

OSELP

Oppenheimer Science and Energy
Leadership Program (OSELP)

Cohort 4 Think-Piece Summary

***Pipeline and Recruitment Strategies at Department of Energy
National Labs***

Pipeline and Recruitment Strategies at Department of Energy National Labs

*A Think Piece compiled by members of the
Oppenheimer Science and Energy Leadership Program Cohort 4*

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DRAFT

Executive Summary

This think piece focuses on innovative pipeline, recruiting, and workforce development programs that are currently in place at DOE National Laboratories. These programs will continue to be responsible for fostering a healthy workforce for years to come, and therefore are critical to supporting DOE mission scope. The main product of this think piece is a “menu of options” highlighting a number of unique programs that we discovered during our research into this topic. For long-term strategies and partnerships, we surveyed K-12 STEM programs, higher education partnerships, community college technician pipelines, and programs identifying future workforce needs. For entry-level lab programs, we identified unique approaches to student internship programs, postdoctoral programs, and technician apprenticeships. Finally, for recruitment of career staff, we studied current recruiting and hiring practices. This white paper will be disseminated to a broad audience related to workforce development and recruitment throughout the lab complex. Our goal is to facilitate the national labs learning from each other about the innovative programs that they have developed.

This background research led to several tactical or short-term recommendations that DOE labs can take advantage of in order to enhance pipeline and recruitment strategies.

1. Connecting programs within a lab tends to improve outcomes.
2. DOE-wide umbrella organizations help push all labs to do better through sharing of innovative approaches.
3. Success at workforce development reflects investment by the laboratory.
4. Diversity is a critical component of workforce health.

We also propose a more strategic or long-term recommendation for a “DOE Academy”. While many current laboratory efforts are successful, we feel that a holistic DOE-wide resource and effort would bring scale to bear for greater impact, avoid duplication of effort and, most importantly, help share the innovative solutions that individual labs have successfully developed.

Motivation - A discussion of why innovative programs are critical for DOE workforce development

The DOE National Labs rely heavily on attracting quality talent to fulfill their mission scope. One fundamental characteristic of the labs is the fact that a large percentage of the staff is comprised of long-term national lab system employees. In addition, approximately 40% of the national lab workforce is eligible to retire in the next five years¹. Therefore, it is vital to identify successful strategies for improving recruiting at the national laboratories in general. Our focus in this think piece is on recruitment models intended for development of pipelines that lead directly to the national lab system (both scientific and technician staff), including universities, community colleges and technical schools. To further a diverse and inclusive workforce, this effort includes suggestions on reaching out to minority groups such as the Grace Hopper Society, the Society of Women in the Physical Sciences, the National Society of Black Physicists, as well as historically black colleges and universities (HBCUs) and other predominantly minority organizations.

Every national laboratory has a strategy for recruitment that focuses on different aspects, including K-12 activities, university partnerships, fellowship programs, society engagement, and apprenticeship programs. Our research indicates that all labs are doing well in some areas but are struggling in others. ***Our goal is to facilitate the labs learning from one another so that all labs can enjoy more success in this area. This white paper highlights some of the innovative programs and unique solutions that individual labs have developed to deal with pipeline strategies, recruiting and hiring techniques, diversity and inclusion programs, and future workforce needs.***

This think piece is inherently long-term in its vision to facilitate a consistent recruitment strategy for the national lab system. However, there is also a short-term impact to recruitment due to the COVID-19 pandemic, which is modifying pipeline and hiring processes throughout the country. For example, summer student programs are generally a major contributor to recruitment strategies for the labs, and many have been put on hold or are operating virtually in 2020 and 2021. This document primarily focuses on long-term pipeline strategies, but also addresses some of the pipeline challenges that are unique to the pandemic era. In addition, this think piece has strong ties to concepts of national lab branding, leadership, retention, and other issues presented in several of the other OSELP Cohort 4 think pieces.

