

## CHAPTER 13 RESPONSES TO MPSC COMMENTS ON 2013 PLAN

### **Commission 2013 Plan Comments**

NorthWestern considered comments by the Commission on the 2013 Plan and addressed those comments in the 2015 planning cycle. In addition to addressing Commission comments, written stakeholder comments submitted to the Commission were reviewed within the context and scope of resource procurement planning. NorthWestern used the input from advisors and the Electric Technical Advisory Committee (“ETAC”) to guide planning work to make it comprehensive and responsive to stakeholders while meeting the planning requirements contained within § 69-8-419, MCA, and ARM 38.5.8201 through 38.5.8229. The Commission comments on the 2013 Plan were issued on May 26, 2015 in Docket No. N2013.12.84 and the complete document is provided in Volume 2, Chapter 1 for reference. The following responses address Commission comment numbers 12 – 23:

*12. The 2013 Plan fell short of the comprehensive resource planning described in the Commission’s planning and procurement rules. See e.g. ARM 38.5.8213(f) (requiring scenario and sensitivity analyses); see also Notice of Commn. Action, Dkt. D2013.12.85 (Feb. 5, 2014) (determining hydro application was inadequate). NorthWestern initially analyzed market purchases and a combined cycle combustion turbine in 2018 as alternatives to the hydro facilities in the 2013 Plan, but questioned the viability of relying on market purchases for long term resource adequacy due to risk. 2013 Plan at ch. 4, pp. 12-13; see also Direct Test. of Joseph Stimatz, Dkt. D2013.12.85, p. 42 (Dec. 20, 2013). Such limited analysis does not help NorthWestern “explore a wide variety of alternative electricity supply resources” as is required under Commission rules. ARM 38.5.8212(1). In fact, NorthWestern eventually supplemented its 2013 Plan with additional portfolio modeling analysis that revealed two lower-cost alternatives to the 2018 combined cycle alternative. The Commission expects future plans to compare more than three scenarios and to include sensitivity analysis for variables such as CO<sub>2</sub> costs and market prices.*

**Response:** The 2015 Plan is a comprehensive assessment of plausible resource alternatives evaluated under multiple future conditions of load, market prices, carbon costs, and resource selection. Use of capacity optimization techniques has eliminated the need to

iteratively examine resource selection alternatives and instead focuses on a more efficient methodology to address resource adequacy using economic criteria that are applied by using the capabilities of PowerSimm Planner's optimal resource selection module.

*13. The Commission is not convinced that the stochastic modeling approach alone adequately captures future uncertainty and risk. Although stochastic modeling is useful, NorthWestern's results appear dependent on subjective judgments regarding key inputs, such as forward market price escalation and the timing and cost of CO2 emissions regulation. According to Evergreen: "[S]tochastic modeling and deterministic sensitivity analysis need not be mutually exclusive. Instead, we believe careful use of both approaches can produce better insight into risk than using one or the other alone." Evergreen Assessment at p. 22. The Commission agrees with Evergreen's assessment of stochastic modeling, and anticipates that NorthWestern will complement stochastic analysis with scenario analysis in future plans based on input from ETAC.*

**Response:** NorthWestern has incorporated scenario analysis in the 2015 Plan in response to Commission comments and requests, and based on ETAC suggestions. Rather than running deterministic studies that do not incorporate measurements of risk, NorthWestern elected to perform multiple, full stochastic evaluations that address different trajectories of 1) load growth; 2) natural gas market price; 3) carbon price; and 4) variations on the EOP. Using this approach, analytical results are directly comparable and account for both cost and risk that are included in the NPV of total portfolio costs.

*14. The 2013 Plan assumed that existing resources include 41 MW of community renewable energy project (CREP) capacity that had not been acquired, in anticipation that it would be acquired. 2013 Plan at ch. 2, pp. 20-24. The 2013 Plan did not separately analyze the portfolio cost and risk impacts of this CREP resource compared to the status quo or other resource alternatives. This approach is not consistent with Commission rules, which require NorthWestern to make RPS compliance an integral part of the overall resource planning and procurement process. ARM 38.5.8301(1); see also Written Comments, Dkt. N2010.6.57, ¶ 95 (Nov. 22, 2011) (NorthWestern should not hard-wire resources into portfolios to model RPS compliance). In future plans, NorthWestern should assess the possible portfolio cost and risk impacts of RPS compliance. If such an assessment is not possible, it should explain why.*

**Response:** Solar and wind resources have been assessed using the PowerSimm model to determine resource costs and the value to the portfolio. NorthWestern has eliminated

assumptions regarding the inclusion of additional future renewable resources for the purpose of meeting annual RPS and CREP requirements. As a result of using capacity optimization, neither wind nor solar energy resources were selected through resource optimization to fulfill portfolio capacity resource requirements.

