Questions Regarding Analysis of Potential Replacement Resources for the Services Provided by the Four Lower Snake River Dams and Bonneville's Draft Answers

The Bonneville Power Administration (BPA) has provided the following answers to questions from interested entities regarding its ongoing analysis of potential replacement resources for the services provided by the four lower Snake River dams.

1. ***What's the scope of the study, and what questions will it address?***

   BPA contracted with Energy and Environmental Economics (E3) to answer what resources (one or more portfolios of resources) would be needed to replace the full energy and other grid services provided by the lower Snake River dams? This includes modeling regional grid scenarios with or without those dams. The model is designed to identify one or more replacement resource portfolio(s) and provide a comparison of the forecasted costs associated with each scenario. The analysis will also discuss the timeline under which a build-out of replacement resources could occur.

2. ***What questions does the Statement of Work (SOW) ask E3 to answer?***

   What resources (one or more portfolios of resources) would be needed to replace the full energy and other grid services provided by the lower Snake River dams?

3. ***What tasks does the SOW ask E3 to complete, and on what timeline?***

   a. The primary tasks E3 is completing are to:

      i. Summarize current California/Oregon/Washington energy policies, including recent updates;

      ii. Summarize the region's capacity needs in light of those energy policies;

      iii. Explain the current role hydropower plays in meeting capacity needs in the region's electricity market;

      iv. Use E3's RESOLVE model to calculate the net present value of the cost of replacement resources in a variety of possible scenarios;

      v. Summarize additional electric system benefits from the lower Snake River dams beyond those captured in the RESOLVE model;

      vi. Produce a Project Report.

   b. The model will examine multiple scenarios. In each scenario, E3 will run the model both with and without the lower Snake River dams. The initial model scenarios are based on two key variables of:

i. decarbonization policy (impacts remaining electric sector emissions and electrification loads); and

ii. technology availability (resources available to support reliability and policy goals).

iii. Pending initial findings, E3 may explore additional sensitivities.

c. E3 will provide draft results in early May, and anticipates finalizing results and the Project Report in early June.

d. BPA is developing plans for appropriate public presentation and discussion of the final Project Report.

4. ***How does the SOW characterize the attributes and values of the LSRD?***

a. BPA defined the power and grid services provided by the four lower Snake River dams. These include generation (MW), capacity instantaneous and sustained (MW), fast ramping, voltage and reactive support, frequency and inertial response, blackstart capability, short-circuit and grounding contribution, ability to ride-through voltage and frequency excursions, ability to participate in generation drop as part of Remedial Action Schemes. Based on this list of attributes, E3 modeling will determine the suite of replacement portfolio options.

b. E3 used the nameplate capacities from the most recent 2019 Pacific Northwest Loads and Resources Study (2019 BPA Whitebook).

5. ***What baseline assumptions, if any, are part of the study?***

E3 developed the parameters of the studies use publicly available regional data such as information from the 2021 Northwest Power and Conservation Council Power Plan, 2021 Pacific Northwest Utilities Conference Committee forecasts, the 2019 BPA Whitebook, updated prices from Energy Commodities Data and U.S. Energy Information Administration Annual Energy Outlook, Western Electricity Coordinating Council Anchor Data set updated load weighted average based on Washington State Clean Energy Transformation Act and Oregon Clean Energy for All House Bill 2021. The report, which will be publicly released, provides further detail on scenario assumptions.

6. ***One particular area where we may have questions would surround the specific assumptions (if any) that BPA has directed E3 to incorporate regarding the load following or peaking capacity of the four lower Snake River dams, and the basis for those assumptions?***

The Hydro operating data in the E3 RESOLVE model uses representative conditions for low/middle/high historical years (2001, 2005, 2011) for all regional resources with the Columbia River System project generation, adjusted to be consistent with the fish passage spill constraints from the CRSO EIS Record of Decision.