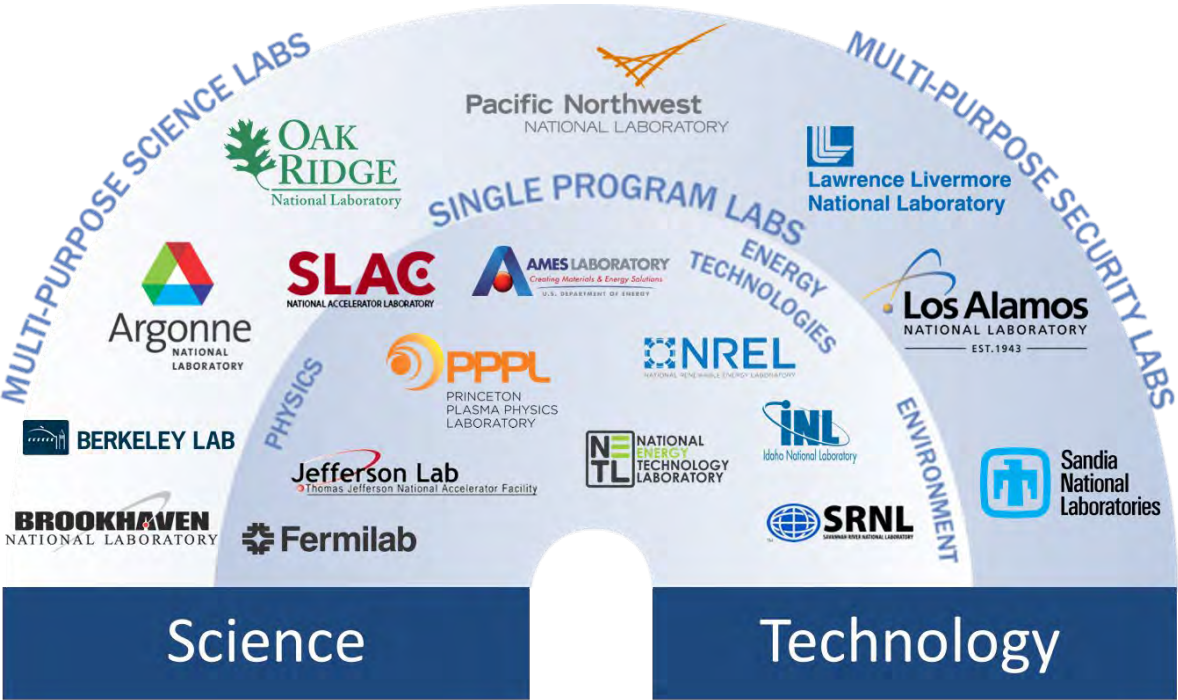
Analysis of responses
& position papers

Recommendations
determined

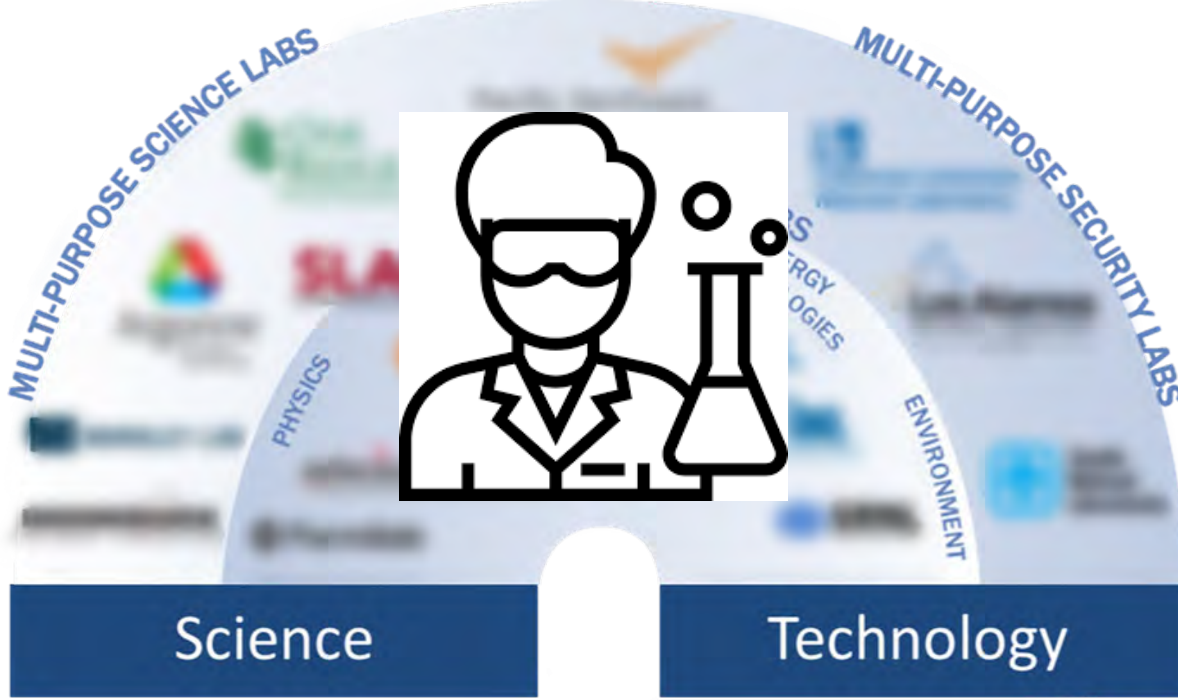
- Diversification vs. mission focus
- Balance between collaboration and competition
- Self-sustainment of individual labs vs. the lab system
- Atomization of funding
- Funding at the labs as viewed by different levels
- Who defines strategic plan for the NLs
- How to incentivize collaboration

Questions formed around coopetition model; answers were diverse

Different perspectives on lab ecosystem depending on your job