NorthWestern estimates that it will meet the 15% annual RPS requirement through the mid-2020s with currently contracted-for resources. Because no renewables were selected by the capacity optimizer, future resource planning cycles will address the actions necessary to meet RPS in the second half of the current 20-year planning period. Given this 10-year timeframe, the ability to consider and acquire additional eligible renewable resources in the future will afford the advantage of making resource decisions and selections based on technology improvements and associated resource costs that may offer more attractive choices than are otherwise available today.

*15. The Commission's comments on the 2011 Plan urged NorthWestern to evaluate preferred portfolios under alternative long-term market price forecasts, such as those developed by the Northwest Power and Conservation Council or Energy Information Administration. Written Comments, Dkt. N2011.12.96, ¶ 17 (Sept. 28, 2012). The Commission has twice rejected NorthWestern's in-house forecasting methods. Or. 7108e ¶¶ 65-70, Dkt. D2010.7.77 (Oct. 13, 2011); Or. 7199d ¶¶ 24-28, Dkt. D2012.1.3 (Nov. 20, 2012); see also Or. 7338b, Dkt. D2014.1.5, ¶ 37 (Apr. 24, 2015). The Commission renews its comment on the 2011 Plan and cautions against ignoring multiple Commission orders and comments in future filings.*

**Response:** Long-term commodity price forecasts used in the 2015 Plan include the use of EIA annual escalation values in response to Commission comments. NorthWestern preserves the protocol of using the forward market price strip on the front end of the 20-year forward price curve as a best practice for constructing natural gas and electricity forecasts for long-term planning purposes.

*16. The mean CO<sub>2</sub> cost projection and its associated triangular probability distribution were key assumptions in the 2013 Plan and significantly impacted the selection of preferred resources. Even with stochastic modeling, however, the single CO<sub>2</sub> price trajectory scenario did not adequately*

*account for the uncertainty of this key input, and did not demonstrate the sensitivity of modeling results to the assumed CO<sub>2</sub> prices. Given ongoing uncertainty regarding the timing and effect of CO<sub>2</sub> regulations on regional wholesale markets – and the fact that NorthWestern’s management routinely relies on the preapproval process to make resource decisions – the Commission expects a more rigorous evaluation of potential CO<sub>2</sub> costs in future filings. Specifically, evaluating alternative CO<sub>2</sub> price trajectories and alternative ways of defining the price distribution is essential; NorthWestern should consult with ETAC for specific guidance in this regard.*

**Response:** The 2015 Plan employs multiple (3) carbon cost scenarios to expand its analysis of potential carbon cost futures. The results of the three scenarios allows a comparison of the EOP under different trajectories of carbon pricing and thus, the sensitivity of the portfolio to different carbon prices can be observed.

NorthWestern considered alternatives to a triangular distribution method for determining long-term carbon price trajectories. Discussions with ETAC and Ascend did not yield an appropriate alternative that would produce a more instructive price distribution curve or mechanism. NorthWestern was careful not to use inappropriate distribution types that could produce misleading results or change results to the point of making them meaningless. Thus, NorthWestern attempted but did not find an appropriate alternative. The triangular distribution also includes an element of randomness without becoming totally random as would be the case if a uniform distribution, which is analogous to simply pulling numbers out of a hat, were used.

*17. The PowerSimm model is capable of defining an optimal capacity expansion plan, but NorthWestern did not use this capability to develop the 2013 Plan. In retrospect it is clear that NorthWestern’s 2013 Plan failed to identify the best alternatives to the current + hydro portfolio, based on the net present value of risk-adjusted total portfolio costs. First, its Supplement to the 2013 Plan revealed two portfolios with lower costs than the current + CC alternative. A separate analysis also indicated that adding a CC resource in 2033 would actually reduce the total cost of the current + hydro portfolio. Direct Test. of John Bushnell, Dkt. D2014.1.5 (Jan. 22, 2014); Data Response PSC-003d, Dkt. 2014.1.5 (May 2, 2014). These subsequent analyses underscored how much the timing of resource acquisitions can affect the value of a portfolio. Unless the costs are prohibitive, NorthWestern should use PowerSimm’s optimal capacity expansion planning capabilities in its next plan.*

**Response:** Optimized capacity expansion has been used effectively in the 2015 Plan to reflect the incorporation of capacity-based planning and the transition from energy-based planning metrics. PowerSimm Planner’s optimal resource selection module was employed to determine the type and timing of capacity resource additions needed to satisfy peak demand. A two-step process determines the least-cost resource addition matrix by first assessing individual resource costs followed by an iterative system of resource elimination to arrive at resource selection.

