incubateenergy network

Revenue Models and Impact Metrics for Clean Energy Incubators and Accelerators

Best Practices Report #5

April 2018

Executive Summary

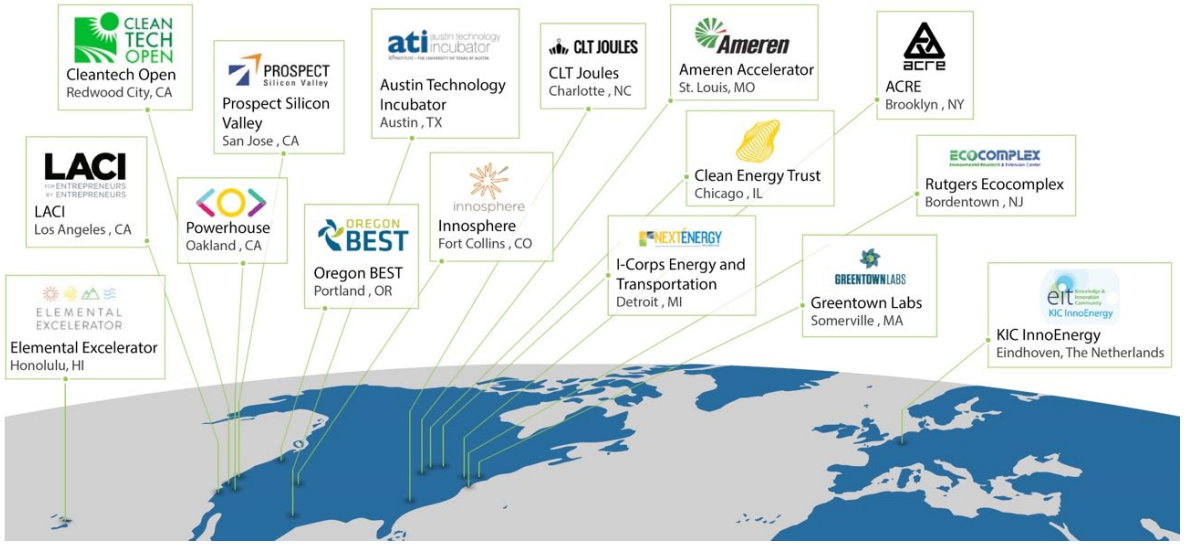
Clean energy incubator and accelerator programs use different business models and revenue sources to help entrepreneurs in not only advancing ideas and technologies, attracting investment toward commercialization, and generating sales, jobs, and other positive economic impacts but also in having significant environmental and social benefits.

Traditional accelerator programs are for-profit entities, but many clean-energy-focused US accelerators and incubators are nonprofits, with some closely affiliated with universities and national labs. Financial and in-kind support comes from a variety of sources, including government agencies, corporations, investment funds, and foundations. Revenues typically are earned by acquiring equity in startups and/or by charging portfolio companies for rent and other services.

This white paper introduces operational models for clean energy incubators and accelerators and describes the range of revenue sources they employ. Pros and cons of equity-based and service-based revenue models are discussed, global trends in accelerator funding are introduced, and models and impact metrics employed by members of the Incubatenergy Network are highlighted. In addition, findings are summarized from studies into the overall impact of incubator and accelerator support on job creation, follow-on funding, and firm survival.

Startups supported by clean energy accelerators and incubators in the US and around the world are more likely to grow and prosper. Robust innovation ecosystems and focused programs—which connect entrepreneurs having shared interests to each other and to other key stakeholders such as investors, researchers, and deployment partners—contribute to successful outcomes.

The intended audience for this paper includes entrepreneurs, who may find it helpful in evaluating available incubator and accelerator programs, and newer programs, which may find it useful as a guide to various approaches for funding and assisting startups and supporting ongoing operations. By sharing models and impacts, Incubatenergy members hope to demonstrate the true value provided in accelerating the transition to a sustainable energy system.