Senior Lab Leadership



Technical Staff

Missions are well established in DOE vision, however funding realities suggest redundancies

People

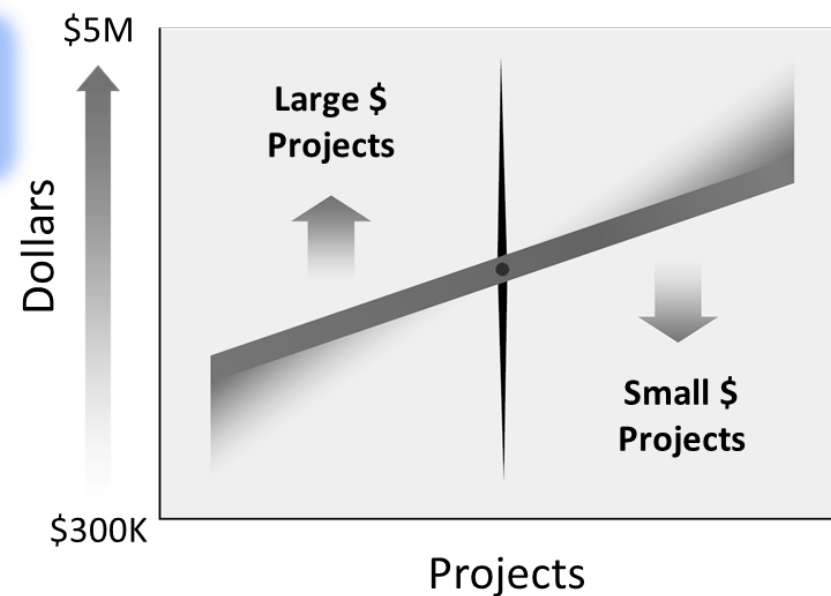


Conversations with
10 leaders

Analysis of responses
& position papers

Recommendations
determined

Projects



Our two sets of recommendations are focused around people and projects

Our recommendations: People

Education

- Reinvigorate the understanding that the Labs are here to serve the Nation's interests
- Educating workforce about the mission and impact of the Lab-wide system

