SCRIPT IDEATION

NOTES FROM MEETINGS HELD NOV. 20, AND DEC. 4 AND 11, 2020

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Published Dec. 17, 2020

Version 1.0

CONSOLIDATION

NOTES FROM NOV. 20, 2020 MEETING

Facilitators: Sunny Raheem (technology issues) / Brad Finkbeiner, Kelsey Allen, Tessie Kentner
SCRIPT Members (listed by breakout room number):

1. Bronwen Bastone, Andrew French, Joe Lang, Richard Ross, Mike Wise
2. Mark Crisson, Dennis Florom, Brett Leopold, Greg McAuley, David Mindham
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Q1. What is the most important **benefit** we can achieve by **consolidating** SPP's planning processes?

BREAKOUT 1:

- Narrowing the planning processes down to one improves strategic outcomes.
- Conduct planning in smaller framework, to improve benefit-to-cost (B/C) transparency
- More holistic, less ad hoc, smaller number of comprehensive processes: achieve strategic goals, more transparent B/C, and improved cost allocation
- Potentially creates staffing efficiencies
- Solutions that satisfy multiple needs rather than individual/piecemeal planning
- Achieving actionable results in a timely fashion (SPP currently failing to provide)
- *Via survey: Time cost (resources) and cost benefit transparency*

BREAKOUT 2:

- We have inconsistent results (process timing/interplay) – we can gain equity and fairness
- Speeding up and shortening the process, leading to potential reduction of costs.
- Eliminate risk of overbuilding the transmission system.
- Different studies/processes produce overlapping/unneeded results – we can reduce costs.
- Overall efficiency (solving for overall transmission planning, appropriate cost-causation)
- Appropriate cost allocation of new transmission reflective of cost-causation
    - Address risk associated with assignment of costs that last for the life of asset-40-years
- More effective/optimal (not piecemeal) solutions work together across processes (holistic)
- More buy-in of the results of the overall planning processes

BREAKOUT 3:

- Speed, efficiency and cost
- Save time and money
- Align beneficiaries and costs
- More simple, efficient and timely processes
- Better solutions
- Simplify and reduce possibility of several possible answers.

Q1. What is the most important **benefit** we can achieve by **consolidating** SPP's planning processes?

SURVEY RESPONSES:

- To recognize that all RTOs, not just SPP, suffer from aspects of an identity crisis when developing planning models employed in the planning processes. Shall planning models assure Firm transmission service or demonstrate operationally-observed non-Firm transfers? Shall planning processes upgrade the transmission system to support massive penetrations of renewables where non-Firm injections shut off conventional Firm? At the core of the planning process must be an understanding that the transmission System cannot "do it all" without massive expense and consequences for ratepayers.
- A true consolidation where a single planning optimization across all strategic areas will decrease costs, increase profitability of members, improve reliability, uncover potential pitfalls and contingencies, and streamline a disjointed process.
- Faster processes which translates into labor $ savings and satisfied customers If simplified, you will see increased transparency and less errors
- Cost causer pay by eliminating loop holes in different processes. using common models to determine ultimate needed transmission portfolio that serves all needed services including reliability, economics, GI and TS. The the next step is to identify is each project driven by load/TS/GI and who ultimately benefit. so each project can be associated with the causer i.e. Project A is for GI and TS, Project B is for Reliability/ Project C is for Reliability, GI and TS. and based on the benefits after subtracting direct assignments, cost allocation will be determined as who will pay. The project now at SPP has only one cost allocation method. why can't a project has different cost allocation components based on who is served and benefit from the project. I think consolidation of planning processes can get this to be a fair and effective way of identifying transmission projects needed, then run the analysis as what % of the project is serving reliability for loads/ GI requests/TS requests. so if 20% of the project is helping the ITP process and 80% is helping new GI requests, then that 20% will be allocated based on Highway/Byway. the other 80% will be directly assigned to the GIs.
- The most important benefit is studies that require less time to complete yet provide the appropriate level of accuracy for all parties involved.
- Using common models to determine ultimate transmission portfolio needed is a good idea and it will result in the most optimal transmission which will serve all customers requests which benefits from new transmission. The ultimate transmission portfolio will be useful and beneficial at a varying levels to all transmission "needs" of the ITP, GI and TS. The next step, which will be difficult, is to identify if the new transmission benefits reliability /economics for network loads (ITP) vs the benefits calculated for the GI and TS. Cost allocation can be done using those benefit ratios. So, for an example, if a portfolio cost $100 million and studies showed load reliability/economic benefits are 50% then $50 million of the cost will be allocated based on the highway byway methodology. The other 50% will be allocated to TS and the GI. This can be done on a portfolio basis or on one project at a time. The current planning process at SPP generates projects from each of the processes, ITP, GI and TS, and no one is looking at how much an ITP portfolio benefits network load vs GI or TS. I think consolidation of the planning processes can get this to be a fair and effective way of identifying best transmission projects needed and allocate them based on which type of customer is going to benefit from them.

Q2. What **solutions** should we consider to achieve the greatest benefits from planning **consolidation**?

BREAKOUT 1:

- Can a study be used to provide multiple purposes (outcomes)?
- Timely data gathering (models, assumptions, scope complexity, too many moving parts)
- Use statistical matrix to reduce models (model proxies?)
- Transmission solution preconfirmation?
    - Services are least cost, regional planning is optimized
- Consistent and collaborative varying data sources
- Create a wrapper timeline for consolidating solutions from various tariff solutions.
- *Via survey: data improvements through technology - reduction in the amount of models*

BREAKOUT 2:

- Ask if processes that are used infrequently are still serving a useful purpose?
    - Incorporate infrequently used processes into others
- Reduce number of models to focus on ones we really need for transmission planning:
    - Investigate other regional transmission organization (RTO) modeling practices
- Correct GI and Integrated Transmission Plan (ITP) processes (particularly economic) so energy resource interconnection service (ERIS) units are first to be curtailed when transmission is unavailable
- Understand the economics of upgrades coming out of GI and ITP and impact on each study
    - Are generators willing to pay more if you can demonstrate benefits?
- Combine GI/ transmission services (TS) processes (what is all-in cost from both?)
- Incentivize service customers to participate in regional planning rather than iterative queue.
    - SPP must provide a queue driven process, but what are the incentives to get out?
    - Cost-certainty could be an incentive to developers, customers, load-serving entities.

