RENEWABLE PORTFOLIO STANDARD

Customer-Sited Tier Program

Operating Plan

(2012-2015)

June 2012

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SECTION 1: INTRODUCTION

This 2012 Customer-Sited Tier Program Operating Plan (Plan) sets forth the program goals and implementation strategies for implementation of the Customer-Sited Tier (CST) program under the New York State Renewable Portfolio Standard (RPS) for the 2012 through 2015 period. This Plan revises the previous CST plan, and was prepared in response to the Public Service Commission's April 24, 2012 Order.

The program goals and implementation strategies contained in this Plan incorporate the directives, decisions and guidance provided by the Commission in orders concerning the CST program (Orders).[1] These goals and strategies also reflect program area experience with the technical evolution and market deployment of the eligible technologies, market reaction to program incentives, and the outcome of the NYSERDA program evaluation.

CST PROGRAM PROGRESS

Since its inception, the CST program has issued a series of solicitations offering funding support to photovoltaic (PV), fuel cells, anaerobic gas-to-electric digester technologies (ADG), and small wind installations through an open enrollment, first-come, first-served process. Beginning in 2011, in accordance with a 2010 Commission Order, incentives have been offered, in the downstate region, through a competitive process for PV, fuel cells and anaerobic digester-derived renewable biogas projects that accept delivery of biogas.

Table 1-1 below describes the status of CST programs through December 31, 2011. Tables 1-2 and 1-3 below present a forecast of installed capacity and production of energy from installed and contracted facilities on the basis of approved funding. At the portfolio level, progress to date has nearly matched the expectations included in the 2010 CST Plan. As anticipated, progress in some of the individual technology programs has exceeded expectations, while in others it has fallen short. The variances from the expected targets are due to a variety of reasons, most notably the depth of market capacity for a given technology in relation to the level of funding provided for that technology, as demonstrated by the remaining year-end balances in certain programs. The Orders provide for an annual reallocation of unexpended funds, by NYSERDA petition, through which funding for the individual programs may be adjusted to reflect current market capacity and other relevant market conditions.

[1] Including orders issued under Case 03-E-0188 and associated orders as relevant. For the most recent Commission CST directives see: "Order Authorizing the Expansion of the Solar Photovoltaic and Geobalance Programs from 2012 through 2015 and the Reallocation of Main Tier Unencumbered Funds, issued and effective April 24, 2012; "Order Authorizing Reallocation of Unencumbered 2011 Customer-Sited Tier Program Funds and Resolving Other Issues," issued and effective April 20, 2012; "Order Authorizing Reallocation of Unencumbered Customer-Sited Tier Program Funds through 2010 and Resolving Other Issues," issued and effective September 19, 2011; "Order Authorizing Customer-Sited Tier Program Through 2015 and Resolving Geographic Balance and Other Issues Pertaining to the RPS Program," issued and effective April 2, 2010.

Table 1-1. CST Funding Status effective December 31, 2011[2]

CST Program	Budgeted Funds	Encumbered and Pending Contracts	Balance
Solar PV	$128,623,584	$128,623,338	$246
Competitive PV[3]	$30,000,000	$34,557,199	$ ---
Fuel Cells	$9,311,920	$8,132,210	$1,179,710
Anaerobic Digesters	$45,317,650	$31,859,269	$13,458,381
Small Wind	$6,196,846	$6,145,772	$51,074
Solar Thermal	$7,525,000	$3,120,855	$4,404,145
Program Total	$226,975,000	$212,438,643	$19,093,556

Table 1-2. Actual and Expected Installed Capacity effective December 31, 2011 (MW)

CST Program	2010 Operating Plan: Target Encumbered Capacity by 12/31/11	Capacity Installed	Capacity Under Contract but not yet Installed	Accepted Applications but not yet Contracted	Total Progress
Solar PV	47.01	32.06	16.97	2.75	51.78
Competitive PV	16.6	0.00	7.95	18.67	26.62
Fuel Cells	4.07	0.37	0.44	2.02	2.83
Anaerobic Digesters	18.41	3.52	3.32	10.16	17.00
Small Wind	2.95	0.82	0.60	1.37	2.79
Solar Thermal	13.82	0.21	0.10	3.06	3.37
Program Total	102.86	36.98	29.38	38.03	104.39

[2] Includes budgets as adjusted by the Commission's *Order Authorizing Reallocation of Unencumbered Customer-Sited Tier Program Funds Through 2010 and Resolving Other Issues,* issued and effective September 19,2011.

[3] The competitive "geographic balancing" program authorized by the Commission was issued under the name "Customer-Sited Tier Regional Program." New solicitations will identify the Competitive PV program. Due to the strong demand and competitive bids received in the competitive program in 2011, funding above the 2011 budget was awarded, effectively borrowing $4,557,199 from 2012 – 2015 funds.

Table 1-3. Actual and Expected Energy Production effective December 31, 2011 (MWh)

CST Program	2010 Operating Plan: Target Annual Generation Encumbered by 12/31/11	Actual Energy Production from Installed Capacity	Expected Production from Pending and Planned Contracts	Total Expected Production Progress
Solar PV	56,619	37,637	23,154	60,791
Competitive PV	26,091	0	34,976	34,976
Fuel Cells	24,141	1,696	19,455	21,151
Anaerobic Digesters	127,575	24,287	95,103	119,390
Small Wind	4,867	922	4,229	5,152
Solar Thermal	15,803	236	3,598	3,834
Program Total	255,096	64,778	180,515	245,293

SECTION 2: PROGRAM GOALS AND FUNDING

CST PROGRAM GOALS AND FUNDING BUDGET

Table 2-1 presents CST program funding for years 2012 through 2015. The budgets are for program costs only. Costs for program administration and evaluation are provided for separately.

Table 2-1. Customer-Sited Tier Funding Budget by Program [4]

Program	Funding Amounts (in millions)				Total
	2012	2013	2014	2015	
Solar PV	41.594	37.500	37.500	37.500	154.094
Competitive PV[5]	66.400	70.500	70.500	65.943	273.343
Fuel Cells	3.600	3.600	3.600	3.600	14.400
Anaerobic Digestion Systems	12.000	11.600	10.200	10.200	44.000
On-Site Wind	4.400	3.100	3.800	4.000	15.300
Solar Thermal	4.300	4.300	4.300	4.300	17.200
Program Total	132.294	130.600	129.900	125.543	518.337

In accordance with the Orders, NYSERDA administration will include developing and issuing solicitations for each program; reviewing and analyzing each application; performing project reviews to ensure proper commissioning and operation prior to issuing payments; performing measurement and verification; and, where appropriate, performing monitoring of system performance through real-time internet-based systems. In accordance with the Orders, the cost of monitoring equipment, where required, will be charged to the budget for program costs.

