PUBLIC SERVICE COMMISSION OF MARYLAND

RENEWABLE ENERGY PORTFOLIO STANDARD REPORT

With Data for Compliance Year 2011

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

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I. INTRODUCTION

A. Report Contents

This document constitutes the 2013 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. 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 2013 report highlights data from electricity suppliers' 2011 compliance reports and relevant 2011 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 16 auctions held between September 2008 and June 2012 yielded proceeds for Maryland totaling $197,434,493.93.[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] An allocation of up to 10.5 percent of the RGGI funds is provided in all subsequent auctions post June 2011.

Responsibility for developing renewable energy sources has been vested with the Maryland Energy Administration (MEA). MEA advises that a number of residential and small commercial renewable projects were supported by the Energy Fund either through dedicated funds (i.e., RPS compliance fees) or RGGI auction revenues in fiscal year 2012. In fiscal year 2012, approximately $4,009,617.33 was used from RGGI auction revenues and compliance fees to fund new Tier 1 renewable energy resources in Maryland. The grants from SEIF and compliance fees supported the installation of 289 tons of geothermal capacity; 7,190 kilowatts of solar photovoltaic (PV) capacity; 6,948 sq. ft. of solar hot water heating capacity; and 835 kilowatts of wind energy capacity.[7]

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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 2011. In 2011 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, at 3 (December 2011).

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 (September 6, 2012).

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 17, 2010).

7 Source: MEA email, December 10, 2012.

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] or in a control area that is adjacent to the PJM region,[9] so long as the electricity is delivered into the PJM region. However, facilities generating electricity from solar energy, poultry litter–to–energy, waste–to–energy, or refuse–derived fuel are eligible only if the facility is connected with the electric distribution grid serving Maryland. To certify a Renewable Energy Facility (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.[10] In addition to the geographic requirements, 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.[11]

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. Eligible fuel sources for Tier 1 RECs and Tier 2 RECs are listed in Table 1. Solar has its own standard within Tier 1.

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[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. For the purposes of this document, 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, at 5 (December 2011). 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] REF applications are maintained by the Commission and are available online. Maryland Public Service Commission, Renewable Portfolio Standard Documents, Available at: http://webapp.psc.state.md.us/intranet/ElectricInfo/home_new.cfm.

[11] 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

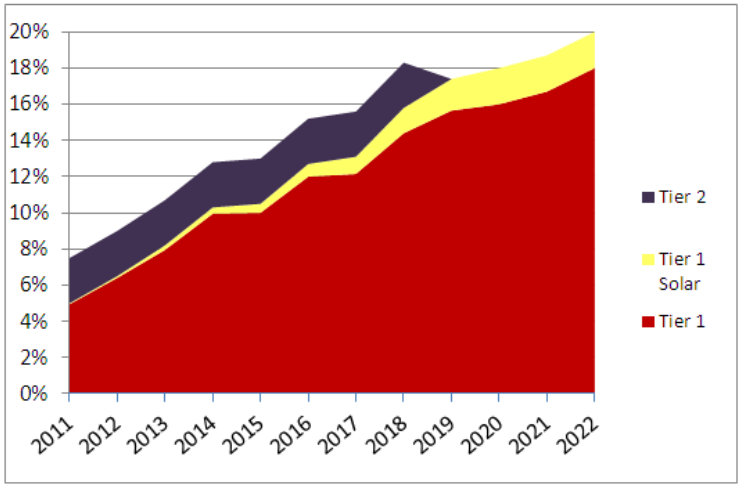
Tier 1 Renewable Sources	Tier 2 Renewable Sources
• Solar (Tier 1 Solar) • Wind • Qualifying Biomass • Methane from a landfill or wastewater treatment plant • Geothermal • Ocean • Fuel Cell that produces electricity from a Tier 1 source • Hydroelectric power plant less than 30 MW capacity • Poultry litter-to-energy • Waste-to-energy[12] • Refuse–derived fuel • Thermal energy from a thermal biomass system	• Hydroelectric power other than pump storage generation *(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
2011	4.95%	0.05%	2.50%
2012	6.40%	0.10%	2.50%
2013	7.95%	0.25%	2.50%
2014	9.95%	0.35%	2.50%
2015	10.00%	0.50%	2.50%
2016	12.00%	0.70%	2.50%
2017	12.15%	0.95%	2.50%
2018	14.40%	1.40%	2.50%
2019	15.65%	1.75%	
2020	16.00%	2.00%	
2021	16.70%	2.00%	
2022	18.00%	2.00%	



[12] Waste-to-energy was moved from Tier 2 to Tier 1 as a result of legislation (Chapter 519 of 2011) which took effect October 1, 2011. This only affected RECs generated on or after October 1, 2011, and RECs from these sources generated prior to the effective date of the legislation remain Tier 2 RECs.

[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 583 of 2012) which took effect October 1, 2012.

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 their RPS obligation must 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 2010 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 2010 compliance year, and then doubles to $40 per MWh for all subsequent years. The Tier 1 Solar ACP is $400 per MWh shortfall for 2010 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 2010 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)

Compliance Year	Tier 1 (non-solar)	Tier 1 Solar	Tier 2	IPL[16] Tier 1
2011	$40	$400	$15	$4
2012	$40	$400	$15	$4
2013	$40	$400	$15	$3
2014	$40	$400	$15	$3
2015	$40	$350	$15	$2.50
2016	$40	$350	$15	$2.50
2017	$40	$200	$15	$2
2018	$40	$200	$15	$2
2019	$40	$150		$2
2020	$40	$150		$2
2021	$40	$100		$2
2022	$40	$100		$2
2023 +	$40	$50		$2

[15] Article § 7-705.

[16] 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.

