NWPP
RESOURCE ADEQUACY
PROGRAM DEVELOPMENT
PROJECT OVERVIEW

NATIONAL HYDROPOWER ASSOCIATION
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OBJECTIVES

- Provide background on current regional capacity planning in the NW and what led to the development of the NWPP RA program
- Provide overview of the NWPP RA Program being proposed and the effort to build it
The NW’s bulk electricity system is in transition
- Retirement of some thermal generators
- Increase in VERs
- Increasing restrictions of hydro

The region may begin to experience capacity shortages in the near future
No formal approach to regional capacity planning in the NW today

Disparate entities across the region periodically conduct their own reliability studies:

- May not be tied to planning and procurement decisions
- Spread across multiple states, provinces, and sub-jurisdictions therein,
- All use different planning methods and metrics
What is Resource Adequacy?

- Having enough resources (generation, efficiency measures, and demand-side resources) to serve load
- Considered across a wide range of conditions with a sufficient degree of reliability
Benefits of an RA Program

- **Transparency**
  - Independent and transparent determination of adequacy
  - Regional information on RA needs can inform a comprehensive solution

- **Efficiency**
  - Consistent standards among members
  - Opportunity to more efficiently use resources

- **Confidence**
  - Confidence in market transactions and confidence in the reliability of the system
Northwest Power Pool (NWPP) is acting as the vehicle for coordination across the region.

- 18 of the NWPP’s members have funded the Resource Adequacy (RA) Program Development Project (“RAPDP”).
- Effort began in early 2019.
» Other RA programs have a market (with must-offer requirements) to facilitate the operational time horizon

» Need regional entity (or entities) suited to administer these programs (note that it could be separate entities for the time horizons)

» Size and role of BPA may present semi-unique challenges

» Large amounts of hydropower
Phase 1: Information Gathering (concluded Oct. 2019)

Phase 2A: Preliminary Design Phase (Early 2020)

Phase 2B: Detailed Design (Early 2021)

Phase 3: Begin Work to Implement Program (2021)
Information Gathering (2019)
- Researching existing regional studies of RA
- Reviewing current RA practices among Western utilities
- Surveying and summarizing best RA practices globally
- Evaluating the impacts of constraints on fuel supply and transmission deliverability
Preliminary Design (Early 2020-present)

- Developing a conceptual design for the RA program
- Proposal for the organizational structure and governance
- High-level technical design elements
- Updated model results
- Management plan
- Planning level cost estimates
Detailed Design (Late 2020– early 2021)

- Provides details on the program design including rules, regulations, and governance
- Detailed design of modeling tools necessary for program implementation
- Program Developer will be hired to assist in
  - Detailed program design
  - End-state modeling design
  - Cost estimation
  - Regulatory and stakeholder communications
Implementation

- Implementation of the RA program will be performed by a Program Administrator
- Development of modeling tools, procedures, and processes
- Seeking regulatory approvals as determined necessary

Note: the program will be implemented in stages
Steering Committee currently working on Conceptual Design (Phase 2A) documentation

» Two binding seasons
» Role of Program Administrator
» Capacity Contributions
» Potential FERC Jurisdiction
» Staged implementation
TWO BINDING SEASONS

» Winter: Nov-March – binding
» Summer: June-Sept – binding
» Spring: April -May – advisory
» Fall: Oct – advisory
Role of the Program Administrator

» Set metrics and expectations
» Define process for the showing
» Work with entities to determine compliance
CAPACITY CONTRIBUTIONS

› Variable Energy Resources (VERs)
› Hydroelectric resources
› Other emerging resources (e.g. demand response, batteries, pump storage)
VERs Capacity Contributions

Use of ELCC for VERs

› Proposing consideration of sub-regional ELCC calculations based on fuel characteristics

› Compare to how VERs have been handled in CAISO and SPP

› Note that there are technical considerations/decisions still being considered - will be informed by the modeling efforts

› Run-of-River hydro will also use ELCC
HYDRO CAPACITY CONTRIBUTIONS

Methodology is in development by the Hydro Working Group – no other region has tackled this issue well

- Using a “time-period” approach (historical look-back over 10 years)
- Assess generation output during historical high load periods
- Account for available storage during historical high load periods (assess what generation could have been available)
Hydro Capacity Contributions

Hydro RA Capacity numbers should reflect the Maximum Generation Capability, accounting for:

- Plant/unit specific limitations (e.g. common penstock limit, transformer limits)
- Reservoir elevation range constraints
- Flow restrictions
- Other known constraints that limit the maximum accessible capacity
- Forced outage rates (not planned)
Major Take-Aways:

• The NW is in a period of transition, hydropower will play a major role in integration of renewables and providing the necessary capacity for the region

• The capacity contribution methodology for hydro is key to capturing the value hydro brings to a program

• A NWPP RA program will provide regional benefits including the opportunity to more efficiently utilize resources including hydro

Questions?