**SB 921**

# Department of Legislative Services

Maryland General Assembly
2016 Session

## FISCAL AND POLICY NOTE
## Third Reader - Revised

Senate Bill 921 (Senator Pugh, *et al.*)

Finance Economic Matters

**Clean Energy Jobs - Renewable Energy Portfolio Standard Revisions**

This bill increases the annual percentage requirements for Tier 1 Nonsolar and Tier 1 Solar sources to meet the State's Renewable Energy Portfolio Standard (RPS). Total RPS percentage requirements increase from 20% by 2022 to 25% by 2020. Generally, alternative compliance payments (ACPs) for Nonsolar and Solar are reduced slightly. The Maryland Energy Administration (MEA) may use the Strategic Energy Investment Fund (SEIF), including money that the fund received from the approval of the Cove Point liquefied natural gas (LNG) export facility by the Public Service Commission (PSC), to provide funding for access to capital for small, minority, and women-owned businesses in the clean energy industry. The Department of Labor, Licensing, and Regulation (DLLR) must conduct a study related to the clean energy workforce needs in the State. The bill applies prospectively.

## Fiscal Summary

**State Effect:** Under one set of assumptions, State expenditures (all funds) increase by $0.1 million in FY 2017, escalating to $2.2 million in FY 2021, and significantly thereafter, due to higher electricity prices. SEIF revenues increase beginning in FY 2018 to the extent that electricity suppliers are unable to meet the bill's enhanced RPS requirements. SEIF expenditures *may* increase beginning as early as FY 2017 to provide funding for access to capital for small, minority, and women-owned businesses in the "clean energy industry." Special fund revenues and expenditures for the Small, Minority, and Women-Owned Businesses Account *may* increase correspondingly, as discussed below. PSC and DLLR can handle the bill's requirements with existing budgeted resources.

| ($ in millions) | FY 2017 | FY 2018 | FY 2019 | FY 2020 | FY 2021 |
|---|---|---|---|---|---|
| SF Revenue | - | - | - | - | - |
| SF Expenditure | - | - | - | - | - |
| GF/SF/FF Exp. | $0.1 | $0.2 | $0.6 | $1.7 | $2.2 |
| Net Effect | ($0.1) | ($0.2) | ($0.6) | ($1.7) | ($2.2) |

*Note:() = decrease; GF = general funds; FF = federal funds; SF = special funds; - = indeterminate effect*

**Local Effect:** Local expenditures increase beginning in FY 2017 due to higher electricity prices. Revenues are not materially affected.

**Small Business Effect:** Meaningful.

## Analysis

**Bill Summary:** RPS percentage requirements are increased beginning in 2017 for Tier 1 Solar and 2019 for Tier 1 Nonsolar. **Exhibit 1** summarizes the RPS percentages under the bill.

**Exhibit 1**
**Annual RPS Specifications**
**Under the Bill**

| | Percentage of Retail Sales | | | |
|---|---|---|---|---|
| | The Bill | | Current Law | |
| Compliance Year | Tier 1 Total* | Tier 1 Solar | Tier 1 Total* | Tier 1 Solar |
| 2017 | 13.1% | 1.15% | 13.10% | 0.95% |
| 2018 | 15.8% | 1.50% | 15.80% | 1.40% |
| 2019 | 20.4% | 1.95% | 17.40% | 1.75% |
| 2020 | 25.0% | 2.50% | 18.00% | 2.00% |
| 2021 | 25.0% | 2.50% | 18.70% | 2.00% |
| 2022+ | 25.0% | 2.50% | 20.00% | 2.00% |

*****Tier 1 Total percentage requirements include Tier 1 Solar percentage requirements. Percentage requirements for offshore wind are not affected.

*Optional Solar RPS Cost Containment*

PSC may delay the scheduled percentages for Tier 1 Solar by one year and allow the Tier 1 Solar percentage requirement for that year to continue to apply to an electricity supplier for the following year if the actual or projected dollar-for-dollar cost incurred by an electricity supplier to comply with the Tier 1 Solar requirement in any one year is greater than or equal to, or is anticipated to be greater than or equal to, 2.5% of the electricity supplier's total annual electricity sales revenues in Maryland. If PSC allows a delay, then it continues for each subsequent consecutive year that the cost is more than, or anticipated to be more than, the 2.5% cost threshold. If the cost is less than, or anticipated to be less than, the 2.5% cost threshold then the delayed requirement is increased to the next scheduled percentage increase. Under current law, the cost threshold is 1%.

