November 22, 2013

Burl W. Haar
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, MN 55101

Re: IN THE MATTER OF THE APPLICATION OF XCEL ENERGY'S PETITION TO SEEK APPROVAL FOR A COMPETITIVE RESOURCE ACQUISITION PROPOSAL

DOCKET NO. E002/CN-12-1240

Dear Dr. Haar:

We provide these comments on behalf of the Minnesota Solar Energy Industry Association ("MnSEIA") on the costs and benefits of using solar energy, and adopting a solar program for peak energy generation.

MnSEIA is a membership association comprised of 58 organizations involved in the installation and manufacture of photovoltaic and solar thermal energy. MnSEIA promotes the use of solar energy, because solar energy serves Minnesota's public interest, and helps create a sustainable future for the state.

Today we comment on six issues. We touch upon Solar energy's ability to compete economically with fossil fuels as a peak energy resource, solar's fixed and known cost structure, solar's ability to generate capacity, the value of solar's distributed nature, the Legislature's desire for renewable energy, and the value of proper energy resource modeling techniques.

Comments

I. Solar Energy is Economically Competitive - Now

In this docket various forms of energy are vying for Xcel's utility usage. Not only is solar energy economically competitive with the docket's other energy forms, but solar energy is, on the whole, more environmentally friendly.

Over time the price of solar panels have dropped significantly.[1] The price of a photovoltaic system dropped 11% in the last year.[2] More impressive, is that the price of a solar panel has dropped 60% since 2011.[3]

Prices have dropped so precipitously that solar energy is now a cost effective alternative to fossil fuel generated electricity.[4] In some market segments, notably peak energy generation, solar is cheaper than the other alternatives.[5] Solar energy is less expensive than natural gas peaking units.[6]

While solar energy has recently become cost effective, it has always been better for the environment. Solar energy generation has no greenhouse gas output, while fossil fuel generation emits tons of greenhouse gases each year.[7]

We believe rate payers will eventually need to pay for greenhouse gas caused environmental degradation. In the long term fossil fuel generated electricity costs more than solar energy. As such, we argue that when faced with two equally cost-effective methods of energy production, the PUC should choose the more environmentally friendly option.

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1 John Farrell, Commercial Rooftop Revolution, INSTITUTE FOR LOCAL SELF RELIANCE (Nov. 21, 2013, 9:54 AM) http://www.ilsr.org/commercial-roofop-revolution/.

2 *Solar Industry Data*, SOLAR ENERGY INDUSTRIES ASSOCIATION (Nov. 21, 2013, 9:55 AM) http://www.seia.org/research-resources/solar-industry-data.

3 *Id.*

4 Andrew, *Wind and Solar Competitive with Natural Gas in the Lone Star State*, CLEANTECHNICA, (Nov. 21, 2013, 9:58 AM) http://cleantechnica.com/2013/02/04/ercot-report-wind-solar-competitive-with-natural-gas-in-the-lone-star-state/ [hereinafter *Lone Star*].

5 Stephen Lacey, Cheap Natural Gas Won't Kill Renewable Energy Growth (3 Reasons Why), CLEANTECHNICA, (Nov. 21, 2013, 10:00 AM) http://cleantechnica.com/2012/02/22/cheap-natural-gas-wont-kill-renewable-energy-growth-3-reasons-why/ [hereinafter *3 Reasons*].

6 *Id.*

7 *Id.*

Here, the more environmentally friendly option is solar energy. And the PUC should a solar program wherever possible.

II. Solar Has a Fixed and Known Cost Today.

While natural gas prices are at an all-time low, it is not expected that they will stay there. Historically, natural gas prices are measured against the NYMEX index, which is a notoriously poor predictor of natural gas prices.[8] But the costs of solar energy are currently known, and will remain relatively unchanged over time.[9] With solar there is no expected price volatility.

The price of natural gas will likely increase overtime.[10] Natural gas is a finite resource. As we continue to deplete the resource the price will rise. Solar energy's price, however, will continue to fall, or remain constant, because solar energy is a renewable resource. Solar uses the sun to provide essentially infinite energy.

More importantly, solar energy is not subject to the potential price spikes associated with natural gas.[11] Solar energy will retain relatively the same price or decrease, while natural gas prices may spike. A stable, predictable investment is a strong reason to favor a solar installation to a natural gas one.

III. Solar Provides Peak Capacity Values.

Solar energy also provides the grid with strong peak capacity resources. The PUC should look to provide the peak capacity generation that solar energy generation provides to the grid. While different solar installations will provide more capacity resources than others, most solar installations are able to provide capacity generation to the grid.[12]

Geographically dispersed solar arrays provide energy capacity that dependably correlates with peak demand. Solar excels at providing energy when it is needed most and dispersed siting ensures reliability. Put differently, there is no reason to pay more for natural gas peaker units when dispersed solar provides the same peak reliability.

