



New York State Renewable Portfolio Standard

Performance Report
Program Period ending March 2009

March 2009

New York State Energy Research and Development Authority

NYSERDA

New York State
Energy Research and
Development Authority



Table of Contents

Executive Summary.....	3
Program Highlights.....	3
Introduction.....	4
Background.....	4
Tiered Approach to Implementing the RPS.....	5
Renewable Energy Targets.....	5
Maintenance Resource Participation.....	6
Results of Main Tier Solicitations.....	6
First Main Tier Solicitation.....	8
Second Main Tier Solicitation.....	8
Third Main Tier Solicitation.....	9
Performance-Related Contract Adjustments.....	9
Steps Taken to Support the Voluntary Market.....	10
Economic and Environmental Impacts.....	10
Progress and Results.....	12
Main Tier.....	12
Customer-Sited Tier.....	13
Voluntary Market Activity and Executive Order 111.....	16
Program Funding.....	16
Funding Commitments and Expenses.....	17
Appendix A – Current RPS Program Cash Flow Estimates.....	A-1
Appendix B - Main Tier Projects.....	B-1

Executive Summary

In fulfillment of the terms of the April 2005 Order, NYSERDA with the cooperation of the Department of Public Service, filed a draft program evaluation report with the New York State Public Service Commission (Commission) for public review and provided two independently prepared evaluation reports¹ in support of the 2009 evaluation. Because program activities evolve on an ongoing basis, the data contained in the June 2008 New York State RPS Performance Report was used as a basis for the evaluation and analyses conducted by both evaluation contractors. It should be noted, however, that recent project developments have occurred, which this interim program performance report documents.

The total renewable capacity associated with the RPS Program could reach 1,164 megawatts (MW) by late 2009. This renewable capacity is expected to produce approximately 3.4 million megawatt hours (MWh) of electricity per year, or enough clean energy to supply nearly 500,000 average homes. Of the 28 new renewable electric generating facilities in New York selected under the RPS program, 24 are now operating. The remaining four are under construction, and expected to be operating by the end of 2009.

As reported by the independent program evaluation contractors, if all of the renewable energy facilities selected in the three Main Tier solicitations enter commercial operation, the total economic benefits impact to New York is estimated to be about \$4.2 billion over the average 20 year life of the facilities. Most of these economic benefits are associated with wind projects. The evaluator's independent credibility assessment of developers' self-reported economic data concluded that, with a few minor exceptions, the data reported are reliable and could serve as a basis for this and other analyses of the economic benefits that can be claimed from renewable energy development.

In addition to these significant economic benefits, New York will enjoy cleaner air as a result of the operation of these new renewable resources. If the energy expected to be generated by these new renewable resources is instead generated by the system-wide mix of conventional, non-renewable generating resources, New York would experience an increased release of emissions amounting to 2,300 tons of nitrogen oxides, 4,700 tons of sulfur dioxides, and 1.7 million tons of carbon dioxide per year.

Program Highlights

- New renewable capacity installed since the onset of the RPS Program could reach nearly 1,164 MW by the end of 2009, of which 1,127 MW would be located in New York.
- The estimated total economic benefits that could accrue to New York from these in-state investments could exceed \$4 billion over the next 20 years.
- Average contract award prices under the second and third Main Tier solicitations were more than 30% lower than under the first Main Tier solicitation (\$15 per MWh compared to \$22.90 per MWh).
- As of the end of the reporting period, 1,120 MW of new renewable capacity from facilities under contract are operating and the remaining 44 MW are under construction.

¹ KEMA, *New York Main Tier RPS Impact and Process Evaluation* (March 2009) and Summit Blue, *New York Renewable Portfolio Standard Market Conditions Assessment* (February 2009).

Introduction

This report summarizes activities conducted by NYSERDA and the Department of Public Service in implementing the New York State Renewable Portfolio Standard (RPS). The report includes background on the RPS, including objectives and performance targets; a description of recently completed program design and implementation activities; and a summary of RPS Program outcomes, funding, and expenses. Program reports for activities conducted through the first half of 2008 can be found at <http://www.nyserdera.org/rps/reportsAnnual.asp>

Background

The 2002 State Energy Plan warned of the possible consequences of New York's heavy dependence on fossil fuel.² The Energy Plan noted that the State's fossil fuel resources (gas, coal, oil) are largely imported from abroad or out-of-state, have significant long-term negative environmental impacts, and face ultimate depletion. Recognizing the need for a proactive approach to the State's energy and environmental challenges, in February of 2003, the Commission initiated a proceeding to explore the development of a Renewable Portfolio Standard (RPS). On September 24, 2004, following an extensive stakeholder process, the Commission issued an order³ adopting an RPS, with a goal of increasing the proportion of renewable energy used by New York consumers from the then-current 19.3% (baseline resources) to at least 25% by the end of 2013.

As part of the September 24, 2004 Order, the Commission designated NYSERDA as the central procurement administrator for the RPS Program. In doing so, the Commission noted an expectation that retail customers ("Voluntary Market") would contribute at least 1% toward the 25% goal, thus leaving baseline resources, State Agencies' purchases under Executive Order 111 (EO 111), and NYSERDA procurements to realize the remaining 24%. As part of the September 24, 2004 Order, the Commission directed the major investor-owned utilities to collect funds from ratepayers to be administered by NYSERDA for the purpose of supporting NYSERDA's implementation responsibilities.



In most other states with RPS programs, a renewable energy percentage target is implemented by requiring the local delivery utilities to supply their customers with a certain percentage of electricity from renewable sources. Under New York's RPS Program, NYSERDA, as the central procurement administrator, does not procure electricity. Rather, NYSERDA pays a production incentive for the environmental attributes ("RPS Attributes") created with the generation of electricity by eligible renewable resources under long-term contracts. RPS Attributes include any and all reductions in harmful pollutants and emissions, such as carbon dioxide and oxides of sulfur and nitrogen. In exchange for receiving the production incentive, the renewable generator provides NYSERDA all rights and/or claims to the RPS Attributes associated with each MWh of renewable electricity generated and delivered to New York State.

One RPS Attribute is created by the production and delivery into New York's power system of one MWh of electricity by an eligible RPS resource. By acquiring the RPS Attributes, rather than the associated electricity, the RPS Program ensures that increasing amounts of renewable electricity will be injected into the State's power system, while minimizing interference with the State's competitive wholesale power markets.

² State Energy Plan, 1-1, June 2002.

³ Order Regarding Retail Renewable Portfolio Standard, Case 03-E-0188.

Tiered Approach to Implementing the RPS

The Commission established two tiers of resource types under the RPS Program. The first, or “Main Tier,” consists primarily of medium to large-scale electric generation facilities that deliver their electrical output into the wholesale power market administered by the New York Independent System Operator (NYISO). The second, or “Customer-Sited Tier,” consists of smaller, “behind-the-meter” resources that produce electricity for use on site.

Only renewable energy systems installed on or after January 1, 2003 are eligible to participate, and Customer-Sited Tier resources must be located in New York State. While the Main Tier operates through the issuance of periodic competitive solicitations, eligible Customer-Sited Tier resources are supported through a combination of incentives for the “buy-down” of capital costs and/or energy production.