Program Evaluation will include an assessment of the contribution of the applicable technologies towards the overall RPS goal, and will include both market and impact evaluation. Administration and Evaluation are discussed in more detail in Sections 4 and 5 of this Operating Plan.

The estimate of installed capacity and energy production associated with projects under contract by the end of 2015 is expected to approximate 406.4 MW and 632,795 MWh, as outlined in table 2-2 below;

[4] Table values may not be equivalent to annual program budgets as expressed in Section 3 because of rounding. Solar PV and Competitive PV program funding for year 2014 and 2015 is assumed at the 2013 level, however funding for those years has not yet been approved.

[5] A small amount of funding under this program in a limited geographic area (Zones I, J, G.H) may go toward support of biogas-based projects, although no such projects have been proposed/funded to date (refer to Section 3). The 2015 budget reflects a reduction of $4,557,199, as that amount was awarded to projects in 2011 due to the strong demand and competitive bids received, effectively borrowing that amount from 2015 funds.

cumulative installed capacity and energy production, including progress to date as shown in section 1, is provided in table 2-3. Achievement of the targets expressed in table 2-2 will be measured on the basis of energy production that is associated with funding that is encumbered/contracted as of the end of program year 2015. The figures illustrate expectations and are not intended as hard targets. Actual rates of achievement are expected to vary somewhat from these figures.

Table 2-2. Customer-Sited Tier Expected Results by Program 2012 - 2015

CST Program	Capacity in MW Encumbered 1/1/2012 - 12/31/15	Annual Generation in MWh Encumbered 1/1/2012 - 12/31/15
Solar PV	105.2	123,488
Competitive PV	226.1	265,405
Fuel Cells	5.8	44,924
Anaerobic Digester Biogas	14.9	106,100
On-Site Wind	22.7	56,758
Solar Thermal	31.7	36,120
Program Total	406.4	632,795

Table 2-3. Cumulative Customer-Sited Tier Expected Results by Program 2007 - 2015

CST Program	Expected Capacity in MW Encumbered	Expected Annual Generation in MWh Encumbered
Solar PV	157.0	184,279
Competitive PV	252.7	300,381
Fuel Cells	8.6	66,075
Anaerobic Digester Biogas	31.9	225,490
On-Site Wind	25.5	61,910
Solar Thermal	35.1	39,954
Program Total	510.8	878,089

PROGRAM PROVISIONS AND REQUIREMENTS

PROGRAM STRUCTURE

NYSERDA has designed programs to achieve the program principles and goals stated in the Orders addressing the CST. The general rules and requirements applicable to all CST program are presented below. These general rules and requirements apply unless the program specific plans outlined in detail in Section 3 specify otherwise.

Standard Offer programs will offer funding support through an open enrollment, first-come, first-served process initiated by resource-specific solicitations. In accordance with recent Orders, the on-site wind program has been modified to allow for larger systems while also preserving access to funding for smaller systems, and the newly-expanded Competitive PV program will be implemented through competitive solicitations. 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 eligible equipment. The CST program will offer financial incentives in the form of capacity buy-down payments, performance-based incentives, or some combination of the two. Funding support may be provided directly to customers or through intermediaries such as eligible system installers.

ELIGIBILITY

The CST program is designed to promote the adoption of eligible technologies that offer direct benefits to customers and that, in the aggregate, may offer broad benefits to ratepayers. Eligible technologies defined in the Orders include PV, on-site wind, fuel cells, anaerobic digestion biogas to electricity systems, solar thermal systems and, in the case of the expanded competitive program, PV in the upstate and downstate regions as well as electric generating technologies that use anaerobic digestion-derived renewable biogas fuels in the downstate region.

In general, all participants must meet the following CST program requirements: (1) only customers that pay the RPS program surcharge are eligible to receive funding benefits through the CST; (2) eligibility includes only self-generation, behind-the-meter facilities located in New York State; (3) individual program offerings may include capacity-based incentive caps, and incentives may be limited to that portion of capacity/production that is necessary to satisfy connected peak customer load.

CAPACITY LIMITATIONS

Subject to limits that may appear as to individual programs, incentives may generally be provided as large as necessary to meet the customer's approximate peak connected load at the 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. Where allowable pursuant to the net metering law, programs may consider the customer's aggregated load in determining the customer's peak connected load.

CST facilities, because of physical requirements, can be slightly larger than the customer's load if an exact match is not practicable. Considerations 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.

SYSTEM BENEFITS CHARGE (SBC) FUNDING LIMITATION

The RPS and System Benefit Charge (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, through 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. Individual solicitations will provide instructions and limitations regarding the eligibility of projects as to which applications are pending under another NYSERDA program.

PROGRAM INCENTIVE STRUCTURES

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 standard-offer program, capacity and performance-based incentive levels have been established in open enrollment solicitations that are open and available through 12/31/2015. Incentive levels will be reviewed and may be modified periodically thereafter by NYSERDA based on considerations such as the availability of funds and the levels of market penetration of individual technologies. Initial and revised incentive levels will be published on NYSERDA's website along with the application forms and other informational materials pertaining to the CST program. Periodic competitive solicitations will be issued for the Competitive PV program.

QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

To protect ratepayer investments in the program, ensure the quality and long-term operation of systems, and to maximize participant benefit from the program, the CST includes a quality assurance and quality control (QA/QC) component. QA/QC will be performed by independent third parties who will review both administrative (QC) and installation (QA) practices. NYSERDA competitively selects contractors to perform design reviews and inspect installations to confirm that conforming equipment was properly installed and is performing at optimum levels.

QC inspections will inform NYSERDA staff of any changes needed to administrative processes to ensure appropriate equipment is specified. QA inspections will identify any installation deficiencies that must be corrected. A schedule of inspections will be established based on past program experience, past history of inspection results, and other factors as appropriate. QA contractors may also provide technical support to ensure that deficiencies identified during QA inspection are corrected.

For programs that involve designated installers, QA inspections will also enable NYSERDA to track the overall performance of installers, to ensure that only those providing quality services remain eligible to participate. For these programs, NYSERDA will require appropriate installer training or certifications, where available, to improve workmanship quality.

Also, to enable effective QC and QA processes, NYSERDA will continue to use certain web-enabled software and databases (e.g., Clean Power Estimator, Power Clerk (PV), NYSERDA's CHP website (Fuel Cells and ADG)), performance monitoring equipment and systems, and other databases for documenting program design, performance and status.

Based on a combination of NYSERDA's experience in conducting program activities under the 2007 CST Operating Plan, similar efforts associated with other NYSERDA program activities, and an assessment of needs under the next phase of the RPS, NYSERDA expects that QA/QC activity costs will approximate $1,482,690 million per year.

