PUBLIC SERVICE COMMISSION OF MARYLAND

RENEWABLE ENERGY PORTFOLIO STANDARD REPORT OF 2011

With Data for Compliance Year 2009

In compliance with Section 7-712 of
the Public Utilities Article,
Annotated Code of Maryland

6 St. Paul Street
Baltimore, MD 21202
Tel: (410) 767-8000
www.psc.state.md.us

February 2011

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

I. INTRODUCTION

A. Report Contents

This document constitutes the 2011 annual report of the Public Service Commission of Maryland (Commission) regarding the Maryland Renewable Energy Portfolio Standard (RPS Program). This report is submitted pursuant to § 7-712 of the Public Utilities Article, *Annotated Code of Maryland* (Article). Section 7-712 of the Article requires that, on or before February 1 of each year, the Commission shall report to the General Assembly on the status of the implementation of the RPS program. The electricity suppliers are not required to file an RPS compliance report with the Commission for the prior calendar year until April 1 of the next year. Consequently, this 2011 report highlights data from electricity suppliers' 2009 compliance reports and relevant 2010 data such as the renewable facilities certified by the State of Maryland.

In compliance with § 7-712 of the Article, topics addressed in this report include the availability of Tier 1, Tier 1 Solar, and Tier 2 renewable energy sources, renewable compliance fees collected to support in-State renewable projects, and other pertinent information. The report also provides historical information and accomplishments over the past year.

B. Objectives of the Program

The objective of § 7-701 *et seq.* of the Article (RPS Statute) is to recognize and develop the benefits associated with a diverse collection of renewable energy supplies to serve Maryland. The State's RPS Program does this by recognizing the environmental and consumer benefits associated with renewable energy. The RPS Program requires electricity suppliers to meet a prescribed minimum portion of their retail electricity sales with various renewable energy sources, which have been classified within the RPS Statute as Tier 1 and Tier 2 renewable sources. The program is implemented through the creation, sale and transfer of Renewable Energy Credits (RECs). The development of renewable energy sources is further promoted by requiring electricity suppliers to pay a financial penalty for failing to acquire sufficient RECs to satisfy the RPS as set forth in § 7-703 of the Article. The penalty is used to support the creation of new Tier 1 renewable sources in the State.

C. Overview of the Maryland RPS Program

Under the RPS Program, electricity suppliers are required to meet a renewable energy portfolio standard. This is an annual requirement placed upon Maryland electricity suppliers, which includes competitive suppliers and the electric companies that provide Standard Offer Service.[1] Electricity suppliers file compliance reports with the Commission verifying that the renewable requirement for each entity is satisfied.

[1] Standard Offer Service ("SOS") is electricity supply purchased from an electric company by the company's retail customers that cannot or choose not to transact with a competitive supplier operating in the retail market. *See* Article §§ 7-501(n), 7-510(c).

Each electricity supplier must present, on an annual basis, RECs equal to the percentage specified by the RPS Statute,[2] or pay compliance fees equal to shortfalls. A REC is equal to one megawatt-hour (MWh) of electricity generated using specified renewable sources. As such, a REC is a tradable commodity equal to one MWh of electricity generated or obtained from a renewable energy generation resource. Generators and electricity suppliers are allowed to trade RECs using a Commission-approved system known as the Generation Attributes Tracking System (GATS). GATS is a system designed and operated by PJM Environmental Information Services, Inc. (PJM-EIS) that tracks the ownership and trading of the generation attributes.[3] A REC has a three-year life during which it may be transferred, sold or redeemed. Electricity suppliers that do not meet the annual RPS requirement are required to pay compliance fees.

Compliance fees are deposited into the Maryland Strategic Energy Investment Fund (SEIF or Energy Fund) as dedicated funds to provide for loans and grants that can indirectly spur the creation of new renewable energy sources in the State.[4] As a special, non-lapsing fund, the SEIF is also the depository of revenues generated through the sale of carbon allowances under the Regional Greenhouse Gas Initiative (RGGI). Indeed, the majority of the SEIF funds result from the RGGI carbon dioxide allowance auctions. Auctions are held quarterly; the initial ten auctions held between September 2008 and December 2010 yielded proceeds totaling $147,530,363.[5] At least 6.5 percent of the funds from the RGGI allowances sold between March 1, 2009 and June 30, 2011 are to be allocated to renewable and clean energy, climate change programs, and energy related public education and outreach programs.[6]

Responsibility for developing renewable energy sources has been vested with the Maryland Energy Administration (MEA). MEA advises that a number of renewable projects were supported by the Energy Fund either through dedicated funds (*i.e.*, RPS compliance fees) or RGGI auction revenues in fiscal year 2010. MEA began using funds from the RPS Alternative Compliance Penalties in the fiscal year beginning July 1, 2009. For fiscal year 2010, approximately $1.6 million in SEIF monies were used to fund new Tier 1 renewable energy resources in Maryland. The grants from SEIF supported the installation of 1,386 kilowatts of geothermal capacity, 483 kilowatts of solar photovoltaic (PV) capacity, and 62 kilowatts of wind energy capacity.[7]

---

2 Using the Tier 2 RPS requirement as an example, assume a hypothetical electricity supplier operating in the State had 100,000 MWh in retail electricity sales for 2009. In 2009 the Tier 2 requirement was 2.5 percent. Thus, the electricity supplier would have to verify the purchase of 2,500 Tier 2 RECs in satisfaction of the Tier 2 RPS obligation, or pay compliance fees for deficits. Similar requirements apply to Tier 1 and Tier 1 Solar; the additional RPS tiers provided for in Maryland's RPS Statute.

3 An attribute is "a characteristic of a generator, such as location, vintage, emissions output, fuel, state RPS program eligibility, etc." PJM Environmental Information Services, Generation Attribute Tracking System (GATS) Operating Rules, Revision 5, at 3 (December 8, 2008).

4 Chapters 127 and 128 of the Laws of 2008 repealed the Maryland Renewable Energy Fund and redirected compliance fees paid into that fund into the Maryland Strategic Energy Investment Fund.

5 Regional Greenhouse Gas Initiative, CO2 Auctions, Auction Results, Available: http://www.rggi.org/market/co2_auctions/results (January 7, 2011).

6 Maryland General Assembly, The Budget Reconciliation and Financing Act of 2009, Chapter 487 of 2009, Available: http://mlis.state.md.us/2009rs/billfile/hb0101.htm (August 5, 2010). An allocation of up to 10.5 percent of the RGGI funds is provided for in subsequent auctions.

7 Source: MEA email, January 10, 2011.

1. Registration of Renewable Energy Facilities

Facilities eligible for the Maryland RPS Program must be located in PJM (*i.e.,* the wholesale bulk power control area in which Maryland resides);[8] in a state adjacent to the PJM region; or in a control area that is adjacent to the PJM region,[9] so long as the electricity is delivered into the PJM region.[10] To certify a REF, Commission Staff must determine whether the facility meets the standards set forth by the Maryland RPS Program. Applicants potentially qualifying under Maryland's RPS Program initially work with Commission Staff and complete the appropriate application for REF certification posted on the Commission's RPS website.[11] In addition to the geographic requirement, applicants must also meet the fuel source requirements associated with Tier 1 and Tier 2 REC creation. Verification of the fuel source is usually completed with the aid of Energy Information Administration Form 860 (EIA-860) to validate each facility's rated nameplate capacity, fuel source(s), location and commercial operation start date.[12]

Facilities must register with GATS to transact business and to have RECs recognized and created. The GATS account must be established with the State facility certification number issued by the Commission upon approval of the REF application. Facilities that co-fire a REC-eligible renewable fuel source with non-eligible fuel sources must submit a formula or method to account for the proportion of total electricity generation that will be credited with RECs. A comprehensive listing of REFs currently certified with the Maryland RPS Program can be found in Appendix D. Eligible fuel sources for Tier 1 RECs and Tier 2 RECs are listed in Table 1. Solar has its own standard within Tier 1.

