

**CLEAN ENERGY BUSINESS DEVELOPMENT**

Final Initiative Level Logic Model Report

Prepared for

**The New York State  
Energy Research and Development Authority**

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## **NOTICE**

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**The New York State  
Energy Research and Development Authority**

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**Initiative Level Logic Model Report**

February 8, 2013

The System Benefits Charge (SBC) Plan funds public policy initiatives not expected to be adequately addressed by New York's competitive electricity markets including energy programs targeting efficiency measures, research and development and the low-income sector. The New York Public Service Commission (PSC) issued the Order Continuing System Benefits Charge and Approving the Operating Plan for A Technology and Market Development (T & MD) Portfolio of System Benefits Charge Funded Programs (The Order) on October 24, 2011. The Order approved the T & MD portfolio proposed by the New York State Energy Research and Development Authority (NYSERDA) for the five-year period of January 1, 2012, through December 31, 2016, and allocated a total budget in excess of \$41M to the three sub-initiatives comprising the Clean Energy Business Development (CEBD) Initiative for that period. The sub-initiatives, and the funding allocated to each for 2012 - 2016, are Innovation/Entrepreneurial Capacity Building (\$31.6 M), Market Intelligence (\$5.8M), and Direct Support for Business Acceleration (\$4.4M).

The purpose of this document is to present the overarching logic model for the programs comprising the CEBD Initiative.



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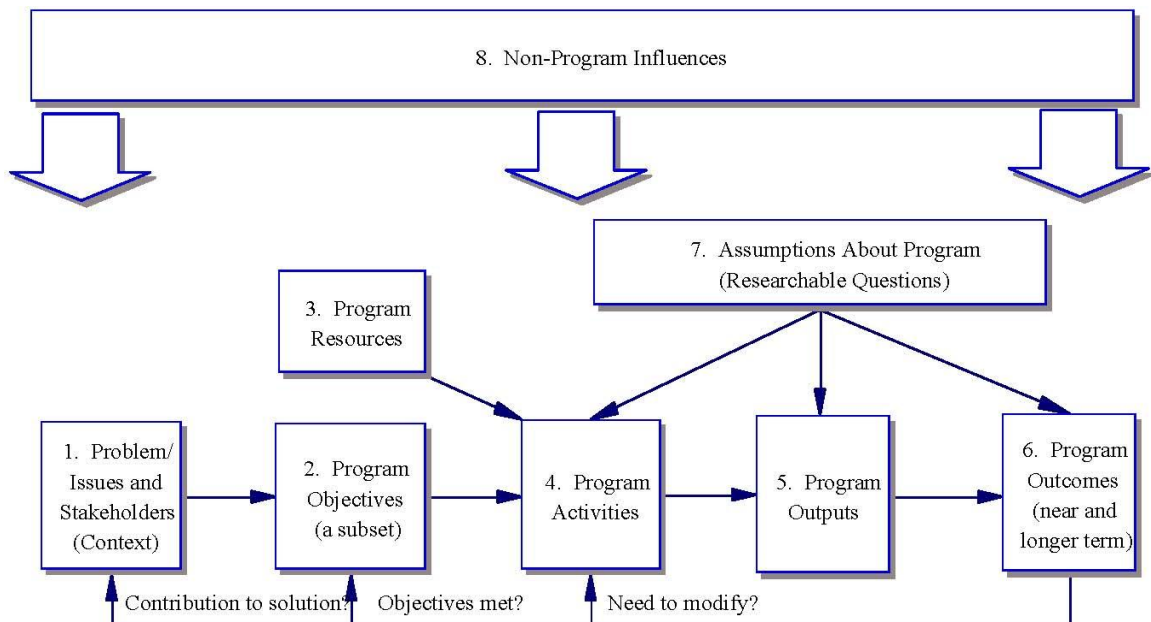
# PROGRAM DESIGN TEMPLATE

The purpose of this document is to present the overarching logic model for the Clean Energy Business Development (CEBD) Initiative. This report is organized in sections as follows:

1. **Program Intent, Design, Context, and Stakeholders:** Describes the challenges to clean energy business development the Program has been created to address, as well as the regulatory and stakeholder context within which component programs are designed to operate.
2. **Program Objectives:** Describes, at a high level, the initiative's goals and targets.
3. **Program Resources:** Identifies NYSERDA funding and staff resources committed to the initiative, as well as external funding, technical, and intangible resources supporting the initiative.
4. **Program Activities:** Describes the various early-stage business and commercialization support activities and strategies being delivered through the initiative.
5. **Outputs:** Describes the anticipated immediate results associated with program activities under the initiative.
6. **Outcomes:** Describes what is expected to be achieved under this initiative in the near, intermediate, and longer term.
7. **Assumptions about Program Strategy:** Describes testable assumptions about how program activities and outputs under this initiative will lead to desired outcomes, including spillovers.
8. **External Influences:** Describes factors external to the initiative and its component programs that may drive or constrain the achievement of outcomes.

Figure P-1 details the relationship between these eight sections.

**Figure P-1: Program Design Template (Numbers indicate Section in this report)**





## **PROGRAM INTENT, CONTEXT, DESIGN, AND STAKEHOLDERS**

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The Clean Energy Business Development (CEBD) Initiative under the System Benefits Charge Program (SBC IV) of the New York Public Service Commission (PSC) was developed with the aim of catalyzing innovation and fostering an entrepreneurial environment for business creation and growth of early-stage companies that bring new-and-improved clean energy technologies to market in order to meet the needs of New York ratepayers. There are programs with similar objectives funded under the Regional Greenhouse Gas Initiative (RGGI). Both are part of NYSERDA's support for business and technology "growth essentials" on the path to commercialization. These growth essentials, described on the NYSERDA website,<sup>1</sup> are:

- Capital
- Talent
- Networks
- Market, Technology, and Manufacturing

Clean Energy Business Development is one of three initiatives in the Technology and Market Development Program (T & MD) to build a clean energy infrastructure in New York - the others being Market Development (MD) and Environmental Monitoring, Evaluation and Protection (EMEP). For the purposes of this initiative, clean energy is defined to include renewable energy (wind, solar, biomass, marine, hydro) and energy efficiency.

Clean Energy Business Development supports PSC policy objectives, as reflected in the Energy Efficiency Portfolio Standard (EEPS) and the Renewable Portfolio Standard (RPS) to advance New York's clean energy goals, including economic growth and job creation. Clean Energy Business Development supports the mission of the T & MD program, which is to test, develop, and introduce new technologies, strategies, and practices that build the statewide market infrastructure to reliably deliver clean energy to New Yorkers (NYSERDA Operating Plan 2011, 2012). The CEBD Program complements numerous efforts of other state, local, and private New York organizations. The State of New York and New York City have multiple programs to stimulate and accelerate new technologies and economic development, but with a broader focus than clean energy. There are also programs in clean energy technology and market development funded by the U.S. Department of Energy (US DOE) that the CEBD Program leverages, where possible.