ENERGY AUDITS

For all residential PV and Solar Thermal projects, installers are required to perform a "clip board" (walk through) energy audit to determine cost-effective energy efficiency measures related to electricity.[6]

[6] Audits will not be required for customers with New York ENERGY STAR® homes. A clip board audit would consist of two main components: an interview of the home/building owners to ascertain energy use habits and the age of the building, and an inspection of the building to identify potential energy efficiency measures, especially low and no cost measures that could reduce the electricity load of the building. This would include an inspection of the hard-wired lighting systems and free-standing light fixtures, appliance ages and whether they are ENERGY STAR, the presence of advanced power strips for consumer electronics, existence of "vampire loads" related to consumer electronics and battery chargers, use of programmable thermostats or timers for air conditioners, age and condition of the doors and windows, and inquiries to the owner regarding any recent installation of insulation. The PV Installer would conclude the audit with a homeowner debriefing. The installer would leave a copy of the inspection form with the owner at the end of the inspection. The form will include a description of the home, recommendations of changes to reduce electric consumption, and easy fixes the homeowner can do. The installer will also leave a list of Home Performance Contractors that could install more complex energy efficiency measures, informational brochures informing the owner of the details of utility or NYSERDA energy efficiency programs available to the home owner, and a brochure of low cost/no cost tips for reducing energy consumption. The inspection should last no more than 60 minutes.

Installers are required to provide non-residential building owners with the ENERGY STAR® Portfolio Manager Benchmarking Tool or other equivalent tool and, if requested by the building owner, assist them to enter utility bill information into the Tool in order to produce an EUI (Energy use index)[7] and, where applicable a Home Energy Rating Score. Customers will not be required to benchmark or implement energy efficiency measures as a pre-requisite to receiving a PV incentive.

OUTREACH AND EDUCATION

NYSERDA has competitively selected a contractor to initiate an outreach and education program to promote the solar thermal program. Response to the Solar Thermal program and other program opportunities will be continuously evaluated in consultation with Staff to determine whether additional funding should be allocated for outreach and education.

ENERGY AND ENVIRONMENTAL ATTRIBUTES

Each solicitation will include the following language, which is designed to inform all parties of the Department of Public Service (DPS) and NYSERDA's rights and intentions regarding assessments of and reporting with respect to the CST program:

> Orders issued by the Public Service Commission provide that the RPS Program will support and promote an increase, to 30%, of the percentage of the energy consumed in New York State (NYS) that comes from renewable sources. When assessing and reporting on progress towards that goal, or on the composition of the energy generated and/or consumed in NYS, NYSERDA and the NYS Department of Public Service will include all electrical energy created by any project receiving funds through the NYS RPS Customer-Sited Tier Program, and the environmental attributes associated with the creation of such energy, for the life of such projects, whether metered or projected, as a part of any report, evaluation, or review of the RPS Program, whenever any such report, evaluation, or review may be conducted or issued, as renewable energy consumed in NYS. No party, including but not limited to owners, lessees/lessors, operators, and/or associated contractors shall agree to or enter any transaction that would or may be intended to result in the exportation or transmittal of any electrical energy created by any project receiving funds through the NYS RPS Customer-Sited Tier Program to any party or system outside of New York State. If an automated generation accounting system is established in NYS the record(s) of generation for such projects will denote the contents of this section.

In lieu of an automated system to track and account independently for environmental attributes associated with power generated by customer-sited resources, progress in the CST program will be measured by the installed capacity and by measured or forecasted energy production.

[7] Installers will be provided training on ENERGY STAR's Portfolio Manager and will be provided program brochures and website links on NYSERDA and Utilities Energy Efficiency Programs for distribution to their customers.

UNUSED PROGRAM FUNDING BALANCES

In accordance with the Orders, no later than 30 days after the close of each calendar year, NYSERDA will report on the balance of funding, by CST program that is unencumbered, i.e. not yet the subject of an incentive-based contract. For the purposes of this particular reporting requirement, the term "unencumbered" does not include funds designated by NYSERDA to fund projects for which NYSERDA has received completed applications and accepted the projects for funding but for which NYSERDA does not yet have in hand the follow-on fully executed contract. After consultation with DPS, NYSERDA will submit a recommendation for the Commission's consideration regarding the use of any available funding balances. In accordance with the Orders, with respect to the competitive program, any unencumbered funds from one calendar year automatically roll-over to the next calendar year and remain within the competitive program.

SECTION 3: PROGRAM-SPECIFIC GOALS AND FUNDING BUDGET

SOLAR PHOTOVOLTAIC (PV) PROGRAM

BACKGROUND

The Customer-Sited Tier (CST) PV program will be offered to customers in all sectors on a standard-offer, first come-first served basis. The Program will be managed by NYSERDA Residential Energy Services (RES) in collaboration, as necessary, with NYSERDA's Research and Development and Energy Efficiency Services groups. Careful planning and coordination is needed to leverage cross-program strengths for: (a) systematic identification and breaking down of barriers, (b) effective planning and communication with markets, and (c) harmonization with the Competitive PV program described later in this section.

PROGRAM DESCRIPTION AND TYPES OF INCENTIVES

The PV incentive program will be designed to offer the lowest incentive possible to continue to grow the market for PV. Incentive levels will be adjusted regularly to address consumer demand and market factors in a way that will avoid program "starts and stops" and enable renewable energy business to continue to grow in New York State. The program will also integrate an electric energy efficiency audit as a component of the program, as described below.

The following guidelines will be incorporated into the solicitation(s):

1. The program will have a monthly incentive budget of $3.5 million through December 2012.[8] For 2013 through 2015, the program will have a monthly incentive budget of $3.125 million.[9] These monthly incentive budgets shall be in addition to any reallocated funds from the previous year's budget.

2. No new incentive applications will be accepted in a month when incentive applications for that month already equal or exceed the monthly budget. If in the subsequent month the incentive level per watt has been reduced, those applications in the queue will be accepted first, but the acceptance will be at the lower level of incentive per watt.

[8] Prior to May, 2012 the monthly incentive budget was $2 million.

[9] Funding for year 2014 and 2015 is assumed at the 2013 level, however funding for those years has not yet been approved.

