

New York State Energy Research and Development Authority

NYSERDA Technology & Market Development Program

Semi-Annual Report through June 30, 2012

Final Report
August 29, 2012

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Energy. Innovation. Solutions.

NYSERDA RECORD OF REVISION

New York State Energy Research & Development Authority (NYSERDA) Technology & Market Development Program Semi-Annual Report August 29, 2012

Revision Date	Description of Changes	Revision on Page(s)

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1 INTRODUCTION

1.1. Public Policy Context

The System Benefits Charge (SBC) Program was established by Order of the New York State Public Service Commission (PSC) in 1998. The PSC established the ratepayer-supported SBC and designated the New York State Energy Research and Development Authority (NYSERDA) as the Administrator of the program. The program was re-authorized in 2001 and again in 2006 for five year terms. For the period 2006 through 2011, program funding was \$154 million per year, of which approximately half focused on energy efficiency resource acquisition/deployment activities and half on technology and market development activities.

In its September 20, 2010 petition to the PSC to continue the SBC, NYSERDA proposed some modifications to the program, including consolidating and transferring the resource acquisition and deployment activities within the Energy Efficiency Portfolio Standard (EEPS) program and making a request to extend the current SBC program six months to coincide with the December 31, 2011 conclusion of the current EEPS program. The petition also summarized the history and accomplishments of the SBC program and described a proposed Technology and Market Development (T&MD) portfolio to serve as the next iteration of the SBC Program.

The PSC issued a Notice of Proposed Rulemaking on October 6, 2010 (Case 10-M-0457) and asked for comments on NYSERDA's proposal to be submitted by November 22, 2010. NYSERDA and the Department of Public Service (DPS) also conducted a Technical Conference on November 4, 2010 to provide stakeholders and interested parties with more information on the potential uses of SBC funds for the T&MD Program. The PSC issued an Order on December 30, 2010, which "reaffirmed its high level commitment to the continuation of SBC programs and to the important State policy goals they support."¹

¹ Case 10-M-0457 and Case 05-M-0090. *Order Continuing System Benefits Charge Funded Programs*. Issued and effective December 30, 2010.

The December 30, 2010 Order continued SBC funding through the end of 2011, but deferred a decision on the proposed T&MD Program, pending a more robust stakeholder input process and submission of an Operating Plan.

NYSERDA submitted the T&MD Operating Plan on May 16, 2011, and on June 8, 2011, the Commission issued a Notice of Proposed Rulemaking requesting public comment on the Operating Plan by July 25, 2011 with reply comments due August 15, 2011. The Operating Plan requested average annual program funding of \$70 million for seven Initiatives, plus \$15 million for an incremental Combined Heat and Power (CHP) Initiative.

In a PSC Order issued on October 24, 2011, the Commission approved the T&MD Operating Plan, including a CHP initiative, for five years (January 1, 2012 - December 31, 2016), at an average annual funding rate of \$93.8 million, representing \$80 million in program costs and \$13.8 million for administration, evaluation and New York State Cost Recovery Fees.² This included \$65 million in program costs (\$76.2 million total) for NYSERDA's "base" T&MD initiatives and \$15 million in program costs (\$17.6 million total) for a CHP Initiative. Of the \$15 million for CHP, \$5 million in SBC funds was approved in the Order to be used for the CHP Aggregation and Acceleration Program, and, at NYSERDA's option, for feasibility studies. The remaining \$10 million for the CHP Performance Program was to be derived from a source or sources other than the SBC funds approved in the October 24, 2011 Order. NYSERDA was directed to submit a plan for funding the balance of the CHP Initiative by March 31, 2012. In addition, the Order also directed NYSERDA to submit by March 31, 2012 an accounting of SBC3 funds that were uncommitted as of December 31, 2011 with an option to submit a proposal for use of those funds as well as SBC3 that may become uncommitted in the future.

A revised T&MD Operating Plan was filed with the PSC on December 22, 2011, updating NYSERDA's May 16, 2011 submittal to comport with the October 24, 2011 Order.³

² Case 10-M-0457 – *In the Matter of the System Benefits Charge IV*, issued and effective October 24, 2011.

³ NYSERDA, Technology and Market Development Program Operating Plan for 2012-2016, System Benefits Charge, December 22, 2011. <http://www.nyserdanyc.gov/en/Publications/~media/Files/General/System%20Benefits%20Charge/final-tmd-operating-plan.ashx>

1.2. T&MD Program Mission and Objectives

The mission of the T&MD Program 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.

Specifically, objectives designed to support this mission include:

- Moving new/under-used technologies and services into marketplace to serve as a "feeder" to help achieve EEPS & RPS goals
- Validating emerging energy efficiency, renewable, and smart grid technologies/strategies and accelerate market readiness in NY
- Stimulating technology and business innovation to provide more clean energy options and lower cost solutions, while growing NY's clean energy economy; and
- Spurring actions and investments to achieve results distinct from incentive-based programs

The eight initiatives that comprise the T&MD portfolio will be assessed based on their ability to support the objectives listed above. Future evaluation reports will present these findings as programs are assessed.

Achievement of T&MD portfolio goals is dependent on long term or multi-phase investments and for this reason several of the T&MD initiatives build on the experience and success of programs funded by previous rounds of the SBC Program or other funding sources. While this desired and necessary continuity of effort makes it difficult to attribute performance results and outcomes to a specific phase of funding, NYSERDA recognizes the importance of attempting to clearly delineate progress made in the T&MD portfolio from earlier or alternate funding sources. Toward this end, NYSERDA intends to count outputs and outcomes supported at least in part by T&MD funds toward T&MD performance milestones and results. Where prior SBC or other funded activities are illustrative of potential future expectations for the T&MD portfolio, they are highlighted to help convey a more complete picture of possible program benefits, but these achievements will not be tallied toward the T&MD goals unless they have received T&MD funds.

1.3. Organization of the Report

This semi-annual report, filed pursuant to the October 24, 2011 PSC Order, describes how the T&MD Portfolio is progressing toward its mission and objectives. The report is divided into the following sections:

Section 1 – Introduction

Section 2 – Portfolio-Level Reporting

Section 3 – T&MD Initiatives

Section 4 – T&MD Program Evaluation Activities

As all the T&MD programs become fully operational, the content of these semi-annual reports will expand and evolve to reflect the activities undertaken within each of the initiatives and how accomplishments to date relate to the Portfolio's mission and the output and outcome metrics established in the Operating Plan.

2 PORTFOLIO-LEVEL REPORTING

2.1. Portfolio Level Progress

To establish and implement the T&MD portfolio, NYSERDA has engaged in an intensive outreach process with stakeholders, developed and released competitive solicitations to implement the initiatives within the portfolio, and conducted activities to operationalize the T&MD initiatives. A description of each of these activities is outlined in the following sections.

2.1.1. Stakeholder Engagement

To comply with the PSC's December 30, 2010 Order, NYSERDA engaged its stakeholders to collect input and advice on the T&MD portfolio. For example, 22 outreach meetings were conducted throughout New York in 2011 with approximately 225 organizations participating in these meetings. During these meetings, NYSERDA received input on its initial ideas for the T&MD program objectives, priority criteria, and proposed portfolio. In addition, a dedicated webpage was posted on NYSERDA's website to disseminate periodic updates on the portfolio. Lastly, a Technical Conference, open to the public, was held in March 2011. During this meeting, NYSERDA management and staff discussed stakeholder feedback and the preliminary program framework and engaged the attendees in a discussion about the future uses of the T&MD funds.

