



Cyclotron Road

A new pathway for hard energy technology innovation

Innovation today

The age of “lean” innovation



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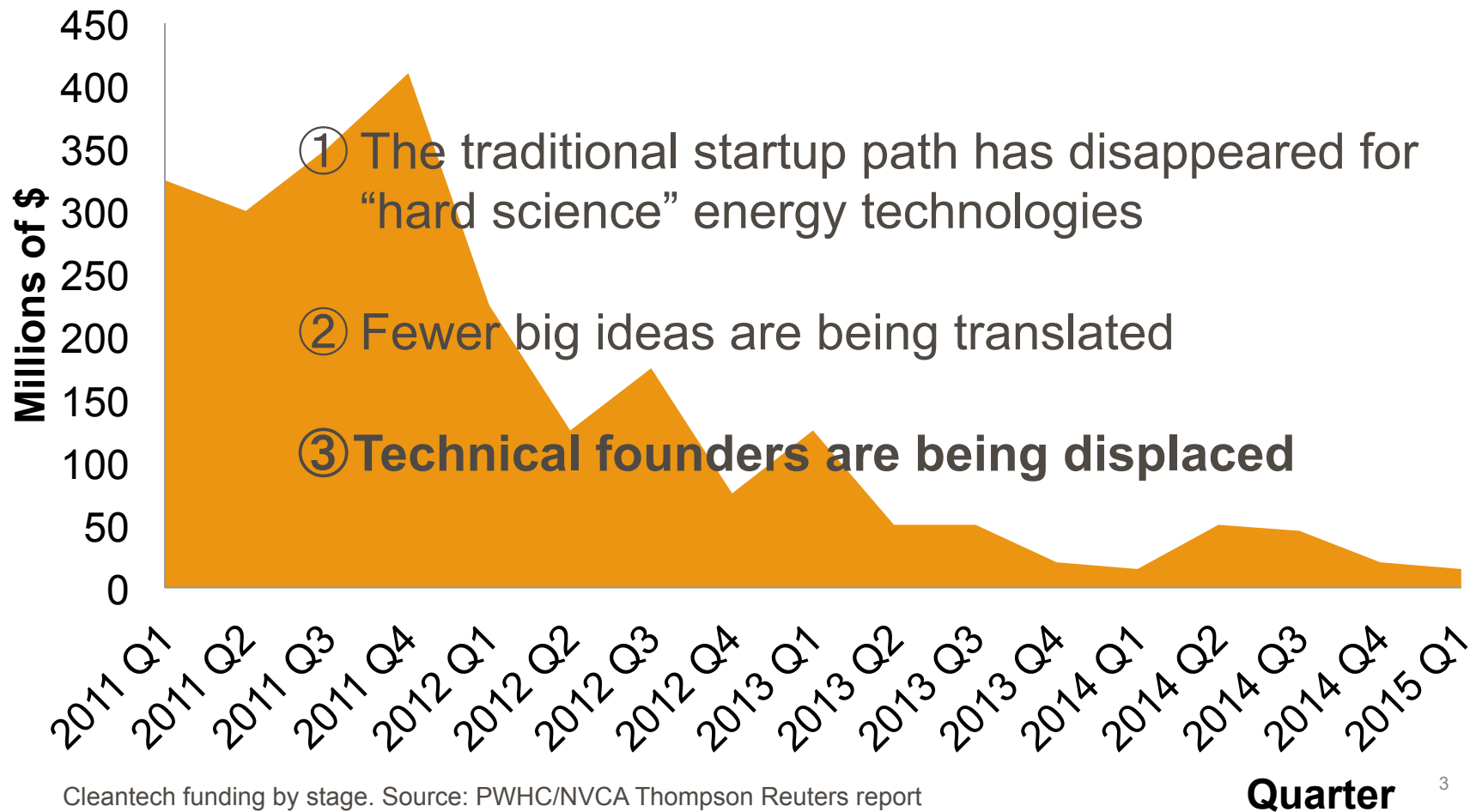


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The challenge

Get “lean” or get lost...



Cleantech funding by stage. Source: PWHC/NVCA Thompson Reuters report

Quarter ³



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The Cyclotron Road model

Let the nation's best energy innovators "spin in" to Berkeley Lab



① **Recruit** the best energy technology innovators

② **Leverage** expert mentorship and world-class facilities at the national lab on a win-win basis