3. The Program is offered through an open enrollment solicitation and includes the following elements:

    a. A standard incentive level for all systems; the current incentive is $1.50 per watt;[10]
    b. The caps will be: 7 kW for residential and 50 kW for commercial systems, as determined by the utility classification of the on-site meter;[11]
    c. If applications in the prior two-month period exceed, by a material amount, the available incentive funding for that period, NYSERDA will consult with DPS Staff with respect to a reduction of the incentive level for the subsequent months;
    d. If applications in a two-month period do not equal the available funds for that time period, NYSERDA may increase the incentive for the subsequent two months, although the programmatic goal is to avoid such incentive increases;
    e. NYSERDA may impose an incentive cap per installer to ensure that multiple installers have an opportunity to participate in the program;
    f. The NYSERDA incentive will not exceed 40% of installed cost after all other tax credits have been applied;
    g. Incentives will be based on expected performance (based on Clean Power Estimator or PV Watts), which takes into account losses associated with shade, orientation, and geographical location.
    h. Incentives will be capped based on a PV system size that does not exceed 110 percent of the total kWh consumption for the previous 12 months of electric usage, or for new construction, the estimated demand based on estimated load.

ELIGIBILITY CRITERIA

System eligibility:

- Customers must pay into SBC/RPS;
- All components must meet applicable UL, IEEE and PSC standards;
- New or existing homes and buildings are eligible for incentives;
- 5-year system warranties will be required;
- Each PV System must include, at a minimum, a hard wired "easy-read" PV production meter or meters displaying instantaneous AC power and cumulative total AC energy production.

[10] The incentive was reduced from $1.75 per watt on February 17, 2012.

[11] Farms meeting the Agriculture and Markets Law §301 definition of "farm operation" will be considered commercial. NYSERDA will confer with DPS Staff on any other variance from these designations.

Installer eligibility:

- North American Board of Certified Energy Practitioners (NABCEP) entry-level qualification, followed by certification;
- International Brotherhood of Electrical Workers (IBEW) Journeymen Electrician, with documented PV training and experience, such as that provided by the National Joint Apprenticeship and Technical Committee (JATC) apprenticeship program.
- Additionally, the local authority having jurisdiction may also require the services of a Master Electrician.

QUALITY ASSURANCE/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 may be performed for systems that are installed by new installers with limited experience, larger than 15 kW or relatively complex, or installed by installers with prior design and installation deficiencies. Random design reviews and inspection will be performed for systems installed by experienced installers with no reported problems. Competitively-selected third party technical experts, under contract with NYSERDA, will perform such reviews and inspections with detailed guidance from NYSERDA, and may provide technical assistance as the need arises.

- Installers will be required to monitor each system and provide performance data to NYSERDA for two years after installation. To facilitate QA/QC and customer participation, NYSERDA will extend its contract with Clean Power Research to provide annual costs and fees associated with the use and maintenance of Power Clerk and the PV Incentive Program Database that is used by program staff, installers and QA/QC contractors to review applications and status of installations; use and maintenance of the Clean Power Estimator, a web-based tool that can be used by contractors and consumers for evaluating current market costs and benefits of PV and other related costs, and used to estimated expected system output taking into account equipment, shading, and orientation losses, etc.

NYSERDA expects that QA/QC activity costs for the PV Program will approximate $443,500 per year, exclusive of monitoring equipment costs.

SOLAR PHOTOVOLTAIC BUDGET AND PERFORMANCE EXPECTATIONS

Funding allocations for the specific time periods and technology categories appear in Table 3-1. Table 3-2 exhibits expectations for energy production. NYSERDA will monitor participation rates, and in consultation with Staff, determine whether consumer and contractor education and outreach initiatives are needed.

Table 3-1. Solar Photovoltaic Program Budget ($ millions)

Period	Incentive Budget
2012	$ 41.6
2013	$ 37.5
2014*	$ 37.5
2015*	$ 37.5
Total	$154.1

** Funding for years 2014 and 2015 is assumed at the 2013 level, however funding for those years has not yet been approved.*

Table 3-2. Solar Photovoltaic Program Expectations

Capacity in MW Encumbered by 12/31/2015	Total Generation in MWh Encumbered by 12/31/2015
105.2	123,488

COMPETITIVE PV PROGRAM

BACKGROUND/CONTINUITY

The Competitive PV program is the newest initiative in the Customer-Sited Tier and is designed to encourage additional customer-sited installations of larger-scale, renewable- electric generation, through competitive bidding rather than by standard offer. It was initially established as a "geographic balancing" mechanism in the downstate region (NYISO Zones G, H, I and J); the Commission's April 24, 2012 Order expanded the program to also include the upstate region (NYISO Zones A-F).[12] The program is designed to:

(a) facilitate larger PV system installations (above 50 kW) (NYISO Zones A-J);
(b) facilitate larger biogas projects where renewable biogas is extracted from a pipeline and used to generate electricity at a location separate from that producing the renewable biogas (Zones G,H,I and J only); and
(c) incorporate, assess and account for the electric grid and location-based value of installations through coordination with the distribution companies within the target zones (to the extent mandated by PSC Order, and if done voluntarily).[13]

[12] The competitive "geographic balancing" program was previously issued under the name "Customer-Sited Tier Regional Program."

[13] The PSC mandated the described coordination within Zones G through J in its April 2, 2010 Order, and made it voluntary within Zones A through F in its April 24, 2012 Order.

PROGRAM DESCRIPTION AND TYPES OF INCENTIVES

The delivery mechanism for the program will be competitive solicitations, to be issued with at least one due date annually. NYSERDA will structure the solicitations in a manner that will lead to rapid deployment within the constraints of the budget and collection schedule. The solicitations may be modified in future rounds to account for market conditions and opportunities, or adjustments to balance the eligible technologies. The program will also be coordinated with other Customer-Sited Tier programs to optimize the use of resources and minimize the potential for market confusion.

The following guidelines, contained in the Order, will be incorporated into each solicitation:

A limitation on the number/aggregated magnitude of awards made to individual installation companies will be stated, with the goal of supporting as many companies possible;

Only non-utility market participants and the unregulated affiliates of utility companies will be allowed to submit proposals to the Competitive PV solicitations.[14]

NYSERDA will continue to identify in all downstate Competitive PV solicitation offerings strategic locations within which installation of the eligible technologies have the potential to realize environmental, load reduction and economic development benefits, and to analyze system performance and the impact of any installations on their respective distribution systems. The solicitations will include evaluation criteria, or some other means, to signal preference for these strategic locations; strategic locations will not be used to establish the eligibility of an installation. Strategic locations will be identified in upstate solicitation offerings when and if they become available.

For Competitive PV solicitations, incentives will be a combination of capacity and performance-based payments. In the case of renewable biogas-to-electricity systems, the maximum amount of funding is $3 million in incentives for each installation.

Incentive payments for electric generation systems fueled by renewable biogas in combination with other gases will be limited to the portion of fuel that is from renewable resource feed stocks.

The Orders allow for a limited transfer of funds from Zone Group A-F (to support PV installations only)[15] in either or both of the other zone groups; however, there will be no transfer of funds into Zone Group A-F and there will be no transfer of funds between the zone groups GH and IJ.