Stakeholder input will continue to be a critical component as the T&MD initiatives are implemented. A T&MD Advisory Committee was established in 2012 and plans to meet in October 2012 to discuss the status of the portfolio and future activities. Annual program conferences open to the public and stakeholders will also be held to present success to date and plans for the upcoming year. Lastly, as directed in the PSC's October 24, 2011 Order, NYSERDA will make a progress presentation to the Commission following the submission of its 2013 annual report.

Stakeholder meetings have been conducted for several of the initiatives supported by the T&MD portfolio. These meetings, as well as future meetings, will assist in providing additional direction and

guidance to these initiatives. Stakeholder meetings, workshops and discussions have already been held for the following:

- Smart Grid and Electric Vehicle Infrastructure
- Clean Power Technology Innovation
- Multifamily Mixed-Use Pilot
- Advanced Buildings Technology Development
- Residential Emerging Technology/Accelerated Commercialization (ETAC)
- Development and Delivery of Advanced Training and Tools
- Workforce Development and Training and Career Pathways
- Innovation/Entrepreneurial Capacity Building
- Environmental Monitoring, Evaluation, and Protection (EMEP)

Future stakeholder meetings are planned for the following areas:

- Commercial ETAC
- Multifamily Technology Demonstration
- Direct Support for Business Acceleration

Future semi-annual reports will continue to track these activities and the input they provide to individual initiative plans.

2.1.2. Solicitations Released

In the first six months of the T&MD Program, NYSERDA staff have been actively engaged in developing competitive solicitations to acquire implementation contractors, trade allies and customers to support each T&MD initiative. Table 2-1 presents solicitations released, release date, and proposal due date or open enrollment end date.

Table 2-1. Solicitations Released Through June 30, 2012

Solicitation Number	Solicitation Name	Solicitation Release Date	Solicitation Closing Date
PON 1219	Existing Facilities Program	*	12/31/15
PON 1746	FlexTech	*	12/31/15
RFP 2472	New York Products Program	03/01/2012	04/10/12
PON 2474	Electric Power Transmission and Distribution Smart Grid Program	04/02/2012	05/22/12 RD1 10/17/12 RD2
PON 2537	Proof of Concept Center Initiative	05/07/12	07/18/12
RFI 2568	CHP Acceleration Program	06/19/12	11/30/16
PON 2569	Advanced Clean Power Technologies	06/29/12	08/29/12 - RD1 06/13/13 – RD2

*T&MD funds added to previous release of open enrollment solicitations.

2.1.3. Implementation of T&MD Initiatives

In addition to the stakeholder engagement and solicitations, other noteworthy program implementation and progress milestones include the following. Each of these activities is described in greater detail in Section 3.

- The Advanced Buildings Enabling Demand Response (DR) and Load Management Program has supported interval meter and enabling technology installations representing approximately 19 MW of demand response in New York State.
- Four new retail partners and two new manufacturer partners have signed onto the Market Development New York Products Program. Through the partner network, NYSERDA has approved more than 55 special promotions for a total of \$564,484 in product buy-downs. These promotions are expected to save more than 6.9 million kWh and 23,810 mmBTUs annually.
- Under the Market Development Midstream Partner Support Program:
 - 100 Lighting Business Partners received continuing education credits in four advanced lighting subject areas, and the Program has recruited 27 new Business Partners;
 - One-day HVAC trainings sponsored by the program across the State were attended by 36 sales and administrative staff and 55 technicians, and 12 new Partners have signed Participation Agreements.

- The Market Development Innovative Strategies effort has co-funded a pilot program with Urban Green and the New York City Mayor’s Office of Long Term Planning and Sustainability to examine the barriers and opportunities for incorporating energy-aligned lease (EAL) clauses into commercial leases.
- The Market Development Energy Smart Communities Program has supported 152 community partnerships out of its 2012-2013 goal of 250 partnerships.
- EMEP has started six new technology transfer projects, contracted five new research projects, and conducted various workshops and briefings.

2.1.4. Budget and Spending Status

Table 2-2 shows the T&MD program budget and financial status through June 30, 2012. Committed and spent funds are also shown as a percent of the total 2012-2016 budget.

Table 2-2. Budget and Financial Status for T&MD Programs through June 30, 2012

	2012-2016 Budget	Spent Funds	Percent of 2012-2016 Budget Spent	Committed Funds¹	Percent of Budget 2012- 2016 Committed
Power Supply and Delivery	\$93,053,344	\$1,389	0.0%	\$20,775,160	22.3%
Smart Grid/Electric Vehicle	\$51,281,382	\$93	0.0%	\$11,502,875	22.4%
Advanced Clean Power	\$41,771,962	\$1,296	0.0%	\$9,272,285	22.2%
Combined Heat and Power	\$25,000,000	\$6,127	0.0%	\$26,627	0.1%
Building Systems	\$86,255,282	\$31,735	0.0%	\$529,805	0.6%
Advanced Buildings	\$69,575,488	\$31,629	0.0%	\$526,572	0.8%
Advanced Energy Codes & Standards	\$16,679,794	\$105	0.0%	\$3,233	0.0%
Clean Energy Infrastructure	\$145,691,375	\$1,833,075	1.3%	\$33,638,932	23.1%
Market Development	\$85,380,281	\$1,762,176	2.1%	\$18,040,571	21.1%
Clean Energy Business Development	\$41,761,046	\$44,723	0.1%	\$15,295,633	36.6%
Environmental Monitoring, Evaluation and Protection (EMEP)	\$18,550,048	\$26,175	0.1%	\$302,728	1.6%

	2012-2016 Budget	Spent Funds	Percent of 2012-2016 Budget Spent	Committed Funds¹	Percent of Budget 2012- 2016 Committed
Total Program	\$350,000,001	\$1,872,325	0.5%	\$54,970,524	15.7%
Administration (8%)	\$32,825,323	\$3,107,917	9.5%	\$3,108,907	9.5%
NYS Cost Recovery Fee (1.7%)	\$6,975,381	\$131,128	1.9%	\$131,128	1.9%
Evaluation (5%)	\$20,515,826	\$10,490	0.1%	\$810,488	4.0%
Grand Total	\$410,316,531	\$5,121,860	1.2%	\$59,021,047	14.4%

Totals may not sum exactly due to rounding.

¹ Committed funds include amounts spent plus remaining funding obligated under a contract, purchase order, or incentive award. In addition, committed funds include planned funding for contracts awarded and under negotiation and planned funding under active development through solicitations with specific due dates.

3 T&MD INITIATIVES

This section provides a status update on each of the T&MD initiatives, including highlights of early achievements during the first six months of the funding period.

3.1. Power Supply and Delivery Initiatives

Table 3-1 shows the Power Supply and Delivery and Combined Heat and Power budget and financial status through June 30, 2012. Committed and spent funds are also shown as a percent of the total 2012-2016 budgets. Later sections describe progress for each area of this initiative.

