Northwest Power and Conservation Council

February 26, 2009

MEMORANDUM

TO: Power Committee

FROM: Wally Gibson

SUBJECT: Transmission Planning Overview for March 5 Web Conference

The presentation reviews current transmission planning activities in the Northwest and in WECC, the latter under the auspices of the Transmission Expansion Planning Policy Committee (TEPPC). It describes a number of projects currently in various stages of development, as well as the West-wide studies done by and proposed to TEPPC.

Staff will explain the current drivers for transmission expansion, as well as several new financing mechanisms that aim to ease the problems raised by previous approaches.

The presentation contains a background section describing the organizational structure of transmission planning in the West, as well as the WECC regional project review and rating process. These slides have previously been presented to the Power Committee and are available for reference at the end of the PowerPoint. It will not be presented again unless there are questions from the Committee on it.

851 S.W. Sixth Avenue, Suite 1100
Portland, Oregon 97204-1348
www.nwcouncil.org

Steve Crow
Executive Director

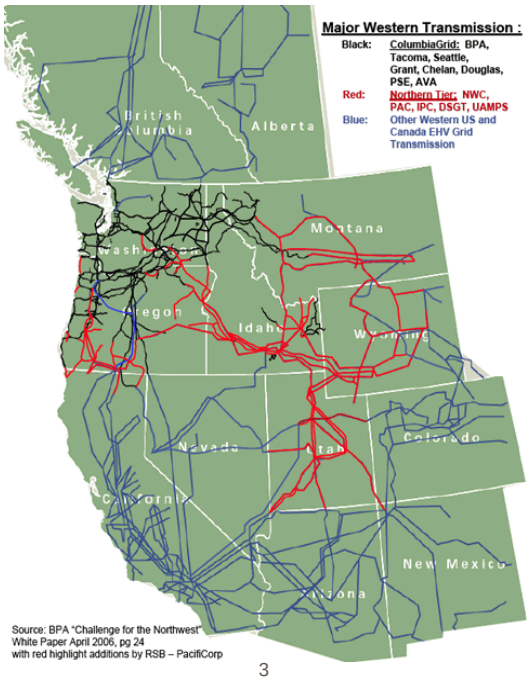
503-222-5161
800-452-5161
Fax: 503-820-2370

Transmission Planning and Proposals Affecting the Northwest

Northwest Power and Conservation Council
Power Committee
March 5, 2009

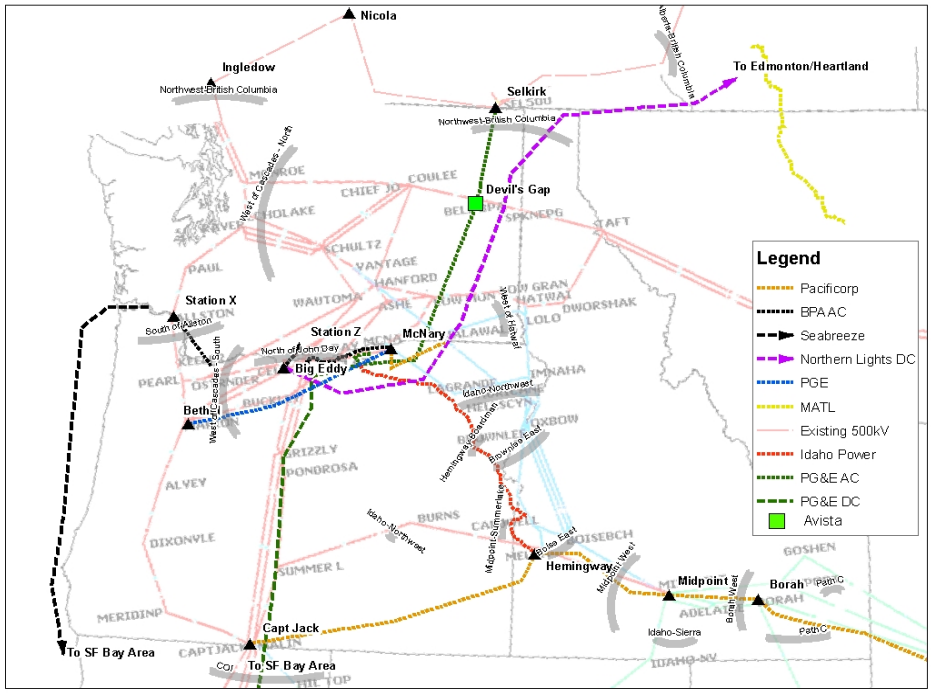
Summary Points

- There is a lot of transmission planning activity going on
  - Northwest
  - WECC-wide
- Transmission need primarily driven by RPS requirements and expectations of future changes
- Transmission construction currently depends on expressed willingness to pay for service
- Mechanisms are being put in place to resolve the chicken-and-egg financing problem
- New issue: oversizing in expectation of future demand and corridor constraints
  - How to pay for it?