II. ELECTRICITY SUPPLIER COMPLIANCE REPORTS

Calendar year 2011 marked the sixth compliance year for the Maryland RPS, and the fourth 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 71 electricity suppliers, including 47 competitive suppliers, 13 brokers or electricity suppliers with zero retail electricity sales, and 11 electric companies, of which four are investor-owned utilities. RPS compliance reports are due by April 1st every year. There were approximately 63.7 million MWh of total retail electricity sales in Maryland for 2011: 62.2 million MWh were subject to RPS compliance, and 1.5 million MWh were exempt.[18]

For the 2011 compliance year, electricity suppliers retired 4,677,058 RECs, which was greater than the obligation for the year by over 15,000 RECs. According to the compliance reports filed with the Commission, the cost of RECs retired totaled $14,548,495 for the 2011 compliance year. For the six compliance years, Table 4 displays the breakdown of RECs submitted for each tier (MWh), the number of RECs retired in the year by tier (MWh), as well as the payments for the shortfalls in terms of the ACP amount required ($ per MWh).[19] The total cost of compliance with the 2011 RPS requirements was $14.6 million, with the ACPs accounting for $98,520, only 0.6 percent of this total.[20]

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[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 54-56 (September 30, 2010).

[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	520,073	-	1,300,201	1,820,274
	Retired RECs	552,874	-	1,322,069	1,874,943
	ACP Required	**$13,293**	**-**	**$24,917**	**$38,209**
2007	RPS Obligation	553,612	-	1,384,029	1,937,641
	Retired RECs	553,374	-	1,382,874	1,936,248
	ACP Required	**$12,623**	**-**	**$23,751**	**$36,374**
2008	RPS Obligation	1,183,439	2,934	1,479,305	2,665,678
	Retired RECs	1,184,174	227	1,500,414	2,684,815
	ACP Required	**$9,020**	**$1,218,739**	**$8,175**	**$1,235,934**
2009	RPS Obligation	1,228,521	6,125	1,535,655	2,770,301
	Retired RECs	1,280,946	3,260	1,509,270	2,793,475
	ACP Required	**$395**	**$1,147,600**	**$270**	**$1,148,265**
2010	RPS Obligation	1,922,070	15,985	1,601,723	3,539,778
	Retired RECs	1,931,367	15,451	1,622,751	3,569,569
	ACP Required	**$20**	**$217,600**	**$0**	**$217,620**
2011	RPS Obligation	3,079,851	28,037	1,553,942	4,661,830
	Retired RECs	3,083,141	27,972	1,565,945	4,677,058
	ACP Required	**$48,200**	**$41,200**	**$9,120**	**$98,520**

Note: Some electricity suppliers retired more RECs than required.

RECs are valid for compliance for the calendar year of generation and the following two calendar years.[21] Figure 1 aggregates the Maryland RPS tiers on the basis of generation year. 40.4 percent of the RECs retired for 2011 compliance were generated in 2011, 34.9 percent of the retired RECs were generated in 2010; the balance of the RECs (24.7percent) were generated in 2009. Since a majority of the RECs retired in 2011 were not generated in 2011, this indicates generators and/or electricity suppliers are utilizing Maryland's three year banking provision.[22]

[21] COMAR 20.61.03.01.C (unless the REC is diminished or extinguished before expiration).

[22] 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: RECs Retired in 2011 by Generation Year

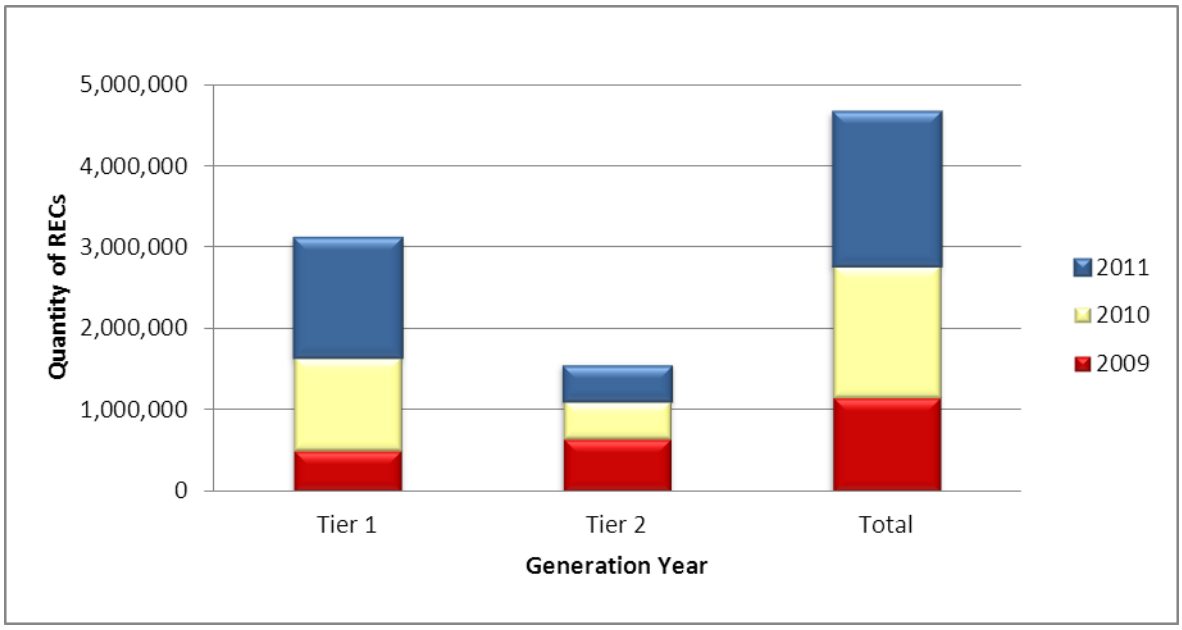
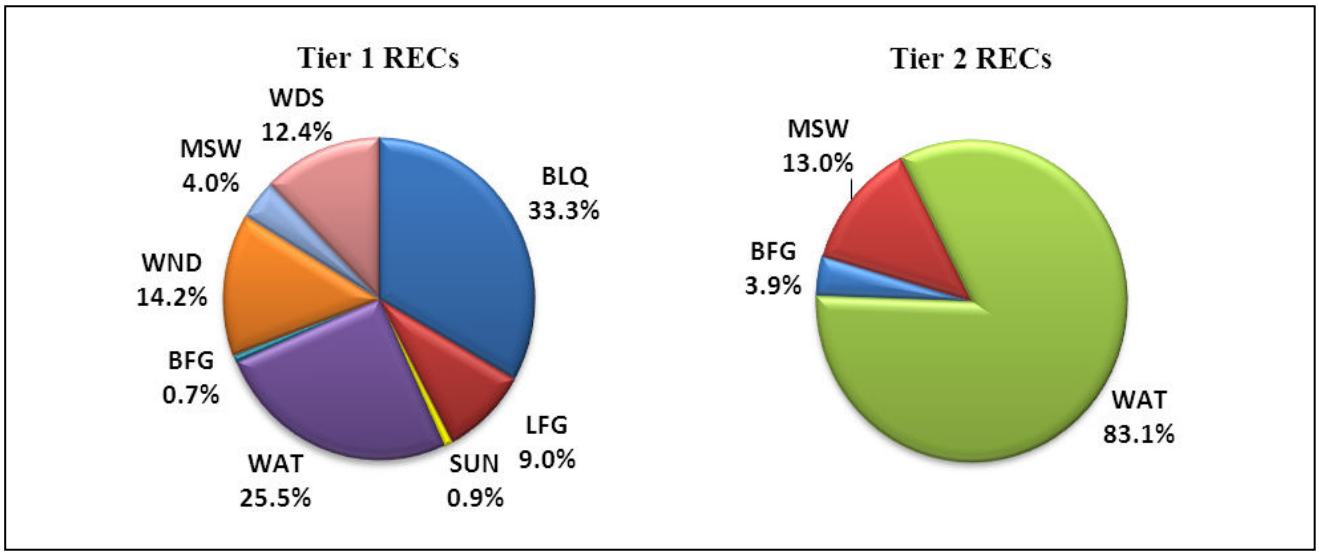


