Welcome! Transmission Corridors Work Group Meeting #6 Day 1: June 8, 2022; 9 AM – 12 PM

Observers: Please join the meeting via Livestream: www.rossstrategic.com/livestream If you are having technical difficulties, please email Micaela at munda@rossstrategic.com





Public Participation

- Public observers, if you are currently in the Zoom meeting, please log off and listen/watch the meeting via livestream: <u>www.rossstrategic.com/livestream</u>
- If you wish to provide public comment, please join the Zoom meeting tomorrow at 10:40 AM.
- We will share Zoom info at that time (available through livestream)
- Written comments are always welcome via email: <u>transmissioncorridors@rossstrategic.com</u>



If you need technical assistance, please send a Zoom chat to Micaela Unda or munda@rossstrategic.com

Welcome and agenda review Rob Willis, TCWG Facilitator, Ross Strategic Kathleen Drew, EFSEC

Today's agenda – Day 1(June 8)

Time	Торіс
9:00 AM	Opening (agenda review, remarks, etc.)
9:10 AM	Potential New Principle: 20 Year Transmission Outlook Study
9:30 AM	Potential New Principle: State Coordination to improve competitiveness and focus for Federal Funding
9:50 AM	Discussion of Potential Additions to Report
10:25 AM	Preview Draft Report and Discussion Process
10:35 AM	Break
10:50 AM	Report Discussion
11:55 AM	Day 1 Wrap-Up
12:00 PM	Adjourn

Tomorrow's agenda – Day 2 (June 9)

Time	Торіс
9:00 AM	Opening – recap, observations, reflections, questions from Day 1
9:10 AM	Final Changes—Finalizing the TCWG Report
9: 50 AM	Round-Robin Check-in with TCWG Members
10:30 AM	Break
10:40 AM	Public Comment
10:50 AM	 What Comes Next? How do we continue work and use TCWG as a springboard? Brainstorm discussion regarding next steps and future opportunities
11:50 AM	Closing Remarks
12:00 PM	Adjourn

20 Year Transmission Outlook Study

Transmission Planning Overview

Washington Transmission Corridors Working Group

June 8, 2022



Arne Olson, Senior Partner



90+ full-time consultants 30 years of deep

San Francisco



New York

Engineering, Economics, Mathematics, Public Policy...

PhD, 25% Master's, 73%



Boston



Calgary

E3 Clients



Recent Examples of E3 Projects

Analyzed economics of long-distance transmission together with offshore wind deployment along the coast of California.

Identify new opportunities to enhance deliverability of clean energy in New York State and collaborated with the developer to assess a 70x30 scenario and potential congestion pockets.

Provided expert witness testimony of the benefits of transmission.

Reviewed planning processes and cost recovery mechanisms for transmission built to facilitate renewable energy development and delivery.

Determined cost-effectiveness of several transmission projects that would increase the capability of delivering wind from Wyoming to major load centers in the West, including to California.

Endig Stavironmental Economics

New electricity transmission is a key component of economy-wide decarbonization pathways

+ Four transmission "use cases" emerge from deep decarbonization literature:

- 1. Connection of Remote Renewables
 - E.g., Great Plains wind to Eastern load centers
 - Hydro from QB to Maritimes, NY, New England
 - Wind from Rockies to West Coast

2. Load & Resource Diversity

- Saskatchewan Manitoba connects a hydro rich region to a region with good wind and solar potential
- 3. Reliability & Grid Strengthening
 - Transmission between ERCOT and neighboring planning areas help provide reliability
 - Second tie line improves reliability in Maritimes
- 4. Electrification
 - Help serve new electrification loads in constrained load pockets like Puget Sound Basin, Lower Mainland

Illustrative North American Transmission From Literature



Key barriers to inter-regional transmission development are: (1) need determination, and (2) cost allocation.

