PUBLIC SERVICE COMMISSION OF MARYLAND

RENEWABLE ENERGY PORTFOLIO STANDARD REPORT

With Data for Calendar Year 2013

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

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I. INTRODUCTION

This document constitutes the annual report of the Public Service Commission of Maryland ("Commission") regarding the implementation of the Maryland Renewable Energy Portfolio Standard ("RPS") Program, with data for calendar year 2013. This report is submitted pursuant to § 7-712 of the Public Utilities Article, *Annotated Code of Maryland* ("Pub. Utils."), which requires the Commission to report to the General Assembly on the status of the implementation of the RPS Program on or before February 1 of each year.[1] The Maryland RPS Program is designed to support a stable and predictable market for energy generated from renewables, and to lower the cost to consumers of electricity produced from these resources. Implementation of the RPS Program assists in overcoming market barriers seen as impediments to the development of the industry. Moreover, increasing reliance upon renewable energy technologies to satisfy electric power requirements can result in long-term emission reductions, increased fuel diversity, and economic benefits to the State.[2]

The calendar year 2013 electricity supplier compliance reports, as verified by the Commission, indicate that the State of Maryland RPS obligations were almost entirely fulfilled through the submission of the appropriate level of Tier 1 and Tier 2 Renewable Energy Credits ("RECs");[3] the remainder of the calendar year 2013 RPS requirements were satisfied by a negligible reliance on compliance fees, also known as alternative compliance payments ("ACPs"). Since the inception of the Maryland RPS program, the use of ACPs to demonstrate partial compliance has been primarily linked to the Tier 1 Solar carve-out. For the fourth consecutive year, however, electricity suppliers did not rely heavily on ACPs to meet the State's Tier 1 Solar requirements and instead retired solar renewable energy credits ("SRECs") in excess of the actual Tier 1 Solar obligation.[4] In fact, the number of SRECs retired more than doubled from the 2012 to 2013 calendar year. Despite this significant progress, the 2013 SREC retirement still reflects only 2% of total procured RECs in the State, compared to those derived from other renewable resources.

Market participants use strategies that identify and incorporate the use of the least-cost renewable technologies to meet the State's tiered requirements. For the 2013 RPS requirements, electricity suppliers retired a substantial quantity of RECs derived from hydroelectric, black liquor, municipal solid waste, and wind renewable resources. While the 2013 number of retired hydroelectric, black liquor, and municipal solid waste RECs was comparable to calendar year 2012, the use of wind RECs increased by 70%.

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[1] Electricity suppliers must file an RPS compliance report with the Commission for the prior calendar year by April 1st of the subsequent year. Consequently, this report, which is due to the General Assembly in February 2015, highlights data from electricity suppliers' 2013 compliance reports and other relevant 2013 data. In compliance with Pub. Utils. § 7-712, topics addressed in this report include the availability of Tier 1, Tier 1 Solar, and Tier 2 renewable energy sources, ACPs collected to support in-State renewable projects, and other pertinent information.

[2] *See* Pub. Utils. § 7-702, which describes the legislative intent and legislative findings in support of the enactment of the Maryland Renewable Energy Portfolio Standard.

[3] *See* Section I.B.2 for a description of eligible Tier 1 and Tier 2 resources and requirements.

[4] Although in the aggregate Maryland electricity suppliers retired more SRECs than the calculated CY2013 obligation, an ACP was submitted to satisfy an individual electricity supplier's share of the Tier 1 Solar RPS requirement.

In 2013, four States (Maryland, Pennsylvania, Virginia, and Illinois) provided just over 81% of the Tier 1 and Tier 2 RECs retired by Maryland electricity suppliers. By a slim margin, Maryland was the largest provider of Tier 1 RECs, while the State easily represented the largest provider of Tier 2 RECs used to demonstrate compliance with the Maryland RPS Program.

A. Objectives of the Program

The objective of Pub. Utils. § 7-701 *et seq.* (hereinafter "RPS Statute") is to recognize and to develop the benefits associated with a diverse portfolio of renewable energy resources 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 RECs.

The development of renewable energy resources is further promoted by requiring electricity suppliers to pay an ACP for failing to acquire sufficient RECs to satisfy the RPS as set forth in Pub. Utils. § 7-703. Compliance fees are deposited into the Maryland Strategic Energy Investment Fund ("SEIF") as dedicated funds to provide for loans and grants that spur the creation of new Tier 1 renewable energy resources in the State. Responsibility for developing renewable energy resources is vested with the Maryland Energy Administration ("MEA").

B. Overview of the Maryland RPS Program

Under the RPS Program, Maryland electricity suppliers are required to demonstrate compliance on an annual basis with an escalating renewable energy portfolio standard. This requirement applies to both competitive retail suppliers and electric companies in the State – including those that provide Standard Offer Service.[5] Electricity suppliers must file annual compliance reports with the Commission verifying that the renewable requirement for each entity has been satisfied.

Each electricity supplier must document annually the retirement of RECs equal to the percentage specified by the RPS Statute,[6] or pay an ACP commensurate with any shortfalls. A REC constitutes the renewable attributes associated with the production of one megawatt-hour ("MWh") of electricity generated using eligible renewable resources. As such, a REC is a uniquely-identified tradable commodity equal to one MWh of electricity generated or obtained from an eligible renewable energy resource. Generators and electricity suppliers may trade RECs using a Commission-approved system known as the Generation Attributes Tracking

[5] 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* Pub. Utils. §§ 7-501(n), 7-510(c).

[6] 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 2012. In 2012, the Tier 2 requirement was 2.5%; therefore the electricity supplier would have to either verify the purchase of 2,500 Tier 2 RECs in satisfaction of the Tier 2 RPS obligation or pay an ACP for deficits. Similar requirements apply to Tier 1 and Tier 1 Solar, although the percentage obligation and ACP denomination differs depending on the tier and calendar year, as outlined by the RPS Statute.

System ("GATS"). The GATS system is operated by PJM Environmental Information Services, Inc. ("PJM-EIS") and is designed to track the ownership and trading of generation attributes.[7] A REC has a three-year lifespan during which it may be transferred, sold, or redeemed.

1. Registration of Renewable Energy Facilities

Facilities eligible for the Maryland RPS Program must be located in PJM[8] (the wholesale bulk power control area in which Maryland resides) or in a control area that is adjacent to the PJM region,[9] so long as the electricity produced is delivered into the PJM region. However, facilities generating electricity from solar energy, geothermal, 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.

Before recommending certification of a Renewable Energy Facility ("REF"), Commission Staff must determine whether the facility meets the standards set forth by the RPS Statute and COMAR 20.61 – the Commission regulation by which the RPS Statute is implemented. REF applicants who may qualify under Maryland's RPS Program initially work with Commission Staff and must 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 or Tier 2 REC creation.[11] Verification of the fuel source is 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 in-service date.[12] Facilities that co-fire a REC-eligible renewable fuel source with non-eligible fuel sources must in addition submit a formula or methodology to account for the proportion of total electricity generated produced by the eligible fuel sources, which then may be credited with RECs. In addition to obtaining Commission certification, all REFs must register with GATS to create and transact business related to RECs. The GATS account must be established with the State facility certification number issued by the Commission upon approval of the REF application.

[7] An attribute is "a characteristic of a generator, such as location, vintage, emissions output, fuel, state RPS Program eligibility, etc." PJM-EIS, GATS Operating Rules, at 3 (December 2011).

[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-EIS 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 under Renewable Portfolio Standard Documents, Available at: http://webapp.psc.state.md.us/intranet/ElectricInfo/home_new.cfm.

[11] 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 is produced by eligible fuel sources and will be credited with RECs.

[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.

2. Maryland RPS Annual Percentage Requirements

To comply with the Maryland RPS program, electricity suppliers must acquire RECs derived from Maryland-certified Tier 1 and Tier 2 renewable resources. Eligible fuel sources for Tier 1 RECs and Tier 2 RECs are listed in Table 1; solar has its own standard within Tier 1.

Table 1: Eligible Tier 1 and Tier 2 Resources

Tier 1 Renewable Sources	Tier 2 Renewable Sources
• Solar (Tier 1 Solar), including energy from photovoltaic technologies and solar water heating systems • 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[13] • 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)*

As shown in the table below, Tier 1 requirements gradually increase until peaking in 2022 and Tier 1 Solar set-aside[14] requirements peak in 2020; percentage requirements are subsequently maintained at those levels in 2023 and beyond. Beginning in 2017, a constant Tier 1 Offshore Wind set-aside of up to 2.5% begins as part of the Tier 1 portfolio.[15] Maryland's Tier 2 requirement remains constant at 2.5% through compliance year 2018, after which the Tier 2 obligation sunsets.

