

RENEWABLE PORTFOLIO STANDARD
Operating Plan for Customer-Sited Tier Program
(2006-2009)

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SECTION 1: INTRODUCTION

1.1. PURPOSE OF THE OPERATING PLAN

Pursuant to the June 2006 Order¹ of the New York State Public Service Commission (the Commission), this Operating Plan sets forth the specific Customer-Sited Tier (CST) programs to be implemented under the New York Renewable Portfolio Standard (RPS) Program through 2009, the expected funding levels for each program, the payment methods for each program, the timing of various procurement methods, and other pertinent program design and operational details. The Plan reflects the decisions and guidance provided in the Commission's September 2004,² April 2005,³ and June 2006 Orders as well as the comments various parties provided on the draft version of the Plan.

1.2. BACKGROUND

The 2002 State Energy Plan⁴ recommended that the New York State Energy Research and Development Authority (NYSERDA) examine and report on the feasibility of establishing a renewable portfolio standard for electric energy retailed in New York. Based on NYSERDA's findings, on February 19, 2003, the Commission instituted a proceeding to develop and implement an RPS Program. On September 24, 2004, after a year and a half of public hearings and participation by more than 150 parties, the Commission issued the September 2004 Order calling for the increase in renewable energy used in the State from 19 percent to 25 percent by the year 2013.

In the September 2004 Order, the Commission established two categories or tiers to promote the development and generation of electric power generated from renewable resources. The *Main Tier* refers to the wholesale generation of electricity that is sent to the grid for sale to retail customers. The *Customer-Sited Tier* refers to smaller sized generation that is sited and used primarily at the electric customer's location and commonly described as "behind the meter" generation.

In April 2005, the Commission approved an Implementation Plan for the RPS program that identified the numerous actions required of the CST program. Workshops were held in summer 2005 to address several outstanding issues including technologies eligible for the CST program, and notices were issued under the State Administrative Procedure Act (SAPA). Throughout development of the New York's RPS Program, the Commission has stressed the importance of accelerating the development of emerging technologies because of their environmental benefits and the ability of some of the technologies to be sited in load-constrained urban areas. The technologies initially included in the CST program were photovoltaic

¹ Case 03-E-0188, *Proceeding on Motion of the Commission Regarding a Retail Renewable Portfolio Standard*, Order on Customer-Site Tier Implementation, issued June 28, 2006 (June 2006 Order).

² Case 03-E-0188, *supra*, Order Regarding Retail Renewable Portfolio Standard, issued September 24, 2004 (September 2004 Order).

³ Case 03-E-0188, *supra*, Order Approving Implementation Plan, Adopting Clarifications, and Modifying Environmental Disclosure Program, issued April 14, 2005 (April 2005 Order).

⁴ New York State Energy Planning Board, *New York State Energy Plan and Environmental Impact Statement*, June 2001.

systems, fuel cells, and customer-sited small wind facilities. On November 2, 2005, the Commission acted on a petition to add anaerobic digestion generator systems to the list of eligible CST technologies.⁵

In the June 2006 Order, the Commission directed the development of a CST Operating Plan for solicitation of customer-sited renewable resources and provided the parameters and principles that NYSERDA should use in developing the Plan. The Order also established funding allocations among resource categories and eliminated a previously-established 300 kWh cap on the size of eligible small wind facilities. The June 2006 Order authorized NYSERDA, after consultation with New York State Department of Public Service Staff (Staff), to implement the RPS CST program pursuant to the allocated funding levels for eligible resources. Comments on a draft version of this Plan were received in response to a notice soliciting comments issued by the Staff on December 14, 2006, and those comments were considered in developing this final Plan. In addition, the Operating Plan for the RPS CST program reflects the experience NYSERDA has gained through implementation of similar programs funded by the Systems Benefit Charge (SBC) from 1998 through 2006.

⁵ Case 03-E-0188, supra, Order Approving Request for Inclusion of Methane Digester Systems as Eligible Technologies in the Customer-Site Tier, issued November 2, 2005 (November 2005 Order).

SECTION 2: OVERVIEW OF THE CUSTOMER-SITED TIER PROGRAM

2.1. EXPECTATIONS OF THE CST PROGRAM

The September 2004 Order established the goal of the CST program to achieve two percent of the total RPS incremental megawatt-hour (MWh) target. Based on the September 2004 Order and information provided by Staff, the cumulative CST target through 2013 is set at 201,130 MWh. As outlined in Section 3 below, a reasonable estimate of the cumulative MWh expected through 2009 is approximately 50,733 MWh.