The CEBD Initiative responds to unique and critical opportunities in New York: a distinct natural resource base, unique electric grid, industrial profile, and diverse urban/rural landscape. The CEBD initiative seeks to seize these opportunities and address the economic and investment challenges facing New York as a state, as well as challenges inherent to new clean energy technologies and the entrepreneurial business startups that are the primary movers behind introduction of new technologies, products, processes, and practices. Though New York is a national leader in research and development, the State has lagged

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<sup>1</sup> See <http://www.nysesda.ny.gov/en/Innovation-and-Business-Development/Ways-NYSERDA-Supports-Growth-Essentials.aspx>

historically in the translation of that research into viable, sustainable, business enterprises.<sup>2</sup> NYSERDA experience, and a review of academic literature and published studies, suggests a number of reasons for this.

### **1.1 RESOURCES AND SKILL CHALLENGES**

As is true for emerging technologies and businesses anywhere, R&D is inherently risky and investors hesitate to invest because many efforts fail. New York companies may lack knowledge or the ability to attract the venture and other private capital necessary to survive the two “valleys of death,” or the stages of greatest risk to the success of emerging technologies (Jackson 2012). The initial stage of risk is when the potential commercial applicability of a promising new technology has not yet been made clear to investors. The second phase of greatest risk occurs when the commercial viability of a new technology has been proven, but the technology requires capital investment in order to reach commercial scale.

A second area of challenge is the lack of entrepreneurs and other business professionals with awareness, skill, and experience in the business practices needed to bring a new technology to commercialization. The business climate is not attracting enough entrepreneurial talent and expertise in New York State. Further, many university policies do not allow for entrepreneurial leave, do not teach the entrepreneurial skills necessary for bringing a new technology to market, or reward or assist with technology transfer and business startups. It is well known that technically trained people often do not have the education or skills required of an entrepreneur or business manager. General business skills, such as accounting and legal expertise, are similarly needed by new entrepreneurs (Aulet 2008, Isenberg 2010).

### **1.2 INFORMATION CHALLENGES**

Often the challenges of technology and market development stem from a lack of knowledge about the technology or market in one or more entities involved. No longer does new product development take place in a vertically integrated company, such as AT&T. Knowledge is increasingly specialized; and knowledge production occurs in diverse organizations. Sharing of unwritten knowledge, which is essential, is thus made much more difficult (Jordan 2010). It is too costly for an individual entrepreneur or investor to collect and maintain accurate, current information on early-stage clean energy business successes, trends, and opportunities in New York compared to other states.

In addition to the information content that comes from multiple sources, it is necessary to have multiple mechanisms for delivery of that information to those who could use it. The information can be broadly accessible on the internet, but often more specific exchange is needed through trade associations, business incubators, or social networks. For example, geographic clusters of researchers and/or the firms in a particular technology area that are suited to the region's strengths are advantageous because they allow for more frequent exchange of unwritten knowledge, as well as cost savings in transactions and transportation of components. Another way to speed innovation is to modify technologies from non-energy sectors for use in the area of clean energy, saving time and money; but a catalyst is often needed to bring stakeholders together to determine where these possibilities are.

### **1.3 SOCIAL AND CULTURAL CHALLENGES**

There is a lack of an entrepreneurial culture needed to attract entrepreneurs and support their success in bringing an invention to market. Attributes of this culture are risk-taking, acceptance of failure, and so on.

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<sup>2</sup> Task Force on Diversifying the New York State Economy through Industry-Higher Education Partnerships, Final Report, December 2009.

Influences on this culture are numerous. Two important ones are a lack of examples of either individual inventors or companies that have been successful, and a lack of programs that provide support at key points all along the commercialization process, be those university, industry, or government programs.

Another social challenge is the lack of connections or networks needed to obtain necessary resources, skills, or information. There are transaction costs to building and maintaining networks, especially given that networks are always evolving. Early-stage businesses that lack a network to tap into may have to spend a great deal more time than otherwise to access services that are needed and partners that could help with commercialization. There is a lack of formal strategic partnerships among intellectual property holders, established manufacturers, investors, and marketing/business experts. Table 1-1 summarizes the challenges to clean energy technological and business innovation, and the stakeholders who are directly impacted.

**Table 1-1: Targeted Challenges and Stakeholder Roles**

Challenges	Stakeholders Impacted and/or Involved
<b>1. Resource and Skill Challenges</b>	
<p>a. New York (NY) businesses are challenged in attracting venture capital investment for early stages in product life cycle – the two “Valleys of Death:” proof of potential (independent technology validation) and failure to attract funding to reach commercial viability (scale up).</p> <p>b. Need for more entrepreneurs with experience in startups, particularly in clean energy, and others who know the business side of bringing a new technology to commercialization. Often those involved do not have awareness, skill, or experience in these business practices.</p>	<p>Stakeholders impacted and/or involved include: Inventors, entrepreneurs, venture capitalist/investors, marketing and other business professionals</p>
<b>2. Informational Challenges</b>	
<p>a. There is a lack of accessible information on what has happened in the NY market for clean energy technology startups, as well as current opportunities and how these compare to competing states and areas. The problem is both lack of content and the mechanisms for widely sharing this information.</p>	<p>Stakeholders impacted and/or involved include: Entrepreneurs, marketing and other business professionals, venture capitalist/investors, new companies</p>
<b>3. Social and Cultural Challenges</b>	
<p>a. Lack of an entrepreneurial culture that supports taking risks and accepting failure is a challenge to technology and market development, as are a lack of supportive programs within universities and role models for entrepreneurs.</p> <p>b. There is a lack of awareness of possibilities and existing connections among intellectual property holders, established manufacturers, investors, and marketing/business experts that could lead to strategic partnerships or mutually beneficial business dealings.</p>	<p>Stakeholders impacted and/or involved include: NY academic institutions and research institutions, inventors, potential investors, private and public industry consortia, clusters, and other networking options</p>



Section 2:

## **PROGRAM OBJECTIVES (HIGH LEVEL)**

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The goal of the CEBD initiative is to catalyze innovation and foster an entrepreneurial climate for business creation and viable business practices and growth of early-stage companies that bring new and improved clean energy technologies to market. The initiative will do this by building the long-lasting capacity for clean energy innovation and entrepreneurship in New York and spurring action and investments that provide ratepayer benefits without the need for long-term public investment, consistent with the New York State Energy Plan recommendation. These goals align with T & MD objectives.

The CEBD initiative objectives, as stated in the Operating Plan (NYSERDA 2011, 2012) will complement NYSERDA's R&D product development efforts to accomplish the following:

- Develop, attract, and support clean energy entrepreneurs, managers, and technologists who seek to commercialize new clean energy technologies benefiting New York consumers and ratepayers
- Develop and attract private risk capital to commercialize new clean energy technologies for New York markets
- Connect necessary stakeholders to build teams that identify and pursue opportunities to commercialize new clean energy technologies benefiting New York consumers and ratepayers

Initiative priorities and overall program design will evolve with significant input by the private research and investment communities. By the conclusion of the five-year T & MD funding cycle, the following results are anticipated:

- New regional programs linking research activities at New York institutions with the investment community
- New programs that develop and rapidly transfer highly innovative technologies to the marketplace
- An expanded knowledge base and business focus necessary to address New York's energy challenges
- Regional clean energy technology clusters of public-private partnerships among government, industry, and academia
- Increased involvement of the private investment sector in supporting early-stage New York-based clean energy technology companies
- Increased entrepreneurial attention on opportunities in clean energy technologies

The goals of the sub-initiatives are as follows.