Incubate Energy Network: *In addition to these members, the network continues to expand to include new participants both within the US and internationally, such as MaRS, based in Toronto, which joined in April 2018.*

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Overview

The Incubatenergy Network brings together leading US and international clean energy incubators and accelerators, as well as other key stakeholders, to accelerate research and development (R&D) and commercial deployment of innovative and game-changing technologies. Since 2015, the network has been managed jointly by EPRI and the US National Renewable Energy Laboratory (NREL) and funded primarily by the US Department of Energy (DOE).

Through the network, participating incubators and accelerators have strengthened connections among regional clean energy ecosystems. Meanwhile, EPRI and its utility members along with DOE, NREL, and other US national labs have deepened their understanding of and engagement with the entrepreneurial community.

Incubatenergy white papers highlight best practices and case studies describing the rigorous qualification processes, diversified funding sources, expert services, and strategic partnerships employed by leading incubators and accelerators in building portfolios of promising startups and technologies and in helping entrepreneurs create pathways toward commercialization.

This white paper, the fifth in a series, focuses on the business models and revenue sources used by leading incubator and accelerator programs and on the impact metrics employed to demonstrate their success and attract entrepreneurs and funding. These programs operate at selected stages across the technology life cycle—consistent with meeting their organizational missions and goals—by filling capability and funding gaps for startups while catering to sponsors, potential investors, and other strategic partners. Three general operating models are introduced in the box at right.

Operating models are continuously evolving in response to changing conditions, often blurring the lines between incubators, accelerators, and hybrids—and even early-stage clean energy investment funds. Many programs are regionally specific,

Operational Models

Incubators: Incubators, often nonprofit organizations, support entrepreneurs entering the beginning stages of building a company. These entrepreneurs possess an idea to bring to the marketplace but typically do not have a business model or direction for transitioning innovative concepts or R&D findings into commercial offerings. Incubators typically draw on a variety of funding sources to support startups on an open-ended timeline, potentially spanning several years, with a focus more on the viability of their portfolio companies and less on how quickly startups grow and generate revenue.

Accelerators: Accelerators, typically for-profit ventures, advance the growth of existing companies with an idea and business model in place, usually in exchange for an equity stake. They operate on a set timeframe, often several months, to support startups across one of two major market gaps where capital is required. The first, known as the "Technological Valley of Death," occurs during research, when entrepreneurs are challenged to develop prototypes and prove market viability through customer applications. The second, known as the "Commercialization Valley of Death," occurs later, when startups seek additional capital to fund demonstrations or first-of-a-kind commercial deployments.

Hybrids: Hybrid organizations support startups at various stages through differentiated offerings drawn from the incubator and accelerator models. They employ a variety of different revenue sources. They may address specific regions or markets and typically offer accelerator-type programs having a fixed timeline, as well as options for sustained or follow-on support.

working closely with government agencies, universities, national labs, utilities, and other corporate partners. Some target areas of technology expertise, such as mobility in Detroit and solar in California. All support innovative concepts and technologies for transitioning to a more sustainable energy economy.

As traditional technology centers such as Boston, New York, and the San Francisco Bay Area demonstrate continued success in driving economic growth and job creation in the clean energy sector, many other US cities and regions are experiencing investment aimed at fostering the development of collaborative, innovation-driven ecosystems, according to an analysis from Brookings. For example, the new Ameren Accelerator highlighted in Case Study 1 organizes corporate, university, and other partners with a major presence in the St. Louis region around the common goal of supporting clean energy entrepreneurs.

Society benefits from clean energy incubation and acceleration across every region and around the world, regardless of the operational and funding approach.

Revenue Models

Clean energy incubators and accelerators are distinguished from early-stage clean energy investment funds in that they provide services as well as direct and in-kind financial assistance. They employ a variety of different revenue models to support their portfolio companies and their ongoing operations. In addition to base funding from outside investors and supporters, primary options include charging up-front or recurring fees and making early-stage investment in return for later compensation.