---

8 The PJM wholesale market includes all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia.

9 A control area is "an electric system or systems, bounded by interconnection metering and telemetry, capable of controlling generation to maintain its interchange schedule with other control areas and contributing to frequency regulation. A control area is defined in broad terms to include transmission system operations, market, and load-serving functions within a single organization. A control area operator may be a system operator, a transmission grid operator, or a utility." PJM Environmental Information Services, Generation Attribute Tracking System (GATS) Operating Rules, Revision 5, at 5 (December 8, 2008). For example, the multi-state area controlled by the PJM Regional Transmission Operator is one control area, as is the adjacent Midwest Independent System Operator (ISO) multi-state area, and the adjacent New York ISO.

10 Chapters 125 and 126 of the 2008 Session Laws modify the geographic region of eligible renewable resources provided for within Article § 7-701(i). Effective January 1, 2011, the geographic scope in which renewable resources can be located will be restricted within the PJM region or in a control area adjacent to the PJM region, if the electricity is delivered into the PJM region. That is, REFs located in states adjacent to the PJM control area will not have RECs that qualify for Maryland's RPS unless the underlying electricity is delivered into the PJM region.

11 Solar and standard REF applications are maintained by the Commission and are available online. Maryland Public Service Commission, Renewable Portfolio Standard Documents, Available: http://webapp.psc.state.md.us/intranet/ElectricInfo/home_new.cfm.

12 Submitting Form EIA-860 is a requirement under Section 13(b) of the Federal Energy Administration Act of 1974 (FEAA) (Public Law 93-275) for generating plants, regulated and unregulated, which have a nameplate rating of 1 MW or more, are operating or plan to operate within 5 years, and are connected to the transmission grid.

Table 1: Eligible Tier 1 and Tier 2 Resources

Tier 1 Renewable Sources	Tier 2 Renewable Sources
• Solar (Tier 1 Solar) • Wind • Qualifying Biomass • Methane from a landfill or wastewater treatment plant • Geothermal • Ocean • Fuel Cell that produces electricity from a Tier 1 source • Hydroelectric power plant less than 30 MW capacity • Poultry litter-to-energy	• Hydroelectric power other than pump storage generation • Waste-to-energy *Note: Tier 1 RECs may be used to satisfy Tier 2 obligations.*

2. Maryland RPS Annual Percentage Requirements

Electricity suppliers are required to purchase specified minimum percentages of their electricity resources via RECs from Maryland-certified Tier 1 and Tier 2 renewable resources. Tier 1 and the Tier 1 Solar set-aside requirements gradually increase until they peak in 2022 at 18 percent and 2 percent, respectively, and are subsequently maintained at those levels.[13] Maryland's Tier 2 requirement remains constant at 2.5 percent through 2018, after which it sunsets.

Table 2: Annual RPS Requirements by Tier[14]

Compliance Year	Tier 1*	Tier 1 Solar	Tier 2
2009	2.00%	0.010%	2.50%
2010	3.00%	0.025%	2.50%
2011	4.95%	0.050%	2.50%
2012	6.40%	0.100%	2.50%
2013	8.00%	0.200%	2.50%
2014	10.00%	0.300%	2.50%
2015	10.10%	0.400%	2.50%
2016	12.20%	0.500%	2.50%
2017	12.55%	0.550%	2.50%
2018	14.90%	0.900%	2.50%
2019	16.20%	1.200%	
2020	16.50%	1.500%	
2021	16.85%	1.850%	
2022	18.00%	2.000%	

* Does not include the solar set-aside (Tier 1 Solar)

[13] "Tier 1 Solar set-aside" refers to the set-aside (or carve-out) of Tier 1 for energy derived from qualified solar energy facilities. The Tier 1 Solar set-aside requirement applies to retail electricity sales in the State by electricity suppliers and is a sub-set of the Tier 1 standard.

[14] Schedule reflects increased percentage requirements for the Tier 1 solar set-aside from new legislation (Chapter 494 of 2010) which takes effect January 1, 2011.

An electricity supplier can make a request of the Commission to consider a delay in scheduled Tier 1 and Tier 1 Solar RPS requirements provided certain renewable procurement cost thresholds are met.[15] To date, no request to delay scheduled RPS compliance requirements has been made by electricity suppliers operating in the Maryland marketplace.

3. Maryland RPS Alternative Compliance Penalty Requirements

Electricity suppliers not meeting the RPS standard pay a compliance fee known as the Alternative Compliance Penalty (ACP) for shortfalls, as seen in Table 3. Table 3 presents the ACP schedule separated by tiers for each year of the RPS from 2008 to 2023 and beyond. ACPs, as previously mentioned, are submitted to the Energy Fund and dedicated to supporting the development of new Tier 1 renewable resources in Maryland. The Tier 1 ACP is $20 per MWh through the 2018 compliance year, and then doubles to $40 per MWh for all subsequent years. The Tier 1 Solar ACP is $400 per MWh shortfall for 2009 to 2014 compliance years; $350 for 2015 and 2016 compliance years; $200 for 2017 and 2018 compliance years; and then decreases by $50 per MWh every other subsequent year until reaching a $50 per MWh base for the 2023 compliance year and all subsequent years. The Tier 2 ACP is $15 per MWh from 2008 until the sunset of the standard in 2018. There is a separate ACP for Industrial Process Load (IPL) Tier 1 shortfalls only.

Table 3: ACP Schedule ($/MWh)[16]

Compliance Year	Tier 1 (non-solar)	Tier 1 Solar	Tier 2	IPL* Tier 1
2009	$20	$400	$15	$5
2010	$20	$400	$15	$5
2011	$20	$400	$15	$4
2012	$20	$400	$15	$4
2013	$20	$400	$15	$3
2014	$20	$400	$15	$3
2015	$20	$350	$15	$2.50
2016	$20	$350	$15	$2.50
2017	$20	$200	$15	$2
2018	$20	$200	$15	$2
2019	$40	$150		$2
2020	$40	$150		$2
2021	$40	$100		$2
2022	$40	$100		$2
2023 +	$40	$50		$2

* Under Article § 7-705 b (2) and COMAR 20.61.01.06.E(5), a supplier sale for IPL is required to meet the entire Tier 1 obligation for electricity sales, including solar. However, the ACP for an IPL Tier 1 non-solar shortfall and a Tier 1 Solar shortfall is the same. For IPL there is no ACP for Tier 2 shortfalls.

[15] Article § 7-705.

[16] Schedule reflects increased alternative compliance payments for the Tier 1 solar set-aside from new legislation (Chapter 494 of 2010) which took effect January 1, 2011.

II. ELECTRICITY SUPPLIER COMPLIANCE REPORTS

Calendar year 2009 marked the fourth compliance year for the Maryland RPS, and the second year for electricity suppliers to comply with the Tier 1 Solar set-aside. The RPS compliance reports submitted to the Commission by electricity suppliers, along with information obtained from GATS, provide information regarding the RECs retired and the underlying REFs (*e.g.*, type and location) utilized by electricity suppliers to comport with Maryland RPS obligations.[17] RPS compliance reports were filed by 52 electricity suppliers, including 24 competitive suppliers, 18 brokers or wholesale electricity suppliers with zero retail electricity sales, and 10 electric companies, of which four are investor-owned utilities. RPS compliance reports are due by April 1st every year. There were approximately 63.2 million MWh of total retail electricity sales in Maryland for 2009: 61.4 million MWh were subject to RPS compliance, and 1.8 million MWh were exempt.[18]

For the 2009 compliance year, electricity suppliers retired 2,793,476 RECs, which was greater than the obligation for the year by over 23,000 RECs. According to the compliance reports filed with the Commission, the cost of RECs retired totaled $3,052,300 for the 2009 compliance year. For the four compliance years, Table 4 displays the breakdown of RECs submitted for each tier (MWh), the number of RECs retired in the year by tier (MWh), as well as the payments for the shortfalls in terms of the ACP amount required ($ per MWh).[19] The estimated total costs of all 2009 RECs retired for compliance was just over $3 million and the remaining RPS obligations accrued an ACP balance of $1,148,265.[20]

---

[17] According to Article § 7-709, a REC can be diminished or extinguished before the expiration of three years by: the electricity supplier that received the credit; a nonaffiliated entity of the electricity supplier that purchased or otherwise received the transferred credit; or demonstrated noncompliance by the generating facility with the requirements of Article § 7-704 (f). In the PJM region, the regional term of art is "retirement," and describes the process of removing a REC from circulation by the REC owner, *i.e.,* the owner "diminishes or extinguishes the REC." PJM Environmental Information Services, Generation Attribute Tracking System (GATS) Operating Rules, at 52-54 (December 8, 2008).