Eligible resources and technologies for both the Main and Customer-Sited Tiers are described in Orders issued by the Commission.⁴ The RPS Program includes a process for evaluation of new resources and technologies for eligibility as the program progresses.

Renewable Energy Targets

The Commission’s September 24, 2004 Order set forth annual renewable energy targets that represent an incremental glidepath toward achievement of the 2013 goal of having 25% of the power consumed in New York come from renewable energy. As the administrator of the RPS, NYSERDA is responsible for managing incentive programs to satisfy both the Main Tier and the Customer-Sited Tier targets. Those renewable energy targets are shown in Table 1 below.

In its June 28, 2006 Order,⁵ the Commission established new capacity and energy targets for the Customer-Sited Tier through 2009, authorized incentive funding of \$45 million, and directed the development of a Customer-Sited Tier Operating Plan (“CST Plan”) for solicitation of customer-sited renewable resources.⁶

Within months of rolling out new CST programs, market demand for PV and ADG systems exceeded authorized funding. In 2008, NYSERDA requested that unused program funding allocated to the Main Tier component of the RPS Program, be re-allocated to the CST to keep pace with market demand in the PV and ADG programs.

Table 1. RPS Energy Targets (in MWh)

	Main Tier Targets	Customer- Sited Tier Targets	EO 111 Targets	Voluntary Market Targets	Combined Targets
2006	1,121,247	25,259	282,812	228,584	1,657,902
2007	2,326,171	50,488	314,579	457,167	3,148,405
2008	3,549,026	75,685	346,366	685,751	4,656,828
2009	4,767,994	100,855	378,174	914,335	6,161,358
2010	6,012,179	125,988	410,002	1,142,919	7,691,088
2011	7,297,746	151,081	391,857	1,371,502	9,212,186
2012	8,556,710	176,123	373,712	1,600,086	10,706,631
2013	9,854,038	201,130	355,568	1,828,670	12,239,406

⁴ Case 03-E-0188, “Order Approving Implementation Plan, Adopting Clarifications, and Modifying Environmental Disclosure Program,” Appendix B, April 14, 2005, and “Operating Plan for Customer-Sited Tier Program,” February 12, 2007.

Using updated RPS cost and funding information, NYSERDA’s programmatic experience with CST technologies, and market preferences articulated to the Commission as part of the SAPA No. 03-E-0188SA 18 proceeding, the Commission, in an Order dated October 28, 2008,⁷ approved the re-allocation of \$47 million from uncommitted Main Tier funding resources to the CST Program. Of this amount, the ADG program received \$7.6 million and the PV program \$20.6 million, leaving \$15.1 million for discretionary use and \$3.7 million for system performance monitoring. NYSERDA staff has established new capacity and generation targets to be met with the increased program funding (see Table 2 below).

Maintenance Resource Participation

In establishing the RPS target of 25%, the Commission recognized that 19.3% of the energy sold at retail in New York was being generated by renewable resources that existed prior to the RPS being adopted in 2004 (baseline resources). For the purpose of ensuring the continuing operation of these valuable existing resources, the Commission established an additional Maintenance Resource program. To be eligible to receive RPS program funding as a Maintenance Resource, a baseline resource is required to demonstrate financial hardship through a formal request to the Commission. The Commission then determines the existence and degree of hardship and makes a determination as to the eligibility of the facility for Maintenance Resource treatment.

The Commission may or may not grant Maintenance Resource status. If this status is granted, the Commission determines the form and magnitude of support to be offered.

NYSERDA has contracts with two Maintenance Resources, the Lyonsdale Biomass Plant located in Lyons Falls, New York, and Boralex Biomass Plant, located in Chateaugay, New York. In combination, the Lyonsdale and Boralex contracts will support the retention of approximately 39 MW of in-state biomass capacity and involve approximately 259,000 MWh of annual energy production. The total funding committed to these multi-year contracts is approximately \$33.9 million. These maintenance resource quantities do not count toward Main Tier incremental energy targets. During the reporting period, no additional facilities were granted Maintenance Resource status.

Results of Main Tier Solicitations

NYSERDA has conducted three competitive Main Tier solicitations in pursuit of the renewable energy procurement targets as set forth in Table 1 above. A total of 28 facilities, capable of producing up to 2,947,000 MWh of renewable energy per year from approximately 1,164 MW of new renewable capacity,⁸ are under contract with NYSERDA as a result of these procurement actions. The facilities include two traditional fossil fuel plants that will use biomass as a fuel source, fifteen hydroelectric station upgrades,

Table 2. Revised CST Expected Program Results by Resource Category 2007-2009

Resource Category	Target Capacity Encumbered by 12/31/09 (MW)	Target Annual Generation Encumbered by 12/31/09 (MWh)
Solar Photovoltaics	15.5	20,070
Fuel Cells	1.3	6,496
Anaerobic Digester Biogas	8.8	61,383
Small Wind	0.7	833
Program Total:	26.3	88,782

⁵ Order on Customer-Sited Tier Implementation, Case 03-E-0188.

⁶ The CST Plan was released in February 2007 and can be found at http://www.dps.state.ny.us/CST_OP_02-12-07.pdf.

⁷ Case 03-E-0188, “Order Concerning Modification of Funding for the Customer-Sited Tier”, issued October 28, 2008.

⁸ “New renewable capacity” generally refers to nameplate capacity at facilities under contract in the RPS that did not exist prior to the start of the RPS program, including any portion not under contract with NYSERDA.

and eleven wind farms. Of the 28 new renewable electric generating facilities in New York selected under the RPS Program, 24 are now operating, and 4 are under construction and expected to be operating by the end of 2009. The status of these projects, listed by technology, as of the end of the reporting period is presented in Table 3 below.

The 1,164 MW of new renewable capacity associated with the RPS are owned by or affiliated with nine different entities, as shown in Table 4 below. Additional details of each Main Tier facility participating in the RPS can be found in Appendix B.

Table 3. Project Development Status

	MW Operating	MW In Construction	Total MW	# Operating	# In Construction	Total #
Wind	1,084.5	21.0	1,105.5	10	1	11
Hydroelectric	9.2	19.4	28.6	13	2	15
Biomass	26.0	4.0	30.0	1	1	2
Totals	1,119.7	44.4	1,164.1	24	4	28