Many leading US organizations focused on the clean energy space operate as nonprofits—often in conjunction with universities and government agencies and increasingly with national labs—while for-profit models predominate globally. Typically, multiple funding sources are tapped.

Investing & Equity: Like early-stage clean energy investment funds, many accelerators and some incubators invest seed money to secure an equity stake in startups they support, in expectation of a return upon successful exit. Global accelerator Techstars takes a 6% stake, offering an "equity back guarantee" based on the value added by the services provided. Austin Technology Incubator (ATI) in Texas, Elemental Excelerator in Hawaii, and Oregon BEST in Portland are among the Incubatenergy members that take equity. Clean Energy Trust (CET) in Chicago employs a revolving evergreen fund, using returns from investments to redeploy to new startups. Others, including Innoenergy in Europe, provide funding or services to secure a return on sales.

Case Study 1: Ameren Accelerator Model

Ameren Accelerator extends the traditional corporate accelerator model by bringing in a major university to provide faculty backing and engagement plus connections with research centers and students. The partnership between the utility Ameren and the accelerator Capital Innovators is augmented by the participation of the University of Missouri (UM) system, including UM-St. Louis and UMSL Accelerate. The program focuses on renewable energy, efficient electrification, and smart grid applications, as well as key enabling technologies. Selected companies receive $100,000 worth of funding, resources, and services during a 12-week program, including dedicated lead mentors and UMSL student interns, with potential for follow-on utility pilots and investments.

Credit: Ameren Accelerator

Government Subsidies & Donations: Many programs receive support from local, state, and federal agencies, as well as philanthropists and foundations. Cyclotron Road, affiliated with Lawrence Berkeley National Lab (LBL), draws on LBL researchers and facilities and receives funding from DOE, DARPA, California Energy Commission, and several philanthropic donors.

Rent & Fee for Service: Incubators in particular often charge rent to startups using office or prototyping space; the monthly tab may include administrative and technical support or may be increased on a fee-for-service basis. Greentown Labs in Boston earns a large percentage of its revenue through renting space directly to entrepreneurs and providing access to the onsite innovation community.

Private Partnerships: Incubators and accelerators often draw funding from corporate partners in energy and related industries, ranging from event sponsorships to programmatic support. The Joules Accelerator in North Carolina works closely with Duke Energy, while Techstars charges $3 million per year to provide services for individual companies, including a new energy program launched in Norway with Statoil.

Table 1 lists operational models and revenue sources, as well as key metrics, for Incubatenergy members. The Incubatenergy Network's "Search the Ecosystem" database provides additional detail on these and other programs.

The equity-based revenue model aligns the incentives of accelerators and incubators with those of the entrepreneurs they support: Follow-on funding and successful market entries, buyouts, and mergers benefit all.

According to a 2016 report from Gust developed based on a com-

Revenue Sources and Impact Metrics for Some Incubatenergy Network Members

Name	Type	Primary Revenue Sources	Portfolio Companies	Follow-On Funding
ACRE	Incubator	Rent + university support	48	$333m
Austin Technology Incubator	Incubator	Fee for services ($10,000/yr) + equity (2%) + university support	42	$228m
Clean Energy Trust	Accelerator	Corporate partnerships + evergreen fund	103	$125m
Elemental Excelerator	Hybrid	Corporate partnerships + equity (1-6%)	65	$340m
Greentown Labs	Incubator	Rent + corporate partnerships	135	$260m
Innoenergy	Hybrid	Equity + return on sales + government support + corporate partnerships	199	$141m
Joules Accelerator	Accelerator	Corporate partnerships + city government + university support	25	$60m
LACI	Incubator	Rent + corporate partnerships	65	$79m
NextEnergy	Hybrid	Rent + corporate partnerships	110	$317m
Oregon BEST	Hybrid	State government + university support + equity	53	$85m
Prospect Silicon Valley	Incubator	Rent + corporate partnerships + grants + fee for services	23	$150m
Powerhouse	Hybrid	Rent + corporate partnerships	67	$287m

prehensive global survey of accelerators addressing all technology sectors, the amount of seed money invested per startup under the traditional "cash for equity" approach varies widely but averages around $25,000. Typically, between 5% and 10% equity is exchanged. However, the small percentage and the unpredictability of successful exits are causing accelerator programs to become less dependent on equity and more on other revenue sources.

