

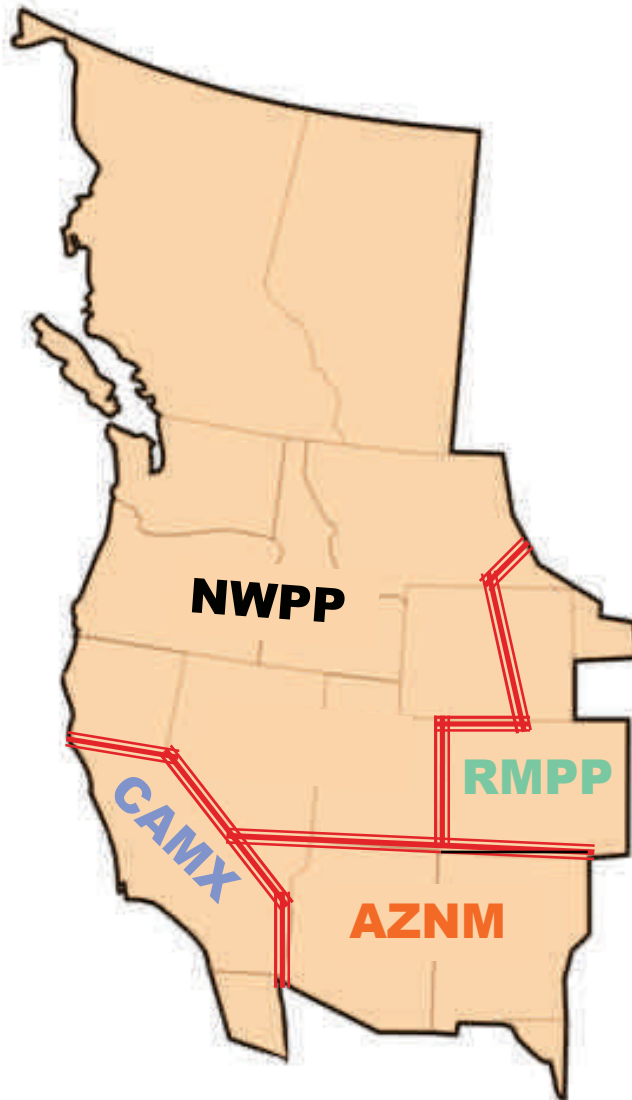


NORTHWEST POWER POOL
Reliability through Cooperation
Reserve Sharing Program

6/5/2008



NERC Subregions



Northwest Power Pool

Alberta Electric System Operator
Avista Corporation
Bonneville Power Administration
British Columbia Transmission Corporation
Chelan County PUD
Douglas County PUD
Grant County PUD
Idaho Power Company
Northwestern Energy
PacifiCorp-East
PacifiCorp-West
Portland General Electric Company
Puget Sound Energy
Sacramento Municipal Utility Board
Seattle City Light
Sierra Pacific Power Company
Tacoma Power
Turlock Irrigation District
Western Area Power Administration – UGP

Rocky Mountain Power Pool

Public Service Company of Colorado
Western Area Power Administration – CM

Arizona-New Mexico

Arizona Public Service Company
Duke – Arlington Valley
Duke – Harquahala
Duke – Gila River
El Paso Electric Company
Imperial Irrigation District
Nevada Power Company
Public Service Company of New Mexico
Salt River Project
Tucson Electric Power Company
Western Area Power Administration – DSW

California-Mexico

California Independent System Operator
Comision Federal de Electricidad
Los Angeles Dept. of Water and Power

NWPP Reliability Criterion

The Northwest Power Pool Reserve Sharing Program is in accordance with the following:

- *NERC(FERC) Standards, Policies, and Procedures;*
- *WECC Standards, Criteria, Policies, and Procedures; and,*
- *The Northwest Power Pool Reserve Sharing Program*
- *All NWPP RSG Participants shall operate in accordance with the above requirements whichever is more specific or more stringent.*

NWPP RSG Participants

- Utilities and generators within the Northwest Interconnection
- Eight States and two Canadian Provinces
- 19 balancing authorities
 - *TID to be fully integrated ~ July 1, 2008*
 - *SMUD TBD*

Membership to NWPP Reserve Sharing

- All balancing authorities within the NWPP area are required to participate
- Must be a member of the NWPP Operating Committee
- Generation covered must be within the metered boundary of the NWPP
- Participants must be able to reciprocate by delivering their Contingency Reserve Obligation to others
- Governors must automatically respond to frequency
- A non-balancing authority must coordinate its participation through its host balancing authority