Table 4. Main Tier Facilities

Facility	Contractor	Type	County
AES Greenidge Station	AES Greenidge, LLC	Biomass	Yates
Niagara Generating Facility	USRG Niagara Biomass, LLC	Biomass	Niagara
High Falls	Brookfield Energy Marketing Inc.	Hydro	NA – Canada (Quebec)
Effley Hydro	Brookfield Power New York	Hydro	Lewis
Piercefield Hydro	Brookfield Power New York	Hydro	St. Lawrence
Sherman Island	Brookfield Power New York	Hydro	Saratoga
Allens Falls	Brookfield Power New York	Hydro	St. Lawrence
Browns Falls	Brookfield Power New York	Hydro	St. Lawrence
Colton	Brookfield Power New York	Hydro	St. Lawrence
Eagle	Brookfield Power New York	Hydro	Lewis
East Norfolk	Brookfield Power New York	Hydro	St. Lawrence
Higley	Brookfield Power New York	Hydro	St. Lawrence
Norfolk	Brookfield Power New York	Hydro	St. Lawrence
Norwood	Brookfield Power New York	Hydro	St. Lawrence
Oswego Falls	Brookfield Power New York	Hydro	Oswego
Raymondville	Brookfield Power New York	Hydro	St. Lawrence
Spier Falls	Brookfield Power New York	Hydro	Saratoga
Dutch Hill Wind Farm	FirstWind (formerly UPC Wind)	Wind	Steuben
Cohocton Wind Farm	FirstWind (formerly UPC Wind)	Wind	Steuben
Maple Ridge Wind Farm	Iberdrola Renewables/Horizon Wind	Wind	Lewis
Noble Altona Windpark	Noble Environmental Power	Wind	Clinton
Noble Belmont Windpark	Noble Environmental Power	Wind	Franklin
Noble Bliss Windpark	Noble Environmental Power	Wind	Wyoming
Noble Chateaugay Windpark	Noble Environmental Power	Wind	Franklin
Noble Clinton Windpark I	Noble Environmental Power	Wind	Clinton
Noble Ellenburg Windpark	Noble Environmental Power	Wind	Clinton
Noble Wethersfield Windpark	Noble Environmental Power	Wind	Wyoming
Bear Creek	PPL EnergyPlus, LLC	Wind	N/A - Pennsylvania

First Main Tier Solicitation

NYSERDA's first competitive Main Tier solicitation (RFP 916) was conducted in 2004 with an expected facility online date of January 1, 2006. This solicitation was issued in pursuit of the 2006 year-end target of 1,121,247 MWh. The solicitation was issued as a sealed bid, pay-as-bid Request for Proposal (RFP). In this solicitation, bidders were awarded contracts based on the price bid for RPS Attributes alone. No other factors were taken into account to determine selection and the ultimate award of a contract.

The first Main Tier solicitation resulted in contracts for the development of 254 MW of renewable capacity at five facilities (two wind and three hydroelectric upgrades), from which NYSERDA would provide production incentives for 865,582 MWh per year.⁹ The total funding commitment associated with this solicitation is approximately \$173.6 million, and the weighted average production incentive awarded was \$22.90 per RPS Attribute.

Second Main Tier Solicitation

The second competitive Main Tier solicitation was conducted in early 2007 with an expected facility online date of January 1, 2008. This solicitation was issued in pursuit of the 2008 year-end target of 3,549,026 MWh. The second Main Tier competitive solicitation was completed in the first quarter of 2007. Unlike the first Main Tier solicitation, awards were based on two evaluation components: (1) the bid price, weighted at 70%; and (2) the ability of the bidder to demonstrate economic benefits to New York State created by the construction and operation of the bid facility, weighted at 30%.¹⁰ The solicitation was designed as a two-step process, consisting of: (1) an application step that pre-qualified bidders; and (2) a competitive bid proposal submission step. Only those bidders found pre-qualified through the Step 1 application process were permitted to submit bid proposals in Step 2.

The second solicitation resulted in NYSERDA awarding contracts to provide production incentives to 20 new or upgraded facilities in New York. One facility, the proposed Jordanville Wind Farm, failed to meet contract milestones, and the contract was terminated. Another facility, Noble Chateaugay Windpark, was split into two contracts at the request of the contractor for reasons related to physical substation configurations and inter-connection, creating two windparks: Noble Belmont Windpark and Noble Chateaugay Windpark (total combined quantities under contract to NYSERDA remain the same). A third facility, the proposed Windfarm Prattsburgh, cancelled its project in late 2008, citing the current economic environment.

Under the remaining 19 contracts, contractors are expected to build 671 MW of new renewable capacity, from which NYSERDA will provide production incentives for approximately 1,780,000 MWh per year. Facilities were expected to be operating by January 1, 2008 but had the option to extend this date to November 1, 2008. As of March 31, 2009, 18 facilities or 650 MW of new renewable capacity have come on-line, and the remaining facility has posted additional contract security in anticipation of an on-line date of November 30, 2009. The total funding commitment associated with this solicitation is approximately \$263.7 million, and the weighted average price awarded was \$15.52 per RPS Attribute.



⁹ There were initially seven bidders that won contracts in this solicitation, but two facilities, the Criterion Wind Farm and the Jersey Atlantic Wind Farm, failed to meet contractual obligations and their contracts were terminated.

¹⁰ This solicitation structure was authorized by the Commission's October 19, 2006 "Order Authorizing Solicitation Methods and Consideration of Bid Evaluation Criteria."

Third Main Tier Solicitation

The third competitive Main Tier Solicitation (RFP 1168) was conducted in early 2008 with an expected facility online date of January 1, 2009. This solicitation was issued in pursuit of the 2009 year-end target of 4,767,994 MWh. The solicitation was completed in the first quarter of 2008. As was the case for the second Main Tier Solicitation, awards were based on price, weighted at 70%, and economic benefits to New York State, weighted at 30%. The solicitation followed the same two-step bid evaluation process employed for the previous solicitation.

The third solicitation resulted in awarding contracts to provide production incentives to 11 new or upgraded facilities. Three facilities, Noble Allegany Windpark, Noble Chateaugay Windpark II, and Windfarm Prattsburgh (which had contracted for 10% of its output under RFP 1037 and an additional 30% under RFP 1168), cancelled their projects, citing the current economic environment. Under the remaining eight contracts, contractors are obligated to build 150 MW of renewable capacity, from which NYSERDA will provide production incentives for approximately 484,000 MWh per year. Facilities were expected to be operating by January 1, 2009 but can exercise an option to extend the operation date to November 30, 2009. The total funding commitment associated with this solicitation is approximately \$118.6 million. The weighted average price NYSERDA will pay for RPS Attributes produced by the facilities selected under this solicitation is \$14.75 per RPS Attribute.

As a result of the three project cancellations described above, program progress as measured by maximum contracted annual energy deliveries, will be reduced by approximately 360,000 MWh with respect to the end-of-program year 2009 target. Ratepayer funding of approximately \$47.8 million that had been budgeted or encumbered for expected contract payments on these cancelled projects is now available for future Main Tier activities (subject to authorization by the Commission).

Performance-Related Contract Adjustments

In addition to project cancellation, progress toward program targets has been further diminished as a result of performance-related contract adjustments. Renewable resources such as wind and hydroelectric are intermittent in nature and it is difficult to estimate annual and long-term electricity production. Therefore, each Main Tier and Maintenance Tier RPS contract includes a maximum annual payment, which, depending on actual production, may not be realized. Pursuant to this contract design feature, any money not paid out for deliveries of RPS Attributes in any given year is disencumbered and made available for future Main Tier activities. As a result, \$12.4 million has been disencumbered from contracts under RFP 916 for 2006 and 2007 respectively and an additional \$5.9 million as a result of under-production in 2008.

To ensure that program goals are met and other projects are afforded opportunities for funding, NYSERDA contractually requires that each project deliver at least a minimum percentage of its bid-based contract quantity obligation each year. If this percentage is not met for a defined number of consecutive years, the annual quantity of RPS Attributes that NYSERDA is obligated to purchase is reduced for the remaining years of the contract.¹¹ For example, the Maple Ridge Wind Farm will not meet its obligation to deliver the required 85% of its contracted bid quantity for three consecutive years (2006, 2007, and 2008). As a consequence, this facility's contracted bid quantity will be reduced for the seven remaining years on the contract. This adjustment represents a loss of approximately 176,000 MWh per year toward program targets.