Table 3-1. Power Supply & Delivery and Combined Heat and Power Budget and Financial Status as of June 30, 2012

	2012-2016 Budget	Spent Funds	Percent of 2012-2016 Budget Spent	Committed Funds ¹	Percent of 2012-2016 Budget Committed
Smart Grid/Electric Vehide	\$51,281,382	\$93	0.0%	\$11,502,875	22.4%
Smart Grid	\$37,284,415	\$70	0.0%	\$11,002,155	29.5%
Electric Vehide	\$13,996,967	\$23	0.0%	\$500,719	3.6%
Advanced Clean Power	\$41,771,962	\$1,296	0.0%	\$9,272,286	22.2%
Technology Innovation	\$27,826,749	\$1,261	0.0%	\$9,079,775	32.6%
Resource Development	\$13,945,213	\$35	0.0%	\$192,510	1.4%
Total Program - Power Supply & Delivery	\$93,053,344	\$1,389	0.0%	\$20,775,161	22.3%
Combined Heat and Power (CHP Aggregation and Acceleration)	\$25,000,000	\$6,127	0.0%	\$26,627	0.1%
Power Supply & Delivery Total	\$118,053,344	\$7,516	0.0%	\$20,801,788	17.6%

	2012-2016 Budget	Spent Funds	Percent of 2012-2016 Budget Spent	Committed Funds¹	Percent of 2012- 2016 Budget Committed
including Combined Heat and Power					

Totals may not sum exactly due to rounding.

¹ Committed funds include amounts spent plus remaining funding obligated under a contract, purchase order, or incentive award. In addition, committed funds include planned funding for contracts awarded and under negotiation and planned funding under active development through solicitations with specific due dates.

3.1.1. Smart Grid and Electric Vehicle Infrastructure

3.1.1.1. Smart Grid

The Smart Grid program is designed to promote product development and demonstrations targeted at ensuring high levels of security, quality, reliability, and availability of electric power; improving economic productivity; and minimizing environmental impacts while maximizing safety and sustainability. Over the longer term, a smarter grid will be characterized by the widespread application of advanced sensing, communication and control devices and other uniform diagnostic systems to support real-time visualization of electric grid operating conditions. This is expected to reduce energy losses, extend equipment life, reduce operating costs, support the integration of distributed resources and increase the throughput or transfer of electric energy between regions of the State. A smarter grid will be essential to accelerating adoption of grid-powered electric vehicles (GPV) and associated infrastructure.

The following program activity has been performed as of June 30, 2012 in an effort to meet the above stated milestones and anticipated results:

- NYSERDA met individually with each of the major utilities in New York and conducted a stakeholder workshop with them and other interested parties at NYSERDA offices to solicit input into the new Smart Grid program design. NYSERDA also obtained input from the New York Smart Grid Consortium and the New York Battery and Energy Storage Technology (NYBEST) consortium.
- The Electric Power Transmission and Distribution Smart Grid Program solicitation (PON 2474) was released April 2, 2012. The solicitation offered \$10 million over two rounds and

was specifically developed to attract a broad range of proposals addressing policy and technology issues. The primary program objective is to support projects that improve the reliability, efficiency, quality, and overall performance of the electric power delivery system in New York State. Projects must demonstrate significant statewide public benefit and quantify all energy, environmental and economic impacts. Technology demonstrations, product development, research studies, and engineering studies are all eligible for funding under this solicitation. A total of 44 proposals, requesting nearly \$23 million in funding, were received through Round 1 on May 22, 2012. NYSERDA anticipates making awards during the third quarter of 2012.

NYSERDA has historically funded smart grid projects with SBC3 resources. Benefits from this SBC3 smart grid investment continue to accrue and will be reported out in the next SBC3 annual report. Prior historical accomplishments can be found in the SBC3 annual report through December 31, 2011.¹

3.1.1.2. *Electric Vehicle Infrastructure*

The Electric Vehicle Infrastructure efforts will include engineering studies, product development, demonstration projects and pilot programs to validate technology that minimizes negative grid impacts from GPV charging, develop GPV-to-grid communication technologies and control processes, and promote new business models to exploit the benefits of vehicle storage to the distribution system.

The first round of NYSERDA's EV Charging Infrastructure solicitation (PON 2301) closed on December 14, 2011. Thirteen projects using unique and innovative business models for public access charging were selected for funding. Although the charging station hardware and installation costs were not SBC funded, SBC3 funds are being used to support monitoring of site utilization and reporting on business model success with the contractor selected through PON 2392 Electric Vehicle Supply Equipment (EVSE) Support. The second phase of work contracted under the PON 2392 project will be supported with T&MD funds.

¹ See http://www.nyserda.ny.gov/en/Publications/~/_media/Files/Publications/NYES%20Program/2012/2011-nyes-evaluation.ashx, Section 5.9.

NYSERDA has historically funded electric transportation projects with SBC3 resources. Benefits from this SBC3 investment continue to accrue and will be reported out in the next SBC3 annual report. Prior historical accomplishments can be found in the SBC3 annual report through December 31, 2011.²

3.1.2. Advanced Clean Power

3.1.2.1. Clean Power Technology Innovation Program

The Clean Power Technology Innovation Program works to advance clean power technology, assist New York state innovators in product development, and overcome barriers and institutional impediments to the widespread use of renewable power. Cost reduction of PV installations is an initial focus. This effort is targeting the reduction of balance of system (BOS) costs that include all costs with the exception of the PV module. The program also supports energy storage, wind, hydro and fuel cell product development, building on projects funded in the last round of the SBC program. The following summarizes program activities during the period ending June 30, 2012.

On May 29, 2012 NYSERDA together with the State University of New York (SUNY) Albany and the New York Power Authority (NYPA) held a PV Balance-of-System cost reduction workshop. The work shop was attended by nearly 50 selected key stakeholders representing all aspects of the industry including utilities, manufacturers, installers and financing institutions. Presentations were made by the Department of Energy (DOE), City University of New York (CUNY), and General Electric (GE) on their BOS cost reduction programs and facilitated input was sought on continued needs that could be addressed with NYSERDA funding and upcoming solicitations.

The Advanced Clean Power Technologies solicitation (PON 2569) was released June 29, 2012. This \$10.25 million solicitation has two proposal due dates: August 29, 2012 and June 13, 2013. The solicitation focuses on renewable generation technology with an emphasis on PV solar. Four categories of proposals are solicited: Feasibility Assessments, Early Stage Product Development, Product Development, and Demonstration.

² See http://www.nyserda.ny.gov/en/Publications/~/_media/Files/Publications/NYES%20Program/2012/2011-nyes-evaluation.ashx, Section 5.10.

3.1.2.2. *Resource Development Program*

The Resource Development Program is focusing on activities that can stimulate the development of new renewable energy supplies, technologies, and businesses in the renewable energy industry with the greatest potential to meet near-to-intermediate-term energy and environmental goals. Similar to previous efforts that supported land-based renewable energy development in the upstate region, emphasis is being given to offshore wind energy. Marine resource and site assessment activities will result in increased knowledge of coastal marine energy assets and their suitability for power development and better understanding of the capacity in New York to manufacture, construct and service new-marine-based generating project components.

Offshore Wind Cost-Benefit Study

NYSERDA is conducting a comprehensive cost-benefit study for potential offshore wind projects in the Atlantic Ocean. This work will enable policy makers in New York to fully evaluate competing options for meeting long term energy and environmental objectives. Electrical system cost impacts associated with a significant build-out of offshore wind capacity will be fully considered as will the expected benefits to the NY State economy and environment be estimated. Important aspects of the technology supply chain, port assembly and O&M service opportunities will be considered. Although this work is paid for with SBC3 funds, this study will be used to inform T&MD activities in this area.

NYS Department of State (DOS) Coastal Resources Offshore Amendment to Coastal Zone Management Program (CZMP)

NYSERDA continues to provide technical support to the NYS DOS Coastal Resources program as it develops screening criteria it intends to employ in establishing a revised coastal zone planning process related to wind energy. The process is expected to identify areas off the coasts where wind development may be suitable for state and federal consideration under the U.S. Department of Interior's Smart from the Start Initiative aimed at accelerating the federal process for leasing offshore tracts for wind energy.