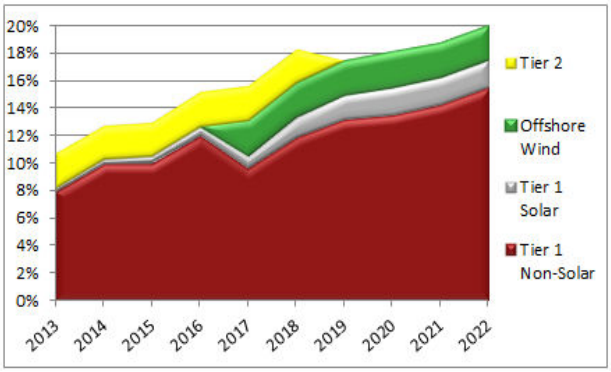
[13] Waste-to-energy was moved from Tier 2 to Tier 1 as a result of legislation (Chapter 519 of 2011), which took effect October 1, 2011. This only affected RECs generated on or after October 1, 2011; RECs derived from waste-to-energy sources generated prior to the effective date of the legislation remain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

[14] "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.

[15] The Maryland Offshore Wind Energy Act of 2013 (2013 Md. Laws, Ch. 003) established an offshore wind set-aside within the Tier 1 requirement. Beginning in 2017, Tier 1 may include a Commission-determined amount of offshore wind RECs, not to exceed 2.5%. The project must be generating RECs in order for the obligation to begin.

Table 2: Annual RPS Requirements by Tier

Compliance Year	Tier 1 Non-Solar	Tier 1 Solar	Offshore Wind	Tier 2
2013	7.95%	0.25%	0.00%	2.50%
2014	9.95%	0.35%	0.00%	2.50%
2015	10.00%	0.50%	0.00%	2.50%
2016	12.00%	0.70%	0.00%	2.50%
2017	9.65%	0.95%	2.50%	2.50%
2018	11.90%	1.40%	2.50%	2.50%
2019	13.15%	1.75%	2.50%	0.00%
2020	13.50%	2.00%	2.50%	0.00%
2021	14.20%	2.00%	2.50%	0.00%
2022	15.50%	2.00%	2.50%	0.00%



At certain renewable procurement cost thresholds, an electricity supplier can request the Commission to consider a delay in scheduled Tier 1 and Tier 1 Solar RPS percentages.[16] To date, no such request has been made by electricity suppliers operating in the Maryland marketplace.

3. Maryland RPS Alternative Compliance Penalty (ACP) Requirements

Electricity suppliers who do not meet their RPS obligation through the retirement of eligible RECs must submit an ACP for every unit of shortfall. Table 3 presents the ACP schedule separated by tiers for each compliance year of the RPS Program moving forward.

Table 3: ACP Schedule ($/MWh)

Compliance Year	Tier 1 Non-Solar	Tier 1 Solar	Tier 2	IPL[17] Tier 1
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

[16] Pub. Utils. § 7-705(e)-(f).

[17] Industrial Process Load ("IPL") means the consumption of electricity by a manufacturing process at an establishment classified in the manufacturing sector under the North American Industry Classification System. 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.

ACPs are remitted to the Maryland Strategic Energy Investment Fund as dedicated funds to provide for loans and grants that spur the creation of new Tier 1 renewable energy resources.[18] As outlined by statute, compliance fees may only be used to support the creation of new Tier 1 renewable energy resources in the State; the use of ACPs remitted to satisfy the Tier 1 Solar RPS obligation are further restricted to support the creation of new *solar* energy resources in Maryland.[19]

II. ELECTRICITY SUPPLIER COMPLIANCE REPORTS

Calendar year 2013 marked the eighth compliance year for the Maryland RPS, and the sixth 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 retired RECs and the underlying REFs (*e.g.*, type and location of generators) utilized by electricity suppliers to comport with Maryland RPS obligations.[20] RPS compliance reports were filed by 85 electricity suppliers, including: 59 competitive retail suppliers; 15 brokers or competitive electricity suppliers with zero retail electricity sales; and 11 electric companies, of which 4 are investor-owned utilities.[21]

According to the filed compliance reports, there were approximately 62.2 million MWh of total retail electricity sales in Maryland for 2013 (up from 61.9 million MWh in 2012): 61.0 million MWh were subject to RPS compliance, and 1.2 million MWh were exempt.[22] Maryland electricity suppliers retired 6,532,499 RECs in 2013, which was slightly more than the calculated obligation for the year and higher than the 5.5 million RECs retired in 2012. The total cost of RECs retired in 2013 totaled $56.9 million, up from $24.4 million in 2012. Despite this increase, compliance costs continue to represent less than 1% of total annual electricity sales revenues.

Table 4 displays the average cost per REC retired in each tier since 2008. The rise in Tier 1 and Tier 2 REC prices likely reflects the growing need for new renewable generation to meet the regional RPS requirements; for the first several years of the program, the RPS requirements could largely be met with the output from existing renewable facilities.

[18] 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, the first market-based regulatory program in the United States to reduce greenhouse gas emissions.

[19] State Gov't § 9-20B-05(i).

[20] According to Pub. Utils. § 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," which describes the process of removing a REC from circulation by the REC owner, *i.e.,* the owner "diminishes or extinguishes the REC." PJM-EIS, GATS Operating Rules, at 54-56 (September 30, 2010).

[21] The number of filed compliance reports increased between calendar years 2012 and 2013, primarily attributable to an increased number of compliance reports submitted by competitive retail suppliers.

[22] According to Pub. Utils. § 7-703(a)(2), exceptions for the RPS requirement may include: IPL 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.

Conversely, the drop in SREC prices may be attributable to decreasing solar technology costs and an increasing number of solar facilities eligible to meet the SREC requirements as compared to when the solar carve-out was first initiated.

Table 4: Cost of RECs per Tier, 2008 – 2013

Tier	2008	2009	2010	2011	2012	2013
Tier 1	$0.94	$0.96	$0.99	$2.02	$3.19	$6.70
Tier 1 Solar	$345.45	$345.28	$328.57	$278.26	$201.92	$159.71
Tier 2	$0.56	$0.43	$0.38	$0.45	$0.44	$1.81

As demonstrated by the table below, the aggregated cost of compliance with the Maryland RPS Program has increased since 2008 (the first year in which the Tier 1 Solar carve-out applied). In the span of six compliance years, the total cost of RECs has risen from approximately $2 million in 2008 to almost $57 million in 2013. The increased compliance costs are attributable to both an increasing RPS percentage requirement in-State, as well as a greater demand for RECs within the surrounding region.[23]

Table 5: Cost of RECs per Year

	Tier	2008	2009	2010	2011	2012	2013
Total REC Costs	Tier 1	$1,110,551	$1,320,979	$1,925,055	$6,241,710	$12,453,493	$32,664,171
	Solar	$78,418	$1,125,598	$5,076,720	$7,769,279	$11,346,967	$21,417,989
	Tier 2	$834,394	$605,724	$618,310	$645,332	$664,220	$2,751,643
	Grand Total	**$2,023,363**	**$3,052,300**	**$7,620,084**	**$14,656,321**	**$24,464,680**	**$56,833,803**
Total RECs Retired	Tier 1	1,184,174	1,280,946	1,931,367	3,083,141	3,902,221	4,871,586
	Solar	227	3,260	15,451	27,972	56,194	134,124
	Tier 2	1,500,414	1,509,270	1,622,751	1,565,945	1,522,297	1,526,789
	Grand Total	**2,684,815**	**2,793,476**	**3,569,569**	**4,677,058**	**5,480,712**	**6,532,499**
RPS % Required	Tier 1	2.00%	2.00%	3.00%	4.95%	6.40%	7.95%
	Solar	0.005%	0.010%	0.025%	0.050%	0.100%	0.250%
	Tier 2	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
	Grand Total	**4.505%**	**4.510%**	**5.525%**	**7.50%**	**9.00%**	**10.70%**

Of the $56.8 million of total RPS compliance cost in 2013, ACPs accounted for only $2,400; this represents a significant decline from calendar year 2008, in which ACPs accounted for over $1.2 million. The extent to which Maryland electricity suppliers have relied on ACPs to demonstrate compliance has decreased in the last two compliance years, primarily due to a decline in SREC prices. As SREC prices have fallen, the gap between the established ACP and the SREC market price has increased, thereby strengthening the incentive for electricity suppliers to meet their RPS requirements through the purchase of SRECs. Unless the SREC market price rises to a level at or near the established ACP, electricity suppliers will likely continue to meet

[23] In addition to Maryland, 7 other PJM states (DE, IL, MI, NJ, NC, OH, and PA) plus the District of Columbia have a RPS mandate outlined in statute, while an additional 3 PJM states (IN, VA, WV) have a voluntary RPS goal.

their RPS requirements via the purchase of SRECs, since this currently constitutes the least-cost option.

The trend of decreasing reliance on ACPs, even in light of escalating RPS obligations, is depicted in Table 6, which 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).[24]

Table 6: 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**
2012	RPS Obligation	3,901,558	56,130	1,522,179	5,479,867
	Retired RECs	3,902,221	56,194	1,522,297	5,480,712
	ACP Required	**$0**	**$4,400**	**$1,050**	**$5,450**
2013	RPS Obligation	4,858,404	133,713	1,521,981	6,514,098
	Retired RECs	4,871,586	134,124	1,526,789	6,532,499
	ACP Required	**$40**	**$2,400**	**$0**	**$2,440**

Note: Some electricity suppliers retired more RECs than required.