Figure 2 illustrates the fuel sources used to satisfy Tier 1 and Tier 2 RPS requirements for the 2011 RPS compliance year. Of the Tier 1 RECs retired for 2011, the principle resources used were black liquor-fueled resources that provided approximately 33.3 percent of the RECs;[23] small hydro, 25.5 percent; wind, 14.2 percent; waste wood, 12.4 percent; landfill gas, 9.0 percent; and municipal solid waste, 4.0 percent. Blast furnace gas and solar resources each account for less than one percent of the RECs retired in 2011 for Maryland RPS compliance requirements.[24] Of the Tier 2 RECs retired for 2011, Figure 2 also reveals that hydroelectric facilities provided a huge percentage of the RECs, 83.1 percent; while municipal solid waste provided 13.0 percent of the RECs retired. Blast furnace gas resources account for 3.9 percent of the Tier 2 RECs retired for 2011.

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

[24] 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 2011 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.

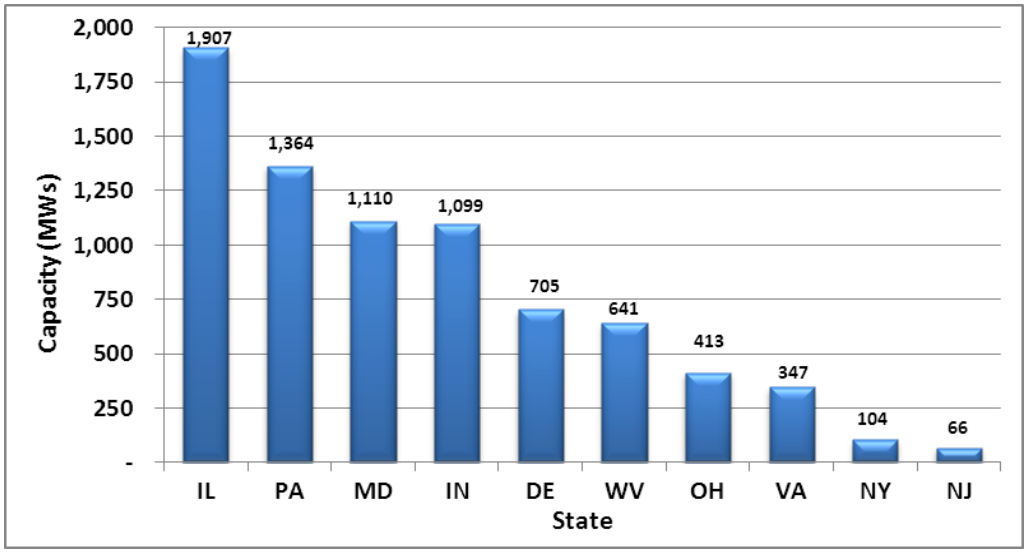
Figure 2: 2011 Tier 1 and Tier 2 Retired RECs by Fuel Source[25]



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

Figure 3 presents the geographical location and the total generating capacity (7,629 MW) for all Maryland RPS-certified facilities regardless of Tier. RPS requirements also exist in the surrounding states, which generally support out-of-state and regional market participation (see Appendix A). Forty-six percent of the capacity of renewable facilities that are eligible to participate in Maryland reside in the Mid-Atlantic States. The locations of the remaining eligible resources span six states and in total contribute 54 percent of the State's eligible capacity.