[18] According to Article § 7-703(a)(2), exceptions for the RPS requirement may include: industrial process load which exceeds 300,000,000 kWh to a single customer in a year; regions where residential customer rates are subject to a freeze or cap (under Article § 7-505); or electric cooperatives under a purchase agreement that existed prior to October 1, 2004, until the expiration of the agreement.

[19] In Table 4, 'RPS Obligation' is the total obligation for electricity sales in MWh, which is equal to the number of RECs required for compliance. 'Retired RECs' is the actual number of RECs retired for RPS compliance in each corresponding compliance year. 'ACP Required' is the compliance payments owed, and is calculated by multiplying the difference between the RPS obligation and the actual retired RECs (*i.e.*, the shortfalls) by the applicable ACP.

[20] Electricity suppliers can meet RPS obligations through the retirement of RECs or by paying ACPs. Electricity suppliers are required to report the total cost of purchasing RECs for compliance.

Table 4: Results of the RPS Compliance Reports

RPS Compliance Year		Tier 1 (non-solar)	Tier 1 Solar	Tier 2	Total
2006	RPS Obligation (MWh)	520,073	-	1,300,201	1,820,274
	Retired RECs (MWh)	552,874	-	1,322,069	1,874,943
	ACP Required *($/MWh)*	**$13,293**	**-**	**$24,917**	**$38,209**
2007	RPS Obligation (MWh)	553,612	-	1,384,029	1,937,641
	Retired RECs (MWh)	553,374	-	1,382,874	1,936,248
	ACP Required *($/MWh)*	**$12,623**	**-**	**$23,751**	**$36,374**
2008	RPS Obligation (MWh)	1,183,439	2,934	1,479,305	2,665,678
	Retired RECs (MWh)	1,184,174	227	1,500,414	2,684,815
	ACP Required *($/MWh)*	**$9,020**	**$1,218,739**	**$8,175**	**$1,235,934**
2009	RPS Obligation (MWh)	1,228,521	6,125	1,535,655	2,770,301
	Retired RECs (MWh)	1,280,946	3,260	1,509,270	2,793,475*
	ACP Required *($/MWh)*	**$395**	**$1,147,600**	**$270**	**$1,148,265**

* Some electricity suppliers retired more RECs than required.

Notably, in 2009 there was a shortfall of 2,865 MWh in RECs for the Tier 1 Solar requirement of 6,125 MWh. Over 99 percent of the total ACPs for the 2009 compliance year are from Tier 1 Solar shortfalls, and the degree to which solar technologies are available to provide renewable output plays a role in the Tier 1 Solar compliance option selected.[21]

RECs are valid for three years from the date created unless the REC is retired before expiration.[22] Figure 1 aggregates the Maryland RPS tiers on the basis of generation year. A small proportion (10 percent) of RECs retired within the 2009 compliance year was 2006 vintage RECs. Nearly 40 percent of the RECs retired in 2009 were generated in 2007, approximately 36 percent of the retired RECs were generated in 2008; the balance of the RECs, approximately 14 percent, were generated in 2009. With the exception of the small percentage of 2006 vintage RECs, the number of RECs retired decreases for each subsequent generation year; as a result, a relatively small portion of the RECs retired were generated during the 2009 compliance year. Since the bulk of the RECs retired in 2009 were not generated in 2009, this indicates generators and/or electricity suppliers are utilizing Maryland's three year banking provision.[23]

[21] As noted above, electricity suppliers can meet RPS obligations by either purchasing available RECs or paying the ACP. For SOS procurement auctions that had occurred before the solar requirement was enacted, it was too late to buy solar RECs for those SOS contracts. Therefore, only the default ACP option was available. However, currently parties are working to implement a supplemental procurement method for solar RECS for SOS contracts still operative that were procured before the enactment of the current solar REC requirement.

[22] Article § 7-709(d)(2) (unless the REC is diminished or extinguished before expiration).

[23] Once a REC has been created, the generator can sell or transfer the REC to another GATS account, keep the REC active, or retire (extinguish) the REC. A REC which continues to be active beyond the GATS trading period can be accumulated and "banked" for use in subsequent compliance years.

Figure 1: 2009 Compliance Year RECs by Generation Year

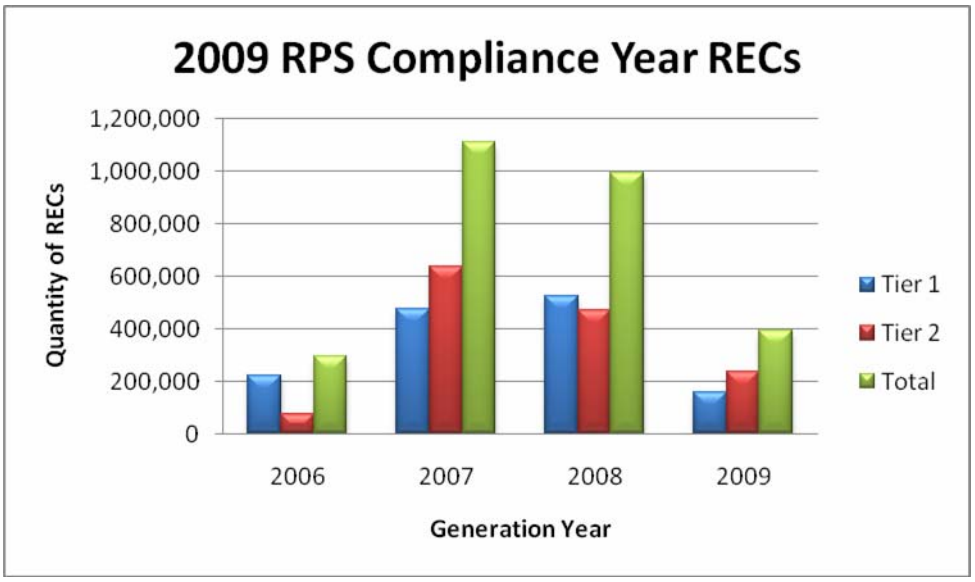
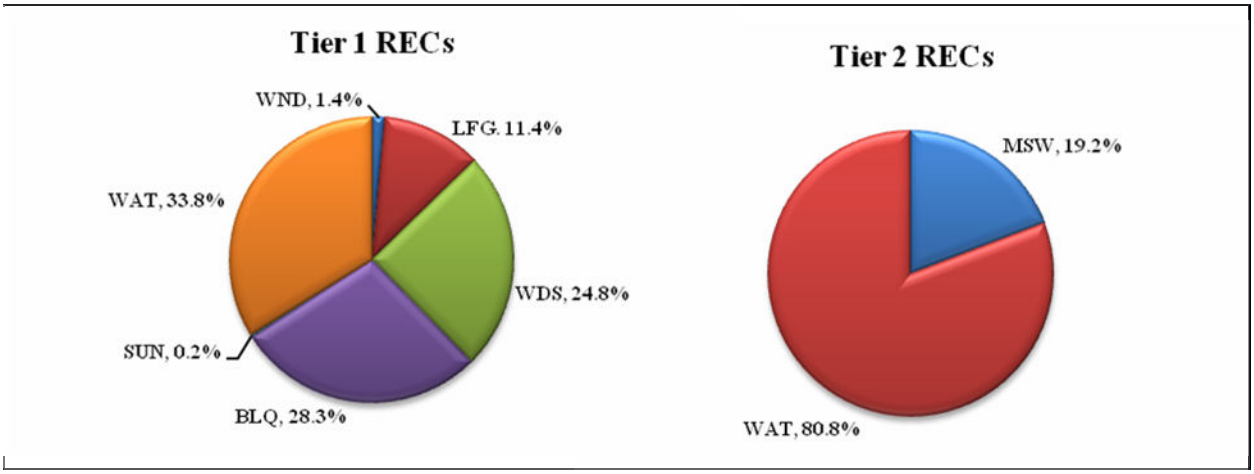


Figure 2 illustrates the fuel sources used to satisfy Tier 1 and Tier 2 RPS requirements for the 2009 RPS compliance year. Of the Tier 1 RECs retired for 2009, the principle resources used were small hydro that provided approximately 34 percent of the RECs; black liquor-fueled resources, 28 percent;[24] waste wood, 25 percent; and landfill gas, 11 percent. Wind and solar resources account for less than two percent of the RECs retired in 2009 for Maryland RPS compliance requirements.[25] Of the Tier 2 RECs retired for 2009, Figure 2 also reveals that hydroelectric facilities provided the bulk of the RECs, approximately 81 percent; while municipal solid waste provided nearly 19 percent of the RECs retired.

