MSP Broad Review Work Group Update

Public Utility Commission of Oregon

October 31, 2017

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Principles for Development of New Method

- PacifiCorp’s allocation proposal is designed to address the following principles:
  - Create a long-term, durable solution
  - Follow cost-causation principles
  - Minimize rate impacts at time of implementation
  - Increase states’ policy and resource decision autonomy
  - Maintain the benefits of system-wide economic dispatch
  - Ensure reasonable opportunity for Company to recover its costs

Overview of the CLEAR Proposal

- The Company's Coal Life Evaluation Allocation and Realignment (CLEAR) proposal includes:
  - Realignment of coal units
  - Fixing allocations for the remainder of existing generation fleet
    - Fixed Allocations based on current System Generation allocation factors
    - Allow for the potential to 'trade' some of the assets between states
  - Resource subscription for new generation
  - Transmission allocated among states; options for transmission are still being discussed
  - Proposal to allocate net power costs (NPC) to states' diverged portfolios using a nodal approach

Challenges to 2017 Protocol

- PacifiCorp is faced with the following challenges to maintaining the current cost allocation methodology: State policies that result in specific resource decisions that may or may not align with system preferred portfolio.
  - State policies that affect utility load such as Net Energy Metering (NEM) policy, retail choice, demand side management (DSM) expenditures, etc.
  - State qualifying facilities (QF) policies that differ among states.
  - Possibility that federal action or inaction on climate may prompt Pacific Power and Rocky Mountain Power states' policy to further diverge.
- Dynamic system allocation not practical when state policies have greater effect on load changes and associated cost shifts than endogenous growth.

Realignment of Coal Units

- All 24 coal units realigned so that states seeking early divestment of coal may target all their depreciation expense on a small number of units assigned exclusively to them.
  - As an example, rather than being responsible for 25% of the costs of 24 units, Oregon would be responsible for 100% of 6 units.
  - Identification of which units to realign to which states will be based on factors such as retirement dates, costs, risks, etc.
  - Plants identified for early retirement due to compliance obligations have yet to be factored into depreciation rates, i.e. rates today do not reflect the cost of early retirement associated with multiple units.
- By directing Oregon's – and potentially other states' – depreciation reserve specifically to those plants, their expedited divestment of coal may shield customers from rate increases.
- Oregon's divestment of coal in rates could be less abstract, as it would be associated with the closure of specific coal units with quantifiable emissions profiles.

Fixing of Allocations for Generation Resources

- Dynamic allocation of costs was designed to address endogenous growth across the system, and is no longer a good fit when endogenous growth is no longer the main driver amongst states.
- State policies may also impact decisions on future new resource types and timing.
- In addition to coal unit realignment and the fixing of those allocations, allocations of the remainder of the legacy fleet (gas, hydro, wind, etc.) would be fixed based on an agreed upon method, e.g. an average of three historical years and three forecast years.
  - The MSP participants are also discussing other possible allocation or ‘trade’ scenarios.
- Fixing factors will allow states to adopt their preferred policies without inappropriately pushing costs to other states. Absent the proposed change, divergence among states in the following areas has the potential to shift costs more significantly in coming years:
  - Treatment of retail choice
  - Treatment of qualifying facilities
  - Private generation policies, e.g. net metering
  - Carbon policy and RPS requirements