Figure 3: Total Rated Capacity by State[26]

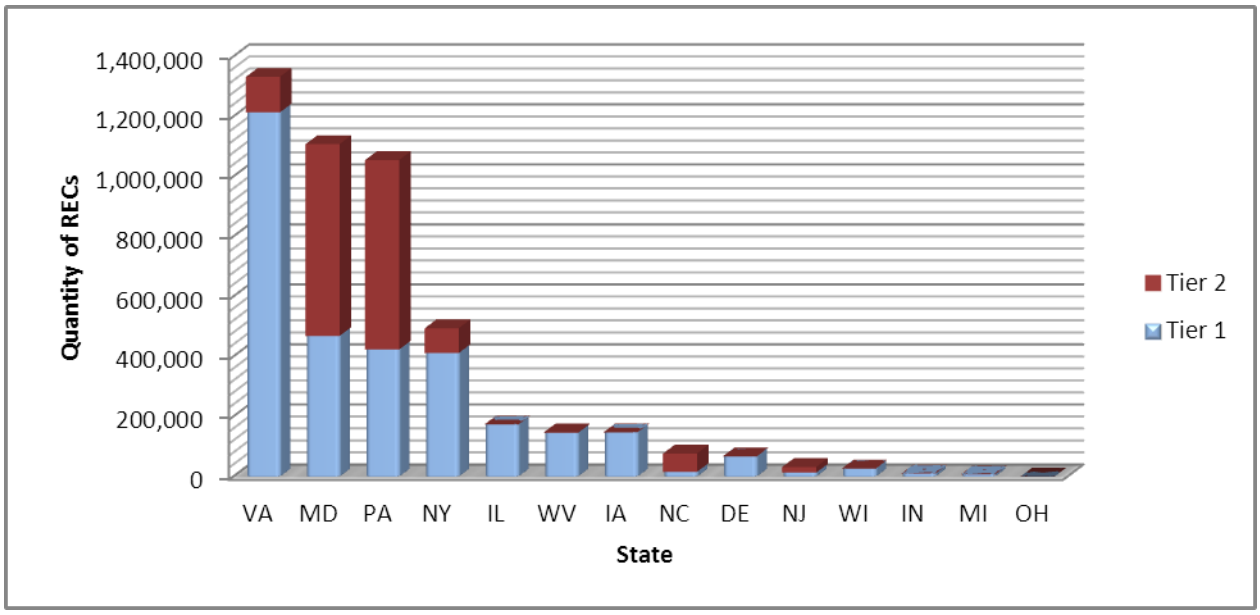


[25] Blast furnace gas and municipal solid waste are considered waste-to-energy fuels, and as such were changed from Tier 2 to Tier 1 fuels as of October 1, 2011.

[26] PJM-EIS, Generation Attribute Tracking System, Database query, June 25, 2012. The information in this figure does not include Commission authorized REFs that have not established a REC account with PJM GATS.

For the 2011 compliance year, Figure 4 provides a visual display of aggregate REC data to convey general relationships among the States that contributed RECs in 2011. Virginia supplied the largest number of RECs purchased by retail electricity suppliers. The vast majority of the Virginia RECs were from Tier 1 facilities. Maryland was the second most plentiful source of RECs procured by Maryland electric suppliers. Pennsylvania was ranked third in terms of state location for retired RECs; additionally, Pennsylvania was the largest source of Tier 1 RECs retired for 2011 compliance purposes.

Figure 4: Number of RECs Retired by Facility Location (2011)



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 2011 on a Tier and aggregate basis. As noted above, Virginia generated RECs, followed by Maryland and Pennsylvania were used in the largest aggregate amounts by Maryland electricity suppliers for 2011 RPS compliance.[27] Tier 1 Maryland RECs retired include 27,903 Solar RECs (SRECs).

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

Table 5: 2011 Compliance Reports' REC Retirement by State

State*	Tier 1	Tier 1 Solar	Tier 2	Total
VA (2)	1,214,144	0	118,400	1,332,544
MD (4)	440,889	27,903	639,036	1,107,828
PA (1)	423,365	1	631,544	1,054,910
NY (3)	411,776	0	82,387	494,163
IL (12)	173,219	0	0	173,219
WV (7)	145,400	0	2,000	147,400
IA (15)	147,309	0	0	147,309
NC (6)	15,741	0	60,924	76,665
DE (9)	66,833	0	0	66,833
NJ (8)	13,113	0	18,613	31,726
WI (13)	26,562	0	0	26,562
IN (11)	9,852	0	0	9,852
MI (5)	6,925	0	0	6,925
OH (10)	40	0	0	40
Total	**3,156,173**	**27,904**	**1,491,899**	**4,675,976**

* The parentheses show the State's positions last year. DC was 14th in 2010, but was dropped because of solar.

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.

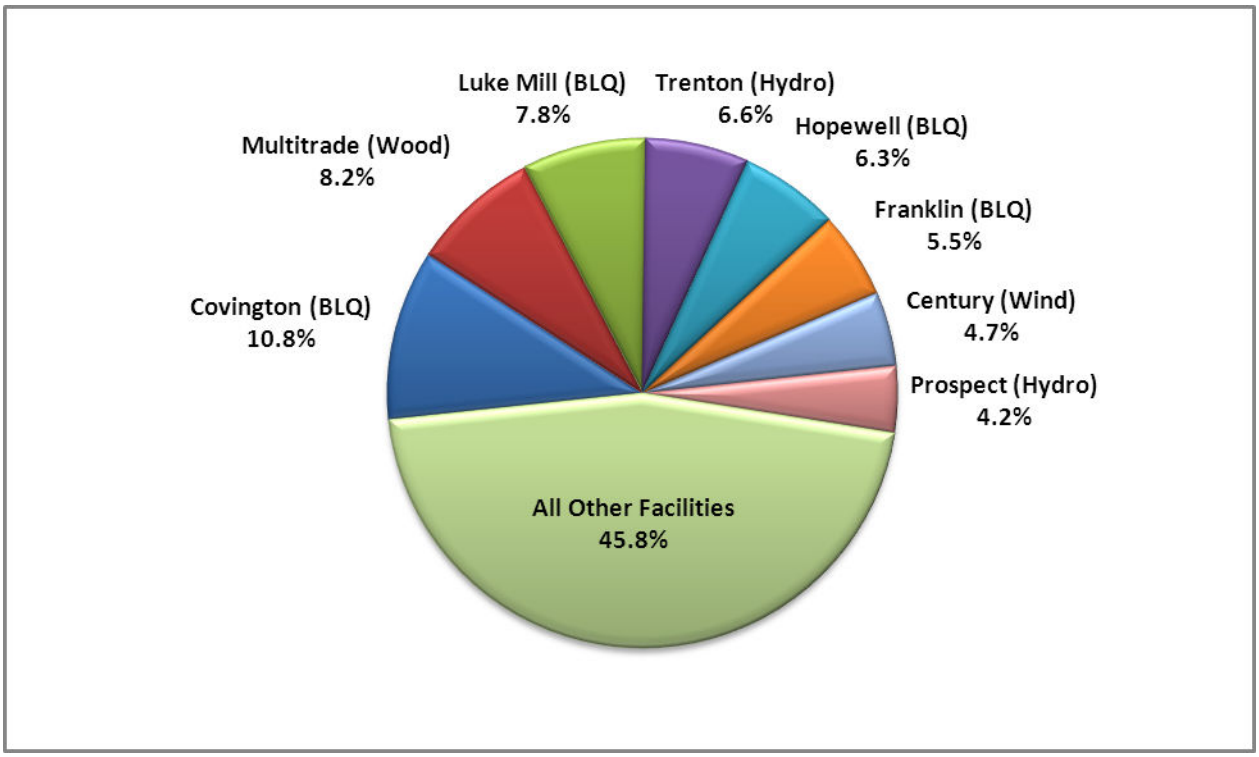
Table 6: 2011 Compliance Reports' REC Retirement by State (%)