As illustrated at right, reliance on equity by accelerators declined from 2015 to 2016, while the percentage implementing new revenue generation models increased. Over the medium to long term, more than 90% of surveyed accelerators plan to increase revenue streams by charging for mentorship, office space, and other services. The "acceleration as a service" model aligns well with the interests of corporations, which represent a growing source of revenue—particularly through sponsorships and customized accelerator programs.

The rent-based model does not offer the same incentive alignment function as the equity model, but it provides a steady and reliable funding stream and is extendable to cover additional services beyond providing a physical location. It also draws on a diverse funding pool with many companies contributing, rather than depending on one or a handful of large corporate or government partners.

Business models that combine mandatory or optional equity elements with rent and service fees and/or with corporate support, government grants, and other funding sources provide a well-rounded base. The following sections of this white paper introduce the revenue models employed by leading incubators and accelerators and include impact metrics for individual programs.

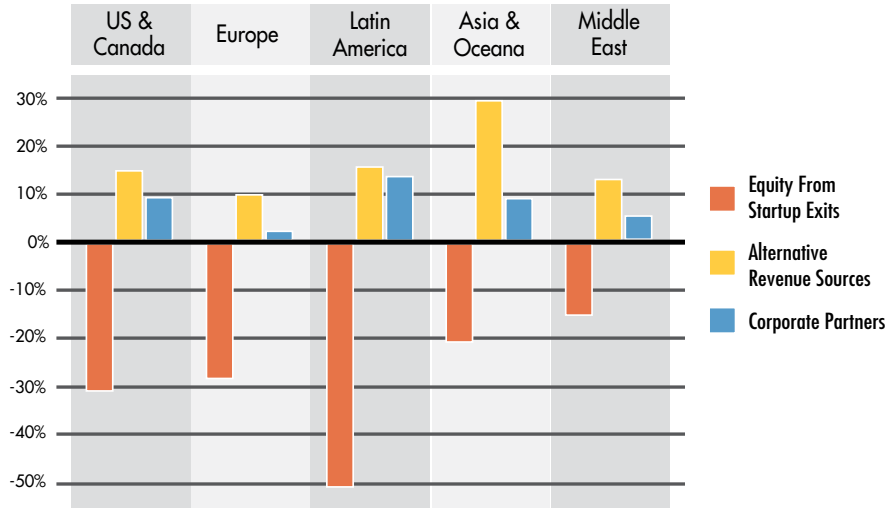
Incubator Models

Within the category of clean energy incubators, there is significant variation in revenue models and sources. Many are closely affiliated with universities or labs. Others are more independent but partner with various types of organizations. Some operate largely independently. A growing number, though still self-identifying as incubators, also offer accelerator-type programs.

ATI, the oldest continuously operating cleantech incubator in the US, has been hosted by the University of Texas at Austin since the 1980s. ACRE is located within the Urban Future Lab, a part of New York University's School of Engineering. ATI charges an annual fee of $10,000 and also takes 2% equity. ACRE operates on a more rent-focused model, starting at $450 a month per desk and with no equity stake, and is also supported by government and corporate sponsors.

Several new incubator-style programs are affiliated with the DOE national lab system, including Cyclotron Road with LBL, Chain Reaction Innovations with Argonne National Lab, and Innovation Crossroads with Oak Ridge National Lab. They offer support for continued research and the development of advanced tech-

Change in Monetization Pathways by Region from 2015-16



Data Source: Gust, "Global Accelerator Report 2016," accessible at http://gust.com/accelerator_reports/2016/global/

nology prototypes. For example, Cyclotron provides an $80,000 to $110,000 fellowship stipend for up to 2 years and $100,000 in funding for research at LBL.

