Transmission Corridors Work Group

MEETING #5 (APRIL 13-14, 2022) SUMMARY

Day 1 – April 13

Opening

Rob Willis, Ross Strategic Facilitator, welcomed Transmission Corridors Work Group (TCWG) members to the session and requested all public participants join via the livestream. Meeting objectives included:

- Enhance the TCWG's understanding of any knowledge gaps as they relate to emerging principles, including but not limited to benefits of regional transmission, environmental justice and equity considerations, energy transfer between states, and roles played by Federal, State, and Local agencies.
- Inform TCWG members about updates to emerging principles; discuss and vet TCWG recommendations in regard to principles.
- Begin to discuss final report outline structure and outputs of TCWG and resulting recommendations to legislature.

Kathleen Drew, Chair of Washington Energy Facility Site Evaluation Council (EFSEC), opened the meeting by thanking everyone for their participation during the last workgroup meeting. Drew highlighted that the session would on shifting from learning and listening mode to focusing on findings and recommendations. One of the most significant challenges that the state faces in meeting clean energy goals is high power transmission lines and transporting energy from where it is generated to population centers.

Following Drew's introduction, Rob provided an overview of focus areas and guided TCWG members through the agenda and planned discussions for the day.

Members in attendance during the two days are listed in Appendix A.

Knowledge Gaps Presentations

Benefits of Regional Transmission Coordination: Megan Decker

Megan Decker, with the Oregon Public Utility Commission, provided an overview of transmission planning and development coordination, which allows the state to have more confidence in decisions regarding cost, impact, and policy goals.

As a part of this decision-making process, utility regulators have the task of determining whether transmission costs are reasonable enough to pass on to those who use electricity and siting officials accept land impact in pursuit of a larger scale or need. Decker noted that to ensure that projects that come in for cost recovery are the best long-term investments for the region as a whole, all beneficiaries need to be at the table for a transparent cost allocation discussion.

Oregon has ambitious clean electricity targets and aims to ensure the grid is best suited to meet its policy goals. Decker commented on the importance of increasing confidence in policy decisions and evaluating trade-offs. Scenario-based examinations are needed to inform long-term transmission planning. Regional studies, single utility processes, and FERC mandated Order 1000 processes are thus used to evaluate future transmission needs. Decker shared that the Committee on Regional Electric Power Cooperation Western Interstate Energy Board (CREPC-WIRAB) meetings can offer further resources regarding utility planning.

Following Decker's presentation, TCWG members posed the following questions:

- Could you summarize at a high level what is involved in production cost modeling?
    - Decker shared that it is an economic model about how generation is dispatching and moving through a region. It is informed by transmission constraints and provides information on economics and reliability that may inform transmission planning. However, it does not provide the same look at the transmission grid's reliability under the most stressed conditions that flow-based modeling does.
- How can we capture benefits given the way our system is organized? What do we need to do catch up with the rest of country?
    - Decker responded that there is a need to look to the near term to plan for the next generation of investments and to talk about whether WECC can play a role in giving states visibility. The market development and transmission planning conversations need to happen in parallel. The region cannot wait for a regional transmission organization (RTO) to lead transmission planning as it is not a perfect process, even with a centralized provider. This is reflected in the national discussion around organized markets.
    - The California Independent System Operator (CAISO), the only organized market in the west, recently conducted a 20-year study that evaluated scenarios. This leadership and study has galvanized conversations around how the rest of the region can act in parallel.

Flow-Based Modeling: Vic Howell

Vic Howell, with the Western Electricity Coordinating Council (WECC), provided an overview of flow-based modeling versus contract path methodology. Howell commented that there are two approaches used to determine how much power can be reliably transferred. The contract path methodology is widely used in the western interconnection, while the flow-based is widely used in the eastern interconnection. The contract path methodology uses a path that can be designated to form a single continuous electrical path. Contract paths start with total transfer capability and power flows on the path of least resistance across the network.

Howell emphasized that electricity does not follow a contracted flow but follows the physics. As a result, scheduling is based on a specific path and does not account for how power actually flows in the transmission system.

Flow-based methodology determines impacts on predefined flowgates, which are transmission elements such as a line or a transformer that can account for contingencies. Howell shared that this methodology uses a power-flow model accounting for load, generation, and flow-gate impact data. A flow-based method starts with total flow-gate capabilities (TFC) and calculates impacts on

predetermined flow-gates. Within flow-based methodology, scheduling is based on source, sink, and impacts on flowgates accounting for how power flows in a transmission system.

