

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA**

In the Matter of the Application of Black Hills Power,)
Inc., dba Black Hills Energy to Amend its Cogeneration) **Docket No. EL21-011**
and Small Power Production Service Tariff)

Mr. Bell's Petition to Intervene

I, Richard A. Bell ("Mr. Bell"), hereby petition the Commission for intervention in the above captioned proceeding pursuant to ARSD §§ 20:10:01:15.02 through 20:10:01:15.05 and ARSD chapter 20:10:13:26. In support hereof, Bell states as follows:

1. Mr. Bell is a registered professional engineer in South Dakota (No. 12864), who has many years of experience in the practice of environmental and energy engineering.

2. Mr. Bell resides at 1206 Clark Street in Rapid City, South Dakota, 57701, and is a customer of Black Hills Power (BHP). He has installed and interconnected a small-scale solar photovoltaic system at his residence with excess power being fed back into BHP's electrical grid, in accordance with regulations set forth by the Federal Energy Regulatory Commission (FERC) under Sections 201 and 210 of the Public Utility Regulatory Policies Act, making him owner of an existing "Qualified Facility" (QF) and a "Cogeneration and Small Power Production Service Customer" of BHP.

3. BHP's application in the above referenced matter proposes to apply a new tariff amendment to all qualified small generation facilities and qualified cogeneration facilities of 1 MW or less, making Mr. Bell an affected and interested party.

4. Mr. Bell acknowledges that due to the extensive energy efficiency measures he has implemented and the installation of a behind-the-meter solar power system on his home, he necessarily purchases less electricity from BHP than some other BHP customers. He also understands that one of BHP's purposes in proposing this amended tariff is to provide additional income to help offset their fixed costs. On the other hand, in Exhibit 2, Mr. Keil testified that the Commission approved BHP's proposed increases for higher customer charges in a previous docket. He also went on to say: "However, the Company's

recommendation did not raise customer charges enough to recover its full cost of service. Black Hills Power intends to accomplish the final step in having customer charges be fully reflective of the assigned customer-related costs at the time of the Company's next rate review." Therefore, customers who have installed their own behind-the-meter generation and/or energy-efficient measures will also pay these increased customer charges as they continue to be raised. Since customer charges are one of the major ways in which BHP is compensated, QF customers are just like all other low volume users and should be treated in the same fashion. This proposed new tariff by BHP is therefore discriminatory and should not be approved for that reason alone.

5. In testimony submitted by Mr. Jason Keil of BHP, he stated that: "...behind-the-meter generation most often leads to increased costs for all customers." In further explaining what this amended tariff is designed to address, he also said: "So when a customer installs behind-the-meter generation to reduce their metered electricity consumption, under current rate design practices that customer no longer pays the actual cost related to their receiving reliable utility provided electric service. Over time, as rates are reviewed and adjusted, customers without behind-the-meter generation subsidize those who have installed behind-the-meter." However, these anecdotal arguments by BHP saying that people who have installed behind-the-meter QF systems cause an increase in the energy costs of those without them are misconceptions. The claim that behind-the-meter renewable energy generation imposes extra costs on the utility is like saying that a person who uses electricity more efficiently or goes on vacation imposes a cost on the utility.

6. Much evidence exists demonstrating that in reality, it is less costly to serve residential customers with solar than those without such systems. Mr. Bell provides references to several well-known and highly-regarded studies as the basis for this dissenting conclusion which are summarized below:

- a. A report published by the *Lawrence Berkley National Laboratory* in January, 2017, entitled "Putting the Potential Rate Impacts of Distributed Solar into Context," (<https://www.energyandpolicy.org/solar-cost-shift-negligible-lbnl-report/>) 16 studies were analyzed and they concluded that solar customers do not have a negative effect on non-solar customers. It reported that the effects of distributed solar on retail electricity prices will remain negligible for the foreseeable future. It also provides valuable context to the entire concept of "cost shifts," which are rife throughout electricity rate

structures. It further notes that if utility companies and regulators want to really address price impacts on their customers, they would do better to limit the exposure of customers to the increase of natural gas usage for electricity, and to limit the capital expenditures utility companies propose in rate cases. The report is further proof that many utility companies have not been truthful when voicing their concern over these so-called “cost-shifts.”