③ **Position** people and technology for market



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Pilot overview

The first cohort



Thermionic Power

Dan Riley and Jared Schwede



Chemical separations

Steven Kaye



Structural materials

Raymond Weitekamp



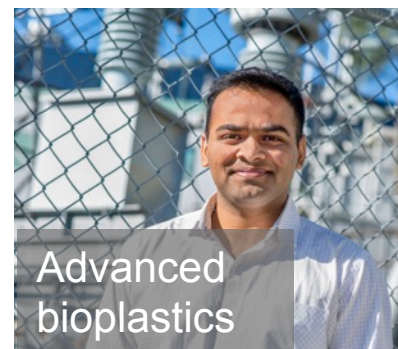
Hydrokinetic generator

Marcus Lehmann



Electrochemical CO₂ → fuel

Kendra Kuhl, Etosha Cave



Advanced bioplastics

Deepak Dugar

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Progress from pilot program

The Cyclotron Road pilot, by the numbers



8 innovators selected from **150 registered applicants** in a three week application window

4 weeks to first experiments with Berkeley Lab

20+ Berkeley Lab scientists have supported the projects

Projects have **avoided millions** in R&D capital expenditures and raised **\$5 million in follow-on funding**



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Progress from pilot program

The Cyclotron Road pilot, by the numbers

Berkeley Lab Scientists on Benefits of Collaboration

- Lets me diversify knowledge, network, and research portfolio
- Excited to work with “all-in” innovators & drive real-world impact
- They are enhancing my equipment and capabilities
- They may bring funding into my research group
- I’m learning about industry needs and from different perspectives
- I may have an opportunity to be part of a startup

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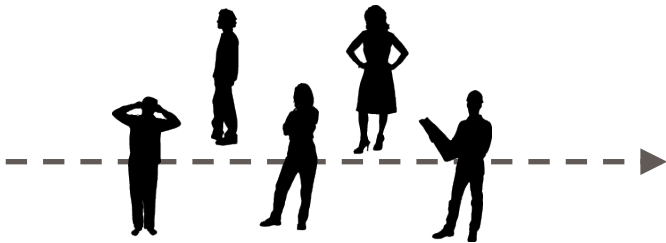
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Goal: build an ecosystem

Drive impact by aligning key stakeholders

Innovators

A custom-built home to pursue breakthrough innovation with mentored support and a higher chance of commercial success



Berkeley Lab

A new mode to drive impact, expose scientists to industry and entrepreneurship, and create an all-star alumni network in the private sector



Department of Energy:

Support the best innovators and get higher yield of mission-aligned commercial outcomes



U.S. DEPARTMENT OF ENERGY

Private Sector

A pipeline of top talent and technologies that will be the industry's next breakthroughs and leaders

Cyclotron Road v2.0

Pilot Lessons Learned

Validation:

- ✓ We can attract high-caliber “all-in” innovators
- ✓ We can facilitate “win-win” collaborations with Lab scientists
- ✓ Projects can leverage modest program support to attract more funds
- ✓ Public and private sectors both enthusiastic to engage

Challenges:

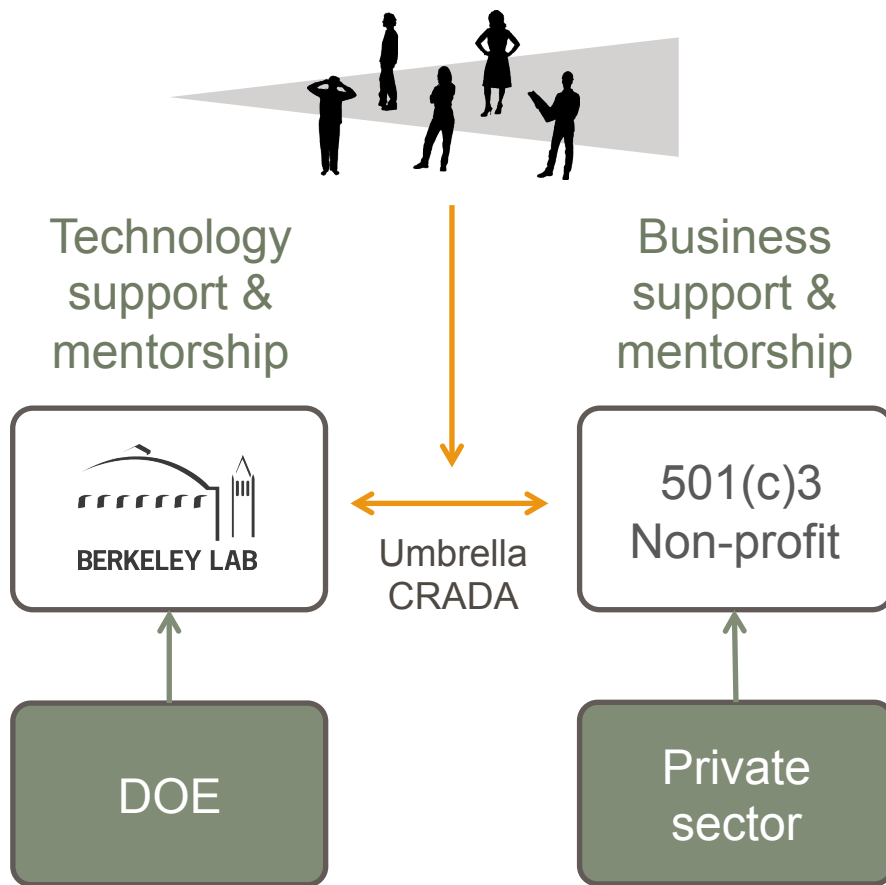
- ❖ IP/HR constraints for Cohort teams
- ❖ Programmatic constraints for the program