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8 Perez, Norris, and Hoff, *The Value of Distributed Solar Electric Generation to New Jersey and Pennsylvania*, Prepared for: Mid-Atlantic Solar Energy Industries Association and Pennsylvania Solar Energy Industries Association, prepared by Clean Power Research, at 22 [hereinafter *MSEIA Report*].

9 *3 Reasons*, *supra* note 5.

10 *Id.*

11 U.S. Energy Information Administration http://www.eia.gov/pub/oil_gas/natural_gas/feature_articles/2009/ngyir2008/ngyir2008.html (last visited Nov. 21, 2013, 10:04 AM).

12 *Lone Star*, *supra* note 4.

IV. Solar is a Distributed Resource.

One of the great benefits of solar energy is that it can be developed almost anywhere along the grid. Solar is a distributed resource. The ability to distribute the solar resource allows for grid stability and reduced line losses.[13]

Grid stability means fewer unplanned power outages when demand exceeds the expected demand. Reduced line losses means that the electricity generated on site will not be lost as the electricity travels along the power line. Both of these benefits significantly favor solar energy production over fossil fuel production, because they reduce costs for rate payers and society.[14] Solar's distributed nature benefits the grid in a way that no fossil fuel generated electricity can.

V. Solar Meets Minnesota's Laws, Policy Goals, and is in the Public Interest.

The law expresses a general interest in renewable energy generation. One component of the law is Minn. Stat § 216B.2422. According to Minn. Stat. § 216B.2422:

> The commission shall not approve a new or refurbished nonrenewable energy facility in an integrated resource plan or a certificate of need, pursuant to section 216B.243, nor shall the commission allow rate recovery pursuant to section 216B.16 for such a nonrenewable energy facility, unless the utility has demonstrated that a renewable energy facility is not in the public interest. The public interest determination must include whether the resource plan helps the utility achieve the greenhouse gas reduction goals under section 216H.02, the renewable energy standard under section 216B.1691, or the solar energy standard under section 216B.1691, subd. 2f.[15]

Here, the Legislature makes clear that a new energy production facility should be built with a renewable energy source, unless the utility can show that the renewable energy facility is not in the public interest - a feat the previous sections of our comments illustrate is quite difficult to do. Because of solar's competitive cost, fuel hedge value, capacity value, and distributed nature, solar energy is squarely within the "public interest."

The statute also mentions the "solar energy standard." The standard states that Minnesota's public utilities must use "solar energy to serve its retail electricity customers in Minnesota so that by the end of 2020, at least 1.5 percent of the utility's total retail electric sales to retail customers in Minnesota is generated by solar energy."[16] The PUC should take this opportunity to help Xcel meet this Legislative standard and choose a

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13 *MSEIA Report*, *supra* note 8, at 7.

14 *MSEIA Report*, *supra* note 8, at 7.

15 Minn. Stat. § 216B.2422.

16 Minn. Stat. § 216B.1691, subd. 2f.

program that promotes solar energy production. The solar energy standard is a Legislative minimum; the PUC should seek to surpass that standard.

A third statute that illustrates the Legislature's desire for renewable energy generation is Minn. Stat. § 216B.243. This law pertains to certificates of need:

> The commission may not issue a certificate of need under this section for a large energy facility that generates electric power by means of a nonrenewable energy source, or that transmits electric power generated by means of a nonrenewable energy source, unless the applicant for the certificate has demonstrated to the commission's satisfaction that it has explored the possibility of generating power by means of renewable energy sources and has demonstrated that the alternative selected is less expensive (including environmental costs) than power generated by a renewable energy source.[17]

Through these three statutes, Minnesota's State Legislature has made it apparent that it has a strong preference for renewable energy. Solar energy meets the policy goals that the Legislature has made clear through these three statutes. The PUC should respect the Legislature's will and deeply consider the solar program presented in this docket.

VI. The Value of Proper Modeling Techniques

MnSEIA values using a transparent model that is grounded in strong assumptions. We believe having models that the public can monitor and understand are paramount to a democratic society.

We endorse the LCOE Analysis instead of the Strategist modeling system. We believe the LCOE Analysis is a most transparent, replicable and helpful way to present the costs of each proposal in this docket.

Conclusion

Thank you for the opportunity to comment on the Competitive Resource Acquisition Proposal docket. Solar Energy is able to compete economically with fossil fuels, has a fixed and known cost structure, can generate capacity, is a distributed generation source, and furthers Minnesota's State Legislature's desire for renewable energy. The PUC should adopt the proposed solar installation program discussed in this docket.

We also believe that the PUC should employ the LCOE Analysis model instead of the Strategist model. The LCOE Analysis is easier for organizations like MnSEIA to

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[17] Minn. Stat. § 216B.243, subd. 3(a).

replicate the model, to understand the modeling techniques, and is more transparent than the Strategist Modeling system.

Sincerely,

Lynn Hinkle

Policy Director
Minnesota Solar Energy Industries Association – MnSEIA
lhinkle@mnseia.org
612-310-4742