[24] Black liquor is a waste byproduct from paper production.

[25] The prices associated with RECs vary depending upon the renewable resource, because the various renewable technologies have different costs associated with electricity production. To minimize costs, electricity suppliers tend to purchase lower priced RECs from lower cost renewable technologies first. The renewable fuel sources retired in Maryland for 2009 compliance (Figure 2) suggest such a strategy by market participants. Over time, as the RPS percentage standard increases and the opportunity to utilize low-cost technologies may become exhausted, the use of RECs from more expensive renewable resources is likely to occur (*e.g.*, wind, solar). Moreover, development of these more expensive renewable technologies may be incentivized. In addition to RECs used for RPS compliance, RECs are also sold to support green retail products that have large renewable energy amounts (*e.g.*, 100 percent wind). Customers may have a preference for energy from a specific technology and are willing to pay the price premium for these RECs over electricity from fossil fuel resources. Therefore, green power products currently available in the market and to retail customers also support higher cost renewable technologies.

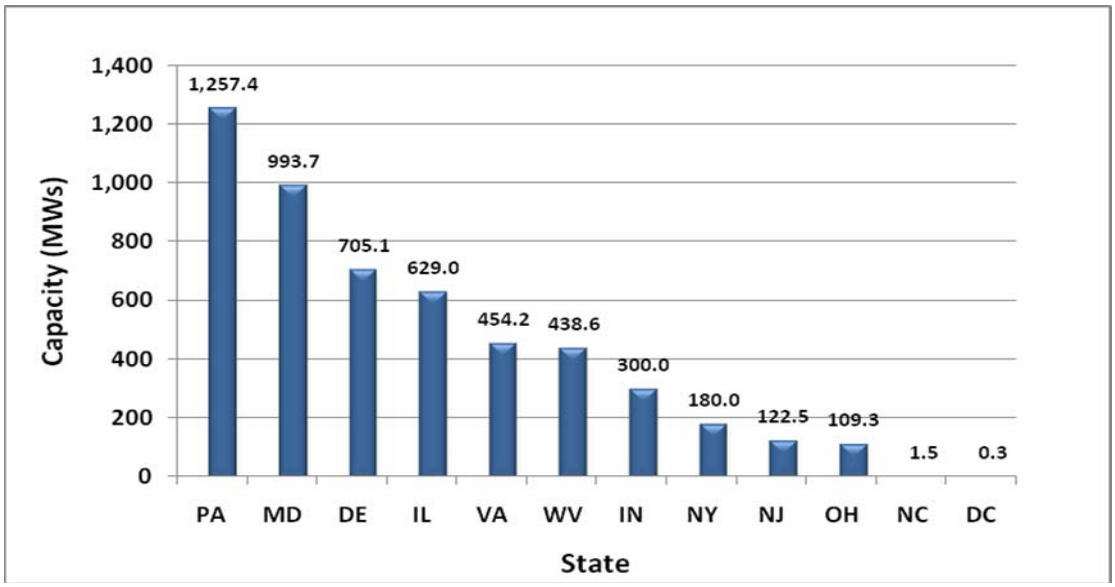
Figure 2: 2009 Tier 1 and Tier 2 Retired RECs by Fuel Source



Fuel Source Abbreviations: BLQ, Black Liquor; LFG, Landfill Gas; MSW, Municipal Solid Waste; SUN, Solar; WAT, Hydroelectric; WDS, Wood and Waste Solids; and WND, Wind.

Figure 3 presents the geographical location and the total generating capacity (5,191 MW) for all Maryland RPS-certified facilities regardless of Tier.[26] RPS requirements also exist in the surrounding states, which generally support out-of-state and regional market participation (see Appendix A). Sixty-eight percent of the capacity of renewable facilities that are eligible to participate and potentially provide renewable energy in Maryland reside in the Mid-Atlantic states. The locations of the remaining eligible resources span six states and in total contribute 32 percent of the State's eligible capacity.

Figure 3: Total Rated Capacity by State

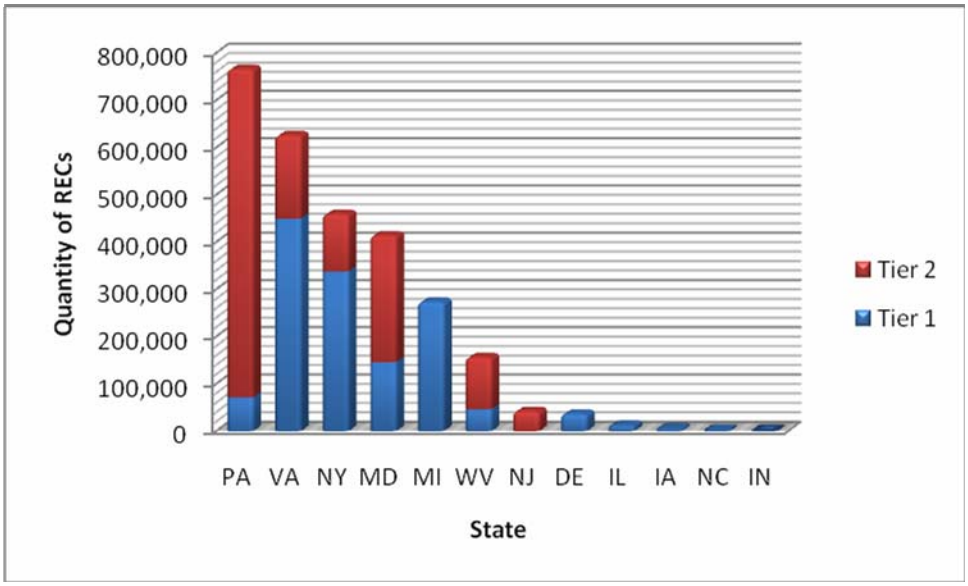


The information in this figure comes from PJM GATS, and does not include Commission authorized REFs that have not established a REC account with PJM GATS.

[26] PJM-EIS, Generation Attribute Tracking System, Database query, January 2011.

For the 2009 compliance year, Figure 4 provides a visual display of aggregate REC data to convey general relationships among the States that contributed RECs in 2009. Pennsylvania supplied the largest number of RECs purchased by retail electricity suppliers. The majority of the Pennsylvania RECs were from Tier 2 facilities. Virginia was the second most plentiful source of RECs procured by Maryland electric suppliers; additionally, Virginia was the largest source of Tier 1 RECs retired for 2009 compliance purposes. New York was ranked third in terms of state location for retired RECs. Notably, once statutory changes take effect in 2011, facilities in New York will only qualify to participate in the Maryland RPS if the electricity is delivered into the PJM region.

Figure 4: Number of RECs Retired by Facility Location (2009)



Tables 5 and 6 provide the quantitative data that supports Figure 4 above. Table 5 provides the reported levels of RECs retired by Maryland electricity suppliers in 2009 on a Tier and aggregate basis. As noted above, Pennsylvania-generated RECs, followed by Virginia and New York, were used in the largest aggregate amounts by Maryland electricity suppliers for 2009 RPS compliance.[27] Tier 1 Maryland RECs retired include 3,260 Solar RECs (SRECs).