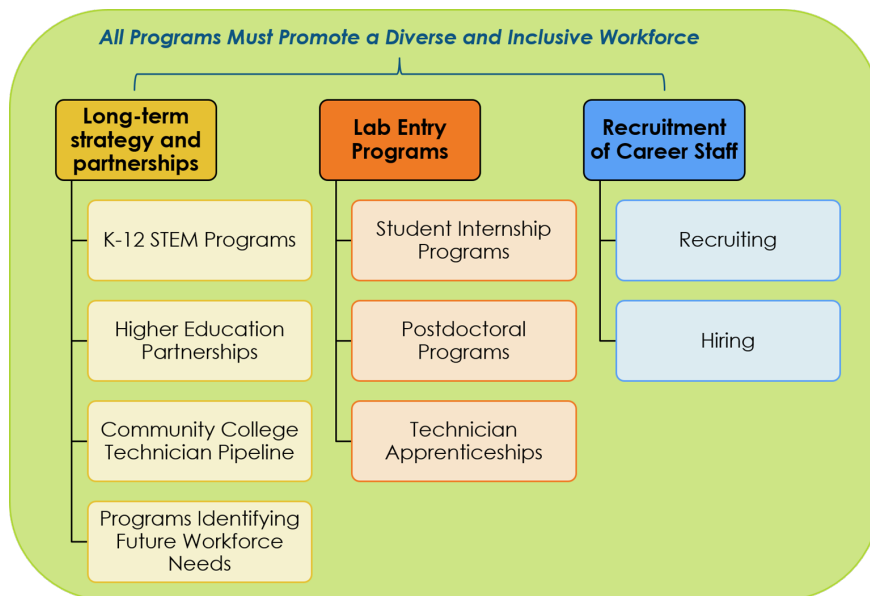
This white paper is intended for a broad audience of DOE laboratory staff who are interested in improving upon current pipeline and recruitment strategies. We hope that the menu of options we present here may lead to an increased awareness of innovative workforce development programs throughout the complex.

¹ “Energy Workforce Opportunities and Challenges,” Congressional Testimony to U.S. House Appropriations Energy & Water Subcommittee, February 2018.

Background - Our approach to the problem and research methodologies used

Research for this white paper included a combination of surveys, interviews, and discussions with all seventeen of the national labs in order to identify what works and where common areas of struggle exist. We include “solutions” from labs that are doing particularly well in certain areas. In addition, we identify a path forward for common areas where some labs struggle. The ultimate goal is to help connect efforts across the lab system.

The pipeline and recruitment problem was broken down into three main areas shown below:



In most of the above areas, diversity and inclusion were considered and are reported on below. One of the most striking aspects of our research was that interconnections between the above programs and management at a lab-wide level seemed to provide the highest benefit. Some of the most innovative solutions involved partnerships not only between these programs, but also between similar programs at the DOE-level. Examples of these best practices are captured in the next section.

Our team began by using a survey to gather information on the above areas from each of the labs. We chose to survey the entire OSELP cohort, and in some cases, the cohort members referred us to experts at their labs. The survey included a series of ten questions on recruiting, hiring, pipeline, and future workforce strategies, as well as a section listing points of contact for various programs in these areas. The survey questions are documented in Appendix A. Survey results were compiled and used to identify programs at specific labs that are particularly innovative and successful. Virtual interviews were set up to learn more about the most intriguing efforts. In total, we performed 13 interviews with experts across 7 labs. In addition, we were able to gather information from a number of in-person and virtual site visits that the OSELP cohort participated in throughout 2020 and 2021.

Highlights – A menu of best practices for pipeline development and recruitment

The following sections present highlights of the unique programs we learned about during our research for this think piece. For each area, we list programs that contribute to success at multiple laboratories, along with the names of the labs from which we heard about these programs. **We emphasize that these lists are NOT exhaustive!**

There is an important caveat to this think piece report. Our research was targeted and not fully comprehensive, so we have not identified every instance of a particular program across all 17 DOE labs. We also list a number of standout programs at specific national labs, and again, these should not be interpreted as comprehensive. Through our surveys, interviews, and virtual visits, these are particular examples that were impressive in their success, scope, and organization. If you have an innovative program at your lab that we missed, we would love to add it here! This document will be updated as necessary.