Finally, financial security forfeiture provisions in the RPS Program contracts have resulted in additional revenue of approximately \$1.8 million.¹² These funds are available for future Main Tier activities as well, subject to the Commission's authorization.

¹¹ Percentages and number of years vary by RFP and facility type (wind, hydro, etc.).

¹² Project developers forfeit up to 100% of their financial security to NYSERDA should they elect to terminate a contract by a predefined date or if they fail to enter commercial operation.

While unfortunate, setbacks in project development and under-performance of operating projects have not been overlooked in program and contract design. As projects face setbacks and fail to enter commercial operation or as projects underperform, ratepayer funds are liberated for future Main Tier activities.

Steps Taken to Support the Voluntary Market

Several program design features have been incorporated into the Main Tier in an effort to support the ultimate program goal of transitioning to the voluntary market. For example, the Main Tier solicitations do not require contractors to bid the attributes related to the entire output of their facilities; and, in the second and third Main Tier solicitations, NYSERDA instituted a requirement that capped bids at 95% of a facility's attributes, thus leaving 5% available for voluntary sales. These design features were instituted in large part to help satisfy the growing demand from retail energy consumers for renewable energy products. As a result of these key design features, two wind farms are currently offering NYSERDA only 40% of their output, and 198 MW of new capacity has been constructed or will be constructed without an RPS contract for the RPS Attributes. It is

estimated that this merchant capacity will produce 480,000 MWh each year, which may be available for sales to retail customers in New York or elsewhere.¹³ Furthermore, in the second and third Main Tier solicitations, NYSERDA structured its contracts to provide flexibility for contractors to suspend deliveries to NYSERDA in order to make sales to the NY voluntary green market.¹⁴ As of March 31, 2009, three facilities have exercised this option.

Economic and Environmental Impacts

As verified by program evaluation contractors, total economic benefits associated with expected in-state investment accruing to New York could exceed \$4.0 billion¹⁵ over the next 20 years. This represents a program administrative benefit-cost ratio exceeding six-to-one. The specified costs include NYSERDA's cost to administer the program and the payments to developers under contract for RPS Attributes. These economic benefits will come in the form of planning and construction jobs, long-term operations and maintenance jobs, property tax or payment-in-lieu of taxes benefits to local governments and school districts, and lease and/or royalty payments to landowners.



Photo courtesy of Brookfield Power

The 28 in-state renewable electric generating facilities, inclusive of the Maintenance Resources, will also provide material environmental benefits to New York. Compared to the environmental impact of having the expected energy generated by the system-wide mix of conventional, nonrenewable

generating resources in New York, generation by these new renewable resources will result in decreased emissions, amounting to 2,300 tons of nitrogen oxides, 4,700 tons of sulfur dioxides, and 1.7 million tons of carbon dioxide per year.

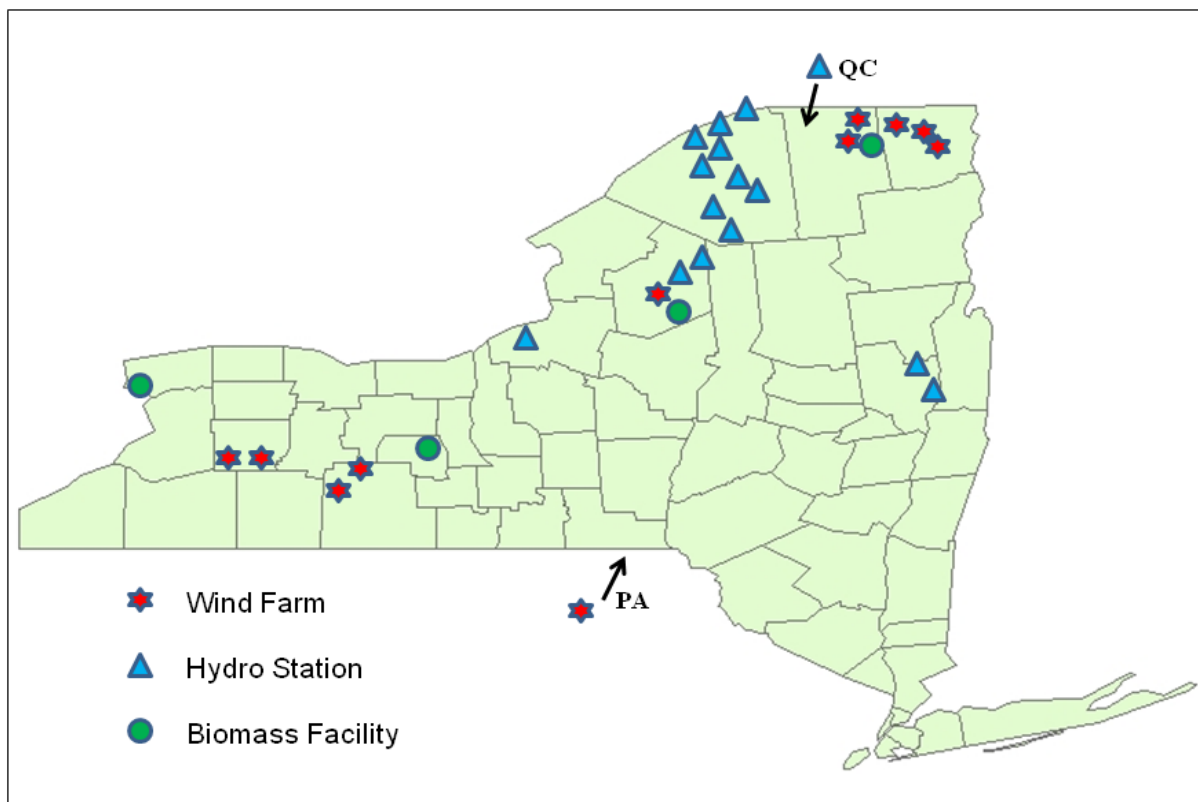


Figure 1. Main Tier and Maintenance Resources, 3/31/09

¹³ The output from this merchant capacity is recognized by NYSERDA not as progress towards the Main Tier targets, but rather in terms of its potential to support growth in the voluntary market and satisfy other program policy objectives.

¹⁴ Contractors are not obligated to serve the NY voluntary market with any output not under contract with NYSERDA, while contractors who suspend delivery to NYSERDA are required to make sales into the NY voluntary market.

¹⁵ *New York Main Tier RPS Impact and Process Evaluation*, KEMA, Inc. This figure is aggregated from bid information provided by the facilities during the bid evaluation and award selection process. Contract terms require that facilities demonstrate actual investment of no less than 85% of the bid-based amount, or they will be penalized through a lowering of their contract payment rate.

Progress and Results

Main Tier

Combined, the three competitive Main Tier solicitations conducted through 2008 have resulted in contracts with NYSERDA to provide production incentives for up to 2,947,044 MWh per year from 966 MW of renewable capacity. As displayed in Table 5, this combined contract quantity puts New York at 62% of the 2009 Main Tier target and 29% of the 2013 Main Tier target.

Projects expected to come on line by January 1, 2008 were allowed contractually, subject to the payment of additional security, to delay their in-service date to as late as November 1, 2008. The majority of projects chose this

option, thus reducing actual progress for 2008; however, these projects are expected to commence delivering annual quantity obligations in 2009.