Katie Ware, Renewable Northwest, shared an example that currently in Washington, a wind farm developer buying 100 MW of transmission pays for this every hour of the year regardless of how often this capacity is used. Contractually, a 100 MW flow path could only support a single 100 MW wind farm, even though that wind farm is not operating at max capacity at all times. Under an RTO when a flow-based scheduling model is used, a developer pays for the right to interconnect to inject energy at a given location, but the developer does not actually buy the transmission—the power flows based on economics and the physics of the system in real time. This means that under an RTO, a 100 MW flow path could support multiple plants in excess of 100 MW.

Following Howell's presentation, TCWG members posed the following questions:

- What would it look like for a contract path basis vs. flow-based methodology study and what the efficiency gains would be? Is anyone considering that comparison?
    - Decker commented that when addressing incremental development steps, there is a need to analyze the energy imbalance market and reform the transmission system. A study comparing the two methods would help to inform incremental steps and understand the benefits of each pathway.
    - Howell shared that WECC does not plan the system. However, WECC has small transmission planning groups. Without a large, centralized group, transmission planning coordination is challenging. WECC is trying to determine 'potential pain points' and solutions to these issues without an overarching coordinating body.
- What does the transmission look like in terms of available transfer capacity (ATC)- do the megawatts add or cancel each other?
    - Howell clarified that they cancel each other.
- How often is 100% of the contracted power used?
    - Howell shared that it varies significantly. Some paths fill up quickly, while others do not. Contract power in the line can be used up while there is still capacity in the line.
- In context of importing and exporting resources regionally, there are resources for efficiencies to be gained from flow-based modeling between transmission provider boundaries. How often does that occur within WECC?
    - Howell commented that few entities in the west are using flow-based modeling. However, entities are beginning to explore moving away from a contract path methodology.

Analysis of East to West Transmission Conditions in Pacific Northwest; Randy Hardy

Randy Hardy, independent consultant, provided an overview of energy needs in the Northwest, sharing that both Washington and Oregon legislation requires investor-owned utilities (IOUs) to reach 80% clean energy by 2030. Currently, Puget Sound Energy (PSE) stands at 35% clean energy, while Pacific Gas & Electric (PGE) stands at 40-50% clean energy. The current potential problems within the system involve the east to west long-term firm (LTF) transmission to wheel wind and solar capability. Most renewable energy production takes place on the east side of Washington and Oregon, while significant loads remain in Seattle and Portland.

Hardy discussed the BPA 2021 Transmission Cluster Study, which was released in June 2021 and analyzed 5,842 MW of transmission service requests (TSR). To address electricity needs identified in the study, Hardy outlined coping strategies, which included repurposing transmission previously used for thermal resources to wheel[1] wind and solar energy, and co-locating wind/solar generation near existing thermal resources.

In addressing the implications of current transmission conditions, Hardy commented that it is unclear whether PSE/PGE have sufficient LTF to meet 2030 energy goals. As a result, Hardy recommended that BPA identify additional likely needed east to west transmission upgrades, which could involve lengthy installation of new transmission lines that would not be completed until after 2030. In the interim, BPA could liberalize terms of its conditional firm reassessment transmission product to vary the number of curtailable hours. Additional partnership with vendors to evaluate the use of power flow control devices could help to reduce overloaded lines and shorten installation times.

Hardy emphasized the importance of such interim measures because if not timely addressed, transmission capabilities will limit the effectiveness of clean energy efforts. Transmission is needed to maximize benefits from forming regional organizations. Additionally, factors such as the rise of electric vehicle usage and gas displacement will place further demands on the renewable system.

Following Hardy's presentation, TCWG members shared the following questions and comments:

- Is there east to west capacity across Canada that could improve north to south transmission lines instead of focusing on east to west across the Cascades?
    - Hardy clarified that the north to south lines are already fully loaded, further restricted by an additional 1800 MGW transfer limitation at the border.
- Are the PSE/PGE energy and capacity needs based on today's loads or do they take into account load growth by 2030 from increased population and industry demands?
    - Hardy shared that they consider load growth as a part of their integrated resource planning (IRP) process.
- Would Washington state's position to transition away from natural gas affect the possibility of creating generation from western Washington to offset the transmission from eastern Washington?
    - PSE will test this. After 2030, PSE needs to use renewable fuel to meet 80% energy requirements. It has benefits in terms of reliability and freeing up east to west transmission for renewables.
- Are there any thoughts on the merits of high voltage direct current concepts?
    - Yes, there is a study being conducted on the Cascade Renewable Transmission project that would run under the Columbia River that would provide 1,100 MGW of additional transfer capability.
- Expected supply and expected demand should be matched up. BPA receives high volumes of transmission service requests. It is critical we match up what the load-serving entities need with what the developers are providing.