### **2.1 INNOVATION/ENTREPRENEURIAL CAPACITY BUILDING**

- Provide an environment supporting accelerated growth of early-stage clean energy businesses that bring new technologies to market
- Stimulate and support the establishment of institutions and other infrastructure to meet the ongoing needs of clean energy investors and entrepreneurs

**2.2 MARKET INTELLIGENCE**

- Increase knowledge of and awareness of market signals, the business and financial information on which decisions to locate or invest in clean energy technologies in New York are made
- Understand best practices in innovation performance metrics and influence the behavior of the research and business communities
- Have a network that links geographically dispersed clean energy entrepreneurs, established companies, universities, and other stakeholders to enable collaborations

**2.3 DIRECT SUPPORT FOR BUSINESS ACCELERATION**

- There will be viable clean energy businesses with good business models and practices so that the need for business management and entrepreneurial expertise in early-stage clean energy companies in New York is met
- Commercial launch will be accelerated by filling any business development gaps existing for companies that have clean energy technologies within two years of commercial launch

Table 2-1 summarizes the CEBD Program goals.

**Table 2-1: CEBD Program Goals**

Program / Sub- Initiative	Goals
CEBD as a whole	Foster an environment in New York that supports clean energy technology and business innovation. Bring new cost-effective and economically sustainable clean energy technologies to the New York consumer. Deliver potentially significant energy economic benefits to the State by supporting the commercialization of new clean technologies.
Innovation/ Entrepreneurial Capacity Building	Institutions and infrastructure (new and sustained programs) exist that support the needs of clean energy technology businesses. The environment accelerates technology commercialization by improving business practices for inventors and companies who would bring these to market. New York State has more growing and profitable early-stage clean energy businesses (capacity, focus, etc.).
Market Intelligence	There is knowledge of investors, investment opportunities and trends, and other metrics of innovation performance that influences stakeholders and feeds back to NYSERDA programs. A network exists in which there is sharing of communication and knowledge among capital partners, consortia, clean energy businesses and NYSERDA planners, leading to collaborations. Early-stage NY businesses are able to attract private investment capital early and frequently.
Direct Support for Business Acceleration	More skilled entrepreneurs and managers are starting and expanding new clean energy businesses in NY. Early-stage clean energy businesses are stronger due to NYSERDA assistance with business services and good business practices. Clean energy businesses are able to bring their products or services to market quicker.
Source: T & MD Operating Plan 2011 and 2012; Program Opportunity Notices (PONs 1927, 2266, 2537.1306, 1216, 2419, 2251, 2264)	



Section 3:

## PROGRAM RESOURCES

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This section identifies the funding, workforce, partnership, and other resources programs are providing under this CEBD initiative.

**Table 3-1: Program Resources**

<b>Funding</b>
<ul style="list-style-type: none"><li>▪ SBC funding &gt; \$41 Million commitment over the five-year period</li></ul>
<b>Supporting Program Funding</b>
<ul style="list-style-type: none"><li>▪ RGGI planned funding ~ \$31 Million commitment over the five-year period</li></ul>
<b>NYSERDA Staff Resources</b>
<ul style="list-style-type: none"><li>▪ NYSERDA staff (full time equivalents)</li><li>▪ PONs, Requests for Proposals to select projects, provide information</li></ul>
<b>External Resources</b>
<ul style="list-style-type: none"><li>▪ Technical expertise of emerging product developers and the broader research community, including University staff and students</li><li>▪ In some cases, a minimum of 20% cost share is required of participants</li><li>▪ Intellectual property of participants at outset of participation</li><li>▪ Business expertise of entrepreneurs and engaged stakeholders</li></ul>
<b>Intangible Resources</b>
<ul style="list-style-type: none"><li>▪ NYSERDA's credibility and relationships with key market actors, stakeholders, and policy makers</li><li>▪ NYSERDA's experience with product development, demonstration, and information dissemination</li><li>▪ Existing awareness of NYSERDA among market actors</li></ul>



Section 4:

## PROGRAM ACTIVITIES

NYSERDA’s clean energy business growth and acceleration opportunities encompass both direct support of clean energy companies and the building and maintenance of an infrastructure to foster entrepreneurship and growth. The CEBD initiative is comprised of three component sub-initiatives, which offer an integrated approach:

- Innovation/Entrepreneurial Capacity Building
- Market Intelligence
- Direct Support for Business Acceleration

The program activities described here for the CEBD initiative are divided into six logical groups of activities that do not strictly follow the organization of the three sub-initiatives. Exceptions were made, where needed, to emphasize aspects of the essentials for technology and market growth. Thus, there are separate activity groups for networks and executive leadership. There is a separate activity for Proof-of-Concept Centers (POCCs) because this targets a different stage of R&D than general early-stage business support. The activity group Assistance for Early-Stage Businesses provides both direct and indirect support for businesses; while Direct Support is more targeted at business development for specific projects in the commercialization and launch stage. Table 4-1 maps the six activities to the three sub-initiatives.

**Table 4-1: Map of Activities to Sub-Initiatives**

	<b>A. Facilitate Knowledge of Markets and Innovation</b>	<b>B. Facilitate Networks and Networking</b>	<b>C. Support Proof of Technology Concepts</b>	<b>D. Provide Assistance to Early- Stage Business</b>	<b>E. Expand Availability of Executive Leadership</b>	<b>F. Direct Support For Commerciali- zation and Launch</b>
Innovation/ Entrepreneurial Capacity Building		X	X	X	X	
Market Intelligence	X	X				
Direct Support for Business Acceleration					X	X

### 4.1 FACILITATE KNOWLEDGE OF MARKETS AND INNOVATION

The Market Intelligence sub-initiative includes, or will include in the near future, activities to track and analyze business and financial information in the New York clean energy technology area. The intent is to increase the awareness of investment activity in New York, to benchmark New York relative to other states and similar initiatives, and to provide feedback to the Program. The Program will coordinate with organizations that have similar data interests to avoid duplication of efforts and work with business development stakeholders to regularly assess the type of data and analysis of greatest value.

Another component to be implemented by competitively selected contractors will focus on the identification of market gaps and opportunities that could be effectively exploited by early-stage New York businesses. This component will permit periodic collection and distribution of innovation performance metrics critical to understanding best practices and influencing the behavior of the research and business community.

**Capital Growth Business Partners** (PON 1927, funded by SBC3 and RGGI) supports a designated coordinating entity to organize frequent and sustained communication between New York State early-stage clean energy technology companies seeking investment, investment communities worldwide, and NYSERDA. The entity will identify, recruit, and organize the investor partners. Engagement of investors includes program and policy input, participation in NYSERDA-sponsored business incubators, consortia and other partnerships, and introduction to NYSERDA-supported technology developers. The intent is to make engagement with investors more regular and systematic.

**Clean Energy Technologies Innovation Metrics** (RFP 2266) has hired a contractor to develop and publish a suite of indicators that accurately defines the level of clean technology innovation activity that is in place in New York and that provides information to attract and promote clean technology business to business owners, entrepreneurs, investors, and others thinking of investing or doing business in New York State. Publishing these indicators fills an information gap about opportunities and context that hampers consideration of New York as a place for clean technology investment and growth. This may also improve customer knowledge of clean technology products, bring improvement to those products, and be useful to NYSERDA for assessing and planning its programs.