3.1.3. Combined Heat and Power (CHP)

3.1.3.1. CHP Aggregation and Acceleration Program

The CHP Aggregation and Acceleration Program will develop and transform the marketplace for CHP systems in the size range of 50 kW to 1.3 MW (which is the size range covering the majority of NYSERDA's previous CHP projects). The Program will accomplish this by (1) compiling a vetted catalog of pre-qualified equipment, and (2) creating and validating rules-of-thumb for simplifying the analysis used to determine the size needs of a given site. This focus on pre-packaged CHP modules that include all major components will reduce the need for (and thus reduce the costs of and opportunities for errors during) equipment-integration engineering and assembly; nevertheless, site-specific engineering regarding placement of equipment at the site and tie-ins to the site's infrastructure will still be necessary.

In June 2012, NYSERDA issued Request for Information (RFI) 2568, which invites vendors of packaged CHP systems to submit "equipment cut sheets" for vetting by a NYSERDA-assembled Technical Evaluation Panel. This program and RFI 2568 were highlighted during NYSERDA's CHP Conference held in New York City in June 2012. NYSERDA intends to issue the catalog that will specify the eligible equipment along with each item's assigned incentive and the program's system-sizing rules-of-thumb in October 2012. Upon issuance of the catalog, NYSERDA will begin accepting open enrollment first-come/first-served applications for the program. The program and opportunities to add items to the catalog will then remain open continuously until the end of 2016 or funds are exhausted, whichever occurs first.

NYSERDA has historically funded CHP projects with SBC3 resources. Benefits from this SBC3 investment continue to accrue and will be reported out in the next SBC3 annual report. Prior historical accomplishments can be found in the SBC3 annual report through December 31, 2011.³

³ See http://www.nyserda.ny.gov/en/Publications/~/_media/Files/Publications/NYES%20Program/2012/2011-nyes-evaluation.ashx, Section 5.8.

3.2. Building Systems Initiatives

Table 3-2 shows the Building Systems budget and financial status through June 30, 2012. Committed and spent funds are also shown as a percent of the total 2012-2016 budget. Later sections describe progress for each area of this initiative.

Table 3-2. Building Systems Budget and Financial Status as of June 30, 2012

	2012-2016 Budget	Spent Funds	Percent of 2012-2016 Budget Spent	Committed Funds ¹	Percent of 2012-2016 Budget Committed
Advanced Buildings	\$69,575,488	\$31,629	0.0%	\$526,572	0.8%
Emerging Technology/Accelerated Commercialization	\$29,685,542	\$143	0.0%	\$254,835	0.9%
Technology Development	\$30,613,215	\$10,239	0.0%	\$63,902	0.2%
Demand Response	\$9,276,731	\$21,247	0.2%	\$207,835	2.2%
Advanced Energy Codes & Standards	\$16,679,794	\$105	0.0%	\$3,233	0.0%
Building Systems Total	\$86,255,282	\$31,735	0.0%	\$529,805	0.6%

Totals may not sum exactly due to rounding.

¹Committed funds include amounts spent plus remaining funding obligated under a contract, purchase order, or incentive award. In addition, committed funds include planned funding for contracts awarded and under negotiation and planned funding under active development through solicitations with specific due dates.

3.2.1. Advanced Building Technologies

3.2.1.1. Emerging Technology/Accelerated Commercialization (ETAC) – Buildings

The ETAC Buildings component is a new, deliberate approach to accelerating commercial introduction of emerging or underused building technologies and strategies. ETAC will serve as a feeder effort to support EEPS and other New York clean energy programs. This effort focuses on three market sectors, commercial/institutional, multifamily and residential. Activities to date in each sector are described below.

Commercial/Institutional ETAC

NYSERDA has identified potential members of an advisory group for the commercial/institutional (C/I) ETAC program, and a kick-off meeting is planned for September. Stakeholders will include representatives of the design community, commercial property owners, colleges and universities, utilities, national laboratories, environmental groups and national energy efficiency organizations. Input and feedback from the stakeholders will be applied to identify and review promising commercially available yet underutilized technologies and approaches.

NYSERDA has initiated market research on C/I emerging technologies (ET), and is participating in the Consortium for Energy Efficiency's ET Collaboration. NYSERDA plans to offer an open enrollment program with carefully designed selection criteria. NYSERDA plans to release a solicitation in the fourth quarter of 2012 to seek a program facilitator to assist with advisory group management as well as demonstration project outreach, coordination, tracking and reporting. Additionally, NYSERDA has a small cadre of independent technical consultants on-board to assist with validation, monitoring and verification of energy savings in demonstration projects.

Multifamily ETAC

There are three elements in Multifamily ETAC: the Multifamily Technology Demonstration Program, the Multifamily Deep Energy Retrofit Competition, and the Multifamily Mixed Use Pilot Program. Current activities for each are indicated below.

- Multifamily Technology Demonstration Program

This program is in its initial phases of design and development. An advisory committee is being convened to help provide direction in selecting technology areas for this ETAC program. With that direction, a solicitation will be developed to select one, or more, technology projects to deploy. The goal is to release the solicitation in this calendar year with the project(s) to be selected and initiated early in 2013.

- Multifamily Deep Energy Retrofit Competition

The Multifamily Deep Energy Retrofit Prize Competition planning process began by leveraging \$50,000 from the DOE SEP Base Grant to hire a planning consultant for feasibility analysis. This effort is aimed at determining if a prize competition is an appropriate mechanism for achieving deep energy retrofits in New York. If the prize competition is deemed feasible, this would represent the first step in a six to 12-month planning process. Additionally the planning consultant's findings will further develop a knowledge base on how to advance emerging technologies that can assist in achieving a deep energy retrofit.

- Multifamily Mixed Use Pilot Program

Planning activities and stakeholder engagement in support of the Mixed Use Pilot Program continue to move forward, including the place-holding of project leads and follow up with external advisory panel members. Project managers convened a project team and anticipate finalizing approval for the program design in Q3 2012.

Residential ETAC

NYSERDA kicked off the residential ETAC effort with a stakeholder meeting on June 8, 2012. Stakeholders from the residential energy field including contractors, builders, PV installers, products manufacturers, research and design firms, and utilities were present. Input and feedback from the stakeholders will be used to develop the initiative. The next stakeholder meeting is scheduled for August 7, 2012.

NYSERDA plans to release a Program Opportunity Notice (PON) in the fourth quarter of 2012 to seek proposals for demonstration projects that will feature solid state lighting in the residential sector, for both new construction and existing homes. Specific technology transfer strategies and activities will be a required element of proposals submitted to the PON, and will be the primary means of achieving program success. NYSERDA will also release a Request for Information (RFI) in late 2012 to solicit feedback on additional technologies for consideration under the residential ETAC initiative.

3.2.1.2. Technology Development

Under the Technology Development area, NYSERDA plans to undertake targeted building technology development activities that address the technical and economic barriers and opportunities of new or emerging products. As a complement to Technology Development, NYSERDA also plans to pursue the establishment of an Advanced Building Consortium to guide and conduct targeted high priority technology development and demonstration projects and to help accelerate the introduction of emerging technologies into New York markets.

