Commenters	Topic	Comment	Response	Study Scope Document References
Fred Heutte (NWEC)	Area Interchange	A serious deficiency in other regional studies has been the artificial limitation of flows across balancing area authorities or zones to their historical limits. This study should not impose any such limitations. As an example, a recent study by WECC shows how rapidly new flows are emerging, in this case on the Pacific AC and DC Interties. As the chart below shows, very little south-to-north flows occurred in the past, as recently as 2020. Yet in 2021, various factors including fuel costs, weather conditions and resource retirements resulted in significant shoulder season flow changes. And by 2032, the study shows substantial south-north flows in all months. These considerations apply not only to California and British Columbia but other areas connecting to the study footprint. Indeed, the study should consider whether upgrades on key paths, for example the long-envisioned upgrade of the PDCI from 3220 to 3820 MW, could be part of the study solutions.	The study assumptions will look to account for future entitlements and expectations of requirements for interchange, but will largely be a regional study. Interregional coordination will be required for a study that looks significantly beyond the internal requirements and will likely be part of future studies and Regional Planning efforts. The study will use the WECC 2032 Anchor Data Set (ADS) as a primary data source for development of the 20-year models. Any path rating changes included in the 2032 ADS will be used in the study. For newly identified WECC Major Path modifications, the WECC Path Rating Process requires detailed studies to identify and confirm ratings. As a result the study may need to estimate future path ratings changes and document the assumptions for those ratings estimates. While interchange capability deficiencies or needs may be identified. The study will not be able to fully account for the feasibility and cost of expanding interregional connections.	Lines 94-98, 146-150
Steve Johnson Fred Heutte (NWEC)	Forecasts: Climate	**SJ**: Perhaps this question has been asked before but for the sake of clarification will the effects of global warming be the business-as-usual case or only a scenario? **FH**: Study should consider incorporating a broad range of weather and climate data.	Load and resource submittals from members should identify climate assumptions and details and basis around those assumptions. Once the bottom up data inputs have been recieved, the study team will hold a stakeholder discussion to provide more of a top down look to consolidate, define and align climate assumptions and note uncertainties.	Lines 37-43 and Lines 101-105
Fred Heutte (NWEC) Henry Tilghman	Forecasts: Loads and Resources	**FH:** we recommend close review of new large loads (commercial and industrial), including data centers and manufacturing, which are already driving load forecasts above recent estimates. **HT:** Recommend that the planners ensure that the underlying assumptions they use for load forecasts and generation additions result in a stressed system for the study year. Such a future study year would consist of high load growth (from electrification of transportation and heating and lack of opportunities for energy efficiency) and higher reliance on location constrained generation resources. A study year with these characteristics will stress the system and idenfity deficiencies more effectively thatn a study year that assumes lower load growth that could be met with distributed energy resources or demand response. Recommend that the team assume higher rates of load growth, lower levels of energy efficiency, lower levels of distributed generation, more location constrained generation resources (with onsite storage), higher natural gas costs, and lower hydro availability than might be predicted by the baseline assumptions for 2042.	The study will rely on the load and resource inputs provided by participants (and neighboring system IRPs). As part of those inputs, the study participants will indicate the assumptions for system stress and probability (1-in-2, 1-in-5, etc.) that make up those projections. Once the bottom up data inputs have been recieved, the study team will hold a stakeholder discussion to provide more of a top down look to consolidate, define and align climate assumptions and note uncertainties. The study may evaluate management of load, including transportation and building electrification, as a potential solution to identified deficiencies or constraints.	Lines 37-43 and Lines 101-105
Steve Johnson	Future Resource Siting	For future resources identified in an IRP that don't specify a location, has the WPP thought of asking the utility to provide a guess? Page 4 of Scope Draft: "The assumed initial case resources will be documented in the Study report. Future resources without specific siting locations in IRPs will be located in the model based on geographic zones and commercial interest reflected in member interconnection queues."	Yes, WPP will request study participants to provide guidance on location and modeling of future resources for the study.	Lines 120-121
Fred Heutte (NWEC)	References	In addition to the study sources mention in Existing Data Analysis, we encourage review and inclusion of the US DOE National Transmission Study (which will have draft results available during the study period), and a variety of available reports on Oregon offshore wind, including those prepared by Pacific Northwest National Lab and the Oregon Department of Energy. Further analyses may well become available during the study period.	The study will aim to identify and discuss where it fits within the larger conversation of long-term studies. This includes awareness about the differences in scope and focus of studies - e.g. National Transmission Planning Study vs. regional focus of this study. We intend to use key insights and information from the other study sources, while maintaining focus on the core goals of this study.	Lines 65-66
Steve Johnson	Repowering	Does the study include repowering of wind projects- only if shown in IRPs or does it make any assumptions about the percent of 30+ year old wind projects being repowered? Honestly, I have not seen very many IPRs that admit existing resources will become obsolete at a certain future date- especially if that date is prior to the end of the depreciation schedule.	Study participants will be responsible for providing inputs for the resource additions, modifications, repowering and retirement for their systems. If constraints are identified due to resource retirements or modifications, solutions may be identified that could include resource replacment/repowering. However, the aim of the study is not to provide a resource plan for any participant, non-participant or state. So solutions will remain regionally focused.	No updates made, see lines 124-127