#### **4.2 FACILITATE NETWORKS AND NETWORKING**

Networks are needed to tie all of the growth essentials (talent, capital, product, manufacturing, and market) together. Innovators need to interact with individuals who possess similar ideas and contrasting insights and people with financial resources and manufacturing capabilities throughout the business development process. NYSERDA can help innovators, investors, and stakeholders to access existing networks and to create new ones.

**A Clean Energy Innovation and Entrepreneurial Network** is being developed as part of the Market Intelligence sub-initiative. The Network will link the geographically dispersed clean energy entrepreneurs and established companies, universities, and other innovation stakeholders to enable collaborations and partnerships throughout the State. This social media tool will create virtual networks.

**Clean Energy Cluster Development**, when it is implemented, will accelerate the development of new products and services and create new business models. This activity will convene multi-disciplinary market participants to promote new networks of interrelated clean energy firms. These clusters, building upon unique regional assets, can drive productivity and innovation and serve as an important driver of regional competitiveness. NYSERDA will collaborate with the Regional Economic Development Councils to identify and target clusters that optimize the local capability of the region. The Program will follow a three-step strategy: a market analysis to identify the natural presence of clusters; nominal financial support to support cluster initiatives across various regions and industries; and activities to link, leverage, and align

existing programs and initiatives to support clusters. The first area of focus will be on energy informatics<sup>3</sup> with a geographic emphasis on New York City.

Networks and networking are aspects of other programs as well. An important role of the business incubators is to link clients to existing networks, to hold networking events, and use web-based tools to link clients with services they need. Proof-of-Concept Centers aim to establish better relationships between research institutions and investors.

#### 4.3 SUPPORT PROOF OF TECHNOLOGY CONCEPTS

The **Proof-of-Concept Center Initiative** (PON 2537) within the Innovation/Entrepreneurial Capacity Building sub-initiative is intended to facilitate the university-investor interface by focusing on understanding investor motivations, supporting entrepreneurs, streamlining bureaucracy, improving access and visibility, and fostering a culture of innovation on campus. This will be accomplished through supporting research and relationships between the University Technology Transfer Office, university researchers, and the private sector to identify and validate concepts in the early stages of development. Centers will accelerate the commercialization and move-to-market of university innovations in clean energy technologies. They will match emerging technologies or business concepts with investors and establish a sustainable regional innovation ecosystem that includes solid linkages with the research institution.

NYSERDA will invest \$5 million in seed money at each center over a five-year period, with cost sharing required, for a total investment of \$15 million. The centers are expected to operate on their own after NYSERDA funding ends.

Each center<sup>4</sup> will document their current intellectual property portfolio and research activities. There are two categories of Centers: organizations at research institutions; or venture development networks not associated with a university exclusively. The Proof-of-Concept Center (POCC) programs can be structured around three integrated stages of activities: idea generation and evaluation; proof-of-concept evaluation; and early-stage venture creation (a business model). Centers must participate in the NYSERDA social media site; and will be paid by milestones achieved in three categories: management tasks; specific projects or technologies funded; and client outcomes, such as new ventures formed. A minimum cost share of 20% is required.

#### 4.4 PROVIDE ASSISTANCE TO EARLY-STAGE BUSINESSES

The **Clean Energy Business Incubator** program,<sup>5</sup> an existing program, will continue to be a major activity under the Capacity Building sub-initiative. Funding for current business incubators (PON 1306, PON 1216)

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<sup>3</sup> Informatics (Wikipedia): a broad academic field encompassing human-computer interaction, information science, information technology, algorithms, areas of mathematics (especially mathematical logic and category theory), and social sciences that are involved.

<sup>4</sup> The three Proof-of-Concept Centers will be created by Columbia University, which will open the Downstate Regional Energy Technology Accelerator; High Tech Rochester Inc., a non-profit venture development organization, which will open a center to serve Western and Central New York; and Polytechnic Institute of New York University and the City University of New York, which will create the New York City Clean Economy Center for Proof-of-Concept.

<sup>5</sup> NYSERDA Clean Energy Business Incubators are located at NYU/Poly, SUNY-CSNE, Syracuse TechGarden, RIT, SUNY Stony Brook, and SUNY Buffalo.

is likely to be continued, as well as development and implementation of a modified new Business Incubator Program. NYSERDA-supported business incubators provide a business support infrastructure for early-stage clean energy technology companies and entrepreneurs. This includes facilities and on-site shared services, as well as professional services, marketing and sales support, business counseling, technical assistance, business assistance, and learning and professional networking opportunities. The intent is that these incubators become self-sustaining and an important part of the regional business infrastructure. Objectives are to reduce barriers to entry for early-stage companies, provide support for business expansion, stimulate better business decisions, build commercially sustainable businesses, and improve access to markets for new clean energy technologies.

In the past, funding has been \$ 1,500,000 per incubator over four years. Payments are made based on milestones reached in three categories: management tasks; client assistance tasks; and client outcomes, which are expected for only a subset of clients.

A planned future initiative is **Emerging Clean Energy Business Investment**, which will be funded by RGGI. This will be designed to generate funding for early-stage and pre-revenue companies by stimulating private investment, facilitating the relationship between the investment community and New York companies, and by direct NYSERDA investment.

This activity will increase access to capital for clean energy technology companies with particular emphasis on early-stage and pre-revenue companies with high growth potential. NYSERDA may implement the Program by mirroring the process used by private and public seed or venture funding organizations that rely on transparent decision criteria and evaluation/recommendation by a qualified investment panel. Only businesses offering the potential to deliver a new-and-improved product/service for the New York market will be supported.

#### **4.5 EXPAND AVAILABILITY OF EXECUTIVE LEADERSHIP**

NYSERDA continues to observe a need for executive mentoring and management advice for startup and early-stage clean energy companies in New York State to help them gain viability, commercialize clean energy products, grow their business, and create revenues and employment. These businesses include those served through existing NYSERDA programs, including product development programs, and others. The outcomes of such advice and assistance are more robust companies with stronger business models that are better equipped to raise capital and bring their energy-related technology to market.

The **Entrepreneurs-in-Residence Program** (PON 2419) has a goal of supporting certain NYSERDA-associated early-stage companies by providing advice and mentoring from a qualified Entrepreneur In Residence (EIR) on a project basis. Funding provides for a program administrator who will qualify and assign EIRs, work with clients to determine project scopes, control agreements between the parties, disburse payments to the EIR, provide opportunities for networking, and provide reporting to NYSERDA. The administrator will establish and maintain a roster of experienced entrepreneurs and executives who agree to work as EIRs. Client outcomes to be tracked include progress toward commercialization, investment, sales, and hiring due to NYSERDA support. The administrator will also advise NYSERDA on patterns and trends in the kinds of advice and service the clients require based on the EIR requests.

The **Clean Tech Executive Transition for Experienced Executives** (PON 2264) will develop a multi-year clean energy education program to educate experienced executives interested in seeking opportunities in the clean technology and renewable energy industries. Increasing the knowledge and awareness of clean energy business operations and opportunities for experienced executives who have been successful in other areas is likely to increase the number who transition to clean energy businesses and become successful. No contracts were awarded under this PON, but a new PON is planned.