BREAKOUT 3:

- Reduce number of model sets
- Improve analysis and cost sharing for ITP, GI and TS upgrades
- Sensitivities to determine whether projects are really needed
- Improved operational models/analysis as potential use in planning models
- Assess whether SPP's planning model practices align with market practices/rules
- Does the benefit we get out of running the model warrant the cost and time of doing it
- Coordinate upgrades between ITP, GI and TS
- GI Queue reform
- Pre-study costs for interconnection costs (i.e., minimum interconnection costs) to consider as part of ITP (such as a locational marginal price (LMP) map for interconnection costs)

SURVEY RESPONSES ON NEXT PAGE

Q2. What **solutions** should we consider to achieve the greatest benefits from planning **consolidation**?

SURVEY RESPONSES:

- Extensive transient stability and voltage stability analysis to be performed during annual ITP processes. Increased hurdles to discourage speculative renewable queuing. An auction process to fast-track queued projects that could satisfy shortfall or Resource Plan needs identified during the ITP process. Better coordination and substantiation of M2M economic transfers that neighboring RTOs can agree upon for the purpose of transmission expansion.
- For a true consolidation, a single unified engine to capture, retain, and execute models should be employed. One where collaboration is possible internally to to SPP and with Stakeholders. One that incorporates the PSSE element seamlessly into the economic dispatch and unit commitment, truly captures energy storage, accurately reflects long term expansion decisions on near term operations (day ahead and real time), and incorporates subhourly modeling which is the only way to properly capture renewable resources and storage. A model to match SPP's future vision must also have the flexibility to model challenges of tomorrow.
- Review the entire planning studies process to determine where inefficiencies or bottlenecks exist. Use of value stream mapping or other process improvement should be used to evaluate all processes, data and other inputs involved in the study processes. Additionally, determine if best practices exist with other areas, utilities that could be used.

Q3. What **road blocks** could prevent us from successfully implementing **consolidation** solutions?

BREAKOUT 1:

- Funding differences
- Timing need
- Differences of certainty
- Engineering mindset too focused on detail/analysis vs. larger solutions (view) of outcomes
- Binary mindset
- *Via survey: consensus*

BREAKOUT 2:

- Compliance obligations (tariff/NERC requirements)
- Timelines of different processes
- Customers not obligated to move forward in some processes
- Reiterate timelines, e.g. ITP can't necessarily meet the needs of AQ
- Present processes (ITP & GI) do not take each other into account
- How do you transition to a new consolidated process?
- FERC – creating an equitable cost-sharing approach to consolidated planning processes

BREAKOUT 3:

- Tariff requirements and FERC requirements/restrictions, Tariff interpretation by SPP staff
- Self interests/achieving consensus
- Complexity of combining the three processes
- State or other regulatory requirements

Q3. What **road blocks** could prevent us from successfully implementing **consolidation** solutions?

SURVEY RESPONSES:

- Staffing. Time. Difficulty aligning schedules with neighboring RTOs for effective coordination and collaboration
- Limitation of existing tool suite, namely - modeling tools. Being psychologically (and behaviorally) trapped into the status quo operation or status quo tools. SCRIPT is creating the inertia to change the processes - but the models need to be updated to match the demands of a newly consolidated set of processes.
- Regulatory hurdles and requirements could represent a hurdle but should not be used as a complete stop.
- Speed of the study as it relates to GI requests Certainty of GI requests is very unreliable and can't commit to building transmission when the request is not firm The iterative approach in the GI/TS can cause major headaches if combined with the ITP. If we desire to get to consolidated planning, then you have to bring certainty 9to the level of load level certainty) into the combined process. The GI and TS may have initial iterative runs before entering into the consolidated study.

Q4. What **unintended consequences** of any proposed **consolidation** solution do we want to avoid?

BREAKOUT 1:

- We do not want to increase costs (under "but for" basis)
- Risks of capturing direct-assigned costs and distributing to region (hazard of socializing costs)
- We do not want to (unreasonably) delay provision of services as a result of 'consolidation'
- Regulatory obstacles creating unnecessary impediments
- Avoid increasing risk profile
- *Via survey: have's and have not's - all members need to feel that they have achieved something*

BREAKOUT 2:

- Non-compliance
- Overbuilding transmission system (not concerned about underbuilding)
- Speeding up the process, while maintaining certainty and the outcome of combined processes

BREAKOUT 3:

- Loss of accuracy due to lack of a complete and thorough analysis
- Creating another Z2 situation
- Don't want to go backwards and not align costs from beneficiaries and cost causers

SURVEY RESPONSES ON NEXT PAGE

Q4. What **unintended consequences** of any proposed **consolidation** solution do we want to avoid?

SURVEY RESPONSES:

- Overweighting non-Firm priorities over Firm. Not clearly defining how Firm transmission service shall be represented in the various planning cases.
- Not considering all potential process or tool enhancements as it may feel "additive" rather than "consolidating" - It is important to consider that certain additive approaches would overall have the effect of streamlining and simplifying efforts at SPP.
- Suboptimal transmission solutions Disincentives for load to locate in SPP Disincentives for flexible generation Incentives that do not provide for competitive solutions Solutions that do not adequately consider the future changes Black box solutions that do not provide some level of certainty for generation AND load Solutions that are not faster than our current process
- Adding additional tasks unintentionally. The goal should be simplification but if the consolidation includes new tasks or activities, that will result in new inefficiencies.

