



Provider of Choice Non-Federal Resources Customer and Consumer Batteries (Energy Storage Devices)

PROVIDER OF CHOICE

**POST
2028**

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Objectives

- Share BPA's proposal for documenting Customer and Consumer-Owned Batteries (Energy Storage Devices (ESD)) in Provider of Choice Contracts.
 - Provide opportunity for questions and feedback on the proposal.
- Share how the proposed approach would be included in Provider of Choice Contracts (new Exhibit A including Batteries/ESDs) including:
 - Battery/ESD Information to be included in the Exhibit
 - Contract Elections for Charge and Discharge

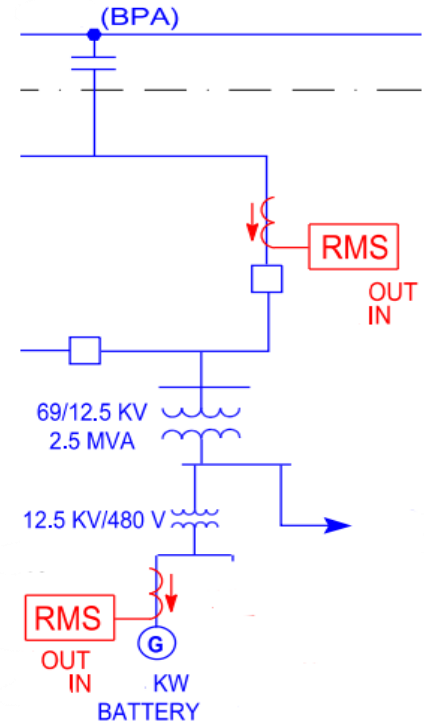




Regional Dialogue Contract

Batteries in Regional Dialogue

- Meters on Batteries are documented in Power Contract Exhibits E (Metering Exhibit).
- Meters measure Battery charging (OUT) and Battery discharging of stored energy (IN) as shown to the right, bottom.
 - RMS is Remote Metering System – i.e., a meter reading both OUT and IN
 - OUT meters measure energy out of the transmission system – (BPA) in the example
- Battery meters are not explicitly counted in Net Requirements or Power Billing.
- Battery Charges (OUT) normally are metered at an upstream meter, as shown to the right (the upper RMS shown).
 - The energy is measured only once, at the upstream meter – not double-counted
 - Battery Discharges feed into the utility's Distribution, reducing measured energy on upstream OUT meters



Customer/Interested Party Perspective

Comments on the draft Policy asked BPA to:

- Formalize that batteries will be treated as offsets to load and not subject to resource costs.
- Exclude batteries from CHWMs or Net Requirements calculations.
- Not subject batteries to Resource Shaping Services.



Provider of Choice Proposed Approach

Why include batteries in contracts?

- Customers and Consumers are increasingly considering Batteries/ESDs in their portfolios for managing their loads and distribution limitations.
 - Energy Storage technologies are advancing.
 - Funding opportunities are becoming readily available.
- As Batteries/ESDs proliferate, it is important to BPA's load forecasting and rate development to understand the potential impact those facilities can have on BPA's operations and potential cost shifts.
- BPA needs to recognize Batteries/ESDs that impact the supply and consumption of electricity.

Battery/ESD Information in Contracts

- **Exhibit A:**
 - BPA proposes to include Stand-Alone Batteries/ESDs in Revised Exhibits A.
 - Include Batteries/ESDs in Exhibit A when Nameplate exceeds the 1 MW (1,000 kW) resource threshold.
 - Hybrid Resources (including a Battery with a generation technology) will include battery capabilities in Exhibit A, with many of the same features as a Stand-Alone Battery/ESD.
- **Exhibit E:**
 - Battery/ESD meters (OUT and IN) will be included in Exhibit E (Metering Exhibit).
- **Added to Information Exchange and Confidentiality in Contract body**

Exhibit A Discussion

Develop reasonable approach to identify and document information on Battery/ESD facilities and their use. BPA proposes:

- Battery/ESD Storage Type (technology and electrolyte type where applicable)
- Facility Owner or Contracted User (and Contract Term)
- Battery/ESD Location (Consumer, Utility, Other location)
- Battery/ESD Facility Nameplate (MW)
 - (Facility Interconnection AC Nameplate)
- Battery/ESD Storage Capacity (MWh AC)
- Maximum Cycles per day
- Round Trip Efficiency (Percent)
- Discharge Rate

Exhibit A Features to Include (Cont'd)

- **Expected Functional Uses**
 - (E.g., Load shifting, Distribution System enhancement, Voltage Support, Frequency Stabilization)
- **Entities with Access to Capabilities/Functions**
 - Multiple Users?
- **Sources of charging**
 - AC Transmission/Distribution
 - A Paired Resource (a Hybrid Resource)
 - Both above
- **Election of Use on-utility system, or outside the Utility**

Battery Use Elections

- Identify whether Batteries/ESDs on a customer's system will be used:
 - By the customer or its consumer for shaping their own load and/or for their distribution needs, or
 - By other entities off the customer's system
- Identify the source of electric power used to charge Batteries/ESDs
 - Charges from and Discharges to other (non-customer) systems will be scheduled and tracked by metering

Other Battery Considerations

Batteries/ESDs may qualify for Qualifying Capacity Contribution (QCC) for WRAP.

- BPA would need to have dispatch control, under specific conditions (WRAP Sharing events).
- Potential to combine capabilities of multiple batteries/ESDs for QCC.
- Potential Rate Credit through Public Rate Design Methodology (PRDM).



Next Steps

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- BPA will consider feedback from this workshop. If there is significant feedback, we may schedule additional time to discuss.
- Otherwise, BPA will move this topic into contract drafting:
 - Develop language and templates:
 - Definitions
 - Exhibits and Commitment Language
 - WRAP Enabling Language

