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Transmission Cost Allocation and Cost Recovery in the West

Presented at:

Transmission Executive Forum WEST 2011

Strategies for Meeting the Transmission Needs in the West

Presented by:

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Topics Addressed in my Comments

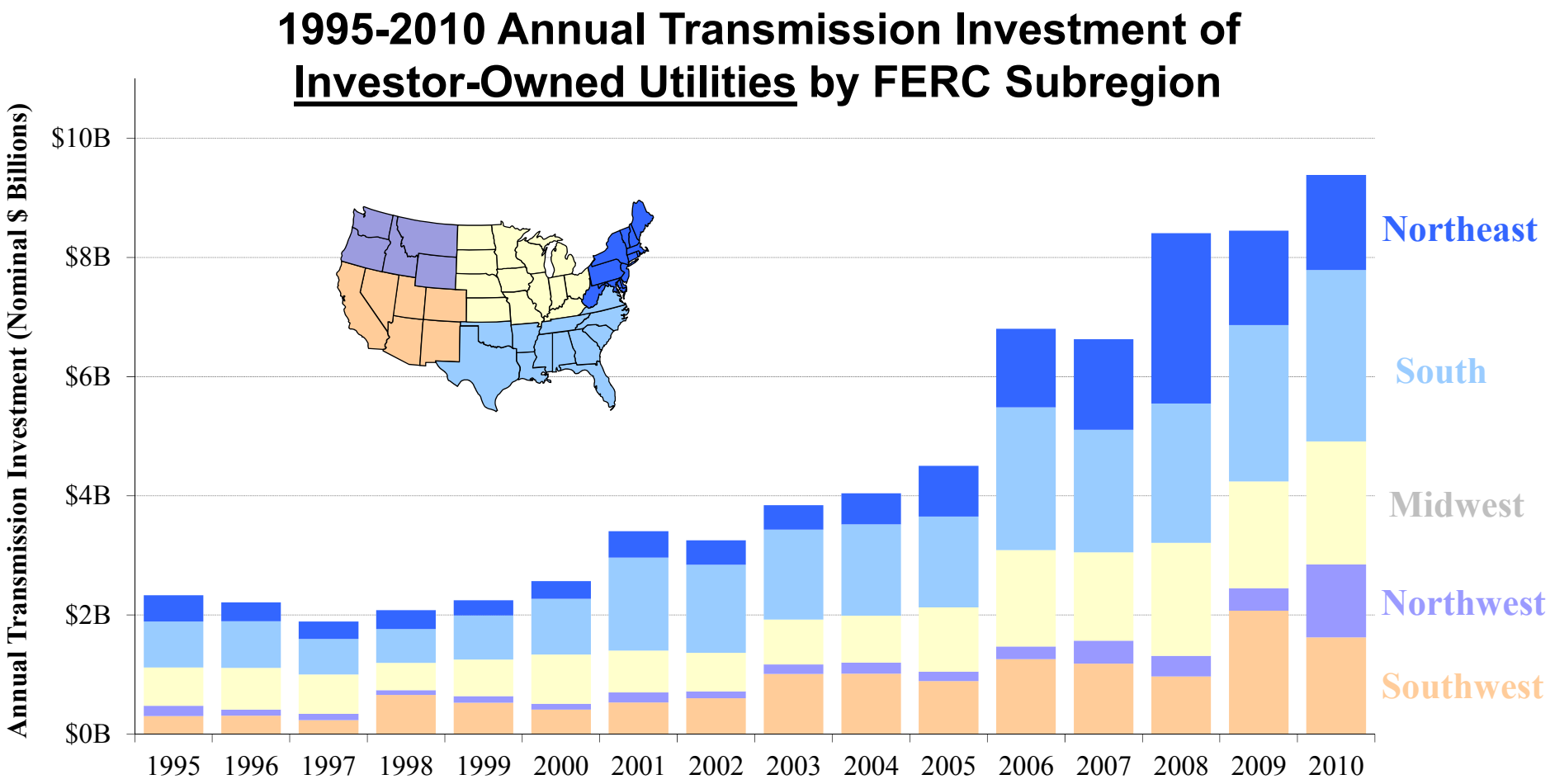
Allocating the Cost of What? Transmission Investment Trends and Needs in the West

Planning and Cost Allocation under FERC Order 1000

Northern Tier Cost Allocation as Model for WECC?