Communication

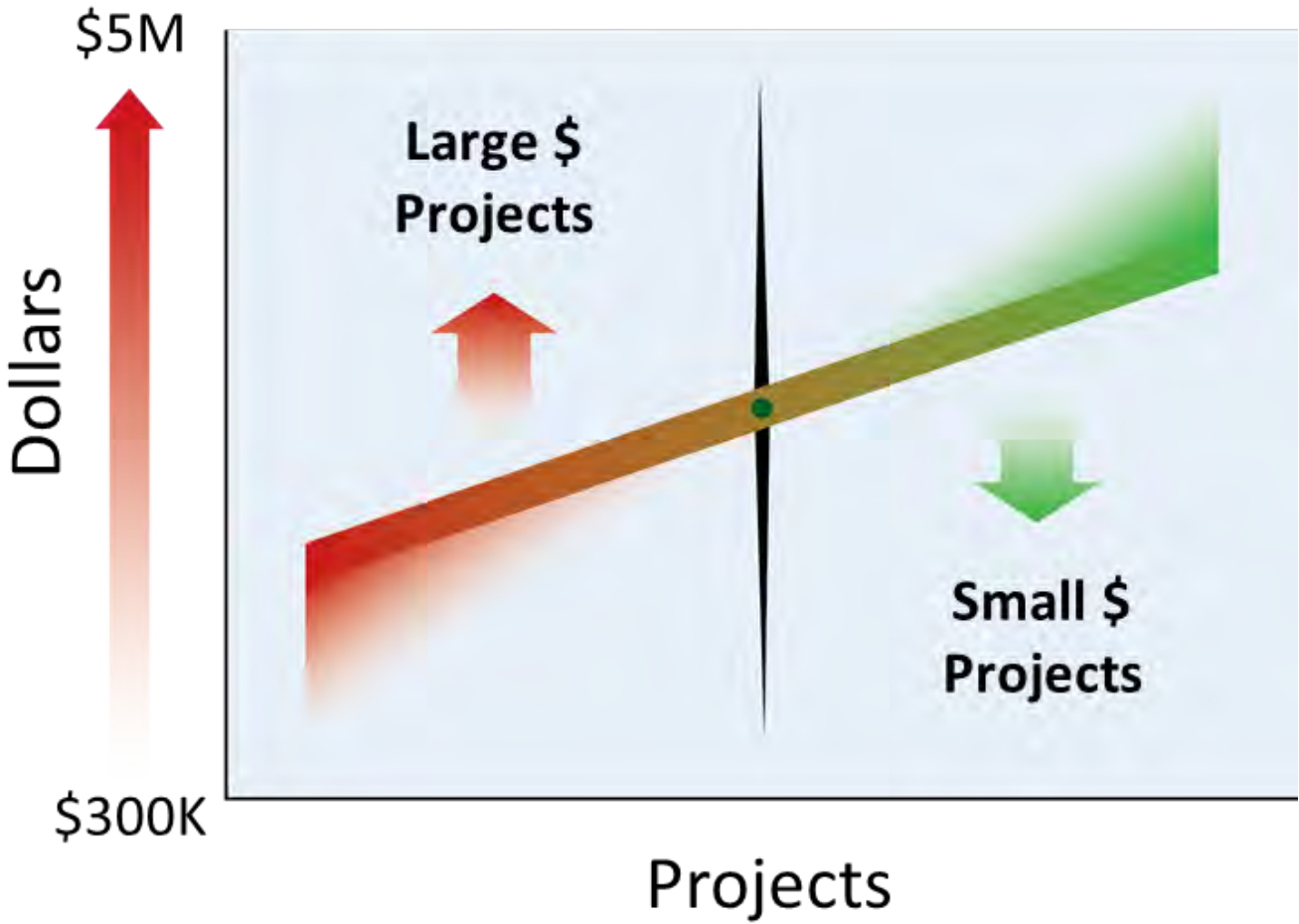
- Establishing a complex-wide DOE national lab brand and sustained marketing campaign that promotes the Labs as a system (e.g. NASA)
- An inter-Laboratory app across all 17 Labs to be developed to make subject areas and people searchable such that joint work and joint proposals can be facilitated

Pipeline

- Developing a unified approach in hiring, including joint hires between Labs
- Enabling enhanced mobility of personnel within the Lab system

Our recommendations: Complex-wide Projects

- National Labs to grow complex-wide projects using their discretionary funds, and DOE to observe the benefits and do similarly;
- Initiating shared LDRD initiatives among the Labs to address strategic gaps;
- A future of intra-agency co-funding