[24] In Table 4, "RPS Obligation" represents the total obligation for electricity sales in MWh, which is equal to the number of RECs required for compliance. "Retired RECs" represents the actual number of RECs retired for RPS compliance in each corresponding compliance year. "ACP Required" represents 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.

RECs are valid to demonstrate RPS compliance for the calendar year in which they were generated and in the following two calendar years.[25] Figure 1 aggregates the Maryland RPS tiers on the basis of generation year. In 2013, 60.6% of the RECs retired for compliance were generated in 2013; 28.7% in 2012; and the balance (10.8%) in 2011.

Figure 1: RECs Retired in 2013 by Generation Year

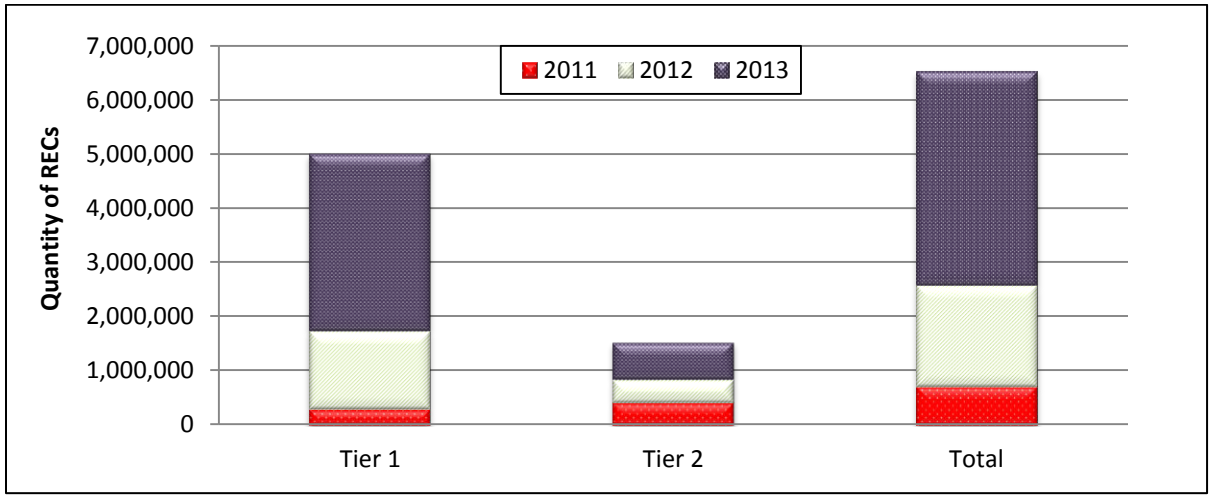
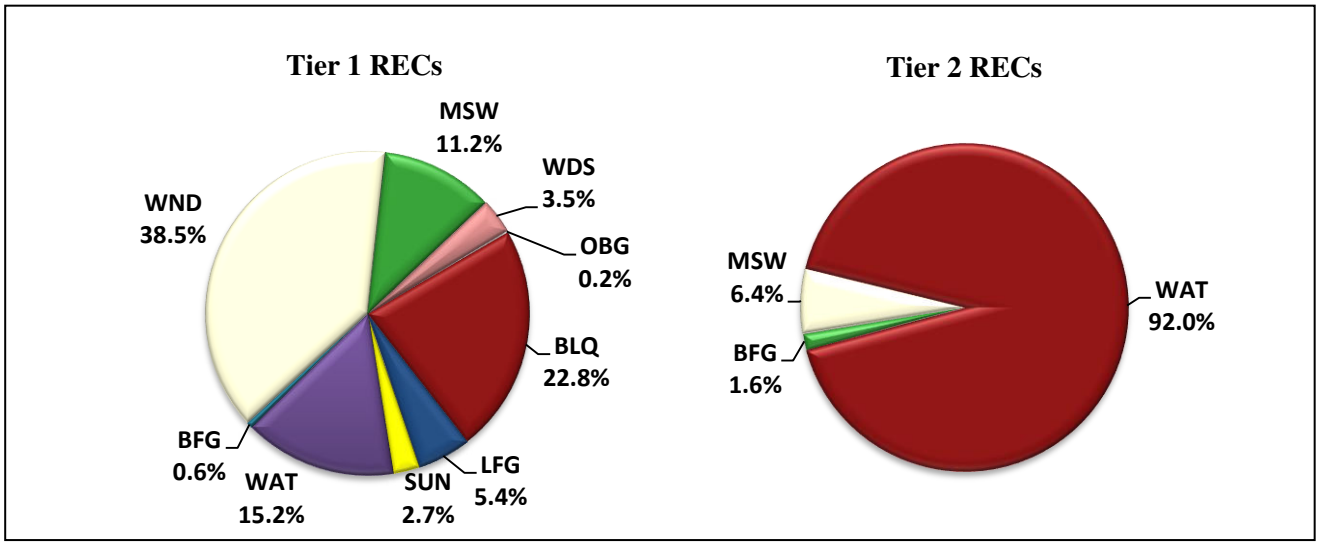


Figure 2 illustrates the fuel sources used to satisfy Tier 1 and Tier 2 RPS requirements for the 2013 RPS compliance year. Of the Tier 1 RECs retired for 2013, the principle resources used were wind resources that provided approximately 38.5% of the RECs; black liquor, 22.8%; small hydroelectric, 15.2%; municipal solid waste, 11.2%; landfill gas, 5.4%; waste wood, 3.5%; solar, 2.7%; blast furnace gas, 0.6%; and biomass gas, 0.2%. Of the Tier 2 RECs retired for 2013, Figure 2 also reveals that hydroelectric facilities provided a large majority of the RECs, 92.0%; while municipal solid waste provided 6.4%, and blast furnace gas accounted for 1.6% of the Tier 2 RECs retired for 2013.

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

Figure 2: 2013 Tier 1 and Tier 2 Retired RECs by Fuel Source[26]

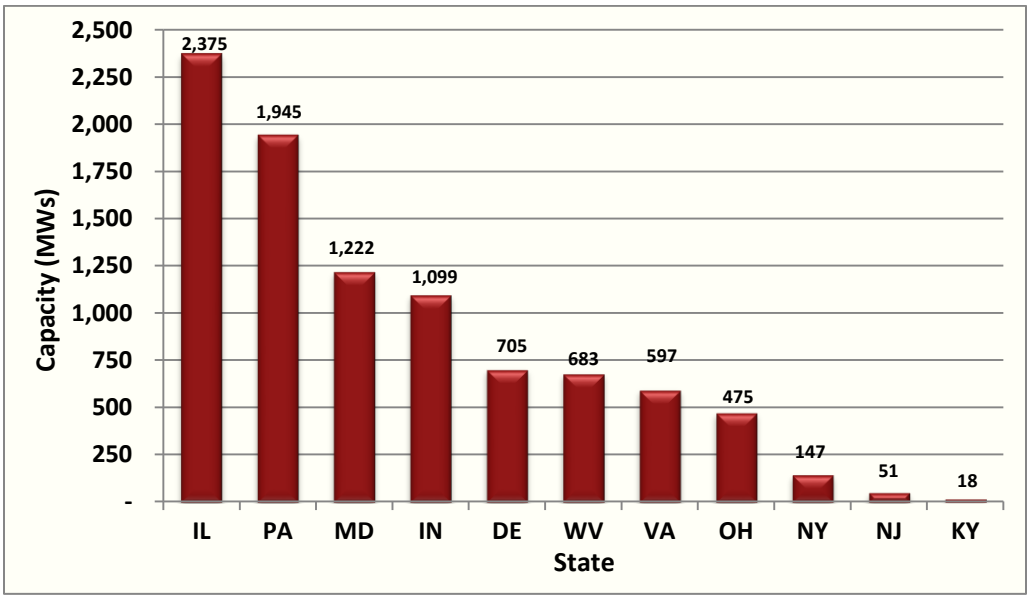


Abbreviations: BFG, Blast Furnace Gas; BLQ, Black Liquor; LFG, Landfill Gas; MSW, Municipal Solid Waste; OBG, Other Biomass Gas; SUN, Solar; WAT, Hydroelectric; WDS, Wood and Waste Solids; and WND, Wind.

Figure 3 presents the geographical location and the total generating capacity (9,317 MW, an increase of 710 MW from 2012) 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). Of the renewable facilities that are eligible to participate in the Maryland RPS Program, 48.5% of the corresponding capacity is located in the Mid-Atlantic States. The locations of the remaining eligible resources span six states and in total contribute the other 51.5% of the State's eligible renewable resource capacity.

[26] 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.