Funding. In the June 2006 Order, the Commission authorized funding for the CST through 2009 at \$45 million in overall nominal dollars for incentive funding. Funding will be reexamined as part of the 2009 review, and adjustments may be made as necessary to attain the program’s goals. The CST program and the third SBC program have been designed to coordinate, but not duplicate, supported activities. To the extent unused funding from prior SBC programs is available, those funds may be added to a CST technology incentive program. Table 2.1 below shows how CST funding will be allocated. Solar photovoltaic (PV) funding from CST sources will be distributed in 2008 and 2009. Funding in 2007 will come from remaining SBC funds. Should the remaining SBC funds not be adequate to meet the demand for solar photovoltaics in 2007, funds from the discretionary category may be used, and, if necessary, funds allocated to solar photovoltaics in 2008 and 2009 will be revised to accommodate the demand.

Table 2.1. Customer-Sited Tier Funding Allocations by Resource Category

Resource Category	Percentage of Funds	Funding Amounts (in millions)			Total
		2007	2008	2009	
Solar Photovoltaics	30.7%	0	6.90	6.90	13.80
Fuel Cells	24.9%	3.73	3.73	3.73	11.20
Anaerobic Digestion Systems	24.4%	3.67	3.67	3.67	11.00
Small Wind	10.0%	1.50	1.50	1.50	4.50
Discretionary	10.0%	1.50	1.50	1.50	4.50
Total	100.0%	10.40	17.30	17.30	45.0

Discretionary Pool. As directed in the June 2006 Order, at the end of each calendar year, funds not committed to projects within a particular category will be designated “discretionary.” Discretionary Funds may be used at NYSERDA’s discretion at any time to supplement allocated funding for:

(1) resource categories for which demand clearly exceeds their allocations; (2) eligible technologies that, in NYSERDA’s judgment, would benefit from an increased allocation; and (3) for new technologies that the Commission determines to be eligible for CST support.

At the beginning of each calendar year, each technology resource category will start with a new annual allocation and with access to the discretionary pool as directed by NYSERDA throughout the funding year. The first review of funding not committed to projects in each resource category will be derived

from 2007 spending, and the first possible transfer of funds to the discretionary pool will take place in or after January 2008, if such funds exist.

2.2. EXPECTED PROGRAM RESULTS

Estimated energy production from projects under contract by the end of 2009 is approximately 50,733 MWh as outlined in Table 2.2 below.

Table 2.2. Customer-Sited Tier Expected Program Results by Resource Category 2007-2009

Resource Category	Capacity in MW Encumbered by 12/31/09	Annual Generation in MWh Encumbered by 12/31/09
Solar Photovoltaics	3.5	4,533
Fuel Cells	2.7	18,700
Anaerobic Digester Biogas	3.7	25,700
Small Wind	1.8	1,800
Program Total	11.7	50,733

2.3. GENERAL PROGRAM REQUIREMENTS

NYSERDA has designed programs to achieve the program principles and goals stated in the RPS Orders. The general requirements for the CST program are presented below. Additional guidelines for specific resource categories are outlined in detail in Section 3 below.

2.3.1. Program Structure

In general, each program will offer funding support through an open enrollment, first-come, first-served process initiated by resource-specific solicitations. Subsequent competitive solicitations may be issued at NYSERDA's discretion to reach underserved customers, stimulate adoption of new technologies, and build and support markets. The design of the individual program solicitations and the amount of funding to be provided for individual projects will be tailored to the target technologies and markets. More specific information on the programs for each of the CST technology resource categories is provided in Section 3 below.

NYSERDA will share with the customer the costs of installing and operating emerging technologies. The CST program will offer financial incentives in the form of capacity buy-down payments, performance-based incentives, or some combination of the two. Funds will be used to offset the construction, installation, and operation of customer-sited renewable energy generating systems in New York. Funding support may be provided directly to customers or through intermediaries such as eligible system installers if the customers make appropriate assignments to the intermediaries.

Application Process. All applicants will be required to complete project descriptions and information forms provided by NYSERDA and posted on NYSERDA's website. Applications will be tailored for individual technologies and will generally request the following information: (1) stage of the project and

performance expectations; (2) schedule for completion; (3) site characteristics; (4) energy use patterns; (5) equipment selection and integration; (6) economic analysis; (7) operation and maintenance plans; and (8) monitoring plans consistent with the minimum requirements to be specified in the solicitation.

2.3.2. Eligibility

The CST program is designed to promote the adoption of emerging technologies that offer direct benefits to customers and that, in the aggregate, may offer broad benefits to ratepayers. Eligible technologies defined in the June 2006 Order include PV, small wind, fuel cells, and anaerobic digestion biogas systems.

In general, participants must meet the following program requirements: (1) generally, only customers that pay the RPS program surcharge are eligible to receive funding through the CST; (2) eligibility includes only self-generation, behind-the-meter[®] facilities located in New York State; (3) while no upper limit has been established for the size of eligible installations, incentives will not be provided for that portion of capacity/production that unreasonably exceeds the customer load by an amount more than is practicable (see Section 2.3.6. below); and (4) subject to further restrictions defined in individual program solicitations, customer-sited resources must have been, or will be, placed in service (*i.e.*, producing electricity) on or after January 1, 2003.