[1] "Wheeling" is the transportation of electric energy (megawatt-hours) from within an electrical grid to an electrical load outside the grid boundaries. It refers to the process of transmission of electricity through the transmission lines. (definition adapted from Wikipedia)

- Who can we look to in order to develop a study? How do we look at whether that will be useful over a 20-year horizon?
    - As Northern Grid is new and still expanding, Bonneville remains the priority. Hardy recommended that commissions need to engage Bonneville asking when the study can be completed.
    - Clarified that Northern Grid is contemplating a decarbonization study, but it takes time.

In closing, Kathleen Drew thanked presenters for their participation. Kathleen posed the question, how can TCWG members help to get the resources so that BPA has the resources to do the planning in absence of an integrated approach? What can TCWG members do to help support getting to the future ideal state through an integrated method?

Emerging Principles

Rob framed the forthcoming Day 1 and Day 2 discussion of emerging principles. He also informed members that the currently referenced "emerging principles" would next be seen in the draft report as simply "principles," and that there may be some slight reorganization as appropriate to accommodate the flow of the report.

Susan Hayman, Ross Strategic, provided a summary of revisions made to the emerging principles generated during the TCWG meeting #3 and further refined based on member discussion and online edits. Some edits clarified technical nuances and improved readability. Substantive edits Susan reviewed included those related to 1) clarifying constrained transmission pathways, 2) defining peak demand, 3) clarifying future demand and opportunities from an RTO, 4) improving descriptions and distinctions of principles between optimizing existing, upgrading existing, creating an integrated transmission system, and a regional diversified sourcing approach, 5) highlighting opportunities for alternative technologies, and 6) clarifying the principle of siting new generation near load where feasible.

Due to the extent of review and comment on this set of principles generated from Meeting #3, the facilitation team considers these principles to be in final draft form. Susan invited discussion for any final flags for this set of principles. TCWG members shared the following questions and comments:

Expand regional planning coordination

- Should the TCWG suggest a committee to be responsible for the creation of a regional transmission organization?
    - Kathleen commented that there may be groups already looking at developing an RTO. Another goal is to direct funding towards regional planning efforts.
    - There is potential to advise the Governor's Office to put together an RTO task force.
    - Consider a new principle regarding comprehensive transmission planning to support decarbonization.
- RTOs are more an operational entity to ensure that the plant or facilities are used as efficiently as possible. We may be mixing two roles and want to ensure that this is intentional.
- Interregional planning and proactive transmission planning may help get ahead of the piecemeal approach. Exploration and development of an RTO is helpful in terms of efficient use of the transmission system.
- Members shared that Northern Grid is the outcome of a single transmission planning region facilitating regional transmission planning, enabling a common set of data and assumptions,

identifying regional transmission projects with a single stakeholder forum, and eliminating duplicative processes.
    - Kathleen clarified there are elements of regional planning in Northern Grid, but their planning horizon is ten years. Although Northern Grid exists and analyzes transmisison from perspectives of various states and IOU's, Washington does not have a coordinating body that presents the policy goals of the state and potential strategies to achieve these.
    - Northern Grid policies are considered as a part of the regional planning process, but they do not address 20-year planning horizon as this is not outlined in the FERC process. Although it may be limited to 10 years, the plan does look at policies.
- Federal funding (US Department of Energy) is available to assist utilities in conducting regional planning coordination. The infrastructure bill proposes resources for newly constructed lines.

Rob proposed a path forward outlining the principle to separate current principle 7 into two parts: 7a focusing on RTOs and 7b focusing on decarbonization planning prior to establishing an RTO.

General Principles

- State preservation and tribes are facing lack of staffing. Under federal rules, both must review transmission projects. When it comes to environmental streamlining, there are insufficient funds for enough staff to conduct planning, siting, and permitting.
    - Augment principles "Require Tribal consultation in all phases of new or upgraded transmission" to include funding.
    - Acknowledge that there is a need for local government and state agencies funding in conjunction.
- The new language around alternatives consideration is too broad. Rephrase the heading "exhausting all alternatives."

Rob thanked participants and noted that the next review of this set of principles would occur as part of the overall review of the draft report in June.

The facilitation team then divided TCWG members into two breakout groups to focus discussion on the principles related to expediting environmental review and permitting, first discussed at Meeting #4 (Feb 2022). Following the breakout group discussions, members reconvened in a Day 1 closeout session.

