incubateenergy network

# Clean Energy Incubator Best Practices

## Benchmarking Successful Strategies for Supporting Entrepreneurs

October 2015

## Executive Summary

U.S. clean energy incubators support entrepreneurs in many ways, providing access to mentorship, work space, funding opportunities, corporate partnerships, and more. Their highly selective screening processes and high-value support services can lead to greater success for early-stage clean energy companies, helping promising technologies to more quickly demonstrate their value, scale up production, and gain mass adoption.

The Incubatenergy Network was established to build connectivity among—and drive innovation through—clean energy incubators. To help identify best practices for supporting entrepreneurs, this benchmarking report introduces some of the metrics collected by leading U.S. incubators. The report includes metrics and case studies from the Austin Technology Incubator (ATI), the Clean Energy Trust (CET) in Chicago, the LA Cleantech Incubator (LACI), and NextEnergy in Detroit.

In addition, the report highlights several supporting case study examples from other *Incubatenergy* participants, including the Energy Excelerator in Hawaii, Greentown Labs in Boston, the New England Clean Energy Council (NECEC), and Oregon BEST in the Pacific Northwest.

This overview of best-practice metrics is broken down into three primary topical areas:

- **Company Portfolio** such as application process selectivity, graduation, and funding;
- **Regional Impact** such as job creation and economic development; and
- **Connecting Services** such as mentorship, corporate partnerships, technical support, events, and engagements with funding agencies and universities.

Subsequent *Incubatenergy* benchmarking reports will focus on best practices for each of these specific topical areas.


*Incubatenergy participants as of September 2015*

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## *Incubatenergy* Overview

The Incubatenergy Network is supported by the U.S. Department of Energy (DOE), the Electric Power Research Institute (EPRI), and the National Renewable Energy Laboratory (NREL). It connects leading clean energy incubators and similar organizations around the country so they can share best practices and learn from their peers about effective strategies for supporting entrepreneurs in driving innovation in the energy industry. It also is fostering the development of robust partnerships among members, while DOE, EPRI, and NREL are gaining new insight on, and increased access to, clean energy innovators and innovations.

As the community of clean energy incubators and supporting organizations grows stronger around the country, the network is expected to provide increasing value to entrepreneurs by expanding the resources available for moving promising technologies toward commercial applications.

*Incubatenergy* members include various types of organizations that support clean energy entrepreneurs, including incubators in the classic sense of the word and other organizations such as accelerators and regional networking groups. The important distinctions among these different types of network members are defined in the box at right.

Generally, organizations supporting entrepreneurs with business plans that are more in the ideation phase of development are not considered appropriate *Incubatenergy* members, as these concepts are not yet ready to connect with corporate stakeholders, testing facilities, funding opportunities, and other resources designed to help the scale up of advanced technologies.

Some *Incubatenergy* members have a specific focus on clean energy, and some support the broader clean tech sector, which spans diverse industries. Many definitions exist,[1] but clean energy and clean tech products and services generally accomplish the following:

- Supply fuel, heat, and/or electricity by harnessing renewable resources or using conventional

## *Definitions:* Organizations Supporting Entrepreneurs

***Accelerator:*** *An organization dedicated to supporting entrepreneurs for a specified duration, typically over the course of a few months, by providing a structured curriculum and formal equity investment designed to quickly grow an existing company to a larger scale. This curriculum generally focuses on activities such as customer discovery, meeting with mentors, and refining the company's pitch and overall approach to the market, culminating in a graduation event usually involving an investor demonstration or "pitch day" opportunity.*

***Incubator:*** *An organization dedicated to supporting entrepreneurs for a relatively extended duration, potentially spanning several years, by providing co-working space and possibly other facilities such as laboratory, prototype development, testing, and machine shop space. Incubators often offer connecting services such as a mentor network, an investor network, events, and engagements with universities or federal laboratories. Some incubators provide free or discounted software suites, professional services, and other assistance through corporate partnerships. Unlike an accelerator, an incubator program may or may not include an official graduation event or specific pitch day for investors.*

***Regional Connector:*** *An organization connecting accelerators, incubators, companies, and other organizations supporting entrepreneurs in any given region of the country, such as the NECEC in the Northeast, CleanTx.org in Texas, and Oregon BEST in the Pacific Northwest.*

[1] See, for example, Economic Impact of the Cleantech Sector in the Austin-Red Rock-San Metropolitan Statistical Area, p. 3

energy sources in ways that increase energy security, lower greenhouse gas emissions, and reduce life-cycle environmental impacts;

- Increase resource efficiency—encompassing inputs such as energy, water, nutrients, and raw materials—and land-use efficiency for existing and new buildings, technologies, products, and practices; and/or
- Provide technology-based solutions and drive behavioral changes that reduce the carbon footprint, freshwater consumption, and environmental impact of individuals, organizations, communities, and/or industries.