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Fred Heutte (NWEC)	Resources	A key challenge for 20-year studies is extending the data readily available from 10-year transmission planning studies, including loads, resources and system topology. We encourage taking an open-ended approach that recognizes: • New resources under construction or with active development programs (for customer side resources). • Likely-to-acquire resources that have commitments in RFPs (for near term acquisition). • Resource opportunities identified in Integrated Resource Plans and other studies. It is particularly important in this study not to fall back on weak planning concepts like “fictitious resources.” Because this project is explicitly identified as being informational only, there should be opportunity for sponsors and participants to propose resource buildouts that can optimize the grid value of new resources in conjunction with both existing and new transmission, and also provide the necessary locational and performance data needed for the study’s model stack. We encourage going beyond examination of resources currently entered in transmission provider interconnection queues. The study should, within reasonable bounds, be open to new solutions that access a broad range of development opportunities.	The study team agrees with the open ended approach of evaluating various resource zones and resource changes regionally to serve the 20-year future. The primary data sources will be the participant and neighboring system Integrated Resource Plans. The goal of the study is not to select individual resources or groups of resources based on their status within an IRP, RFP or interconnection queue and this study does not aim to create a regional resource plan. Instead the study aims to identify regional benefits and impacts of resource types and locations on the transmission system performance. The study will seek to use production cost model information to identify scenarios of different resource mixes to consider for reliability impact and overall costs and optimizing the use of new resources in conjunction with both existing and new transmission.	Lines 25-26, 207-209
Fred Heutte (NWEC) Sashwat Roy (RNW)	Solution Evaluation	**FH:** The draft scope addresses new transportation and building electrification loads. We recommend incorporating study cases or sensitivities where these new loads are either managed or unmanaged to ascertain the importance of load management as a central precept of new load sources. A number of new emerging generation and storage resources are now considered possible for development in the study footprint, including offshore wind, hydrogen, advanced nuclear reactors, and others. The study should provide a clearly defined approach to technology assessment including resource maturity level, projected cost, performance validation and other factors. We recommend the project consider existing transmission corridor upgrades, including potential HVAC to HVDC conversions. This will reflect recent advances in HVDC technology and the great difficulty of developing new “greenfield” transmission corridors to provide a wider range of feasible alternatives. In addition to transmission expansion, the study should give attention to both traditional non-wires elements (for example, phase shifters, static Var compensators, etc.) and emerging measures including the broad field of grid-enhancing technologies (GETs) and storage as a transmission asset (SATA). **FH/SR:** Consider the carrying capacity of the system including Grid Enhancing Technologies, demand side response, energy storage, dynamic line ratings, flow control, etc.	As a long term planning horizon study, emerging measures will be considered as possible solutions to identified needs. Where information is available on emerging technologies, the study will look to incorporate those as possible solutions. The study will also note where less certainty is available for those emerging technologies so that those solutions may be considered in more detail in future studies. The study will aim to consider existing transmission corridors when identifying solutions and remain open ended on new technologies that may enhance the capability of those existing paths. Importantly, the aim of the study is not to provide a resource plan for any participant, non-participant or state. So solutions will remain regionally focused.	Lines 189-190, 194-195, 207-209
Fred Heutte (NWEC)	Solutions: Co-optimization	Look at co-optimization of new transmission and new resources. Methods for co-optimizing grid development are still emerging, and this study has the potential to advance that perspective by identifying economic, environmental and reliability grid value metrics that support joint resource and transmission development, rather than treating them separately.	The study intends to identify transmission and resource solution options that co-optimize the development of both at a high level. Future planning may be able to make better use of emerging methods to further optimize these solutions.	Lines 185-186
Fred Heutte (NWEC) General Stakeholder Comments	Study Process	Process and outputs. We recommend additional detail about the study process, particularly whether all stakeholders will be able to fully participate in all technical aspects of study development, and whether comment and review will be included at key points throughout the process. Add a stakeholder workshop in the January-February timeframe once preliminary identification of scenarios and "bottom up" work of developing forecasts has been done. The goal of the workshop will be to solict input and perspectives from a "top down" look to help inform overall direction and value of study.	Additional detail on the study process, workshops and timelines included in revised study scope.	Lines 37-43

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Brian Fritz (PAC)	Transmission - Projects Already in RTP	Projects with a need already identified in a Regional Transmission Plan should be considered in-service in the base case. If any of these RTP projects are not modeled in-service, the reasoning needs to be clearly documented as this raises concerns with the work that has been done in front of various regulators to get recognition and acknowledgement of those projects. The projects have been through and continue to go through analysis to show their need and many if not all support a clean future.	Regional projects with a need already identified in a Regional Transmission Plan and transmission projects already under construction will be considered in-service in the base case as part of the 2042 system topology.	Lines 85-88
Fred Heutte (NWEC)	Transmission - Treatment of Planned and Submitted Projects	As with new resources, we recommend a clear method to identify: • Projects under construction. • Projects that are likely to be built, including those recognized in Integrated Resource Plans and other transmission planning studies. • Conceptual projects that could be considered, especially for the second half of the study period. We strongly encourage the study treat incumbent and independent transmission projects on a comparable basis. It is important not to layer incumbent projects into the study ahead of similarly situated independent projects. The aim should be to identify transmission solutions that achieve the greatest grid value for customers.	Regional projects under construction and with a need already identified in a Regional Transmission Plan will be considered in-service in the base case as part of the 2042 system topology. The study will consider additional transmission and non-transmission projects submitted by participants, along with other solutions not already identified in plans to address system needs that are not already identified in a Regional Transmission Plan. The study does not aim to identify incumbent or non-incumbent transmission solutions but will instead identify any potential transmission solutions without regard to what entities might ultimately be the project sponsor(s).	Lines 85-90