Additional Reading / About Brattle / Contact Info

Historical Transmission Investment



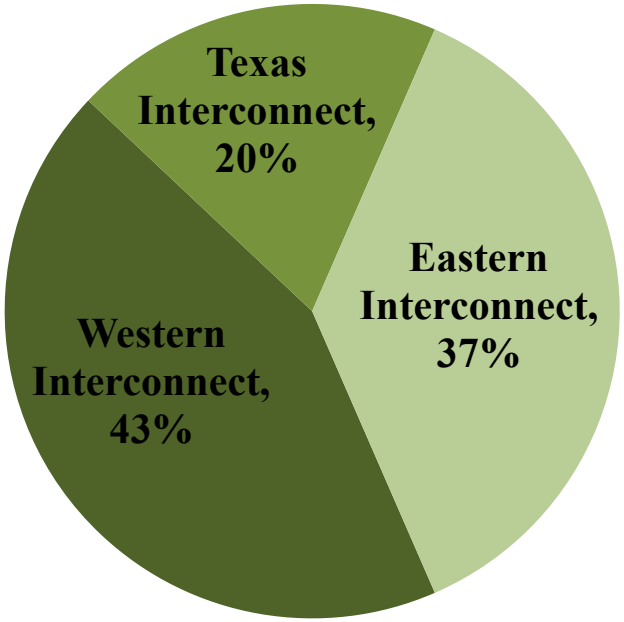
Source: *The Brattle Group* based on FERC Form 1 data compiled by Global Energy Decisions, Inc., The Velocity Suite for investor owned utilities.

2011-15 Projected Transmission Additions in U.S.

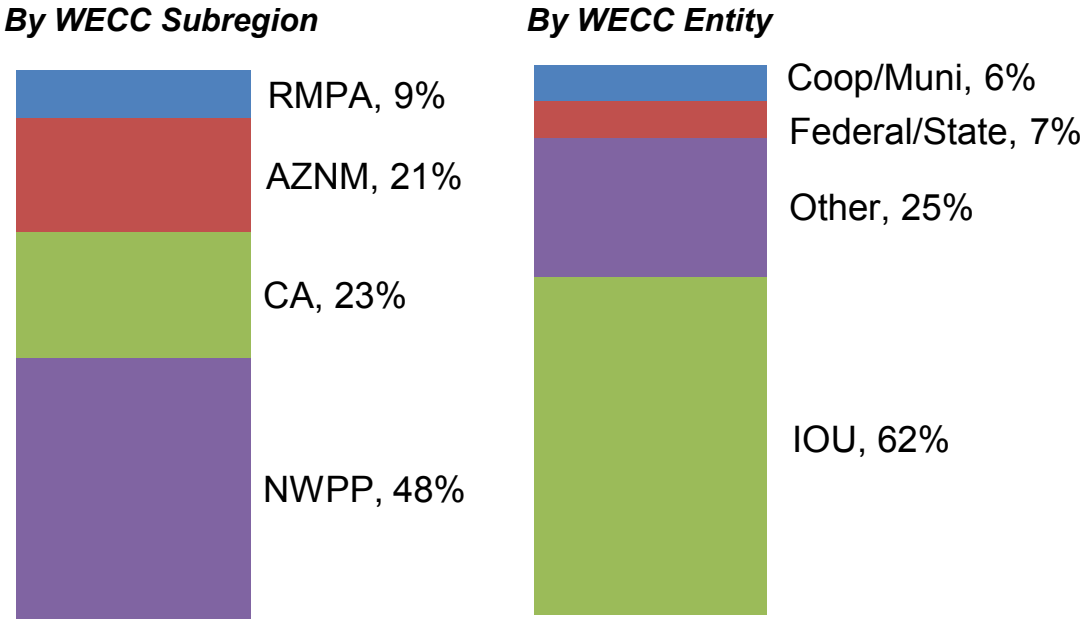
NERC identified 22,700 circuit-miles of 2011-15 planned and proposed new transmission projects, of which 43% are in WECC

- We estimate $60-80 billion in 2011-15 U.S. transmission investments
- Only 62% of WECC transmission is planned by investor-owned utilities

US-wide by Region



Within WECC



Source: 2011-2015 as reported voluntarily to NERC and in EIA Form 411 by IOUs, coop/munis, state/federal power agencies, ISOs/RTOs, and merchant developers. Includes transmission facilities >100kV. Percentages may not sum to 100% due to rounding.