While each *Incubatenergy* member has developed region-specific strategies for supporting clean energy and clean tech entrepreneurs, there are commonalities across the country. Provided herein are both reported metrics and specific case-study examples of best practices in each three topical areas: company portfolio, regional impact, and connecting services.

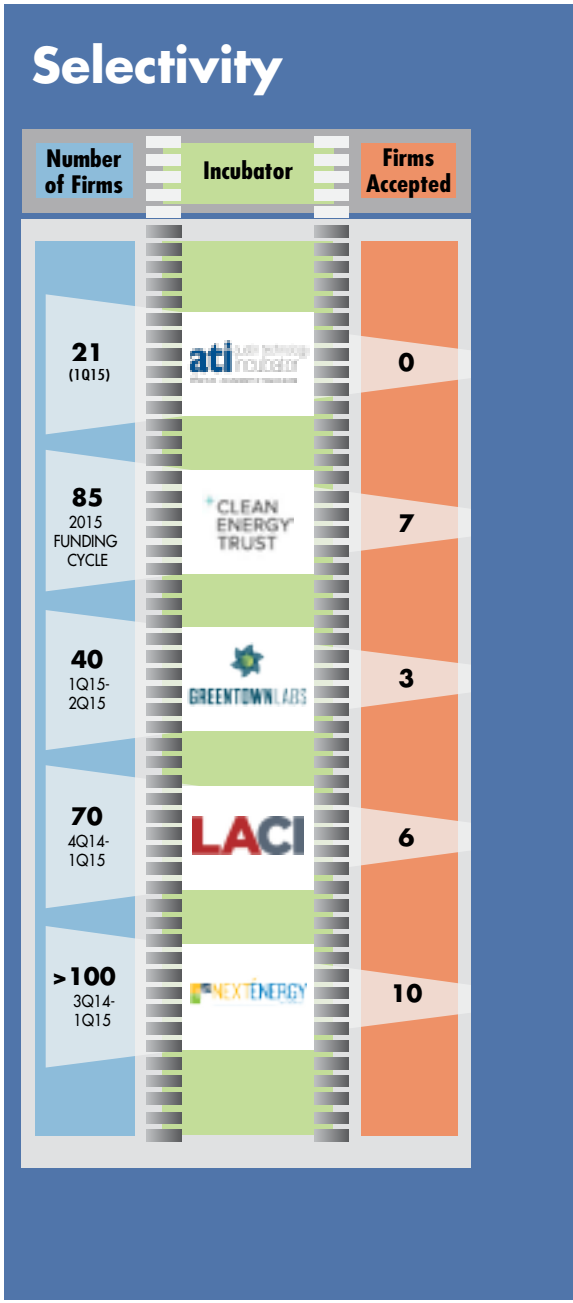
[2] http://www.investopedia.com/terms/d/dealflow.asp

## *Company Portfolio:* Application, Development, Graduation & Funding

### Application Process & Acceptance Rate

Generally, deal flow is defined as "the rate in which business proposals and investment pitches are being received."[2] Leading clean energy incubators are highly selective, as illustrated by the infographic shown at right. Their primary deal-flow challenge is the process of identifying high-quality applicants worthy of detailed review among the great number of groups who would like to participate in their programs.

Individual incubators employ varying criteria, depending on organizational focus, funding levels, business plans, and other factors. Overall, *Incubatenergy* members will only evaluate firms that have already formed a company and are in the process of developing and refining a working prototype or that need support to scale up production and gain mass adoption. The number of companies that each incubator reviews is representative of firms that were



evaluated in depth, among a much greater quantity of interested entrepreneurs who did not qualify for the review process.