Greentown Labs works closely with utilities and many multinational corporations acting as investors, customers, and the hosts of pilot projects for demonstrating new technologies. LACI has many government and corporate supporters in addition to a partnership with Los Angeles Department of Water and Power (LADWP). Both of these large physical incubators also rent out co-working space and pursue government grant opportunities to support their operations. They each are incubating dozens of companies at a given time, building on a record of having created significant positive impacts as described in Case Study 2.

Some larger, more independent incubators include Innosphere in Colorado, NextEnergy in Detroit, and Prospect Silicon Valley. Innosphere charges $10,000 annually for incubator support, while NextEnergy charges rent and fees for services such as testing, lab equipment, and custom market research. Commercialization support by Prospect Silicon Valley starts at $1000 per month with a minimum term of 6 months; pricing is higher for physical tenancy in the incubator space. Historically, about half of its startup clients are also tenants.

Accelerator Models

Clean energy accelerators offer more structured and time-specific support than incubators, typically in return for a share of equity, with programs tailored to corporate partners and other investors.

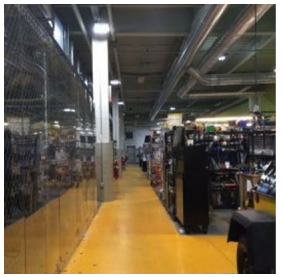
CET, focused on supporting entrepreneurship and innovation in the US midwest, is somewhat unique as a nonprofit accelerator. Its model—referred to as the 501vc™ Platform—blends tried and true elements from venture capital with the mission-driven perspective and structure of a nonprofit. Rather than generating profits for investors within a certain timeframe, return on equity from successful exits is recycled through an evergreen fund and invested in rising startups, as described in Case Study 3.

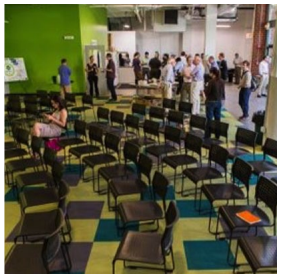
Other leading clean energy accelerators follow a more traditional model as for-profit, corporate-driven ventures. Duke Energy is the lead sponsor of the Joules Accelerator, while the new Ameren Accelerator (described on p. 4) also focuses on connecting startups to its sponsoring utility

Case Study 2: Greentown Labs and LACI Models and Metrics

Greentown Labs—which recently expanded to more than double its workspace, becoming the largest physical clean energy incubator in the country—follows a rent-focused model and provides companies accepted into its incubation program with more than $130,000 worth of resources and services. It currently supports more than 65 companies and has supported over 135 since inception, with these collectively raising more than $260 million and creating more than 500 jobs.

LACI is based at the new La Kretz Innovation Campus in downtown Los Angeles, planned, built, and owned by LADWP. Primary revenue sources include rent and corporate support. Across LACI portfolio companies, cumulative total funding increased from $80 million in 2015 to $132 million in 2016, and the number of full-time employees nearly doubled to 318, with significant increases among women and minorities.





Credit: Greentown Labs

Credit: LACI

for pilot projects and investment opportunities.

Free Electrons, a global accelerator program launched in 2017, works with eight large utilities operating in 40 countries. These utilities pay $200,000 per year to support the program's worldwide scope, as introduced in Case Study 4. Cohort companies gain access to deployment and investment opportunities and compete for an annual prize.

The Cleantech Open, now coordinated by LACI, operates regional, national, and global programs, with a focus on supporting early-stage companies still developing a concept and product-market fit. Regional accelerators bring in utilities, government agencies, and other sponsors across the country, helping subsidize national and global competitions.