[27] Table 5 provides the number of RECs retired by state of origin.

Table 5: 2009 Compliance Reports' REC Retirement by State

State	Tier 1	Tier 2	Total
PA	71,427	694,930	766,357
VA	449,891	176,065	625,956
NY	337,998	121,277	459,275
MD	146,038	268,353	414,391
MI	273,883	0	273,883
WV	46,570	109,893	156,463
NJ	0	42,426	42,426
DE	36,882	0	36,882
IL	12,372	0	12,372
IA	4,677	0	4,677
NC	444	0	444
IN	353	0	353
TOTAL	**1,380,535***	**1,412,944**	**2,793,479**

** This includes 3,260 Tier 1 Solar RECs.*

Table 6 presents the same data as Table 5, but on a percentage basis. Data is presented on a percentage basis to facilitate comparisons among the individual state contributions by Tier and on an aggregate basis. Among the Tier 1 resources, Virginia provided nearly 33 percent of the RECs retired in 2009; New York, nearly 24 percent; Michigan, nearly 20 percent; and Maryland, nearly 11 percent. Pennsylvania provided just over 5 percent of the Tier 1 RECs retired in 2009, while few Tier 1 RECs were provided by the remaining states. For the Tier 2 resources, Pennsylvania provided 49 percent of the RECs, followed by Maryland (19.0 percent), Virginia (12.5 percent), and New York (8.6 percent). On a percentage basis, single digit REC amounts or no RECs were provided by the remaining states for RPS compliance.

Table 6: 2009 Compliance Reports' REC Retirement by State (%)

State	Tier 1	Tier 2	Total
PA	5.17%	49.18%	**27.43%**
VA	32.59%	12.46%	**22.41%**
NY	24.48%	8.58%	**16.44%**
MD	10.58%	18.99%	**14.83%**
MI	19.84%	0.00%	**9.80%**
WV	3.37%	7.78%	**5.60%**
NJ	0.00%	3.00%	**1.52%**
DE	2.67%	0.00%	**1.32%**
IL	0.90%	0.00%	**0.44%**
IA	0.34%	0.00%	**0.17%**
NC	0.03%	0.00%	**0.02%**
IN	0.03%	0.00%	**0.01%**
TOTAL	**100.00%**	**100.00%**	**100.00%**

Additional information pertaining to the source of renewable energy used to meet Maryland's 2009 RPS compliance requirements is in Appendices A and B. Appendix A provides the renewable resources used by electricity suppliers on a Tier and state basis. Appendix B provides a summary of the REFs in and outside of the State that generated RECs which were retired in 2009 for the Maryland RPS. Appendix B also presents the number of facilities by state, tier, and type of renewable facility.

III. MARYLAND RENEWABLE ENERGY FACILITIES

Maryland's RPS requires electricity suppliers to obtain a minimum percentage of their power from renewable energy resources. Implementation of the Maryland RPS program can provide an incentive for renewable generators to locate in Maryland and generate electricity. The renewable requirement establishes a market for renewable energy, and to the extent Maryland's geography and natural resources can be utilized to generate renewable electricity, power plant developers may locate projects within the State. Moreover, Maryland's RPS requires electricity suppliers that do not meet the annual obligations to pay penalties, which in turn are used to support the creation of new Tier 1 renewable sources in the State. Additionally, on or before December 31, 2011, Tier 1 Solar resources that are not located in the State are eligible to participate in Maryland's RPS only to the extent sufficient offers from in-State resources are not made. This section of the report provides information on the REFs located in Maryland in 2009.[28,29] Renewable energy generated in Maryland can be used in other states for RPS compliance purposes, and also can be sold in support of competitive retail electricity

[28] Article § 7-704(a)(2)(i)(2).

[29] Specific information pertaining to the State's REFs and described herein was made available by PJM-EIS in the GATS State Agency Report.

supplier product offerings (*i.e.*, green power products).[30] Green power products are offered to the public with higher concentrations of renewable energy than required via State RPS requirements. Additional analysis pertaining to the Maryland-based renewable generators is presented below and in Appendix C.

In 2009, over 208,037 Tier 1 RECs and nearly 2,740,666 Tier 2 RECs were generated in Maryland, totaling over 2,948,703 RECs (see Table 7). Black liquor comprised nearly a 62 percent share of the Tier 1 RECs generated in Maryland; landfill gas, 24.5 percent; small hydro, 11.9 percent; and solar, 1.7 percent. Tier 2 in-State RECs were hydro facilities with a 67.3 percent share and waste-to-energy, 32.7 percent. The waste-to-energy category includes municipal solid waste and blast furnace gas.[31]

Table 7: 2009 Maryland Generated RECs by Fuel Source

	Tier I					Tier II				Grand Total
Fuel Type	**BLQ**	**LFG**	**WAT**	**SUN**	**Total**	**WAT**	**MSW**	**BFG**	**Total**	
Quantity of RECs	128,806	50,876	24,860	3,495	**208,037**	1,843,455	635,206	262,005	**2,740,666**	**2,948,703**
(%)	61.9%	24.5%	11.9%	1.7%	100.0%	67.3%	23.2%	9.6%	100.0%	

Fuel Source Abbreviations: BFG, Blast Furnace Gas; BLQ, Black Liquor; LFG, Landfill Gas; MSW, Municipal Solid Waste; SUN, Solar; WAT, Hydroelectric; WDS, Wood and Waste Solids; and WND, Wind.

Source: PJM-EIS.

Table 8 presents additional detail regarding the disposition of 2009 Maryland-generated RECs through calendar year 2009. Ninety percent of the RECs generated within the State of Maryland by independent electric generators were unsold and consequently banked for potential sale in Maryland or other states in subsequent compliance years.[32] Approximately 5 percent of the RECs generated in Maryland were retired to meet the RPS requirements in various other states. Maryland 2009 vintage RECs (3.5 percent) were also sold to support voluntary market

[30] Facilities located in Maryland are not necessarily registered by the Commission for the Maryland RPS; rather, certain facilities may seek certification out-of-state in support of a long-term contract for the RECs from an out-of-state counterparty. Counterparties can include an electricity supplier operating in a different state and purchasing the RECs to satisfy the RPS requirement for another state or other entities, such as brokers that purchase the REC output for resale. PJM-EIS reports that as of January 2011, there are 1,005 registered renewable generators located in Maryland. Of the 1,005 generators, 949 are approved by the Commission for Maryland RPS compliance. The 56 facilities registered for use in other states include 52 solar PV or solar thermal facilities registered in the District of Columbia, Illinois, and/or Pennsylvania. The remaining four are landfill gas generators registered in Delaware, Illinois, and New Jersey.

[31] Blast furnace gas was approved as a "waste-to-energy" fuel source for the Pennwood Power Station facility.

[32] In part, banking provides an opportunity for generators and electric suppliers to locate one another and establish relationships in the newly established renewable marketplace. The renewable marketplace is a regional marketplace. With the trend of individual states first enacting legislation to support renewables (*e.g.*, RPS requirements), and then increasing the percentage requirements and raising penalties for shortfalls, banking provides market participants with the opportunity to employ regional strategies (*i.e.*, maximize revenues, minimize compliance costs). Banking also provides an opportunity to support new product offerings outside of the RPS requirements, that is, green energy retail products that retail customers purchase, typically at a price premium, with significant concentrations of renewable energy (*e.g.*, 100 percent wind).

products (*e.g.*, green energy). Labeled as "Other" in Table 8, a small minority of RECs were posted for sales or awaiting confirmation by counterparties to complete year-end transactions (1 percent).