With such selective acceptance rates, leading clean energy incubators have a rigorous review process similar to that of world-class accelerators such as Techstars, Y Combinator, and other programs supporting entrepreneurs in different industries. These accelerators are routinely cited in popular media as having acceptance rates lower than Ivy League schools, hovering around the 1% mark.[3]

Bringing this level of selectivity to the clean energy space is an essential element in effectively supporting technologies with the greatest potential to scale up and provide the industry with innovative solutions. The high demand for incubators also represents an indicator that the wave of entrepreneurial activity in the clean energy space may be swamping available support services. The market gap is evidenced by the number of quality companies that are developing innovative hardware and have unmet needs for support in hardware development, prototype testing, and refinement.

### Development & Success

Incubators commonly showcase the impact their programs have by sharing success stories and highlighting the achievements of their top portfolio companies. Several companies supported by *Incubatenergy* members have recently achieved significant milestones in pilot projects, corporate partnerships, and more, as indicated by Case Studies 1 and 2. Success stories like these show how highly selective application processes lead to the identification of, and investment in, companies with real potential to make an impact in the industry.

*Incubatenergy* members are making an effort to evaluate precisely how companies accepted into their programs benefit from their support, compared with those who are not selected through the application process. For example, ATI is working with PhD-level researchers at the University of Texas to make this comparison. "One of the more interesting elements of companies we accept or

## Case Study 1:
## LACI, Energy Excelerator & FreeWire

Linking innovators with industry incumbents for pilot demonstrations and customer connections is one of the vital services that LACI offers its portfolio companies. FreeWire Technologies' mobile electric vehicle (EV) charging solution (Mobi) is being piloted in a program on the LinkedIn headquarters campus in the San Francisco Bay Area in a collaborative program with Siemens.

For FreeWire, the partnership with LinkedIn is expected to help prove the benefits of its EV charging service before this offering is expanded to other companies in the region. It is also providing much-needed early sales revenues, and the company has been awarded over $400,000 by the Energy Excelerator to demonstrate Mobi in Hawaii.

"We are thrilled by the early success of our 3-Mobi FreeWire pilot," said Erik Steeb, vice president of programs at LACI. "The learnings have proven the business model, with LinkedIn expanding to a 5-year commitment for 25 Mobis across three campuses. Customer interaction has also led to a new product, FreeWire's Mobi Gen diesel generator replacement solution."

*Credit: FreeWire Technologies*

[3] https://en.wikipedia.org/wiki/Techstars

reject is that academics can take this and run with it," explained Ryan Field, research manager from ATI. "We are looking at folks accepted versus rejected, so we have a group that received the treatment versus not receiving it, how does this impact their results, social capital, etc."

### Graduation & Funding: Acquisitions & Corporate Partnerships

While graduation from an incubator program is not as formal as the official pitch days that many accelerators host, most incubators do track the follow-on funding and other accomplishments of their graduate companies. For example, LACI reports that firms served have collectively received more than $2 million in funding, four companies have graduated, two have merged, and one has completed a successful exit (acquisition).

Traditional funding sources, like angel investors and venture capital, are less common for startups in the clean energy industry due to the longer development cycles required for many of the technologies. Because of this, government grants and corporate partnerships play a much larger role. Case Studies 3 and 4 provide examples.

One way to connect startups with corporate partners is by hosting a challenge, somewhat analogous

### Case Study 2:
## Oregon BEST & Lucid Energy

Lucid Energy, an Oregon BEST portfolio company, is currently engaged in projects with the City of Portland and several other end users to prove the success of its in-pipe hydro turbine technology for capturing energy from water flowing by gravity through civil infrastructure. Portland's installation is demonstrating the LucidPipe system for renewable energy production at a fraction of the cost of solar power.

The company is now inundated with interest from other communities, creating fertile ground for more North American projects. Connections made through Oregon BEST helped lead to this opportunity to demonstrate the effectiveness of the company's technology, which in turn provides the regional organization with a great success story to share.

*Credit: Lucid Energy*

### Case Study 3:
## CET Corporate Challenge with Schneider Electric, Invenergy, & Exelon

The first Cleantech Innovation Bridge program, attended by about 150 people, was developed and implemented as a private pitch event by CET and Freshwater Advisors. A total of 16 early-stage companies, selected from the more than 200 that had been referred, had the opportunity to give 20-minute presentations to executives from three large corporations—Exelon, Invenergy, and Schneider Electric. These corporations were set up in separate rooms, creating a private setting for focused interaction between entrepreneurs and executives.

to a pitch day. More often, clean energy incubators focus intensely on developing strong and lasting relationships with such organizations. These relationships take time and consistent commitment to develop, often forming over several years, but then delivering benefits to multiple early-stage companies over an extended period.