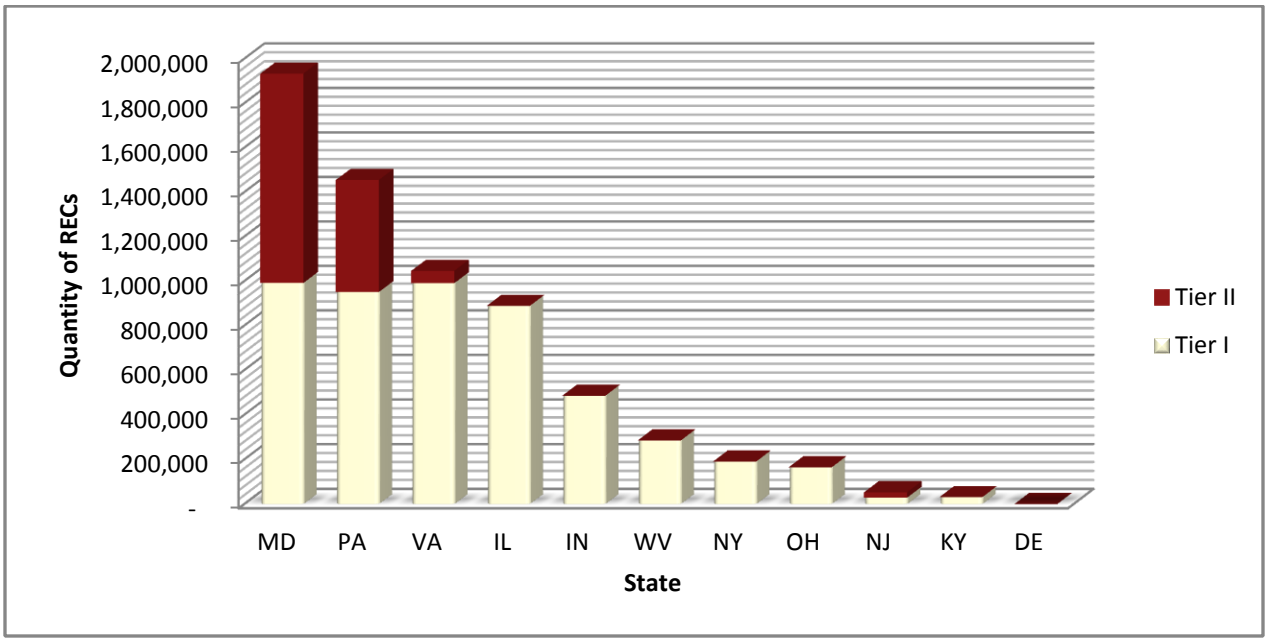
Figure 3: Total Rated Capacity by State[27]



For the 2013 compliance year, Figure 4 provides a visual display of aggregated REC data to convey general relationships among the States that contributed RECs in 2013. Maryland supplied the largest number of its own RECs purchased by retail electricity suppliers; with large hydroelectric (46.5%) and municipal solid waste (30.0%) contributing the majority of RECs from in-State generators. Pennsylvania was the second highest source of RECs procured by Maryland electricity suppliers for 2013 compliance purposes, with Virginia and Illinois also contributing significant RECs.

[27] PJM-EIS, Generation Attribute Tracking System, Database query, (July 9, 2014). The information in this figure does not include Commission-authorized REFs that have not established a REC account with PJM GATS.

Figure 4: Number of RECs Retired by Facility Location (2013)



Tables 7 and 8 provide the quantitative data in support of the previous figure. Table 7 provides the reported levels of RECs retired by Maryland electricity suppliers in 2013 on a Tier and aggregate basis, whereas Table 8 provides the information on a percentage basis. As noted above, Maryland-generated RECs, followed by Pennsylvania and Virginia, were used in the largest aggregate amounts by Maryland electricity suppliers for 2013 RPS compliance.

Table 7: 2013 REC Retirement by State

State*	Tier 1 Non-Solar	Tier 1 Solar	Tier 2	Total
MD (1)	857,828	134,117	941,193	1,933,138
PA (3)	950,931		503,649	1,454,580
VA (2)	991,010		55,233	1,046,243
IL (4)	888,654		-	888,654
IN (6)	485,173	-	-	485,173
WV (8)	284,859	-	-	284,859
NY (5)	190,642	-	-	190,642
OH (9)	164,676	-	-	164,676
NJ (n/a)	29,077	-	23,690	52,767
KY (n/a)	31,049	-	-	31,049
DE (12)	385	-	-	385
Total	**4,874,284**	**134,117**	**1,523,765**	**6,532,166**

* The parentheses show the State's positions last year. Iowa, Wisconsin and North Carolina were 7th, 10th, and 11th respectively in 2012, and no New Jersey or Kentucky RECs were used in 2012.

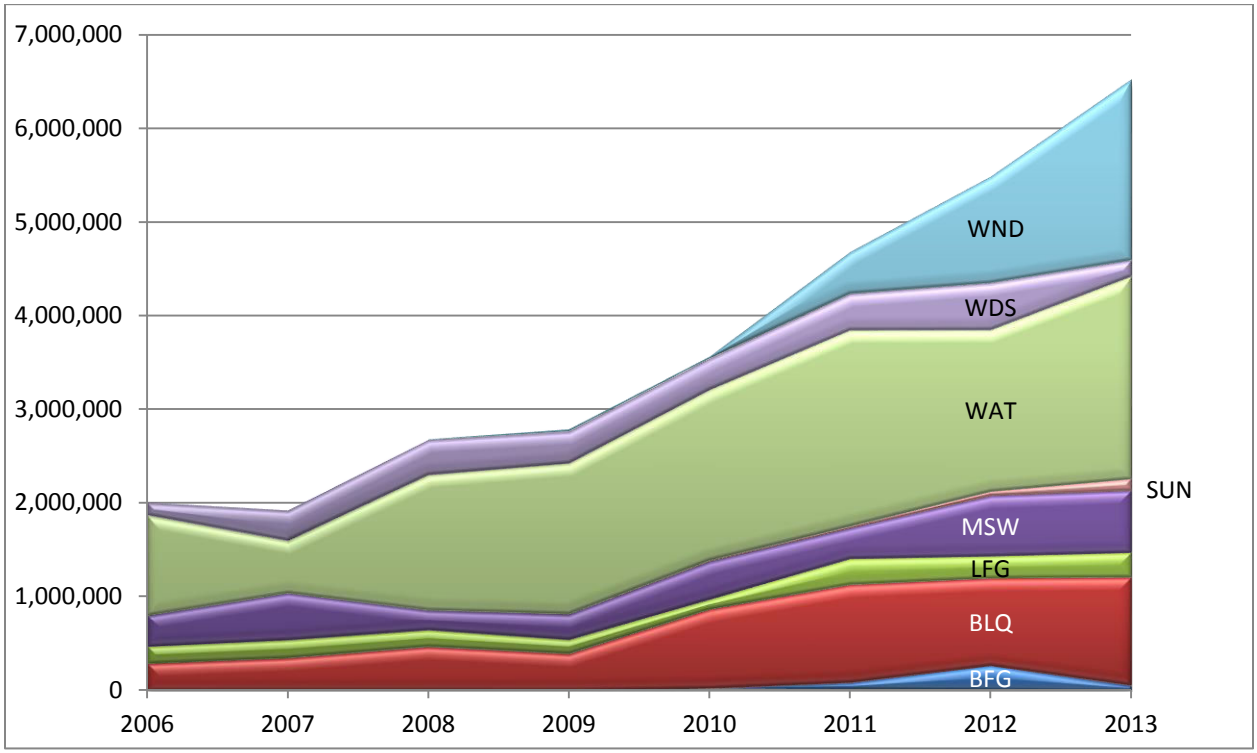
Table 8: 2013 REC Retirement by State (%)

State	Tier 1 Non-Solar	Tier 1 Solar	Tier 2	Total
MD	17.60%	100.00%	61.77%	29.59%
PA	19.51%	0.00%	33.05%	22.27%
VA	20.33%	0.00%	3.62%	16.02%
IL	18.23%	0.00%	0.00%	13.60%
IN	9.95%	0.00%	0.00%	7.43%
WV	5.84%	0.00%	0.00%	4.36%
NY	3.91%	0.00%	0.00%	2.92%
OH	3.38%	0.00%	0.00%	2.52%
NJ	0.60%	0.00%	1.55%	0.81%
KY	0.64%	0.00%	0.00%	0.48%
DE	0.01%	0.00%	0.00%	0.01%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Additional information pertaining to the source of renewable energy used to meet Maryland's 2013 RPS compliance requirements is presented in Appendices A and B. Appendix A provides the renewable resources used by electricity suppliers on a Tier and state basis. Appendix B presents the number of facilities by state, tier, and type of renewable facility that provided RECs for compliance with the 2013 RPS.

Figure 5 illustrates the growth in RECs retired in total and by fuel type from the beginning of the RPS requirement in 2006. Large hydroelectric ("WAT") has been the largest contributor in each of the eight years of the RPS, while wind ("WND") has accounted for most of the increase since 2011. Note that the contributions from Other Biomass Gas ("OBG"), Other Biomass Liquids ("OBL"), and Solar Hot Water ("STH") are too small to be seen on this chart.