SERVICES

NOTES FROM NOV. 20, 2020 MEETING

Facilitators: Brad Finkbeiner, Josh Ross, Steve Purdy
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1. Bronwen Bastone, Andrew French, Joe Lang, Richard Ross, Mike Wise
2. Mark Crisson, Dennis Florom, Brett Leopold, Greg McAuley, David Mindham
3. Tom Christensen, Steve Gaw, Bill Grant, Dennis Grennan, Chris Jones

Q1. What is the most critical challenge with generator interconnection (GI) / transmission services?

BREAKOUT 1:

- Processes are more reactive than strategic.
- Costs assigned based on which process solves first, not necessarily best solution.
- Grid planning and resource planning are alienated processes
- Lack of certainty (need highest of cost certainty)
- Lack of coordination among interregional entities / aggregate facilities study (AFS), etc.
- Inability to distinguish between viable and speculative requests
- Inability of GI customers to pay for upgrades to get connected.
- Not enough load to connect any more generation.

BREAKOUT 2:

- Time involved in Attachment AQ (notification to construct) process. Don't want to lose customers because of time to get service.
- Need multiple out points: GI process off ramps. Drop outs can drive up costs for others.
- People happier with TS process than they used to be. NEDTF solutions may provide benefit.
- GI – expensive upgrades, drop outs, long timelines, recent reforms have yet to benefit.
- Risks associated with new transmission & interconnection cost-allocation
- Non-compliance with Order 2003 directive to provide TS to ERIS units as available – feels like OG&E and SPP see this last point differently. Access to market would be on as-available basis.
- GI timelines/certainty. Hard to know costs until very end: repowering projects can be challenge
- Upgrades built for GI later benefit other entities even though they didn't pay the cost originally.
- Need to still recognize queue priorities if we are changing the process. VOLUME
- Any new process might require a backlog clearing process to be developed

BREAKOUT 3:

- Mechanisms by which transmission costs (ATRR) are recovered
- GI queue backlog & time; too many models = delays; delays = upgrade risk and uncertainty
- GI cost assignment vs. beneficiaries; not in line with other regions
- Both processes are complex and require much expertise to navigate.

Q1. What is the most critical challenge with generator interconnection (GI) / transmission services?

SURVEY RESPONSES:

- Timing and uncertainty of costs High costs
- Length of study that identifies costs that may not be completely accurate due to changes in the queue or withdrawal of transmission service requests.

Q2. What is a **possible solution** to any of the GI and/or transmission **services** challenges?

BREAKOUT 1:

- Regionally fund everything
- Use existing grid: proactively plan and identify low-cost/efficient GI opportunities and areas
- Identify more load serving opportunities
- Add economic analysis to identify more beneficiaries for increased cost sharing
- Massive transmission buildout paid for by the US government
- Improve congestion hedging opportunities / results

BREAKOUT 2:

- MISO uses shared network upgrades for transmission funded by one entity and used by others. Fast track process for GI if you are willing to accept the costs.
- Deliverability zones as discussed in NEDTF – generation to be deliverable to all of SPP. Consolidation and more holistic process can help with this.
- Consolidation would help with Wolf Creek – Blackberry (ITP) and Wolf Creek – Emporia (GI) situation – provides better equity in terms of cost causation

BREAKOUT 3:

- Model reductions, streamlining scenarios.
- Reduce the issues that drive the need for restudies.
- Improve acquisition of upgrade costs, inputs from TOs, 3rd parties
- Find alternate ways to spread transmission costs to all beneficiaries, i.e. generators as well as load-serving entities (LSE) on a capacity and energy basis.
- Reduce the number of ways to request transmission service. Streamline transmission service product offerings to better align with the way the market operates.
- Prioritize improvements that don't require tariff changes.
- Pre-study interconnection costs.
- Min/max interconnection costs.
- Improve certainty of cost recovery for upgrades that may benefit other users.
- Prioritize interconnection requests that have an off-taker contract or regulatory approval.
- For GI, let customer set a limit for costs like aggregate transmission service study (ATSS).

SURVEY RESPONSES:

- Review of all processes to determine where inefficiencies exist.

Q3. What **road blocks** could prevent us from successfully implementing **services** solutions?

BREAKOUT 1:

- Limitations of Open Access (regulatory constrictions, limit competition)
- Uncertainty of GI projects making it to Commercial Operation
- Attitude of, "I have what I need and don't want to pay for any more."
- Fear of "free riding" beneficiaries not paying their share
- Latest cluster study shows billions of dollars of transmission needed to connect more generation. We do not need this generation with our limited export capability.

BREAKOUT 2:

- Potential for cost shifts
- Regulatory risk, must pass muster with FERC by being non-discriminatory

BREAKOUT 3:

- Conflict with FERC or other regulatory body policy.
- Self-interest/failure to achieve consensus.

SURVEY RESPONSES:

- Multiple parties involved or lack of resources could present issues with potential solutions.
- Certainty of requested services in the GI and TS Cost allocation as many requesters in the GI/TS have their goals not to pay for the needed transmission.

Q3. What **unintended consequences** of any of the proposed **services** solutions do we want to avoid?

BREAKOUT 1:

- Building stranded assets (that will not be used)
- Cost Shifting
- Benefits not being realized by SPP cost benefit planning process (oversold the benefits)
- Create unreasonable barriers to entry (stifle competition)

BREAKOUT 2:

- Cost shifting

BREAKOUT 3:

- Risk of reliability compliance from simplified evaluation/study.