#### **4.6 DIRECT SUPPORT FOR TECHNOLOGY COMMERCIALIZATION AND LAUNCH**

The Direct Support for Business Acceleration sub-initiative will build upon previous NYSERDA efforts supported through SBC funding to address any business development gaps in NYSERDA's technology and market development. This sub-initiative may include competitive programs providing support to early-stage companies in the process of entering the market with a clean energy technology, and is planned to also provide resources to address the need for business management and entrepreneurial expertise.

The **Commercialization Option Program** (PON 2251) assists clean energy companies in New York State by supporting business activities that are critical to successful technology commercialization. Participants will select from a list of 19 business development and commercialization activities that are strategically relevant to their business operations and necessary for the successful launch of a product or service. Proposers are required to show strategic relevance and describe their current level of business and technical maturity. Proposers must be a current or recent NYSERDA R&D contractor who has completed, or is completing, a feasibility study related to a product. Activities may include market research; business planning; development of move-to-market strategy, distribution channels, patent applications, a market strategy, a manufacturing plant; or negotiation of manufacturing contracts, to name a few. Contracts are for a maximum of \$100,000, a minimum cost share of 20% is required; and product launch is to be expected in 24 months.

In the future, the RGGI Program expects to fund a manufacturing readiness program. The goal of this program is to reduce the financial risk of establishing new manufacturing facilities for innovative clean energy technology products by sharing the investment to build a commercial-scale facility. The Program will increase the availability of clean energy technologies in the New York State market.





Section 5:

## PROGRAM OUTPUTS

Program outputs, usually contracted deliverables, are the immediate results of program activities. Clean Energy Business Development activities support businesses wherever they are on the continuum from proof of concept to commercialization; thus, the outputs also span progress markers across that continuum, depending on where the early-stage business is when the activity occurred. Thus, an output for a business closer to commercialization might also be a second order outcome for a business that received assistance while in the proof-of-concept phase. These are all listed as outputs in this report. The tables in this section describe outputs, indicators that these have occurred, and possible data sources.

Targets that have been determined for a few specific indicators by the Program are shown in the tables. All targets are cumulative at full implementation, which includes 2012-2016 and Out Years, from Table 7.3 in the T & MD Operating Plan 2011, with no change in the 2012 revised plan (NYSERDA 2011, 2012). Table 5-1 shows outputs and indicators that are common across the three sub-initiatives. Indicators for each are discussed in Table 5-2, below.

**Table 5-1: Outputs and Indicators Common across Sub-Initiatives**

<b>Outputs</b>	<b>Market Intelligence/ Networks</b>	<b>Capacity Building (POCC, Incubators)</b>	<b>Direct Support</b>
Number of clients/ characteristics	Audience description	Number of clients served by type (maturity of company, etc.)	Number of projects awarded by type; Number of entrepreneurs engaged
Events held	Metrics report, Events for Partner feedback to NYSERDA Network tool developed	Number of technologies evaluated, Number of training, networking events held	Mentoring agreements
Services provided, accessed	Amount and type of data collected/ analyzed	Amount, type of entrepreneur advice, business services provided	Funds by type of business practice supported
Gaps identified	Data needs by group Metrics to be developed	New/ different services or support needed	New/ different services or support needed

Table 5-2 (next page) details top-line outputs for this program by activity area.

**Table 5-2: Outputs, Indicators, and Potential Data Sources**

<b>Outputs</b>	<b>Indicators</b>	<b>Data Sources and Potential Collection Approaches</b>
<b>A. Outputs from Facilitate Knowledge of Markets and Innovation</b>		
Leveraging opportunities identified (private capital, federal government, other)	Number of opportunities identified, description, including dollar amounts	Program records
Investors engaged in Capital Growth Business Partnership	Number of investors who are Capital Growth partners, description	Program records Document review
Innovation Metrics Reports Market Intelligence Reports	Number of reports Extent reports meet planned content Target: five annual reports by 2016	Program records Document review
Exchanges occur between Capital Growth partners and NYSERDA	Number of meetings Number of partners attending	Program records
Information on clean energy benchmarks posted on website and viewed	Quantity, characteristics of postings Number of downloads Target: 500 downloads by 2016	Document review Web statistics
Gaps, opportunities analyzed	Description of gap analyses	Document review
<b>Outputs</b>	<b>Indicators</b>	<b>Data Sources and Potential Collection Approaches</b>
<b>B. Outputs from Facilitate Networks and Networking</b>		
Participation in networking events	Number of events, number attending	Program records
Collaborations planned, targeted	Number, type of collaborations planned (e.g., with universities)	Program records
Collaborations formed where CEBD is active in facilitation	Number and description of collaborations Number of company profiles Number of forum hits	Program records
(Future) Social Media tool developed	Stage of tool development Launch of tool	Program records

<b>Outputs</b>	<b>Indicators</b>	<b>Data Sources and Potential Collection Approaches</b>
<b>C. Outputs from Support Proof of Technology Concept</b>		
Proof-of-Concept Centers (POCCs) established	Planned: Three Proof-of-Concept Centers	Program records
Clients receiving POCC support (research institutions, researchers, etc.)	Number and characteristics by POCC Target: 135 clients in POCCs	POCC reports, tracking systems (Maintain list and contact information)
Clean Energy Business ideas vetted for potential applications	Number of Clean Energy Business ideas (technology or service) evaluated	Program records
Advice, referral to business services provided	Number of instances, description of these	POCC reports
Entrepreneurs educated by POCC	Number of education events (workshops, courses, etc.), attendance	Program and POCC records
New venture teams formed	Number of potential applications that are being pursued by entrepreneur served by POCC	POCC report Interviews
Capital raised	Number of new ventures receiving further funding; amount and source of funds	POCC reports Verification by interview
Technologies licensed	Number of licenses issued, cost, source and licensee	POCC report Interviews
<b>Outputs</b>	<b>Indicators</b>	<b>Data Sources and Potential Collection Approaches</b>
<b>D. Outputs from Provide Assistance to Early-Stage Business (in addition to POCC)</b>		
Clean energy businesses receiving support (on-site and off-site)	Number receiving services from business incubator, by type of service (events, info sessions, web tools, mentoring, etc.) Target: 270 companies by 2016	Program records or contractor reports (Maintain list and contact information)
<b>Outputs</b>	<b>Indicators</b>	<b>Data Sources and Potential Collection Approaches</b>
<b>E. Outputs from Expand Availability of Executive Leadership</b>		
Individuals recruited, qualified into the leadership programs	Number recruited and description of their background, skills	Program records or Contractor reports (maintain list and contact information)
Mentors assigned to tasks	Number of mentors, assignments per mentor	Program records or Contractor reports

Outputs	Indicators	Data Sources and Potential Collection Approaches
<b>F. Outputs from Direct Support for Technology Commercialization and Launch</b>		
Companies awarded projects (with potential new products serving NY markets)	Number of companies awarded, location, area of clean energy Target: 150 companies by 2016	Program records
Types of activities supported	Number by type (patent applications, market tests, negotiate contracts, etc.)	Program records