Actual production under contract in 2006 was 582,082 MWh, 583,452 MWh in 2007, and 843,516 MWh in 2008.

Main Tier RPS Attributes are purchased on behalf of the ratepayers of New York State who fund the program. Figure 2 shows the distribution of purchases in direct proportion to collections by the utilities.

Table 5: Main tier targets and Results (000s MWh)

	2006	2007	2008	2009	2010	2011	2012	2013
Main Tier Targets:	1,121	2,326	3,549	4,768	6,012	7,298	8,557	9,854
Progress toward Annual Targets (Actual Production):	582	583	844					
Progress as % of Annual Targets:	52%	25%	24%					
Expected Progress Toward Annual Targets from All Facilities under Contract:								
Progress toward Annual Targets (Under Contract):				2,947	2,878	2,878	2,850	2,850
Progress as % of Annual Targets:				62%	48%	39%	33%	29%

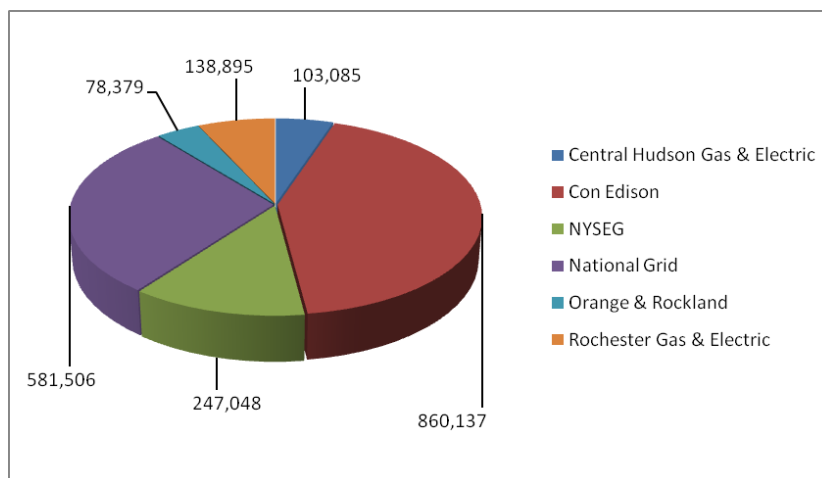


Figure 2. Purchase of RPS Attributes on Behalf of Ratepayers, Through 2008 (MWh)

Customer-Sited Tier

Four Customer-Sited Tier solicitations have been issued, offering funding support through an open enrollment, first-come, first-served process. Subsequent competitive solicitations may be issued at NYSERDA's discretion to reach underserved customers, to stimulate the adoption of new technologies, and to build and support renewable markets.

In late 2008, federal tax incentives for PV installations grew more robust. In response to the Commission's October 28, 2008 order and based on analysis of these new market developments, NYSERDA announced that program incentives offered through its current PV program, would decrease by 25% from historic levels, effective January 31, 2009. This had the effect of encouraging a flurry of market activity that has nearly exhausted total funding under the PV program, even after accounting for a recent funding authorization by the Commission and the re-allocation of discretionary funding pursuant to the CST Operating Plan by NYSERDA.

The Customer-Sited Tier solicitations are described below:

- **Anaerobic Digester Gas-to-Electricity Program** was released in August 2007. \$20.1 million in financial incentives is available in the form of buying down capacity costs and performance-based payments. Up to \$1 million is available per anaerobic digester system.
- **Fuel Cell Program** was released in December 2007. \$5.8 million is available in the form of capacity buy-down and performance-based payments for commercially mature fuel cell modules (experimental fuel cells are supported through the SBC Program). Program payments are differentiated by the scale and type of application of fuel cell system, with a \$1 million cap for large systems and a \$50,000 cap for small systems.
- **PV Incentive Program** was issued in late January 2008 to replace the similar SBC-funded PV incentive program. \$60.3 million has been budgeted for cash incentives of \$3.00-\$5.00 per watt for new solar-electric or photovoltaic (PV) system capacity installed by eligible installers. To keep pace with increasing market demand for this program, additional funding will be needed.
- **Small Wind Incentive Program** was released in April 2007. \$2.1 million is available through December 2009. Funding of up to \$150,000 per installation is provided. Funding amounts are based on the lesser of \$4,000 per meter of rotor diameter or \$4,000 per rated kW. Adjustments to the funding level are made based on tower height. Higher incentives are available for farms, schools, not-for-profits, municipalities, and counties.

Table 6: Actual and Expected Installed CST Capacity (MW)

CST Program	Original Operating Plan: Target Capacity by 12/31/09	Actual Installed	Under Contract	(Pending) Contract Applications Accepted	Projected (with remaining funds)	Total Program*	Total Expected Progress toward 12/31/09 Target
Solar Photovoltaics	3.5	2.14	2.84	9.63	0.87	15.48	442%
Fuel Cells	2.7	-	.05	0.56	0.75	1.36	50%
Anaerobic Digesters	3.7	-	3.34	3.67	1.75	8.76	237%
Small Wind	1.8	-	0.14	0.03	0.50	0.67	37%
Program Total	11.7	2.14	6.37	13.89	3.87	26.27	224%

*Total Program includes actual installations, under contract, pending contracting, and projected with remaining funds.

Tables 6 and 7 present a forecast of capacity and energy production, as of March 31, 2009, associated with: (a) project capacity that is in operation and funding is encumbered; (b) project capacity for which funding is committed (applications have been accepted and contracts are pending/anticipated and for which funding is not yet encumbered), and (c) project capacity that could be supported with remaining uncommitted program budgets, based on current total authorized funding. The CST Operating Plan established program year 2009 as the terminal year for achieving program-specific targets and established that achievement of these targets would be measured not on the basis of actual energy being produced at the end of 2009; but on the basis of energy production associated with funding encumbered/contracted as of the end of program year 2009.

On the basis of applications received, pending contracts and operating installations through March 31, 2009, energy production from eligible technologies is expected to approach 73,000 MWh or nearly 140% of the end-of-year 2009 program target of 52,878 MWh as specified in the CST Operating Plan. If available uncommitted funding is used as planned, total energy production from eligible technologies the end-of-year 2009 is expected to

approach 89,000 MWh or 170% of the program target as shown in Table 7. With respect to PV and ADG technologies, total expected program production is expected to exceed the technology-specific end-of-year 2009 targets by a multiple of 4 and 2 respectively.



Photo Courtesy of SolarWrights Inc.

Table 7: Actual and Expected Annual CST Energy Production (MWh)

CST Program	Original Operating Plan: Target Annual Generation by 12/31/09	Actual Energy Production from Installed Capacity	Expected Energy Production Based on Capacity Under Contract	Expected Production Based on Pending Contracts (Application Accepted)	Production Expected from Projected Capacity Based on Remaining Funds	Total Expected Production*	Total Expected Progress toward 12/31/09 Target
Solar Photovoltaics	4,533	2,774	3,682	12,485	1,129	20,070	443%
Fuel Cells	18,700	-	-	4,862	1,634	6,496	35%
Anaerobic Digesters	25,700	-	23,757	25,362	12,264	61,383	239%
Small Wind	3,945	-	175	32	626	833	21%
Program Total	52,878	2,774	27,614	42,741	15,653	88,782	168%

*Total Expected Production includes: actual production, production under contract, production pending contracting, and expected production from projected capacity.