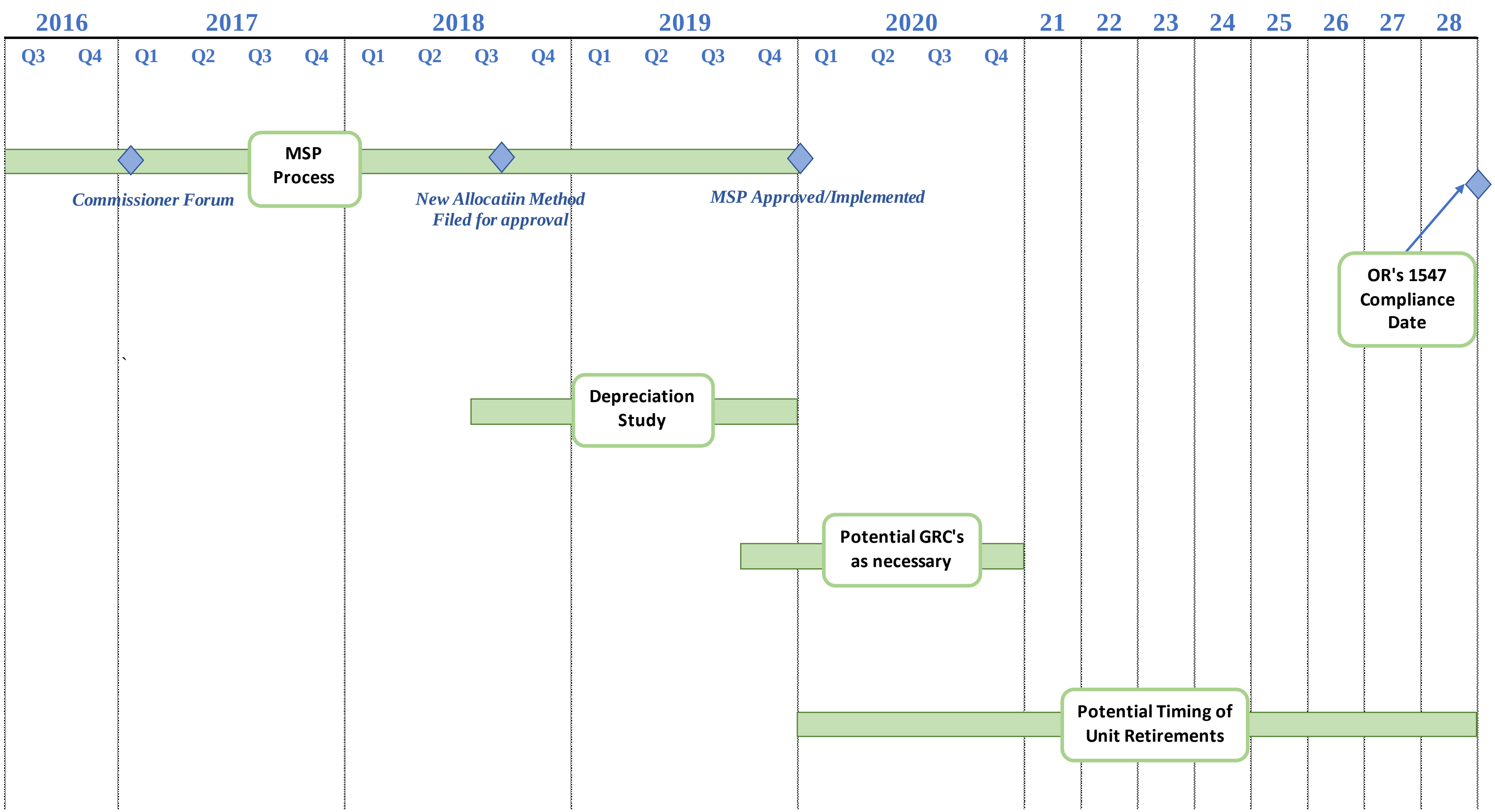
“Subscription” of Future Resources

- PacifiCorp continues to plan on a least-cost, least-risk system basis.
- States select preferred resource, which may not be the least-cost, least-risk system resource identified by PacifiCorp’s long-term resource plan.
- States will pursue resources, including DSM and interruptible contracts, based on their state policies, and resource decisions will be subscribed and binding at subscribed levels.
- Resource decisions would be binding, as they would be pursued to satisfy a state’s specific needs or preferences.
- Because regulatory treatments of QFs vary among states *(e.g. two-year contracts vs. twenty-year contracts)*, new QFs would be treated as subscribed resources and be situs assigned to the state responsible for their approval.