A proposed program design for Technology Development and the Advanced Building Consortium was developed and presented to a diverse group of stakeholders that included technology developers, builders, financial and real estate industries, design professionals, public and private sector building owners and operators, academic and research organizations, code agencies and organizations, manufacturers and suppliers, building trades, and utility program representatives. A total of 177 stakeholders attended meetings held in April and May 2012 in Buffalo, Syracuse, Albany, and New York City. Feedback on the proposed approach for Technology Development activities and the establishment of an Advanced Building Consortium were generally positive. Stakeholders were also in favor of simplifying and expediting the proposal submission and award process. Stakeholder input was incorporated into the program design where possible.

NYSERDA plans to issue a broad, multiple round solicitation for building related technology development and pilot demonstration projects, and another solicitation to establish an Advanced Building Consortium in late summer (2012). The Advanced Building Technology Development solicitation efforts will be coordinated with the Advanced Building Consortium to solicit feedback on research topics, industry trends and barriers, continuous stakeholder engagement and information dissemination.

3.2.1.3. Enabling Demand Response (DR) and Load Management

Under the Enabling Demand Response the Load Management Program, NYSERDA will help increase participation and reliability of performance in utility and NYISO programs. Such outcomes can contribute to suppressed wholesale energy costs, reduced congestion costs, increased reliability, and other benefits. The development of enabling DR technologies and new

demand management models through this program will increase the technical potential of DR in New York.

The Existing Facilities Program (PON 1219) is the active solicitation offering open-enrollment incentives for Demand Response projects across New York State. Clean distributed generation projects are eligible in Con Edison territory (exclusively) and load curtailment projects and energy storage projects are eligible statewide. The incentives for demand response are \$100/\$200 per kW upstate/downstate and the incentives for energy storage are \$300/600 per kW upstate/downstate. DR projects are required to enroll in a mandatory-participation DR program offered by the New York Independent System Operator (NYISO) or local utility.

Program staff attended and presented at the Peak Load Management Alliance's Spring 2012 Conference entitled "Demand Response for Commercial and Industrial Markets" on May 22-23, 2012 in New York City. NYSERDA continues to be a group member in the Association for Demand Response & Smart Grid, which recently held their National Town Hall Meeting in Washington, D.C. on June 26-28, 2012.

Since January 2012, the program has supported interval meter and enabling technology installations representing approximately 19 MW of demand response in New York State.

NYSERDA has historically funded demand response projects with SBC3 resources. As benefits from this SBC3 demand response investment continue to accrue, they will be reported out in the next SBC3 annual report. Prior historical accomplishments can be found in the SBC3 annual report through December, 2011.⁴

3.2.2. Advanced Energy Codes and Standards

The Advanced Energy Codes and Standards Initiative will result in more efficient codes and standards, better compliance and enforcement, and the promotion of stretch and green planning codes. Activities within the four major areas are described below.

⁴ See <http://www.nyserda.ny.gov/en/Publications/~media/Files/Publications/NYES%20Program/2012/2011-nyes-evaluation.ashx>, Section 5.14.

3.2.2.1. Annual Statewide Compliance Assessments

Statewide compliance assessment studies are an important component of the Advanced Energy Codes and Standards Initiative, as they provide a means to track compliance (or non-compliance) trends associated with changing codes and standards helping to identify where program intervention may be needed. Compliance assessments will occur as a phased effort. The first effort, expected to commence in fall 2012, will concentrate on commercial new construction and renovation and will help establish the overall framework for all assessments during the T&MD period. Future efforts, built upon this framework, will evaluate Residential new construction and renovation, and update the initial commercial assessments for the latter periods of T&MD funding cycle. The later study efforts will also summarize the findings of the various studies from the five-year assessment period using data from the T&MD and NYSERDA's initial American Recovery and Reinvestment Act (ARRA) compliance assessment studies.

3.2.2.2. Development and Delivery of Advanced Training and Tools

Training to support new and advanced codes and standards is critical, particularly at points of adoption. Training efforts will build upon those developed using ARRA funds, with new or enhanced training modules and approaches.

Stakeholder meetings and discussions with Department of State, Pace Energy and Climate Center, and various contractors performing work under ARRA have occurred to review overall concept for T&MD activities. Initial efforts leading to the program's first solicitations are in progress. Solicitations anticipated for fall 2012 will include the following tasks:

In-Person Training

- Traditional in-person training
- Alternate training approaches as proposed by contractors

Website: Host/support

- Enhanced mechanisms for public contact
- Design website upgrade
- Manage and host additional website content by others
- Overall program marketing

3.2.2.3. *Technical Support, Studies, and Resources*

Technical consulting and market research firms will be competitively selected to provide support and the objective review necessary for considering codes and standards changes, to implement new strategies, and to conduct other activities. These efforts will increase New York's proactive response to federal standard proposals and national energy code changes.

Initial efforts leading to the first solicitations in this area are in progress. Solicitations anticipated for fall 2012 will include the following tasks:

Studies and Support: Technical and Administrative

- Program effectiveness study (include creation of standards for training, trainer selection)
- Regulatory and administration studies (e.g., third party energy enforcement)
- Technical studies (e.g., Building Science, New Materials) in support of proposed code changes

3.2.2.4. *Pilots and Expanded Implementation Assistance*

Initial efforts leading to the program's first solicitations are in progress. Solicitations anticipated for fall 2012 will include the following tasks:

Municipal Support

- Pilot Programs for select communities (Plan Review, Specialized Training, Inspection Support, Database Creation)
- Development of Enforcement Tool Manual

3.3. Clean Energy Infrastructure Initiatives

Table 3-3 shows the Clean Energy Infrastructure budget and financial status through June 30, 2012. Committed and spent funds are also shown as a percent of the total 2012-2016 budget. Later sections describe progress for each area of this initiative.

Table 3-3. Clean Energy Infrastructure Budget and Financial Status as of June 30, 2012

	2012-2016 Budget	Spent Funds	Percent of 2012-2016 Budget Spent	Committed Funds¹	Percent of 2012-2016 Budget Committed
Market Development	\$85,380,281	\$1,762,176	2.1%	\$18,040,571	21.1%
Market Research	\$4,640,140	\$0	0.0%	\$15,000	0.3%
Market Pathways	\$55,410,000	\$1,216,453	2.2%	\$16,245,602	29.3%
Workforce Training	\$15,000,000	\$1,589	0.0%	\$188,746	1.3%
Education/Behavior	\$10,330,140	\$544,135	5.3%	\$1,591,224	15.4%
Clean Energy Business Development	\$41,761,046	\$44,723a	0.1%	\$15,295,633b	36.6%
Innovation Entrepreneurial Capacity	\$31,561,046	\$20,000	0.1%	\$15,060,950	47.7%
Market Intelligence	\$5,800,000	\$24,500	0.4%	\$34,500	0.6%
Direct Support for Business	\$4,400,000	\$0	0.0%	\$0	0.0%
EMEP	\$18,550,048	\$26,175	0.1%	\$302,728	1.6%
Clean Energy Infrastructure Total	\$145,691,375	\$1,833,075	1.3%	\$33,638,932	23.1%

Totals may not sum exactly due to rounding.

¹ Committed funds include amounts spent plus remaining funding obligated under a contract, purchase order, or incentive award. In addition, committed funds include planned funding for contracts awarded and under negotiation and planned funding under active development through solicitations with specific due dates.

^a Dollars spent for CEBD initiatives do not sum to the total CEBD dollars spent because \$223 in spent CEBD marketing funds were added to the total.

^b Dollars committed for CEBD initiatives do not sum to the total CEBD dollars committed because \$200,183 in committed CEBD marketing funds were added to the total.