Energy+Environmental Economics



Overview of transmission planning in the Open Access Transmission Tariff (OATT) era

- Transmission access is governed by FERC tariffs for interconnection and transmission network upgrade requirements
 - Rules are generally designed to protect existing transmission rights holders from encroachment by new uses
 - Transmission interconnection "queue" based on first in time
 - Transmission service request is what triggers new transmission development
- Regional Transmission Organizations/ Independent System Operators (RTOs/ISOs) have the authority to allocate cost of regional transmission to member systems
 - Transmission planning can consider forward-looking needs including for achievement of state policy goals
 - However, "building ahead of need" is difficult and controversial, especially if need is caused by policy in a subset of states
- Outside of RTOs, utilities recover costs from retail loads subject to state jurisdiction



Current transmission planning process is almost entirely <u>reactive</u> <u>and piecemeal</u>; projects are triggered by service requests rather than forward-looking plans.



Transmission planning and development is subject to a confusing mix of state and federal jurisdiction

- Transmission access and planning in many regions is governed by RTOs/ISOs
 - RTOs/ISOs are responsible for planning transmission for their regions
 - Costs are allocated to transmission users according to ISO tariff
- + Outside of RTOs, transmission planning is mostly state jurisdictional
 - States issue "need determination" certificates and regulate inclusion of transmission into retail rates
 - Federal government, through FERC, only regulates the rates, terms and conditions of wholesale transmission service
- + Even in RTO regions, transmission siting is and permitting are governed by states
 - States in effect have veto power over regional transmission projects
- + In the Pacific Northwest, BPA owns most high-voltage transmission

• BPA is not regulated by FERC but generally follows FERC practice Energy+Environmental Economics

Organized wholesale electricity markets in North America



States have a strong regulatory role in determining transmission need and can <u>block regional</u> <u>projects</u> even if approved by RTOs.

- + Established in the early 2000s under FERC Order 890, took on additional regional authorities under Order 1000
- + US entities are:
 - Northern Grid (formerly Columbia Grid and Northern Tier Transmission Group)
 - California Independent System Operator (CAISO)
 - WestConnect
 - WECC develops transmission path ratings and regional scenarios but does not have a formal transmission planning role
- Regional entities conduct studies of regional impacts of transmission lines proposed by members

Regional Transmission Planning Entities in the West



Regional entities do not do independent, proactive, forward-looking transmission planning and do not have authority to allocate costs of new transmission projects to unwilling recipients.

Pacific Northwest transmission ownership

Most of the high voltage transmission in the Northwest is owned and operated by the Bonneville Power Administration (BPA)

- BPA is a Federal Power Marketing Authority under the United States Department of Energy
- BPA serves some of the same functions as a regional transmission entity but cannot serve the needs of all
- + IOUs (PSE, PGE, Avista, PacifiCorp) and POUs (Seattle, Tacoma, Chelan, Douglas, Grant) own some transmission mostly in and near their load areas
- Each utility carries out its own transmission planning process based on the needs of its own customers
 - Most are also dependent on BPA for some of their transmission needs



BPA plans most high-voltage transmission projects in the region but has limited authority to plan and build ahead of need.



CAISO's Transmission Planning Process (TPP)

- + As a single-state ISO, CAISO has a clearer line of sight to plan transmission for state policy needs
- + Policy needs are based primarily on renewable build-outs from CPUC IRP process



*Identify constraints that need to be modeled in production cost simulations



CAISO's 20-Year Outlook Study

- CAISO introduced its first ever 20-year transmission outlook assessment in 2021 and released the draft in March 2022.
 - "Dry run" aimed at early identification of long-term transmission needs
- Resource buildout based on CEC's SB 100 resource portfolio with 10 GW of offshore and 12 GW of out of state wind
 - The study also increased gas power plant retirements to 15 GW vs the final study plan's 1GW
 - Study assumptions already somewhat outdated
- + Total price tag for transmission development identified is estimated at \$30.5 B
 - Process for projects to come up for formal approval upploar

CAISO 20-year plan is an interesting early look at long-term needs, but process for moving real projects is unclear.

Outlook Study's Identified Transmission Development





Summary

- 1. Multi-state transmission planning requires cooperation from multiple states
- 2. There is currently no entity in the Northwest that can effectively do long term, forward-looking, regional transmission planning
- 3. A multi-state RTO can help but even RTOs struggle with long-term planning and transmission cost sharing will be a controversial aspect of RTO formation
- 4. Informal coordination among states, utilities, BPA, and other stakeholders might be the best avenue for advancing promising transmission projects in the near term

Thank you!