Reserve Sharing Group

The NWPP Reserve Sharing Group includes all the balancing authorities in the Northwest region:

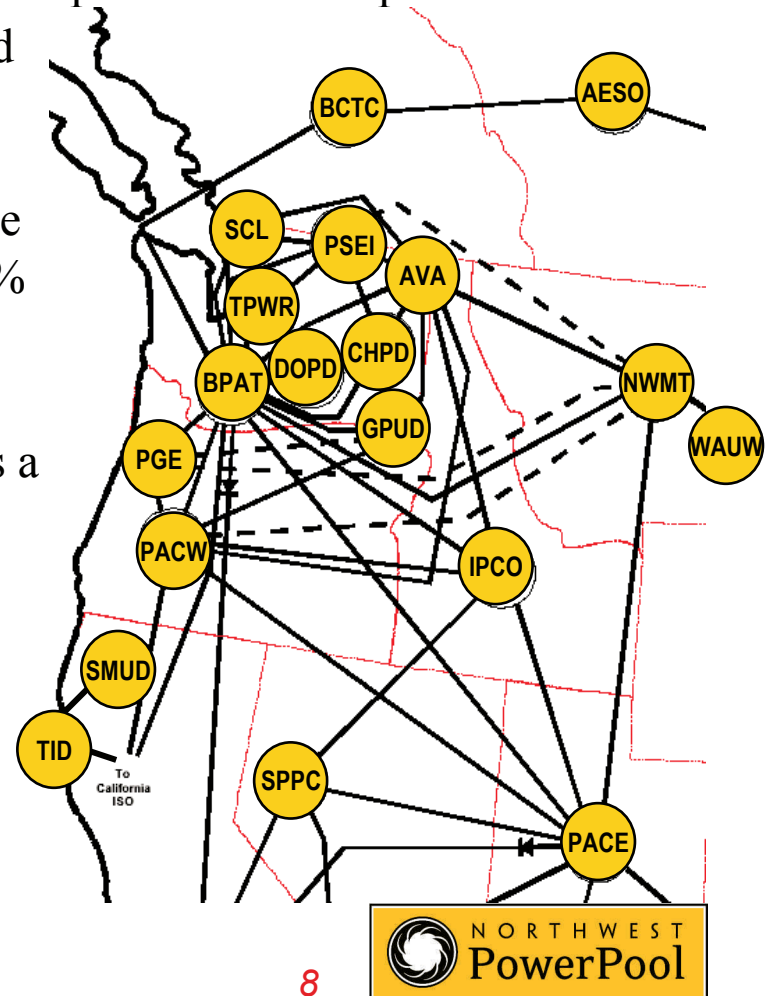
- Avista
- Alberta Electric System Operator
- BC Transmission Corp
- Bonneville Transmission
- Chelan PUD
- Douglas PUD
- Grant PUD
- Idaho Power
- NorthWestern Energy
- PacifiCorp West
- PacifiCorp East
- Portland General Electric
- Puget Sound Energy
- Sacramento Municipal Utility District
- Seattle City Light
- Sierra Pacific Power
- Tacoma Power
- Turlock Irrigation District
- Western Area Power Administration Upper Great Plains

RSG Eligible Events

- Contingency Reserve Sharing to provide 60-minute recovery assistance following:
 - Loss of a generating resource
 - Transmission related event impacting ACE in an instantaneous and unexpected change:
 - *Ability to serve load*
 - *Complete or partial outage to a transmission path*
 - *Within the balancing authority causing loss of generation*
 - *Outside of the balancing authority causing loss of a non-interruptible import schedule to be cut*
 - Failure of generating unit to increase due to:
 - *Failure to start*
 - *Plant internal equipment problems*