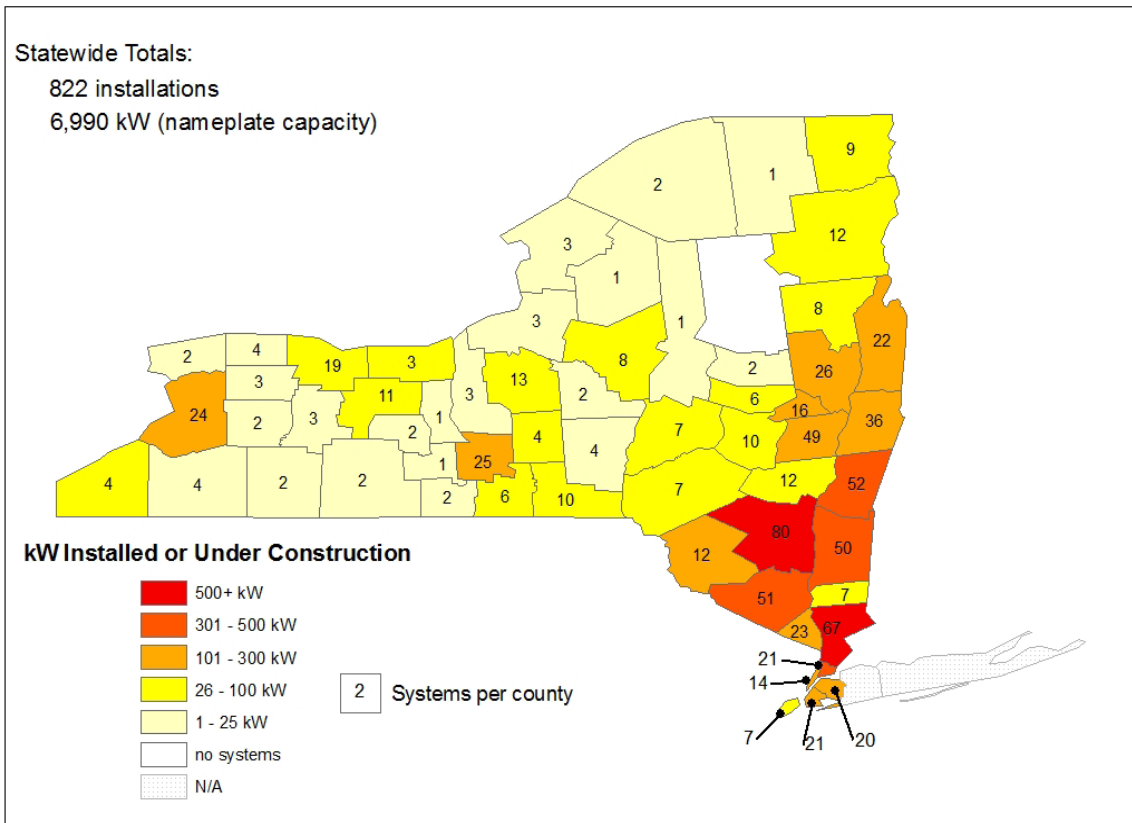


Figure 3. RPS-Funded PV Installations by County, 3/31/09

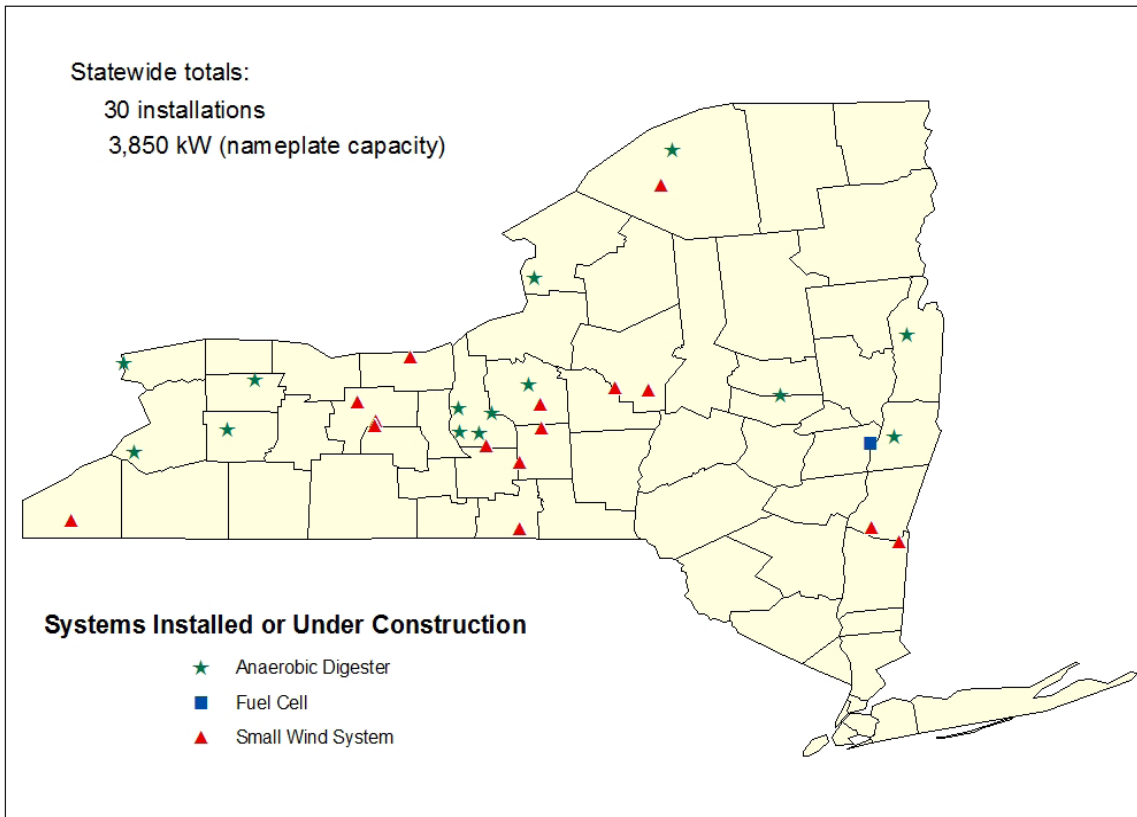


Figure 4. RPS-Funded CST Installations (Exclusive of PV), 3/31/09

Voluntary Market Activity and Executive Order 111

As mentioned earlier in this report, several steps have been taken to support voluntary market and EO 111¹⁶ purchases in New York. As a result of these design features, the NY RPS is helping more than a dozen competitive energy service providers offer clean energy products to retail consumers in New York.¹⁷

While annual data on voluntary market activity is unavailable, Department of Public Service (DPS) staff estimates that in September 2007, more than 60,000 accounts statewide were purchasing renewable energy through voluntary “green power” providers.