## *Regional Impact:* Funding, Job Creation & Economic Development

Company funding as a metric aligns with both portfolio metrics, as highlighted above, as well as with the incubator's regional impact. Job creation and economic development are areas of particular interest for incubators looking to highlight their financial impacts to regional organizations such as local city governments and statewide groups. For example, LACI attributes over 150 full-time employees to its graduated firms. CET counts over 50 in Chicago and others through its partnership with NextEnergy in Detroit, which collects this data in an annual survey.

### Case Study 4:
### Energy Excelerator & Hawaiian Electric

To support its portfolio of companies, the Energy Excelerator in Hawaii worked for several years to develop strong corporate partnerships with American Savings Bank and Hawaiian Electric Industries (HEI), the parent company of Hawaiian Electric, Maui Electric, and Hawaii Electric Light. These relationship-building activities have yielded benefits for several startups, through pilot programs and other arrangements with HEI that also give the utility experience with emerging technologies.

As Brad Punu of the Energy Excelerator explains, defining the value proposition is the first step towards forming a strong partnership: "We started by identifying two knowledgeable people within HEI, and discussing the ways both sides could benefit, and that allowed all participants to start to feel like equal partners. With a relationship like this, there are three main elements for success: a win-win value proposition, a defined way to engage, and people on both sides willing to take ownership and move forward together."

Based on this template, Energy Excelerator has developed partnerships with GE Ventures, DENSO, Blackstone Group, and other strategic targets.


*Credit: Energy Excelerator & HEI*

## Funding & Job Creation

Many incubators and regional clean energy organizations receive at least part of their funding from governmental entities, complementing service-based business models focused on real estate and consulting. Sample services include co-working space, lab facilities, and assistance with legal, financial, and technical development.

When it comes to sustained funding from regional governmental groups, showcasing financial impact is particularly important. David Kenney from Oregon BEST explains why his organization collects metrics focused on regional economic impact: "We are primarily state funded, the state likes to compare apples to apples for economic development programs, and the legislature has taken a conservative stance on tracking job creation. This requires use of a job-counting methodology based on data from the unemployment department, which only looks at W-2 forms. This doesn't account for contract employees, those working for equity, etc., sometimes putting us on unequal footing compared with those whose impact is captured using more standard methodologies."

To provide a fuller picture, Oregon BEST tracks follow-on funding as an early indicator of regional impact because jobs come later, when there is money to pay personnel. The incubator also is starting to collect revenue metrics from all portfolio companies, as another window into economic impact.

## Economic Development

Several *Incubatenergy* members use the metrics they collect on regional financial impact to create high-level economic development reports, which can be shared with local stakeholders to encourage continued support. Case Studies 5 and 6 provide examples.

### Case Study 5:
### ATI Economic Impact Report

ATI collaborated with CleanTX.org, an industry association for clean tech professionals in central Texas, to commission a 2014 report. *Economic Impact of the Cleantech Sector in the Austin-Round Rock-San Marcos Metropolitan Statistical Area* highlights how the sector has contributed to economic growth and opportunities in central Texas, finding that the sector contributes approximately $2.5 billion to the region's gross domestic product and employs nearly 20,000 individuals.

The report also highlights opportunities for growth in areas including renewables, the smart grid, smart buildings, EVs, and manufacturing. It indicates that the region's clean tech employment is projected to grow 11.24% by 2020, well above statewide and national averages across sectors.


*Credit: ATI & CleanTx.org*

### Case Study 6:
### CET Clean Jobs Report

The Clean Jobs Illinois ™ report, created with CET support, highlights how the clean energy sector brings jobs to the Chicago region and Illinois more broadly. The interactive, web-based report concludes that jobs related to energy efficiency, renewable energy, and alternative fuels in Illinois grew by nearly 8% over the last 15 months, putting the total number of clean energy jobs above 100,000.

## *Connecting Services:* Events, Mentor Networks & Technical Support

The connecting services that incubators offer are often the most important yet intangible forms of support provided to growing clean energy companies. Examples include introductions to mentors, investors, corporate partners, economic development agencies, and universities, as well as technical support. These types of connections are often facilitated through events, which can involve thousands of people per year. Case Studies 7 and 8 provide examples.