SURVEY RESPONSES:

- Suboptimal transmission solutions Disincentives for load to locate in SPP Disincentives for flexible generation Incentives that do not provide for competitive solutions Solutions that do not adequately consider the future changes Black box solutions that do not provide some level of certainty for generation AND load Solutions that are not faster than our current process
- New practices that add complexity to the timeframe of studies should be avoided.

OPTIMIZATION

NOTES FROM DEC. 4, 2020 MEETING

Facilitators: Juliano Freitas, David Kelley, Antoine Lucas
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4. Bronwen Bastone, Andrew French, Joe Lang, Richard Ross, Mike Wise
5. Mark Crisson, Dennis Florom, Brett Leopold, Greg McAuley, David Mindham
6. Tom Christensen, Steve Gaw, Bill Grant, Dennis Grennan, Chris Jones

Q1. What does it mean to **optimize** our transmission system and future expansion efforts?

BREAKOUT 1:

- Maximize use of existing infrastructure/assets;
- Minimize incremental investment where costs cannot be assigned to new load
- Ensure new transmission exceeds the minimum regional B/C ratios; no harm to zones (1.0)
- Best transmission solutions to meet local and regional needs (GI, Economic benefits for load)

BREAKOUT 2:

- Increase (not limiting) ratings of the existing system, making real-time changes, not modeling to limit system capability, and limiting generation at key locations
- Considers all system needs in aggregate and identify the best solutions for the region
- Optimization could find the best results that are produced from SPP's planning processes
- Optimization could be making the most efficient use of existing assets
- SPP's could provide better signals that incentivize behavior that leads to better optimization
- Optimization considers all possible planning options to facilitate the most affordable and beneficial use of the transmission network possible while maintaining reliability

BREAKOUT 3:

- Identify the best combination of solutions to ensure reliability and best benefit/cost ratio.
- Construction cost should not be only factor: modeling, staff time, other admin cost
- Utilizing the system or finding solutions to address needs in the most cost-effective way
- Finding transmission solutions that address needs across economic, reliability and policy
- Consideration of capital budget constraints and prioritize based on value

SURVEY RESPONSES:

- To optimize across least system cost, highest profits, best technology fit, consideration of emission standards, non-power alternatives, and factor in gas and water commodity.
- Increased focus on locational optimization and risks; co-location of controllable load and generation or hybrid resources. Transmission that incents load to locate in SPP

Q2. What currently prevents SPP from **optimizing** existing and planned transmission expansion?

BREAKOUT 1:

- SPP does not control the location of generation resources or new load;
- Current policies may not sufficiently (dis)incentivize/reward (sub-)optimal grid usage

BREAKOUT 2:

- Lack of desire for dynamic line ratings, topology optimization, and modeling in such a way to limit new transmission requirements.
- Individual discrete processes find best solution for a particular need / particular customer
- Allocation of costs and consensus definition of needs for the region
- Cost allocation doesn't provide the appropriate resource planning incentives
- Local planning decisions/processes could create conflicts with regional decisions/processes and overall optimization

BREAKOUT 3:

- I think we may be too detailed in our modeling and looking for every option.
- SPP uses models that do not acknowledge actual usage / way the system is dispatched
- Usage of DLR in practice and seasonal ratings in planning
- Timing needs for solutions of customers
- Cost allocation differences and needs to solve different issues in specific processes

SURVEY RESPONSES:

- SPP does not have the right models to optimize across all the factors listed above. Model technology limitations is one major factor. Processes using siloed models may be another.
- The rule to add back everything for transmission cost purposes could be perceived as a roadblock. If locational optimization can be electrically configured with protection systems to limit use of transmission system (i.e. load never takes real power from the transmission system), then it does not make sense for transmission to be built, or load to pay for transmission it will never use. It is also unclear if storage output will be added back for transmission cost purposes. There may be some instances when add back is appropriate, or some where it is not, depending on who has control over the output and what the purpose of the storage assets would be (load control or market economics).

Q3. How do we enable **optimization** of our system and future expansion?

BREAKOUT 1:

- Let the region pay for congestion
- Use congestion hedges when more cost effective than new transmission
- Align cost causers
- Timelines related to our different planning processes, they are not aligned
- Construction feasibility related to issues to build the project (Environmental permits, etc)

BREAKOUT 2:

- Allow price disparity, have generation come into the footprint naturally to capture high LMPs (which lowers congestion) rather than relying on transmission.
- Potentially lower hurdle rates between SPP and neighboring regions
- Processes could identify "zones" that incentivize optimal siting of generation and/or load
- What modifications can be made to projects that would significantly alter their ability to provide benefits in the future and enable greater optimization
- Related to DM point above, aging infrastructure and targeted planning should be considered in optimizing the grid
- Improved coordination between local and regional planning processes

BREAKOUT 3:

- Adopt DLR and economic outage policies
- Interregional planning that is analysed under the same futures used in regional analysis
- Alternative methods to limit impact of outages / economic coordination of outages
- Evaluation of cost of congestion that is "hedged" but not fixed
- Consider planning for optimized use of the system (capture more details of how the system is actually used in the operational horizon within the planning process)
- Find a way to take time needed to evaluate all issues for comprehensive solutions
- Taking into account all benefits from all planning and service processes is challenged by silos (Can better coordination or consolidation take place?)

SURVEY RESPONSES:

- SPP must consider bringing in economic modeling technology that is leading edge while also vetted and used by the majority of transmission system operators across the world. The current model tool suite SPP uses (and is planning to continue using, as the only beta tester of an unproven new platform) simply cannot get the job done.

Q4. What **road blocks** could prevent us from successfully implementing **optimization** solutions?