*Funding for Small, Minority, and Women-Owned Businesses in the Clean Energy Industry*

The bill authorizes MEA to use SEIF, including money that the fund received from the approval of the Cove Point LNG export facility by PSC, to provide funding for access to capital for small, minority, and women-owned businesses in the "clean energy industry" – which the bill defines.

The bill likewise authorizes the Small, Minority, and Women-Owned Businesses Account to accept money from SEIF and requires it be used to benefit small, minority, and women-owned businesses in the clean energy industry in the State.

*Clean Energy Workforce Study*

DLLR must study the workforce development training needs for the clean energy industry in the State and, in doing so, must identify:

- existing programs that could help address the clean energy industry workforce needs;
- any new program that could be developed to provide workforce development training for the clean energy workforce;
- ways to advance clean energy job training and employment opportunities for individuals from economically distressed areas and disadvantaged workers who have barriers to entry into the labor force;
- barriers to entry for small, minority, and women-owned businesses in the clean energy industry;
- funding ways that may be used to provide incentives for the development of clean energy workforce development training programs, including through tax credits, grants, or other forms; and
- options for funding sources, including SEIF, money directed by PSC orders, and other sources.

In conducting the study, DLLR must seek input from specified State agencies and other stakeholders. DLLR must report its findings and any recommendations to the General Assembly by July 1, 2017.

**Current Law:** Maryland's RPS requires that renewable sources generate specified percentages of Maryland's electricity supply each year, increasing to 20% by 2022, including 2% from solar energy. Maryland's RPS operates on a two-tiered system with carve-outs for solar energy and offshore wind energy and corresponding renewable energy credits (RECs) for each tier. Electricity suppliers must submit RECs equal to the percentage specified in statute each year or pay an ACP equivalent to the supplier's

shortfall. Any ACPs made are paid into SEIF and used by MEA to support new renewable energy sources. **Exhibit 2** details the requirements and associated ACPs.

**Exhibit 2**
**Maryland's Renewable Energy Portfolio Standard – Annual Specifications**
**Current Law**

| | Percentage of Retail Sales | | | | Alternative Compliance Payments | | |
|---|---|---|---|---|---|---|---|
| Compliance Year | Tier 1 Total* | Tier 1 Solar* | Tier 1 Offshore Wind* | Tier 2 | Tier 1 | Tier 1 Solar | Tier 2 |
| 2010 | 3.025% | 0.025% | | 2.50% | $20 | $400 | $15 |
| 2011 | 5.00% | 0.05% | | 2.50% | 40 | 400 | 15 |
| 2012 | 6.50% | 0.10% | | 2.50% | 40 | 400 | 15 |
| 2013 | 8.20% | 0.25% | | 2.50% | 40 | 400 | 15 |
| 2014 | 10.30% | 0.35% | | 2.50% | 40 | 400 | 15 |
| 2015 | 10.50% | 0.50% | | 2.50% | 40 | 350 | 15 |
| 2016 | 12.70% | 0.70% | | 2.50% | 40 | 350 | 15 |
| 2017 | 13.10% | 0.95% | ≤2.50% | 2.50% | 40 | 200 | 15 |
| 2018 | 15.80% | 1.40% | ≤2.50% | 2.50% | 40 | 200 | 15 |
| 2019 | 17.40% | 1.75% | ≤2.50% | - | 40 | 150 | - |
| 2020 | 18.00% | 2.00% | ≤2.50% | - | 40 | 150 | - |
| 2021 | 18.70% | 2.00% | ≤2.50% | - | 40 | 100 | - |
| 2022 | 20.00% | 2.00% | ≤2.50% | - | 40 | 100 | - |
| 2023+ | 20.00% | 2.00% | ≤2.50% | - | 40 | 50 | - |

*Tier 1 Solar and Offshore Wind requirements are part of the Tier 1 Total percentage requirement. ACPs are expressed as $/megawatt-hour, or $/REC, equivalents.

Source: Department of Legislative Services

*Optional Solar RPS Cost Containment*

PSC may delay the scheduled percentages for Tier 1 Solar by one year and allow the Tier 1 Solar percentage requirement for that year to continue to apply to an electricity supplier for the following year if the actual or projected dollar-for-dollar cost incurred by an electricity supplier to comply with the Tier 1 Solar requirement in any one year is greater than or equal to, or is anticipated to be greater than or equal to, 1% of the electricity supplier's total annual electricity sales revenues in Maryland.