### Events & Mentor Networks

One of the greatest values in hosting events is in connecting entrepreneurs with the resources they need, especially investors and mentors. More than a simple collection of names and meetings, a mentor network grounded in milestones, goals, and meaningful connections can be especially helpful.

Discussing the value of mentor networks, Ali Adler from NECEC pointed out that in addition to facilitating the initial connection, many incubators and accelerators try to play an active role in helping to maintain the relationship:

### Case Study 7:
### Greentown Labs Event Schedule

Greentown Labs holds more than 100 events a year, offering a robust calendar of monthly "EnergyBars" that allow for casual networking to help with talent and resource acquisition, along with recurring panel discussions and speakers' series. Often, events are organized with partners and sponsors, including the Cleantech Open, NECEC, MassCEC, the DOE Sunshot Catalyst program, the Duke Global Entrepreneurship Network, Zipcar, EnerNOC, Autodesk, and others. Recent topics include women in entrepreneurship, partnering with municipalities, and how to pitch to strategic partners. Greentown Labs views this as part of its commitment to supporting and building a stronger ecosystem.

### Case Study 8:
### NextEnergy, Techstars & SkySpecs

Networking at events can help entrepreneurs find needed resources, including not only mentors and investors but also other incubator or accelerator programs to complement support already received. For example, SkySpecs, which NextEnergy has assisted through matchmaking, fundraising assistance, and strategy consulting, also went through the Techstars accelerator program in New York and won the 2014 "Accelerate Michigan Innovation Competition." Being supported by these programs has helped the company's airborne inspection technology receive additional recognition, including a feature article in *TechCrunch*.


*Credit: SkySpecs*

"We like to see incubators do regular check-ins between start-ups and mentors to make sure things are working, and to take some helpful action if they're not. Of course, there's only so much that an incubator can do to guide the relationship – the two groups also need to try and work it out on their own."

### Technical Support

Providing technical support to clean energy entrepreneurs is a critical connecting function for incubators. Case Study 9 highlights an example.

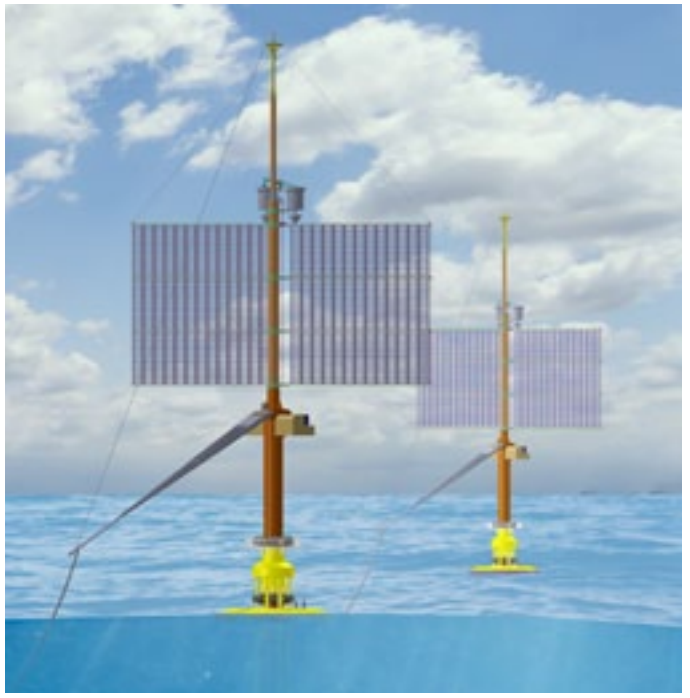
Some incubators help companies file for patents and intellectual property licenses. For example, LACI helped firms file for 10 patents during the final quarter of 2014 and first quarter of 2015. This type of technical support may be a less critical area of focus for incubators that only consider applications from companies that have already filed for ownership of the intellectual property that forms the foundation of their technology.

**Case Study 9:**
## CET, NextEnergy & Accio Energy

One company that has received a great amount of technical support from incubators, including CET and NextEnergy, is Accio Energy, which is developing an offshore electrohydrodynamic technology that generates electricity using wind and positively charged water droplets.