3.3.1. Market Development

The Market Development initiatives help to create the foundation for long-term changes in the market for the delivery of products and services that address energy efficiency and the adoption of renewable energy technologies. Strategies address the supply chain, consumer behavior, market barriers, and education. Market Development activities identify new market opportunities and keep the supply chain informed about technological innovations and provide the technical

tools, resources and training necessary to promote energy efficiency and renewable options to consumers.

3.3.1.1. Market Research

The Market Research component works to identify market and institutional barriers to technology and product adoption, obtain critical early stage information and insights to guide investment decisions, and further advance the reach of T&MD and EEPS programs and other public policy goals. The goal is to amass specific market intelligence and identify program opportunities that will increase program implementation efficiency and effectiveness.

One multi-organization supported research project is underway with the American Council for an Energy-Efficient Economy to review next generation energy efficiency program designs and approaches. Specific programs designed to achieve a greater number of participants and greater savings for each participant are being examined and case studies of 10 to 15 promising program designs will be developed. The research will be published in a technical report in late 2012 and will offer insight on how NYSERDA's energy efficiency programs could be tailored to incorporate new strategies that would allow the programs to go broader and deeper.

Additional market research options are being explored for the Residential Point-of-Sale Lighting Program, data center research and development efforts, and energy efficiency programs in the commercial and industrial sectors.⁵

- Market research on the Residential Point-of-Sale Lighting Program is being designed to provide information on how resources could be best used to market and deploy the program in the most efficient and effective way as the lighting market transforms under market forces and external regulations.
- Initial scoping discussions on data center market research have identified the need for better characterization of information technology loads in the marketplace, exploring the most energy efficient configurations to manage cooling loads, and understanding the opportunities for demand response from data centers.

⁵ Market Research activities, while funded through the T&MD portfolio, can also serve programs funded through other program portfolios, such as the Energy Efficiency Portfolio Standard Program.

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- Commercial and industrial research areas under discussion and consideration include successful program precedents integrating delivery of demand response and renewable energy programs with energy efficiency programs, trends in owner versus renter occupied facilities by region and energy intensity, and the role of tax and accounting practices in energy efficiency decision making processes.

3.3.1.2. Market Pathways

The Market Pathways component works across the supply chain and sectors to promote the stocking, specification, sales, installation, maintenance, and use of energy efficient products and strategies. NYSERDA will provide tools, business strategies, and business and marketing materials to manufacturers, suppliers, distributors, retailers, service providers, designers, specifiers, contractors, and builders. Progress in key areas is described below.

New York Products Program

The New York Products Program, formerly the Energy Smart Products Program, assists businesses that supply emerging, underused, or high first cost/high efficiency products. The Program currently has 859 retail and 47 manufacturer partners. Since January, four new retail partners and two new manufacturer partners have signed onto the program. The new retail partners include three new Sears storefronts in upstate New York, and Energy Max, located in Queensbury, NY, while the new manufacturer partners are Ruscco Lighting and NCC of New York (consumer electronics). Through the partner network, NYSERDA has approved more than 55 special promotions for a total of \$564,484 in product buy-downs. These promotions are expected to save more than 6.9 million kWh and 23,810 mmBTUs annually. These buy-down promotions provide a lower cost to the consumer at the point-of-purchase and products include, but are not limited to, informational energy usage displays, advanced power strips, energy management devices, and super-efficient HVAC, appliances, and electronics. Promotional displays also include educational messaging for consumers, to help them choose the right product for the application, or to provide information on energy and environmental benefits of the promoted products.

NYSERDA has historically funded activities in this area with SBC3 resources under the Market and Community Support Program. Benefits from this SBC3 investment continue to accrue and

will be reported out in the next SBC3 annual report. Prior historical accomplishments can be found in the SBC3 annual report through December 31, 2011.⁶

Midstream Partner Support

This program will help NYSERDA's service providers in the midmarket supply chain to address the primary factors affecting customers' operations, business models, and energy decisions. The program will help these service providers understand energy decision making processes, barriers, attitudes, and opportunities.

Midstream Partners have continued to expand and provide energy efficiency services to commercial, institutional and industrial customers on an interim basis while the solicitation for the next round of implementation contractors is being developed. This solicitation is planned for release in August 2012 to request contractors provide services in three primary technology sectors; lighting, HVAC and motors.

Lighting Business Partners continues to build skills for profitable business models and provide above code design and implementation as standard practice. As of June 30th, 100 Lighting Business Partners received continuation education credits in four advanced lighting subject areas at four Lighting Expos held across the State. The program has recruited 27 new Business Partners since January 2012.

HVAC Business Partners continues to build skills for profitable business models and provide quality maintenance services significantly beyond standard practice. The program has held seven formal trainings this spring, covering the introduction to NYSERDA, ACCA Quality Maintenance Standards, and how to use advanced diagnostic tools. These one-day trainings were held across the State. A total of 36 sales and administrative staff and 55 technicians were trained. Additionally, two webinars were held; one covering sales tips and another covering marketing and recognition support. Twelve new Partners have signed Participation Agreements. A new on-line application process has been launched to ease reporting and transaction cost burdens for Partners, the implementation contractor and NYSERDA. Recruitment efforts continue and

⁶ See http://www.nyserda.ny.gov/en/Publications/~/_media/Files/Publications/NYES%20Program/2012/2011-nyes-evaluation.ashx, Section 4.7.

additional training is being scheduled to support enhanced maintenance and operations of refrigeration systems.

Motors Business Partners continues to support motor vendors, dealers and re-winders to work closely with their customers to develop detailed motor inventories. These inventory reports are detailed application based documents that directly address what customers identify as their return-on-investment (ROI) criteria. This arms customers with specific information regarding which motors meet their identified ROI based on early replacement, and which are better met at end-of-service life. Recruitment efforts continue and additional analyses, training and support are being developed for variable frequency drives.

The goal of the Partners solicitation planned for release in August is to select implementation contractors who will develop and deliver approaches to engage and recruit Midstream Market Partners (“Partners”) to accept, adopt, and promote enhanced energy efficiency technologies and services into profitable business models. Innovative approaches are sought to provide the following services on behalf of NYSERDA: 1) recruitment and training of Partners; 2) development of energy efficiency tools and strategies for Partners that enable profitable business models, enhanced energy efficiency services, and differentiation from other service providers; 3) improved coordination among Partners within and across the technology sectors; 4) increased awareness of Energy Efficiency Portfolio Standard (EEPS) funded programs for both Partners and their commercial customers; and 5) market research and technical analyses and reporting.

NYSERDA has historically funded midstream partner support activities with SBC3 resources. To the extent that benefits from this SBC3 investment continue to accrue, they will be reported out in the next SBC3 annual report. Prior historical accomplishments can be found in the SBC3 annual report through December 31, 2011.⁷

Innovative Strategies

Innovative Strategies will test and prove new, innovative approaches to conveying the energy efficiency message to building owners, operators and the financial sector and reducing barriers

⁷ See http://www.nyserda.ny.gov/en/Publications/~/_media/Files/Publications/NYES%20Program/2012/2011-nyes-evaluation.ashx, Section 3.6.

that are not addressed by EEPS. For example, similar prior program efforts successfully introduced benchmarking tools and strategies to the market.

In the second quarter of 2012, NYSERDA co-funded a pilot program with Urban Green and the New York City Mayor's Office of Long Term Planning and Sustainability to examine the barriers and opportunities for incorporating energy-aligned lease (EAL) clauses into commercial leases. Presentations have been held and information is being collected to understand the responses of building owners, tenants, real estate attorneys, and brokers, and the degree to which new and existing leases incorporate EAL clauses. This pilot is expected to inform possible larger scale initiatives in 2013 forward.