If PSC allows a delay, then it continues for each subsequent consecutive year that the cost is more than, or anticipated to be more than, the 1% cost threshold. If the cost is less than, or anticipated to be less than, the 1% cost threshold then the delayed requirement is increased to the next scheduled percentage increase.

**Background:** For additional information on Maryland's RPS, see the **Appendix – Maryland's Renewable Energy Portfolio Standard**.

*Cove Point*

In April 2013, Dominion Cove Point LNG, LP (DCP) filed an application with PSC for a Certificate of Public Convenience and Necessity (CPCN) to construct a 130-megawatt nameplate capacity electric-generating station at the existing LNG terminal site in Calvert County near Cove Point.

In May 2014, PSC granted (in Order 86372) the CPCN for the new electric generating station to DCP subject to a number of conditions, two of which impact the State budget. One condition requires a contribution of $400,000 per year during the anticipated 20-year operation of the facility (a total of $8.0 million) to be used for the Maryland Energy Assistance Program or another Maryland low-income energy assistance program specified by PSC. The other is a condition that requires a contribution of $8.0 million annually for five years (a total of $40.0 million) from DCP to SEIF beginning within 90 days of the commencement of construction of the facility. The contribution is required to be used solely for:

- renewable and clean energy resources;
- greenhouse gas reduction or mitigation programs;
- cost-effective energy efficiency and conservation programs, projects, or activities; or
- demand response programs that are designed to promote changes in electric usage by customers.

SEIF began receiving contributions from DCP related to this condition in calendar 2015. Due to the unknown timing of the receipt of the first payment, no funds were included in the fiscal 2016 budget. The fiscal 2017 budget accounts for the full $24.0 million expected to be contributed to SEIF from DCP for the first three payments required under the condition. The remaining two payments are to be contributed during fiscal 2018 and 2019, respectively. The funding from the DCP contribution included in the fiscal 2017 budget is used for:

- a new Maryland Department of the Environment (MDE) PAYGO program for wastewater treatment plant upgrades that meet the criteria established by PSC

including energy efficiency and the installation of combined heat and power or renewable energy technologies ($16.4 million);

- a Department of Housing and Community Development (DHCD) multifamily energy efficiency program ($4.6 million) that traditionally receives funds from the EmPOWER Maryland surcharge; and

- a new MEA program to offset the surcharges imposed by three electric companies for electric reliability and grid resiliency initiatives ($3.0 million) in the budget of MEA.

*Small, Minority, and Women-Owned Businesses Account*

State Law generally requires that 1.5% of video lottery terminal proceeds at each licensed video lottery facility be paid into the Small, Minority, and Women-Owned Businesses Account. The account was established in 2007 and is a special, nonlapsing fund under the authority of the Board of Public Works (BPW). The purpose of the account is to provide investment capital and loans to small, minority, and women-owned businesses in the State. At least 50% of such activity must be allocated to eligible businesses in the jurisdictions and communities surrounding a video lottery facility.

BPW was required to develop criteria to define eligible fund managers (entities with significant financial or investment experience) to whom BPW would make grants, and who in turn would use those grant funds to provide investment capital and loans to businesses. The process of awarding grant funds and the subsequent loan activity is collectively referred to by BPW as "the program."

In 2012, to assist it in its required duties, BPW entered into a memorandum of understanding (MOU) with the Department of Commerce (DOC) whereby the department serves as BPW's agent to administer the program. Although BPW retains overall authority for the account and the program, the MOU delegated certain administrative and operational responsibilities to DOC. The fiscal 2017 budget for the account is $13.7 million.

**State Fiscal Effect:**

*Electricity Costs*

The incremental cost associated with the bill is absorbed by all electric customers in the State. As an electric customer, State agencies and the University System of Maryland use approximately 1.5 million megawatt-hours (MWh) of electricity annually. Under the assumptions discussed below, including that RECs and solar RECs (SRECs) cost 50% of ACP in each year, the bill increases State expenditures (all funds) by about $0.1 million in

fiscal 2017, $0.2 million in fiscal 2018, $0.6 million in fiscal 2019, $1.7 million in fiscal 2020, and $2.2 million in fiscal 2021. The potential effect on electricity prices, borne by all customers, is discussed below.