Consistent with treatment under the Main Tier RPS program, customers who invest in a major facility upgrade after January 1, 2003 that increases capacity/electricity production may be eligible for participation in the CST program for the increased capacity.

2.3.3. Incentives

The technologies eligible for support in the CST have, in many cases, different target customers, different installation and operating requirements, and different levels of market penetration. To meet the goals of the CST program effectively, capacity and performance-based incentives will be designed to address the unique technology and market needs associated with each of the CST subprogram areas.

For each technology resource category, capacity and performance-based incentive levels, and the conditions under which the incentives will be made available, will be established in the initial solicitations for open enrollment applications that are expected to be issued soon after issuance of the Operating Plan. Incentive levels may be reviewed and modified periodically thereafter by NYSERDA based on considerations such as availability of funds and levels of market penetration by individual technologies. Initial and revised incentive levels will be published on NYSERDA's website along with the application form and other informational materials pertaining to the CST program.

2.3.3.1. *Capacity (kW) Buy-Down Incentives*

Capacity incentives will be offered to support the installation of new electric power generation and ancillary equipment.

The size of capacity payments will be based on such factors as the system kW rating, the installed cost, the forecasted energy production, and other methods that meet technology-specific program guidelines as outlined in Section 3 below.

The timing of capacity payments will be based on a combination of project milestones including delivery of system components, completion of system installation, and interconnection to the grid.

Small projects may receive a single capacity buy-down incentive.

Program participants receiving capacity payments will be required to provide NYSERDA with periodic data at the end of years one, two, and three following commissioning.

2.3.3.2. Performance-Based (kWh) Incentives

Where applicable, performance-based incentives will be paid for three years⁶ based on verified kWh production. The maximum performance-based incentives will be offered for new generation that was purchased and installed subsequent to issuance of the Operating Plan. Performance metrics may include kWh generated and capacity and availability factors.

For fuel cells, performance-based incentives will initially only be available for systems that have been purchased and installed resulting from an award under a CST solicitation or application program. Future solicitations may be offered to consider performance-based incentives for systems purchased and installed during the time period bounded by January 1, 2003 and completion of this Operating Plan.

In the case of eligible anaerobic digester biogas facilities installed on or after January 1, 2003, kWh performance-based incentives may be made available at a reduced level relative to new facilities to help offset the costs of operations and maintenance and to ensure that these systems continue producing electricity.

In the future, NYSERDA may offer performance-based incentives in the PV and small wind programs.

2.3.4. Project Caps

The June 2006 Order⁷ authorizes NYSERDA to cap or modify capacity payments where necessary to satisfy program targets and to promote maximum penetration. NYSERDA proposes initially to adopt such caps for selected individual technology resources as presented in Section 3 below. NYSERDA may opt to add or modify caps at any time, as needed, to conserve program resources or stimulate the marketplace. Caps will be specified in program solicitations.

2.3.5. Monitoring, Verification, and Quality Control

Monitoring, verification, and quality control are integral to the effective, successful implementation of the CST program to ensure the quality and long-term operation of systems, and to protect ratepayer investments in the program.

⁶ The June 2006 Order (at p. 20) mentions five years as a possible period for performance-based incentives “to demonstrate system robustness.” The length of the performance-based incentives may be increased to five years with associated adjustments in incentive levels, if experience with the program indicates that this is necessary to promote effective operation.

⁷ Id. at p. 19.

For projects receiving capacity-based incentives, NYSERDA or NYSERDA's representatives will inspect a sufficient number of the installations to confirm that the appropriate equipment was properly installed and is performing at optimum levels.

Projects receiving performance-based payments will require measurement and verification, including monitoring and data acquisition from on-site sensors and meters approved by NYSERDA or NYSERDA's designated representative, to confirm the amount of energy production. Monitoring, verification, and quality control guidelines for individual technologies are described in Section 3 below. Basic performance and cost information for systems receiving funding under the CST program will be made publicly available on NYSERDA's Web site.

The cost of monitoring, verification and quality control activities for the CST through 2009 is estimated to be approximately \$2.4 million. This estimate is based on NYSERDA's experience in conducting similar activities under the SBC program. NYSERDA will use RPS Program administrative funds to cover these expenses to the extent such funds are available. Should the RPS administrative funds be insufficient, NYSERDA will access uncommitted RPS program funds.

2.3.6. Capacity Limitations

In the June 2006 Order, the Commission eliminated the 300 kW size limit on small wind projects it had previously set to encourage development of wind power units sized to meet typical small farm needs. In eliminating the restriction, the Commission noted that "it is also beneficial to the State to encourage the use of small wind facilities at other larger facilities." Stating its intention, however, to preserve the distinction between the CST and the Main Tier of the RPS Program, the Commission replaced this 300 kW limit on small wind projects "with a requirement that allows Customer-Sited Tier projects as large as necessary to meet the load at the customer's meter" and stated that "this standard will apply to all the other eligible technologies."