System Dispatch & State-Specific Net Power Cost Valuation

- Going forward, states' portfolios will be fixed and quantifiable, including:
  - Fixed "slices" of the non-coal and coal legacy fleet, including existing QFs; and
  - Subscribed resources.
- The Company has proposed a model to fairly allocate NPC based on the costs and benefits that result from states choosing what resources serve their load, while at the same time preserving the benefit of dispatching all PacifiCorp's resources on a least-cost system basis.
- The Company proposes to use a dispatch engine to optimize day-ahead resources and create transparent nodal pricing to enable precise interstate NPC tracking.
- PacifiCorp would prepare resource bids, ancillary service bids and schedules on a day-ahead basis, and an independent, third-party, dispatch engine would then run a security constrained dispatch solution and generate day-ahead advisory schedules and locational marginal prices for PacifiCorp generators, interties and defined state loads.
- The dispatch solution, including EIM, would determine states' net power costs based on each state's unique resource portfolio.

Anticipated Timeline



Next Steps/Scheduled Meetings

- The following discussions are planned for upcoming meetings:
  - Follow-up on dispatch model discussion
  - Review of potential legislative or administrative changes required
  - Update on options for allocation of transmission
  - Update on options for allocation of Class 1 DSM and special contracts
  - Updated net revenue requirement valuations for all plants
  - Updated proposal: fixed allocations, realignment, asset trades
- The following meetings have been scheduled:
  - Salt Lake City, November 16-17
  - Las Vegas, December 12-13
  - Portland, January 25-26
    - Broad Review Work Group, January 25
    - Commissioner Forum, January 26

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Appendix

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BRWG Meeting – December 2016

- Discussed energy policy issues precipitating need for comprehensive changes to allocation approach.
- Discussed how states' portfolios had begun to diverge, but allocation method had not kept up with that reality.
- Reviewed results of Structural Separation Analysis
- Outlined proposed timeline for instituting the "Coal Life Evaluation, Allocation & Realignment" (CLEAR) plan.
- Provided overview of key elements of the plan including:
  - Coal unit realignment;
  - Fixed allocations;
  - Equalization adjustment; and
  - Subscription of resources.
- Discussed benefits of the CLEAR plan.
- Identified other issues yet to be explored.

Commissioner Forum – January 2017

- The presentation provided to Commissioners in January was a slightly revised version of what was covered with the BRWG a month prior.
  - Discussed energy policy issues precipitating need for comprehensive changes to allocation approach.
  - Reviewed results of Structural Separation Analysis
  - Outlined proposed timeline for instituting the “Coal Life Evaluation, Allocation & Realignment” (CLEAR) plan.
- Discussed the need for a one-year extension of the 2017 Protocol, an option which the Protocol contemplated.

BRWG Meeting – February 2017

- Discussed Company's plan to file for extensions of the 2017 Protocol in all states that were party to it.
- Recapped principles governing the development of the CLEAR plan proposal (e.g. states' autonomy, following cost-causation principles, maintaining system benefits of economic dispatch, etc.).
- Discussed process for BRWG meetings in the coming 12 months, given the timeline discussed in previous meetings.
- Discussed key allocation issues (transmission, NPC, QFs, resource planning, policy-driven load changes, etc.), characterizing current status vs. proposal, as well as other potential alternatives.

BRWG Meeting – March 2017

- Follow-up reporting from the Company on the following issues:
  - Historical and forecast loads and factors
  - Transmission allocation
  - Historical net power costs
  - QF contract information

- Discussion of a “flash-cut” alternative to the original equalization adjustment approach, and how we might address any value shifts precipitated by such an approach.
  - Discussion of other factors that could lead to a value shift, e.g. regarding fixing of factors, revenue requirement, ancillary services, etc.
  - Discussion of approach to asset valuation by which value shifts associated with realignment may be judged.

- Discussion of future meeting topics, particularly the order in which the Company proposed to address key issues such as planning, dispatch, transmission allocation, etc.