*Range of Electricity Price Effect*

The incremental cost of the bill is (1) the cost of additional RECs and SRECs required to meet the enhanced requirements plus (2) the cost of any ACPs paid by electricity suppliers if the enhanced percentage requirements are physically not able to be met. The estimates below *do not* reflect any causal relationship between the bill's minor changes in ACPs and actual prices paid for RECs, neither for the incremental RECs in the bill nor the RECs required under current law. The incremental costs are merely *displayed as a percentage of ACP* in a given year. In other words, if REC and SREC prices are certain dollar amounts in a given year, the costs below reflect the requirement to purchase additional SRECs and RECs required under the bill in that year, at those prices.

Forecasting REC and SREC prices is difficult, as the markets for them are influenced by multiple factors, including technology costs, labor costs, permitting costs, electricity costs, capacity market prices, potential future environmental regulations, and federal and state tax policies.

Given these uncertainties, *for illustrative purposes only*, the incremental cost of RPS compliance under the bill for compliance years 2017 through 2025 and later for a range of REC and SREC prices is shown in **Exhibit 3**. The costs reflect the following assumptions: (1) PSC does *not* waive solar compliance costs beyond 2.5% of retail sales; and (2) sufficient RECs and SRECs are available in each year affected by the bill. In the range of costs below, the average REC or SREC price in each year is the specified percentage of the applicable ACP established by the bill in that year; to that end, the displayed range of costs is slightly less than it would be under current ACPs in some years.

Under these assumptions, the additional costs of RPS compliance due to the bill range from $5.0 million to $19.8 million in 2017 and from $2.2 million to $8.7 million in 2018. In 2019, the range of potential costs increases significantly to between $21.5 million and $86.1 million. Potential costs peak in 2020 due to relatively high solar ACPs combined with reaching the maximum Tier 1 percentage requirement of 25%.

When averaged out over anticipated State energy sales in each year, this equates to an increase of between $0.08/MWh to $0.32/MWh in 2017. In 2020, the increase peaks at $0.77/MWh to $3.06/MWh. As the average residential customer uses approximately one MWh per month, these price increases are an estimate of the average monthly bill increase for a residential customer, as shown in **Exhibit 4**.

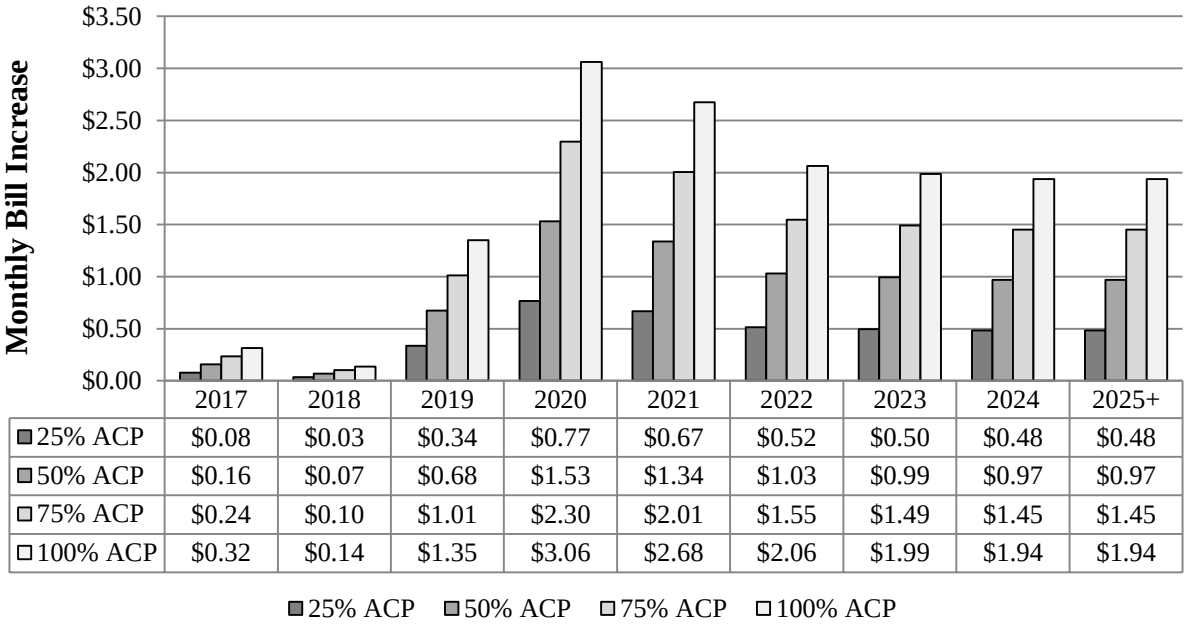
**Exhibit 3**
**Incremental Annual Compliance Cost, by REC and SREC Prices as Percent of ACP**
**Calendar 2017-2025+**
**($ in Millions)**