K-12 Programs

- **Programs in place at multiple DOE labs**
 - **Local student lab visits** – Many labs invite students on site annually, but some have particularly strong programs. (Examples include BNL, which hosts 30,000 K-12 students on site annually and now tracks where these students end up, and Fermilab, which hosts 100,000 K-12 students on site annually, which is facilitated by open access.)
 - **STEM competitions** – Most labs engage in STEM-based competitions either on or off site. Activities include middle and high school science bowls, bridge and vehicle building, elementary and middle school science fairs, robotics, computing, and Hour of Code programs.
- **Standout programs at specific DOE labs**
 - **Learn. Do. Earn. In Nuclear.** – An INL-produced tool to educate parents, high school career counselors, and students about the range of nuclear field jobs in the state, salaries, degrees needed, and which state schools offer those degrees.
 - **The Interactive Plasma Physics Experience (IPPEX):** a PPPL virtual environment to operate a tokamak and control remote tabletop plasma discharge experiments.

College and University Partnerships

- **Programs in place at multiple DOE labs**
 - **Building relationships focused on long-term sustainability** – Programs that help connect university faculty and lab researchers and build collaborative research such that future students in that faculty's lab will have natural connections with the lab.

There is also a focus on sustainable programs that have a broader impact. (Examples investing in these programs are INL and BNL.)

- **Joint PhD programs** – Joint education programs with labs and universities allow students to work on their degrees at the lab. (Examples include NREL, which has collaborations with several Colorado universities, and Jefferson Lab, which has sent 1/3 of all U.S. nuclear physics PhDs through its programs.)
- **Joint faculty programs** – Faculty/staff joint appointments provide another bridge between lab and university in which appointees have responsibilities at both a university and a lab. (Examples include SLAC and Ames Lab.)
- **Graduate Fellowships** – Lab-based student fellowships offer students the opportunity for a structured graduate program bridging lab and academia. (An example is INL.)
- **National Fellowship Programs** – The SSGF (NNSA-sponsored Stockpile Stewardship Graduate Fellowship), GRFP (NSF-sponsored Graduate Research Fellowship Program), and others are strong national programs that include on-site research at DOE labs and provide opportunities for sharing work at conferences and career fairs.
- **PSAAP centers** – The Predictive Science Academic Alliance Program provides collaborations between NNSA labs and university centers that allow students to work on mission-relevant problems. (LANL, LLNL, and SNL collaborate with PSAAPs.)
- **Standout programs at specific DOE labs**
 - **CAES (Center for Advanced Energy Studies)** – A leading consortium at INL comprising all four regional research universities to create a pipeline and other win-wins between labs and academia (research, education, innovation). Includes programs such as the Summer Visiting Faculty Program (where faculty from local universities can spend a summer doing research and mentoring), NSF REU internship funding, joint certificates tailored to the lab’s needs, and much more.

Programs Identifying Future Workforce Needs

- **Programs in place at multiple DOE labs**
 - **Use of data for hiring and detailed diversity statistics** – Some labs track detailed hiring data for diversity and other purposes. (JLab)
 - **HR partnerships** – Several labs mentioned that HR partners with ALDs and division leaders to make a hiring plan for out-year needs.
- **Standout programs at specific DOE labs**
 - **CAES (Center for Advanced Energy Studies)** – This INL center focuses on the development of the energy workforce, offering reverse joint appointments at universities, student competitions, as well as certificates in areas not generally taught in schools (like cybersecurity, non-proliferation).

- **Report on workforce projections in nuclear energy** – This INL program connects multiple organizations across the region. It may be able to improve lab-wide/DOE-wide focus on new strategic areas like AI, machine learning, quantum, and new skills/programmatic areas.
- **Statistical analysis for labor demand** – This INL program assesses the workforce demand in particular technical areas based on aggregating statistics. The program is run by a labor economist.