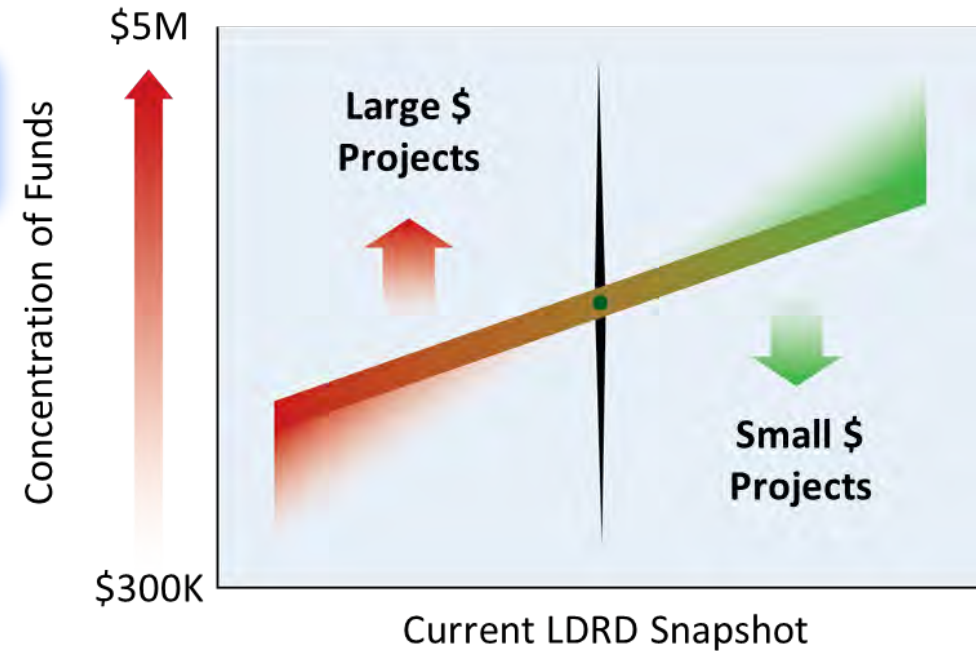
To Form a More Perfect Union...

...of National Laboratories

People



Projects



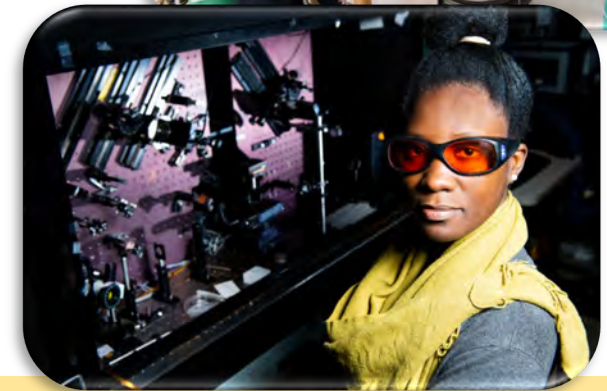
Building the National Laboratory Workforce of the Future

Oppenheimer Science and Energy Leadership Program

Cohort 3

Our future workforce requires talented and skilled people

- During 12 lab visits, we heard consistent themes on hiring needs, attrition, and retention
- The labs are our people, the future of the labs is hiring and retaining people across all disciplines and skills
- We are struggling to find sufficient pool of talented and skilled workers
- Every lab has individual efforts ...



We see an opportunity to collaboratively create better strategies

Talent needs reinforced during OSELP visits

- Conversations with lab leaders, early career researchers, and D&I officers shaped our thinking
 - Labs and programs plan to hire THOUSANDS per year
 - Workforce needs change with time
 - Disciplines evolve
 - US is not currently meeting the need in “hot skills” areas
 - We are competing domestically and globally for talent
 - Anticipate (and see) deficiency in areas
 - Attrition rates are increasing in key areas
 - US STEM pipeline is not adequate



We need to strengthen the talent pathway to the national labs

We need more data to improve talent pathways

- To strengthen talent pathways to the national labs, we first need to understand the data
- What are our immediate needs?
- How effective are existing recruiting methods?
- What are our future needs?
- Found limited data to address these questions



We recommend ...

- Form a working group to assess talent pathways
 - Identify what data exists
 - Assess effectiveness of existing programs
 - What additional data should be collected at the system level?
 - Joint effort with HR and stakeholders
- Inform strategy across the labs
 - Prepare and attract talent
 - Address immediate needs
 - Position labs for future
- Pilot approach for new ideas for NL recruiting
 - New recruiting campaign
 - New, innovative scholarship program



Example Idea: DOE Scholarship for Lab Service



Education support ...