Arne Olson, Senior Partner (arne@ethree.com)



State Coordination for Federal Transmission Funding

Leveraging IIJA and Federal Funding for State Clean Energy Priorities

Washington State Department of Commerce

Sarah Vorpahl

MANAGER, FEDERAL ENERGY POLICY AND STRATEGIC ALIGNMENT

06/08/2022

We strengthen communities



Infrastructure Investment and Jobs Act

Infrastructure Investment and Jobs Act

- AKA, "The Bipartisan Infrastructure Law", IIJA, BIL
- Passed November 6th, 2021
- Historic investment in nation's core infrastructure priorities including roads and bridges, rail, transit, ports, airports, the electric grid, water systems, and broadband
- Includes rural infrastructure development and dedicated new funds for major projects

\$550 billion in new investments

Of the \$973 billion total over five years, \$550 billion is for new investments:

- Transportation: \$284 billion
- ♦ Water: \$55 billion
- Broadband: \$65 billion
- Energy & Power: \$73 billion
- Environmental remediation: \$21 billion
- Resiliency: \$46 billion
- Western water infrastructure: \$8.3 billion



Coordination Process

Strategy for Federal Funding



An Overview of Current Opportunities

Funding Opportunity Award (FOA)

- *new* 5/31: <u>I2X launch (Interconnection and Innovation</u>
 <u>Exchange)</u>
- Electric Drive Vehicle Battery Recycling and Second-Life Applications Program
- Battery Material Processing Grants
- Battery Manufacturing and Recycling Grants
- <u>Renewables Advancing Community Energy Resilience</u> (RACER) funding opportunity

Requests for Information (RFI)

- <u>Energy Storage Demonstration and Pilot Grants and Long-</u> <u>Duration Energy Storage Demonstration Initiative and</u> <u>Joint Program</u>: Response Due Date: June 16, 2022
- <u>Transmission Facilitation Program:</u> Response Due Date: June 13, 2022
- BIL Section 41001 Energy Storage Demonstration

Projects: Response Due Date: June 16, 2022

Notices of Intent (NOI)

- <u>Transmission Facilitation Program:</u> Response Due Date: June 13, 2022
- <u>Bipartisan Infrastructure Law (BIL) Regional Direct Air</u> Capture (DAC) Hubs (Section 40308)
- Carbon Storage Validation and Testing (CarbonSAFE)
- <u>Battery Material Processing Grants</u>
- Battery Manufacturing and Recycling Grants
- Electric Drive Vehicle Battery Recycling and Second-Life
 Applications
- <u>Building a Better Grid Initiative To Upgrade and Expand the</u> <u>Nation's Electric Transmission Grid To Support Resilience,</u> <u>Reliability, and Decarbonization</u>

Federal Transmission Program

Building a Better Grid





Transmission Facilitation Program (TFP): Overview



- Section 40106 of the Infrastructure Investment and Jobs Act (IIJA), codified at 42 U.S.C. §18713
- TFP is funded through a \$2.5B revolving fund to facilitate the construction of electric power transmission lines and related facilities
- Legislation allows DOE to engage with *eligible entities* through:
 - <u>Capacity Contracts</u> to buy up to 50% of planned eligible project *commercial* capacity for up to 40 years
 - <u>Public Private Partnerships</u>, where DOE participates in designing, owning, developing, maintaining or owning an eligible project
 - Loans to carry out eligible projects



Three Tools Available to DOE

- Capacity Contracts: DOE can serve as "anchor tenant" on new and upgraded transmission lines, by buying up to 50% of the planned commercial capacity of lines for a term of up to 40 years
- 2. Loans: DOE can make loans at fixed rate, considering current market conditions
- **3. Public-Private Partnerships:** DOE can participate with an eligible entity in designing, developing, constructing, operating, maintaining, or owning an eligible project, as long as that project is either:
 - Within a national interest electric transmission corridor
 - Necessary to accommodate an increase in electricity demand across more than one State or transmission planning region