Generally, incentives may be provided as large as necessary to meet the program participant's approximate peak connected load at the customer's meter. However, where there are recognized public benefits, or where practical considerations suggest, incentives may be approved for projects that are sized larger than the customer's load.

CST facilities, because of physical requirements, can be slightly larger than the customer's load if an exact match is not practicable. The physical requirements may include the incremental size of the electric power generation and ancillary equipment currently available and, with respect to anaerobic digester systems, the system size necessary to effectively use the biogas produced from the anaerobic digestion of the customer's waste feedstocks.

For all technologies other than anaerobic digestion systems, in cases where physical, technical or economic considerations result in CST systems that more than slightly exceed the participant's approximate peak connected load, incentives may be based on the customer's approximate peak connected load.

To encourage the use of anaerobic digestion systems treating farm wastes and the resulting public benefits (objectives cited in the Commission's November 2005 Order), incentives may be provided based on (a)

the eligibility capacity limit in the net energy metering law which currently caps farm waste electric generating equipment at 400 kW, or (b) the customer's approximate peak connected load, whichever is greater.

2.3.7. Third Party Ownership

Under a third party ownership scenario, contractors that meet the eligibility requirements included in individual solicitations and incentive programs will be permitted to build, own and operate a CST-eligible technology at a customer's site if the customer pays the RPS surcharge and if the contractual relationship between the customer and the third party clearly indicates that the entire incentive payment is being passed on to the customer.

2.4. RENEWABLE ENERGY CREDITS AND ENVIRONMENTAL ATTRIBUTES

The June 2006 Order indicated that the trading of environmental attributes associated with the CST program will be addressed in subsequent Orders. NYSERDA will seek to ensure that the benefits from these attributes accrue, where possible, to the ratepayers of New York. The definition of RPS-eligible environmental attributes will follow the requirements outlined in NYSERDA's solicitations for the Main Tier of the RPS. Until an environmental attribute tracking system is installed and operating in New York, NYSERDA will control the rights, and any and all claims, to all RPS-eligible environmental attributes created by the portion of the electric generation systems installed with CST funding. NYSERDA will control these environmental attributes for the duration of the performance payments or three years, whichever is greater.

To provide flexibility and to foster voluntary green energy markets, NYSERDA will allow customers who participate in kWh performance-based programs (*i.e.*, those receiving \$/kWh incentives only) to terminate CST performance-based incentives and move to a green energy market with the attributes.

The environmental attributes associated with biogas methane destruction are considered to be separate from electricity-based RPS-eligible attributes and will be retained by the customer.

Until a system is in place to track and account independently for environmental attributes associated with power generated by customer-sited resources, the success of the CST program will be measured by the installed capacity and by measured or forecasted energy production.

2.5. SYSTEM BENEFITS CHARGE (SBC) FUNDING LIMITATION

As previously noted, the RPS and SBC programs have been designed to coordinate, but not duplicate, activities. Facilities that have received NYSERDA funding under a contract that includes the purchase and/or installation of power generating equipment outside of CST solicitations and incentive programs, including, but not limited to, SBC-funded solicitations, will not be eligible for CST capacity-based incentives for the original power-generation equipment. The facilities, however, may be eligible for CST performance-based incentives subject to conditions described in Section 3 below and individual solicitations. Previous funding through NYSERDA for the purchase and installation of such generating equipment will offset contract awards for affected CST projects.

SECTION 3: PROGRAM ELEMENTS

3.1. SOLAR PHOTOVOLTAIC (PV) SYSTEMS

3.1.1. Background

The open enrollment, first-come, first served application process for eligible installers developed under the SBC program will be continued for PV systems in the CST program. Since 2003, the SBC PV incentive program has distributed \$12 million and is responsible for the installation of over three MW of PV. Public interest in the program is gaining momentum. For 2006, approximately \$6.1 million in SBC incentive requests were received by NYSERDA as of December 1, 2006. Access to RPS Program incentive funds will require use of qualified installers who are deemed “eligible” by NYSERDA. Any agreement between a customer and an eligible installer must stipulate that all incentive funds are to be passed through to the customer.⁸

3.1.2. Program Description and Types of Incentives

Given the complexity of PV installations and utility interconnections, the program relies on installers who have met training and experience requirements necessary to design and install quality PV systems. To be deemed “eligible” to apply for CST incentives, installers who have the necessary expertise must agree to a set of obligations as outlined in *Terms and Conditions* established by NYSERDA. Only such eligible installers are permitted to participate. Eligible installers complete project-specific application packages that detail, among other things, system design details, expected output, system warranty terms, and system installation cost. Incentive payments must be used to reduce the total cost of the project for the customer.

Incentives for PV systems will be provided using a capacity-based incentive model formerly used by the SBC program. Maximum payment levels will be based on system size — incentives will decrease as system sizes increase. NYSERDA may opt to provide enhanced incentives to special categories of participants, such as homes that meet ENERGY STAR® or NYSERDA’s Home Performance Program requirements.