[14] As per the Commission's "Declaratory Ruling on the Development of Renewable Generation Facilities and Order Establishing Filing Requirements," issued and effective February 23, 2011.

[15] Biogas projects are eligible to compete for the original "geographic balancing" base funds ($30 million/year in total) in Zones G and H ($5 million/year) and I and J ($25 million/year), but not for any additional funds made available through the expansion of the program by the Commission's April 24, 2012 Order. Demand for biogas-fueled projects under this program has been very limited, to date.

Variables to be considered as part of the eligibility/selection process in the Competitive PV solicitation(s) will include both price variables (the relative level of the incentive request on either a capacity (kW) or energy (kWh) basis) and non-price variables. Examples of non-price variables may include, but are not limited to: the potential for measurable value to the utility electric power distribution system; the potential for additional public benefit (installations that can operate during a disruption in the electric grid); quality of the implementation plan; qualifications of the proposer; quality control and performance measurement and verification plan; and, the expected installation schedule. Each Competitive Clean PV solicitation will be developed in consultation with the DPS Staff, and will specify the proposal evaluation and selection criteria.

NYSERDA will convene Technical Evaluation Panels to review and evaluate Competitive PV proposals according to the evaluation criteria defined in the solicitations. DPS Staff will be invited to participate.

ELIGIBILITY CRITERIA

The electric energy provided by the installation must be received by a customer who pays into the RPS program at a point on the "customer side" of the utility meter.

Solar photovoltaic energy (PV) and renewable biogas fueled electric power generation are eligible. For the purpose of determining eligible renewable biogas fuels, the definitions and procedures for renewable biogas contained in the NY RPS Biomass Guidebook will be applied.

To be eligible, the electrical output must be generated by new electric generation equipment (i.e., newly installed, not pre-existing, newly manufactured, not used or refurbished), or must be expanded electric output above the pre-existing (baseline) amount.

Renewable biogas is defined as fuel from the anaerobic digestion of farm, food or wastewater treatment materials that is currently not being used for the production of heat, power, or steam.

Renewable biogas can be used to produce electric energy at the site where the gas is generated or cleaned-up to pipeline quality for sale to an end user at another location where electric energy is generated. To convert the renewable biogas to electricity, any prime mover capable of converting biogas to electricity would be eligible including, but not limited to: fuel cells, internal combustion reciprocating engines, micro-turbines, combustion gas turbines, steam turbines where the steam is provided from a biogas-fueled boiler (including but not limited to a close-coupled gasifier using sustainably-managed biomass), and Stirling engines where the heat is provided from a biogas-fueled boiler (including but not limited to a close-coupled gasifier using sustainably-managed biomass). Electric generation equipment may be configured as electric-only, or as combined heat and power (CHP). If a system is configured as CHP, program payments will be made specifically for the electric production component.

End-user customers who pay the RPS surcharge may use renewable biogas created at an outside facility so long as the source is within the same NYISO zone group. The ownership of the fuel source is not relevant to the program in terms of eligibility. Depending on the circumstances, the renewable biogas may be conveyed through a private pipeline or a pipeline operated by a local gas distribution company (LDC). If the supplier conveys the renewable biogas to the user via a pipeline operated by the LDC, then the supplier and end-user will be expected to follow the procedures contained in the NY RPS Biomass Guidebook for Renewable Pipeline Gas. These procedures include a requirement that a contract between the supplier of renewable biogas and the end-user be established that includes provisions for metering gas volumes to ensure that the heat input rate associated with the renewable biogas injected into a pipeline can be readily established.

QUALITY ASSURANCE/ QUALITY CONTROL

NYSERDA will employ the services of contractors to ensure that installations meet program requirements including power generation projections. Contractors may be used to review installation plans and verify/commission installations accordingly. Performance-based payments will be predicated on post-installation measurement and verification of energy production over a sufficient period of time to establish that the installation is performing as contracted. Installations will include monitoring equipment and evaluation tools for NYSERDA and its contractors to evaluate and verify actual performance relative to expected performance. NYSERDA contractors will work with utility planners and operators to establish criteria that may lead to selection of installations/locations having the potential to provide measurable value to the utility electric power distribution system. NYSERDA and its contractors will work with the local utility in establishing data requirements and acquisition methods associated with post-installation system analysis. The developer and the host site will be required to participate in a data monitoring and analysis program to evaluate actual benefits. The performance of Renewable Biogas fueled electric power generation will be monitored similar to existing NYSERDA monitoring procedures as applied to Combined Heat and Power installations. For both PV projects and renewable biogas projects, performance data will be posted and available to the public on NYSERDA's Combined Heat and Power website.

NYSERDA expects that QA/QC activity costs for the Competitive PV Program will approximate $430,625 per year.

COMPTETITIVE PV PROGRAM BUDGET AND PERFORMANCE EXPECTATIONS

Initial funding allocations for the specific time periods and technology categories appear in Table 3-3 (adjustments to these initial allocations are possible as indicated in the Order). Table 3-4 exhibits expectations for energy production on the basis of the zonal distribution of funding as authorized by the Order. NYSERDA will monitor participation rates, and in consultation with Staff, determine whether consumer and contractor education and outreach initiatives are needed.

Table 3-3. Competitive PV Program Budget ($millions)

Period	Zones A-F	Zones G&H	Zones I&J	Incentive Budget
2012	$ 18.2	$ 8.0	$ 40.2	$ 66.4
2013	$ 20.3	$ 8.4	$ 41.9	$ 70.5
2014*	$ 20.3	$ 8.4	$ 41.9	$ 70.5
2015*	$ 20.3	$ 5.7	$ 40.0	$ 65.9
Total	$79.0	$30.5	$163.9	$273.3

** Funding for years 2014 and 2015 is assumed at the 2013 level(minus the $4.6 million borrowed in 2011 from 2015 funds), however funding for those years has not yet been approved.*

Totals may not sum exactly due to rounding

Table 3-4. Competitive PV Program Expectations[16]

Capacity in MW Encumbered by 12/31/2015	Annual Generation in MWh Encumbered by 12/31/2015
226.1	265,405

[16] Table values reflect NYS DPS corrected expectations from those described in the Order and are meant to be indicative values. Actual program results will be a direct function of the resulting mix of technologies and pricing that arise from the competitive solicitation process.

FUEL CELLS PROGRAM

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. There are many technological and market transformation challenges for wide scale deployment of fuel cells, 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. While NYSERDA's Research, Development and Demonstration programs will continue to provide financial support for improving fuel cell technologies, the CST program will continue to be the primary venue for supporting the acquisition of fuel cells for long-term operation at end-user sites. As has been the case with the RPS CST Fuel Cell program to date, fuel cells running on natural gas remain eligible for the program.

