

Cleantech Forum San Francisco

San Francisco January 22-24, 2018



Nurturing the Next Generation of Entrepreneurs: What does success look like, and for whom?



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Director, **Cleantech Group** & Sustainability, Plug and Play Technology Center

Cleantech & Physical Sciences Venture Services, MaRS **Discovery District**

Market Advisor, ARPA-E

Innovation Hub, Enel

President, Greentown Labs

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NATE GORENCE Technology-to-market Advisor, ARPA-E





Cleantech Forum 2018

Nate Gorence, Tech-to-Market Advisor

History of ARPA-E





ARPA-E Mission

Mission: To overcome long-term and high-risk technological barriers in the development of energy technologies



Means:

- Identify and promote revolutionary advances in fundamental and applied sciences
- Translate scientific discoveries and cutting-edge inventions into technological innovations
- Accelerate transformational technological advances in areas that industry by itself is not likely to undertake because of technical and financial uncertainty



Creating New Learning Curves





What Makes an ARPA-E Project?

impact	 High impact on ARPA-E mission areas Credible path to market Large commercial application 		
transform	 Challenges what is possible Potential to disrupt existing learning curves Leaps beyond today's technologies 		
bridge	 Translates science into breakthrough technology Not researched or funded elsewhere Catalyzes new interest and investment 		
team	 Comprised of best-in-class people Cross-disciplinary skill sets Translation oriented 	tit	



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If it works...

will it matter?



Tech-To-Market Approach



Provide strategic market insights necessary to create innovative, commercially-relevant programs



Support project teams with skills & knowledge to align technology with market needs



Manage project teams' T2M efforts through T2M plans and jointly developed milestones



Engage third-party investors and partners to support technology development towards the market



Focused and OPEN Programs

Focused programs prioritize R&D topics by their potential to make a significant difference in ARPA-E's mission space.

- Size of the potential impact
- Technical opportunities for transformation
- Portfolio of projects with different approaches

OPEN programs support the development of potentially disruptive new technologies across the full spectrum of energy applications.

- Complement focused programs
- Support innovative "one off" projects
- Provide a "snapshot" of energy R&D
- OPENs have occurred in 2009, 2012 and 2015



Focused Solicitations



ARPA-E Impact Indicators



ACPA•C

As of February 2017



OPEN 2018

OPEN Funding Opportunity Announcements (FOAS) support the development of potentially disruptive new technologies across the full spectrum of energy applications Are you ready to change the world? Accepting concept papers through February 12





2018 SUMMIT March 13-15

Technology Showcase: March 13-15

Gaylord Convention Center, Washington, D.C.



This is the premier event that showcases America's future energy technologies.

energy innovation summit

www.ARPAE-Summit.com



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WADE BITARAF Director, Energy & Sustainability, Plug And Play Technology Center



I. We accelerate and invest in startups.

II. We matchmake startups and corporations.

III. We provide flexible co-working space.

IV. We host major industry events daily.

We run over 20 stage-agnostic accelerator programs a year and invest in over 150 companies.

We match over 130 multinational corporate partners to world-class startups disrupting and incrementally improving their industry.

With a 180,000 sq. ft. building in the heart of Silicon Valley, we have enough room to cater for tiny teams, all the way up to rapidly growing startups.

We host hundreds of events a year with high calibre audiences, making our HQ a great place to network.



OUR CORPORATE ECOSYSTEM



OUR GLOBAL REACH



ALL-IN-ONE STARTUP ECOSYSTEM





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JON DOGTEROM Managing Director, Cleantech & Physical Sciences Venture Services, Mars Discovery District



Mars CLEANTECH ENERGY AND ENVIRONMENT)

MaRS

NORTH AMERICA'S LARGEST URBAN INNOVATION HUB

MaRS

1.5 million sq ftDirect subway & streetcar access

150+ Total Tenants

80+ Startup Tenants

Convening entrepreneurs with financial, academic & business communities

Mars venture support programs are segmented by stage to focus on high-growth High-growth companies High-growth companies

START 60% of Ventures \$0-1M in revenue Pre-seed funding

General (1:many & 1:few)

- Entrepreneurship education
- Experiential workshops
- Market Intelligence Insights
- Peer-to-peer online network

35% of Ventures \$1-5M in revenue Series A funding

GROWTH

Specific (1:1)

- 1:1 Business & Technical advisory
- Talent, capital, Int'l market and customer connections
- Marketing & PR support
- Functional training workshops
- Customized Market Intelligence
- Leverage expert network

Customized (1:1) (Pilot Program)

1:1 Business & Technical advisory

5% of Ventures

\$5M+ in revenue

Series B or more

- Talent, capital, Int'l market and customer connections
- Marketing & PR support
- Functional training workshops
- Customized Market Intelligence
- Leverage expert network
- Connection to the Start venture ecosystem

MaRS CLEANTECH EVOLUTION

ARCTERN VENTURES

ADVANCED ENERGY CENTRE

- A \$50M private capital fund
- Equity in 10 MaRS Cleantech Ventures
- Portion of returns go to MaRS
- Currently raising Fund 2 (\$150M target)
- Managing Partners are Tom Rand (also part-time in VS) and Murray McCaig
- Public- private partnership founded by MaRS Cleantech with Ontario Ministry of Energy, and corporate partners
- Guides utilities and organizations in our rapidly shifting energy sector, helping them plan for the future, and adopt new methodologies and business models

Venture Services, ArcTern, & AEC are known together as MaRS Cleantech



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MILAN POIDL HEAD OF SV INNOVATION HUB, ENEL



Open Innovation: collaboration with Start-ups

January 2018

Milan Poidl

Enel Silicon Valley Innovation Hub Manager

milan.poidl@enel.com





- As of 2016
- 2. Consolidated (35.9 GW) and managed (1.9 GW) capacity including 24.9 GW of large hydro.
- Presence with operating assets З.

Enel Green Power

Positioning and key figures





A leading owner and operator of wind, geothermal, hydropower and solar power plants in the United States and Canada

- 1. Not including projects managed through BSO model (Build Sell and Operate)
- 2. Enel Green Power operates the Large Hy dro power plants of Enel Group
- 3. Excludes non-organic growth for 0.9 GW
- 4. Presence with operating assets

Enel Innovation Hubs

Global Network to promote exchange of ideas & contacts





- Accelerators
- Incubators

Innovation needs for the Enel Group

Main areas of interest for each Global Business Line



COCI

All Business Lines are actively looking for collaborations with startups to grow the business or to improve operational efficiency

Innovating with Start-ups

How does it work



enei

Open to collaborate







Enel Sharing



youtube.com/user/enelvideo



openinnovability.enel.com startup.enel.com



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Innovation and sustainability are at the heart of Enel strategy; merge them together with our **Open Power** vision and what you get is **Open Innovability**. It is what drives our everyday activities and now it is also a digital place to **collect innovative and sustainable solutions**.

Browse the <u>Challenges</u> Enel is called upon to solve and that are waiting for your contribution or <u>submit</u> your own project

Let's generate together new sustainable value: participate and make it happen!



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MARKVASU Executive Vice President, Greentown Labs





Our mission is to foster a passionate community committed to solving the world's biggest efficiency, energy, and environmental challenges by providing the resources and labs startups need to succeed.

64 CURRENT MEMBER COMPANIES



LOCATION





ECOSYSTEM ACCESS — BOSTON, THE NORTHEAST + BEYOND





MEMBER COMPANY IMPACT + SUCCESS