Examples of clean energy accelerators following the traditional cash-for-equity model include Rockstart, based in Amsterdam but offering opportunity to entrepreneurs the world over, and Village Capital, which applies a unique peer-driven investment process where entrepreneurs within each cohort evaluate each other. The two highest-ranked ventures are awarded follow-on seed capital.

Hybrid Programs

Hybrid programs offer both structured, limited-duration accelerator-type support and extended incubation services to help startups at varying stages in the technology development cycle. Combining proven operating models with newer ideas helps foster the growth and expansion of entrepreneurial ecosystems.

This combination approach is exemplified by differentiated offerings from two hybrids described in Case Study 5: Elemental Excelerator has different tracks for companies depending on their stage, and Powerhouse in Oakland offers both an incubator co-working community and a 6-month accelerator program, somewhat similar to Greentown Labs Launch, an in-house acceler-

Case Study 3: CET Model and Metrics

According to its latest impact report, CET has invested $3.8 million in 23 portfolio companies since 2014 and has supported 103 startups overall. They have gone on to raise over $125 million in follow-on funding, generating returns for CET's evergreen fund. Housing this fund within CET's 501vc™ framework increases risk tolerance and allows investment of patient capital in early-stage startups without forgoing the expectation of future returns. In 2018, CET is applying a DOE "Innovative Pathways" grant to extend its nonprofit model by employing philanthropic support for operational expenses so that public and private investment dollars can have greater impact. This novel structure is expected to bring new funders to CET by increasing the attractiveness of early-stage investment.

Credit: Clean Energy Trust

Case Study 4: Free Electrons Model and Metrics

The Free Electrons accelerator is supported by eight large utilities together serving about 70 million customers in Europe, the Middle East, the Asia-Pacific region, and South America. Drawing on corporate sponsorship, the program launched its first cohort in 2017 connecting 12 competitively selected startups with the utilities through modules in San Francisco, Lisbon, Dublin, and Singapore. The program generated 22 deals, including commercial contracts approaching $2 million and a pipeline of opportunities exceeding $12 million. For example, BeOn Energy, a microinverter startup based in Portugal selected as the 2017 winner of a $175,000 cash prize, inked a deal through which SP Group expects to jumpstart residential solar system deployment and grid integration in Singapore. All utility sponsors signed on for a 2018 session.

Credit: Free Electrons

ator program that brings startups with working prototypes together with corporate partners.

NextEnergy also offers a range of programs and services, including leasable lab and event space, onsite facilities for testing advanced energy and transportation technologies, accelerators, demonstration competitions, and hosted demonstration projects. More details are available in Case Study 6.

OregonBEST works closely with state and local economic development agencies to support entrepreneurs in the Pacific Northwest. It operates virtually, with no physical space, and provides funding, services, and connections. It also supports a 14-week Cascadia CleanTech accelerator program with competitive entry.

Across Europe, InnoEnergy assists clean energy entrepreneurs at all phases, from the classroom to commercialization, supported by a network of 24 shareholders from industry, academia, and government. Initially funded through the European Institute of Innovation and Technology, InnoEnergy now draws on financial and in-

Case Study 5: Elemental Excelerator and Powerhouse Models and Metrics

Elemental Excelerator, drawing on investment from government and corporate sponsors, has supported over 60 companies that have collectively raised over $340 million. Growth accelerator programs run on two different tracks, in return for equity ranging from 1 to 6%. The go-to-market track funds companies at $75,000 for an 8-month program, while the demonstrator track awards up to $1 million for first-of-a-kind commercial-scale projects lasting between 12 and 18 months.

