Federal Transmission Expansion in the West

DOE Tribal Leader Forum:
Transmission and Clean Energy Development in the West
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Together, we watch over the river that creates the most awesome energy on earth.
WHAT IS BPA?

• Self-funding federal agency within DOE. Sets rates to recover costs.
• Markets power at cost from 31 federal dams and 1 nuclear plant – over one-third of electricity used in PNW
• Markets transmission services – owns 75% (15,000 miles) of the high-voltage lines in PNW
• Protects, mitigates & enhances fish & wildlife in the Columbia River Basin
• 300,000 square mile service area – includes WA, OR, ID, and Western MT
• Serves 3 tribal utilities
• 3,000 employees
• Headquarters in Portland, OR
• Established in 1937
Tribal Reservations in BPA’s Service Territory
Tribal Utilities Served by BPA

- Beginning in the late 1990’s, tribes approached BPA about forming their own utilities.
- BPA provided support and technical assistance.
- BPA sets aside 40 MW of preference power for tribal utilities.
- Whether or not tribes choose to form utilities, they have the right and opportunity to do so.

- **Mission Valley Power**: Confederated Tribes of Salish and Kootenai in partnership with BIA; est. 1988
- **Umpqua Indian Utility Cooperative**: Cow Creek Band of Umpqua Indians; est. 2001
- **Yakama Power**: Confederated Tribes and Bands of the Yakama Nation; est. 2006
Fish & Wildlife Legal Mandates

Northwest Power Act

“The Administrator shall use the Bonneville Power Administration Fund to protect, mitigate, and enhance fish and wildlife to the extent affected by development and operation of any hydroelectric project of the Columbia River and its tributaries.”

Endangered Species Act

“Each Federal agency shall….insure that any action authorized funded, or carried out by such agency is not likely to jeopardize continued existence…of any endangered species or threatened species…”

Listed
ANADROMOUS FISH
RESIDENT FISH
WILDLIFE

Non-Listed
FISH and WILDLIFE

Treaty and Non-Treaty Tribal Policy
BPA will consult with the Tribal governments prior to BPA taking actions, making decisions, or implementing programs that may affect Tribal resources.
In 2008, BPA entered into 10-year agreements with the U.S. Army Corps of Engineers, the Bureau of Reclamation, five tribes and three states to benefit Columbia River Basin fish.

Under these agreements, the tribes, states and federal agencies work together as partners on the ground to provide tangible survival benefits for salmon recovery by:

- upgrading passage over federal dams
- restoring river and estuary habitat, and
- creative use of hatcheries
Transmission Development

Animation:

NW Transmission Grid Build-Out
1920 - 2020
How Transmission is Planned and Developed

- The Pacific Northwest’s growing population and need for renewable energy is placing new demands on BPA’s already strained transmission grid.
- Most renewable energy sources are located away from population centers.
- Like most utilities, Bonneville historically used a “First In First Out” approach to applications for service in its transmission queue.
- To clear a growing backlog of requests BPA developed a Network Open Season (NOS) process that identifies which transmission requests in the queue are ready to move forward, and determines where additional infrastructure (if any) would be needed to enable that service.
- As a result of the 2008-2010 NOS processes, BPA fulfilled 263 requests totaling 11,722 MW. Of those requests, 7,105 MW were associated with wind generation.
BPA’s Transmission Expansion

- For those transmission service requests that could not be met with existing capacity, the NOS enabled BPA to identify where and how much additional infrastructure would be needed to serve those requests.

- Out of the NOS cluster studies, BPA identified four major transmission expansion projects:
  - Big Eddy-Knight: Construction started September 2011.
  - Central Ferry-Lower Monumental: Completed environmental review February 2011.
  - I-5 Corridor: In environmental review.

- Together, the four transmission lines would add more than 225 miles of high-voltage transmission to the Pacific Northwest’s federal transmission grid.
Transmission Infrastructure Projects
Wind Generation Capacity in the BPA Balancing Authority Area
Challenges and Solutions for Integrating Wind Resources

- Wind plant interconnection has become the overwhelming motivator for new transmission facilities as well as the primary driver of the transmission planning challenge.

- BPA is using several tools to meet this challenge:
  - Managing occasional periods of oversupply during high water events to protect fish and comply with Clean Water Act and Endangered Species Act requirements
  - Offering Conditional Firm Transmission Service to allow greater use of existing transmission
  - Using the NOS process to prioritize thousands of megawatts of requests for transmission access to support wind and other new power sources
  - Setting rates for wind integration services and other BPA services
  - Moving to within-hour scheduling to reduce the need for balancing reserves
Looking Ahead

- Two fundamental challenges:
  - Ensuring that there is sufficient transmission capacity to move energy to new and existing loads;
  - Providing the necessary transmission integration services to maintain system reliability while meeting competing environmental obligations

- Questions confronting Bonneville as our region moves from conventional to variable energy resources:
  - How do you find a balance between reliability, economic, environmental & other public purpose objectives?
  - How can transmission and resources be optimized to best meet the needs?
  - What is the relationship between the physical adequacy of the transmission system & economic adequacy?