Table 8: Disposition of 2009 Maryland Generated RECs

	Banked	2009 RPS Compliance	Sold - Voluntary Markets	Other	Total
Tier 1	175,672	19,538	7,000	2,332	204,542
Tier 1 Solar	319	3,175	1		3,495
Tier 2	2,479,262	137,627	97,313	26,464	2,740,666
Total	2,655,253	160,340	104,314	28,796	2,948,703
(%)	90.0%	5.4%	3.5%	1.0%	100.0%

Source: PJM-EIS, Commission Staff data request.

Table 9 presents, on a state-by-state basis, the distribution of the RECs generated in the State of Maryland that were then extinguished (*i.e.*, retired) for 2009 compliance purposes. In 2009, Maryland-generated RECs were used in five jurisdictions: the District of Columbia, Delaware, Maryland, New Jersey, and Pennsylvania. For 2009 Maryland Tier 1 RECs, Maryland used 65.6 percent of the generated RECs used for RPS compliance; New Jersey, 31.9 percent; and Delaware, 2.5 percent. No Tier 1 Maryland RECs generated in 2009 supported the Pennsylvania RPS program. For 2009 Maryland Tier 2 RECs, New Jersey used 76.1 percent of the generated RECs used for RPS compliance; and Maryland, 23.8 percent. Negligible procurement of Tier 2 Maryland RECs generated in 2009 supported the Pennsylvania RPS program, and none supported the District of Columbia or Delaware RPS programs.

Table 9: 2009 Maryland Generated RECs Retired for RPS Compliance by State

Tier 1 Fuel	DC	DE	MD	NJ	PA	TOTAL
LFG	-	566	234	7,240	-	8,040
SUN	4	-	3,171	-	-	3,175
WAT	-	-	11,498	-	-	11,498
Tier 1 Total	4	566	14,903	7,240	0	22,713
Percentage	0.0%	2.5%	65.6%	31.9%	0.0%	100.0%
Tier 2 Fuel	**DC**	**DE**	**MD**	**NJ**	**PA**	**TOTAL**
BFG	-	-	23,167	-	-	23,167
MSW	-	-	1,093	104,754	100	105,947
WAT	-	-	8,513	-	-	8,513
Tier 2 Total	0	0	32,773	104,754	100	137,627
Percentage	0.0%	0.0%	23.8%	76.1%	0.1%	100.0%
Tier 1 & Tier 2	**DC**	**DE**	**MD**	**NJ**	**PA**	**TOTAL**
Grand Total	4	566	47,676	111,994	100	160,340
Percentage	0.0%	0.4%	29.7%	69.8%	0.1%	100.0%

Fuel Source Abbreviations: BFG, Blast Furnace Gas; BLQ, Black Liquor; LFG, Landfill Gas; MSW, Municipal Solid Waste; SUN, Solar; WAT, Hydroelectric; WDS, Wood and Waste Solids; and WND, Wind.

Source: PJM-EIS, Commission Staff data request.

IV. CONCLUSION

The Maryland RPS Program is designed to create a stable and predictable market for energy generated from renewables, and to foster additional development and growth in the renewable industry. Implementation of the RPS Program assists in overcoming market barriers seen as impediments for the development of the industry; moreover, increasing reliance upon renewable energy technologies to satisfy electric power requirements can provide benefits including reductions in emissions of pollutants, increases in fuel diversity, and economic and employment benefits to the State.

The electricity supplier compliance reports of 2009, verified by Commission Staff, indicate that the State of Maryland RPS obligations were satisfied through submission of the appropriate level of Tier 1 and Tier 2 RECs or via alternative compliance payments. Market participants use a strategy that identifies and incorporates the use of the least-cost, predominant renewable technologies to meet the State's tiered requirements. For the 2009 RPS requirements, electricity suppliers used substantial amounts of qualifying biomass (*e.g.*, waste wood and the mill residue known as black liquor), as well as methane from the anaerobic decomposition of

organic materials in landfills. Small hydroelectric resources were also procured in substantial amounts by electricity suppliers. A limited amount of wind energy was procured.

Three Mid-Atlantic States provided nearly two-thirds (66.3 percent) of the Tier 1 and Tier 2 RECs retired by Maryland electricity suppliers in 2009: Pennsylvania was the largest provider of Tier 2 RECs, Virginia the largest provider of Tier 1 RECs. As well, Maryland resources in the aggregate provided slightly less than fifteen percent of the RECs for Maryland's tiered RPS requirements. In 2009, robust levels of Tier 2 resources were available in the State for potential use by electricity suppliers for RPS compliance. Tier 1 and Tier 1 Solar RPS obligations require electricity suppliers to contract with in-State and out-of-state resources, and pay ACPs for shortages. For the second year of the State's Tier 1 Solar requirement, ACPs were the predominate compliance method used by electricity suppliers.

Maryland REFs can register in multiple states to meet and comply with various policy objectives – and sell additional RECs that support clean, green, or renewable products offered by electricity suppliers. In Maryland, only a small portion of the renewable output and associated RECs generated during calendar year 2009 were retired for RPS compliance purposes; ninety percent of the RECs were banked for sale in future years.

In 2010, the General Assembly enacted changes to the Maryland RPS Program to increase the contribution of solar renewable energy to electricity supply: the RPS percentage requirements for the solar set-aside were accelerated between years 2011 and 2016 and the alternative compliance payment for a shortfall in solar RPS requirements was increased between years 2011 and 2016. The effect will initially cause upward pressure on the price of solar RECs, which may lead to an increase in the number of solar facilities participating in the RPS program in the long-run. To the extent additional growth of solar facilities occurs, the additional solar RECs can cause downward pressure on the price. Additionally, increased ACPs can be used to provide grants for additional solar installations, which can also cause downward pressure on the price of solar RECs.

The Commission will continue to review applications from facilities requesting certification as a Maryland REF, oversee the RPS Program, and verify that the electricity suppliers in the State of Maryland procure adequate renewable resources. As RPS program results are received and reviewed, further refinements to the program may be made to ensure that the objectives of the Maryland RPS Program are met.

APPENDICES

Appendix A: 2009 Retired RECs by Tier and Resource

Tier 1*

Facility Name	Resource	State	Quantity	WAT-1 %	Tier 1
Trenton	WAT - 1	NY	235,925	50.49%	17.09%
Prospect	WAT - 1	NY	58,489	12.52%	4.24%
AP Misc Hydro	WAT - 1	WV	46,570	9.97%	3.37%
Piney	WAT - 1	PA	43,700	9.35%	3.17%
Inghams	WAT - 1	NY	43,584	9.33%	3.16%
Deep Creek	WAT - 1	MD	32,144	6.88%	2.33%
Snowden Hydro Site	WAT - 1	VA	3,817	0.82%	0.28%
Holcomb Rock Hydro	WAT - 1	VA	1,403	0.30%	0.10%
Coleman Falls Hydro	WAT - 1	VA	533	0.11%	0.04%
Conemaugh	WAT - 1	PA	430	0.09%	0.03%
Big Shoals Hydro	WAT - 1	VA	334	0.07%	0.02%
Schoolfield Dam	WAT - 1	VA	200	0.04%	0.01%
AEP Price Hydro	WAT - 1	VA	114	0.02%	0.01%
		Total	**467,243**	**100.00%**	**33.85%**

Facility Name	Resource	State	Quantity	BLQ %	Tier 1
Franklin Mill	BLQ	VA	207,624	53.14%	15.04%
Luke Mill	BLQ	MD	89,739	22.97%	6.50%
Covington MeadWestvaco	BLQ	VA	69,777	17.86%	5.05%
P.H. Glatfelter Spring Grove	BLQ	PA	23,586	6.04%	1.71%
		Total	**390,726**	**100.00%**	**28.30%**

Facility Name	Resource	State	Quantity	WDS %	Tier 1
Multitrade of Pittsylvania	WDS	VA	166,089	48.56%	12.03%
Cadillac RE	WDS	MI	125,617	36.73%	9.10%
Hillman Power	WDS	MI	49,883	14.58%	3.61%
VP Cravenwood	WDS	NC	444	0.13%	0.03%
		Total	**342,033**	**100.00%**	**24.78%**