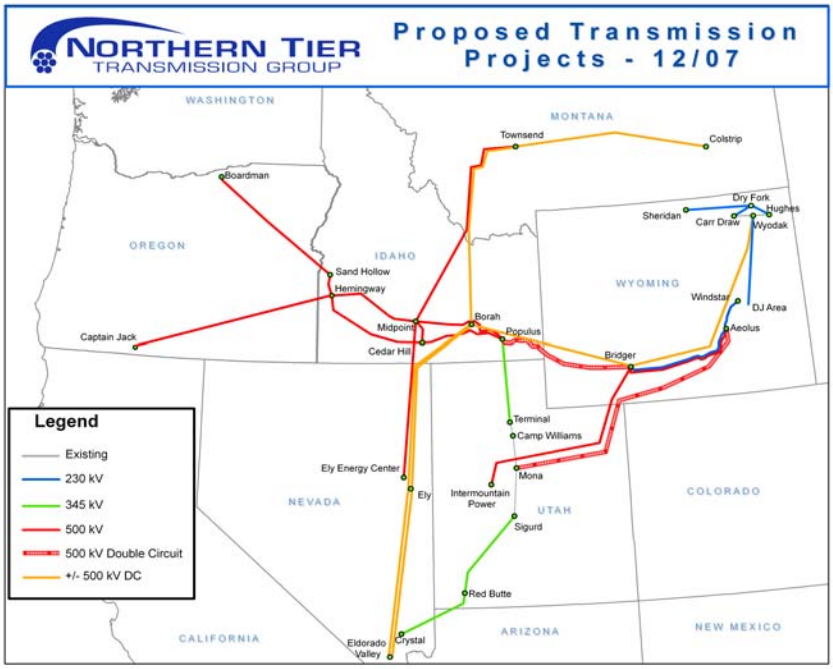
New Projects Planned for the Northwest 2010 – 2015

- The projects on the next slide are currently being studied to examine interactions among them for rating purposes
  - The "Big Tent" process sponsored by ColumbiaGrid, NTTG, and NW Power Pool
- Main drivers: load growth, RPS requirements (current and expected)
- Currently most are beginning joint WECC Phase 2 rating process, examining interactions among proposed and existing projects, getting to final ratings
- Rating process does not guarantee construction but is significant step forward



New Projects Planned for the East Side 2010 – 2015

- Projects shown on the next slide overlap partly with those on previous slide (note somewhat older map)
  - Hemmingway – Boardman (Idaho)
  - Hemmingway – Captain Jack (PacifiCorp)
  - Part of Gateway West (Hemmingway – Borah, PacifiCorp)
- Additional Projects in Phase 2 or 3
  - Gateway South and Gateway Central (PacifiCorp)
  - Mountain States Transmission Intertie (NWE)
- Chinook and Zephyr merchant lines (500 kV DC)
  - Not in rating process yet
- SWIP line, Midpoint – Ely, merchant line



WECC TEPPC 2008 Studies

- TEPPC studies focus on need driven by resource scenarios, not particular solutions
- The primary 2008 study was an examination of CO2 reduction strategies, proposed by the states
  - Three stage study
    - 15% renewables penetration in West (~ 2X current RPS levels)
    - 20% additional energy efficiency penetration
    - CO2 emissions adder
- Identified areas of increased transmission need
- Final report out April

WECC TEPPC 2009 Study Requests

- Several specific requests to look at additional renewables located in specific areas of the Northwest and the West, as well as specific projects
- One large request from the states via Western Renewable Energy Zone (WREZ) project
  - Additional renewables beyond 2008 study levels
  - Longer term look at system
  - Examination of costs and benefits of oversizing lines (see Slide 12)
- Study requests currently being organized and consolidated for most efficient study

What Drives Transmission Expansion?

- Load service and RPS requirements
- Transmission queue requests, under Open Access Transmission Tariff (OATT)
- Signed contracts, in the case of merchant builders without an OATT
- Congestion relief on existing paths
- Transmission is not generally built speculatively
- Can lead to chicken-and-egg dilemma between construction of large transmission lines to serve many small projects, particularly renewables

New Financing Models Aim to Resolve Chicken-and-Egg Problem

- FERC California ISO Tehachapi order
  - Allows network customers to be charged while full build-out of resources occurs, in specific circumstances
- BPA network open season
  - Cluster studies, customers sign contingent contracts
  - Start with projects buildable at embedded cost rates
  - Borrowing cap increase helps to enable
- Recent FERC TransCanada Chinook and Zephyr merchant project orders
  - Allow "anchor tenant" negotiation before full open season
  - Allow negotiated rates