Student Internship Programs

- **Programs in place at multiple DOE labs**
 - **Integration between HR and Education Program Office** – Collaboration between HR and educational programs increases awareness of internship opportunities and streamlines hiring processes. (Examples using this approach are BNL.)
 - **Integrated student programs** – One integrated program through the laboratory streamlines the processes involved in recruiting and hiring students. (Examples using this format are LANL and BNL.)
- **Standout programs at specific DOE labs**
 - **Office of Educational Programs** – BNL's program office integrates K-12, undergrad, grad, and postdoc programs in one very cohesive and coordinated program. This facilitates connections between programs and helps to bring people through the whole pipeline. It also includes a visiting faculty program. A key is the well-staffed office with 14 staff. BNL has developed a suite of programs for every grade level from 1st through graduate level. They host high volume at the early grade levels and as the science gets progressively more complex, they host upper grade levels in authentic science activities using BNL facilities and mentors, as well as trained teachers. Internships at the high school level and the teacher/student research programs seed undergraduate internship programs.

Postdoctoral Programs

- **Programs in place at multiple DOE labs**
 - **National Lab Postdoc Forum** – Started by LANL postdoc program lead Mary Ann With, this program stemmed from the National Postdoc Association. It has developed a postdoc program resource guide for all DOE lab postdoc programs to use, and it hosts an annual virtual meeting. (Participants are LANL, LLNL, Sandia, ORNL, Savannah River, Ames, Argonne, BNL, LBNL, PNNL, INL, and NREL.)
 - **Postdoc program activities** – A range of activities designed specifically for postdocs, including research slams, holiday parties, postdoc poster symposia, summer events,

- brown bags, writing seminars, and invited speakers. (Examples include LLNL, LANL, PNNL, LBNL.)
- **Named postdoc fellowships** – Used for recruiting into more prestigious postdoc positions. (Examples include INL, BNL, SNL, LLNL, LANL, SRNL, SLAC, PPPL, PNNL, LBNL.)
 - **Standout programs at specific DOE labs**
 - **Career development programs for postdocs** – At LLNL, institutional funds support postdocs at the 25% level for career development, which can be used to attend conferences, finish writing up papers from the postdoc’s previous position, and attend training, tours or seminars, even if they are not directly relevant to employee’s projects.
 - **Integrated postdoc program** – One program and process throughout a laboratory contributes to a consistent approach, as is done at LANL. The program is integrated with HR for quicker turnaround and provides a standard application and evaluation procedure.

Technician and Technologist Apprenticeship Programs

- **Programs in place at multiple DOE labs**
 - **Technician and Technologist Apprenticeships** – A number of labs feature technician and technologist programs that capitalize on a symbiotic relationship where community colleges host students and then send to a lab for a short practicum. Other variations include the labs helping to shape the curriculum and courses offered according to local labor needs. In addition, in some cases degrees are linked to lab hiring. (Examples include LLNL, LANL, INL, BNL.)
 - **Competitive salaries** – It is important to ensure HR knows the skill set of those being hired, since they may have more skills than expected. (LLNL’s technician program prioritizes upskilling.)
 - **Awareness of schools that specialize in certain skill sets** – Programs know the different schools around the country that teach different skill sets. (An example is LLNL, which recruits specific backgrounds from states with certain specialties.)
- **Standout programs at specific DOE labs**
 - **Los Alamos Radiological Control Technician Program** – Program developed over 29 years by LANL staff member Michael Duran. It is coordinated with a local community college to establish both degrees and curriculum. State government funding supports the program, and it provides a diverse candidate pool to LANL. 30% of RCTs have gone through program, and program graduates tend to stay at LANL for their whole career.
 - **Lawrence Livermore Integrated Technologist Program** – This program organizes all technician and technologist programs at LLNL. Program Lead Randy Pico has been at

several DOE labs over 40 years. The program recruits lots of former military, has extensive relationships with native American tech colleges, and works directly with community colleges through their advisory board to mold curriculum needed for the lab.

- **Opportunity Finder** – A PNNL tool for technicians that trains staff internally for upskilling to another job.