Facility Name	Resource	State	Quantity	LFG %	Tier 1
Arbor Hills	LFG	MI	84,701	53.86%	6.14%
Edge Moor	LFG	DE	36,839	23.43%	2.67%
PEP Ritchie	LFG	MD	20,938	13.31%	1.52%
C&C Electric	LFG	MI	13,682	8.70%	0.99%
Lake Gas Recovery	LFG	IL	899	0.57%	0.07%
Kankakee	LFG	IL	197	0.13%	0.01%
		Total	**157,256**	**100.00%**	**11.39%**

Facility Name	Resource	State	Quantity	WND %	Tier 1
Mendota Hills LLC	WND	IL	10,000	49.96%	0.72%
Century I	WND	IA	4,677	23.37%	0.34%
Meyersdale Windpower	WND	PA	3,711	18.54%	0.27%
COM High Trail	WND	IL	1,276	6.37%	0.09%
AEP Fowler Ridge	WND	IN	353	1.76%	0.03%
		Total	**20,017**	**100.00%**	**1.45%**

Tier 2

Facility Name	Resource	State	Quantity	WAT-2 %	Tier 2
Safe Harbor	WAT - 2	PA	680,216	59.59%	48.14%
Conowingo	WAT - 2	MD	230,135	20.16%	16.29%
Lake Lynn	WAT - 2	WV	109,888	9.63%	7.78%
Sherman Island	WAT - 2	NY	102,142	8.95%	7.23%
School Street	WAT - 2	NY	19,135	1.68%	1.35%
AEP Summerville	WAT - 2	WV	5	0.00%	0.00%
		Total	**1,141,521**	**100.00%**	**80.79%**

Facility Name	Resource	State	Quantity	MSW %	Tier 2
SPSA WTE	MSW	VA	167,997	61.89%	11.89%
Union County	MSW	NJ	42,426	15.63%	3.00%
Sparrows Point	MSW	MD	23,167	8.54%	1.64%
Monteray Montgomery	MSW	PA	14,714	5.42%	1.04%
Montgomery County	MSW	MD	13,541	4.99%	0.96%
VP Gosport	MSW	VA	8,068	2.97%	0.57%
Wheelabrator	MSW	MD	1,363	0.50%	0.10%
Montgomery Co.	MSW	MD	147	0.05%	0.01%
		Total	**271,423**	**100.00%**	**19.21%**

Tier 1 REC Total	1,377,275
SREC Total	3,260
Tier 2 REC Total	1,412,944
Grand Total**	2,793,479

Resource Definitions	
Black Liquor	BLQ
Landfill Gas	LFG
Municipal Solid Waste	MSW
Solar	SUN
Hydroelectric	WAT
Wood/Waste Solids	WDS
Wind	WND

*Solar facilities are not represented in this table. In 2009, 317 facilities located in Maryland produced a total of 3,217 SRECs and one facility located in Delaware produced 43 SRECs.

**REC totals reflect RECs retired in GATS in 2008, but differ slightly from what LSEs reported for RPS compliance. More RECs were retired in GATS than were used for compliance.

Appendix B: Location of Facilities which Provided RECs for 2009 RPS Compliance

	DE	IA	IL	IN	MD	MI	NC	NJ	NY	PA	VA	WV	Total
Tier 1													
Black Liquor					1					1	2		4
Land Fill Gas	1		2		1	2							6
Small Hydro					1				3	2	6	1	13
Solar	1				317								318
Waste Wood						2	1				1		4
Wind		1	2	1						1			5
Tier 2													
Large Hydro					1				2	1		2	6
Municipal Solid Waste					4			1		1	2		8
Total	2	1	4	1	325	4	1	1	5	6	11	3	364

Appendix C: Distribution of 2009 Vintage RECs Generated in Maryland

	RECs Retired for RPS Compliance by State					Banked	Sold-Voluntary Markets	Bulletin Board	Other	Total RECs Generated in 2009
Fuel Type and Tier	**DC**	**DE**	**MD**	**NJ**	**PA**					
Black Liquor						128,806				128,806
Land Fill Gas		566	234	7,240		42,836				50,876
Small Hydro			11,498			4,030	7,000		2,332	24,860
Solar	4		3,171			318	1	1		3,495
Tier 1 Total	4	566	14,903	7,240	0	175,990	7,001	1	2,332	208,037
Blast Furnace Gas			23,167			238,838				262,005
Large Hydro			8,513			1,711,165	97,313		26,464	1,843,455
Municipal Solid Waste			1,093	104,754	100	529,259				635,206
Tier 2 Total	0	0	32,773	104,754	100	2,479,262	97,313	0	26,464	2,740,666
Grand Total	4	566	47,676	111,994	100	2,655,252	104,314	1	28,796	2,948,703

Appendix D: Maryland Certified Non-Solar Renewable Energy Facilities

Plant Name	State	Capacity (MWs)	Fuel Type
ACE CUMBERLAND CTY 1 LF	NJ	4.8	LFG
AEP FOWLER RIDGE 1A WF	IN	200	WND
AEP FOWLER RIDGE 1B WF	IN	100	WND
AEP FRIES HYDRO	VA	5	WAT
AEP SUMMERVILLE 1-2 H	WV	80	WAT
Allegheny 5	PA	7.1	WAT
Allegheny Lock& Dam No 6 Hydro Project	PA	8.9	WAT
AP ARDEN 1 LF	PA	6.4	LFG
AP CRITERION 1 WF	MD	70	WND
AP GREENLAND GAP 1 WF	WV	264	WND
AP MISC HYDRO H	WV	6	WAT
Archbald Power Station	PA	23	LFG
Beardslee	NY	18.6	WAT
Beecher	IL	3.171	LFG
Big Shoals Hydro	VA	0.5	WAT
Broad Mountain BTM	PA	1.5	LFG
BWWTP Co-Gen Plant	MD	3	LFG
CID	IL	6.2	LFG
Coleman Falls Hydro	VA	1.08	WAT
COM GRAND RIDGE 2 WF	IL	51	WND
COM GRAND RIDGE 3 WF	IL	51	WND
COM HIGH TRAIL 1 WIND	IL	198	WND
COM OLD TRAIL WF 2	IL	198	WND
COM PROVISO 1 LF	IL	3.5	LFG
Conemaugh Hydro Plant	PA	16.5	WAT
Conowingo	MD	474	WAT
Coshocton Mill	OH	16.5	WDS
COUNTY OF MONMOUTH	NJ	1	LFG
Covanta New Martinsville Energy	WV	37.4	WAT
Covington Facility	VA	96.5	BLQ & WDS
Deep Creek	MD	20	WAT
Des Plaines	IL	3.5	LFG
DPL CENTRAL 1 LF	DE	3	LFG
DPL SOUTHERN LF1	DE	4	LFG

Notes: These are the REFs that have been certified by the Commission, and registered in GATS of 1/6/2011. The rated capacity figure (in MWs) for the REFs is for the facility as a whole and does not partition out the amount attributable to renewable fuel sources.

Appendix D: Maryland Certified Non-Solar Renewable Energy Facilities (Cont'd)

Plant Name	State	Capacity (MWs)	Fuel Type
E.J. West	NY	22.1	WAT
Easton	MD	69	OBL
Edge Moor	DE	75	LFG
Edge Moor	DE	177	LFG
Edge Moor	DE	446	LFG
Fairless Hills	PA	30	LFG
Fairless Hills	PA	30	LFG
Franklin Mill	VA	25	BLQ
FRANKLIN MILL	VA	15.625	BLQ
FRANKLIN MILL	VA	32.4	BLQ
Granby	NY	10.3	WAT
Greene Valley	IL	9.3	LFG
Holcomb Rock Hydro	VA	1.4	WAT
Hopewell Mill	VA	47.6	BLQ & WDS
I-95 Landfill Phase I	VA	0.8	LFG
I-95 Landfill Phase II	VA	0.8	LFG
I-95 Landfill Phase II	VA	0.8	LFG
I-95 Landfill Phase II	VA	0.8	LFG
I-95 Landfill Phase II	VA	0.8	LFG
I-95 Landfill Phase1	VA	0.8	LFG
I-95 Landfill Phase1	VA	0.8	LFG
I-95 Landfill Phase1	VA	0.8	LFG
Inghams	NY	6.8	WAT
Kankakee	IL	1.8	LFG
Lake Gas Recovery	IL	9.3	LFG
Lake Lynn Power Station	WV	51.2	WAT
Lakeview Gas Recovery	PA	6.1	LFG
Lewis Wind	MD	0.0024	WND
Luke Mill	MD	65	BLQ
Mallard Lake Electric	IL	25	LFG
Mendota Hills LLC	IL	50	WND
Meyersdale Windpower	PA	30	WND
Middlesex Generating Facility	NJ	22.25	LFG
Monmouth Landfill Gas to Energy	NJ	7.4	LFG

Notes: These are the REFs that have been certified by the Commission, and registered in GATS of 1/6/2011. The rated capacity figure (in MWs) for the REFs is for the facility as a whole and does not partition out the amount attributable to renewable fuel sources.