PROGRAM DESCRIPTION AND TYPES OF INCENTIVES

Different pools of funds, monitoring protocols, and 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 are described in the solicitation. 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.

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 an increased capacity incentive 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 available for systems that are intended to run on a regular basis and convey this design intent to NYSERDA's satisfaction (systems that are intended to serve primarily as an emergency back-up power supply will not be expected to accrue many kWh of performance, and therefore, for program administration simplification, will not be eligible for performance-based incentives). For those projects eligible to receive 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 (at NYSERDA's discretion, it is possible that the solicitation could be established where the low performance rate is in fact zero payment).

ELIGIBILITY CRITERIA

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. Fuel cells that have previously received RPS funding cannot be awarded additional funding.

QUALITY ASSURANCE/QUALITY CONTROL

Verification of system installation and verification of successful commissioning are necessary for authorizing payment of the two fractions of the capacity-based incentive. Verification of system performance is necessary for computing the appropriate amount to be paid for each performance-based incentive payment.

Implementation and performance 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.

All quality control data will be available to the public on the CHP Data Integration web page. NYSERDA will continue to require that projects upload real-time system performance data to NYSERDA's CHP web site (chp.nyserda.org) to ensure that installations are performing as expected to

meet electricity generation projections and to achieve a minimum 90/10 confidence level for the overall energy generation estimate.

NYSERDA expects that QA/QC activity costs for the Fuel Cells Program will approximate $50,000 per year.

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.

Large Fuel Cell Track

Large 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. These requirements may be revised in subsequent solicitations.

FUEL CELL BUDGET AND PERFORMANCE EXPECTATIONS

Funding allocations for the specific time periods and fuel cell program tracks appear in Table 3-5. 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 3-6 exhibits expectations for energy production.

Table 3-5. Fuel Cell Program Budget ($ millions)

Period	Small Fuel Cell Track Incentive Budget	Large Fuel Cell Track Incentive Budget
2012	$0.1	$3.5
2013	$0.1	$3.5
2014	$0.1	$3.5
2015	$0.1	$3.5
Total	$0.4	$14

Table 3-6. Fuel Cell Program Expectations[17]

	Capacity in MW Encumbered by 12/31/2015	Annual Generation in MWh Encumbered by 12/31/2015
Large Fuel Cell Track	5.600	44,151
Small Fuel Cell Track	0.200	773
Total	5.800	44,924

ANAEROBIC DIGESTER BIOGAS-TO-ELECTRICIITY PROGRAM

BACKGROUND

ADG systems not only produce electricity, but directly reduce greenhouse gas emissions while mitigating solid waste burdens and negative water quality impacts. ADG systems are also one of the lowest cost CST program technologies on a $/MWh basis.

PROGRAM DESIGN AND TYPES OF INCENTIVES

The ADG-to-Electricity Program will be continued with a similar structure to that currently offered, providing capacity and performance incentives for ADG systems installed at farms treating manure and other agricultural waste products, wastewater treatment plants (WWTPs), and businesses that treat organic wastes. NYSERDA will continue to monitor ADG costs, barriers, benefits, and opportunities to determine whether the incentives should be increased or decreased in the future so as to offer appropriate incentives and strive to achieve program targets.

The Program will continue to be administered through a standard-offer, open-enrollment solicitation. Applicants are required to complete project information forms provided by NYSERDA that describe such information as:

- the type and quantity of available feedstock resources;
- engineering estimates of the quantity and Btu value of biogas to be produced;
- all major equipment to be used in the project, such as digesters, gas clean up equipment, engines,

[17] Expectations shown here are different than those in the Order for the following reason: the values in the Order were derived based on a budget indicated in the Midcourse Report which was substantially larger than the budget adopted in the Order (the Midcourse Report anticipated that all CST fuel cell projects would be funded under this program, whereas the Order provides for funding of some CST fuel cells under the Geographic Balancing Program and therefore established a reduced budget for this program). Estimated targets were corrected by Staff on April 14, 2010.

and generators by manufacturer, model, size, and rating;
- any alternative non-biogas fuels and other generation capacity on-site at the time of application;
- records of average and peak site electrical load and annual energy use;
- proposed installation schedule;
- estimates of annual net and gross kWh to be produced;
- planned operations and maintenance protocols and expenses.

Capacity-based Incentives

Capacity incentives will be offered for new generation equipment based on kilowatts generated from biogas. Capacity incentives cover a portion of the total installed costs for the generating system including controls, biogas cleanup, interconnection, and necessary monitoring equipment.

To encourage the use of anaerobic digestion systems treating farm wastes, incentives may be provided based on (a) the eligibility capacity limit in the net energy metering law that is in effect at the time of application, which currently caps farm waste electric generating equipment at 1,000 kW, or (b) the customer's approximate peak connected load, whichever is greater.

Performance-based Incentives

Performance-based payments for new generation will continue to be offered for up to five years based on verified kWh generation. Reduced performance-based payments may continue to be offered for existing facilities.

QUALITY ASSURANCE/QUALITY CONTROL

NYSERDA has selected independent third-party QA/QC contractors to perform design reviews and inspect installations to confirm that the appropriate equipment is properly installed and performing at optimum levels.

QC includes application review and review of all subsequent requests for incentive payments (capital and performance). QC also includes specifications for monitoring equipment, communications equipment, and collection of system performance data. All projects are responsible for the purchase and installation of biogas and electric meters, and must provide the necessary communications systems (i.e., phone lines, internet access) for remote performance data acquisition. If not performed by the project participant, NYSERDA may arrange for a QA/QC contractor to connect monitoring devices to data acquisition systems.

As part of NYSERDA's QA requirement, NYSERDA will continue to require that projects upload real-time performance data to NYSERDA's Combined Heat and Power (CHP) web site (chp.nyserda.org) to ensure performance as expected to meet electricity generation projections. All data will be available to the public via the web site. NYSERDA will also continue to require quarterly QA inspections. If deficiencies

are identified during these inspections, QA/QC contractors may also provide technical support to ensure deficiencies are corrected.

NYSERDA expects that QA/QC activity costs for the Anaerobic Digester Program will approximate $494,500 per year.