Recruiting

- **Programs in place at multiple DOE labs**
 - **Military veteran programs** – The Hiring Our Heroes program emphasizes military and veteran recruiting, including dual-career challenges. Identification of special existing skills and upskilling, and streamlined route to security clearance, are features of this program. (LANL and INL are examples of participants.)
 - **Dual-career programs** – Programs to place dual partners at the labs exist across the complex. (Examples are INL, LANL, Ames). The HERC (Hire Education Recruitment Consortium) program is a national search for dual careers. (Ames, ANL, BNL, and LBNL participate.)
 - **Social media presence** – Many labs are improving their social media presence, which assists in advertising professional and exciting social media pages to younger generations. (An example is LLNL’s streamlined LinkedIn searches to identify lab jobs by keywords from the job posting.)
 - **Interview training** – Programs to teach best practices to interviewers include providing training in behavior interviewing, learning how to make someone comfortable in an interview, and more. (An example is LLNL’s recent efforts.)
- **Standout programs at specific DOE labs**
 - **Talent Neutron software** – LLNL uses this software to allow candidates to take a job posting and find companies or organizations that hire people with particular backgrounds.

Hiring

- **Programs in place at multiple DOE labs**
 - **HR Partnerships** – Deployed HR representatives in each organization can help streamline the paperwork in the hiring process. (An example is LANL.)
- **Standout programs at specific DOE labs**
 - **Hiring Point of Contact** – This ORNL program has found success with having a hiring point of contact (a scientist) in each directorate. They have found that scientists like to talk to other scientists, rather than talking to HR, about hiring needs.

- **Smart Recruiters software** – This LLNL hiring software is intuitive and enhances the applicant and hiring manager experience.

Programs Promoting a Diverse Workforce

- **Programs in place at multiple DOE labs**
 - **SULI Program** – (Science Undergraduate Laboratory Internship program) is a national DOE program for minority undergraduates wanting to spend a summer at a national lab. This provides a subsidized way for projects to bring in and engage undergraduates. (All 17 DOE labs participate.)
 - **National GEM Consortium** – At least 12 national labs are members of the GEM Consortium, which allows them to bring in GEM Fellows, highly selective graduate students from specific minority backgrounds, for internships that are sometimes repeated for multiple summers. (ANL, BNL, Fermilab, INL, LBNL, LLNL, LANL, NREL, ORNL, PNNL, PPPL, and SNL participate.)
 - **Minority Serving Institution Partnership Program** – This program creates a direct pipeline between the DOE labs and minority-serving institutions in STEM disciplines. (ANL, BNL, LLNL, LANL, NETL, ORNL, PNNL, SNL, and Savannah River participate.)
 - **Recruitment of diverse populations and females** – The labs are strategically enhanced by strong relationships established with organizations serving these populations. (Examples include BNL’s participation in Girls, Inc. of Long Island, Girl Scouts, the NSF funded Louis Stokes Alliances for Minority Participations, the New York State Science and Technology Entry Program (STEP) and the NYS Collegiate STEP program (CSTEP), the Society of Women Engineers, and the National Society of Black Physicists conference.)
 - **Day cares options for lab employees or lab guests** – Several labs have day care centers either on or near campus for employees. Notably, Fermi lab even provides day care services to visitors. (Examples include Fermi lab, ANL, and LLNL.)
 - **Summer programs for underrepresented minorities** – Many programs exist.
- **Standout programs at specific DOE labs**
 - **InCREASE** – A BNL consortium of faculty from minority serving institutions and underrepresented minority faculty that conducts research in collaboration with DOE researchers at DOE facilities.
 - **STEM Prep** – This is a 4-week BNL program for underrepresented minority students.
 - **My Amazing Future** – An INL program that brings all fourth grade female students in the region to a whole-day event at the lab.
 - **Young Women Conference** – A PPPL program to bring high school female students in the region to a whole day event at the lab.
 - **Science Careers in Search of Women Conference** – An ANL program to introduce young women to Argonne’s mission space.

Tactical Recommendations – short-term enhancements to pipeline and recruitment strategies

The outcome of this think piece is a series of short- and long-term recommendations to enhance pipeline and recruitment program availability at the DOE labs. We begin here with the more tactical short-term recommendations based on what we learned in our research.