Appendix D: Maryland Certified Non-Solar Renewable Energy Facilities (Cont'd)

Plant Name	State	Capacity (MWs)	Fuel Type
Monmouth Landfill Gas To Energy BTM	NJ	3	LFG
Montenay Montgomery LP	PA	32.1	MSW
Montgomery County Resource Recovery	MD	68	MSW
Montgomery County Resource Recovery Facility	MD	10	MSW
Multitrade of Pittsylvania LP	VA	80	WDS
P.H. Glatfelter - Spring Grove	PA	109.68	BLQ
PE POTTSTOWN 1 LF	PA	6.2	LFG
PE SE CHES CO REFUSE 1 LF	PA	0.84	LFG
Pennsauken Landfill	NJ	2.775	LFG
PEP RITCHIE BROWN 2 LF	MD	4.2	LFG
PEP RITCHIE BROWN 2 LF	MD	4.2	LFG
PEP RITCHIE PG COGEN 1	MD	2.5	LFG
PEP RITCHIE PG COGEN 1	MD	2.5	LFG
PH Glatfelter -Chillicothe	OH	92.8	BLQ
Piney	PA	33.26	WAT
PL ARCHBALD PEI 5 LF	PA	4.6	LFG
PL ARCHBALD PEI 6 LF	PA	4.6	LFG
PL FREY FARM LF	PA	3.2	LFG
PL LOCUST RIDGE 2 WF	PA	102	WND
PL N LBNON 1 LF	PA	3.2	LFG
PN ALLEGHENY RIDGE 1 WF	PA	150	WND
PN ARMENIA MOUNTAIN 1 WF	PA	100.5	WND
PN NORTHERN TIER 1 D	PA	1.6	LFG
PN SHIPPENSBURG 1 LF	PA	6.4	LFG
PN STONY CREEK 1 WF	PA	52.5	WND
Prospect	NY	18.08	WAT
Richmond Electric	VA	3	LFG
Rockford Electric	IL	2	LFG
Rockton Hydro Facility	IL	1.1	WAT
Safe Harbor	PA	31.953	WAT
Safe Harbor	PA	38.55	WAT
Safe Harbor	PA	37.95	WAT
Safe Harbor	PA	38.55	WAT

Notes: These are the REFs that have been certified by the Commission, and registered in GATS of 1/6/2011. The rated capacity figure (in MWs) for the REFs is for the facility as a whole and does not partition out the amount attributable to renewable fuel sources.

Appendix D: Maryland Certified Renewable Energy Facilities (Cont'd)

Plant Name	State	Capacity (MWs)	Fuel Type
Safe Harbor	PA	31.95	WAT
Safe Harbor	PA	32.55	WAT
Safe Harbor	PA	31.953	WAT
Safe Harbor	PA	32.55	WAT
Safe Harbor	PA	31.953	WAT
Safe Harbor	PA	32.55	WAT
Safe Harbor	PA	37.5	WAT
Safe Harbor	PA	38.55	WAT
SAYREVIL	NJ	22.25	LFG
School Street	NY	38	WAT
Schoolfield Dam	VA	4.55	WAT
Settlers Hill	IL	6.2	LFG
Sherman Island	NY	38.25	WAT
Snowden Hydro Site	VA	5	WAT
South Barrington Electric	IL	1.6	LFG
Sparrows Point	MD	129	MSW
SPSA WTE	VA	60	MSW
Trenton	NY	27.8	WAT
Union County Resource Recovery	NJ	45	MSW
Viking Energy of Northumberland	PA	18	WDS
VP GOSPORT 1 F	VA	60	MSW
VP KING GEORGE 1 LF	VA	9.9	LFG
Westchester	IL	3.5	LFG
Wheelabrator Baltimore Refuse	MD	60.222	MSW
Wheelabrator Falls	PA	52.562	MSW
Wheelabrator Gloucester LP	NJ	14	MSW
Woodland	IL	4.8	LFG
Worcester County Renewable Energy	MD	2	BLQ

Notes: These are the REFs that have been certified by the Commission, and registered in GATS of 1/6/2011. The rated capacity figure (in MWs) for the REFs is for the facility as a whole and does not partition out the amount attributable to renewable fuel sources.

As of January 2011, there were 1,022 certified solar REFs registered in GATS; with a combined capacity of 12.3 MWs. Due to the large number of solar facilities, they are not listed individually in the table above.

Appendix E: Number of Renewable Energy Facilities Located in Maryland

Maryland County	Tier 1	Tier 1 Solar	Tier 2	Total
Allegany	1			1
Anne Arundel		93		93
Baltimore	1	110	2	113
Baltimore City	1	13		14
Berks		1		1
Bozman		1		1
Calvert		15		15
Caroline		5		5
Carroll		35		35
Cecil		17		17
Charles		13		13
Chestertown		1		1
Crawford		1		1
Dorchester		8		8
Edgewater		1		1
Eldersburg		1		1
Frederick		41		41
Garrett	2	2		4
Harford		46	1	47
Howard		138		138
Kent		5		5
Montgomery	2	301	2	305
Prince George's	2	59		61
Queen Anne's		10		10
Somerset		1		1
St. Mary's		17		17
Talbot	1	7		8
Washington		33		33
Wicomico	1	6		7
Worcester	2	6		8
Grand Total	**13**	**987**	**5**	**1,005**

Note: This list includes all renewable generators that are both: 1) located within the state of Maryland, and 2) registered to participate in any one of the PJM States' renewable energy programs as of January 6, 2010. This list does not correspond to the facilities listed in Appendix D.

Appendix F: Capacity of Renewable Energy Facilities Located in Maryland (in MWs)

Maryland County	Tier 1	Tier 1 Solar	Tier 2	Total
Allegany	65.000			65.000
Anne Arundel		0.967		0.967
Baltimore	3.000	1.836	189.222	194.058
Baltimore City	3.000	0.193		3.193
Berks		0.006		0.006
Bozman		0.005		0.005
Calvert		0.110		0.110
Caroline		0.047		0.047
Carroll		0.501		0.501
Cecil		0.105		0.105
Charles		0.221		0.221
Chestertown		0.004		0.004
Crawford		0.012		0.012
Dorchester		0.080		0.080
Edgewater		0.002		0.002
Eldersburg		0.004		0.004
Frederick		0.313		0.313
Garrett	90.000	0.011		90.011
Harford		0.259	474.000	474.259
Howard		0.729		0.729
Kent		0.019		0.019
Montgomery	3.240	3.601	78.000	84.841
Prince George's	6.700	0.482		7.182
Queen Anne's		0.057		0.057
Somerset		0.004		0.004
St. Mary's		0.107		0.107
Talbot	69.000	0.036		69.036
Washington		0.484		0.484
Wicomico	6.000	0.031		6.031
Worcester	2.002	0.032		2.034
Grand Total	**247.94**	**10.26**	**741.22**	**999.42**

Note: This list includes all renewable generators that are both: 1) located within the state of Maryland, and 2) registered to participate in any one of the PJM States' renewable energy programs as of January 6, 2010. This list does not correspond to the facilities listed in Appendix D.