BREAKOUT 1:

- Highway/Byway Cost allocation is no longer appropriate or fair for many zones. Following the major buildout of the Priority Projects it is no longer needed or truly applicable.
- Perception of free riders (Merchant generation)
- Timeline to perform studies and generate solutions
- How to accommodate changes in key assumptions to optimize our processes?

BREAKOUT 2:

- Local organizations don't want to share information at times for lots of reasons
- Compliance obligations from members could present conflicting objectives that prevent coordination and optimization
- FERC Order 1000 applies only to ITP currently and not services processes

BREAKOUT 3:

- Logistics and timing of various processes
- Regulatory issues for establishing new and different processes
- Managing complexity and implementation feasibility

SURVEY RESPONSES:

- An internal inertia towards the status quo. A real, but surmountable fear that a new model technology may upend some previously accepted and enacted APC results.
- Cost allocation

Q5. What **unintended consequences** of any proposed **optimization** solution do we want to avoid?

BREAKOUT 1:

- Logistics and timing of various processes
- Regulatory issues for establishing new and different processes
- Managing complexity and implementation feasibility

BREAKOUT 2:

- Attempts to optimize could have unintended consequences to other objectives trying to be accomplished through SCRIPT

BREAKOUT 3:

- Shifts in allocation of transmission costs/management of self interests
- Overly complex process
- Analysis paralysis and waiting for results from other aspects of the planning process

SURVEY RESPONSES:

- Leaving members in the lurch which could come in the form of a) not having the tools/data themselves to vet the optimization or b) bogging down the process by enacting a lot of "streamlining" in process but using the same inappropriate, un-optimal models. The best decisions require the best possible tools to come to those conclusions.
- Stranded Cost of Transmission Please consider confidential and reword if shared: Subsidization of transmission for generation by others that would otherwise render the generation uneconomic (safe harbor, siting of generation in transmission planning) or skew the siting of generation in a suboptimal location. There is certainly a chicken and egg issue with building transmission prior to generation or vice versa but locational risk should be better considered in the economic transmission planning process.

TRANSFERS

NOTES FROM DEC. 4, 2020 MEETING

Facilitators: Casey Cathey, Amber Greb, Clint Savoy
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4. Bronwen Bastone, Andrew French, Joe Lang, Richard Ross, Mike Wise
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Q1. What is the **potential value** of increased interregional **transfers**?

BREAKOUT 1:

- Beneficial electrification – more load to spread grid costs over
- Economic development in most SPP states: Expand/open new markets for renewable resources, which are key industries in throughout our region
- Value could be great for zones on the eastern side; negative for zones on the west.
- Potentially serve a market that is east of SPP
- Access to an economical natural resource
- Value is not necessarily SPP, but to the nation as a whole

BREAKOUT 2:

- Ability to sell energy outside of SPP, particularly high-capacity renewable energy
- Fuel and geographic diversity; loads/resources in different time zones and weather
- Economic (development): may not develop additional renewables without a new market
- Operational/reliability: market signals that encourage transfers could reduce length of events
- Environmental benefits, capital reduction benefits
- *Question*: If we had increased transfers, would it reduce transmission expansion in the future?
    - *A*: Probably not, reducing a hurdle to transfers could lead to more expansion
- *Q:* Could we include a future in the ITP to adjust hurdle rates and find the answer?
    - *A:* Reduced hurdle rate = more exports. Yes, this is proposed for the 20-year assesment
- Increased likelihood of inter-regional planning
- More transfers could lead to more services altogether

BREAKOUT 3:

- Expansion of market, better utilization of assets, drive down cost/MWH for SPP members.
- Increased generation sales revenue, more cost-effective gen during shortage (capacity sharing), increased reliability, improved solutions, meet demand for clean energy, benefit ratepayers
- Co-optimization, least-cost dispatch between multiple regions
- Better access to storage during times of excess generation
- Additional point-to-point revenues for exports decrease transmission costs for network loads
- More effective use of renewables across a larger east/west area

Q2. What is **limiting** or **preventing** interregional **transfers** from happening today?

BREAKOUT 1:

- Lack of demand
- Seams issues (pancaking, engineering difficulties, no policy on "export pricing," etc.)
- Transmission cost allocation
- Inability to get a congestion hedge
- MISO not seeing similar benefits that SPP sees

BREAKOUT 2:

- Lack of market of entities that desire wind (primarily) from outside their footprint.
- Lack of HV transmission to export/import, Building transmission is costly. Difficult to find volunteers to build, to distribute the benefit to cost payers; hard to justify socialized expense.
- Transmission connections and need for additional coordination between markets.
- Potential lack of consensus that transfers are sufficiently beneficial for all in the region.

BREAKOUT 3:

- Political and physical barriers, but not sure which is greater.
- Discussions with MISO have progressed; West limited by AC/DC/AC conversion facilities.
- Rate pancaking (tx revenue vs. gen revenue) and insufficient congestion hedges
- Seams issues noted in MMU and IMM reports
- Modeling, assumptions and planning used for seams needs in interregional planning
- Different cost allocation methods, benefit metrics between regions
- Does the generation or load pay for the transmission to enable the transfers?

SURVEY RESPONSES:

- Cost to build out the transmission system to the point of export and the cost allocation thereof.

Q3. How can we **incentivize** or **facilitate** increased capability for interregional **transfers**?