Capacity Contract Framework

- DOE can serve as "anchor tenant" on new and upgraded transmission lines:
 - Buy up to 50% of the total proposed transmission capacity for terms up to 40 years
 - Contract with 3rd party to market the capacity, seeking to maximize return to Federal Government
 - Sell the capacity contract to recover remaining costs incurred once the project's long-term financial viability is secured
- TFP Capacity Contract:
 - Represents the contractual right to schedule and use transmission service for the term of the agreement
 - Contract form should ensure marketability of DOE's interest to enable DOE to rapidly recycle funding for additional projects
 - Payment for service will begin once transmission line is in commercial operation



- Eligible entity: an entity seeking to carry out an eligible project
- Entities eligible to apply for support from the TFP include:
 - Investor-owned utilities
 - Community-owned, not-for-profit electric utilities
 - Independent transmission project developers
 - States, Tribes, or other governmental entities



Eligible projects must include either:

- Construction of a new or replacement transmission line of <u>at least 1,000</u> <u>megawatts</u>;
- Upgrade of an existing transmission line or construction of a new transmission line in an existing transmission, transportation, or telecommunication infrastructure corridor of <u>at least 500 megawatts</u>; or
- Connection of an isolated microgrid to an existing transmission, transportation, or telecommunications infrastructure corridor located in Alaska, Hawaii, or a U.S. territory.



When considering TFP applications, DOE must prioritize projects that:

- Use technology that enhances the capacity, efficiency, resilience, or reliability of an electric power transmission system, including the use of advanced technology;
- Improve the resilience and reliability of an electric power transmission system;
- Facilitate **interregional transfer capacity** that supports strong and equitable economic growth; and
- Contribute to national or subnational goals to **lower electricity sector** greenhouse gas emissions.



Equity and Labor requirements

- Community engagement: Projects will include Equity, Environmental and Energy Justice principles and priorities.
 - consideration of existing barriers underserved and underrepresented individuals and communities face when accessing Federal resources
- Environmental and energy justice principles include procedural justice, distributive justice, recognition justice, and restorative justice (including Justice40)
- Support creation of good-paying jobs with the free and fair choice to join a union, the incorporation of strong labor standards, and high-road workforce development, especially registered apprenticeship and quality pre-apprenticeship

TFP: When

- DOE is planning a phased approach for TFP solicitations, starting in 2022 and expanding in 2023
- The first solicitation would be limited to requests for Capacity Contracts for projects that can be completed by December 31, 2027




Stakeholder Feedback Requested

Requests for Information (RFI) seek input on several topics, including:

- The sequencing of the TFP solicitations, *i.e.*, focusing first solicitation on Capacity Contracts
- The ongoing process for receiving and reviewing TFP applications
- The information that will be required of TFP applicants and the due diligence process applicants will participate in with DOE
- How DOE will measure the benefits of proposed projects (especially the priorities of using new technology, improving resilience and reliability, facilitating increased interregional power transfer, and contributing to greenhouse gas reduction)
- The form of capacity contracts and agreements to remarket DOE's interest in projects facilitated by TFP.

RFI Responses due on June 13, 2022

- May 26: Public webinar (recording + FAQs to be posted at <u>Transmission</u> <u>Facilitation Program | Department of Energy</u>)
- June 13, 2022: RFI comments due
- August 2022: Technical Conference on Capacity Contracts
- September 2022 (*tentative date*): Release Phase 1 solicitation (Capacity Contracts only)



Questions I have!

- Who is planning to submit an RFI response?
- Who is considering a project for the first phase of this program?
- Who is the point person/entity in the state for coordination?
- What is the opportunity for Washington with the TFP?
- What planning needs to happen in advance of future applications?
- How does the state ensure Tribal entities are involved early and consulted often?
- How do we ensure an equitable and transparent process?

Future Work for Washington

- Appoint a transmission planning lead for the state
- Develop a Transmission Planning road map
 - PJM Regional Transmission Expansion Plan (RTEP) :
 - Transmission build-out scenario studies, targeted reliability studies interconnection process reform, generator deliverability methodology enhancement, the development of Effective Load Carrying Capability methodology and the implementation of probabilistic planning techniques
 - CAISO 20 year Transmission Outlook
 - a "starting point": forecasted 2040 peak load minus forecasted BTM resources and then factored in a projected reduction of 15,000 MW of natural gas-fired generation to create geographically located resource targets
- Follow recent FERC NOPR on Transmission Planning and Cost Allocation





www.commerce.wa.gov

Thank you!