Prior to the 2009 review and in response to ongoing input from stakeholders, NYSERDA expects to transition to incentives based on estimated system output, *i.e.*, expected performance associated with design factors for individual installations. Under the revised incentive schedule, payments will be calculated based on component ratings and will take into account projected, acceptable system losses, effects of system orientation and shading, and geographical location of systems.

3.1.3. Eligibility

In addition to the general CST program requirements outlined in Section 2.3.2 above, the PV program incentive program will include installer and hardware eligibility requirements. The requirements will be similar to those followed in the SBC solar photovoltaic incentive program.

⁸ Individual customers who have the required training, experience and insurance may apply for eligibility as installers for projects that will be placed on their own properties.

3.1.4. Design and Installation Quality Control

The program is designed to ensure that customers receive properly installed, reliable solar photovoltaic systems that produce the expected amount of energy. Design reviews and inspections will be performed for systems that are: installed by new installers, larger than 15kW, or installed by installers with prior design and installation deficiencies. Random design reviews and inspections will be performed for systems installed by experienced installers with no previous negative reports. Third party technical experts, under contract to NYSERDA, will perform such reviews and inspections with detailed guidance from NYSERDA. The technical experts will be selected through a competitive solicitation. Installers will be required to monitor each system and provide performance data to NYSERDA for two years after installation.

3.1.5. Solar Photovoltaic Program Budget and Performance Expectations

Through December 31, 2009, \$13.8 million of RPS funding is available to the CST program for PV installations. Funds reallocated from the second round of the SBC program will also be used until expended. For planning purposes, the SBC funds are projected to be available through 2007. Unless they are needed sooner, the RPS CST allocation will be used in 2008 and 2009. Assuming an incentive level equal to that used in the SBC program of \$4,000 per kW, this level of funding will result in approximately 3,450 kW of PV being installed by the end of 2009.

Table 3.1. Solar Photovoltaic Resource Program Budget 2007-2009

Period	Total
2007	\$0
2008	\$6.9 million
2009	\$6.9 million
Total Incentives	\$13.8 million

Table 3.1.1. Solar Photovoltaic Resource Program Expectations

Capacity in MW Encumbered by 12/31/2009	Annual Generation in MWh* Encumbered by 12/31/2009
3.5	4,533

*Assumes a 15 percent capacity factor.

3.2. FUEL CELLS

3.2.1. Background

Fuel cells use electrochemical reactions to convert fuel into electricity without combustion. Fuel cells produce more electricity in proportion to the amount of fuel used than traditional electric generation

technologies, and emissions from fuel cells are significantly less harmful to the environment. Growing the market for this emerging technology resource will improve the State's energy efficiency and reduce negative environmental impacts associated with power generation and use. The technological challenges for wide scale deployment of fuel cells are enormous, and market transformation issues are formidable, but fuel cell technology represents a promising route to cleaner, more efficient energy production.

For the past several years, NYSERDA has provided financial support for fuel cell technologies to improve the efficiency, durability, and manufacturability of fuel cell components and systems. NYSERDA has also undertaken long-term demonstrations of the operational reliability and effectiveness of fuel cells at end-use sites in commercially promising applications; these sites consist predominantly of large institutional customers. In addition, federal funds have been available to support the demonstration of fuel cells at end-use sites. While NYSERDA's Research, Development and Demonstration programs will continue to provide financial support for improving fuel cell technologies, the CST program will become the primary venue for supporting the cost-effective acquisition of fuel cells for long-term operation at end-user sites.

The qualifications of the proposed fuel cell installation team will be assessed on a project-by-project basis.

3.2.2. Program Description and Types of Incentives

Different pools of funds, monitoring protocols, and likely incentives will be applicable to fuel cell systems of 25 kW or less (Small Fuel Cell Track) and fuel cell systems larger than 25 kW (Large Fuel Cell Track). Detailed incentive levels, project caps, and monitoring protocols will be described in the initial open-enrollment solicitation and as appropriate in subsequent special solicitations. General distinctions between the two tracks are described below.

Each particular make and model fuel cell must have been offered for commercial sale and covered by commercial warranties within the two-year period preceding its entry into the program, and each must have received certification of compliance with ANSI Standard FC-1 from a nationally recognized testing laboratory. NYSERDA will maintain a list of fuel cell systems that are eligible to receive awards under the CST. Only fuel cells that have been purchased and installed through an award under a CST solicitation or application program will be eligible for capacity incentives and/or performance incentives.

Capacity-based Incentives. Capacity incentives based on installed kilowatts of eligible fuel cells will be offered for fuel cells that have been purchased and installed through an award under a CST solicitation or application program. Fifty percent of approved capacity payments will be made when all major equipment is on-site and necessary permits are obtained; the remaining 50 percent will be paid when projects are successfully commissioned and the post-installation site inspection is completed and approved by NYSERDA.