Figure 5: RECs Retired by Fuel Type, 2006 – 2013



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

In 2013, all of the RECs retired from solar and blast furnace gas sources were located in Maryland, and all of the biomass gas sources were located in Ohio. The six remaining fuels used to comply with Maryland 2013 RPS requirements came from multiple states. Figure 6 shows the percentage contribution from each state for each of these six fuels. Maryland is the largest provider of municipal solid waste and hydroelectric RECs, while also providing meaningful contributions from landfill gas and black liquor. However, Maryland provides just 3% of the wind RECs, and none of the RECs derived from wood and waste solids. The total percentage of RECs from Maryland has increased significantly, rising from just 10% of the total RECs used for compliance in 2008, to 30% in 2013. Much of this increase is attributable to hydroelectric and municipal solid waste, and is likely linked to the rise in Maryland Tier 1 RECs prices since 2010.

Figure 6: Percentage of RECs by State for Each Fuel (2013)

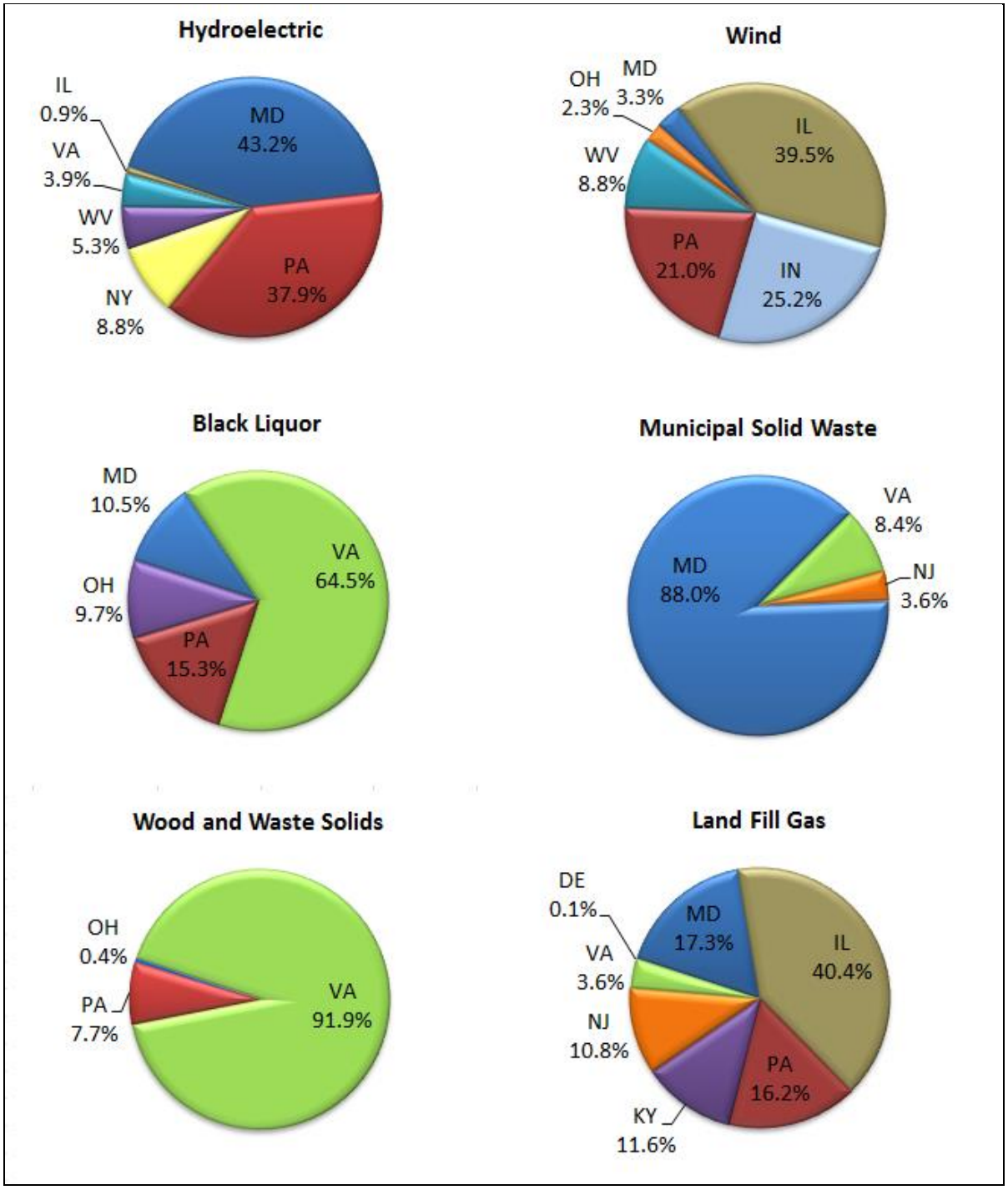
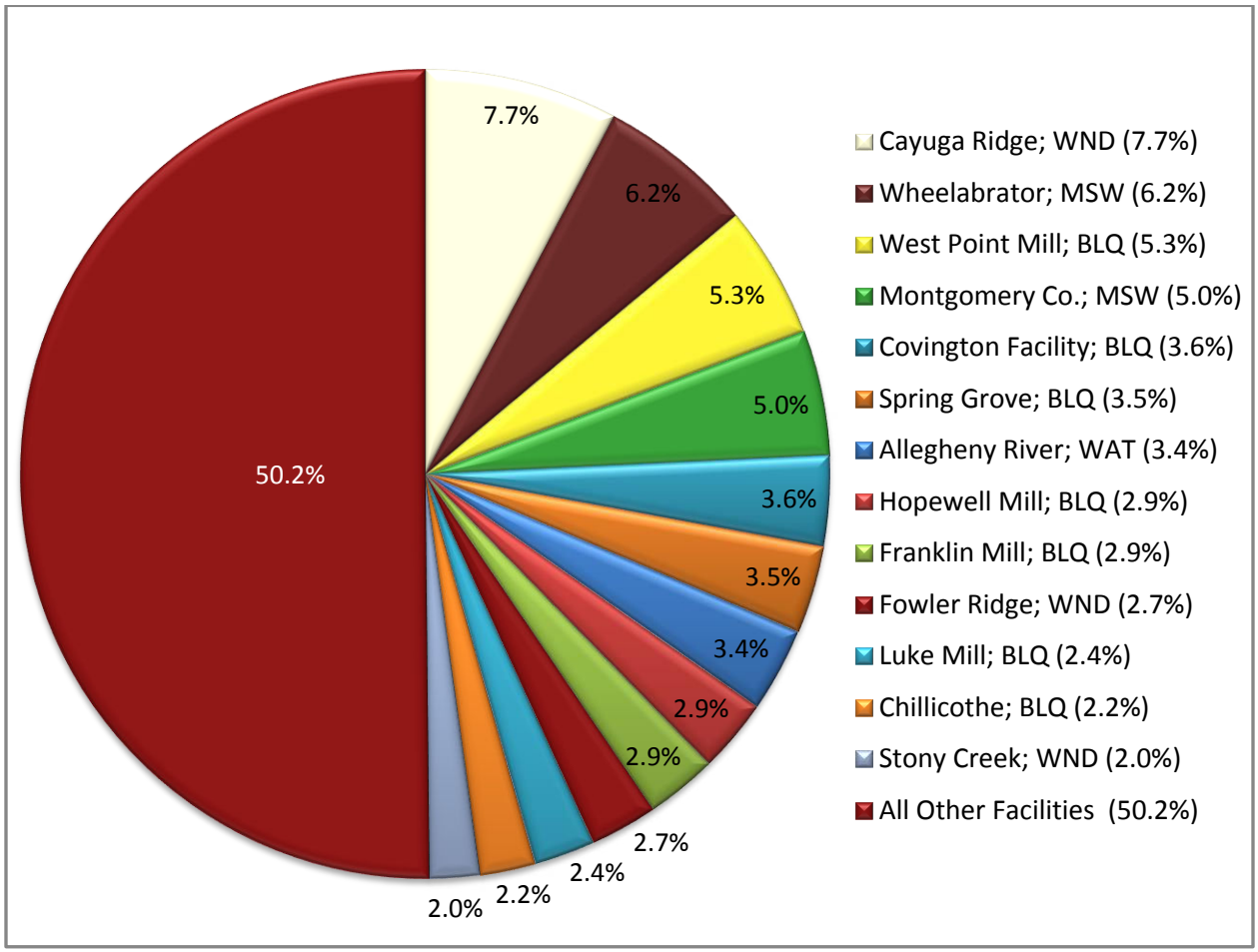


Figure 7 shows a list of those facilities that were major contributors of Maryland Tier 1 RECs retired in 2013, segregated by generation source and origin. The 13 facilities reflected in Figure 7 provided 49.8% of the Tier 1 RECs retired for 2013. The remaining 50.2% of Tier 1 RECs were provided by 118 non-solar facilities (47.5%) and 5,060 solar facilities (2.7%).

Figure 7: List of Significant Tier 1 Generators (2013)



III. MARYLAND RENEWABLE ENERGY FACILITIES

The Maryland RPS Program requires electricity suppliers to obtain a minimum percentage of their power supply from renewable energy resources (*see* Table 2). 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, developers may locate projects within the State. This section of the report provides information about the REFs located in Maryland in 2013.[28] 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).[29] Green power products are offered to the public with higher concentrations of renewable energy than required by State RPS requirements.