... coupled with employment



Modeled after similar DoD scholarship programs, such as NSA Stokes Scholarship and SMART Scholarship

Focus on hot-skills needs, underserved communities, and leadership opportunities

Include experience at National Labs



ILLUMINATING THE ROLE OF WOMEN

AT THE DEPARTMENT OF ENERGY
NATIONAL LABORATORIES

OSELP Cohort 3

The Challenge

Demographics at the DOE National Labs

Types of Jobs	Total	% of Women
Senior Leadership	265	24.91%
Research/Technical Management (first-line and mid-level)	4,552	18.17%
Operations Management (or Research Support)	2,963	37.87%
Technical Research Staff	21,698	18.50%
Operations Support Staff	25,905	40.93%
Post Doctoral	2,699	24.42%
Graduate Student	2,541	29.36%
Undergraduate Student	3,113	39.96%
Totals	63,736	30.25%

During the Manhattan Project, 640 women worked at Los Alamos, about 11% of the total workforce

Currently, women compose about 30% of the National Labs' workforce

The overall U.S. workforce is about 50% female

Women are underrepresented in engineering (14%), computer (25%), and physical science (39%) occupations across the U.S.

Women represent about 18% of the National Labs' research/technical management and technical research staff



Ilke Arslan

Interim Director
Nanoscience and Technology
Division; Center for Nanoscale
Materials
**Argonne National
Laboratory**



Gabriella Carini

Deputy Director
Instrumentation Division
**Brookhaven National
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**Heather MacLean
Chichester**

Director
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Beth Fancsali

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**Fermi National
Accelerator Laboratory**



Marcey Hoover

Director
Energy and Homeland Security
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**Sandia National
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Kristin Munch

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Rebecca Nikolic

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Tanja Pietraß

Acting Division Leader
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Mabelle Vieux

Director
Facilities and Operations Division
**SLAC National
Accelerator Laboratory**



Kristine Zeigler

Director
Materials Science and
Technology Division
**Savannah River
National Laboratory**

OUR EXPERIENCE

VISIT

Visited 12 DOE National Laboratories

ENGAGE

Participated in diversity sessions at 2/3 of the sites

LEARN

Learned about many individual Lab diversity & inclusion efforts

LISTEN

Heard common challenges around hiring women

DOCUMENT

Noted lack of gender diversity in Labs' leadership

COMMUNICATE

Talked about the opportunity to illuminate the role of women at the DOE Labs with key personnel

(CROs, CCOs, D&I Officers, COACH program, Lab Historians, DOE Office of Public Affairs)

SHARE

Discussed why we, the women of Cohort 3, came to and remain at the Labs

07

01

02

06

03

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04

Our Takeaways

Significant steps have been taken to highlight the early history and impact of women; but gaps remain in the more recent history

There are no individual biographies of women who made technical accomplishment or held leadership roles at the Labs within these gaps of time on the DOE History of Women timeline

Women's Contributions to the Manhattan Project

15 Years

22 Years

35 Years

1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010 2020



Our Takeaways

Notwithstanding DOE and Labs' local efforts, there remain notable accomplishments of women that are neither well known nor widely shared, especially in a collective manner



Liane Russell

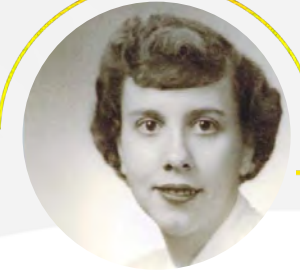


Joanna Fowler



Bette Korber

1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010 2020



Mary Tsingou



Helen Edwards

Our Takeaways

- Existing individual Lab initiatives
 - Develop networks and retain women already at the Labs
 - Encourage young women to pursue careers in STEM
 - *Gap:* Less evidence of cross-Lab initiatives, strategies, or products targeted at attracting women to the National Labs
- Possible perception \neq National Lab careers are sought for work/life balance
 - *Contrast:* Cohort 3 women drawn to the *opportunities* offered at DOE Labs
 - Work with outstanding people
 - Contribute to important and big challenges

