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| **NPRR Number** | [**1014**](http://www.ercot.com/mktrules/issues/NPRR1014) | **NPRR Title** | **BESTF-4 Energy Storage Resource Single Model** |
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| **Date** | October 09, 2020 |
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| **Submitter’s Information** |
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| **Market Segment** | Independent Generator  |

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| **Comments** |

Broad Reach Power and Tesla support the 10/08/20 Joint Commenters comments, and offer the following observations about NPRR1014’s state of charge (“SOC”) 60-day disclosure.

Our issue with NPRR1014 is the 60-day market disclosure of the SOC by Security-Constrained Economic Dispatch (SCED) run, by Resource. Broad Reach has long maintained the “treat us like everyone else” philosophy. Requiring disclosure of the SOC does not meet that philosophy.

Disclosure of the SOC for a battery, is equivalent to disclosing the remaining gas nomination for a gas plant. ERCOT neither collects nor discloses the gas nominations. However, if the gas nominations were reported on each 5-minute SCED run, along with SCED production the efficiency curve, or heat rate, of the gas plant would be a simple calculation.

Only three time-linked data points are required to determine the efficiency curve of a battery – charge, discharge and SOC. The efficiency curve of a battery can easily be determined. The efficiency curve of a battery is analogous to a heat rate curve for a fossil unit.

Similarly, three data points are required to determine the efficiency curve (heat rate) for a fossil unit. The three components are fuel input (in BTUs), power output in kW and the conversion factor for BTU to kWh. As an example let's take a typical steam unit with a heat rate is 10,000 BTU/kWh. The heat rate can be easily converted to an efficiency calculation by applying the unit conversion of 3,412 kW/BTU or an efficiency of 3,412 kWh/BTU divided by 10,000 BTU/kWh = 34.12% efficient.

The ”heat rate” for a battery can be determined by taking either the charging or discharging energy and the change in the SOC to determine the efficiency of the battery. Because both the input and output of a battery are in kW and kWh a heat rate is not often calculated, however, if a heat rate were desired all that is required is to divide the conversions of BTU/kwh by the efficiency of the battery, and it will yield a “heat rate” in terms of BTU/kWh.

Heat rates are considered Protected Information and not subject to market disclosure. Heat rates are not disclosed is because they are a function of design choices and considered competitively sensitive. Furthermore, heat rates change slowly, and overtime reflects the maintenance cycles of equipment, so a heat rate from a year ago is competitively sensitive information, years into the future.

Heat rates (efficiency curves) are part of the design of a unit, and reflect engineering design choices. Resource equipment design is Protected Information via paragraph (1)(m) of Section 1.3.1.1, Items Considered Protected Information:

“*Resource-specific costs, design and engineering data, including such data submitted in connection with a verifiable cost appeal*”

Given that SOC is the third and final data element needed to determine the efficiency curve of a battery, and charge and discharge quantities are more valuable to the market overall. Following paragraph (1)m) of Section 1.3.1.1 we concur with the Joint Commenter's that SOC should be not be reported on a Resource-specific SCED basis.

Therefore, we encourage stakeholders to approve NPRR1014 as amended by the 10/08/20 Joint Commenters comments, which enables SCED reporting SOC on an aggregated basis.

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| **Revised Cover Page Language** |

None

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| **Revised Proposed Protocol Language** |

None