BEFORE THE STATE OF UTAH PUBLIC SERVICE COMMISSION

Proposed Rulemaking Concerning Utah Code Ann. §54-17-807, Solar Photovoltaic or Thermal Solar Energy Facilities, Enacted May 8, 2018	DOCKET NO. 18-R450-01

COMMENTS OF FIRST SOLAR, INC.

First Solar, Inc. ("First Solar") submits these Comments in the above-titled docket ("Docket") pursuant to the presiding officer's Notice of Proposed Rulemaking and Request for Comments issued May 31, 2018 (the "Notice"). The Notice provides that "the PSC requests comments from any interested party…be submitted by FRIDAY, JUNE 29, 2018." This docket was initiated on May 8, 2018 when H.B. 261 became law and codified at Utah Code Ann. § 54-17- 807, titled "Solar photovoltaic or thermal solar energy facilities." First Solar appreciates the opportunity to provide input on this proceeding.

I. First Solar

With over 17 GW of First Solar modules installed worldwide, First Solar has unparalleled experience developing, constructing, and operating a large portfolio of utility-scale solar projects. First Solar developed two of the largest solar photovoltaic projects in the country, the 550 MW Topaz Solar Farm in San Luis Obispo, California and the 550 MW Desert Sunlight Solar Project on Bureau of Land Management Land six miles north of Desert Center, California, in the Mojave Desert. The First Solar Operations Center in Tempe, Arizona, provides operation and maintenance services to the largest fleet of utility-scale solar facilities in the world at over 7 GW. Due to its large development pipeline and deep experience in the U.S., First Solar is well positioned to help meet Utah's energy needs with clean, low cost, and reliable energy.

II. Other Factors Relevant to Protect Public Interest and Implementation

First Solar supports H.B. 261 and encourages the commission to fully evaluate the full suite of beneficial attributes of utility-scale solar using a model enabling direct utility ownership and operational control of solar generation (UOG). Utility-scale solar PV plants with advanced plant control systems provide full dispatchability and a full suite of essential grid services. Together these provide for grid flexibility and increased system reliability, which are essential to capture the full economic value of these highly capable assets. These capabilities are accessible to utilities and their ratepayers through thoughtfully advanced procurement, which underscores the importance of these capabilities and plants, enabled to meet them.

In 2017, First Solar participated in a study with NREL and the California Independent System Operator in order to demonstrate these advanced capabilities. Our utility-scale solar PV installation demonstrated the ability to not only to provide voltage, power factor or reactive power control but also provide required NERC defined grid reliability services usually provided by conventional thermal plants. This flexibility was provided by holding reserves that enable frequency regulation commands including automatic generation control (AGC). Importantly, the report concluded that the solar PV plant delivered some of those capabilities (e.g., AGC) *with greater precision* than a gas-fired alternative under all tested solar conditions. Specifically, it was found that while best-in-class gas resources provide AGC services with approximately 60 percent accuracy against operator signals, dispatchable PV resources are capable of nearly 90 percent response accuracy.[1] This performance precision is critically important to lowering the total resources used to provide regulation services. When fully utilized by the utility, PV plants with advanced plant controls can drive lower reserve requirements and therefore lower overall system costs. Additionally, when coupled with solar forecasting, the solar PV plant provides complete scheduling

[1] https://www.nrel.gov/docs/fy17osti/67799.pdf

capabilities for the grid operator. With these capabilities, operators can use utility-scale PV assets more quickly and with greater accuracy than they do a conventional generator.

In addition to the essential reliability services that the utility is well positioned to leverage, UOG allows the utility to utilize the full value of these services for the entire life of the asset. By contrast, at the end of a PPA contract ratepayer no longer have access to the asset, or need the utility to negotiate a new contract for an additional term, introducing additional risk to the ratepayer. Utility ownership for the full life of the asset brings additional value that may not be incorporated in a non-UOG structure: a utility interested in operation beyond the typical 15-20 contract life will natural focus on the experience and expertise of installers. A utility is also likely to have a greater focus on the quality of components including key components such as PV modules and inverters to ensure stable operation with extended use, maximizing ratepayer value over the long term.

A UOG contracting model allows the utility to fully optimize the total system value of the full suite of capabilities offered by utility-scale solar. Without modification to allow enhanced dispatch flexibility, traditional power purchase agreement ("PPA") contracting structures create a natural tension between energy production and other high-value system benefits therefore limiting the utility's access to the full suite of grid services utility-scale PV can provide. In general, PPAs are designed to maximize energy production. In contrast, however, reliable operation and utilization of these services require choices that may not optimize the plant's energy output. UOG allows the utility flexibility to take advantage of the full menu of services a solar PV plant can provide, where the utility can plan day-ahead to leave headroom on assets so they can provide grid services on some days, while fully leveraging their energy output on others.

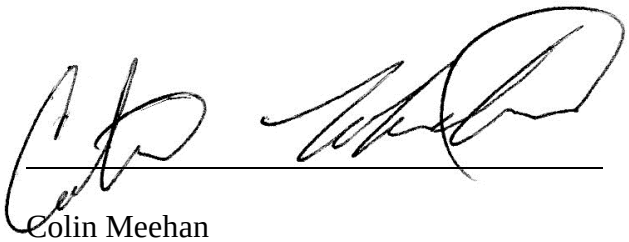
Lastly, these grid support capabilities can be provided more cost-effectively by solar PV plants than by conventional generators in many cases, hence reducing risk and cost to ratepayers both immediately and overtime. In the near term, savings are found from simply providing more cost-effective and accurate ancillary services with a fixed- price asset with no fuel price risk throughout its lifecycle. In the mid-term, there are savings from lower operations and maintenance costs, as the wear and tear on thermal units from reduced cycling resulting in a longer life horizon until new investment is needed. Over the long term, there will be less need for thermal units altogether as older, less flexible units retire and new needs are met by existing solar capacity with reserves designed to meet daily load and ramping requirements. At the end of the assets life, UOG of utility-scale solar PV ensures that customer's are not exposed to price uncertainty and regulatory risk, as they would be at the end of a PPA term. Additionally, UOG allows the regulator to monitor utility choices in technology selection, plant design, and operation to ensure that the electric grid is built with long-term reliability and flexibility in mind. This commission's efforts in conjunction with the utility can ensure that equipment procured for UOG is provisioned by manufacturers and EPC's whose capabilities, both financial and technical, are aligned with long-lived asset investments on behalf of UT ratepayers.

Utility-owned, utility-scale solar PV represents a path for utilities to diversify their fleet's fuel mix without sacrificing grid stability with clean, low-cost, and reliable energy.

III. CONCLUSION

In closing, First Solar's Comments on the Notice emphasize the value of a utility-ownership model in fully leveraging the capabilities of utility-scale solar PV. First Solar supports H.B. 261 and encourages the commission in this docket to fully evaluate all of the beneficial attributes of utility-scale solar using a utility-owned generation model, as an important piece of meeting Utah's long-term energy goals.

Respectfully submitted this 29th day of June, 2018.



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