Incentives for Secure Power Projects. The open-enrollment solicitation for fuel cell systems will offer bonus capacity incentives for approved systems that provide secure power at locations that provide essential public services, such as police stations and hospitals.

Performance-Based Incentives. Performance-based incentives will be paid at two different rates: a high-performance rate and a low-performance rate. For any given year, high-performing systems, such as those that produce 4,380 kWh or more per installed nameplate kW per year will receive larger performance-based incentives than projects that produce less than 4,380 kWh per installed nameplate kW per year.

3.2.3. Eligibility

In addition to the general CST program requirements outlined in Section 2.3.2 above, which specify limitations on eligibility, only projects that involve purchased and installed fuel cell equipment through an award under a CST solicitation or application program are eligible to seek any funds under the CST's Fuel Cell subprogram.

3.2.4. Design and Installation Quality Control

Monitoring and verification of system performance is necessary for computing the appropriate amount to be paid for each performance-based incentive payment. Monitoring and verification requirements at the site level, including specification for monitoring and communications equipment, will be established by NYSERDA in the initial program solicitations and will be designed to be consistent with requirements of NYSERDA's other combined heat and power (CHP) programs. NYSERDA may revise its monitoring and verification requirements as needed.

All monitoring data for fuel cell projects will be available to the public on NYSERDA's CHP Data Integration web page, consistent with release to the public of data acquired from other CHP programs.

3.2.4.1. *Small Fuel Cell Track*

Small projects will provide monitoring data through a less-expensive method than large projects. The use of daily remote transfer of data in electronic format is not anticipated.

3.2.4.2. *Large Fuel Cell Track*

Large Fuel Cell Track projects will be responsible for the purchase and installation of necessary monitors and sensors (e.g., fuel and electric meters), and projects will provide the necessary instrumentation and communications systems (e.g., phone lines, internet access) to monitor systems for remote data collection. If not provided by the project site, NYSERDA will arrange for connecting sensors and meters to data acquisition systems.

Projects participating in the Large Fuel Cell Track must provide monitoring data for a minimum of three years through an automated data collection and remote transfer mechanism that will be described in the initial solicitation and may be revised at NYSERDA's option in subsequent solicitations.

3.2.5. Fuel Cell Technology Program Budget and Performance Expectations

\$11.2 million is available to the RPS CST Fuel Cell program, which is open to both small and large fuel cells, through December 31, 2009. The General Fuel Cell category is open to both small and large fuel cells. Funding is reserved for Small Fuel Cells as a "set aside." Funding allocations for the specific time

periods and tracks appear in Table 3.2. The initial allocation between the small and large fuel cell programs is subject to revision by NYSERDA depending on the market's response to the program.

Table 3.2. Fuel Cell Technology Category Program Budget 2007-2009

Period	Small Fuel Cell Set-Aside	General Fuel Cell Category	Total
2007	\$0.5 million	\$3.23 million	\$3.73 million
2008	\$0.5 million	\$3.23 million	\$3.73 million
2009	\$0.5 million	\$3.23 million	\$3.73 million
Total Incentives	\$1.5 million	\$9.70 million	\$11.20 million

Table 3.2.1 Fuel Cell Technology Category Program Expectations

	Capacity in MW Encumbered by 12/31/2009	Annual Generation in MWh Encumbered by 12/31/2009
Large Fuel Cell Track	1.9	17,000
Small Fuel Cell Track	0.8	1,700
Total	2.7	18,700

3.3. ANAEROBIC DIGESTER BIOGAS

3.3.1. Background

Nineteen anaerobic digester biogas (ADG) systems are currently producing power in New York — 6 on farms, 2 at industrial sites, and 11 at municipal wastewater treatment facilities — and a dozen more are in various stages of development. Most of these projects have received public funding and many of the farm-based projects are participating in net metering. For the past several years, NYSERDA has provided funding for ADG projects to develop improved technologies and to demonstrate and evaluate performance of commercially available systems. Projects co-funded by NYSERDA, other states, and the federal government have demonstrated that ADG projects in certain applications can be cost-effective, are commercially viable, and can produce power in an environmentally beneficial manner. ADG technology, however, is not fully mature, and opportunities remain to improve performance. While NYSERDA's Research, Development, and Demonstration programs will continue to provide financial support to improve ADG technology, the CST program will become the primary venue for supporting the acquisition of commercially available ADG systems for long-term operation at end-user sites.

3.3.2. Program Description and Types of Incentives

The program will be administered through a standard-offer, open-enrollment solicitation. Modifications

to program design, including issuing targeted sector-specific solicitations, may be made after periodic program review. Factors to be considered include distribution of customers served among the agricultural, industrial, and municipal sectors and participation by small farm-based customers.