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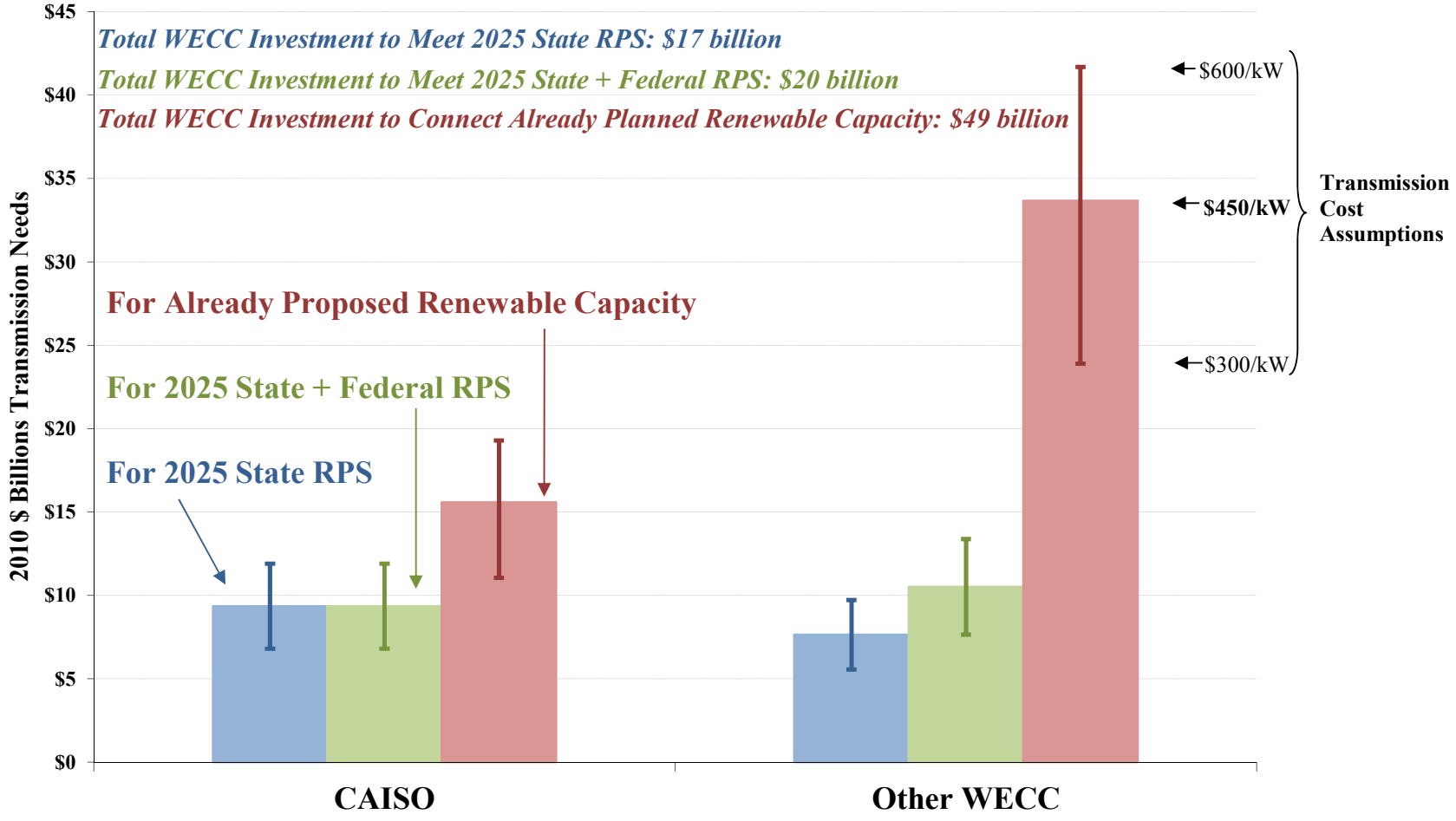
WECC Transmission Additions for Renewables

- **Approx. $20 billion for additional renewables to meet WECC RPS**



Sources and Notes: *The Brattle Group © 2011.* Planned renewable capacity includes all wind, geothermal, and large solar units in the Ventyx Energy Velocity database with a status of "Permitted" or "Proposed". Federal RPS assumed to be 20%.