RSG Operations

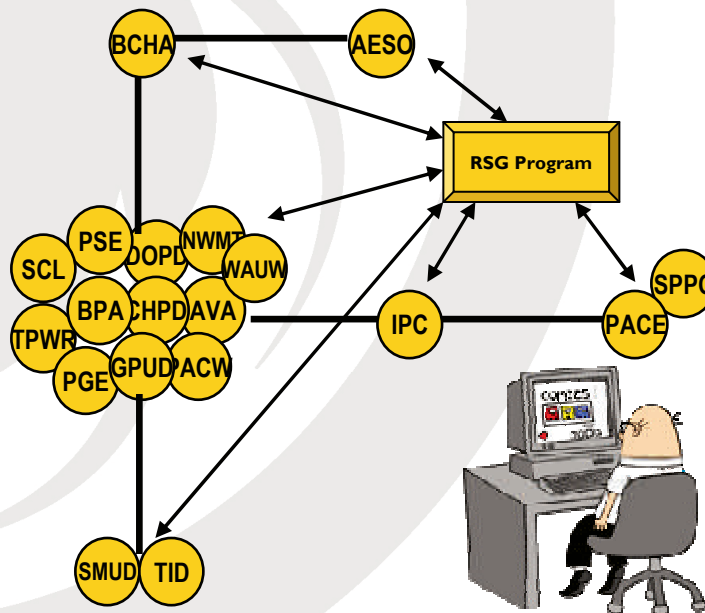
- The NWPP in aggregate satisfies the WECC contingency reserve requirements - Only contingency reserve is shared
- PNSC currently monitors the program and provides back-up
- Since the NWPP is so large, the 5% and 7% contributions are almost always larger than the MSSC. Therefore, each balancing authority's "obligation" to the NWPP is normally set to the 5% and 7% contributions of its generation
- If the aggregate 5/7% does not exceed the RSG MSSC the program distributes a pro-rata adder
- Each NWPP member is responsible for maintaining its own:
 - regulating reserve,
 - reserve for interruptible imports, and
 - reserve for on-demand obligations



Getting Reserve From Other Members

The BA that experiences a loss of generation:

- The BA has four (4) minutes from the beginning of an event to request CRO's from the other NWPP RSG Participants
- Must first use its contingency reserve obligation (CRO).
- Is entitled to request the CRO's from other NWPP RSG Participants to cover the balance of the loss.
 - The request is transmitted electronically (ICCP) to the Reserve Sharing Program.
 - The Program "prorates" the request to other members with some regard for minimizing transmission impacts.



- The Program sends electronic signals (ICCP) back to the requestor and out to the other pool members
- The Program signals go directly into each BA's AGC, triggering generation changes. Effectively establishes dynamic schedules from pool members to the requestor.
- 60 minute limit of sharing of contingency reserve.

Getting Reserve From Other Members

- The NWPP RSG software program polls data from the BAs every 10 seconds
- The NWPP RSG software monitors the delivery paths to make certain transmission limits are maintained in accordance with the standards
- Program automatically determines reserve adjustment if transmission limitations exist
- The NWPP RSG software along with the BAs software are programmed to make certain contingency reserve at joint-owned plants are only counted once.

Summary

- Contingency Reserve provides entities losing generation with up to 60 minutes to adjust generation dispatch and wholesale purchases and sales following the loss of generation
- Balancing authorities in the Western Interconnection must satisfy WECC criteria for operating reserve, which includes contingency reserve as one of its components. WECC criteria also satisfies NERC criteria
- The nature of the contingency reserve criteria encourages the “pooling” of reserve among balancing authorities in reserve sharing groups, such as the NWPP
- Requests for contingency reserve are electronically communicated to the NWPP RSG computer system where it is “prorated” and sent out to other members
- The NWPP RSG, taken as a whole, meets the contingency reserve requirements of the WECC’s operating reserve criteria

Summary

- Each generator operating inside the NWPP incrementally increases its balancing authority's contingency reserve requirements by 5% if hydro or wind and by 7% if thermal
- The NWPP RSG computer system tracks the hourly megawatt-hours delivered and received for each member
- NWPP procedures require receivers of contingency reserve energy to financially reimburse deliverers based on the Dow Jones Mid-Columbia index
- RSG members can adopt other mutually agreeable means for settling energy delivered through reserve sharing
- The balancing authorities inside the NWPP are individually responsible for meeting the other requirements in the WECC's operating reserve criteria. These other requirements are: Regulating reserve, reserve for interruptible imports, and reserve for on-demand obligations

E-Tagging CRO Deliveries for WIT

- The WECC has established the “Western Interchange Tool” (WIT) as the single e-tagging interchange authority in the western interconnections.
 - BA’s will soon be required to ensure that all transactions included in their net scheduled interchanges are e-tagged.
 - The NWPP is contracting with OATi to automatically produce after-the-fact e-tags based on the NWPP Reserve Sharing Program hourly values and enter these etagged values into the WIT.
- E-tags will require valid transmission paths.

BAL-002-WECC-001

- NWWP RSG will follow all applicable standards, guidelines, and principals
- NWPP OC meets June 11-12
- OC will decide on allocation and length of allowed reserve sharing
- Multiple options have been proposed
- NWPP RSG will implement program changes as necessary

QUESTIONS?