3.3.1.3. *The Workforce Development and Training (WFD) and Career Pathways*

The Workforce Development and Training (WFD) and Career Pathways component is designed to address the needs for renewable energy and innovative technology-based training as identified in the New York State Department of Labor (DOL) May 2009 publication, *New York State's Clean Energy Industry: Labor Market and Workforce Intelligence (LMI) Report*. Using the LMI results, and in coordination with NYS DOL, NYSERDA and Pace are in the process of finalizing a curriculum assessment to help refine training necessary to support a clean energy economy. The assessment is funded through Green Jobs-Green New York using allocations from the Regional Greenhouse Gas Initiative, and will be completed in September. The outcome of this report is important input for the design and implementation of new T&MD initiatives.

With stakeholder input collected through a survey and a stakeholder meeting held in May 2012, and the curriculum assessment work nearly complete, NYSERDA is in the process of designing programs to expand the training network in targeted areas and integrate new technology education into existing programs. NYSERDA is also designing a high school technical training initiative. It is anticipated that the first solicitations will be issued in October.

Finally, this spring, NYSERDA took advantage of opportunities to reprogram remaining ARRA State Energy Program funds from completed or cancelled ARRA projects and provided \$1.2 million in funding for training equipment to eight renewable energy partners to expand their hands-on training capacity. Hands-on training was identified as a priority by stakeholders and leveraging other funds was identified as a priority in the T&MD Operating Plan. NYSERDA

expects to use T&MD funding to build on this new capacity and increase hands-on training opportunities in the state.

3.3.1.4. Education to Change Behavior and Influence Choices Component

Energy Smart Communities Program

The Energy Smart Communities Program provides offers local, convenient, community-based access to promote the value of energy efficiency, sustainable growth practices, and clean energy technologies. The current program was renewed from SBC3 through December 31, 2012, to ensure a streamlined approach while a new program is developed.⁸ The new program, called the Economic Development Growth Extension (EDGE) Program, will align with the Regional Economic Development Council territories and efforts to build strategic partnerships with local economic development and community stakeholders to educate and encourage energy best practices. A Request for Proposals is expected to be released in August 2012, and it is anticipated contracts will be executed January 1, 2013. The program has supported 152 community partnerships out of its 2012-2013 goal of 250 partnerships.

Behavioral Pilots

Behavioral Pilots will support further penetration of new products and practices through behavior change strategies. New and emerging informational platforms will be demonstrated, and tactics will be explored and tested in order to demonstrate how large scale adoption of energy efficient behavior can be achieved with little or no financial incentives.

NYSERDA has begun preparations to host a one-day workshop on behavior-based energy efficiency in July. This workshop will include representatives from academia as well as contractors specializing in behavior-based energy efficiency that will inform NYSERDA's efforts in the deployment of behavioral pilots. Additionally, an internal behavioral core team has formed from different departments to integrate NYSERDA's behavioral activities into program design at

⁸ Historical accomplishments can be found in the SBC3 annual report through December 31, 2011. See <http://www.nyserdera.ny.gov/en/Publications/~media/Files/Publications/NYES%20Program/2012/2011-nyes-evaluation.ashx>, Section 4.9.

a wider scale. The program design is expected to receive NYSERDA Management approval by the end of 2012 with a solicitation to select behavioral demonstrations in early 2013.

3.3.2. Clean Energy Business Development

3.3.2.1. Innovation/Entrepreneurial Capacity Building

Proof of Concept Centers

The mission of a Proof-of-Concept Center (POCC) is to accelerate the translation of research into marketable products. This is primarily accomplished by fostering successful pre-startup companies. Generally, the next step for these companies is to participate in a business mentoring or incubation program.

The objectives of the NYSERDA POCC initiative are to: (1) Accelerate the commercialization of innovations out of research institutions and into the marketplace, particularly through startups; (2) Early in the research and development phase, match emerging clean energy technologies that have scalable commercialization potential, based on real market need, with the investment community; and, (3) Establish sustainable regional innovation ecosystems of potential investors and entrepreneurs in clean energy technologies and solidify the POCC linkages to them.

During January 2012, stakeholder meetings on the POCC Initiative were held in Rochester, New York City and Albany. Invitations to the meetings were sent to the research and technology transfer offices at major NYS academic institutions. Representatives from 28 academic or technology-based economic development organizations participated in one or more of the meetings. Feedback was specifically requested in three areas: level and duration of funding necessary to establish a sustainable program; appropriate performance metrics to measure and determine success at the different stages of development, implementation and operation; and, the benefit of regional or team collaboration to provide access to a wider pool of research and the possible impact of this approach on program sustainability.

PON 2537 was issued in May, 2012 with a mandatory Letter of Intent to propose form required to be submitted by June 6, 2012 and a proposal due date of July 18, 2012. An informational webinar was held on May 23, 2012.

Emerging Clean Energy Business Development

The Clean Energy Business Incubator program was initiated in 2009 with funding from SBC3. The purpose of these incubators is to foster the viability and growth of young early stage clean energy companies, most of which are still in the process of developing new products and have yet to earn revenue from commercial operation. To date, the program has been funded with SBC3 resources alone and therefore benefits will be reported in full in the SBC3 Annual Report. Benefits from this SBC3 incubator investment continue to accrue and the program has delivered the following benefits during the first six months of 2012:

- 94 clients currently being served by an incubator
- \$25.9 million invested capital from private sources raised by incubator clients and \$5.7 million received by incubator clients from government sources, except New York State government
- 11 new products offered by incubator clients for commercial sale

Additional historical accomplishments can be found in the SBC3 annual report through December 31, 2011.⁹ Based on current plans, the program is expected to transition to T&MD funding in 2013, and at that point benefits will be reported only in the T&MD semi-annual reports, not SBC3 reports.

Clean Energy Cluster Development

This program will work to convene multi-disciplinary market participants to promote new networks of interrelated clean energy firms, or clusters, that can accelerate the development of new products and services and create new business models. These clusters can drive productivity and innovation and serve as an important driver of regional competitiveness.

The first initiative under this program is the development of an Energy Infotech cluster in New York City. Energy Infotech is the use of information technologies, software, internet and mobile technologies, transaction processing platforms, digital media and related technologies to further energy efficiency, clean power production, and carbon mitigation. The objectives of this cluster development effort include the formation of more startup companies in energy infotech, attraction

⁹ See <http://www.nyserda.ny.gov/en/Publications/~media/Files/Publications/NYES%20Program/2012/2011-nyes-evaluation.ashx>, Section 5.6.

of venture capital to NYC based companies in this sector, and development of a community to facilitate recruiting, marketing, and strategic partnering.

Energy Infotech NYC (EITNYC) is a newly formed organization to promote this cluster. EITNYC will perform a strategic planning exercise, reach out to the energy infotech community, and sponsor events as a service to the community. EITNYC sponsored a successful Cleanweb Hackathon in January, 2012 in New York City that brought significant national attention to this emerging cluster, and is currently the lead organizer of a follow-up event planned for September 2012. Although current cluster activities have been funded with SBC3 funds, work in this area will be used to inform future T&MD programs.

3.3.2.2. Market Intelligence

NYS Clean Energy Innovation Metrics

Under RFP 2266, NYSERDA has selected a contractor to define and promote New York State's environment conducive to innovation, entrepreneurship and technology-led growth. Specifically targeted to the clean energy space, information and metrics will be gathered for business owners, entrepreneurs and investors who are deciding where and how to invest. The current lack of such information is a barrier to business start up, expansion and attraction activity in the clean energy sector. These clean energy indicators that can be used for policy purposes—to gauge progress and weaknesses in the development of the state's clean economy, and to identify policy gaps that need to be addressed. Although this effort has been funded with SBC3 funds, work in this area will be used to inform future TM&D programs.