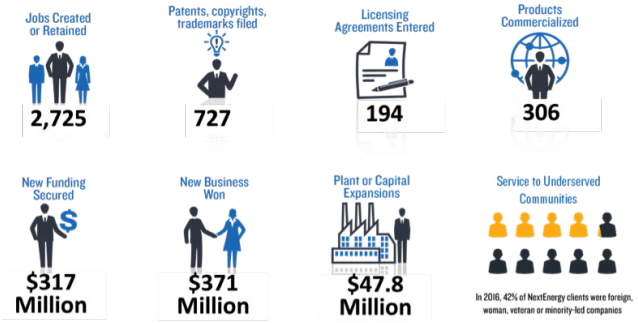
Credit: Elemental Excelerator

Powerhouse is a physical incubator hosting over 100 entrepreneurs that also runs two 6-month accelerator programs per year. Pricing for the incubator ranges from $425 for 3 days a week at a floating desk to $625 for 5 days a week at a designated desk. Startups accepted into the accelerator program receive $10,000 in cash, access to pro-bono legal and advisory services, and introductions to an extensive angel and investor network while giving Powerhouse the right to invest up to $250,000 in equity.

Credit: Powerhouse

Case Study 6: NextEnergy Model and Metrics

NextEnergy provides a continuum of programs and services, typically serving startups for 1 to 3 years. In addition to business consulting, technology testing and demonstration, and fundraising services, it offers low-cost lab and office space, as well as acceleration programs such as NextChallenge and I-Corps Energy and Transportation. In 2017, startups participating in the I-Corps program were charged a $10,000 fee. Since inception in 2002, NextEnergy has supported more than 400 companies. As shown in the graphic, NextEnergy client companies reported significant and multi-faceted impact from 2011-17.



Credit: NextEnergy

kind support from shareholders, equity from early-stage startups, and a return on sales from more mature companies. Its sustainable energy accelerator program includes two paths: The Highway™ is for early-stage entrepreneurs and startups, and The Boostway™ is for established companies looking to grow.

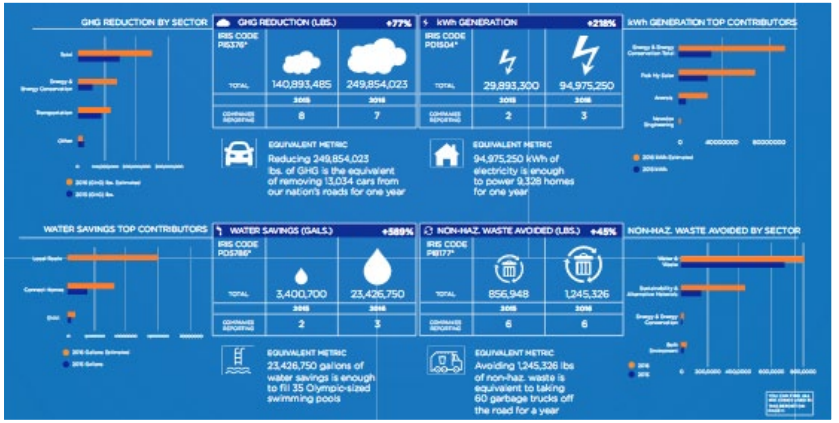
Impact Metrics

Accelerators and incubators focused on clean energy typically track economic metrics for their portfolio companies. Common measures are exemplified in ATI's reporting, such as the follow-on funding success featured for its 2016 cohort, complementing a longer-term impact report showing job creation and revenue generation across the US southwest. Increasingly, impact reports address diversity among supported entrepreneurs and startups. They also measure environmental impacts in order to demonstrate triple-bottom-line benefits.

Elemental Excelerator published an impact report last year incorporating standard economic impact and diversity measures plus data on how many consumers are realizing energy and water savings and how many employees are accessing real-time transit data based on solutions provided by its portfolio companies. Similarly, CET's latest impact report documents economic and social impacts across the US midwest plus an annual reduction in carbon emissions totaling about 39 million pounds—equivalent to taking about 37,000 cars off the road—based on the commercial activities of three of its startups.

LACI's 2017 impact report shows how its nearly 50 portfolio companies are not only generating millions in revenue and supporting hundreds of jobs but also promoting diversity across the entrepreneurial community. In addition, environmental benefits are quantified based on estimated reductions in greenhouse gas emissions, water use, electricity consumption, and solid waste disposal associated with real-world applications developed by LACI's portfolio companies.