BREAKOUT 1:

- Use Balanced Portfolio for future inter-zonal transmission projects. Zones who benefit ensure those zones who have negative benefits are made whole. This is a win-win proposition.
- Shall we model exports to further simulate interregional transfers?
- Federal transmission renewable expansion equity supplements proposal
- Provide a mechanism such that export purchasers, where they are guaranteed a congestion hedge, they would be more willing to buy it.
- Merchant lines paid by federal government or a different set of customers
- Potential forums for customers across regions, with RTO facilitation/presence

BREAKOUT 2:

- Reduce the hurdle rate (Market friction/transaction costs) would make better optimized use of the facilities along the seams
- Evaluate and promote the usage where we do have the capability
- Eliminate rate pancaking across multiple RTOs (similar to what MISO and PJM do for interregional transfers)

- Better alignment in our future assumptions with our neighbors

BREAKOUT 3:

- Make it easy to connect/co-optimize the market dispatches
- Better coordination between the markets; alignment of LMPs at the border
- Resolve rate pancaking (tx revenue vs. gen revenue) and insufficient congestion hedges; Seams issues noted in MMU and IMM reports
- Improve interregional planning
- Reduce hurdles

Q4. What **road blocks** could prevent us from successfully implementing **services** solutions?

BREAKOUT 1:

- We can regionally build, but getting the transmission built outside of SPP is a roadblock
- MISO doesn't need our energy, but there is demand further east
- Multiple tariffs need to be modified
- Lack of awareness. Other entities may not have access to the awareness of the benefit. A consortium could be formed to help access low cost renewables, while facilitated via SPP processes.
- There is a notion within local areas in the east that renewables should be built locally. Offshore wind is a good example.
- Politics

BREAKOUT 2:

- Loss of revenue
- Differing utility/state/political interests, others may not want it.
- Software
- Wide-based consensus on cost-allocation, are the beneficiaries paying commensurate costs?
- Congestion hedging is a barrier to exports

BREAKOUT 3: No responses

Q5. What **unintended consequences** of any of the proposed **transfer** solutions do we want to avoid?

BREAKOUT 1:

- A successful federal overlay or similar plan, after regional plans go further with interregional transmission upgrades, may lead to suboptimal overall transmission build

BREAKOUT 2:

- Potential that increased transfers don't provide the benefits expected

BREAKOUT 3: No responses

SURVEY RESPONSES:

- If assumptions and drivers are not aligned with other markets, it could result in transmission that does not realize the projected benefits. For example, you would want to avoid a high wind scenario in SPP and low wind scenario in MISO or vice versa.

COST-SHARING

NOTES FROM DEC. 11, 2020 MEETING

Facilitators: Charles Locke, Amber Greb, Don Frerking
SCRIPT Members (listed by breakout room number):

7. Bronwen Bastone, Andrew French, Joe Lang, Richard Ross, Mike Wise
8. Mark Crisson, Dennis Florom, Brett Leopold, Greg McAuley, David Mindham
9. Tom Christensen, Steve Gaw, Bill Grant, Dennis Grennan, Chris Jones

Q1. What current processes or policies result in **inappropriate cost-sharing** among entities in SPP?

BREAKOUT 1:

- Highway/byway may not be most appropriate cost allocation for projects in future (economic)
- Beneficiaries may vary depending on geographic location. Also, free-ridership issue.
- Cost allocation dependency on which process/plan addresses the issue first.
- Is "inappropriate" the most accurate term? Too strong? (equity, economic, legal issues)

BREAKOUT 2:

- Lower voltage upgrades in gen-rich zones allocated inappropriately (for exports, not reliability)
- Cost allocation comes from the process that leads to the project (race to the finish)
- GI process, cluster studies result in substantial upgrades, cost allocated to gen. Gens feel they should be regional projects. Drop out of the studies due to the cost allocation misalignment
- Load is paying for most transmission upgrades. Should be spread among other participants
- Cost-allocation is not closely aligned with quantitative benefits (benefits not well defined)
- Seams projects – each RTO chooses own cost allocation, with differences in the models
- Multiple transmission owners in same zone cost-sharing a project: how is that allocated?

BREAKOUT 3:

- LSEs generally pay the cost for transmission system upgrades. Gen owners benefit from the transmission system but don't necessarily share an appropriate piece of the cost
- Cost causer concept does not take into account all beneficiaries (GI process focus)
  Lack of certainty re: cost recovery from GI upgrades through the ILTCR process
- Upgrade construction with more capacity than is needed = free riders
- Mostly allocated to load, may incent undesired behavior. Consider injection/extraction rates?
- As footprint expands is highway/byway still appropriate?

SURVEY RESPONSES:

- Not so much a process or policy but the disconnect between a "but-for" standard in the interconnection and service queues versus a "be compliant" standard for integrated planning

Q2. What currently **prevents** SPP from improving **cost-sharing** policies?

BREAKOUT 1:

- Lack of flexibility in planning processes and criteria
- Zero-sum outcomes in cost allocation
- Adding complications in an already complex tariff. Fear of what cannot be known or quantified
- Lack of knowledge regarding current cost allocation tools (e.g., Bal. Port.)
- Industry and SPP are both in a major state of flux
- Current major changes: resource fleet mix, public opinions/policies, aging infrastructure, etc.

BREAKOUT 2:

- No one wants to pay
- Concerns with cost shifts
- Free riders. Gens may be more willing to pay if they have more control over capacity outputs
- Transmission hedging might be an issue: no way to maintain capacity as in indep. gen
- Low hanging fruit is gone, as you try to capture margin, may be less confident in the benefits
- Regulatory process,
- SPP has progressive base plan funding
- Legacy. Also, we may over complicate the process
- FERC principles of costs allocation, we must comply with the 6 rules. Cost causation and beneficiary pays – two rules, but are not always in line with each other
- Incentive to reduce load over the peak – goes to the 4CP, 12CP, and energy cost allocation
- If we go with a more analytical approach maybe based on one set of models, how do we handle significant changes in assumptions/forecasts over time?