3.3.2.3. Direct Support for Business Acceleration

The NYSERDA Entrepreneurs-in-Residence program provides business mentoring to companies receiving NYSERDA R&D funding, NYSERDA incubator clients, and other select companies supported by NYSERDA. The mentors are selected for their senior executive or entrepreneurial experience and provide strategy level guidance. A pilot program was funded under SBC3.

PON 2419, NYSERDA Entrepreneurs-in-Residence, was issued in May, 2012 with a proposal due date of June 20, 2012. The review and selection of a contractor is underway.

In the fourth quarter of 2011, NYSERDA issued a PON seeking proposals to develop a multi-year clean energy education program to educate experienced entrepreneurs interested in seeking opportunities in the clean technology (clean tech) and renewable energy industries. Increasing the knowledge and awareness of clean energy business operations for experienced and successful executives in New York State will likely increase the number of successful clean technology businesses and create the opportunity for increased hiring in the clean tech sector within the state. No contracts resulted from the proposals received under the solicitation. Stakeholder meetings will be held in fourth quarter of 2012 and the solicitation re-issued soon after.

In an effort to assist cleantech companies and their management in the development of the business capabilities necessary to commercialize and launch their innovations, a PON will be released in Q4 of 2012 for the development of a Cleantech Commercialization Toolkit. This toolkit will be publicly available and will guide businesses through the process for commercializing cleantech innovations. As such, the toolkit will include templates, references, and instructions for each stage of commercialization. The contractor selected to perform this development will also provide an up to date list of business mentorship and assistance resources available, and will provide guidance and feedback to the companies that choose to use the toolkit.

3.3.3. Environmental Monitoring, Evaluation and Protection (EMEP)

EMEP provides knowledge to reduce the adverse impacts associated with electricity generation that damages New York's ecosystems and the health of its citizens, and it assists planning efforts for cleaner alternative options. Additionally, informing the clean energy technology industry about life cycle environmental impacts early in the development stage can minimize unanticipated negative effects and document the energy and environmental attributes of products. EMEP also provides critical energy-related environmental research to help support the regulatory responsibilities of a range of other agencies in New York including the Department of Environmental Conservation, Department of Health, Department of State, and the Office of the Attorney General.

As planned, the EMEP program has initiated the updating of the multi-year environmental research plan with input from policymakers, scientists and stakeholders. Three meetings have been conducted to date: Ecosystem Response to the Deposition of Sulfur, Nitrogen and Mercury; Greenhouse Gas Reduction Strategies; and environmental issues related to kinetic hydropower.

Meetings targeting Air Quality and Health, Wind Energy Impacts, Climate Change Adaptation, and High-Volume Hydraulic Fracturing for Natural Gas Extraction will be conducted in the fall of 2012 and into early 2013. In addition, a comprehensive assessment of ecosystem monitoring activities in New York State, funded with SBC3 funds, has concluded and is serving as a basis for streamlined, coordinated environmental monitoring activities in the state, some of which will be supported through EMEP. In addition to six new technology transfer projects, five new research projects have been contracted, and a few workshops and briefings have been conducted. Two new project planning requests have been approved in coordination with the research planning activities and will focus on comprehensive monitoring of atmospheric deposition, and ecosystem recovery and economic evaluation. New projects from these efforts are expected to be contracted later this fall and into early 2013.

As noted earlier, NYSERDA has historically funded EMEP projects with SBC3 resources. Benefits from this SBC3 EMEP investment continue to accrue and will be reported out in the next SBC3 annual report. Prior historical accomplishments can be found in the SBC3 annual report through December 31, 2011.¹⁰

¹⁰ See <http://www.nyserda.ny.gov/en/Publications/~media/Files/Publications/NYES%20Program/2012/2011-nyes-evaluation.ashx>, Section 5.11.

4 T&MD Program Evaluation Activities

NYSERDA evaluation staff has engaged its long-standing process evaluation contractor, Research Into Action, to conduct the early logic model, evaluability and process evaluation work. These activities began in June 2012 and will be undertaken according to the time line outlined in the T&MD Evaluation Plan.

As identified in the Operating Plan, one of the first evaluation tasks will include development of a program theory and logic model, and assessment of each major program to ensure readiness for future evaluation. By identifying and documenting inputs, activities, outputs, outcomes and external influences relevant to the program, theory and logic models are a good practice that will help to guide program implementation and program evaluation. Evaluability assessments will help ensure early on that the necessary program tracking or other data is being collected and recorded in a manner that will support examination, through a robust evaluation, of the ultimate outcomes and indicators identified for each program.

In June 2012, the Advanced Codes and Standards Program and the Clean Energy Business Development Program logic model work were initiated. It is anticipated that the Market Development Program logic model effort will commence in the near future.

The Operating Plan also identified that formative process evaluations would be conducted on most programs during the early stages of implementation and repeated periodically to examine program efficiency and effectiveness in light of the program's stated outcomes and impacts. Process evaluations typically include an assessment of customer and stakeholder satisfaction with programs. The goal of process evaluation is to inform real time adjustments and maximize program efficiency and effectiveness through actionable recommendations. These studies will mainly be conducted through in-depth interviews resulting in a qualitative assessment and will be supported by secondary research, such as

review of program documents, as appropriate. Evaluations of NYSERDA's internal processes may also be conducted.

Process evaluation work will begin in late 2012 and will initially be undertaken by Research Into Action. It is projected that the first process evaluations to be undertaken include:

- Advanced Clean Power Clean Power Technology Innovation component
- Advanced Buildings Technology Development component
- Market Development Education to Change Behavior and Influence Choices component and
- Clean Energy Business Development Direct Support for Business Acceleration

In addition, during the latter part of 2012, NYSERDA will competitively solicit a contractor to conduct process, market and impact evaluation on the T&MD portfolio. Attention will be placed on hiring a contractor, or team of contractors, with expertise in evaluating technology and market development program impacts. As noted above, early process evaluation and logic modeling activities are being conducted by NYSERDA's existing process/market evaluation contractor given the near-term need for this information. Subsequent logic modeling and process evaluation work will be conducted by the contractor selected through this new solicitation. The work conducted by NYSERDA's evaluation contractors will be closely coordinated such that data is collected from market actors in the most efficient and least burdensome manner and findings from formative evaluations are incorporated into subsequent studies.

In 2013 and going forward, the remaining logic model work will be completed as well as the completion of process evaluations on most of the remaining programs. It is expected that the new process/market/impact evaluation contractor will be under contract by early 2013 and further development of a detailed multi-program evaluation plan will begin at that time.

NYSERDA, a public benefit corporation, offers objective information and analysis, innovative programs, technical expertise and funding to help New Yorkers increase energy efficiency, save money, use renewable energy, and reduce their reliance on fossil fuels. NYSERDA professionals work to protect our environment and create clean-energy jobs. NYSERDA has been developing partnerships to advance innovative energy solutions in New York since 1975.

To learn more about NYSERDA programs and funding opportunities visit www.nyserda.ny.gov

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State of New York
Andrew M. Cuomo, Governor

NYSERDA Technology & Market Development Program

Semi-Annual Report through June 30, 2012

New York State Energy Research and Development Authority
Francis J. Murray, Jr., President and CEO