IMPEL Your Building Innovation

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Apply to be an IMPEL Innovator

- Deadline Feb 22\textsuperscript{nd} for the final IMPEL+ Workshop
- Impel.lbl.gov
Berkeley Lab: the oldest DOE National Lab

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<th>LAB AT A GLANCE (FY19)</th>
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<tr>
<td>$1.1 billion annual budget</td>
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<td>3,398 full-time equivalents</td>
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<td>245 joint faculty</td>
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<tr>
<td>513 postdoctoral researchers</td>
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<tr>
<td>500 graduate and undergraduate students</td>
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<tr>
<td>1,600+ visiting scientists and engineers</td>
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<td>2,000 papers per year, 58% in top journals</td>
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<td>14 Nobel Prizes awarded to Lab staff</td>
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<td>86 members of the National Academies (~4% of NAS membership)</td>
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<td>15 National Medal of Science awardees</td>
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<th>DRIVING THE U.S. INNOVATION ECONOMY</th>
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<td>54 companies based on Lab technology</td>
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<td>153 invention, software licenses (2019)</td>
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<td>80+ companies accelerated by Lab capabilities</td>
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Building Technology and Urban Systems (BTUS) at Berkeley Lab

- Art Rosenfeld starts the Energy Efficient Buildings Program at LBNL, 1976
- First Earth Day, 1970
- First Oil Crisis, 1973
- LBNL works on electronic ballasts, IAQ and energy simulation tools, 1977
- LBNL files patent for aerosol duct sealing, 1984
- LBNL works with companies on Low-e Glass, 1978
- LBNL shows impact of cool materials and shade trees on urban heat islands, 1985
- LBNL staff develop prototype CFL Torchieres, 1997
- LBNL files patent for aerosol duct sealing, 1984
- EnergyPlus evolves from earlier DOE-2 energy simulation, 2001
- BTUS leads Global Partnership Alliance, 2016
- Urban Science, 2017
- LBNL launches FLEXLAB, 2014
Incubating Market-Propelled Entrepreneurial-mindset at the Labs and Beyond

**IMPEL Your Building Innovation**

Pitch training and incubation for researchers, scientists, professionals, and entrepreneurs to impel your building and energy innovations to impact.
IMPEL+: Stakeholders

IMPEL EXECUTIVE TEAM (DOE+LBNL)

PARTNER INCUBATORS
Green Town labs and Austin Technology Incubator Pitch Events, Network, Accelerator

IMPEL COACHES
Stanford and Berkeley experts with track record in entrepreneurship and commercialization

IMPEL INNOVATORS
YOU! Workshop Participants
**IMPEL+ for Buildings/Energy Professionals, Researchers, Entrepreneurs**

1. **Craft Compelling Pitches**
   - World-class IMPEL Coaches (Stanford/Berkeley)
   - Live, custom feedback
   - Curated Resource Toolkit

2. **Gain a Innovator Network**
   - High-quality, passionate tribe
   - Buildings and energy focus
   - Public + private sector perspectives

3. **Access T2M Pipelines**
   - DOE/State Energy Officials
   - National Pitch Showcases
   - Partner programs with Greentown Labs and Austin Technology Incubator
Why do you want to be an IMPEL innovator?

- You have a building/energy technology/program but are experiencing challenges to move it towards impact.

- You want to convey the value of your innovation to critical stakeholders.

- You want to learn how to gain grant funding, team-member, access to national labs/resources/test-labs, or or a private sector collaborator, funding, demonstration opportunities.
IMPEL+: Project Innovation Areas

Buildings and energy projects that may include:

- **Hardware Products** (e.g. building materials, assembly, sensors, controls, energy equipment, microgrid components etc.)

- **Software Products** (e.g. building information management, construction management, energy data, building-to-grid optimization tools, etc.)

- **Services** (e.g. design, modeling, construction, consulting, training, etc.)

- **Systems & Solutions** (e.g. hardware + software + consulting)

- **Programs & Policies** (e.g. residential building programs, energy efficiency programs, healthy buildings programs, etc.)
Who is eligible to participate?

**IMPEL innovators are:**

- **Entrepreneurs and small businesses** working in the built environment space such as engineering, architecture, landscape architecture, construction, urban design, facilities and real estate, healthy buildings, energy services, microgrids, data science etc.,

- **National Lab staff** who conduct buildings and energy research,

- **Non-Lab Awardees** who have won Federal Opportunity Announcement Awards, Small Business Awards etc.,

- **Faculty and Graduate Students** conducting building science research and development, or from BTO-affiliated university programs such as Solar Decathlon, JUMP into STEM, and others,

- **Fellows and Staff from Non-Profits and Governments** with new buildings innovation program ideas.
Overcome Valleys of Death

**IMPEL SUPPORTS BUILDING INNOVATION-TO-MARKET**

**Public Sector Pipeline**
- Research (TRL 1-2)
- Validation (Prototype/ Patent TRL 3-4)
- Development (Team/Product TRL 5-6)
- Demonstration (Pilot TRL 7-8)
- Deployment (Commercialization TRL 9+)

**Private Sector Pipeline**
- Grants (DOE/NSF)
- Awards (State Energy Offices)
- Angel Investment (Advanced Manufacturing)
- Venture Capital (Corporate Venture)
- Industry

Valleys of Death:
1. Valley of Death 1: Startup formation (Spinoff or Handoff)
2. Valley of Death 2: Product-market fit MVP development
3. Valley of Death 3: Market validation Full scale product/facility
4. Valley of Death 4: Scale-up

Adapted from Rocky Mountain Institute, 2020
Access to IMPEL+ Pipelines

**PUBLIC SECTOR T-2-M PIPELINE**
- **$**
  - Grants
    - DOE/NSF funds
    - Federal grants, prizes
    - SBIR/STTR funds
    - Innovation I-Corps
- **Validation**
  - National labs/standards testbeds e.g. FLEXLAB, ESIF
  - State energy office pilots
  - Lab-Embedded Entrepreneurship Pgm:s: Cyclotron Road, Chain Reaction Innovations, Innovation Crossroads
- **Manufacturing**
  - Advanced Manufacturing Office network

**PRIVATE SECTOR T-2-M PIPELINE**
- **$**
  - Networks
    - Incubators
    - Accelerators
    - Team
    - Licensees
  - Demonstration
    - Demo partners
    - Utility
    - Regional energy efficiency orgs
  - Funding
    - Angel Investors (early)
    - Corporate ventures (early)
    - Private equity (late-stage)
    - Foundations
    - Project finance

IMPEL National Showcases at DOE and Partner Events

Pitch Events | ATI-IMPEL Accelerator | Network Connections

Greentown Labs | ATI | The University of Texas at Austin
Selected 2020 IMPEL Innovators pitched at:
Access to the IMPEL Private-Sector Partner Network

Austin Technology Incubator
Pitch Event and Accelerator

Greentown Labs + IMPEL
Pitch Event

Seal started in 2009 with the goal of empowering entrepreneurs to vet their ideas, test the waters, learn the tips and tricks of entrepreneurship, and try their hands at obtaining funding. SEAL is a 10-week long summer program.
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