1. *Connecting programs within a lab tends to improve outcomes.*

At some labs, strong connections exist BETWEEN programs, and this is facilitated by maintaining an umbrella organization that houses all pipeline and recruitment programs. This allows a consistent and streamlined approach to the problem and avoids duplication of efforts. It also facilitates tracking of the students' scientific journeys throughout the entire K-12/College/University pipeline.

2. *DOE-wide umbrella organizations help push all labs to do better through sharing of innovative approaches.*

We encountered some instances of programs crossing lab boundaries to incorporate ideas from multiple labs. For instance, the National Lab Postdoc Forum is a resource for those working in postdoc program offices at 12 DOE labs. There are also a few examples of HR or other key personnel moving between labs and taking their experience and knowledge of workforce programs and standing them up at their new lab. We also learned that sometimes an employee uses an example of another lab doing something as organizational motivation to get it done at their lab. Our recommendation for these cases is clear: across the DOE complex, we should work hard to SHARE innovative approaches.

3. *Success at workforce development reflects investment by the laboratory.*

In many cases that we came across, assembling a critical mass of team members led to innovative solutions. For example, Educational Program offices staffed with more than a dozen employees contributed to the free energy to deploy more unique programs. Another example is investing in a labor economist, which can result in dividends for the organization in terms of analytics and implementation of workforce programs. For these approaches to work, funding and resources at the institutional level must be adequate to the task. Individual labs must prioritize needs for their specific circumstances in order to decide where they should invest.

4. *Diversity is a critical component of workforce health.*

The lack of diversity in scientist and engineering staff seems to be deep-seated and structural – here labs have had success with programs such as GEM that nurture a diverse workforce starting in college. In addition, some labs have reported success in diversifying their workforce through the technician program by partnering with specific underserved communities.

Strategic Recommendations – A proposal for a DOE Academy

While current lab-by-lab and DOE HQ efforts are successful, there are many overlaps and duplications in efforts across the lab system, which could benefit from a lab-wide lens and effort. We propose a bold, holistic DOE HQ-driven initiative with a joint focus on pipeline, recruiting, and workforce development – DOE Academy² - in order to a) drive national and lab-level programming with national data, b) bring scale to bear when providing common tools, programming, national-level partnerships, and resources for the labs, which can be supplemented at the local level, and c) fills gaps across discrete efforts and programming – which will result in higher impact pipeline and workforce returns for the DOE system and the country.

The “highlights” section above, representing the current successes at the national labs, form the backbone of the DOE Academy proposal, which simply scales the efforts to national level.

DOE Academy activities could involve the following:

- **Future Skills Map**
 - ☒ Based on DOE priorities and national data, do a study to provide data on priority research areas and researcher (quantity and skill level) needs, 5-years and 10-years out, with a focus on critical capabilities (e.g. power systems, cybersecurity), and new and emerging areas (e.g. AI/ML, quantum).
- **Single System Branding and Systems for Recruiting, Growth, and Retention**
 - ☒ Provide single-system national lab branding to enhance public name recognition, which will enhance recruiting.
 - ☒ Support a DOE-wide job portal to highlight openings across the system in one location.
 - ☒ Enable job mobility across the lab system and DOE, to allow for maximized job growth and development while staying in the “DOE pipeline”.
- **National-level partnerships**
 - ☒ Form strategic umbrella organizational partnerships (e.g. big industry, IBEW, MSRDC, UEI) related to workforce to better enable lab-specific partnerships and activities.
- **Program Optimization and Gap-Filling**
 - ☒ Co-locate and optimize the portfolio of DOE workforce programming (internships, apprenticeships, fellowships, postdocs, visiting faculty programs, etc) to meet needs of the Skills Map and complement the pipelines. This includes creating strategy around collaborative gov/academic/industry opportunities including hands-on/experiential learning at the labs/industry, taking lab/industry expertise into the classroom (including specially-created curricula), managing

² Bakhtian, N.M., “DOE Academy,” White paper. September, 2020.

re/upskilling of current workforce via training/badging/certificates/degrees, managing communication of opportunities and matchmaking, and optimizing recruiting. Integrate diversity goals and strategy from the beginning.