Section 6:

## **PROGRAM OUTCOMES AND LOGIC DIAGRAM**

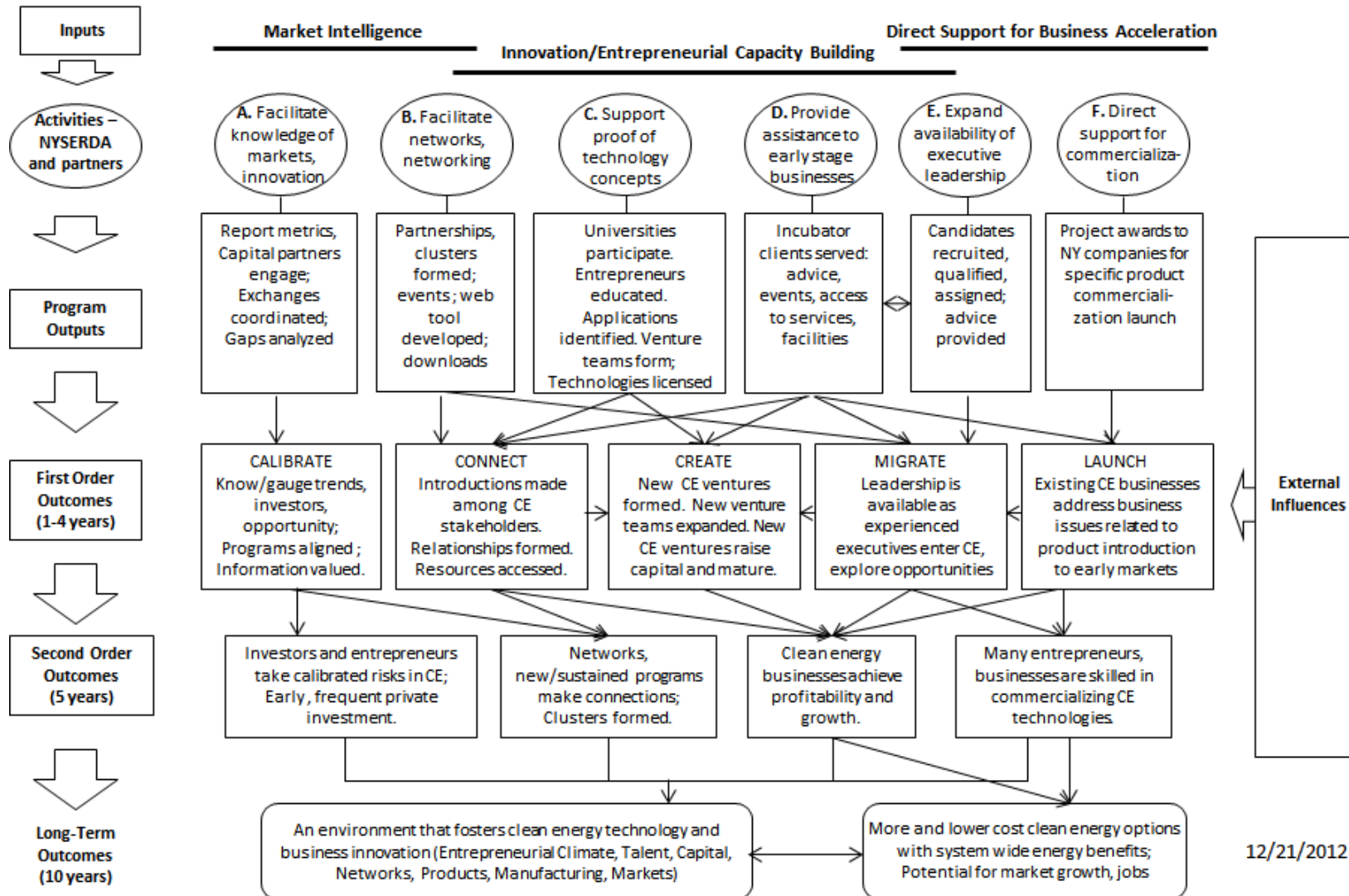
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This section presents NYSERDA's CEBD Program logic model diagram (Figure 6-1, next page) showing activities, outputs, a series of outcomes, and the relationships among these. The diagram also includes Inputs and External Influences with no detail, since that information is included in Sections 3 and 8. The diagram presents information provided in Sections 2, 4, 5, and 6 at a higher level of abstraction, aggregating in order to tell the Program's "performance story" in just one page.

The logic model suggests project outcomes that are expected achievements of the Program over different time periods. These are described in more detail in the tables in this section. Table 6-1 through Table 6-5 detail the CEBD Programs' expected achievements (outcomes), as well as observable indicators that would signify the presence of these achievements. In addition, the tables show the data sources and potential collection approaches that an evaluation effort might undertake to determine the achievement of the expected outcomes. All targets mentioned are cumulative at full implementation, which includes 2012-2016 and Out Years, from Table 7.3 in the T & MD Operating Plan 2011, unchanged in the revised 2012 version (NYSERDA 2011, 2012).

Figure 6-1: Clean Energy Business Development Initiative Logic Diagram

### Clean Energy (CE) Business Development Logic Model



12/21/2012

**Table 6-1: First Order Outcomes and Indicators Common across Initiatives**

First Order Outcomes	Market Intelligence/ Networks	Capacity Building (POCC, Incubators)	Direct Support
Capital raised/ leveraged	Number/size of venture capital firms operating in NY	\$ by source, by stage of business development Size of investment deals	\$ by source, by stage of business development Size of investment deals
Collaborative efforts	Number and significance (key/major players) of formal partnerships/ joint ventures/ alliances/ teams formed	Research-industry-government partnerships/ collaborations formed or broadened	Regional, local, or virtual clusters formed or broadened by project awardee participation
New ventures formed, growing, influenced by CEED support	n/a	Number of startups Number maturing	Number of businesses launching new technology

**Table 6-2: First Order Outcomes, Indicators, and Potential Data Sources by Activity Area**

First Order Outcomes	Indicators	Data Sources and Potential Collection Approaches
<b>First Order Outcomes - Calibrate</b>		
Knowledge of, ability to, gauge trends, investors, opportunities	Quantity, quality of information, metrics, benchmarks	Peer review
Information valued	Instances of use Testimonials	Interviews, survey
Business support added, modified to align with new information/ needs	Programmatic changes made due to new knowledge or trends	Document review of program records New PONs
First Order Outcomes	Indicators	Data Sources and Potential Collection Approaches
<b>First Order Outcomes - Connect</b>		
Clean energy collaborative efforts within partnerships, clusters	Number and significance of (extent key players) formal collaborations (teams, etc.) formed, ventures undertaken	Program records, Contractor report Survey, interviews
Participants access knowledge, resources, markets because of networking	Instances of this access due to networking Amount of resources leveraged by participants, such as total value of research conducted by research institutions in support of new clean energy businesses	Self-reports from surveys, interviews