Day 2 – April 14

Rob Willis, Ross Strategic Facilitator, welcomed Transmission Corridors Work Group (TCWG) members to the Day 2 session and guided participants through the agenda.

Kathleen Drew thanked members for their participation and shared that discussing the long-term vision of transmission will be critical to implement the emerging principles.

Overburdened Communities: Mariel Thuraisingham

Mariel Thuraisingham, with Front and Centered, shared about utilities' direct responsibilities for driving an equitable transition towards clean electricity goals. Outlined in the Clean Energy Transformation Act (CETA), it is defined that utilities must ensure that their customers are benefitting from an equitable distribution of resources and that utilities are addressing disparities in vulnerable communities.

Thuraisingham elevated the need to ensure that overburdened communities are not bearing the cost of the transition to meet CETA goals.

Thuraisingham highlighted four key elements and considerations for an equitable transition towards a decarbonized system including:

1. *Knowledge and understanding of what an impact is*
    - Who are the overburdened communities? Who is a key entity in this conversation? What is their power (influence)? How are they affected? How do we bring these communities into planning decision discussions?
2. *Planning*
    - How do you distribute benefits and what are the benefits on the supply and demand side? Who is profiting? On the labor front, how are infrastructure and assets established in communities that provide beneficial opportunities, rather than impacting real estate values and health impacts?
3. *Accountability*
    - What are the mechanisms for clearly defining primary players and their responsibilities?
4. *Governance*
    - How is power concentrated in decision-making and planning for transition-related projects? What consultation and engagement efforts are incorporated? How is power shifted to make space at the table for those directly impacted by decisions?

To ensure there is a just transition, Thuraisingham emphasized the importance of language. Overburdened communities (OBC) in the HEAL act are defined as a geographic area where communities face multiple impacts. OBC's are further defined in the Department of Health's community impact analysis and are prioritized to address disproportionate environmental and health impacts. Thuraisingham emphasized the need for thoughtfulness around benefits distribution in transmission planning to clearly identify where risks are higher for certain populations. To invite more into this discussion, Thuraisingham raised the need to incorporate equity into governance and establish equitable processes and opportunities for consultation.

Following the presentation, TCWG members raised the following points and questions:

- The environmental health disparities map may be a further resource to identify OBCs. Are there greater issues with environmental justice concerns near load? Geographic diversity of resources is beneficial, but does it address where higher impacts are felt by populations near the load?
    - Certain census tracts identified as highest risk are often associated with proximity to higher polluting facilities.
    - Consider adding a principle including using the health disparities map as a tool that informs different processes.
- What should county commissioners think about in rural vs. urban communities?
    - First need to think about community leadership, which can be diverse and include farmworkers, rural residents, and those invested in revitalizing workforce opportunities. These stakeholders need to be incorporated into decision-making processes.
- The local Tribal communities carry much of the burden as these lines are often in close proximity to Tribal homes. In addition, Tribal communities are often disadvantaged communities paying high-cost electric bills.

- Consider expanding emerging principle C6 to include text such as “finding ways to not only engage with community leadership, but also foster this kind of community leadership.” Add language addressing how different communities are affected by different transmission routes.
- Examine energy transformation at a system level, as it has direct impacts on displacing the use of diesel and gasoline. An electrified system can make a big difference in health impacts and reduce the effects of industrial hotspots. Furthermore, electrification of the grid can alleviate some of the current disparities in overburdened communities.

Emerging Principles—Expediting Environmental Review and Permitting

Rob reviewed comments and suggested edits noted during the previous day’s breakout sessions, compiled and synthesized for today’s discussion. TCWG members shared the following comments about selected draft principles:

Aligning NEPA and SEPA processes

- Members discussed coordinating NEPA and SEPA reviews on a case-by-case basis, or through a more formal process with a MOU.
- Reference to “alignment of methodologies” should include those for analysis and coordination during alternative development.
- Noted that SEPA can adopt a portion of a NEPA analysis if agreed to in advance.
- Noted that it may be beneficial for federal agencies to align NEPA review amongst themselves (e.g., coordinate on which agency will be the lead and follow their NEPA review approach)

Expand EFSEC permit process participation

- Kathleen shared that EFSEC is one of the places that transmission projects can go to for siting, but there are other processes with local government as well. Local government can take leadership on working on a multiple jurisdictional process. Members recommended incorporating language around looking at ways to coordinate multi-jurisdictional projects.
- Members highlighted the intergovernmental agency agreement processes. New legislation is already expanding authorities to address these. In addition, there will be federal projects that will have a federal nexus.
- Would be useful to find replacement verbs for “expand” and “recruit.”