Dan Radomski, vice president of industry and venture development at NextEnergy, described how the incubator has supported the company: "We have helped Accio deliberately think through the engineering challenges that offshore wind faces that are difficult to simulate in the lab, as well as the technical milestones that potential corporate partners would want to see Accio hit before they make an investment or purchase. In addition, we've provided in-depth technical feedback and financial commitment for several of Accio's federal R&D grant proposals."

Accio was a finalist in the 2015 CET Challenge and has presented at several large energy conferences, including the 2015 ARPA-E Innovation Summit.



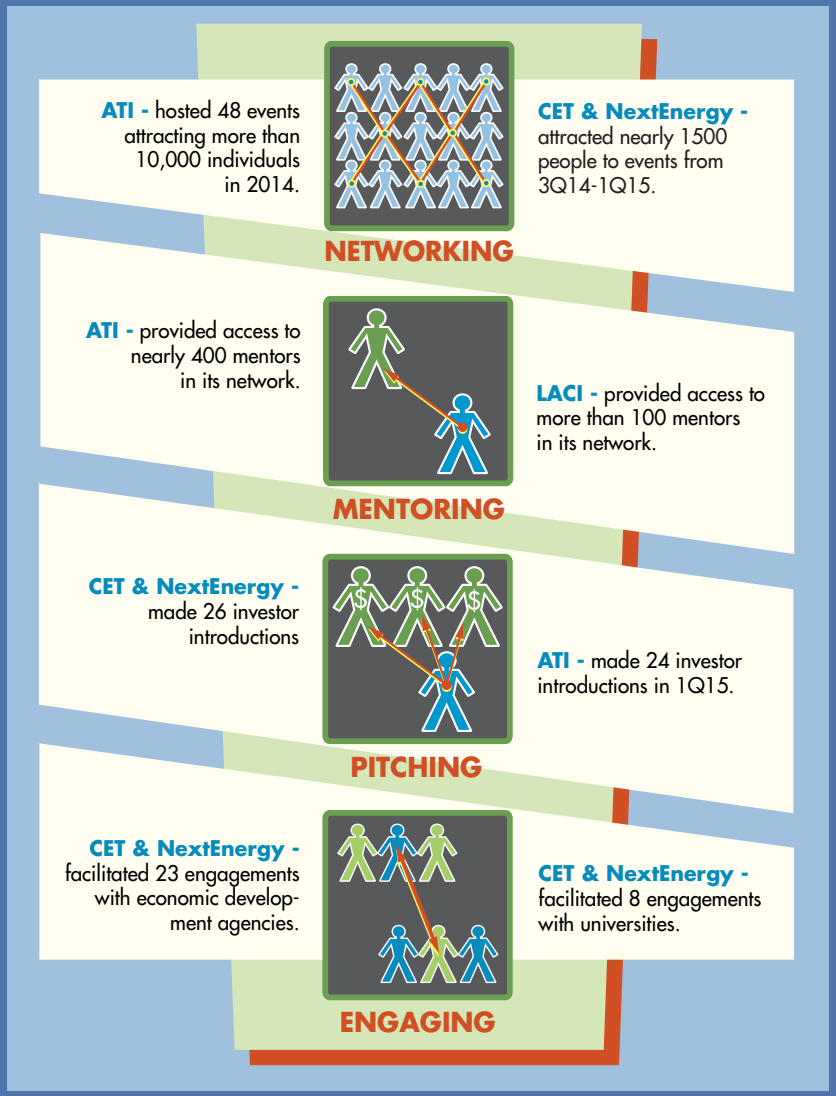
*Credit: Accio Energy*

## Conclusion

Clean energy incubators use many strategies to support entrepreneurs in driving innovation in the industry. The infographic at right highlights connecting services offered by several *Incubatenergy* members.

This white paper provides an initial overview of the metrics used to assess the operations, impact, and success of leading U.S. incubabors. It addresses metrics relating to company portfolio, regional impact, and connecting services and provides case studies. Future white papers will explore each of these three areas in greater detail.

## Connectivity



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## ABOUT

The Incubatenergy Network is a community of clean energy incubators around the country, working together to share best practices on supporting entrepreneurs driving innovation in the industry. *Incubatenergy* is supported with funding from the U.S. Department of Energy and the Electric Power Research Institute, managed in partnership with the National Renewable Energy Laboratory.

## RESOURCES

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EPRI ELECTRIC POWER RESEARCH INSTITUTE

NREL NATIONAL RENEWABLE ENERGY LABORATORY