<b>First Order Outcomes</b>	<b>Indicators</b>	<b>Data Sources and Potential Collection Approaches</b>
<b>First Order Outcomes - Create</b>		
New clean energy ventures formed	Number of teams, of new business startups, location	Contractor reports Interviews
Capital is raised, leveraged	Number of inventions receiving further funding by source Amount of capital received per deal	Contractor reports Interviews
Maturation of new ventures	Movement toward commercialization, growth in business resources, staff, staff skills	Self-reports from interviews or survey of participants, with comparison to non-participants if that is feasible
Firms "graduate" from business incubators	Number of firms graduating Status at time of graduation Target: 162 businesses by 2016	Incubator reports Interviews Success stories
<b>First Order Outcomes</b>	<b>Indicators</b>	<b>Data Sources and Potential Collection Approaches</b>
<b>First Order Outcomes - Migrate</b>		
More entrepreneurial capacity, more entrepreneurs involved	Number of entrepreneurs working in clean energy Number transitioned to clean energy businesses from other sectors	Program and contractor records, reports Interviews
Entrepreneurs exploring clean energy opportunities	Amount of investment in early-stage clean energy businesses	Secondary statistics Survey, interviews of clean energy entrepreneurs Success stories
<b>First Order Outcomes</b>	<b>Indicators</b>	<b>Data Sources and Potential Collection Approaches</b>
<b>First Order Outcomes - Launch</b>		
Existing businesses move toward commercialization and product launch	Steps taken, such as patent application, manufacturing contract signed Readiness for sales, service	Contractor reports Interviews
Private capital accessed/leveraged	Number receiving further funding, by source, business stage Amount of capital received per deal	Project/contractor reports Interviews
Technologies commercialized in part due to NYSERDA business support	Number commercialized Description of each	Project/contractor reports Interviews, success stories



**Table 6-3: Second Order Outcomes and Indicators Common across Sub-Initiatives**

Second Order Outcomes	Market Intelligence/ Networks	Capacity Building (POCC, Incubators)	Direct Support
Addition to business infrastructure	Knowledge base; metrics to judge progress	New or sustained business support programs	New or sustained business support programs
Business progress, growth	Frequency, time to receipt of investment	Size of investment, estimated time to market	Size of investment, estimated time to market
Technology commercialized	N/A	Number commercialized	Number commercialized
Sales, revenue	N/A	Sales revenue from above	Sales revenue from above
Jobs	N/A	Net jobs from above	Net jobs from above

**Table 6-4: Second Order Outcomes, Indicators, and Potential Data Sources by Activity Area**

Second Order Outcomes	Indicators	Data Sources and Potential Collection Approaches
<b>Second Order Outcomes - Calibration, Investment</b>		
Knowledge influences investors and entrepreneurs to seize opportunities, take risks	Changes in behavior of market actors due to market intelligence	Survey of users
Systematic early and frequent engagement of investors in early-stage New York businesses	Time to receipt of investment Quality of investment grade deals	Survey of researchers, entrepreneurs, new venture managers
Second Order Outcomes	Indicators	Data Sources and Potential Collection Approaches
<b>Second Order Outcomes - Support and Network Persistence</b>		
Mechanisms for connecting investors and early-stage businesses are sustained	Supporting programs continue to operate (incubators, POCCs, etc.) Formal networks scope, characteristics, including clusters	Program records Environmental scan Network analysis
Research and business stakeholders are pursuing opportunities	Active, growing clean energy regional clusters, targeted clean energy projects underway	Program records Environmental Scan Survey
Second Order Outcomes	Indicators	Data Sources and Potential Collection Approaches
<b>Second Order Outcomes - Clean Energy Business Growth</b>		
Growth in number of clean energy businesses	Number of businesses, trend	Secondary statistics
Clean energy firms raise private capital, gain more business capabilities, more able to survive uncertain early markets	Amount of private capital raised Capabilities of firms (staff, business practices, strength of business case, etc.) Clean energy business growth (size profitability)	Self assessment with verification with secondary statistics and experts in that market

Second Order Outcomes	Indicators	Data Sources and Potential Collection Approaches
<b>Second Order Outcomes - Clean Energy Business Growth (Continued)</b>		
In some cases, client outcomes include new products developed and launched	Number commercialized by year	Client outcomes reports Interviews Trade journals
Related sales, revenue, jobs	Data from commercialized products	Client outcomes reports Secondary statistics Survey, interviews
<b>Second Order Outcomes - Business Leadership, Skill</b>		
Skilled NY entrepreneurs interested in clean energy start clean energy firms	Number of entrepreneurs interested, active Trend in the above number	Survey

Table 6-5 provides suggestions for how longer term impacts might be measured, drawing from several innovation indices. For many of these, measurement would look at cumulative growth, annual growth, trend up or down, and trend line for the relevant time period. **The CEBD Program will not be evaluating these impacts independently.** The T & MD Operating Plan states that longer term impacts on New York's economy, e.g., jobs and gross state product changes, will be assessed at the portfolio level for T & MD programs (NYSERDA 2011, 2012).

**Table 6-5: Longer-Term Outcomes, Indicators, and Potential Data Sources**

(These impacts will be evaluated at the level of the T & MD program, not for CEBD independently.)

Outcomes	Indicators	Data Sources and Potential Collection Approaches
<b>Longer-Term Outcomes: Foster Environment for Clean Energy Technology and Business Innovation</b>		
Talent - Entrepreneurship	Entrepreneurial activity	NYS Innovation Report - Kauffman Index of Entrepreneurial Activity (recent startups, from survey)
Capital Availability	Investment funding amounts in NY [clean energy] Investment dispersed per deal Investment deals as share of [clean energy] high-tech business establishments NY share of Small Business Innovation Research and Technology Transfer Program (SBIR)/ STTR grants Sum of equity invested in green technology per \$100,000 Gross State Product (GSP)	PricewaterhouseCoopers, Venture Economics, National Venture Capital Assoc., Money Tree survey, Census Bureau; New York State Innovation Report Excell Partners Study SBA Thomson Financial, Milken
Networks University-Industry-Government Structural characteristics: number, type of actors; ways organizations are linked; clusters within network; organizations with roles (e.g., stars, gatekeepers)	Map showing formal relationships between these types of organization (contracts, grants, joint ventures, alliances, etc.) and changes over time	Program records, secondary statistics, survey Network analysis and software

Outcomes	Indicators	Data Sources and Potential Collection Approaches
<b>Longer-Term Outcomes: Foster Environment for Clean Energy Technology and Business Innovation (Continued)</b>		
Networks Early business support services for clean energy technologies Structural characteristics (see above)	Map showing cooperative agreements or overlapping clients of New York programs by location serving clean energy clients/awardees, with number served, major type of service; changes over time	Program data; survey of program managers Network analysis and software
Entrepreneurial climate Economic/regional clusters supported by CEBD are successful	Extent of success stories; Presence of a critical mass, domain-specific skills Extent to which regional assets are transformed into regional businesses (net formation)	Case Study  Milken Institute State Technology and Science Index
Outcomes	Indicators	Data Sources and Potential Collection Approaches
<b>Longer-Term Outcomes: More and Lower Cost Clean Energy Options with Energy Benefits; Economic Benefits</b>		
Advanced technologies commercially available that were supported by CEBD	Number of these technologies, by clean energy type Target: 40 technologies	Client/awardee outcomes reports Success stories Historical tracing case studies
Commercial sales of supported technologies	Sales of each by year and total Target: \$20,000,000	Client/awardee outcomes reports Success stories Historical tracing case studies
Size of potential markets for these commercially available technologies	Sum of projections for each technology, number sold over next five years	Market assessment for selected technologies supported by CEBD/T & MD
Potential energy benefits from these new technologies	Electricity savings; fossil fuel savings, demand reduction, emissions reduction	Analysis, modeling for selected technologies supported by CEBD/T & MD
Net additional jobs as a result of NYSERDA investment	Sum of net jobs for each technology Target: Contributor	Case study Analysis, modeling
Change in GSP as a result of NYSERDA investment	Target: Contributor	Calculated from sales and jobs



## **ASSUMPTIONS ABOUT STRATEGIES**

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This section describes the testable hypotheses or testable assumptions about the Program to be explored in the evaluations. These are key evaluation questions about how program activities and outputs under this initiative will lead to desired near, intermediate, and longer-term outcomes.