- b. The Solar Energy Industries Association (SEIA) reported in an article published on August 8, 2020 (<https://cleantechnica.com/2020/08/08/the-value-of-rooftop-solar-power-in-michigan-24-cents-per-kwh/>) that the value of rooftop solar in Michigan is 24 cents per kWh. This is well above the net metering compensation paid to customers in Michigan with solar roofs installed and nearly ten times the amount paid to BHP’s QF customers here (only \$0.0248 per kWh).
- c. An article dated January 9, 2021, reports on Minnesota’s Value of Solar program (found at: <https://www.solarreviews.com/blog/minnesotas-value-of-solar-tariff>). Their VOS program came about at the request of MPUC and their calculation methodology took into account avoided costs in eight areas: generation capacity, transmission capacity, fuel, environmental, distributed capacity, variable plant O&M, fixed plant O&M, and reserve capacity. While Minnesota’s VOS rate of \$0.1109 per kWh is currently available only to community solar, it was noted that Xcel Energy is considering extending it to their residential customers. Meanwhile Xcel’s residential customers reportedly receive the current rate of \$0.07139 per kWh of excess generation that their solar systems produce.
- d. Another article was published in the February 9, 2021 issue of *Science Daily* entitled “Shining a Light on the True Value of Solar.) It can be found at: (<https://www.sciencedaily.com/releases/2021/02/210209151816.htm>), along with the following summary: “Utility companies have worried that solar panels drive up electric costs for the people who don’t have panels. Renewable energy researchers show the opposite is actually true -- grid-tied solar photovoltaic (PV) owners are actually subsidizing their non-PV neighbors.”
- e. A study published in *Renewable and Sustainable Energy Reviews*, Volume 137, March 2021, was titled: “A review of the Value of Solar Methodology with a case Study of the U.S. VOS,” which can be found at: (<https://www.sciencedirect.com/science/article/abs/pii/S1364032120308832>). The abstract of this study said: “Distributed generation with solar photovoltaic (PV) technology is economically competitive if net metered in the U.S. Yet there is evidence that net metering is misrepresenting the true value of distributed solar generation so that the value of solar (VOS) is becoming the preferred method for evaluating economics of grid-tied PV. VOS calculations are challenging and there is widespread disagreement in the literature on the methods and data needed. To overcome these limitations, this study reviews past VOS studies to develop a generalized model that considers realistic future avoided costs and liabilities. The approach used here is bottom-up modeling where the final VOS for a utility system is calculated. The avoided costs considered are: plant O&M fixed and variable; fuel; generation capacity, reserve capacity, transmission capacity, distribution capacity and environmental and health liability. The VOS

represents the sum of these avoided costs. Each sub-component of the VOS has a sensitivity analysis run on the core variables and these sensitivities are applied for the total VOS. The results show that grid-tied utility customers [who have on-site solar generation] are being grossly under-compensated in most of the U.S. as the value of solar eclipses the net metering rate as well as two-tiered rates. It can be concluded that substantial future work is needed for regulatory reform to ensure that grid-tied solar PV owners are not unjustly subsidizing U.S. electric utilities.”

Therefore, it is clear that this proposed new tariff by BHP is a grossly unfair overreach. BHP wrongly asserts that QF customers are not paying “their fair share of costs.” As is documented in several of the studies cited above, BHP are using this myth to advance a new tariff that specifically targets QF customers to pay extra charges and to not properly credit them for the benefits they provide to BHP, to other customers, and to society. It should not be unfair for people to reduce the cost dilution that results from excess use. QF customers should instead be awarded more credit, but they certainly should not be penalized.

7. In Mr. Keil’s testimony on this matter, he provided a table of yearly interconnections by customers with Qualified Facilities (QF) over an eight year period (2013-2020), totaling only 73 customers. Given that there are approximately 72,000 electric BHP customers in South Dakota, this represents a statistically insignificant proportion (0.1%) of customers. It was shown that the number of residential and commercial connections has been increasing, but even if the number of BHP QF customers continues to grow at the current rate of 37%, it would take 15 more years to reach the 1% level. The Lawrence Berkley National Laboratory article referenced above in item 8.a. reports that for utilities with high solar penetration rates (e.g., 10% of electricity sales), distributed solar yields between a 5% decrease and a 5% increase in retail electricity prices, assuming that distributed solar customers are receiving full net metering volumetric rates (which we do not have in South Dakota). In other words, they found that when distributed solar reaches 10% of electricity sales, the impacts could either be a cost or a benefit, but only about $\pm\$0.005/\text{kWh}$ even at this high penetration rate of 10%. So BHP’s current situation at 0.1% is not a crisis. The Commission should deny their current application for this new tariff until it can be properly analyzed.