State	Tier 1	Tier 1 Solar	Tier 2	Total
VA	39.2%	0.0%	7.6%	28.5%
MD	14.2%	100.0%	41.2%	23.7%
PA	13.7%	0.0%	40.7%	22.6%
NY	13.3%	0.0%	5.3%	10.6%
IL	5.6%	0.0%	0.0%	3.7%
WV	4.7%	0.0%	0.1%	3.2%
IA	4.8%	0.0%	0.0%	3.2%
NC	0.5%	0.0%	3.9%	1.6%
DE	2.2%	0.0%	0.0%	1.4%
NJ	0.4%	0.0%	1.2%	0.7%
WI	0.9%	0.0%	0.0%	0.6%
IN	0.3%	0.0%	0.0%	0.2%
MI	0.2%	0.0%	0.0%	0.1%
OH	0.0%	0.0%	0.0%	0.0%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Additional information pertaining to the source of renewable energy used to meet Maryland's 2011 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 2011 for the Maryland RPS. Appendix B also presents the number of facilities by state, tier, and type of renewable facility.

For the 2011 compliance year, Figure 5 shows a list of those facilities that were major contributors of Maryland Tier 1 RECs retired for 2011, their generation source and origin. The eight facilities listed in Figure 5 provided 54.2 percent of the Tier 1 RECs retired for 2011. The remaining 72 remaining non-solar facilities provided 44.9 percent of the Tier 1 RECs retired for 2011; with the 1,686 solar facilities contributing slightly less than one percent. The four largest black liquor facilities alone provided just over 30 percent of all Tier 1 RECs.

Figure 5: List of Significant Tier 1 Generators (2011)



III. MARYLAND RENEWABLE ENERGY FACILITIES

Maryland's RPS requires electricity suppliers to obtain a minimum percentage of their power supply 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. [28] This section of the report provides information on the REFs located in Maryland in 2011.[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 supplier product offerings (*i.e.*, green power products).[30] Green power products are offered to the public with higher

[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.

[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-

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 2011, 793,478 Tier 1 RECs (representing and 23,113,528 Tier 2 RECs were generated within Maryland, totaling 3,907,006 RECs (see Table 7).

Table 7: 2011 Maryland Generated RECs by Fuel Source

Fuel Type	Tier I									Tier II				Grand Total
	BFG	BLQ	LFG	MSW	OBL	SUN	WAT	WND	Total	BFG	MSW	WAT	Total	
Quantity of RECs	54,296	128,371	63,419	166,119	43	34,405	35,051	311,774	793,478	97,289	497,801	2,518,438	3,113,528	3,907,006
Percentage	6.8%	16.2%	8.0%	20.9%	0.0%	4.3%	4.4%	39.3%	100.0%	3.1%	16.0%	80.9%	100.0%	

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

Source: PJM-EIS.

Table 8 presents additional detail regarding the disposition of 2011 Maryland-generated RECs in calendar year 2011. Approximately 66 percent of the RECs generated within the State of Maryland by independent electric generators went unsold and consequently banked for potential future sale in Maryland or other states in subsequent compliance years.[31] Just over 33 percent of the RECs generated in Maryland were retired to meet the RPS requirements in Maryland and various other PJM states. Labeled as "Other" in Table 8, just over one percent of RECs were sold for other purposes, posted for sales, or are awaiting confirmation by counterparties to complete year-end transactions.

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 September 2011, there are 3,359 registered renewable generators located in Maryland. Of the 3,359 generators, 3,332 are approved by the Commission for Maryland RPS compliance. The 27 facilities registered for use in other states include 23 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 and/or New Jersey.

[31] 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).

Table 8: Disposition of 2011 Maryland Generated RECs

	Banked	RPS Compliance	Other	Total
Tier 1	262,177	458,162	38,734	759,073
Tier 1 Solar	7,422	26,917	66	34,405
Tier 2	2,303,281	808,030	2,217	3,113,528
Total	2,572,880	1,293,109	41,017	3,907,006
(%)	65.85%	33.10%	1.05%	100.00%

Source: PJM-EIS.

Table 9 presents, on a state-by-state basis, the distribution of the RECs generated in the State of Maryland that were then retired for compliance purposes. In 2011, Maryland-generated RECs were used in six jurisdictions: the District of Columbia, Delaware, Illinois, Maryland, New Jersey, and Pennsylvania. In 2011, 64.0 percent Maryland generated Tier 1 RECs retired for compliance purposes were retired in Maryland; and 42.1 percent Maryland generated Tier 2 RECs retired for compliance purposes were retired in Maryland.