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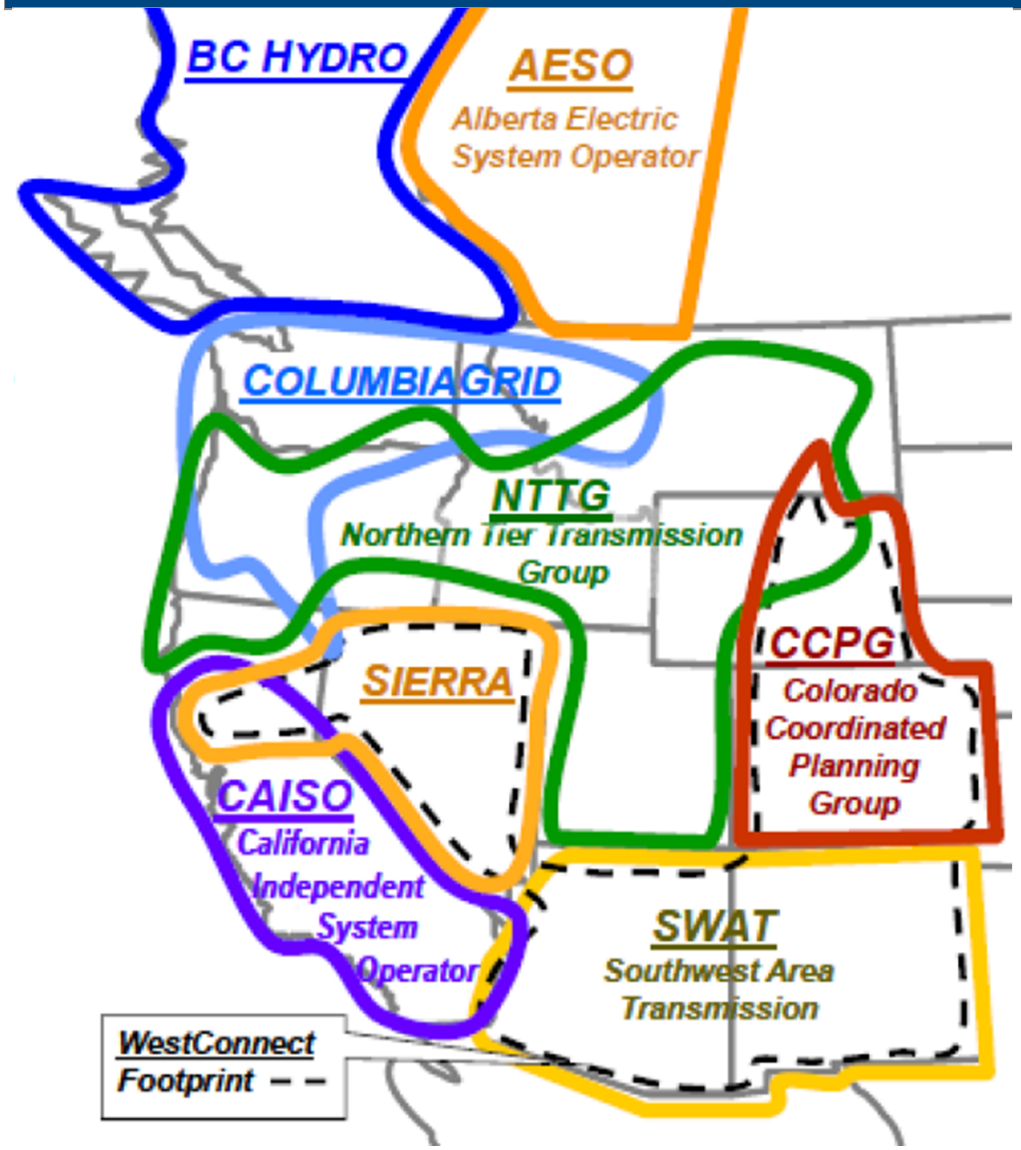
Existing WECC Planning Regions & Coordination



While not relying on RTOs, well established WECC-wide planning process and coordination, with well-defined planning "subregions"

- Data sharing, model development, and coordination within subregions and through TEPPC
- Regular meetings of transmission planners from neighboring subregions to address seams-related matters

Existing WECC Cost Allocation Methods

Transmission cost allocation currently used in the West:

- CAISO:
  - Postage stamp for all network upgrades ≥200kV; license plate for facilities < 100kV; direct assignment of generation interconnection facilities
  - *Tehachapi LCRI* approach: up-front postage stamp funding of project, later charged back to interconnecting generators, thereby solving chicken-egg problem
- OATT license-plate rates for individual utilities outside CAISO
- Shared ownership of multi-utility, multi-state transmission projects
- BPA open season approach (e.g., for transmission requests by renewable generators)
- Northern Tier's multi-state cost allocation committee
- Merchant transmission/participant funding (e.g., anchor tenant with open season)

Order 1000: Regional and Inter-regional Planning

Jurisdictional transmission owners (JTOs) required to participate in regional planning process that produces:

- Regional transmission plans
- Regional cost allocations

Regional transmission planning process must

- Satisfy Order 890 (otherwise up to each region)
- Be transparent and open to all interested market participants
- Consider needs driven be public policy requirements (but how is up to each region)

Inter-regional transmission planning

- Each pair of neighboring regions must coordinate planning (share data, specify interregional project evaluation process)
- But no requirement to produce actual plans

Order 1000: Cost Allocation

- Each regional planning process must include regional and interregional cost-allocation methods
- Cost allocation methods must satisfy 6 principles:
  1. Costs allocated must be “at least roughly commensurate” with estimated benefits
  2. Those that receive no benefit must not be allocated costs involuntarily
  3. Benefit-to-cost ratios, if used, must not exceed 1.25 unless justified by the region and approved by FERC
  4. No allocation of costs outside a region unless other region agrees
  5. Cost allocation method and identification of beneficiaries must be transparent
  6. Different cost allocation methods can apply to different types of transmission projects (*e.g.,* reliability, economic, public policy, existing vs. new)

Order 1000: Cost Allocation

- Participant funding permitted, but not as sole cost allocation method
- Postage stamp may be appropriate and consistent with cost allocation principles if:
  - All customers tend to benefit from class or group of facilities
  - Distribution of benefits likely to vary over long life of facilities
- If a region can't decide on regional cost allocation, then FERC will based on record
- Required inter-regional cost allocation, but methods can differ across different pairs of neighboring regions

Order 1000: Implications for WECC

- Well-established WECC subregions are logical starting point for Order 1000 compliance; defining different regions will require showing of reasonableness
- FERC staff noted that non-jurisdictional TOs can decide whether they are “in” or “out”, but if “in” for planning purposes, then also “in” for cost allocation
- Long history of regional transmission planning and “cost allocation” through shared ownership and transmission rights
  - More formalized versions, such as **Northern Tier cost allocation** process as starting point and template for regional Order 1000 compliance?
  - TEPPC planning processes plus (additional) inter-regional cost allocation guidelines as model for inter-regional Order 1000 compliance? Current SPP effort as potential model?

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Example: NTTG Cost Allocation

Northern Tier Transmission Group (NTTG) is a group of transmission providers and customers in the Northwest and Mountain States (MT, WY, UT, ID, OR, WA, CA)

- NTTG Cost Allocation Committee (CAC) comprised of state regulatory commission and state consumer agency representatives
- CAC developed four principles based on "beneficiaries pay" model[1]
- Market participants propose cost allocation and the CAC provides recommendation based on consistency with cost allocation principles[1]
- The CAC's recommendations are non-binding[1]
- Applies to three types of transmission investments:
  - **Type 1:** for serving native load (deliver resources, reliability, congestion relieve)
  - **Type 2:** for wholesale transmission service
  - **Type 3:** non-transmission alternatives to Type 1 (DG, DR, EE, etc)

[1]NTTG, "NTTG Cost Allocation Principles," May 29, 2007.

Example: NTTG's Four Cost Allocation Principles

1. "Cost causers should be cost bearers" and "beneficiaries should pay" in amounts reflective of benefits received
2. Projects should be consistent with, if applicable:
   - State and federal IRP requirements
   - Competitive Bidding
   - Renewable portfolio standards
   - Siting, certification and other policy and planning requirements
   - Project developer should identify the extent of cost allocation consensus for a proposed transmission project as soon as practical.

3a. Costs directly assigned to a single/multiple transmission customer or areas (or the entire region) based on distribution of benefits

3b. Projects proposed for economic/other benefits to specific customers accommodated if [i] customers and/or transmission owner pays for associated costs; [ii] project doesn't harm network; and [iii] project has no adverse impact on regional transmission service

4. For Type 2 project costs, the rest of the network and its customers will be held harmless and the transmission owner should look to its transmission customers for direct cost recovery.