1. Did activities and outputs of these activities occur as planned and reach the target audiences?
2. Did target audiences react to the outputs as assumed?
  - a. Has the Program increased the knowledge base of clean energy opportunities in New York State?
  - b. Were more venture capitalists drawn to invest in clean energy technologies in New York in part because of the improved metrics, market intelligence and other program support?
  - c. Did the opportunities for networking stimulate collaborative efforts for early-stage clean energy businesses?
  - d. Did support for proof of concepts lead to more technologies evaluated and to more ventures with the capital to move into further development?
  - e. Has the Program increased the number of clean energy businesses in New York?
  - f. Have early-stage clean energy businesses implemented more viable business practices (plans, models, strategies, actions) due to CEBD support and been able to attract capital and advance new technologies?
  - g. Is there more entrepreneurial capacity now because of CEBD recruiting, training, and mentoring initiatives?
  - h. Have specific technologies moved to commercialization and launch more quickly because of CEBD support for their business practices?
3. Have the changes above influenced the factors important to the New York entrepreneurial and innovation climate for new clean energy technologies more broadly?
  - a. Is there systematic, early, and frequent investment in early-stage clean energy businesses?
  - b. Is there a network of new and continuing government and non-government programs and other networks to support these technology evaluations and early businesses?
  - c. Does the environment support university-industry collaborations and transformation from invention to development to product?
  - d. Are early-stage clean energy businesses more robust - that is, more able to survive the development, commercialization, and launch process?
  - e. Is there a track record of successful introduction of new clean energy technologies into the market?

- f. To what extent are recipients of program funding "standing on their own" following SBC funding?
4. What important spillover mechanisms should be investigated during research to quantify participant spillover and nonparticipant impacts?
- a. Have *participants* repeated an action without further NYSERDA funds/assistance (collaborated on market intelligence gathering or dissemination, sustained an incubator or other program or CEBD network or collaboration, evaluated more concepts, continued to use good business practices, made progress in developing and introducing a new technology, started or assisted other early-stage clean energy businesses)? Or have participants pursued other clean energy actions without NYSERDA funds/assistance due to program influence?
- Causal Mechanism: Gained skills, resources, connections, and learned from the experience funded by NYSERDA that the action was worthwhile; continue to see opportunities.
- b. Have *nonparticipants* become aware and begun taking similar actions?
- Causal Mechanisms: Learned personally about "it" and its benefits from interaction with a participant, or from NYSERDA staff, publications, or other source, and were persuaded to take the necessary steps and actions; took action, and continue to see opportunities.
- c. Have program direct effects changed behavioral norms which then cause changes/have an impact on former/current *participants and nonparticipants*? These include a culture that is more risk-taking about clean energy startups, systematic investment in early-stage clean energy technologies, and general knowledge and skill related to the business side of technology development and introduction.
- Causal Mechanism: Longer term, the growth essentials for development of new clean energy businesses and technologies accumulate and successful innovation and its rewards puts self-sustaining incentives into the system.
- d. Have program direct effects changed general economic equilibrium, which then causes changes/has an impact on former/current *participants and nonparticipants*? These include the availability of more venture capital for clean energy in New York, changes in the relevant supply chain so that raw materials, components, production or distribution capabilities are more available, or more sales revenue from new clean energy technologies and the resulting increase in GSP.
- Causal Mechanism: Longer term, the introduction of more venture capital into New York and the increase in introduction and sales of new clean energy technologies add to income and wealth, and to GSP.

Section 8:

## **EXTERNAL INFLUENCES ON PROGRAM OUTCOMES**

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This section describes the influences that are external to the Program that may affect the outcomes, such as the economy and other influences, over which NYSERDA programs have no direct influence.

### **8.1 GENERAL CLIMATE FOR NEW BUSINESSES IN NEW YORK**

Studies on innovation in New York State, such as *Transcending the Hamster Cage* (Taylor 2010), have concluded that a negative aspect of the climate is that taxes and regulatory burden are high at both the state and local level. This includes real property tax rates and income and consumption tax liabilities on designated manufacturing and high-technology firms. The State's image as one with an unfavorable business climate may persist even after the climate has improved.

### **8.2 TALENT AND EDUCATION**

The CEBD Program depends on others to change the general educational and skill level of the current and future workforce, and levels of education in science and engineering or technical areas specific to clean energy. However, it is understood that talent is essential for business development and innovation. The 2011 Annual New York State Innovation Report (Task Force 2011), the New York City Economic Development Corporation (NYCEDC) Innovation Index (NYCEDC 2011), the 2010 State New Economy Index (Atkinson and Andes 2010), and the Milken State Science and Technology Index (DeVol et al. 2011) include measures of talent and education in their innovation indices.

### **8.3 UNCERTAINTY, RISK AND COMPLEXITY OF R&D AND ADOPTION OF NEW TECHNOLOGIES**

Nine out of 10 R&D projects fail simply because of the nature of the effort. While good business practices might lower that failure rate, venture capitalists look for the potential of very high return, so the few winners pay for those that are not successful. As Josh Lerner says in his book *Boulevard of Broken Dreams: Why Public Efforts to Boost Entrepreneurship and Venture Capital Have Failed--and What To Do About It* (Lerner 2009), governments must balance their roles as catalysts with awareness of their limited ability to stimulate the entrepreneurial sector.

### **8.4 BUDGETS AND SUCCESS OF OTHER BUSINESS DEVELOPMENT PROGRAMS**

The success of the CEBD Program depends, in part, on the success of related programs. If budget cuts or changing priorities at the federal or state levels lower spending on programs such as the Small Business Innovation Research Program (SBIR) or the clean energy programs of the U.S. Department of Energy, that would make CEBD's success more difficult. Collaboration with related programs, such as New York City technology and business development efforts, makes success more likely. The design of these related programs, as well as funding levels, impact their success.





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Program Opportunity Notices (PON):

PON 1216 Early-Stage Support for Developers of Renewable and Clean Energy Technologies  
PON 1306 Clean Energy Business Incubators (2009)

PON 1927 Growth Capital Business Partners

PON 2537 Proof-of-Concept Center Initiative

PON 2251 Commercialization Option Program

PON 2419 Entrepreneurs-in-Residence

PON 2264 Clean Tech Executive Transition for Experienced Entrepreneurs

RFP 2266 NYS Clean Energy Technologies Innovation Metrics