Table 9: 2011 Maryland Generated RECs Retired for RPS Compliance by State

	Fuel	DC	DE	IL	MD	NJ	PA	TOTAL
Tier 1	Black Liquor	6,000	0	0	95,554	0	0	101,554
	Blast Furnace Gas	0	0	0	22,504	0	0	22,504
	Municipal Solid Waste	0	0	0	125,278	1,918	0	127,196
	Land Fill Gas	0	7,381	0	12,929	30,064	164	50,538
	Small Hydro	2,326	0	0	27,876	2,553	0	32,755
	Wind	0	101,996	0	118	21,458	0	123,572
	Solar	190	0	0	26,091	0	636	26,917
	Biomass Liquids	0	0	0	43	0	0	43
	Tier 1 Total	**8,516**	**109,377**	**0**	**310,393**	**55,993**	**800**	**485,079**
	Percentage	**1.8%**	**22.5%**	**0.0%**	**64.0%**	**11.5%**	**0.2%**	**100.0%**
Tier 2	Blast Furnace Gas	0	0	0	4,575	0	0	4,575
	Large Hydro	0	0	58,720	331,667	0	35,083	425,470
	Municipal Solid Waste	3,925	0	0	4,000	352,616	17,444	377,985
	Tier 2 Total	**3,925**	**0**	**58,720**	**340,242**	**352,616**	**52,527**	**808,030**
	Percentage	**0.5%**	**0.0%**	**7.3%**	**42.1%**	**43.6%**	**6.5%**	**100.0%**
Tier 1 & 2	**Grand Total**	**12,441**	**109,377**	**58,720**	**650,635**	**408,609**	**53,327**	**1,293,109**
	Percentage	**1.0%**	**8.5%**	**4.5%**	**50.3%**	**31.6%**	**4.1%**	**100.0%**

Source: PJM-EIS.

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 2011, 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, with only a small percentage relying on alternative compliance payments. Market participants use strategies that identify and incorporate the use of the least-cost, predominant renewable technologies to meet the State's tiered requirements. For the 2011 RPS requirements, electricity suppliers used substantial amounts of hydroelectric and qualifying biomass (*e.g.*, waste wood and the mill residue known as black liquor). Waste to energy (*e.g.*, municipal solid waste and blast furnace gas), wind, and methane from the anaerobic decomposition of organic materials in landfills were also procured in significant amounts by electricity suppliers. A limited amount of solar energy was procured compared to other resources, even reflecting the 150 percent increase in solar capacity during the 2011 calendar year.

Three States (Virginia, Maryland, and Pennsylvania) provided just under three-quarters (74.7 percent) of the Tier 1 and Tier 2 RECs retired by Maryland electricity suppliers in 2011: Maryland was the largest provider of Tier 2 RECs, Virginia the largest provider of Tier 1 RECs. For the second year, electricity suppliers did not rely heavily on ACPs to meet the State's Tier 1 Solar requirements. Instead, Maryland electricity suppliers retired 99.6 percent of the Tier 1 Solar RECs required to meet the 2011 RPS obligation.

REFs located in Maryland 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, over 33 percent of the renewable output and associated RECs generated during calendar year 2011 were retired for compliance with various states' RPS; while just over 65 percent of the RECs were banked for sale in future years.

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: 2011 Retired RECs by Tier and Resource

Tier 1*

Facility Name	Resource	State	Quantity	WAT %	Tier 1
Trenton	WAT-01	NY	204,602	25.65%	6.55%
Prospect	WAT-01	NY	132,359	16.59%	4.24%
Allegheny Lock& Dam	WAT-01	PA	69,111	8.66%	2.21%
AP Misc Hydro	WAT-01	WV	60,061	7.53%	1.92%
Conemaugh	WAT-01	PA	55,027	6.90%	1.76%
Allegheny	WAT-01	PA	36,240	4.54%	1.16%
Schoolfield	WAT-01	VA	29,145	3.65%	0.93%
Deep Creek	WAT-01	MD	27,876	3.49%	0.89%
Little Quinnesec Falls	WAT-01	WI	26,210	3.29%	0.84%
Inghams	WAT-01	NY	25,190	3.16%	0.81%
AEP Fries	WAT-01	VA	22,672	2.84%	0.73%
E.J. West	WAT-01	NY	21,221	2.66%	0.68%
Granby	WAT-01	NY	19,960	2.50%	0.64%
Snowden	WAT-01	VA	16,878	2.12%	0.54%
Holcomb Rock	WAT-01	VA	12,503	1.57%	0.40%
Coleman Falls	WAT-01	VA	8,868	1.11%	0.28%
Beardslee	WAT-01	NY	8,444	1.06%	0.27%
Marshall	WAT-01	NC	7,895	0.99%	0.25%
Blewett	WAT-01	NC	7,846	0.98%	0.25%
Big Shoals Hydro	WAT-01	VA	3,204	0.40%	0.10%
Dixon Hydroelectric	WAT-01	IL	2,385	0.30%	0.08%
		Total	**797,697**	**100.00%**	**25.54%**

Facility Name	Resource	State	Quantity	BLQ %	Tier 1
Covington Facility	BLQ-01	VA	338,558	32.60%	10.84%
Luke Mill	BLQ-01	MD	244,937	23.59%	7.84%
Hopewell Mill	BLQ-01	VA	196,913	18.96%	6.31%
Franklin Mill	BLQ-01	VA	171,627	16.53%	5.50%
P.H. Glatfelter	BLQ-01	PA	86,057	8.29%	2.76%
Kaukauna	BLQ-01	WI	352	0.03%	0.01%
		Total	**1,038,444**	**100.00%**	**33.25%**

Facility Name	Resource	State	Quantity	WDS %	Tier 1
Multitrade	WDS-01	VA	255,848	66.23%	8.19%
Hopewell Mill	WDS-01	VA	73,195	18.95%	2.34%
Covington Facility	WDS-01	VA	41,401	10.72%	1.33%
Viking Energy	WDS-01	PA	8,894	2.30%	0.28%
Cadillac	WDS-01	MI	6,925	1.79%	0.22%
Coshocton Mill	WDS-01	OH	40	0.01%	0.00%
		Total	**386,303**	**100.00%**	**12.37%**

