BESS Assumptions for Planning Studies

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Background

- BESTF KTC 10, Item 5 directs ERCOT to work with stakeholders to develop appropriate assumptions for including Energy Storage Resources (ESRs) in transmission planning studies.
- Status quo:
  - ESRs are currently considered offline in reliability analysis. Exceptions are considered based on study criteria and engineering judgement.
  - ESRs, specifically Battery Energy Storage Systems (BESS), are considered online in economic analysis.

Next Steps: Reliability Analysis

- In the near term, BESS will continue to be modeled offline in reliability analysis.
- When sufficient historical data is available, it will be utilized to inform BESS dispatch assumptions for reliability analysis.
  - This plan is similar to the existing methodologies use to determine wind, solar, and DC Tie dispatch assumptions for the Regional Transmission Plan (RTP).
  - Future BESS dispatch methodologies and assumptions will be presented to stakeholders, as appropriate, as part of study scopes.

Next Steps: Economic Analysis

- Economic planning cases require data that is not currently collected via the RARF/RIOO, specifically Nameplate MWh Rating and Roundtrip Efficiency.
- Both data fields are included in RRGRR023 and will become available in RIOO upon approval and system implementation. In the meantime, data and/or assumptions are needed to model BESS in economic planning cases.

Interim Proposal

- ERCOT will send requests for information to IEs when modeling planned BESS for economic planning studies.
- ERCOT will make the following assumptions for BESS for which no response is received prior to the start of economic analysis.
  - An energy to power ratio (E/P) of 4 will be assumed to determine the MWh Nameplate Rating.
  - Roundtrip Efficiency will be assumed to be 86%.

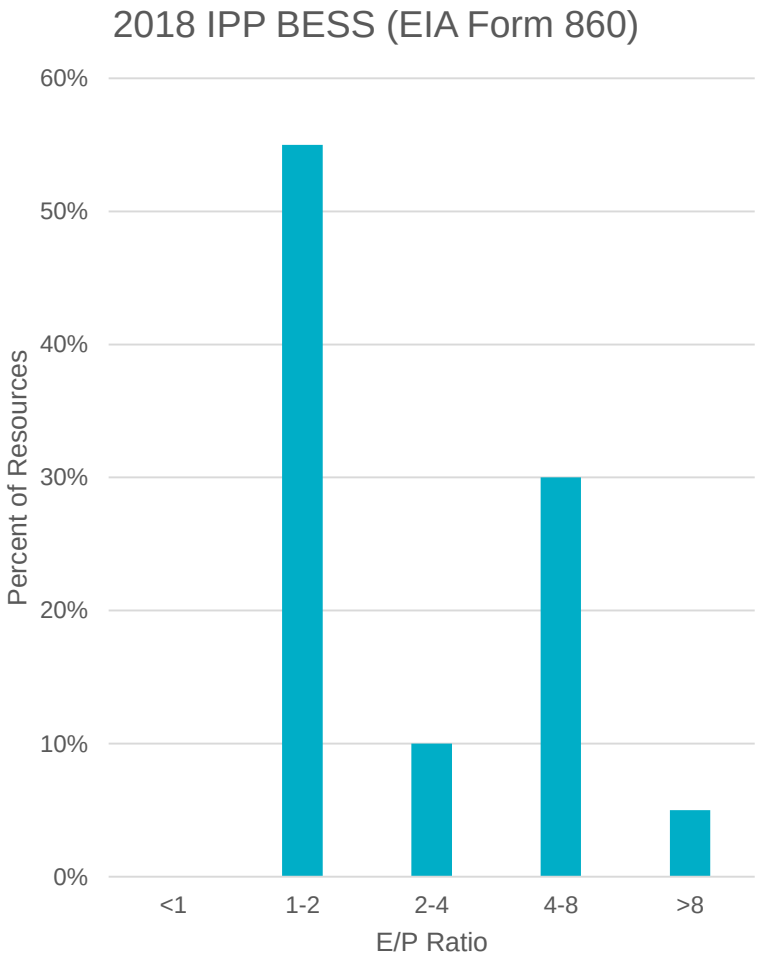
Questions or Comments

- Please send any questions or comments to John.Bernecker@ercot.com.

Appendices

EIA Form 860

- The chart to the right shows E/P ratios for BESS installed by IPPs in 2018.
- EIA Form 860 information can be found at https://www.eia.gov/electricity/data/eia860/



PNNL

- The Energy Storage Technology and Cost Characterization Report was published in July 2019 by PNNL.
  - An E/P ratio of 4 is most likely for new BESS using Li-ion batteries
  - A Roundtrip Efficiency of 86% is typical for BESS using Li-ion batteries.
- https://www.energy.gov/sites/prod/files/2019/07/f65/Storage%20Cost%20and%20Performance%20Characterization%20Report_Final.pdf