Applicants will be required to complete a project description and information forms provided by NYSERDA, which will require a report of the type and quantity of available feedstock resources; engineering estimates of the quantity and Btu value of biogas to be produced; the identification of all major equipment to be used in the project such as digesters, gas clean up equipment, engines, and generators by manufacturer, model, size, and rating; alternative non-biogas fuels and other generation capacity on-site at the time of application; and records of average and peak site electrical load and annual energy use. The application will also require a proposed installation schedule, estimates of annual net and gross kWh to be produced, planned operations and maintenance protocols, and expenses.

Capital buy-down incentives and annual production payments will be offered. Initial incentive levels will be developed based on historic NYSERDA funding necessary to initiate ADG projects in New York, which ranged from \$1,000/kW to \$5,000/kW. Incentive levels may be modified if significant changes in ADG system economics occur or if initial incentive levels prove inadequate to achieve program goals.

3.3.2.1. Capacity Payments.

Capacity incentives based on installed kilowatts for facilities operating on biogas will be offered for new generation equipment that was purchased or installed after issuance of the CST Operating Plan. Capacity incentives will cover a portion of the total installed costs for the generating system including controls, biogas cleanup, interconnection, and necessary monitoring equipment. Fifty percent of authorized capacity payments will be made when all major equipment is on-site and necessary permits are obtained; the remaining 50 percent will be paid when projects are successfully commissioned and the post-installation site inspection is completed and approved by NYSERDA.

3.3.2.2. Performance-based Payments.

Performance-based payments for *new* generation will be made annually for three years based on verified kWh generation. Reduced performance-based payments may be approved by NYSERDA for *existing* facilities that were eligible under the terms of the initial RPS Order, *i.e.*, those placed into service on or after January 1, 2003, but which involved the purchase or installation of equipment before approval of the CST Operating Plan. Payments may: (1) partially offset the operations and maintenance costs associated with these emerging technologies; (2) ensure successful system operations; and (3) ensure that performance data from these systems are publicly available. Details of the reduced performance-based payments will be presented in the initial solicitation. NYSERDA will require measurement of biogas used by the generator and estimate kWh production from that biogas. This will be cross-checked with the measured kWh engine output to ensure that the incentive is based only on the electricity generated from biogas.

3.3.3. Eligibility

In addition to the general CST program requirements outlined in Section 2.3.2. above, participants must comply with applicable environmental requirements, including the Concentrated Animal Feeding

Operation (CAFO) (see Appendix to the June 2006 Order) and NYS DEC emission standards for distributed generation biogas systems.

Eligible biomass feedstocks for ADG systems include manure, agricultural residues and biomass, industrial organic wastes (*i.e.*, food wastes), and municipal wastewater.

3.3.4. Design and Installation Quality Control

Monitoring and verification requirements at the site, including specifications for monitoring and communications equipment, will be established by NYSERDA in the initial program solicitations and will be consistent with requirements of NYSERDA’s other CHP programs. NYSERDA may revise its monitoring and verification requirements as needed.

Projects will be responsible for the purchase and installation of necessary monitors and sensors such as fuel and electric meters, and projects will provide the necessary instrumentation and communications systems (*e.g.*, phone lines, internet access) to monitor systems for remote data collection, where possible. If not provided by the project site, NYSERDA may arrange for connecting sensors and meters to data acquisition systems.

Where possible, NYSERDA will use nationally accepted protocols to evaluate ADG systems for efficiency and economics.

All monitoring data will be available to the public on the CHP Data Integration web page.

3.3.5. Anaerobic Digester Biogas Program Budget and Performance Expectations

Table 3.3. Anaerobic Digester Biogas Program Budget 2007-2009

Period	Budget
2007	\$3.67 million
2008	\$3.67 million
2009	\$3.67 million
Total Incentives	\$11 million

Table 3.3.1. Anaerobic Digester Biogas Program Expectations

Capacity in MW Encumbered by December 31, 2009	Annual Generation in MWh* Encumbered by December 31, 2009
3.7 MW	25,700 MWh

* Assumptions: \$11 million of program funding, a capacity factor of 80%, and combined incentive levels comparable to those needed over the past 5 years.

3.4. CST SMALL WIND PROGRAM

3.4.1. Background

Under the SBC program, NYSERDA approved incentives for 25 small wind systems in New York State. Sites have included residences, universities, and farms. As of July 2006, 17 systems were installed and operating. As directed in the June 2006 Order⁹, the CST small wind program will offer a streamlined track for small projects.

3.4.2. Program Description and Types of Incentives

Given the complexity of the siting, installation, and utility interconnection of customer-sited wind systems, the program will rely on qualified installers with the training and experience necessary to design and install quality, CST wind systems. Qualified installers must agree to a set of obligations that are outlined in the *Terms and Conditions* established by NYSERDA. Only eligible installers are allowed to participate. Eligible Installers complete incentive packages that detail, among other things, the system design, expected output, system warranty, and system installation costs. The incentive amounts must be used to reduce the total cost of the project for the customer.¹⁰

3.4.3. Small Wind Tracks

Different incentives and monitoring protocols will apply for wind systems of 30 kW or smaller (30 kW Track) and wind systems larger than 30 kW (30 kW-plus Track). Detailed incentive levels, project caps, and monitoring protocols will be described in the initial open-enrollment solicitation and as appropriate in subsequent special solicitations. General distinctions between the two tracks are described below.