Executive Order 111 requires New York State agencies to procure 20% of their electricity from renewable sources by 2010. In State Fiscal Year 2006/07, NYSERDA reported that 9.33% of the electricity used in state buildings, or 224,889 MWh, was produced from renewable sources.¹⁸



Program Funding

Based on a comprehensive cost study conducted in 2003, the Commission, in the September 24, 2004 Order, specified an escalating annual collection schedule lasting through 2013 and totaling approximately \$741.5 million.¹⁹ The Commission recognized that under the Main Tier, NYSERDA would be entering into long-term contracts requiring payments past 2013 but deferred specifying an amount of collections to cover those payments above the currently specified \$741.5 million until the program was underway and program costs became better known.²⁰

As part of the Commission’s plan to reassess specified collections and program costs once the program was underway, NYSERDA engaged the services of Sustainable Energy Advantage and LaCapra Associates in late 2007 to prepare a cost study update estimating the costs to achieve the balance of program targets (2008 Cost Study Update).²⁰ The scope of the cost study was established through consultation with the Department of Public Service. The cost study reflects the commitment of \$672.1 million of the currently specified collections and the current availability of about \$71.8 million for new program activities. The 2008 Cost Study Update incorporates more recent energy forecasts and new energy efficiency initiatives, with a separate examination of achieving more ambitious overall goals of 30% by 2015 and achieving a more aggressive photovoltaic program goal. (100 MW of PV by 2011). On October 1, 2008, the PSC issued two notices²¹ seeking comments on new goals for solar photovoltaics and other on-peak resources in high cost load pocket areas, and new goals for the RPS Main Tier based on updated load forecasts and estimated program costs/ratepayer collections based on the 2008 Cost Study Update.

¹⁶ Executive Order 111 requires NY state agencies to procure 20% of their electricity from renewable sources by 2010.

¹⁷ It should be noted that there is no requirement that generators sell the attributes from the 198 MW of merchant capacity into retail markets in New York.

¹⁸ “Executive Order No. 111 “Green And Clean” State Buildings And Vehicles: Statewide Annual Energy Report For State Fiscal Year 2006/07” (http://www.nyscrda.org/pdfs/Executive_Order_111_SF06-07.pdf).

¹⁹ Order Regarding Retail Renewable Portfolio Standard, Case 03-E-0188.

²⁰ The estimate of costs to acquire resources through 2013 in the 2003 cost study excluded costs associated with (a) program administration, (b) NYS public authority fees, (c) maintenance tier contracts and (d) acquisition costs associated with NYSERDA contracts extending beyond 2013. The updated cost assessment will provide a basis for specifying these costs and establishing collections to support further progress in achievement of the RPS targets

²¹ See Notices of Rulemaking, No.03-E-0188SA18 and No.03-0188A19, published in the New York State Register on October 1, 2008.

Funding Commitments and Expenses

Approximately \$636.6 million of currently specified collections is committed, leaving a total of \$109.8 million uncommitted.

Current commitments for resource acquisition costs toward NYSEERDA's targets total approximately \$602 million and include approximately \$476.1 million for the 1st, 2nd and 3rd Main Tier solicitations, and \$92 million for the Customer-Sited Tier (through 2009). Other costs associated with the program include \$33.9 million for Maintenance Resource contracts, \$25.6 million for NYSEERDA administration, and \$9 million for NYS fees.

Figure 5 illustrates these commitments; complete program budget details can be found in Appendix A. Actual Program expenditures on a cumulative basis through the first quarter 2009 are shown in Table 8.

Table 8. Program Expenditures through March 31, 2009

Expenditure	Through March 31, 2009
NYSEERDA Program Administration Costs*:	
Salaries and Overhead	\$ 4,564,078
Consulting Support	\$ 1,737,314
Evaluation – staff overhead and consultant support	\$ 931,179
NYS Fees	\$ 1,903,490
Main Tier Contracts Expenditures	\$ 46,179,700
Maintenance Resource Expenditures	\$ 7,965,677
Customer-Sited Tier Expenditures	\$ 16,510,599
Total Expenditures	\$ 79,792,037

*Includes estimated overhead.

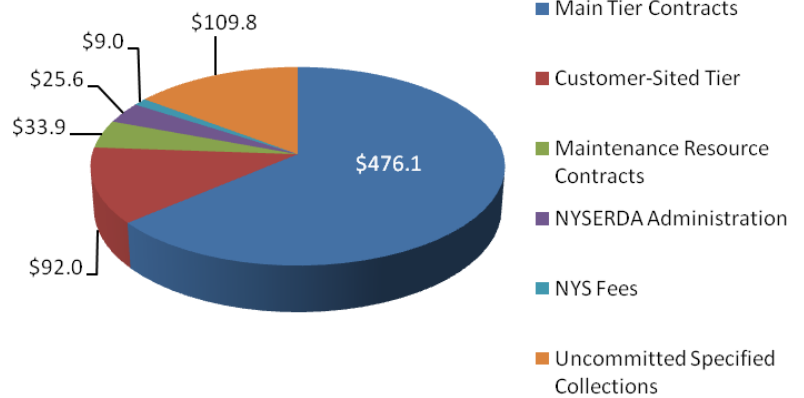


Figure 5. Program Commitments (million \$)



Photo Courtesy of First Wind

Appendix A – Current RPS Program Cash Flow Estimates

Current RPS Program Cash Flow Estimates

	Revenues			Estimated Costs					Total Estimated Costs	Annual Cash Flow	Cash Balance
	Specified Collections	Interest	Ltr of Credit proceeds	NYSDERDA Admin	NYS Fees	Main Tier 3 RFPs	Maintenance Tier	Cust Tier			
2006	\$24,072,908	\$ 308,826	\$ 192,107	\$ (2,448,522)	(\$460,820)	(\$8,216,756)	\$0	\$0	\$ (11,126,098)	\$13,447,743	\$13,447,743
2007	\$43,143,017	\$ 1,247,056	\$ 662,256	\$ (1,504,072)	(\$511,003)	(\$14,407,485)	(\$3,104,220)	(\$6,735)	\$ (19,533,515)	\$25,518,814	\$38,966,557
2008	\$62,136,526	\$ 1,553,439	\$ 50,000	\$ (2,295,037)	(\$683,502)	(\$16,097,030)	(\$3,666,751)	(\$10,939,915)	\$ (33,682,235)	\$30,057,730	\$69,024,287
2009	\$82,639,913	n/a	\$ 898,776	\$ (3,870,473)	(\$992,000)	\$ (42,138,251.58)	(\$4,124,798)	(\$22,442,966)	\$ (73,568,489)	\$9,970,200	\$78,994,487
2010	\$100,765,818	n/a	\$ -	\$ (3,870,474)	(\$1,209,000)	\$ (48,785,753.16)	(\$4,124,798)	(\$25,622,519)	\$ (83,612,544)	\$17,153,274	\$96,147,761
2011	\$122,617,832	n/a	\$ -	\$ (3,870,474)	(\$1,471,000)	\$ (48,144,425.43)	(\$4,124,798)	(\$19,903,100)	\$ (77,513,797)	\$45,104,035	\$141,251,796
2012	\$138,876,294	n/a	\$ -	\$ (3,870,474)	(\$1,667,000)	\$ (47,732,956.68)	(\$4,124,798)	(\$8,376,535)	\$ (65,771,764)	\$73,104,530	\$214,356,326
2013	\$167,222,814	n/a	\$ -	\$ (3,870,474)	(\$2,007,000)	\$ (47,595,800.43)	(\$4,124,798)	(\$4,408,230)	\$ (62,006,302)	\$105,216,512	\$319,572,838
2014	\$0	n/a	\$ -			\$ (48,142,335.43)	(\$3,494,858)	(\$300,000)	\$ (51,937,193)	(\$51,937,193)	\$267,635,645
2015	\$0	n/a	\$ -			\$ (48,142,335.43)	(\$2,270,267)	\$0	\$ (50,412,603)	(\$50,412,603)	\$217,223,042
2016	\$0	n/a	\$ -			\$ (40,276,568.52)	(\$705,804)	\$0	\$ (40,982,373)	(\$40,982,373)	\$176,240,669
2017	\$0	n/a	\$ -			\$ (34,202,691.06)		\$0	\$ (34,202,691)	(\$34,202,691)	\$142,037,978
2018	\$0	n/a	\$ -			\$ (25,064,765.10)		\$0	\$ (25,064,765)	(\$25,064,765)	\$116,973,213
2019	\$0	n/a	\$ -			\$ (7,205,319.13)		\$0	\$ (7,205,319)	(\$7,205,319)	\$109,767,894
2020	\$0	n/a	\$ -					\$0	\$ -	\$0	\$109,767,894
2021	\$0	n/a	\$ -					\$0	\$ -	\$0	\$109,767,894
	\$741,475,122	\$3,109,321	\$1,803,139	(\$25,600,000)	(\$9,001,325)	(\$476,152,473)	(\$33,865,890)	(\$92,000,000)	\$ (636,619,688)	\$109,767,894	