BRWG Meeting – May 2017

- Provided updates on status of all filings on Protocol extension; status on the California Order Initiating Investigation (OII).

- Provided follow-up on various parties' requests on items such as: historical vs. forecasted loads; review of SE factor actuals vs. Business Plans; CP data informing the SG factor; more detail on existing QFs; transmission line losses' affect on factors; EIM implementation costs, etc.

- Much of the meeting focused on the "flash cut" alternative, and how we might replace the NPV of the originally proposed Equalization Adjustment through trading of additional assets, e.g. wind or hydro.
  - Detailed presentation on the "Net Revenue Requirement" mode of valuation, and how the Company developed it – assumptions, data, etc.
  - Illustrative valuations of coal , hydro and wind units provided.

- Discussion of value shifts in addition to that associated simply with revenue requirement could occur, and how they may be addressed.

BRWG Meeting – June 2017

- Provided status updates on all related state proceedings or investigations.
- Provided follow-up materials addressing parties' requests on items such as: QF pricing; avoided cost methodologies/procedures by state; comparison of retail vs. transmission peak; Black Cap situs allocation; unit participation in EIM, etc.
- Followed up on May net revenue requirement valuation work with a detailed review of valuation sensitivities. Included were sensitivities in the following areas: load forecast; capital and O&M; market prices.
- Discussion on a variety of qualitative risks associated with resource realignment and fixed allocations, including: load forecast; decommissioning; "single shaft" risk; asset lives; hydro relicensing; tax law; environmental law; state policies; market prices, etc.
- Discussion on options for transmission allocations under the Company's proposal.
- Discussion on alternative approaches to decommissioning costs post-realignment.

BRWG Meeting – July 2017

- Provided status updates on all related state proceedings or investigations.
- Provided follow-up materials addressing parties' requests on items such as: depreciable lives; retail vs. transmission peak; jurisdictional impact of load loss with dynamic vs. fixed factors; etc.
- Continued the discussions on qualitative risk begun in the May meeting; also continued the discussions on decommissioning and asset retirement obligation (ARO).
- Discussed coal-risk shift, which is the shift of potential compliance risk that occurs when realignment shifts coal unit assignments.
- Provided and discussed additional modeling of the effect of various elements of the CLEAR proposal (fixed factors, realignment, new ST factor, etc.) on states' revenue requirements.
    - Then reviewed how eight different sensitivities (e.g. Low Gas/Low CO_2, Med Gas/Med CO_2, Early Retirement, etc.) affected those base case impacts on revenue requirement.

BRWG Meeting – October 2017

- The follow-up items from July were addressed in September call with the BRWG, rather than in the October meeting. That call addressed the following areas: ARO requirements by plant; additional load loss impact analysis; coal plant removal in rates vs. latest estimates; information on wind generation; options for fixing of allocations, e.g. using 2019 Factor vs. using 2 Year Historical/2 Year Forecast, etc.

- Provided status updates on all related state proceedings or investigations.

- The Company's Energy Supply Management team provided an overview of the Company's tentative proposal for system dispatch and state-specific NPC accounting. Proposal includes nodal, locational marginal pricing and a third-party dispatch engine that would more efficiently dispatch the system, and allocate NPC values in a way that ensure states receive all costs and benefits associated with their unique portfolios.

- The Company's Integrated Resource Planning team provided an overview of key considerations for system planning in the context of the CLEAR proposal, and solicited input from parties on next steps.

Scheduled Meetings

- Salt Lake City, November 16-17
  - Update on dispatch model
  - Review of legislative or administrative changes required
  - Update on options for allocation of transmission
  - Class 1 DSM, special contracts
- Las Vegas, December 12-13
  - Update on dispatch model
  - Updated net revenue requirement valuations, all plants
  - Updated proposal: fixed allocations, realignment, asset trades
  - Plan for Commissioner Forum
- Portland, January 25-26
  - Broad Review Work Group, Jan. 25; Agenda TBD
  - Commissioner Forum, Jan. 26; Agenda TBD

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