| | | | | REC Price | | | |
|---|---|---|---|---|---|---|---|
| Year | Retail Electric Sales (MWh) | New SRECs | New RECs | 25% of ACP Annual Cost | 50% of ACP Annual Cost | 75% of ACP Annual Cost | 100% of ACP Annual Cost |
| 2017 | 62,886,600 | 125,773 | (125,773) | $5.0 | $9.9 | $14.9 | $19.8 |
| 2018 | 63,432,460 | 63,432 | (63,432) | $2.2 | $4.4 | $6.5 | $8.7 |
| 2019 | 63,747,040 | 127,494 | 1,784,917 | $21.5 | $43.0 | $64.5 | $86.1 |
| 2020 | 64,001,840 | 320,009 | 4,160,120 | $49.0 | $98.0 | $147.0 | $196.0 |
| 2021 | 64,285,060 | 321,425 | 3,728,533 | $43.0 | $86.0 | $129.0 | $172.0 |
| 2022 | 64,597,680 | 322,988 | 2,906,896 | $33.3 | $66.6 | $99.9 | $133.2 |
| 2023 | 64,957,340 | 324,787 | 2,923,080 | $32.3 | $64.6 | $96.8 | $129.1 |
| 2024 | 65,325,707 | 326,629 | 2,939,657 | $31.6 | $63.3 | $94.9 | $126.6 |
| 2025+ | 65,696,163 | 328,481 | 2,956,327 | $31.8 | $63.6 | $95.5 | $127.3 |

MWh = Megawatt-hour
ACP = Alternative Compliance Payment

Source: Department of Legislative Services

**Exhibit 4**
**Average Residential Customer Monthly Bill Increase**
**by REC and SREC Prices as Percent of ACP**
**Calendar 2017-2025+**




| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025+ |
|---|---|---|---|---|---|---|---|---|---|
| 25% ACP | $0.08 | $0.03 | $0.34 | $0.77 | $0.67 | $0.52 | $0.50 | $0.48 | $0.48 |
| 50% ACP | $0.16 | $0.07 | $0.68 | $1.53 | $1.34 | $1.03 | $0.99 | $0.97 | $0.97 |
| 75% ACP | $0.24 | $0.10 | $1.01 | $2.30 | $2.01 | $1.55 | $1.49 | $1.45 | $1.45 |
| 100% ACP | $0.32 | $0.14 | $1.35 | $3.06 | $2.68 | $2.06 | $1.99 | $1.94 | $1.94 |

Notes: The average residential customer uses 1,000 kilowatt-hours, or 1 megawatt-hour, per month.

ACP = Alternative Compliance Payment

Source: Department of Legislative Services

*Transfer of Cove Point Funds from SEIF*

The bill authorizes, but does not require, MEA to use SEIF to provide funding for access to capital for small, minority, and women-owned businesses in the clean energy industry. Likewise, the Small, Minority, and Women-Owned Businesses Account is authorized to accept money from SEIF, but any money from SEIF must be used to benefit small, minority, and women-owned businesses in the clean energy industry in the State.

However, MEA is not required to transfer money to the account if it chooses to provide funding for access to capital for small, minority, and women-owned businesses in the clean energy industry. Alternatively, MEA can directly provide the funding (without a transfer) or provide the funding to another program that is consistent with the purposes specified in the bill.

The timing and amount of any SEIF funding for access to capital for small, minority, and women-owned businesses in the clean energy industry are unknown at this time, but could begin as early as fiscal 2017. Any funding has no effect on overall SEIF expenditures, but that money is no longer available for other purposes.

Special fund revenues for the Small, Minority, and Women-Owned Businesses Account increase from any SEIF funding provided; special fund expenditures increase correspondingly for the purposes authorized under the bill and for any necessary BPW/DOC administrative expenses associated with the SEIF funding.

As noted above, the fiscal 2017 budget includes DCP-related SEIF funding for MDE, DHCD, and MEA programs totaling $24 million. An additional $16 million is anticipated from $8 million payments in fiscal 2018 and 2019. If consistent with current law and the bill, other SEIF funds may also be used by MEA to provide funding for access to capital for small, minority, and women-owned businesses in the clean energy industry.

**Small Business Effect:** Small businesses incur higher electricity prices under the bill beginning in fiscal 2017. However, the bill also creates demand for solar and other renewable energy technology installations. Small businesses in these industries benefit from increased demand to design, build, install, and maintain renewable energy systems under the bill. Some small businesses may also benefit from additional funding made available from SEIF under the bill.