ANAEROBIC DIGESTER GAS BUDGET AND PERFORMANCE EXPECTATIONS

Funding is allocated by calendar year, and budgetary estimates for the specific time periods and technology categories appear in Table 3-7. Table 3-8 exhibits expectations for energy production:

Table 3-7. ADG-to-Electricity Program Budget ($ millions)

Period	Farm ADG	WWTP and Industry	Incentive Budget
2012	$10.4	$1.6	$12.0
2013	$10.1	$1.5	$11.6
2014	$8.8	$1.4	$10.2
2015	$8.8	$1.4	$10.2
Total	$38.1	$5.9	$44.0

Table 3-8. ADG-to-electricity Program Expectations

Capacity in MW Encumbered by 12/31/2015	Annual Generation in MWh Encumbered by 12/31/2015
14.9	106,100

ON-SITE WIND PROGRAM

BACKGROUND

NYSERDA first implemented a standardized approach to providing incentives for customer-sited wind turbines under the Systems Benefits Charge (SBC) program. Under this program 37 turbines were installed with a total rated capacity of 340 kW. These turbines are expected to generate 380,000 kWh annually. A 10-kW system was the largest system installed under this program.

Interest in small wind installations has escalated under the CST customer-sited wind program. The number of active installers has doubled and 54 applications have been approved; more than one-half of these applications were received during the last six months. These applications are expected to generate

700,000 kWh annually from a total rated capacity of 500 kW. A 20-kW system was the largest system installed under this program.

This program builds upon the success and lessons learned and will continue to consider input from the distributed wind industry to promote larger systems, create more renewable energy jobs, and expand New York's network of distributed, renewable generation sites. This program will be designed to meet the needs of a diverse customer-base and workforce, while improving the processes that are in place to manage costs and schedules.

PROGRAM DESCRIPTION AND TYPES OF INCENTIVES

The On-Site Wind Turbine Incentive Program will provide incentives to encourage the installation of end-use wind energy systems for a myriad of end-use sectors including but not limited to residential, commercial, institutional or government facilities. Via an open enrollment program format, the incentives will be paid to Eligible Installers who install new approved grid-connected wind energy systems using qualified equipment, in accordance with the program's eligibility requirements.

Incentives are intended to benefit both the installer, for business development, and the wind energy system owner, where generated power offsets the customer's utility power purchases. Eligible Installers must pass through incentives, in their entirety, directly to their customers. Incentives will be based on the predicted annual output of the wind turbine, on the proposed tower, at the proposed site, as determined by a NYSERDA-approved wind resource assessment tool. System designs and annual energy estimates will be reviewed prior to the approval of incentive applications, and systems may be inspected during and following installations. The incentives will be up-front payments, allowing these funds to be used as equity towards the financing of projects. NYSERDA incentives will not exceed 50% of the expected cost of the project.

ELIGIBILITY CRITERIA

In addition to the general CST program requirements previously outlined, the on-site wind incentive program may include installer and hardware eligibility requirements. Only commercially available wind turbines with a proven record for power performance, reliability, safety, and acoustics will be considered.

NYSERDA is a member of the Interstate Turbine Advisory Council (ITAC), established under the Clean Energy States Alliance. One of ITAC's goals is to establish a collaborative group of leading public clean energy programs throughout the nation to evaluate and identify small and mid-sized wind turbines that fit the performance and durability expectations of incentive providers. NYSERDA has adopted this Unified List for all turbine sizes included in the list, as they pertain to NYSERDA's program. NYSERDA reserves the right to impose additional restrictions or relax its requirements dependent on program needs and supporting information.

Installers must be approved by NYSERDA before they may submit an application on behalf of a customer. Installer eligibility will be determined for specific equipment and based on professional experience, company history, and installer credentialing.

Any site whose intention is to deliver power to the wholesale grid will be directed to the Main Tier Program, regardless of the size of the wind energy conversion system. The maximum equipment size shall be 2 MW (2,000 kW) per site/customer.

QUALITY ASSURANCE/ QUALITY CONTROL

NYSERDA will either competitively select independent third-party QA/QC contractors or use NYSERDA staff to perform design reviews and inspect installations to confirm that the appropriate equipment is properly installed and performing at optimum levels, for a select number of projects to confirm NYSERDA's process.

QC may include manufacturer, installer, and incentive application review. All projects are responsible for the purchase and installation of cumulative production meters, and when determined to be applicable, provide the necessary communications systems (i.e., phone lines, internet access) for remote performance data acquisition.

As part of NYSERDA's QA requirement, NYSERDA will continue to require that projects provide performance data to NYSERDA in a timely manner to ensure performance as expected to meet electricity generation projections. NYSERDA will also conduct random site visits to verify this information. If deficiencies are identified during scheduled or random QA inspections, QA/QC contractors or NYSERDA staff may also provide technical support to ensure deficiencies are corrected.

NYSERDA expects that QA/QC activity costs for the On-Site Wind Program will approximate $70,625 per year.

ON-SITE WIND BUDGET AND PERFORMANCE EXPECTATIONS

Funding allocations for the specific time periods appear in Table 3-9. The Orders raised the program size cap to 2 MW and require NYSERDA, in collaboration with NYSDPS, to establish an appropriate mechanism to ensure that the smallest-sized wind turbines continue to have funding opportunities; this will be addresses by the establishment of a "funding set-aside" mechanism for small wind turbines as detailed in the program solicitations. Table 3-10 exhibits expectations for energy production.

Table 3-9. On-Site Wind Program Budget ($ millions)

Period	Incentive Budget
2012	$4.400
2013	$3.100
2014	$3.800
2015	$4.000
Total	$15.300

Table 3-10. On-Site Wind Program Expectations

Capacity in MW Encumbered by 12/31/2015	Annual Generation in MWh Encumbered by 12/31/2015
22.7	56,758

SOLAR THERMAL PROGRAM

BACKGROUND

Solar Thermal was added as an eligible technology under the Customer-Sited Tier in 2010. Solar Thermal technology acceptance in New York State is currently at a level, that PV was about five years ago: limited customer knowledge, insufficient numbers of certified installers, and small number of yearly installations (~ 500). NYSERDA competitively selected a contractor to initiate an outreach and education program to promote the solar thermal program, which will be underway beginning Summer 2012.

PROGRAM DESCRIPTION AND TYPES OF INCENTIVES

The Solar Thermal Incentive Program is a standard-offer, an application-based program with incentives for solar hot water systems for all sectors. The program has been designed to match the incentive levels to a level of demand that can be satisfied within a calendar year with the budget outlined in the table below. Like the PV program, this program will also integrate an electric energy efficiency audit as a component of the program, as described below.

The following guidelines are incorporated into the solicitation:

1. Eligible measures are solar water heating for residential (single and multifamily), commercial buildings, and non-profits that replaces or displaces electric water heating. Equipment and systems must be certified by the Solar Rating and Certification Corporation (SRCC).

2. Expected performance is based on the Solar Rating and Certification Corporation (SRCC) estimates or standard industry software such as RETScreen.

3. Incentives are based on expected performance in $/kWh/yr or $/MMBtu/yr. The current incentive is $1.50 per displaced kWh.

4. The program is first-come, first-served. The residential program operates as a simple incentive process, as the typical residential system is small and often pre-packaged.