- **Common Tools**

- ⊘ Manage common elements of external recruiting to avoid duplication across 17 labs, especially as connected to critical elements of Skills Map.
- ⊘ Create common tools such as for tracking/engaging with lab alumni (e.g. interns) for future recruiting purposes, professional development opportunities for internship/fellowship/postdoc programs, social media tools, etc.
- ⊘ Help create framework for virtual workforce pool (silver lining of COVID) for full-time or programming such as internships/etc to help grow DOE's talent pool.

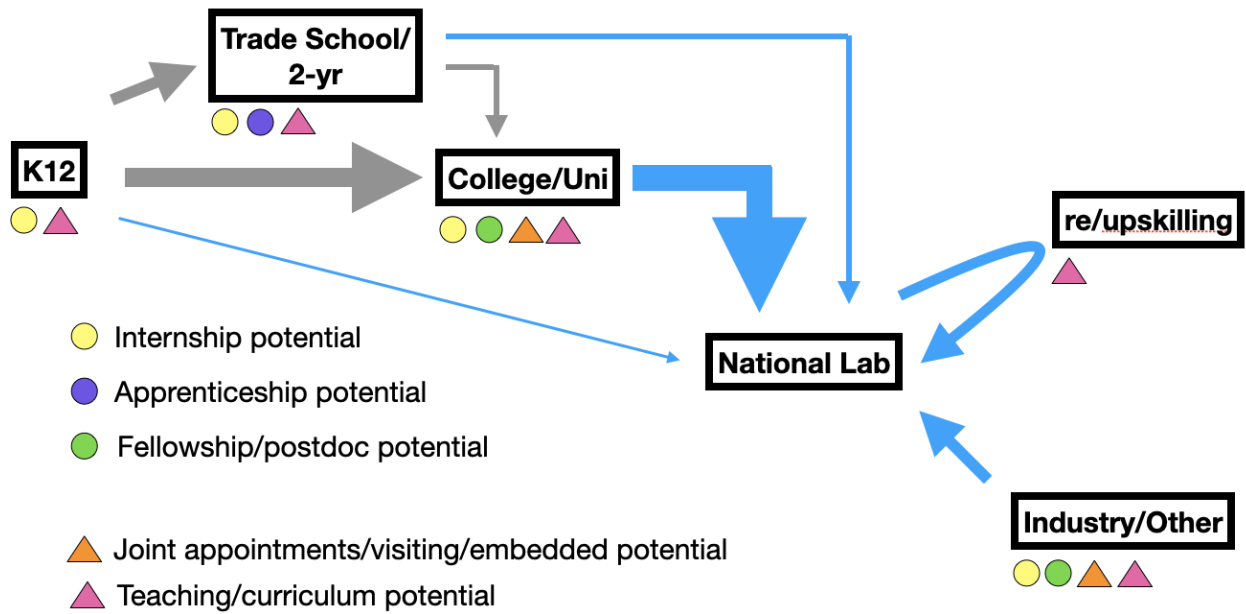
Although beyond the scope of this work, we recognize that the labs and DOE engage in workforce and STEM activities in order to impact the national energy workforce beyond DOE. DOE Academy's activities would naturally cover national energy workforce strategy as well, including

- Future Skills Map
- Illuminating, Creating, and Optimizing Pipelines³
- Strategic Programming and Formalized Partnerships

Co-locating these activities and the DOE Academy lab-specific activities would provide co-benefit.

Given growth in world energy consumption, a shrinking U.S. workforce, and dependence of our national energy systems on development of a robust, highly qualified, and educated workforce, the time is now to implement a DOE-wide strategy to build and maintain a DOE workforce in energy through collaborative development, recruitment, and retention of world-class talent.

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- ³ Working across a) the lab system, b) all levels of academia (e.g. a national consortium across university energy institutes already exists), and c) industry, DOE Academy would illuminate existing pipelines - both internal (upskilling) and external - and implement successful programming. Using the Skills Map, DOE Academy could identify critical gaps and create pipelines and offramps between and from k-12, technical/community colleges, 4-yr institutions, graduate programs, MSIs, veterans programs, and DOE system/industry. This centers on communication of workforce needs to academic institutions, mitigating pipeline "shocks" by streamlining administrative hurdles (e.g. degree transfers, state tuition rules, providing mentoring), and enhancing energy literacy across educational levels. DOE Academy would integrate diversity goals and strategy from the beginning.