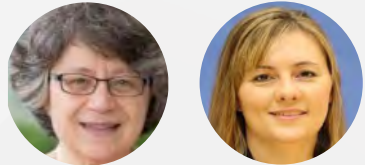
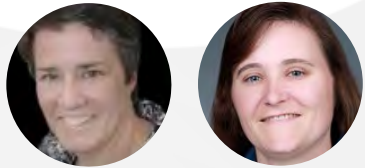
Our Recommendation / Plan of Action

Work with HR, D&I Officers, and Chief Communication Officers to

1. Provide input to DOE Office of Public Affairs to populate the DOE History of Women timeline and other Women @ Energy products
2. Contribute to cross-Labs recruiting or D&I strategies to attract women to the National Labs:
 - Develop museum exhibit with scalable travel option
 - Create targeted recruiting products (e.g., “Bigger Than Me” video)
 - Participate in regional Lab Days
3. Document and organize a Labs-wide workshop for the OSELP alumni network to illuminate the role of women leaders at the DOE National Labs:
 - Showcase contributions by women at the DOE Labs
 - Serve as a forum for D&I Officers to vet strategy and receive feedback
 - Address findings from the D&I summit for DOE Labs technical leaders (COACH initiative)

Beyond OSELP Cohort 3

30+ members from the past, present, and future



OSELP COHORTS

○ **1 & 2**



OSELP COHORT

3



OSELP COHORT

4





Oppenheimer Leadership Network

*An Enduring Element of the Oppenheimer
Science & Energy Leadership Program*

Oppenheimer Leadership Network

An Enduring Element of the Oppenheimer Science & Energy Leadership Program

This program has created

- 45 Oppenheimer alumni
- A diverse cross-section of leaders devoted to the national lab system as a whole
- A resource that can be leveraged by the National Laboratory leadership to further the ambition of the OSELP



Framework and Implementation

- Self-organized into working groups; designated members interact with NL leadership to identify activities with system-wide benefit
- Implement select *think pieces* and carry out *assignments* as requested by NL leadership
 - Examples focused on *workforce, partnerships, culture*
 - *Illuminate the Role of Women in the DOE National Labs*
 - *National Laboratory brand*
 - *Workforce Mobility across labs*
- Organize biennial Oppenheimer conference to discuss new cohort think pieces and emerging issues



Benefits of the Oppenheimer Leadership Network to:

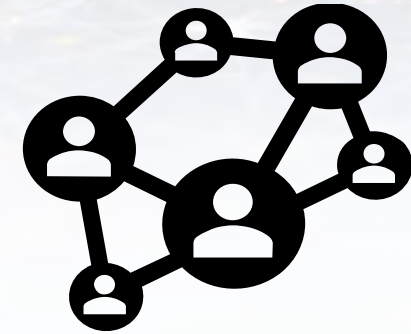
LOB
CRO
CCO
HRD

nldc

NL Leadership: An independent group, with a fresh set of eyes that will support bandwidth-constrained leadership teams

NL System: Continue to engage and develop the pipeline of future leaders of the system

OSELP Alumni: Expands our peer network and provides opportunities to work on important issues of a system that we will inherit



Recognize and engage the Oppenheimer Leadership Network!

Cohort 3 Reflections

Cohort 3 Reflections



Ilke Arslan, Argonne National Laboratory



“This program was an amazing opportunity to learn about the National Lab system, interact with Lab leadership at all levels, and dig into the inner workings of a very complex entity. While I previously knew the strengths of a few of the labs, this program helped me to realize the importance of the National Lab Complex as a whole, to learn the rich history that created and developed the Labs over the years, and to observe the high level of science and leadership at every Lab today. It has made me proud to be part of this critical work for our nation.”

Suresh Baskaran, Pacific Northwest National Laboratory



“The Oppenheimer leadership program provided a unique opportunity to learn about the DOE Lab system as a whole, as well as the priorities and challenges for individual Labs. The Lab visits also provided the opportunity to interact with a talented set of leaders at each of the Labs and within the program.”

Gabriella Carini, Brookhaven National Laboratory



"This was a great experience. It helped me to understand the lab system and learn about many different national labs. I enjoyed working with my cohort fellows and I look forward to continue our work within the Oppenheimer Leadership Network."