As shown in Table 9, 1,425,122 Tier 1 RECs and 1,699,405 Tier 2 RECs were generated within Maryland in 2013, totaling 3,124,527 RECs. Additional analysis pertaining to the Maryland-based renewable generators is presented in Appendices C through E. Appendix C shows the distribution of RECs generated in Maryland in 2013. Appendix D provides the number of renewable energy facilities by county that are both located in Maryland, and registered with GATS to participate in any one of the PJM States' RPS programs. Appendix E provides the total capacity of these facilities, broken out by county and tier.

Table 9: 2013 Maryland Generated RECs by Fuel Source

Fuel Type	Tier I									Tier II	Grand
	BLQ	GEO	LFG	MSW	STH	SUN	WAT	WND	Total	WAT	Total
Quantity of RECs	104,499	44	102,600	677,530	2,185	186,554	28,739	322,971	1,425,122	1,699,405	3,124,527
Percentage	7.3%	0.0%	7.2%	47.5%	0.2%	13.1%	2.0%	22.7%	100.0%	100.0%	100.0%

Abbreviations: BLQ = Black Liquor; GEO = Geothermal; LFG = Landfill Gas; MSW = Municipal Solid Waste; STH = Solar Thermal; SUN = Photovoltaic; WAT = Hydroelectric; and WND = Wind.

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

[29] 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 May 2014, there are 6,479 registered renewable generators located in Maryland. Of the 6,479 generators, all but 20 are approved by the Commission for Maryland RPS compliance. The 20 facilities registered for use in other states include 19 solar PV or solar thermal facilities registered in the District of Columbia, Delaware and/or Pennsylvania. The remaining facility is a landfill gas generator registered in New Jersey.

Table 10 presents additional detail regarding the disposition of 2013 Maryland-generated RECs in calendar year 2013. Just over half of the RECs generated within Maryland by renewable facilities were held, or "banked", for potential future sale in Maryland or other states in subsequent compliance years.[30] Over 48% 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 10, less than 1% of RECs were sold for other purposes, posted for sales, or are pending transfer between two parties.

Table 10: Disposition of 2013 Maryland Generated RECs

	Banked	RPS Compliance	Other	Total
Tier 1	498,461	732,646	5,276	1,236,383
Tier 1 Solar	74,990	113,041	708	188,739
Tier 2	1,024,063	667,342	8,000	1,699,405
Total	1,597,514	1,513,029	13,984	3,124,527
(%)	51.1%	48.4%	0.4%	100.0%

Source: PJM-EIS.

[30] In part, banking provides an opportunity for generators and electricity suppliers to establish relationships in the renewable marketplace. The renewable marketplace is regional. As individual states first enacted legislation to support renewables (*e.g.*, RPS requirements), and then increased the percentage requirements and raised penalties for shortfalls, banking became an opportunity for market participants 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 for retail customers to purchase, typically at a price premium, with specified concentrations of renewable energy (*e.g.*, 50, 75 or 100% wind).

Table 11 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 2013, Maryland-generated RECs were used in six jurisdictions: the District of Columbia, Delaware, Illinois, Maryland, New Jersey, and Pennsylvania

Table 11: 2013 Maryland Generated RECs Retired for RPS Compliance by State

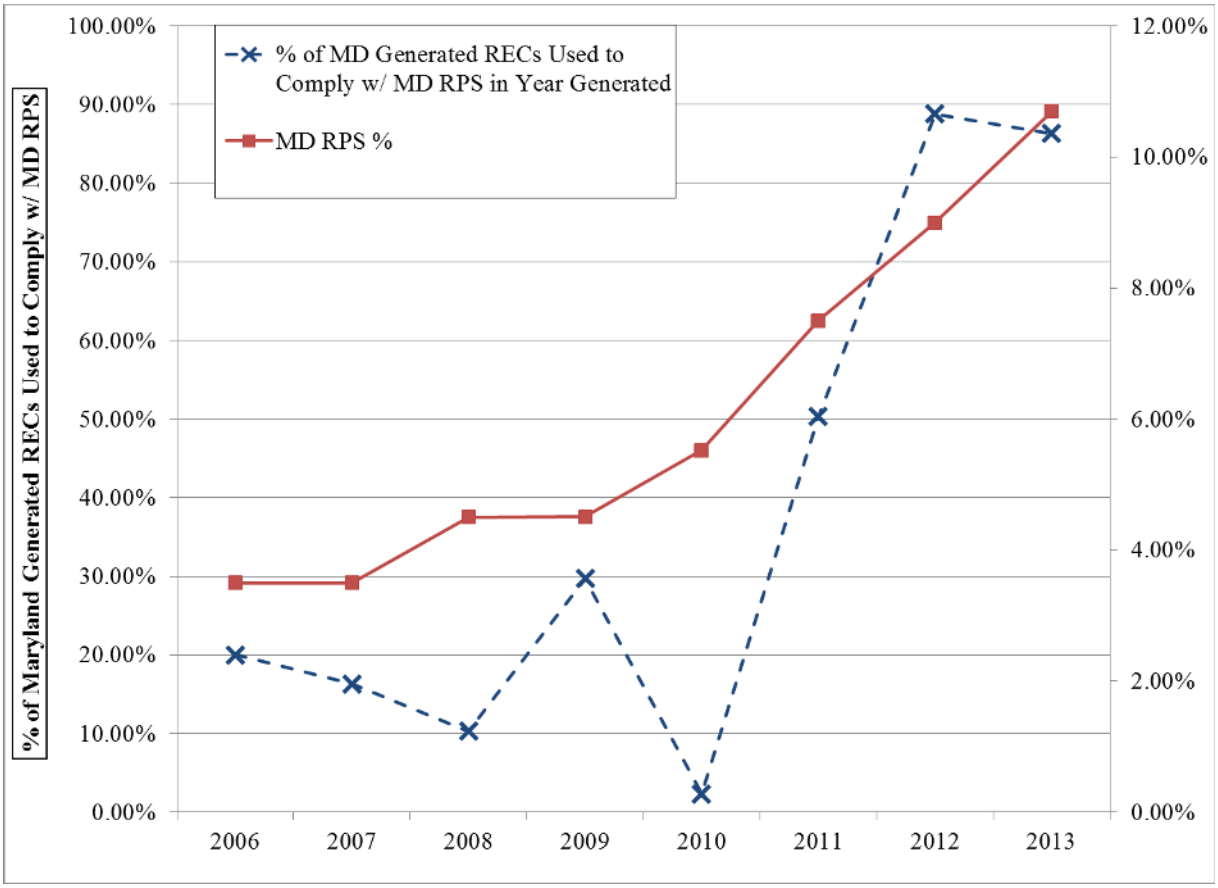
	Fuel	DC	DE	IL	MD	NJ	PA	TOTAL
Tier 1	Black Liquor	0	0	0	95,905	0	0	95,905
	Land Fill Gas	0	0	0	31,816	15,340	0	47,156
	Municipal Solid Waste	0	0	0	401,254	0	0	401,254
	Small Hydro	0	0	0	28,739	0	0	28,739
	Solar PV[31]	963	0	0	109,962	0	895	111,820
	Solar Thermal	0	0	0	1,221	0	0	1,221
	Wind	0	61,634	0	11,387	43,303	43,268	159,592
	Tier 1 Total	**963**	**61,634**	**0**	**680,284**	**58,643**	**44,163**	**845,687**
	Percentage	**0.1%**	**7.3%**	**0.0%**	**80.4%**	**6.9%**	**5.2%**	**100.0%**
Tier 2	Large Hydro	0	0	42,522	624,820	0	0	667,342
	Tier 2 Total	**0**	**0**	**42,522**	**624,820**	**0**	**0**	**667,342**
	Percentage	**0.0%**	**0.0%**	**6.4%**	**93.6%**	**0.0%**	**0.0%**	**100.0%**
Tiers 1 & 2	**Grand Total**	**963**	**61,634**	**42,522**	**1,305,104**	**58,643**	**44,163**	**1,513,029**
	Percentage	**0.1%**	**4.1%**	**2.8%**	**86.3%**	**3.9%**	**2.9%**	**100.0%**

Source: PJM-EIS.

[31] There are 171 solar systems located in Maryland that are certified in both Maryland and the District of Columbia. Since 2011, the District of Columbia has required any new PV system to be located in the District, but the older systems from other States are grandfathered.

In 2013, 86.3% of Maryland-generated RECs retired for compliance purposes were retired in Maryland, a slight drop from 88.8% in 2012. However, in previous years a much lower percentage of Maryland-generated RECs were being used for compliance in Maryland; for example, 50.3% in 2011, to just 2.2% in 2010. Figure 8 below shows the percentage of Maryland-generated RECs retired in Maryland since 2006. The dip in 2009 – 2010 was due to significant banking of RECs, likely caused by an excess of supply. This excess was a result of low RPS requirements, and a corresponding large number of new facilities being registered in Maryland. The increase in Maryland's RPS requirements over time has resulted in an overall increase in Tier 1 REC prices since 2010; this increase is one factor driving the increased utilization of Maryland-generated RECs being used for compliance with Maryland's RPS.