3.4.3.1. *30 kW Track.*

- Projects participating in the 30 kW Track will provide monitoring data through a streamlined, less expensive method than the systems in the 30 kW-plus Wind Track in keeping with the more rigorous reporting necessary for large systems.

3.4.3.2. *30 kW-plus Track.*

- NYSERDA may offer a combination of capacity payments and performance-based payments for larger systems and third-party- and installer-owned systems.
- Projects participating in the 30 kW-plus Track must provide monitoring data through an automated data collection and remote transfer mechanism that will be developed by NYSERDA.

3.4.4. Small Wind Program Incentives

Under the SBC small wind incentive program, incentives were based on system size and application. For example, the most common installation has been a 10kW system. Incentive levels at this size were 50%

⁹ P. 18, fn 12.

¹⁰ Individual customers may apply for eligibility as installers for projects that will be placed on their own properties.

of the installed cost for residences, businesses, institutions, and governments; 60% of the installed cost for commercial farms; and, 70% of the installed cost for educational institutions that plan to use the system for teaching purposes. NYSERDA will periodically evaluate the CST program's incentive structure to determine whether it is the best, most practical method of meeting the program goals based on advances in wind system technologies, certification, and forecasting. Changes in incentive levels amounts and methods to determine the incentives will be made after adequate notice to installers. Updated incentive levels will be published on NYSERDA's website.

Generally, incentives will be relatively larger for projects in the 30-kW Track than incentives for the 30-kW-plus Track. Overall, incentives will diminish as the size of wind systems increases. NYSERDA expects to offer bonus incentives for farms, not-for-profits, municipalities, and educational institutions that incorporate wind education in their curricula.

Installers of projects in the 30 kW Track may be provided with a small incentive to supply NYSERDA with system performance data for a two-year period.

3.4.5. Eligibility

In addition to the general CST program requirements outlined in Section 2.3.2 above, the small wind program incentive program will include installer and hardware eligibility requirements. The requirements will be similar to those used in the SBC small wind incentive program.

3.4.6. Design and Installation Quality Control

NYSERDA's program is designed to ensure that customers receive properly installed, reliable wind systems that produce the expected amount of energy. Design reviews and inspections will be performed for systems that are installed by new installers or installed by installers with prior design and installation deficiencies. Random design reviews and inspections will be performed for systems installed by experienced installers with no previous negative reports. Third party technical experts, under contract to NYSERDA, will perform such reviews and inspections with detailed guidance from NYSERDA. The technical experts will be selected through a competitive solicitation.

3.4.7. Small Wind Program Budget and Performance Expectations

Table 3.4. Small Wind Technology Category Program Budget 2007-2009

Period	Total
2007	\$1.5 million
2008	\$1.5 million
2009	\$1.5 million
Total Incentives	\$4.5 million

Table 3.4.1. Small Wind Technology Category Program Expectations

Capacity in MW Encumbered by 12/31/2009	Annual Generation in MWh Encumbered by 12/31/2009
1.8	1,800

SECTION 4: PROGRAM EVALUATION

The annual year-end CST Program Evaluation will include the following items for the subject year:

- Aggregated quantities of energy generated and the capacity and performance-based payments associated with the environmental attributes of that energy. Data may be based on forecasted energy.
- Progress in meeting the RPS Program's annual targets.
- Quantities and distribution of environmental attributes subject to CST program existing and pending contracts.
- The number and size of customer-sited installations built and under contract.
- Appropriate financial and contractual data to ensure full and accurate reporting to the Commission and the public including stakeholder feedback and information obtained from the NYISO with respect to reliability.

NYSERDA will conduct workshops from time-to-time during its implementation of the CST to provide NYSERDA with necessary input to carry out its responsibilities.

4.1 2009 REVIEW

In addition to the year-end reports described above, an expanded evaluation review report will be prepared in 2009 to address issues identified in the April 2005 Order and other issues that may be raised by NYSERDA, Staff, the Commission, and stakeholders. Information on the CST program will be compiled as part of the overall RPS 2009 evaluation review and included in a report to the Commission that will address the State's progress toward meeting its RPS Program goals. Any changes needed to meet the statewide Renewable Portfolio Standard's goals will also be recommended. The 2009 evaluation review process will provide a timely forum to address the status of these and other important issues to improve the program through 2013. Specific issues to be addressed in the 2009 Evaluation Review Report relative to the CST include:

- An overview of program status;
- An assessment of market influences on the program's progress;
- An assessment of the program's success in achieving program goals and objectives and identification of adjustments necessary to future attainment of goals;
- Possible modifications to the list of eligible resources;
- Input from stakeholders; and
- Additional recommendations for improving the CST program.