Clēnera

800 W Main St, Suite 900
Boise, ID 83702
208-639-3232

Date: August 6, 2020

Re: Case No. IPC-E-20-02

Requests for Public Input - responses from Clenera, LLC

Question 1: The time, costs, and resources required to develop a forecasted generation profile.

Response to Question 1: A forecasted generation profile for an established project location and size can be generated in approximately 2-3 days.

Question 2: Whether there are additional benefits to the utility's system that are achieved by battery storage projects at specific thresholds.

Response to Question 2: Establishing an eligibility threshold of just 100kW would cause increased costs for small Battery Storage QF projects due to inefficiency of integrating technology components (i.e. power plant controller, metering, relays, inverters, etc). At 10 to 20MW threshold projects can achieve meaningful cost savings and cost effectiveness through integration of components. Establishing an eligibility threshold of less than 10 to 20 MW would effectively discourage development of cost effective Energy Storage QFs.

Question 3: Whether there are limitations on the ability of battery storage QFs to disaggregate.

Response to Question 3: It is not clear what Staff's question means, please elaborate on what the specific concern is or provide an example. However it should be noted that some battery storage systems may have flexibility in their ability to be sited for maximum utility benefit.

Question 4: Whether Staff s understanding of the prevailing state of battery technology and inverter size is correct.

Response to Question 4: Li-ion batteries are the predominant technology currently used in the energy storage industry, and the range of inverters that Staff cited is accurate.

Question 5: The all-in costs to develop and build a battery QF.

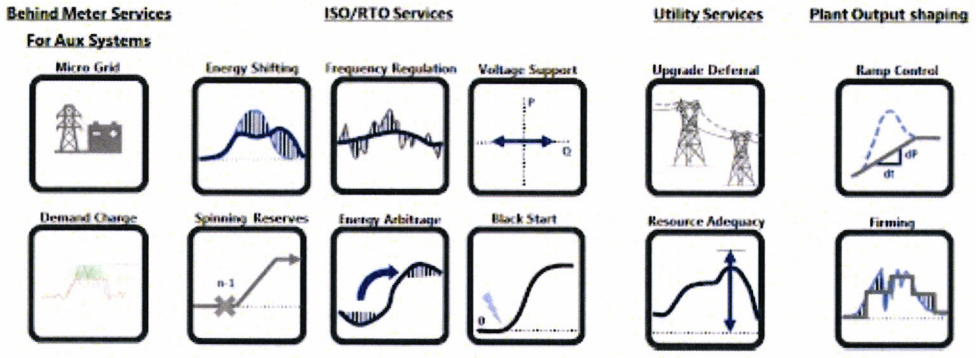
Response to Question 5: The final cost for a Battery Storage QF is highly variable depending on the exact design and integration of components. A typical 20MW Battery Storage QF project, the all-in cost to develop and build may range from approximately $30 million up to $40 million. That said, it is unclear why the Commission has any interest in the cost to the QF of developing its project in light of the fact that avoided cost rates are to be based on the utility's incremental cost of resource acquisitions and not based on the QF's cost or "payback" periods.

Question 6: The expected life of different battery technologies.

Response to Question 6: The expected usable life for most Li-ion batteries is 20 to 25 years, although the battery storage system degrades over the lifetime at non-linear rate. For example, over the first 3 years the system degrades by approximately 10% in total (or 3.3% annually), and then from year 4 onward, depending on the battery chemistry the degradation rate is approximately 1-2% annually.

Question 7: How ancillary services provided by battery QFs could be valued and what impact this would have on the payback period.

Response to Question 7: Battery Storage QFs must be charged from a renewable resource. Therefore, some of the capabilities of the battery storage technology (i.e. charging from the transmission grid) are limited in operations contractually (but not technically). For example, frequency regulation could only be achieved in one direction (again, due to contractual limitations to qualify as a QF, not necessarily technical limitations). All other ancillary services could be supported. Below is an illustration of ancillary services that can be supported by a Battery Storage QF.



- **Ancillary Services for additional fee**
  - Primary frequency regulation
  - Frequency droop response
  - Spinning reserve
  - Synthetic inertia
  - Ramp control
  - Black Start

Question 8: The contract term necessary in order for a battery storage QF to have a reasonable opportunity to obtain financing.

Response to Question 8: A general guideline for contract terms that are necessary to obtain financing is 15-20 years, based on industry standards. However, if contracted rates are sufficiently high enough to

obtain a recovery of capital in a shorter amount of time, then a shorter term would suffice to mitigate risks for financial partners. It is worthy of note that, according to the Staff's review of surrounding states' contract lengths, that the Idaho Commission is an extreme outlier by only permitting two year contracgt terms for any wind/solar project larger than 100 kW and any other project larger than 10 aMW. The radical nature of the Idaho rules on contract length when compared to all surrounding states suggests that they are not reasonable.

Question 9: Using multiple successive contracts with shorter length terms to maintain accuracy of avoided cost pricing over the life of a PURPA project and the QFs ability to obtain financing.

Response to Question 9: IPUC Staff observed that reducing contract terms from 20 to 2 years was effective at ending future development of Wind and Solar QFs, based on inability to obtain financing. This is a logical outcome given that reducing contract lengths to just 2 years introduces significant uncertainty into any proposed financing or investors expectations of getting a return of capital let alone a return on investment..

Question 10: Best practices in surrounding states and analysis on the development of QFs in those states.

Response to Question 10: In a December 2019 ruling, the Arizona Corporation Commission recently established 18-year minimum contract lengths in order to encourage development of QFs, see docket E-01345A-16-0272. The ruling also established additional guidelines to help ensure that QF PPAs are financeable. While there are a lot of states that actually encourage the development of QFs, Idaho is no longer one of them. If the Commission is seriously interested in exploring this question it will need to dramatically expand the scope of this docket which it has specifically limited to "determine the appropriate project eligibility cap and contract term for energy storage qualifying facilities." [Order No. 34699 at page 1.] But to reiterate our comments above as they relate the specific issues in this docket, establishing an eligibility threshold of less than 10 to 20 MW would effectively discourage development of cost effective Energy Storage QFs and a general guideline for contract terms that are necessary to obtain financing is 15-20 years,