Figure 8: Percentage of Maryland Generated RECs Used to Comply with Maryland's RPS in the Year Generated



IV. CONCLUSION

The electricity supplier compliance reports of 2013, verified by the Commission, indicate that virtually all of the Maryland RPS obligations were met via the purchase and retirement of RECs. Moreover, for the first time since the inception of the RPS Program, RECs generated in Maryland led all other States in contributing to both the Tier 1 and Tier 2 requirements.

REFs located in Maryland can register in multiple states to meet and comply with various policy objectives, and may sell additional RECs that support clean, green, or renewable products offered by electricity suppliers. In Maryland, just under one-half of the renewable output and associated RECs generated during calendar year 2013 were retired for compliance with various states' RPS. As shown in Appendix C, a majority of these 2013 RECs were banked for future use.

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 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: 2013 Retired RECs by Tier and Resource

Tier 1*					
Facility Name	**Resource**	**State**	**Quantity**	**WND %**	**Tier 1**
Allegheny Ridge	WND-01	PA	77,953	4.04%	1.56%
Armenia Mountain	WND-01	PA	32,696	1.70%	0.65%
Beech Ridge	WND-01	WV	65,749	3.41%	1.31%
Big Sky	WND-01	IL	32,951	1.71%	0.66%
Blue Creek	WND-01	OH	42,841	2.22%	0.86%
Camp Grove	WND-01	IL	38,065	1.97%	0.76%
Cayuga Ridge	WND-01	IL	387,486	20.10%	7.74%
Criterion	WND-01	MD	31,093	1.61%	0.62%
Eco Grove	WND-01	IL	49,691	2.58%	0.99%
Fowler Ridge	WND-01	IN	134,635	6.98%	2.69%
Fowler Ridge 1	WND-01	IN	60,525	3.14%	1.21%
Fowler Ridge 3	WND-01	IN	61,256	3.18%	1.22%
Grand Ridge 1	WND-01	IL	92,929	4.82%	1.86%
Grand Ridge 2	WND-01	IL	42,480	2.20%	0.85%
Grand Ridge 3	WND-01	IL	45,483	2.36%	0.91%
Greenland Gap	WND-01	WV	28,961	1.50%	0.58%
Highland North	WND-01	PA	37,420	1.94%	0.75%
Klondike Rd	WND-01	MD	201	0.01%	0.00%
Laurel Mountain	WND-01	WV	24,341	1.26%	0.49%
Locust Ridge	WND-01	PA	26,738	1.39%	0.53%
Lookout	WND-01	PA	2,098	0.11%	0.04%
Meadow Lake 1	WND-01	IN	92,555	4.80%	1.85%
Meadow Lake 2	WND-01	IN	50,600	2.63%	1.01%
Meadow Lake 3	WND-01	IN	53,235	2.76%	1.06%
Meadow Lake 4	WND-01	IN	32,367	1.68%	0.65%
Mehoopany	WND-01	PA	74,164	3.85%	1.48%
Mendota Hills	WND-01	IL	9,188	0.48%	0.18%
Meyersdale	WND-01	PA	34,618	1.80%	0.69%
Old Trail	WND-01	IL	1,048	0.05%	0.02%
Pinnacle	WND-01	WV	51,488	2.67%	1.03%
Roth Rock	WND-01	MD	32,016	1.66%	0.64%
Sandy Ridge	WND-01	PA	3,305	0.17%	0.07%
Stony Creek	WND-01	PA	100,915	5.24%	2.02%
Top Crop 1	WND-01	IL	36,419	1.89%	0.73%
Top Crop 2	WND-01	IL	25,000	1.30%	0.50%
Twin Ridges	WND-01	PA	15,000	0.78%	0.30%
		Total	**1,927,510**	**100.00%**	**38.49%**

Facility Name	**Resource**	**State**	**Quantity**	**BLQ %**	**Tier 1**
Chillicothe	BLQ-01	OH	110,997	9.71%	2.22%
Covington Facility	BLQ-01	VA	180,466	15.79%	3.60%
Franklin Mill	BLQ-01	VA	143,655	12.57%	2.87%
Hopewell Mill	BLQ-01	VA	147,125	12.87%	2.94%
Luke Mill	BLQ-01	MD	120,290	10.52%	2.40%
Spring Grove	BLQ-01	PA	174,681	15.28%	3.49%
West Point Mill	BLQ-01	VA	266,013	23.27%	5.31%
		Total	**1,143,227**	**100.00%**	**22.83%**

Facility Name	**Resource**	**State**	**Quantity**	**OBG %**	**Tier 1**
Buckeye BioGas	OBG-01	OH	1,186	0.69%	0.02%
Central Ohio	OBG-01	OH	5,340	3.09%	0.11%
Haviland Energy	OBG-01	OH	1,699	0.98%	0.03%
Zanesville Energy	OBG-01	OH	1,275	0.74%	0.03%
		Total	**9,500**	**5.49%**	**0.19%**

Facility Name	**Resource**	**State**	**Quantity**	**BFG %**	**Tier 1**
Sparrows Point	BFG-01	MD	30,317	100.00%	0.61%
		Total	**30,317**	**100.00%**	**0.61%**

Tier 1*					
Facility Name	**Resource**	**State**	**Quantity**	**LFG %**	**Tier 1**
AP Arden	LFG-01	PA	4,241	1.58%	0.08%
Archbald	LFG-01	PA	14,262	5.31%	0.28%
Bavarian	LFG-01	KY	5,991	2.23%	0.12%
BC Alpha Ridge	LFG-01	MD	3,941	1.47%	0.08%
BC Millersville	LFG-01	MD	16,773	6.24%	0.33%
Beecher	LFG-01	IL	598	0.22%	0.01%
Broad Mountain	LFG-01	PA	4,900	1.82%	0.10%
BWWTP	LFG-01	MD	7,407	2.76%	0.15%
CID	LFG-01	IL	9,206	3.43%	0.18%
Des Plaines	LFG-01	IL	332	0.12%	0.01%
DPL Southern	LFG-01	DE	385	0.14%	0.01%
Green Valley	LFG-01	KY	3,181	1.18%	0.06%
Greene Valley	LFG-01	IL	17,305	6.44%	0.35%
Hardin County	LFG-01	KY	7,039	2.62%	0.14%
Kankakee	LFG-01	IL	5,247	1.95%	0.10%
Lake Gas Recovery	LFG-01	IL	11,597	4.32%	0.23%
Lakeview Gas	LFG-01	PA	1,512	0.56%	0.03%
Laurel Ridge	LFG-01	KY	4,060	1.51%	0.08%
Mallard Lake	LFG-01	IL	7,602	2.83%	0.15%
Martinsville	LFG-01	VA	3,806	1.42%	0.08%
Monmouth	LFG-01	NJ	109	0.04%	0.00%
O'brien Edgeboro	LFG-01	NJ	28,968	10.78%	0.58%
PE Pottstown	LFG-01	PA	2,291	0.85%	0.05%
PE SE Ches Co	LFG-01	PA	1,286	0.48%	0.03%
Pendleton County	LFG-01	KY	10,778	4.01%	0.22%
PEP Oaks	LFG-01	MD	88	0.03%	0.00%
PEP Ritchie Brown	LFG-01	MD	8,385	3.12%	0.17%
PEP Ritchie PG	LFG-01	MD	2,767	1.03%	0.06%
PL Archbald	LFG-01	PA	10,800	4.02%	0.22%
Prairie View	LFG-01	IL	9,886	3.68%	0.20%
Richmond Electric	LFG-01	VA	1,081	0.40%	0.02%
Rochelle Energy	LFG-01	IL	9,013	3.35%	0.18%
Settlers Hill	LFG-01	IL	19,272	7.17%	0.38%
Tullytown	LFG-01	PA	4,282	1.59%	0.09%
VP Amelia	LFG-01	VA	1,748	0.65%	0.03%
VP Chesterf	LFG-01	VA	1,172	0.44%	0.02%
VP King and Queen	LFG-01	VA	1,790	0.67%	0.04%
VP King George	LFG-01	VA	1	0.00%	0.00%
Westchester	LFG-01	IL	125	0.05%	0.00%
Woodland	LFG-01	IL	18,380	6.84%	0.37%
Worcester County	LFG-01	MD	7,126	2.65%	0.14%
		Total	**268,733**	**100.00%**	**5.37%**

Facility Name	**Resource**	**State**	**Quantity**	**WDS %**	**Tier 1**
Coshocton Mill	WDS-01	OH	626	0.36%	0.01%
Hopewell Mill	WDS-01	VA	29,073	16.81%	0.58%
MeadWestvaco	WDS-01	VA	43,807	25.33%	0.87%
Multitrade	WDS-01	VA	58,189	33.65%	1.16%
Viking Energy	WDS-01	PA	13,347	7.72%	0.27%
West Point Mill	WDS-01	VA	27,881	16.12%	0.56%
		Total	**172,923**	**100.00%**	**3.45%**

Facility Name	**Resource**	**State**	**Quantity**	**MSW %**	**Tier 1**
Harford	MSW-01	MD	949	0.17%	0.02%
Montgomery County	MSW-01	MD	250,820	44.60%	5.01%
Wheelabrator	MSW-01	MD	310,625	55.23%	6.20%
		Total	**562,394**	**100.00%**	**11.23%**