For the LACI report, selected companies were asked to identify the economic and other metrics they already collect, and



Standardized environmental impact metrics: Credit: LACI

responses were aggregated to determine commonalities across the portfolio. LACI then adopted a set of standardized indicators, created by the Global Impact Investing Network, for consistent, comparable quantification of social, environmental, and financial performance while minimizing the burden of additional data collection on startups very busy building their businesses. Sample environmental indicators are shown above.

Portfolio companies benefit from high-quality impact reporting by meeting the standards of the financial community and gaining exposure to additional investors, including foundations and family funds that often have a certain mission that must be triggered before they can make an investment. Incubators and accelerators benefit by aggregating data and demonstrating program quality so corporations, foundations, and other potential funding sources are more motivated to provide support. Demonstrating impact also is essential in attracting the interest of promising startups seeking entrepreneurial support services, as well as strategic partners such as utilities for getting innovations deployed.

According to recent studies, incubator and accelerator programs focused on specific industries and located in active

entrepreneurial ecosystems tend to produce more positive results for their portfolio companies. As shown in the box at right, this includes a higher likelihood of follow-on funding and increased employment. Success breeds success, as shown by the vitality of clean-energy-focused programs in areas like Austin, Boston, Chicago, Detroit, Los Angeles, New York, and San Francisco.

More generally, these studies demonstrate that incubators and accelerators generate significant economic benefits overall but have mixed impacts on firm survival. A plausible explanation for lower survival rates is that extensive analysis and external feedback may help some program participants re-assess their ideas and decide to minimize wasted resources or pivot early rather than face an uphill battle.

Conclusion

Clean energy incubator and accelerator programs help bridge critical funding and capability gaps to increase the likelihood that early-stage innovations will be transformed into commercial products and services. They employ different business models, revenue sources, and assessment methods to ensure viability and vitality and demonstrate economic, environmental, and social impact. They themselves also are evolving and innovating to better meet the needs of startups and other stakeholders.

By sharing experiences through the Incubatenergy Network, these programs are supporting each other and providing a more complete picture of the work being done and value being delivered across different regions. This is expected to help guide the development of new programs in the US and around the world, to educate entrepreneurs on available support options, and to enable investors, corporate partners, and other stakeholders to make more informed resource allocation decisions.

Insights on Economic Impacts

The What Works Centre for Local Economic Growth, led by the London School of Economics and supported by various government agencies in the UK, has published "Business Advice Toolkits for Accelerators and Incubators" highlighting key attributes of these programs, as well insights from independent studies assessing their impacts on portfolio companies. Some findings are summarized below:

Employment

- Accelerators have positive effects on employment by participating firms (three studies)
- Accelerators and incubators have positive effects on firm employment (two studies)

Follow-On Funding

- Firms supported by accelerators are more likely to be successful in raising external funding from angel investors or venture capital firms (four studies)

Survival

- Accelerators have varied impacts on firm survival: positive (one study), positive only for women/minority businesses (one study), none (one study), and negative (two studies)
- Incubators have negative impacts on firm survival (one study)
- Firms have greater likelihood of survival if supported by accelerator and incubator programs focusing on a single sector, rather than by generalist programs (one study)

incubatenergy network

ABOUT

The Incubatenergy Network is a community of clean energy incubators distributed around the country, working together to share best practices and build connections for supporting the entrepreneurs who are driving innovation in the energy industry.

The network is supported with funding from the U.S. Department of Energy and the Electric Power Research Institute (EPRI), managed in partnership with the National Renewable Energy Laboratory (NREL).

RESOURCES

www.incubatenergy.org

www.twitter.com/incubatenergy

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U.S. DEPARTMENT OF ENERGY

EPRI ELECTRIC POWER RESEARCH INSTITUTE

NREL NATIONAL RENEWABLE ENERGY LABORATORY