Facility Name	Resource	State	Quantity	LFG %	Tier 1
Edge Moor	LFG-01	DE	54,111	19.32%	1.73%
Archbald Power Station	LFG-01	PA	48,037	17.16%	1.54%
I-95 Landfill	LFG-01	VA	37,408	13.36%	1.20%
PL Archbald	LFG-01	PA	12,918	4.61%	0.41%
Pennsauken Landfill	LFG-01	NJ	11,851	4.23%	0.38%
Settlers Hill	LFG-01	IL	11,697	4.18%	0.37%
Pep Ritchie PG Cogen	LFG-01	MD	11,029	3.94%	0.35%
DPL Southern	LFG-01	DE	10,279	3.67%	0.33%
Greene Valley	LFG-01	IL	10,075	3.60%	0.32%
Beecher	LFG-01	IL	7,925	2.83%	0.25%
Woodland	LFG-01	IL	7,251	2.59%	0.23%
PEP Ritchie Brown	LFG-01	MD	6,281	2.24%	0.20%
Richmond Electric	LFG-01	VA	5,924	2.12%	0.19%
AP Arden	LFG-01	PA	5,545	1.98%	0.18%
South Barrington	LFG-01	IL	5,525	1.97%	0.18%
Lake Gas Recovery	LFG-01	IL	5,404	1.93%	0.17%
Com Proviso	LFG-01	IL	5,000	1.79%	0.16%
Lakeview Gas Recovery	LFG-01	PA	4,071	1.45%	0.13%
Mallard Lake Electric	LFG-01	IL	3,627	1.30%	0.12%
CID - LFG Turbines	LFG-01	IL	3,403	1.22%	0.11%
DPL Central	LFG-01	DE	2,443	0.87%	0.08%
Kankakee	LFG-01	IL	2,221	0.79%	0.07%
Broad Mountain	LFG-01	PA	2,033	0.73%	0.07%
BWWTP Co-Gen Plant	LFG-01	MD	1,989	0.71%	0.06%
Monmouth Landfill	LFG-01	NJ	1,262	0.45%	0.04%
Des Plaines	LFG-01	IL	1,069	0.38%	0.03%
AP Reichs Ford	LFG-01	MD	915	0.33%	0.03%
PL N Lbnon	LFG-01	PA	493	0.18%	0.02%
Westchester	LFG-01	IL	228	0.08%	0.01%
		Total	**280,014**	**100.00%**	**8.97%**

Tier 1*

Facility Name	Resource	State	Quantity	WND %	Tier 1
Century	WND-01	IA	147,309	33.11%	4.72%
PN Stony Creek	WND-01	PA	69,511	15.62%	2.23%
AP Beech Ridge	WND-01	WV	43,121	9.69%	1.38%
AP Greenland Gap	WND-01	WV	42,218	9.49%	1.35%
COM Grand Ridge	WND-01	IL	38,956	8.75%	1.25%
COM Old Trail	WND-01	IL	38,644	8.68%	1.24%
COM Eco Grove	WND-01	IL	19,376	4.35%	0.62%
PN Allegheny Ridge	WND-01	PA	18,000	4.05%	0.58%
AEP Fowler Ridge	WND-01	IN	9,852	2.21%	0.32%
COM High Trail	WND-01	IL	9,667	2.17%	0.31%
PN Armenia Mt.	WND-01	PA	6,093	1.37%	0.20%
PL Locust Ridge	WND-01	PA	1,335	0.30%	0.04%
Cayuga Ridge	WND-01	IL	766	0.17%	0.02%
Klondike Rd Wind	WND-01	MD	118	0.03%	0.00%
		Total	**444,966**	**100.00%**	**14.25%**

Facility Name	Resource	State	Quantity	MSW %	Tier 1
Wheelabrator	MSW-01	MD	75,278	37.30%	2.41%
Montgomery Co. Res. Ctr.	MSW-01	MD	50,000	24.77%	1.60%
		Total	**125,278**	**62.07%**	**8.07%**

Facility Name	Resource	State	Quantity	BFG %	Tier 1
Sparrows Point	BFG-01	MD	22,423	11.11%	0.72%
		Total	**22,423**	**36.76%**	**0.72%**

Facility Name	Resource	State	Quantity	OBL %	Tier 1
Easton	OBL-01	MD	43	100.00%	0.00%
		Total	**43**	**100.00%**	**0.00%**

Tier 2

Facility Name	Resource	State	Quantity	WAT %	Tier 2
Conowingo	WAT-02	MD	515,049	39.92%	33.17%
Safe Harbor	WAT-02	PA	468,145	36.29%	30.15%
Lake Lynn	WAT-02	PA	117,643	9.12%	7.58%
Walters	WAT-02	NC	55,000	4.26%	3.54%
Sherman Island	WAT-02	NY	48,696	3.77%	3.14%
Piney	WAT-02	PA	43,930	3.41%	2.83%
School Street	WAT-02	NY	33,691	2.61%	2.17%
Tillery	WAT-02	NC	5,924	0.46%	0.38%
AEP Summerville	WAT-02	WV	2,000	0.16%	0.13%
		Total	**1,290,078**	**100.00%**	**83.08%**

Facility Name	Resource	State	Quantity	MSW %	Tier 2
VP Gosport	MSW-02	VA	118,400	58.67%	7.62%
Wheelabrator	MSW-02	MD	31,559	15.64%	2.03%
Montgomery Co. Res. Ctr.	MSW-02	MD	31,423	15.57%	2.02%
Union County	MSW-02	NJ	18,613	9.22%	1.20%
Montenay	MSW-02	PA	1,826	0.90%	0.12%
		Total	**201,821**	**100.00%**	**13.00%**

Facility Name	Resource	State	Quantity	BFG %	Tier 2
Sparrows Point	BFG-02	MD	61,005	100.00%	3.93%
		Total	**61,005**	**100.00%**	**3.93%**

Tier 1 REC Total	3,095,168
SREC Total	27,904
Tier 2 REC Total	1,552,904
Grand Total**	4,675,976

Resource Definitions			
Blast Furnace Gas	BFG	Other Biomass Liquids	OBL
Black Liquor	BLQ	Hydroelectric	WAT
Landfill Gas	LFG	Wood/Waste Solids	WDS
Municipal Solid Waste	MSW	Wind	WND

*Solar facilities are not represented in this table. In 2011, 1686 facilities in Maryland produced 27903 SRECs. 1 SREC was produced in Pennsylvania.