Appendix A – Survey questions given to OSELP Cohort 4 members to solicit input on innovative programs

Highlights

Please list one or two areas where you think your lab is succeeding with particularly innovative programs or ideas in the areas of pipeline development and recruitment strategies.

Lab Recruitment Strategy Questions (Recruiting, Hiring)

1. Does your Lab have a recruitment office or strategy for hiring staff at multiple levels? Please describe your Lab's approach.
2. What is the typical hiring path for laboratory staff? Please describe your hiring process, including any standardizations such as job ads and interview processes.

Lab Pipeline Strategy Questions (K-12, College, University, Apprenticeships, and Postdocs)

3. What K-12 programs does your lab conduct or participate in to familiarize young local students with the work that your Lab does, prepare for future hiring, and promote STEM education?
4. Does your lab have a partnership with local universities and colleges to attract talents in STEM? Please describe what this program looks like.
5. Does your lab have an internship program for students and how is it folded into the strategic plans for developing the lab workforce?
6. Does your Lab work directly with any societies or universities that promote a diverse and inclusive work force (i.e. the Grace Hopper Society, the Society of Women in the Physical Sciences, Society of Women Engineers, historically black colleges and universities)?
7. Please describe your Postdoctoral Program. What fraction of your staff comes from the postdoc pipeline?
8. Does your Lab emphasize named Fellowships or other programs to recruit highly talented researchers in competitive fields?
9. Does your Lab have any internship or apprenticeship programs to train technicians? Please provide a short summary of the program and how it contributes to your workforce goals.
10. Does your Lab have a targeted strategy that touches on specific future workforce needs (e.g. have you done an analysis to determine what areas need to be filled in the next 5-10 years)?

Appendix B – DOE lab contacts we interviewed

Following up on the survey recommendations made by cohort members (see Appendix A), we interviewed a number of lab contacts to discuss pipeline and recruitment strategies and learn more about unique programs. We would like to thank the following people for generously spending time with us (virtually)!

- Hope Morrow, INL, labor economist
- Trevor Budge, INL, senior recruiter
- Jackie Gonzalez, LLNL, recruiter
- Bre Sweet-Kerschbaum, ORNL, talent acquisition
- Mary Anne With, LANL, postdoc program lead
- Christine Zachow, LLNL, postdoc program
- Michael Duran, LANL, technician program lead
- Randy Pico, LLNL, head superintendent of technicians
- Noël Bakhtian, INL (now LBNL), CAES Director
- Tony Baylis, LLNL, D&I lead

In the course of our many virtual lab visits this year, we also met with many program leads and contacts who contributed to our understanding of pipeline and recruitment strategies at the labs. We thank them for their time and insight!

- INL: Toni Carter, Theron McGriff, Donna O’Kelly, Ray Enge
- BNL: Noel Blackburn
- LBNL: Lady Idos
- ORNL: Jeremy Busby, Kate Evans, John Galambos, Julie Mitchell, Xin Sun, Moody Altamimi, Gary Worrell, Marilyn Foxall, Mardell Sours, Deborah Bowling
- PNNL: Tanya Bowers, April Castaneda
- ANL: Julie Nuter, Megan Clifford, Kirsten Laurin-Kovitz
- PPPL: Arturo Dominguez, Shannon Greco, Jordan Vannoy
- Ames: Chelsey Aisenbrey, Erin Gibson, Jamie Morris, Meredith Ohrt, Andrea Spiker
- NREL: Carin Casso Reinhardt, Danelle Wilder
- SNL: Sarah Rob Nelson
- SRNL: Sarah Vivian Holloway
- SLAC: Sarah Holder, Natalie Holder
- LANL: Carol Burns, Dave Clark, CJ Bacino, Nan Sauer, Alan Hurd, Duncan McBranch
- JLab: Steven Uwajeh
- Fermilab: Sandra Charles