## Additional Information

**Prior Introductions:** None.

**Cross File:** HB 1106 (Delegate Frick, *et al.*) - Economic Matters.

**Information Source(s):** Public Service Commission; Maryland Energy Administration; Department of Labor, Licensing, and Regulation; Department of Commerce; Office of People's Counsel; Maryland Department of Transportation; Governor's Office on Minority Affairs; Comptroller's Office; Montgomery County; Department of Legislative Services

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## Appendix – Maryland's Renewable Energy Portfolio Standard

Maryland's Renewable Energy Portfolio Standard (RPS) was enacted in 2004 to facilitate a gradual transition to renewable sources of energy. Maryland's RPS operates on a two-tiered system with carve-outs for solar energy and offshore wind energy and corresponding renewable energy credits (RECs) for each tier. Electric companies (utilities) and other electricity suppliers must submit RECs equal to a percentage specified in statute each year or else pay an alternative compliance payment (ACP) equivalent to their shortfall. Over the past few years, the requirements have been met almost entirely through RECs, with negligible reliance on ACPs. The Maryland Energy Administration must use ACPs to support new renewable energy sources.

The percentage requirements gradually increase to a minimum of 20%, including 2% from solar sources, by 2022. The Tier 2 requirement remains constant at 2.5% each year until ending after 2018. In 2016, the requirements are 12.7% for Tier 1 renewable sources, including at least 0.7% from solar energy, and 2.5% from Tier 2 renewable sources.

Generally, a REC is a tradable commodity equal to one megawatt-hour of electricity generated or obtained from a renewable energy generation resource. In other words, a REC represents the "generation attributes" of renewable energy – the lack of carbon emissions, its renewable nature, etc. A REC has a three-year life during which it may be transferred, sold, or redeemed. RECs are classified as Tier 1 or Tier 2, depending on the energy source. Solar and offshore wind are accounted for separately but are considered part of Tier 1. REC generators and electricity suppliers are allowed to trade RECs using a Public Service Commission-approved system known as the Generation Attributes Tracking System, a trading platform designed and operated by PJM Environmental Information Services, Inc. that tracks the ownership and trading of RECs.

Tier 1 sources include wind (onshore and offshore); qualifying biomass; methane from anaerobic decomposition of organic materials in a landfill or wastewater treatment plant; geothermal; ocean, including energy from waves, tides, currents, and thermal differences; a fuel cell that produces electricity from specified Tier 1 renewable sources; a small hydroelectric plant of less than 30 megawatts; poultry litter-to-energy; waste-to-energy; refuse-derived fuel; and thermal energy from a thermal biomass system. Tier 1 Solar sources include photovoltaic cells and residential solar water-heating systems commissioned in fiscal 2012 or later. Following the transfer of several sources to Tier 1, Tier 2 includes only large hydroelectric power plants.

*RPS Compliance*

According to the most recent RPS compliance report on PSC's website, electricity suppliers retired approximately 7.8 million RECs at a cost of $104.0 million for compliance with the 2014 RPS requirements. Of that amount, the Tier 1 Nonsolar cost was $70.6 million, the Tier 1 Solar cost was $29.4 million, and the Tier 2 cost was $4.0 million. The total cost of RPS compliance has increased dramatically since 2009, as shown in **Exhibit 1**. In 2014, the average Tier 1 Nonsolar REC price was $11.64, and the average Tier 1 Solar REC price was $144.06.

In 2014, black liquor (29.4%), wind (27.4%), small hydroelectric (17.4%), municipal solid waste (13.6%), and wood and waste solids (5.8%) were the primary energy sources used for RPS compliance.

**Exhibit 1**
**Cost of RECs for RPS Compliance**
**($ in Millions)**

| | **2009** | **2010** | **2011** | **2012** | **2013** | **2014** |
|---|---|---|---|---|---|---|
| Tier 1 Nonsolar | $1.3 | $1.9 | $6.2 | $12.5 | $32.7 | $70.6 |
| Tier 1 Solar | 1.1 | 5.1 | 7.8 | 11.3 | 21.4 | 29.4 |
| Tier 2 | 0.6 | 0.6 | 0.6 | 0.7 | 2.8 | 4.0 |
| **Total** | **$3.1** | **$7.6** | **$14.7** | **$24.5** | **$56.8** | **$104.0** |

Note: Numbers may not sum to total due to rounding.

Source: Public Service Commission