Sarah Vorpahl, Ph.D.

MANAGER, FEDERAL ENERGY POLICY AND STRATEGIC ALIGNMENT

Sarah.Vorpahl@commerce.wa.gov

360-688-6000

Potential Additions to the Draft Report Facilitation Team

Existing Principles that are related

Expand regional planning coordination. Strengthen regional interstate and international utility coordination to ensure effective and coordinated transmission planning.

Continue to explore creation of a regional transmission organization (RTO) that would allow efficient dispatch of least-cost resources given transmission constraints. Coordinating operations of the transmission system would create system efficiencies, and help identify grid-critical transmission investments/projects.

Preview Draft Report and Discussion Process

Facilitation Team

Break

TCWG: Drop areas of clarification/focus for discussion into the chat during the break. Please return at 11:10 AM

Draft Report Discussion

Day 1 Wrap Up Day 2 Preview

Closing remarks

Adjourn Thank you – see you 9:00 AM tomorrow!



Welcome! Transmission Corridors Work Group Meeting #6 Day 2: June 9, 2022, 9 AM -12 PM

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 Micaela Unda: munda@rossstrategic.com

Welcome and Day 2 agenda Rob Willis, TCWG co-facilitator, Ross Strategic Kathleen Drew, EFSEC

Today's agenda – Day 2 (June 9)

Time	Торіс
9:00 AM	Opening – recap, observations, reflections, questions from Day 1
9:10 AM	Final Changes—Finalizing the TCWG Report
9: 50 AM	Round-Robin Check-in with TCWG Members
10:30 AM	Break
10:40 AM	Public Comment
10:50 AM	 What Comes Next? How do we continue work and use TCWG as a springboard? Brainstorm discussion regarding next steps and future opportunities
11:50 AM	Closing Remarks
12:00 PM	Adjourn

Opening Remarks

Kathleen Drew, EFSEC, TCWG Chair

Final Changes and Next Steps

Geographic Needs and Considerations

- North-South, along the I-5 corridor (bringing in wind and solar from Eastern Washington, abundant wind power from Montana and Wyoming, solar from California and the Southwest, plus possible hydro resources from Canada)
- Off-shore to I-5 corridor (for projected off-shore wind development as noted in the Washington State Energy Strategy).

Overarching Principles

Original

Properly fund Tribes, DAHP, and other state and local agencies providing essential project review. The increased and accelerated workload required to expedite transmission system improvements must be properly funded and staffed to ensure expectations and requirements for regulatory, environmental, and cultural reviews are met during all phases of transmission system development.

Proposed

Properly fund or provide authorization to receive funding to tribes and federal, state and local agencies providing essential project review (e.g., EFSEC, DAHP). The increased and accelerated workload required to expedite transmission system improvements must be properly funded and/or authorized by the WA State Legislature and the US Congress and staffed to ensure expectations and requirements for regulatory, environmental, and cultural reviews are met during all phases of transmission system development.

New Overarching Principle + replacement of E4/E5

Interregional transmission capacity is key in enabling Washington, as well as other states, to build a diverse portfolio of clean and reliable electricity resources. A robust, interregional bulk power transmission network is necessary for achieving Washington's climate, energy, and economic objectives. Enhanced transmission capacity and diversity across the West, including Canadian provinces, will allow Washington's utilities to provide more clean and reliable electricity at a lower cost (diversity of resources enables selection of lower cost resources in real-time.)



Original

Site new generation near load where feasible. Siting new generation near the load, where feasible, will help to minimize the need for transmission build-out. However, when new generation is not feasible to site close to load centers due to lack of resources, land use, tree cover, or other significant obstacles, new or upgraded transmission will be critical to bring generation to where it is needed.

Proposed

Pursue practicable and cost-effective opportunities to site new generation near load and existing transmission. Siting new generation near the load, where practicable and costeffective, will help to minimize the need for transmission build-out. Such siting considerations must also recognize that these opportunities are limited by location-specific differences in performance of renewable generating facilities (such as wind in the Rocky Mountains and offshore or solar in the inland West) and the health, environmental and cultural impacts of operating power plants located near population centers or sensitive habitat are potentially greater and the costs are likely higher.