5. Solar Thermal hot water systems receive incentives as an alternative to electric water heating only. MWhs saved due to electric water heating replacement/supplementation with solar water heating are be calculated and scored towards the RPS goal.

6. Installers are required to conduct annual follow-up visits for a designated period of time.

ELIGIBILITY CRITERIA

Customer Eligibility:

- customers must pay into the RPS;
- new or existing homes and buildings will be eligible;
- five-year warranty for the system will be required.

Installer Eligibility:

Solar Thermal installer eligibility will be similar to NYSERDA PV installer eligibility criteria; in that installers will have to provide evidence that, they have solar water heating installation training and installation experience to qualify as eligible installers. NYSERDA will consider requiring NABCEP certification, in consultation with DPS Staff.

QUALITY ASSURANCE/ QUALITY CONTROL

All system designs (except for simple pre-packaged) and installations will be subject to review; it is anticipated that, initially. 100% of the installed systems will be inspected. It is anticipated that the inspection rate will drop down to 20-25% over time, depending on experience.

As described in the Order, evaluating the performance and MWh saved by solar thermal systems is more complicated than simply measuring the electrical output of PV systems. NYSERDA will work with DPS staff to develop QA/QC plans that reflect the increased complexity of the technology, and accurately account for electricity displaced by solar water heating.

NYSERDA expects that QA/QC activity costs for the Solar Thermal Program will approximate $162,400 per year.

SOLAR THERMAL BUDGET AND PERFORMANCE EXPECTATIONS

Funding allocations for the specific time periods and technology categories appear in Table 3-11. Table 3-12 exhibits expectations for energy production.

Table 3-11. Solar Thermal Program Budget ($millions)

Period	Incentive Budget
2012	$4.300
2013	$4.300
2014	$4.300
2015	$4.300
Total	$17.2

Table 3-12. Solar Thermal Program Expectations

Capacity in MW Encumbered by 12/31/2015	Annual Generation in MWh Encumbered by 12/31/2015
31.7	36,120

SECTION 4: PROGRAM ADMINISTRATION

Program administration costs include salary and fringe benefit costs for NYSERDA staff involved in managing programs, allocable salary and fringe benefit costs for administrative support staff, direct program management expenses (travel and other costs), QA/QC, and allocable overhead administrative, facility and equipment expenses.

The Commission's April 2, 2010 Order provided $43,329,000 to administer the RPS program. While that Order provided various tables reflecting separate amounts for CST administration and Main-Tier administration, the Commission's September 19, 2011 Order authorizes NYSERDA to treat the administration costs for the RPS program as readily transferrable between Main Tier and Customer-Sited Tier administrative functions; NYSERDA may use amounts not used in a particular year to offset costs in future program years, as needed, such that NYSERDA has the flexibility to fund its administration cost for the RPS program as a whole and not strictly on a category-by-category, or year by year basis. Additionally, in accordance with the September 19 Order, NYSERDA will apply accumulated uncommitted interest earned on RPS funds and letter of credit forfeitures toward the payment of any NYS Cost Recovery Fee that exceeds the amount budgeted for years 2011 through 2013; if such amounts are insufficient, NYSERDA will apply accumulated and uncommitted monies budgeted for administration and evaluation, to the extent such funds are available.

NYSERDA will continue to manage within the administration budget, optimize administration of the programs to the best of its ability, and keep Staff informed of actual costs over time. In accordance with the April 2 Order, NYSERDA will bring any concerns that arise to the Commission if it appears that an adjustment to the approved budgets is warranted. NYSERDA understands that an overall examination of administrative costs, including QA/QC, and the CRF, will be addressed as part of the scheduled 2013 program review.

SECTION 5: EVALUATION

As specified in the Commission's April 2, 2010 Customer-Sited Tier Order, program evaluation will include impact and market evaluation of each CST technology. The evaluation will be designed per DPS to provide the Commission with information to support an assessment of progress to date and future policy decisions related to New York's renewable energy goals. The evaluation activities described below will culminate in delivery of information and analysis to DPS Staff in early 2013 for the mid-term review. Beyond this, NYSERDA will discuss longer term evaluation objectives with DPS prior to undertaking any evaluation activities to support the 2015 assessment.

MARKET EVALUATION

Secondary data, along with NYSERDA CST program staff experience and knowledge will be used, as appropriate, to update NYSERDA's 2009 summary of CST technology-specific market potential and associated costs.[18] The projected potential and cost for each CST technology will be updated through 2020 and 2025. NYSERDA is in the process of working with a third party contractor to update the prior statewide energy efficiency and renewable energy potential study in support of the State Energy Plan. The statewide potential study is expected to produce data and information to support the RPS CST market potential update. The RPS CST market evaluation will be written and submitted by NYSERDA and is expected to be complete in early 2013.

IMPACT EVALUATION

The CST impact evaluation will measure and verify actual clean energy generation and assess program contributions, including each applicable technology, toward the RPS "30 by 15" goal. The impact evaluation will assess the accuracy of estimated energy generation based on actual renewable energy system production and for solar photovoltaics, anaerobic digesters, fuel cells and on-site wind. [19]

The impact evaluation will be primarily based on a combination of project information, metered data collected during program implementation and engineering methods. The evaluation will leverage resource investment and data collection by the program's monitoring and verification work, and will

[18] As contained in: NYSERDA, *New York State Renewable Portfolio Standard Customer-Sited Tier Program Market Potential, Program Expectations, and Funding Considerations, 2010-2015,* June 2, 2009

[19] Based on communication with DPS, the Competitive PV and Solar Thermal components will not be included in the initial impact evaluation due to the timing and/or current magnitude of program uptake in those areas.

include only minimal extra sampling for metering and site visits to obtain data that will support a highly rigorous determination of gross energy generation from these systems.[20]

Field verification and monitoring will be included for solar photovoltaics to enable an examination of the reasons why actual production might deviate from estimated values. For solar photovoltaics, the evaluation will also enable an assessment of the capacity factor currently being used to estimate system electricity production.

NYSERDA will engage the services of a third party contractor to assist with impact evaluation planning, sampling design, data collection, analysis and reporting. The impact evaluation will be completed in early 2013.

EVALUATION BUDGET

The total budget authorized for evaluation of the Customer-Sited Tier is $1.4 million through 2016. This aggregate budget will be managed over the duration of the Program as necessary to deliver the evaluation reports identified above as well as, budget permitting, any longer term assessments needed to inform decision making in 2015. The evaluation funding will support internal NYSERDA staffing requirements and external consultant activities pertaining to the CST evaluation.

[20] Where sampling is necessary, the evaluation will aim to achieve 90/10 statistical precision for CST energy generation from each technology being assessed.