[1]NTTG, "NTTG Cost Allocation Principles," May 29, 2007.

Example: NTTG Cost Allocation

Five major projects (est. cost of $8.4 billion) have been brought to CAC for review:[1]

- One of the projects, the "Energy Gateway," is a $6.7 billion multi-state, multi-utility buildout comprised of 11 segments
- Ownership of segments used as cost allocation tool
  - Seven segments owned by PacifiCorp with license plate cost allocation to native load for reliability and load growth upgrades and/or direct assignment
  - One segment owned by Idaho Power with license plate cost allocation to native load for reliability and load growth upgrades and/or direct assignment
  - Four of the segments are jointly owned by the same two utilities and cost allocation is aligned with ownership shares and/or direct assignment
- Obtained CAC support of proposed cost allocation methodologies; also requires approval from individual state commissions

[1]NTTG Cost Allocation Committee, "2008-2009 Biennial Plan: Final Report," December 1, 2009.

Agenda

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Additional Reading

Pfeifenberger, Hou, *Employment and Economic Benefits of Transmission Infrastructure Investment in the U.S. and Canada*, on behalf of WIRES, May 2011.

Pfeifenberger, Newell, *Direct testimony on behalf of The AWC Companies re: the Public Policy, Reliability, Congestion Relief, and Economic Benefits of the Atlantic Wind Connection Project*, filed December 20, 2010 in FERC Docket No. EL11-13.

Pfeifenberger, "Transmission Investments and Cost Allocation: What are the Options?" ELCON Fall Workshop, October 26, 2010.

Pfeifenberger, "Transmission Planning: Economic vs. Reliability Projects," EUCI Conference, Chicago, October 13, 2010.

"Comments of Johannes Pfeifenberger, Peter Fox-Penner and Delphine Hou," in response to FERC's Notice of Proposed Rulemaking on Transmission Planning and Cost Allocation (Docket RM10-23), September 29, 2010.

Pfeifenberger, Hou, "*Transmission Planning and Cost Benefit Analysis,*" EUCI Web Conference, September 22, 2010

Fox-Penner, Pfeifenberger, Hou, *"For Grid Expansion, Think 'Subregionally'," The Energy Daily*, June 8, 2010.

Fox-Penner, *"Smart Power: Climate Change, the Smart Grid, and the Future of Electric Utilities*," Island Press, 2010.

Pfeifenberger, Chang, Hou, Madjarov, *"Job and Economic Benefits of Transmission and Wind Generation Investments in the SPP Region," The Brattle Group, Inc.*, March 2010.

"Comments of Peter Fox-Penner, Johannes Pfeifenberger, and Delphine Hou," in response to FERC's Notice of Request for Comments on Transmission Planning and Cost Allocation (Docket AD09-8).

Pfeifenberger, Fox-Penner, Hou, *"Transmission Investment Needs and Cost Allocation: New Challenges and Models,"* The Brattle Group, Inc., presented to FERC Staff, Washington, DC, December 1, 2009.

Fox-Penner, Pfeifenberger, *"The Anchor-Tenant Model – And Some of the Chickens and Eggs,"* The Electricity Journal Guest Editorial, Volume 22, Issue 6, July 2009.

Pfeifenberger, *"Assessing the Benefits of Transmission Investments,"* presented at the Working Group for Investment in Reliable and Economic Electric Systems (WIRES) meeting, Washington, DC, February 14, 2008.

Pfeifenberger, Direct Testimony on behalf of American Transmission Company re: Transmission Cost-Benefit Analysis Before the Public Service Commission of Wisconsin, Docket 137-CE-149, January 17, 2008.

Pfeifenberger, Newell, *"Evaluating the Economic Benefits of Transmission Investments,"* EUCI's Cost-Effective Transmission Technology Conference, Nashville, TN, May 3, 2007.

Pfeifenberger, Testimony on behalf of Southern California Edison Company re: economic impacts of the proposed Devers-Palo Verde No. 2 transmission line, before the Arizona Power Plant and Transmission Line Siting Committee, Docket No. L-00000A-06-0295-00130, Case No. 130, September and October, 2006.

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The Brattle Group provides consulting and expert testimony in economics, finance, and regulation to corporations, law firms, and governmental agencies around the world.

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