Original

Expand regional planning coordination. Strengthen regional interstate and international utility coordination to ensure effective and coordinated transmission planning.

Proposed

Establish transmission planning practices that include proactive, long-term, interregional assessments on a regular basis. Washington, as well as other states, needs a better assessment of the transmission requirements to supports its clean energy transformation. A 20-year transmission plan should reflect the quantity and location of new clean energy resource requirements and the expanded demand for electricity in transportation, industry, and buildings. A multi-state approach using existing planning organizations is preferred.



Original

Continue to explore creation of a regional transmission organization (RTO) that would allow efficient dispatch of least-cost resources given transmission constraints. Coordinating operations of the transmission system would create system efficiencies and help identify grid-critical transmission investments/projects.

Proposed

Continue to explore creation of a regional transmission organization (RTO) and expanded participation in regional markets that would allow efficient dispatch of leastcost resources given transmission and other constraints. Coordinating operations of the transmission system would create system efficiencies and help identify grid-critical transmission investments. Exploration should focus on documenting the regionallyspecific costs and benefits of an RTO, challenges and opportunities, and the intersection points with Washington and Oregon clean energy policies and goals.

E10

Original

Explore opportunities to use transportation rights-of-way. Transportation rights-of-way may present opportunities for co-locating new transmission lines. It is important to consider the interplay of uses and transportation sustainability goals when colocating transmission lines in transportation rights-of-way.

Proposed

Explore opportunities to use transportation rights-of-way for co-locating new transmission lines. It is important to consider the interplay of uses, transportation sustainability goals, and construction policies like "dig once"* when co-locating transmission lines in transportation rights-ofway.

*Dig once is a recommended implementation policy from the December 2021 Washington State Joint Transportation Committee Broadband Access to State Highway Rightof-Way study.

New Principles in Section E

Designate a lead within Washington State government responsible for coordinating participation in transmission development activities and long-term transmission planning. This will help meet 2019 CETA requirements and to leverage federal funding by playing a role in regional transmission planning.

Leverage opportunities to access federal funding for transmission development and grid enhancement. Several Federal programs, include many led by DOE related to BIL exist to encourage transmission development and help to build the electricity grid of the future. Developers of large-scale transmission projects (including BPA and the regulated utilities) should work together with the state of Washington, local, and Tribal governments to participate in these programs if possible.

F1

Original

Align and coordinate analysis methodologies within and across NEPA and SEPA during project planning. Coordinate in advance on methodologies for analysis when NEPA and SEPA are involved in transmission projects to avoid duplicative and unnecessary time-consuming work.

Proposed

1. Align and coordinate process, timing, and analysis methodologies within and across NEPA (and other federal laws), and SEPA during project planning. Achieve efficiencies by combining NEPA and SEPA processes, where feasible. Coordinate in advance on methodologies for analysis when NEPA and SEPA are involved in transmission projects to avoid duplicative and unnecessary timeconsuming work.

Round Robin

For those wishing to provide public comment at 10:40 AM:

- Log into the Zoom meeting at 10:40 AM by typing this address into your browser: <u>https://www.zoomgov.com/j/1604103551</u>
- You can also join by phone: Phone number: (669) 254 5252 Meeting ID: 160 410 3551

Break Please return at 10:42 AM

For those wishing to provide public comment at 10:42 AM:

- Log into the Zoom meeting at 10:41 AM by typing this address into your browser: <u>https://www.zoomgov.com/j/1604103551</u>
- You can also join by phone: Phone number: (669) 254 5252 Meeting ID: 160 410 3551

Public Comment Opportunity

For those wishing to provide public comment

- Log into the Zoom meeting by typing this address into your browser: <u>https://www.zoomgov.com/j/1604103551</u>
- You can also join by phone: Phone number: (669) 254 5252 Meeting ID: 160 410 3551

Public Comment Opportunity

- Each commenter has up to two minutes to provide comment.
- The facilitation team will call on commenters when it is their turn to speak. You will be muted until your turn.
- Commenters may also email comments to transmissioncorridors@rossstrategic.com

What comes next?

Looking Forward and Wrap Up

Closing remarks
Thank you!

Please direct group member questions and public comments to: transmissioncorridors@rossstrategic.com