Develop federal and state programmatic agreements to identify possible project category exemptions.

- Need to clarify if the intent of this principle is to exempt complete projects, environmental impacts, or parts of the process. Advanced planning? Pre-approvals?
- Consider rephrasing from “exemptions” to “programmatic permitting.” The outcome should address if there are opportunities to look across processes to find when programmatic permitting may occur.

Pre-screen viable geographic areas for siting transmission.

- Members highlighted the importance of ensuring that overburdened and Tribal communities are involved in the conversations and programmatic agreements.
- Consider using a term such as "least conflict analysis" to be more inclusive of all voices.

- Members raised the point that pre-screening would not be done within a vacuum.

Invest in relationship-building between project applicants and Tribes

- While unsure of whether any Climate Commitment Act (CCA) funds would go to transmission projects, a member noted that the CCA consultation requirement in HB 1753 requires "early, meaningful, and individual consultation with any affected federally recognized tribe." It sets out a pre-application notification process, for tribes as well as DAHP and DFW.

Increase funding to Tribes and DAHP

- A member affirmed the emerging principle and acknowledged the need for additional staff. References to “resources” should specifically name funding for staff.

Approach expediting with the first goal of avoiding cultural resource impacts

- A member shared an example of the importance of avoidance from the Big Eddy Project. A site was damaged during construction and further work was stopped by Yakama Nation. It’s beneficial to everyone to avoid these kinds of situations.

Round Robin

Rob invited members to share final thoughts and questions to close-out the meeting. TCWG members choosing to comment offered the following:

- How do we take these principles and transition them into policy? How do we ensure accountability?
    - We must consider consultation and environmental justice in these processes. Entities that are issuing permits need to have a method to monitor or enforce accountability. Does the agency granting the permit have the power to enforce these considerations?
    - Accountability is critical. There is a need to scrutinize what we are talking about in regard to transmission corridors, rather than applying this to all energy projects.
- Have we addressed the true cost of transmission lines? Various projects create their own disparities. There is a need to understand the impact and mitigate this ahead of time.
    - A member commented that in examining the difference between energy transformation with and without expansion, there was more energy development in the state without expansion in transmission. There is further needed to analyze the effects of not developing a transmission line and the requirements and burdens it would place on the state.
- A member noted that "pre-application" could be used as alternative phrasing to "pre-screening.”

Public Comment

James Thornton provided public comment, sharing his perspective that there is a lack of representation on the TCWG from those with transmission line permitting experience and from private transmission line developers. He also felt discussion was needed around the design and engineering considerations that go into planning and suggested the Bureau of Land Management training provides an overview of these methodologies. The extent of Mr. Thornton’s comments exceeded the allotted time. He was invited to share additional comments via email to the project inbox.

Closing

Rob thanked participants for their time and for sharing their expertise, perspective, and viewpoints in the path towards developing meaningful recommendations to the Legislature.

APPENDIX A: MEMBERS/ALTERNATES IN ATTENDANCE

Affiliation	Member Name	Attendance
Department of Commerce	Glenn Blackmon	Y
UTC	Elizabeth O'Connell Joel Nightingale Ann Rendahl	N Y N
Department of Ecology	Brenden McFarland Diane Butorac	N Y
Department of Fish and Wildlife	Benjamin Blank	N
Department of Natural Resources	Loren Torgerson	Y
Washington State Department of Transportation	Justin Zweifel	Y
Department of Archaeology and Historic Preservation	Allyson Brooks	Y
Military Department	(vacant)	N
Association of WA Cities	Julie Coppock Clint Whitney	Y Y
Association of WA Counties	Kevin Shutty Lindsey Pollock	Y Y
Public Utility Districts	Nicolas Garcia	Y
Sovereign Tribal Governments	Dana Miller Steven Mullen-Moses	Y N
Affected utility industries	Lorna Luebbe Sarah Leverette	N Y
Statewide environmental organizations	Kelly Hall Lauren Goldberg	Y Y
Bonneville Power Administration	Anders Johnson	Y
Front and Centered	Mariel Thuraisingham	Y
U.S. Department of Defense	Steve Chung Kim Peacher	N Y
International Brotherhood of Electrical Workers Union (Labor Rep)	Will Power	Y
Washington State Building and Construction Trades Council (Labor Rep)	Mark Riker	N
Energy Project Developer	Katie Ware	Y
Other (Columbia River Inter-Tribal Fish Commission)	Rob Lothrup	Y