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Positioning innovators for impact



Benefits:

- ① **Appropriate IP and HR structure** to support entrepreneurial innovators and facilitate intimate engagement
- ② Provide a **streamlined contractual mechanism** for engagement
- ③ Allows DOE to **leverage complementary private sector support** for mission advancement

Recruiting the next cohort

Second cohort semifinalist visit: fostering new connectivity

16

Innovator teams

7

Technology areas

50+

Berkeley Lab staff

100+

One-on-one meetings

“

The experience of seeing the facilities that were open to us with or without admission to Cyclotron Road was quite informative. **Startups are always looking for resources to grow, and LBL was one we had no idea existed** (and probably would not if Cyclotron Road interviews did not take place).”

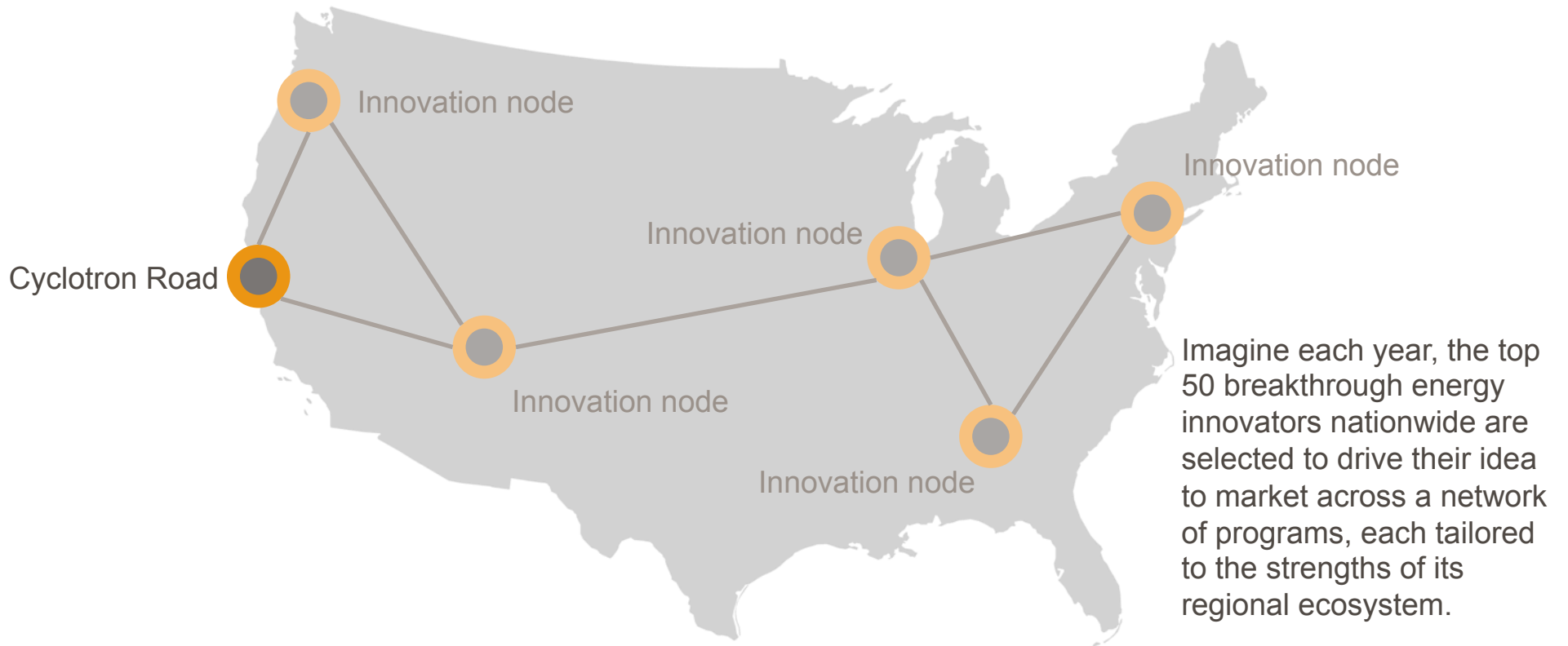
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His technology is both cutting edge and very relevant to our mission. Furthermore, **it represents a capability that we lack, and can be very useful** for the future development of synthetic biology.



Future vision

A network of embedded accelerators driving impact in hard technology



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