NYSDERDA Administration

	Staff/ overhead	Consultant Support	Program Evaluation	Total Admin
2006	\$ 1,713,459	\$ 675,715	\$ 59,348	\$ 2,448,522
2007	\$ 1,122,544	\$ 242,663	\$ 138,865	\$ 1,504,072
2008	\$ 1,345,528	\$ 392,376	\$ 557,133	\$ 2,295,037
2009	\$ 3,073,239	\$ 246,937	\$ 550,297	\$ 3,870,473
2010	\$ 3,073,239	\$ 246,937	\$ 550,298	\$ 3,870,474
2011	\$ 3,073,239	\$ 246,937	\$ 550,298	\$ 3,870,474
2012	\$ 3,073,239	\$ 246,937	\$ 550,298	\$ 3,870,474
2013	\$ 3,073,239	\$ 246,937	\$ 550,298	\$ 3,870,474
Totals	\$ 19,547,726	\$ 2,400,000	\$ 3,506,835	\$ 25,600,000

Notes:

1. Shaded cells are actual figures obtained from NYSDERDA finance department
2. Main Tier estimated costs are based on maximum contract commitments; actual production from facilities may reduce actual contract expenditures.

Appendix B - Main Tier Projects

Facility	Resource Type	Location	County	New Renewable Capacity (MW)	Contract Capacity (MW)	Annual Contract Quantity (MWh)	Contract Duration (years)	Status
1st Main Tier Solicitation (RFP 916)								
Spier Falls	Hydro	NY	Saratoga	0.8	0.8	3,582	10	operating
Higley Falls*	Hydro	NY				10,255	1	*
Browns Falls*	Hydro	NY				1,125	1	*
Maple Ridge	Wind	NY	Lewis	321	231	605,820	10	operating
Bear Creek	Wind	PA	n/a	22	22	68,704	4	operating
Totals for RFP 916				343.8	253.8	689,486		
2nd Main Tier Solicitation (RFP 1037)**								
Niagara Generating Facility	Biomass	NY	Niagara	26.0	26.0	189,525	10	operating
Allens Falls	Hydro	NY	St. Lawrence	0.3	0.3	1,675	10	operating
Browns Falls	Hydro	NY	St. Lawrence	0.4	0.4	1,277	10	operating
Colton	Hydro	NY	St. Lawrence	0.7	0.7	4,851	10	operating
Eagle	Hydro	NY	Lewis	0.5	0.5	3,181	10	operating
East Norfolk	Hydro	NY	St. Lawrence	0.9	0.9	6,207	10	operating
Higley Falls	Hydro	NY	St. Lawrence	1.9	1.9	11,648	10	operating
Norfolk	Hydro	NY	St. Lawrence	1.5	1.5	10,154	10	operating
Norwood	Hydro	NY	St. Lawrence	0.5	0.5	4,628	10	operating
Oswego Falls	Hydro	NY	Oswego	0.6	0.6	4,049	10	operating
Raymondville	Hydro	NY	St. Lawrence	0.7	0.7	5,044	10	operating
Cohocton Wind Farm***	Wind	NY	Steuben	82.5	8.3	23,372	10	operating
Dutch Hill Wind Farm***	Wind	NY	Steuben	42.5	4.3	12,818	10	operating
Noble Altona Windpark	Wind	NY	Clinton	102.0	96.9	270,782	10	operating
Noble Bliss Windpark	Wind	NY	Wyoming	100.5	95.5	294,400	10	operating
Noble Chateaugay Windpark	Wind	NY	Franklin	106.5	101.2	321,725	10	operating
Noble Belmont Windpark	Wind	NY	Franklin	21.0	20.0	63,438	10	in construction
Noble Clinton Windpark I	Wind	NY	Clinton	100.5	95.5	303,599	10	operating
Noble Ellenburg Windpark	Wind	NY	Clinton	81.0	77.0	252,107	10	operating
Totals for RFP 1037				670.5	532.5	1,784,479		
3rd Main Tier Solicitation (RFP 1168)								
AES Greenidge, LLC	Biomass	NY	Yates	4.0	3.8	28,500	3	in construction
Piercefild Hydro	Hydro	NY	St. Lawrence	0.1	0.1	385	10	operating
Effley Hydro	Hydro	NY	Lewis	0.3	0.3	1,399	10	in construction
Sherman Island	Hydro	NY	Saratoga	4.7	4.5	19,292	10	in construction
High Falls	Hydro	Quebec	n/a	14.7	14.0	26,410	10	in construction
Dutch Hill Wind Farm***	Wind	NY			11.3	28,200	10	***
Cohocton Wind Farm***	Wind	NY			26.3	65,700	10	***
Noble Wethersfield Windpark	Wind	NY	Wyoming	126.0	119.7	314,572	10	operating
Totals for RFP 1168				149.8	179.8	484,458		
Program Totals				1,164.1	966.1	2,947,044		
Maintenance Resources								
Boralex Chateaugay Biomass Plant	Biomass	NY	Franklin		20.0	128,000	10	operating
Lyonsdale Biomass	Biomass	NY	Lewis		19.0	131,238	7	operating
					39	259,238		

* Higley and Browns Falls had 1-year agreements thus enabling them to participate in RFP 1037. Only the contract quantities from RFP 1037 will be used when calculating progress towards post-2006 program targets.

** Lyonsdale Biomass was authorized by the PSC to participate as a Maintenance Resource; therefore it is not included with "new renewables."

*** Dutch Hill and Cohocton were awarded contracts for a percentage of output under RFP 1037, and an additional percentage under RFP 1168. The total new facility capacity is only listed once.



The New York State Energy Research and Development Authority (NYSERDA), a public benefit corporation, was created in 1975 by the New York State Legislature. NYSERDA works to improve New York State's energy, environmental, and economic future by sponsoring energy analysis, research and development, and efficiency deployment programs.

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