BREAKOUT 3:

- SPP appears to be working toward improved cost sharing (HITT items). Self interest can be a barrier to making cost sharing changes.
- Self-interests, incomplete assessment of costs, differing allocation in various planning processes, stakeholder understanding, no one wants to pay, different local policies
- Design of the cost allocation (upgrade by upgrade vs holistic), complexity vs "correctness"
- Tariff arbitrage (ripe for gaming), tariff doesn't incent anything but ERIS, project identification process drives cost allocation, fuel clause concerns (FERC & State)

SURVEY RESPONSES:

- Tradition coupled with distrust of other stakeholder sectors? To resolve the cost-sharing we need to break from the causer/beneficiary tension: causers are beneficiaries, usually the primary beneficiary, and think in terms of relative benefits for each party.
- Certain aspects of the ITP, GI, Transmission Aggregate Study, and Zonal uplift processes. The GI process is protracted because non-LSE do not want to commit to projects needed for service and wait for ITP projects to be built that are paid for by others. Additionally, the transmission service process allows ERIS service to access the SPP network at minimal cost which drives cost-allocation issues. Tendency to have agreement on problems but solution selection based on who pays may result in not effective answers to the problem or not solving the problem at all.

Q3. What new processes or policies could **improve cost-sharing** among those using the SPP transmission system?

BREAKOUT 1:

- Goal to achieve roughly commensurate (FERC standard) results
- Additional focus/efforts to identify beneficiaries
- Consolidation of planning to better identify causers and beneficiaries
- Understanding what a cost-causer is.
- Expanded planning/cost allocation sub-regions or Nat'l funding
- MISO/SPP joint planning process (not current processes)
- Postage stamp across multiple RTOs
- HITT C2 has developed a waiver process that may help with lower voltage upgrades in gen-rich zones allocated inappropriately (for exports, not reliability)

BREAKOUT 2:

- After the fact true-up of costs and benefits would be helpful
- Moving to a more analytical approach
- Encourage voluntary transmission investment.
- Make use of the system more transparent
- Looking at alternative benefits across different studies. We carve out non-firm in the ITP, but if we include those benefits, we could look at cost sharing between service cust and LSEsA

BREAKOUT 3:

- Could a "beneficiaries pay" model (similar to highway-byway)
- Sync up models to avoid different results from different processes
- Combine cost sharing across different processes
- Combine/simplify planning processes and resulting cost sharing
- Sync up reliability models and ITP models
- Sync up historical/operational models with planning models
- Make sure to include benefits in cost sharing policies

SURVEY RESPONSES:

- Rethink rate structure, translate that into revised queue and planning processes
- SPP needs to develop better cost-sharing techniques where costs are better aligned with entities that benefit. How do we know if the benefit calculated are accurate? How do we hold SPP to the accuracy of their benefit calculations going forward? The highway byway does not consider each zonal benefit when assigning a project cost to load. It only looks at all SPP benefits to justify projects.

Q4. What **road blocks** could prevent us from successfully implementing **cost-sharing** solutions?

BREAKOUT 1:

- Fear of zero-sum outcomes
- Cost fatigue
- Not recognizing all benefits
- Complexity of rates and cost allocations

BREAKOUT 2: No responses during meeting.

BREAKOUT 3:

- Regulatory challenges (FERC & State)
- Self interests

SURVEY RESPONSES:

- Lack of faith that over a whole portfolio, the costs and benefits balance out. At the same time, understanding that transmission is driven by where generation and load locate, and all of that has changed since HWBW was developed.
- Parochial interest may come in the way of implementing effective and fair cost allocations. Lack of accountability on timing and deliverability. There is a need to develop a better process to accommodate fair cost allocation.

Q5. What **unintended consequences** of any proposed **cost-sharing** solution do we want to avoid?

BREAKOUT 1:

- Free ridership outcomes
- Not having the beneficiaries pay
- Having some beneficiaries pay more than benefit
- Pricing some parties out because of too much cost allocated
- Over-complexity of allocation structure and rates
- What about losses?

BREAKOUT 2: No responses during meeting.

BREAKOUT 3:

- Changes in cost sharing result in cost shifts
- Cost sharing design changes may lead costs showing up elsewhere (e.g. injection rates may result in future pass-throughs in PPAs, etc.)

SURVEY RESPONSES:

- We want to avoid the problems we see in western Kansas -- transmission rates going up while energy costs have flatlined and even started to increase.

DECISION QUALITY

NOTES FROM DEC. 4, 2020 MEETING

Facilitators: Casey Cathey, Amber Greb, Steve Purdy
SCRIPT Members (listed by breakout room number):

7. Bronwen Bastone, Andrew French, Joe Lang, Richard Ross, Mike Wise
8. Mark Crisson, Dennis Florom, Brett Leopold, Greg McAuley, David Mindham
9. Tom Christensen, Steve Gaw, Bill Grant, Dennis Grennan, Chris Jones

Q1. What does it mean to have **high decision quality** for investments in transmission?

BREAKOUT 1:

- A result in which final decision makers have the lowest possible probability of regret. Data driven analysis to exhaust alternatives and ensure risk profiles are as accurate as possible.
- A decision that meets the objectives under a variety of sensitivities/conditions

BREAKOUT 2:

- Good data. "Data Data Data. You cannot make bricks without clay." - Sherlock Holmes
- Good data, but in a timely manner
- Consensus. Strong return on investment (multiple types of return: economic, reliability)
- Low probability of regret
- Asset management, better understanding of local plans
- High degree of confidence that the resulting transmission system will be used and useful
- Flexibility, adaptable to multiple futures
- Increased credibility

BREAKOUT 3:

- It optimizes the transmission value in terms of costs and revenues.
- Decisions should take into account the broad array of needs: transmission upgrades that benefit load/gen, reliability projects with econ. benefits, etc. Decisions based on robust, consolidated analysis of plausible scenarios/needs across GI, ITP, TS and AQ.
- Want a good expected value; probability function; minimize probability of regrets
- Having a design that is flexible enough to address a variety of things; optimize what we know and what we don't but can plausibly anticipate.
- Model inputs are based on the best information and have a high degree of probability.
- The best solution results without increasing the amount of money required to get connected

SURVEY RESPONSES:

- Under a wide range of possible scenarios, including variability in factors driving the transmission investment, the project still provides net benefit to the system.

