Comments of Sarah L. Buttner on Proposed Rules
102 Implementation of Renewable Energy Portfolio Standards Cost Cap Provisions

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Sarah L. Buttner respectfully submits these comments on Proposed Rules,
102 Implementation of Renewable Energy Portfolio Standards Cost Cap Provisions.

Introduction

The Delaware Code permits the State Energy Coordinator, in consultation with the Public Service Commission, to freeze the minimum solar photovoltaic requirements, and the minimum cumulative eligible energy resources requirements, if the costs of complying with the requirements exceed 1% or 3%, respectively, of the total retail cost of electricity for a compliance year.

DNREC issued a proposed rule November 1, 2015 to establish the procedures for calculating the costs of renewables for purposes of determining whether the caps have been reached.

These comments address the calculation of the caps, and urge that, as the rules are finalized, consideration be given to the General Assembly's intent when it enacted Renewable Portfolio Standards, that the benefits of renewables be reflected in the cost calculation, and that the issue of Bloom inclusion be addressed.

General Assembly statement of benefits

The General Assembly recognized the benefits of renewable energy. In 26 *Del. C.* § 351, the Code states:

> "The General Assembly finds and declares that the benefits of electricity from renewable energy resources accrue to the public at large, and that electric suppliers and consumers share an obligation to develop a minimum level of these resources in the electricity supply portfolio of the state. These benefits include improved regional and local air quality, improved public health, increased electric supply diversity, increased protection against price

> volatility and supply disruption, improved transmission and distribution performance, and new economic development opportunities."

These impacts of renewables are not included in market prices; they are external benefits, known as externalities. The General Assembly clearly recognized the external values of renewables.

Benefits of renewable Energy

It is well established that implementation of renewable energy creates benefits not explicitly valued when cost of the renewable energy is determined. These benefits accrue to both ratepayers and the public at large. External benefits have been evaluated and included in Delmarva's Integrated Resource Plans (IRP) for at least the past two Commission approved IRPs. Austin Energy recognizes these benefits when it calculates its retail Value of Solar rate used to pay retail customers for the electricity their photovoltaic systems generate.

Renewable energy has a price suppression effect. Solar energy, in particular, is generated at times when energy use, and electric prices are high. Each MWH of electricity generated during these times of high demand reduces the amount of high priced energy that would otherwise have to be purchased, and thus has a price suppression effect that benefits all ratepayers.

PJM Interconnection, LLC, performed an extensive study of the impact of renewables on PJM's system. PJM is the regional transmission organization (RTO) that coordinates the movement of wholesale electricity in all or parts of 13 states, including Delaware, and the District of Columbia.[1] Recognizing that the level of renewable generation in its footprint is increasing, PJM did an extensive study of the impact of renewables on the PJM system and released a report in the spring of 2014. PJM looked at a number of impacts of renewables at various levels of renewable generation, from a Business As Usual case all the way to 30% renewables. PJM

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[1] http://www.pjm.com/about-pjm.aspx

examined a number of impacts including impact of renewables on costs and found that: "Every scenario examined resulted in lower PJM fuel and variable Operations and Maintenance (O&M) cost as well as lower average Locational Marginal Prices (LMPs)."[2]

Austin Energy recognizes the external benefits of solar and actually calculates a "Value of Solar" rate. Customers with photovoltaic systems have meters that read both the amount of electricity used, and the amount of energy generated. Customers pay at the normal retail rate for the electricity they use. They are compensated for the electricity that they generate at the Value of Solar Rate (VOS). The VOS is calculated each year, and recognizes these benefits of solar:[3]

"**Loss savings** represent the benefits that distributed resources provide by reducing system losses by producing power in the same location where it is used. Loss savings increase the value of other benefits across generation, transmission, and distribution systems, and are computed differently depending upon benefit category. However, for all categories, loss savings are calculated hourly on the margin.

Energy savings are the benefits from distributed PV generation's offset of wholesale energy purchases. Energy value equals PV output plus loss savings times marginal energy cost. Marginal energy costs are based on fuel and O&M costs of the generator most likely operating on the margin (typically, a combined cycle gas turbine).

Generation capacity savings are the benefits of added capacity provided to the generation system by distributed PV. It is calculated as the product of the cost of capacity times PV's effective load carrying capability (ELCC), taking into account loss savings.

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[2] PJM Renewable Integration Study, Executive Summary Report, March 31, 2104, p. 7, available here: PJM Renewable Integration Study.

[3] DESIGNING AUSTIN ENERGY'S SOLAR TARIFF USING A DISTRIBUTED PV VALUE CALCULATOR, by Karl R. Rábago, Leslie Libby, Tim Harvey, Austin Energy, and Benjamin L. Norris, Thomas E. Hoff, Clean Power Research, available here.

Fuel price hedge value represents the value of the fact that distributed PV generation has no fuel price uncertainty. It is calculated by determining how much it would cost to eliminate the fuel price uncertainty associated with natural gas generation through procurement of commodity futures.

T&D capacity savings are the benefits that distributed PV generation provides by reducing peak loading on the T&D system – delaying the need for capital investments in the T&D system. It equals the expected long-term T&D system capacity upgrade cost, divided by load growth, times financial term, times a factor that represents match between PV system output (adjusted for losses) and T&D system load.

Environmental benefits recognize the fact that the environmental footprint of PV is considerably smaller than that of fossil-based generation. Environmental value equals PV output times REC price—the incremental cost of offsetting a unit of conventional generation. "

Effective January 1, 2016, the Austin Energy's Value of Solar factor is 10.9 cents per kWh.[4]

Implementation of renewables is known to have external benefits, which can be, and are, calculated. Among other benefits, renewables have a price suppression effect for ratepayers.

Bloom Energy

Bloom Energy uses fuel cells and natural gas to generate electricity. Although the fuel cells use fossil fuel, not a renewable source, to generate electricity, electricity generated by the fuel cells creates non-tradable Renewable Energy Credits (RECs). Delaware's Commission regulated utility may and does use Bloom RECs to meet its RPS requirements.

There are arguments both for and against including the cost of Bloom RECs in the cost of Renewable Energy compliance. However, Bloom generated RECs are currently used to meet about half of the utility's Renewable Energy requirements. That means that half of the General Assembly's required implementation of renewable energy is being met by electricity generated by a non-renewable

[4] Austin Energy, Residential Rates, available here.

resource. The percentages of renewable energy requirements are being significantly diluted by the inclusion of non-renewable generation. Including the cost of Bloom RECs in the calculation used to test for the cost caps significantly reduces the room left for true renewable energy implementation.

This issue of dilution of renewable requirements, as it impacts the REC cost caps, could be solved a number of ways; as just one example, Bloom RECs could be excluded from the cost calculation.

Conclusion

The General Assembly, in enacting the Renewable Portfolio Standards, required the implementation of renewable energy at levels increasing to 25%, including 3.5% solar photovoltaics, by the year 2025. The General Assembly also imposed caps on the cost of renewables as a percent of total retail sales cost. The external benefits of renewable energy are well established and should be recognized in the calculation of the cost of renewables. Further, the impact of RECs created by Bloom Energy's fuel cell generation should be recognized and addressed so that they do not dilute the requirements for renewables established by the General Assembly.

Respectfully submitted

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