New Issue – Oversizing Lines

- Looks longer-term, to continued need for transmission
  - Expectation of additional renewables requirements and corridor limits
- Aims to minimize demand for transmission corridors by building in extra capacity at the beginning, e.g.:
  - Double circuit towers with interim single circuit conductor
  - Higher voltage overlay system (765 – 1000 kV)
  - 800 kv DC
- Requires mechanisms for funding unused capacity
- Discussion just beginning

Background Slides

- Details on new transmission projects planned for Northwest shown in Slide 5 (excluding Sea Breeze cable)
- Organizational structure for Western transmission planning
- WECC regional project planning and three-phase rating processes

Background – Northwest Transmission Projects 2010 – 2015

Sponsor/ Participants	Project Name	Online Date	Voltage	Capacity	WECC Milestones *
PacifiCorp	Walla Walla to McNary	2010	Single-230kV AC	400 MW	RP Initiated – 11/2007
BPA	West of McNary Generation Integration Project	2012 & 2013	Single 500kV AC and 500kV Sub/ Single 500kV AC	1,500 MW each	RP Completed – 02/2008 Ph 1 is pending
Idaho Power and Others	Idaho to Northwest (Hemingway-Boardman)	2012	Single 500kV AC	1,500 MW	RP Completed – 05/2008 Ph 1 Initiated – 02/2008
PGE	Southern Crossing	2013 & 2015	Single 500kV AC	1,500 MW	RP in progress Ph 1 initiated – 01/2008
BPA	I-5 Corridor Reinforcement Project	2014	500kV Sub/Single 500kV AC	1,500 MW	RP Completed – 03/2008 Ph 1 is pending
PacifiCorp	Idaho to Capt. Jack (part of Gateway West)	2014	Single 500kV AC	1,500 MW	RP Initiated – 11/2007
PG&E and Others	Canada – Northwest - California (CNC)	2015	Double 500kV AC and HV DC	3,000 MW	RP Completed – 11/2007 Ph 1 Initiated – 10/2007
Avista Corp	Canada – Northwest – California – Avista Interconnection - Spokane Area Upgrades	2015	500kV Sub and local 230kV upgrades	500 MW	RP Initiated – 11/2007 Ph 1 Initiated – 11/2007
TransCanada	Northern Lights	2015	+/- 500 kV DC	2,000 MW	RP Completed – 01/2008 Ph 1 Initiated – 01/2008

Background – Organizational Overview

- Review of western transmission planning activities (not including reliability planning)
  - Three level planning framework – several new pieces
    - Individual transmission providers acting under FERC tariff
    - Subregional Planning Groups (SPGs)
    - WECC Transmission Expansion Policy Planning Committee (TEPPC)

Background – Transmission Planning and Individual Providers

- Individual transmission provider acting largely under OATT – required by FERC
- Recently revised in Order 890 to require more openness, transparency and regional coordination in planning
- Regional coordination mostly through subregional groups and WECC, especially required economic and congestion studies
  - Studies of impact of transmission system changes on generation operating costs, focused on larger resource-development issues, not tied to specific service requests
- Order 890 allows stakeholders to request limited number of generic economic/congestion studies

Background – Transmission Planning and Subregional Planning Groups

- Subregional planning groups
  - E.g., in the Northwest Power Pool area:
    - Northwest Transmission Assessment Committee (NTAC)
    - ColumbiaGrid
    - Northern Tier Transmission Group (NTTG)
- Expected to be the primary umbrella entities for detailed studies:
  - Addressing congestion and resource development issues
  - Leading to transmission investment decisions

Background – Transmission Planning and WECC's TEPPC

- SPGs and other stakeholder groups have seats on TEPPC
- Interconnection-wide studies run by WECC staff
  - Wide-scale congestion problems and implications of west-wide patterns of resource development
  - Intended to highlight opportunities for investment
  - Not intended to pick winners or provide cost allocations
- Process to distribute study requests to appropriate level
- Framework of data and study results for subregional groups
- Public data base on generation and transmission for use by subregional groups, individual providers and others

Background – WECC Regional Project Review Process

- Formal WECC process to engage interested parties in development and analysis of new project proposals
  - Some overlaps between this and TEPPC / Subregional Planning Group (e.g., NTAC) / Order 890 processes
  - Evolving relationship
- Regional project planning review
  - Informational, solicits interested parties' participation
  - Aim: avoid project duplication, integrate all needs
  - Formal reports to Planning Coordination Committee (PCC)
  - Sometimes called "Phase 0" of Three Phase Rating Process

Background – WECC Three Phase Rating Process

- Technical studies to:
  - Demonstrate compliance with NERC/WECC planning standards
  - Support proposed path rating while avoiding impacts on ratings of existing lines
- Formal reports to PCC
  - Specific demonstrations and acceptance by PCC required to move through the phases
- Does not ensure commercial viability or local siting approval