Q2. What currently **prevents** SPP from making higher quality decisions about transmission investment?

BREAKOUT 1:

- Not having a defined decision quality process
- Conflicting interests
- Self interest focus vs overall benefit
- Changing industry. Energy industry is changing rapidly.
- Energy policy changing rapidly.
- Technology changing rapidly
- Reluctance in embracing technology changes
- The overall end goal of the industry is gray or uncertain.
- Government and FERC mandates or requirements
- Data changes faster than transmission can be built; leads to reluctance in decision making

BREAKOUT 2:

- We could end up with studies that run on forever if we always look for the best possible data
- Stakeholders are trying to drive (or avoid) a specific outcome with the inputs
- More time spent on less impactful parts of the process; less time for the decision making parts

BREAKOUT 3:

- Uncertainty of future events and overall complexity of the transmission system make it difficult to ensure all decision are high quality decisions.
- Silo-ing of various planning processes
- Economic and reliability assessments inconsistent with how the market functions
- Challenges with interregional planning
- Interregional planning syncing up with internal planning processes
- Least-cost solutions vs optimal solutions are at variance
- Adequate problem/goal framing

SURVEY RESPONSES:

- Assumptions in each future are locked. We need to note which assumptions impact the final benefit calculation and develop a range of benefits based on variability in those assumptions. (think "tornado chart). Then we approve projects that skew beneficial rather than show break even or better at one specific set of assumptions. Next, understand that not every zone benefits from a project or portfolio equally, then adjust the cost-allocation accordingly.
- Too many studies conducted at the same time. Economic study outputs on yearly basis are not helpful and comes at a cost of not making high quality decisions on future economic projects. Run reliability on yearly basis, but economic studies take longer to derive appropriate effective economic projects.

Q3. What new policies or processes could **improve** transmission investment **decision quality**?

BREAKOUT 1:

- Not having a defined decision quality process
- Conflicting interests
- Self interest focus vs overall benefit
- Changing industry. Energy industry is changing rapidly.
- Energy policy changing rapidly.
- Technology changing rapidly
- Reluctance in embracing technology changes
- The overall end goal of the industry is gray or uncertain.
- Government and FERC mandates or requirements
- Data changes faster than transmission can be built; leads to reluctance in decision making

BREAKOUT 2:

- Better engagement from the local planning groups and data sharing
- Better information about probabilities of future scenarios (probabilistic planning)
- Probabilities in general (risk based planning). Understanding the duration of issues and if we need improvements
- Sensitivities driving project decisions, rather than informational
- Improved coordination with our neighbors

BREAKOUT 3:

- Can we optimize GI and ITP studies to identify jointly beneficial processes?
- More consistent approach to costs that avoid tendency to stick them in one category
- Improve / align timing of different processes that result in transmission upgrades
- Assess more futures
- Use top-down planning that ensures the most net-beneficial designs are approved
- Use a structured process to arrive at decisions (framing, alternatives, relevant info, etc.)

SURVEY RESPONSES:

- See the previous answer discussing the "tornado chart." Also, if we could redesign rate structure to take the "transmission guessing" out of the queue, we could drop the "but for" projects hitting the plan and focus on a good plan for the system.

Q4. What **road blocks** could prevent us from successfully implementing **decision quality** solutions?

BREAKOUT 1:

- Lack of knowledge of what DQ is
- Great is an enemy of good
- Increase resource/time needs
- Applying DQ appropriately

BREAKOUT 2:

- Probabilistic planning – cost and time has been a road block. Significant undertaking.
- Other RTOs do a lot of contracting to determine data inputs, could be cost prohibitive
- If they were provided by an external contractor, it might help with consensus
- Perceived difference in individual company motivation. Some benefit from transmission, other don't, or don't believe they do.
- Some companies may not want to see more decision quality because of the unintended consequences
- Flexibility in the schedule, currently very lean and ridged. Takes away from decision making time. (ITP specifically, overlapping studies)

BREAKOUT 3:

- Tariff is limiting
- FERC policy may be limiting
- NERC compliance may be limiting
- Continually re-visiting past decisions; continually questioning cost allocation
- Coordination of different planning regimes and figuring out how to make decisions across those given the time constraints

SURVEY RESPONSES:

- General fear that the other stakeholders aren't paying their fair share.

Q5. What **unintended consequences** of proposed **decision quality** solutions do we want to avoid?

BREAKOUT 1:

- Paralysis
- Concerns of unknowns overwhelming the best answer
- Applying DQ to too many decisions inappropriately

BREAKOUT 2:

- Lack of buy-in/consensus on the assigned probabilities
- Inefficiencies brought by additional data, ensure you have an efficient methodology to process the data
- May have fewer members driving the process as it gets more complicated. Fewer members who understand and engage. Currently less than 50% drive the process, and that could become smaller. Could also be due to a limited number of resources from member companies.
- More meetings!!!!

BREAKOUT 3:

- Unintended cost shifts; willingness to pay more for an optimized solution
- Combination of processes may lengthen the time to get an answer
- Perfect the enemy of the good? attempt to get an optimized solution may result in delays that are not worth the value of the optimization

SURVEY RESPONSES:

- We want to avoid subsidizing bad decisions on the part of stakeholders.