Appendix A: 2013 Retired RECs by Tier and Resource (Cont'd)

Tier 1 (Cont'd)*

Facility Name	Resource	State	Quantity	WAT %	Tier 1
AEP Fries	WAT-01	VA	25,283	3.33%	0.50%
Allegheny 5	WAT-01	PA	17,451	2.30%	0.35%
Allegheny Lock	WAT-01	PA	22,577	2.97%	0.45%
Allegheny River 8	WAT-01	PA	76,616	10.09%	1.53%
Allegheny River 9	WAT-01	PA	168,467	22.20%	3.36%
AP Misc	WAT-01	WV	26,551	3.50%	0.53%
Beardslee	WAT-01	NY	6,357	0.84%	0.13%
Beebee Island	WAT-01	NY	1,327	0.17%	0.03%
Big Shoals	WAT-01	VA	1,443	0.19%	0.03%
Coleman Falls	WAT-01	VA	5,153	0.68%	0.10%
Conemaugh	WAT-01	PA	29,311	3.86%	0.59%
Deep Creek	WAT-01	MD	35,030	4.62%	0.70%
Deferiet	WAT-01	NY	7,946	1.05%	0.16%
Dixon	WAT-01	IL	14,418	1.90%	0.29%
E.J. West	WAT-01	NY	31,340	4.13%	0.63%
Granby	WAT-01	NY	17,558	2.31%	0.35%
Holcomb Rock	WAT-01	VA	8,164	1.08%	0.16%
Inghams	WAT-01	NY	1,413	0.19%	0.03%
London - 1	WAT-01	WV	35,743	4.71%	0.71%
Marmet - 1	WAT-01	WV	26,889	3.54%	0.54%
Niagara - 1	WAT-01	VA	3,119	0.41%	0.06%
Prospect	WAT-01	NY	26,659	3.51%	0.53%
Schoolfield	WAT-01	VA	18,384	2.42%	0.37%
Snowden	WAT-01	VA	17,671	2.33%	0.35%
Soft Maple	WAT-01	NY	4,131	0.54%	0.08%
Trenton	WAT-01	NY	93,911	12.37%	1.88%
Upper Sterling	WAT-01	IL	4,933	0.65%	0.10%
VP Emporia	WAT-01	VA	5,986	0.79%	0.12%
Winfield - 1	WAT-01	WV	25,137	3.31%	0.50%
		Total	**758,968**	**100.00%**	**15.16%**

Tier 2

Facility Name	Resource	State	Quantity	WAT %	Tier 2
Conowingo	WAT-02	MD	898,228	64.07%	58.96%
Lake Lynn	WAT-02	PA	153,634	10.96%	10.08%
Piney - 31	WAT-02	PA	16,262	1.16%	1.07%
Safe Harbor	WAT-02	PA	333,753	23.81%	21.91%
		Total	**1,401,877**	**100.00%**	**92.01%**

Facility Name	Resource	State	Quantity	MSW %	Tier 2
Montgomery County	MSW-02	MD	18,064	18.62%	1.19%
Union County	MSW-02	NJ	23,690	24.42%	1.55%
VP Gosport	MSW-02	VA	55,233	56.92%	3.63%
Wheelabrator	MSW-02	MD	43	0.04%	0.00%
		Total	**97,030**	**18.62%**	**6.37%**

Facility Name	Resource	State	Quantity	BFG %	Tier 2
Sparrows Point	BFG-02	MD	24,634	100.00%	1.62%
		Total	**24,634**	**100.00%**	**1.62%**

Tier 1 REC Total	4,873,572
SREC Total	134,263
Tier 2 REC Total	1,523,541
Grand Total	6,531,376

Resource Definitions

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

*Solar facilities are not represented in this table. In 2013, 5,060 facilities produced 134,285 SRECs.

Appendix B: Location of Facilities which Provided RECs for 2013 RPS Compliance

	DE	IL	IN	KY	MD	NJ	NY	OH	PA	VA	WV	Total
Tier 1												
Black Liquor	-	-	-	-	1	-	-	1	1	4	-	**7**
Blast Furnace Gas	-	-	-	-	1	-	-	-	-	-	-	**1**
Land Fill Gas	1	12	-	5	7	2	-	-	9	6	-	**42**
Municipal Solid Waste	-	-	-	-	4	-	-	-	-	-	-	**4**
Biomass Gas	-	-	-	-	-	-	-	4	-	-	-	**4**
Small Hydro	-	2	-	-	2	-	9	-	5	8	4	**30**
Solar (Photovoltaic)	27	1	-	-	4,588	-	-	-	3	1	-	**4,620**
Solar Thermal	-	-	-	-	440	-	-	-	-	-	-	**440**
Waste Wood	-	-	-	-	-	-	-	1	1	1	-	**3**
Wind	-	12	7	-	3	-	-	1	11	-	4	**38**
Tier 2												
Municipal Solid Waste	-	-	-	-	-	1	-	-	-	1	-	**2**
Large Hydro	-	-	-	-	1	-	-	-	14	-	-	**15**
Total	**28**	**27**	**7**	**5**	**5,047**	**3**	**9**	**7**	**44**	**21**	**8**	**5,206**

Note: Municipal solid waste was 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 2013 Vintage RECs Generated in Maryland

Fuel Type and Tier	RECs Retired for RPS Compliance by State							Banked	Other	Total RECs Generated
	DC	DE	IL	MD	NJ	PA	Total			
Black Liquor	0	0	0	95,905	0	0	95,905	8,594	0	104,499
Geothermal	0	0	0	0	0	0	0	42	2	44
Land Fill Gas	0	0	0	31,816	15,340	0	47,156	51,050	4,394	102,600
Municipal Solid Waste	0	0	0	401,254	0	0	401,254	276,276	0	677,530
Small Hydro	0	0	0	28,739	0	0	28,739	0	0	28,739
Solar PV	963	0	0	109,962	0	895	111,820	74,030	704	186,554
Solar Thermal	0	0	0	1,221	0	0	1,221	960	4	2,185
Wind	0	61,634	0	11,387	43,303	43,268	159,592	162,499	880	322,971
Tier 1 Total	963	61,634	0	680,284	58,643	44,163	845,687	573,451	5,984	1,425,122
Large Hydro	0	0	42,522	624,820	0	0	667,342	1,024,063	8,000	1,699,405
Tier 2 Total	0	0	42,522	624,820	0	0	667,342	1,024,063	8,000	1,699,405
Grand Total	963	61,634	42,522	1,305,104	58,643	44,163	1,513,029	1,597,514	13,984	3,124,527

Appendix D: Number of Renewable Energy Facilities Located in Maryland

Maryland County	Tier 1	Tier 1 Solar	Tier 2	Total
Allegany	1	15	-	16
Anne Arundel	2	698	-	700
Baltimore	4	762	-	766
Baltimore City	-	83	-	83
Calvert	-	96	-	96
Caroline	-	23	-	23
Carroll	-	308	-	308
Cecil	-	115	-	115
Charles	-	120	-	120
Dorchester	-	37	-	37
Frederick	1	306	-	307
Garrett	4	27	-	31
Harford	1	380	1	382
Howard	3	699	-	702
Kent	-	56	-	56
Montgomery	4	1,447	-	1,451
Prince George's	2	741	-	743
Queen Anne's	-	93	-	93
Somerset	-	17	-	17
St. Mary's	-	126	-	126
Talbot	2	53	-	55
Washington	-	112	-	112
Wicomico	2	70	-	72
Worcester	3	65	-	68
Grand Total	**29**	**6,449**	**1**	**6,479**

Note: This list includes all renewable generators that are both: 1) located within Maryland, and 2) registered to participate in any one of the PJM States' renewable energy programs as of May 2, 2014.

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	0.3	-	65.3
Anne Arundel	3.2	11.2	-	14.4
Baltimore	195.2	15.1	-	210.3
Baltimore City	-	4.8	-	4.8
Calvert	-	0.8	-	0.8
Caroline	-	2.9	-	2.9
Carroll	-	4.2	-	4.2
Cecil	-	1.5	-	1.5
Charles	-	7.9	-	7.9
Dorchester	-	1.1	-	1.1
Frederick	2.0	21.3	-	23.3
Garrett	140.0	0.1	-	140.1
Harford	1.2	9.5	474.0	484.7
Howard	1.0	6.4	-	7.5
Kent	-	7.3	-	7.3
Montgomery	81.2	16.9	-	98.2
Prince George's	6.7	14.7	-	21.4
Queen Anne's	-	4.4	-	4.4
Somerset	-	6.7	-	6.7
St. Mary's	-	1.6	-	1.6
Talbot	69.3	1.3	-	70.6
Washington	-	33.8	-	33.8
Wicomico	6.0	3.0	-	9.0
Worcester	2.0	1.5	-	3.5
Grand Total	**572.9**	**178.1**	**474.0**	**1,225.1**

Note: This list includes all renewable generators that are both: 1) located within Maryland, and 2) registered to participate in any one of the PJM States' renewable energy programs as of May 2, 2014.