**REC totals reflect RECs retired in GATS in 2011, 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 2011 RPS Compliance

	DE	IA	IL	IN	MD	MI	NC	NJ	NY	OH	PA	VA	WI	WV	Total
Tier 1															
Black Liquor	-	-	-	-	1	-	-	-	-	-	1	4	1	-	7
Blast Furnace Gas	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Land Fill Gas	4	-	12	-	7	-	-	2	-	-	7	9	-	-	41
Municipal Solid Waste	-	-	-	-	2	-	-	-	-	-	-	-	-	-	2
Other Biomass Liquid	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Small Hydro	-	-	1	-	1	-	2	-	6	-	3	6	1	1	21
Solar (Photovoltaic)	-	-	-	-	1,686	-	-	-	-	-	1	-	-	-	1,687
Waste Wood	-	-	-	-	-	1	-	-	-	1	1	3	-	-	6
Wind	-	1	6	1	1	-	-	-	-	-	4	-	-	2	15
Tier 2															
Municipal Solid Waste	-	-	-	-	1	-	-	1	-	-	1	1	-	-	4
Large Hydro	-	-	-	-	1	-	2	-	2	-	14	-	-	1	20
Total	**4**	**1**	**19**	**1**	**1,702**	**1**		**3**	**8**	**1**	**32**	**23**	**2**	**4**	**1,805**

Note: Blast furnace gas and municipal solid waste were moved from Tier 2 to Tier 1 effective October 1, 2011. In order to prevent double counting, only those facilities that provided just Tier 2 RECs are listed as Tier 2 facilities, the facilities that provided both are only listed as Tier 1.

Appendix C: Distribution of 2011 Vintage RECs Generated in Maryland

Fuel Type and Tier	RECs Retired for RPS Compliance by State							Banked	Other	Bulletin Board	Pending Transfer	Total RECs Generated in
	DC	DE	IL	MD	NJ	PA	Total					
Black Liquor	6,000	0	0	95,554	0	0	101,554	26,817	0	0	0	128,371
Blast Furnace Gas	0	0	0	22,504	0	0	22,504	31,542	250	0	0	54,296
Municipal Solid Waste	0	0	0	125,278	1,918	0	127,196	38,923	0	0	0	166,119
Land Fill Gas	0	7,381	0	12,929	30,064	164	50,538	12,881	0	0	0	63,419
Small Hydro	2,326	0	0	27,876	2,553	0	32,755	1,312	984	0	0	35,051
Wind	0	101,996	0	118	21,458	0	123,572	150,702	37,500	0	0	311,774
Solar	190	0	0	26,091	0	636	26,917	7,422	6	53	7	34,405
Biomass Liquids	0	0	0	43	0	0	43	0	0	0	0	43
Tier 1 Total	8,516	109,377	0	310,393	55,993	800	485,079	269,599	38,740	53	7	793,478
Blast Furnace Gas	0	0	0	4,575	0	0	4,575	92,714	0	0	0	97,289
Large Hydro	0	0	58,720	331,667	0	35,083	425,470	2,090,751	2,217	0	0	2,518,438
Municipal Solid Waste	3,925	0	0	4,000	352,616	17,444	377,985	119,816	0	0	0	497,801
Tier 2 Total	3,925	0	58,720	340,242	352,616	52,527	808,030	2,303,281	2,217	0	0	3,113,528
Grand Total	12,441	109,377	58,720	650,635	408,609	53,327	1,293,109	2,572,880	40,957	53	7	3,907,006

Appendix D: Number of Renewable Energy Facilities Located in Maryland

Maryland County	Tier 1	Tier 1 Solar	Tier 2	Total
Allegany	1	6	-	7
Anne Arundel	-	346	-	346
Baltimore	4	486	-	490
Baltimore City	-	30	-	30
Calvert	-	51	-	51
Caroline	-	9	-	9
Carroll	-	176	-	176
Cecil	-	70	-	70
Charles	-	45	-	45
Dorchester	-	23	-	23
Frederick	2	130	-	132
Garrett	4	19	-	23
Harford	-	195	1	196
Howard	-	410	-	410
Kent	-	25	-	25
Montgomery	4	825	-	829
Prince George's	4	267	-	271
Queen Anne's	-	36	-	36
Somerset	-	8	-	8
St. Mary's	-	57	-	57
Talbot	2	32	-	34
Washington	-	72	-	72
Wicomico	2	31	-	33
Worcester	3	34	-	37
Grand Total	**26**	**3,383**	**1**	**3,410**

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 October 1, 2012.

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

Maryland County	Tier 1	Tier 1 Solar	Tier 2	Total
Allegany	65.0	0.2	-	65.2
Anne Arundel	-	6.3	-	6.3
Baltimore	195.2	9.4	-	204.6
Baltimore City	-	2.7	-	2.7
Calvert	-	0.4	-	0.4
Caroline	-	0.1	-	0.1
Carroll	-	1.8	-	1.8
Cecil	-	0.7	-	0.7
Charles	-	0.5	-	0.5
Dorchester	-	0.2	-	0.2
Frederick	4.0	19.3	-	23.3
Garrett	140.0	0.1	-	140.1
Harford	-	4.4	474.0	478.4
Howard	-	3.5	-	3.5
Kent	-	0.7	-	0.7
Montgomery	81.2	8.3	-	89.6
Prince George's	13.4	6.3	-	19.7
Queen Anne's	-	0.4	-	0.4
Somerset	-	2.4	-	2.4
St. Mary's	-	0.5	-	0.5
Talbot	69.3	1.1	-	70.4
Washington	-	3.1	-	3.1
Wicomico	6.0	1.5	-	7.5
Worcester	2.0	0.4	-	2.4
Grand Total	**576.2**	**74.3**	**474.0**	**1124.5**

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 October 1, 2012.