Heather Chichester, Idaho National Laboratory



“The Oppenheimer Program is an unparalleled opportunity to explore the mission and breadth of the national lab enterprise and develop a network of leaders across the labs. I look forward to seeing what this group will accomplish as we move forward.”

Beth Fancsali, Fermi National Accelerator Laboratory



“Inspiring and illuminating! The OSELP program allowed us to develop a breadth and depth of perspective, knowledge, and relationships across the complex that none of us could have developed on our own or within one year. The value of the experience will endure and continue to inspire me in supporting the amazing lab and DOE mission.”

Chris Haase, Ames Laboratory



“OSELP participation and learning underscored the importance of America’s national laboratory complex, its immense human capital, and its inextricable linkage to America’s past, distinguished scientific accompaniments and to its great, future potential.”

Marcey Hoover, Sandia National Laboratories



“OSELP was a once-in-a-career opportunity to study the DOE Lab system, engage with senior leadership, and grow a trusted network of peers. I internalized why the DOE National Labs are considered the crown jewels of the nation’s research and innovation ecosystem, and leave OSELP being forever impressed with the awesome responsibility and honor that we have in stewarding the mission of the Labs!”

Stuart Hudson, Princeton Plasma Physics Laboratory



"An eye opening experience that has impressed upon me both the honor of being part of such a capable scientific national complex and a feeling of responsibility to ensure that the NL complex continues to advance its inspiring mission."

Thomas Kirchstetter, Lawrence Berkeley National Laboratory



"I really didn't know what the program was going to be like. It's a once in a lifetime opportunity to learn about the labs and the national system, to be part of an enthusiastic team of amazing colleagues, and to have candid conversations with laboratory and DOE leadership about challenges and opportunities of the system that we will inherit."

Kristin Munch, National Renewable Energy Laboratory



“This past year has been a truly amazing experience, and I am very grateful for the opportunity to gain a deeper understanding of the broad mission space of the National Lab complex, and to meet and work with a group of dedicated and talented emerging leaders. Our national lab system is unparalleled in the world, and the commitment exhibited to the DOE mission from all the staff and leaders we met was inspiring. The Oppenheimer program is building a network of future leaders that is based on trust and openness, and I look forward to contributing to the future of the labs.”

Rebecca Nikolic, Lawrence Livermore National Laboratory



“This program provided our group the opportunity to learn about so many aspects of the DOE. The site visits were incredible, from spending time with their leadership, touring their flagship facilities and hearing, so candidly, about their challenges. As we find ourselves facing various challenges in our careers, we now have both a network of colleagues to call on and lessons learned from our trips. It was a privilege to be part of this cohort and I intend to bring back what I learned to my lab and have the responsibility to engage with the broader national lab community as I work on new programs.”

Eric Pierce, Oak Ridge National Laboratory



“This experience provides a unique opportunity to gain an intense and in-depth perspective of the national laboratory complex, DOE programs, and DOE HQ. The OSELP activities have allowed me gain a greater appreciation for the leadership challenges and opportunities; the breath of facilities, capabilities, and missions; and the range of organizational management structures that exist across the Lab complex. This exposure has broadened my perspective on the range of programmatic structures and research models that can be implemented to advance DOE’s mission for the nation.”

Machelle Vieux, SLAC National Accelerator Laboratory



“The program has accelerated my learning in a transformative way! Visiting twelve National Labs and DOE headquarters over the course of the year was an incredible experience to learn about our National Lab history, mission, culture, and to better understand the cross-cutting challenges and opportunities we face as a lab ecosystem. Our conversations with early career scientists and staff, senior leadership across the National Lab complex, and executive leadership at DOE was thought provoking and inspirational. The strong relationships we’ve built with our talented and diverse cohort will connect us across the lab system. I am thankful and honored to be part of OSELP.”

Kristine Zeigler, Savannah River National Laboratory



"I was so very excited to become part of this program and meet a brilliant group of peers that are interested in the betterment and success of our national lab system. I appreciated the frank and candid conversations with lab leadership which gave glimpses of both the successes and struggles of the labs, which I would have never received without this program. It was interesting to see that we all struggle with some of the same issues and should continue to work together in order to overcome these to be able to solve the bigger scientific and technical challenges that face our future."