8. Under the terms of this proposed new QF Service Tariff Amendment, all Qualified Facilities would also be responsible for paying a monthly production meter charge of \$10 per

month for: “the cost and maintenance of the production meter, billing, and administrative charges.” When Mr. Bell’s new meter was installed nearly five years ago, it was touted by BHP as being a modern “smart” meter which they were proud to use and planned to roll out more broadly in the future. These meters require little to no maintenance and all billing is highly automated. So this extra \$120 per year appears to be simply another desperate attempt by BHP to levy another toll on QFs and ensure they are not economically viable. It should be noted that BHP’s application goes on to say that they will address “the appropriateness of the monthly production meter charges in its next rate review filing.” So such a charge is clearly not ready for prime time and should not be approved by the Commission at this time.

9. The issue of source energy versus site energy is also very pertinent to this matter. Source energy represents the total amount of raw fuel that is required to deliver energy to a location. It includes all transmission, delivery, and production losses, whereas site energy is the amount of energy measured at the user’s meter. Mr. Bell does not know exactly what the difference is for BHP, but according to the reference found at: <https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager/understand-metrics/difference>, it typically takes about 3.3 kWh of source generation to deliver 1 kWh to an individual site. So EPA recommends that source energy be used as the most equitable unit of measurement of energy consumption because it takes all energy use into account and provides a more complete assessment. It is therefore pertinent to this proposed new tariff because BHP wants you to believe that QF’s do not benefit their system. However, every kWh of renewable energy generated locally at the site saves more than 2/3 of the energy that would otherwise come from the utility -- energy that is lost during the production, transmission, and delivery of energy from BHP’s source generation.

10. BHP’s Sustainability Report published on their website says that they are “committed to a cleaner energy future.” This should not mean just the large utility-scale projects which they are touting in their effort to continue their monopoly control of the electrical infrastructure in their territory, but it should also include investments in the distributed energy resources to take advantage of the benefits that these QFs are adding to the system as noted above.

11. On their website, BHP proudly exhibits their solar program in Colorado, saying: “Private on-site solar includes roof-top and ground mounted solar systems, located at your home or business. The amount of electricity generated by your private solar system will be measured through net metering, which measures both amount of electricity generated by your system and any excess electricity that goes back to our power grid.” They even have a production-based incentive (PBI) program in Colorado to help cover a portion of the cost of people’s solar investments. While net metering is not available in South Dakota, the Commission should compare these programs in other BHP service areas as justification for the denial of BHP’s new proposed tariff that is punitive toward small residential and commercial QFs.

12. In reality, the more people who install renewable energy systems, the lower the stress on the grid. Slowing demand for utility-provided energy also reduces BHP’s need for large capital investments to make infrastructure updates and it decreases the amount of time utilities must turn on dirty power plants. And speaking of dirty power, BHP is the worst offender in the state. According to the Commission’s own website, BHP generated more than 88% of its power from fossil fuels (coal and gas) in 2019 (the latest data available), making them the dirtiest utility in South Dakota by far.

13. If this new tariff is approved, it will likely result in absolutely no future QF customers in BHP’s territory because it makes behind-the-meter energy generation completely uneconomical – apparently this is exactly what BHP hopes to accomplish through passage of this new tariff. Is this what the Commission intends to let happen?

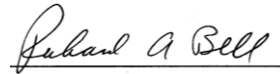
14. Mr. Bell recommends that the Commission carefully consider the legality this proposed new tariff commonly known as “Buy All – Sell All.” How is it possible that QFs could be required to relinquish 100% of their ownership of the electrons they self-generate and then be forced to pay the full retail rate for them? In return, QFs are only compensated at the much smaller Generation Credit Rate of \$0.0248/kWh for 100% of what is measured and theoretically assumed to be returned to the grid, but rather is mostly used on-site. If the Commission approves this new tariff, it is equivalent to sanctioning theft.

15. Mr. Bell asks the SD-PUC to reject BHP's newly proposed Tariff Amendment and requests that the Commission initiate a state-wide, comprehensive, data-driven, third-party objective Value of Solar (VOS) study to be conducted to determine the true cost-benefit of distributed (behind-the-meter) solar generation here in South Dakota. The results of such a study will be invaluable to evaluate whether any new tariff amendments may in fact be needed to protect the utilities' electrical customers. He also asks that during the period in which the VOS study is undertaken, the Commission requires BHP to continue offering the current Cogeneration and Small Power Production Service agreement to all QFs in order to provide regulatory certainty.

16. Based on all of the foregoing, Mr. Bell alleges that he is an interested party in this matter and seeks intervening party status.

Dated this 9th day of April, 2021

Respectfully submitted,

A handwritten signature in cursive script that reads "Richard A. Bell". The signature is written in black ink and is positioned above a horizontal line.

Richard A. Bell, PE