*18. In order to adequately assess resource needs, NorthWestern’s ongoing planning and procurement activities should account for net metering, as well as other forms of distributed generation. ARM 38.5.8210(2)(a). Nevertheless, and despite the company’s arguments in other venues that it is a major public policy dilemma, the 2013 Plan did not address the impacts of distributed generation technologies in NorthWestern’s service area. Many proposals were submitted in the 64th session of the Montana Legislature to expand net metering. That debate has resulted in a study of the Energy and Telecommunications Interim Committee. In order to facilitate that legislative initiative and the Commission’s own ratemaking and planning obligations, the Commission expects NorthWestern to perform a far more detailed analysis of existing and potential issues in the next plan, as well as a discussion of ways to remedy any concerns. Such an analysis will require detailed and current information, including participant demographics and the mix of generating technologies, their installed capacity and production patterns. Such an analysis should compare load factors, coincident peak demand, noncoincident peak demand, and regulation service demand for net metered customers and non-net metered customers. The analysis should attempt to quantify not only costs but also benefits, such as avoidable line losses and other delivery costs. The analysis should be transparent, and any given type of cost or benefit should be isolable, and supported by clear citations to source information in order to ensure the analysis can be meaningfully scrutinized. The analysis should consider the potential for different rate designs depending on a net metered customer’s size and location. In its work with Powersimm, NorthWestern should consider modeling several resource portfolios in its next plan with an aggregate net metering capacity of two to three percent of system peak load (e.g., 25 to 45 MW) by the end of the planning horizon, based on input from ETAC. Depending on the quality of NorthWestern’s analysis and the direction of the legislative process, the Commission may consider using its statutory authority to hire professional services related to net metering as a topic within the plan.*

**Response:** Estimates of future net metering resource installations and energy production are included as a base set of assumptions in the 2015 Plan and described in Chapter 8. These assumptions reflect historical net metering installation levels by customers as well

as future projections of net metering resources comprised of rooftop solar resources. For purposes of estimating future net metering production NorthWestern relied on the 7<sup>th</sup> Power Plan to inform NorthWestern’s installation growth projections over the 20-year planning horizon. Net metering and net metering growth were the subject of multiple ETAC discussions during 2015.

*19. In response to the 2011 Plan, the Commission specifically endorsed two actions that NorthWestern identified in its three-year action plan: Defining resource adequacy and improving strategies for wind integration. With respect to resource adequacy, the Commission “strongly endorse[d] its commitment to define its own system-specific resource adequacy standards,” and recommended exploring this issue with ETAC. Comments, Dkt. N2011.12.96, ¶ 13. With respect to wind integration, the Commission urged NorthWestern to “describe how it is promoting efficient use of limited Dave Gates Generating Station (DGGS) wind integration capacity,” and “attempt a more sophisticated representation of the regulation needs that may result from diverse generators and loads.” Id. at ¶ 22 (“avoid one-dimensional representations of regulation needs.”). The 2013 Plan demonstrates little, if any, progress on these action items. NorthWestern’s inability to demonstrate the amount of capacity needed to integrate its existing wind fleet is not acceptable. Now that it owns most of the resources used to serve load – including DGGS – NorthWestern should conduct the kind of integrated planning that recognizes interactions between transmission and supply assets in order to minimize the total, integrated cost of service. Integrated resource planning should measure resource capacity value in various ways (e.g., effective load carrying capability, exceedance, etc.).*

**Response:** New analytical methods have been used in the 2015 planning cycle to incorporate and address resource adequacy. Optimized capacity planning, referenced in the response to Commission Comment No. 17, directly addresses Commission comments regarding resource adequacy. Peak demand service, a primary measure of resource adequacy, is analyzed in the 2015 Plan and is a key driver in the identification and selection of the EOP.

Wind integration requirements, including regulation and load following, have been modeled and analyzed in this Plan. Analysis and results provided in Chapter 11 demonstrate the amount and cost of regulation service needed for load and intermittent renewables integration. In addition, regulation and load following have been separated

into two distinctly different services in the evaluation of potential future ancillary services requirements and costs.

*20. At the public meeting on the 2013 Plan, NorthWestern described on-going work on two separate studies, each of which involves evaluating the service capabilities of existing resources and how to optimize those capabilities. The next plan should thoroughly describe these studies, their methods, and how results affect system planning and operations. All written reports, such as the E3 study of Basin Creek’s energy and capacity capabilities, should be attached to the next plan. NorthWestern should also provide a status report on the load variability study the Commission required in Order 6943e and whether results from that study have any planning impacts. Or. 6943e, Dkt. D2008.8.95, ¶ 94 (Mar. 20, 2012).*

**Response:** The 2015 Plan explores opportunities to co-optimize hydroelectric and thermal resources in the portfolio (refer to Chapters 10, 11, and 12) and how to possibly operate efficiently and economically together to provide needed amounts of ancillary services. Supporting studies by HDR and Ascend provide the information used to construct the resource co-optimization scenarios developed and analyzed in the Plan. In addition, the Plan provides an overview and scope of evaluation work being performed by the hydro generation group for the Montana hydroelectric system. Although the results of this work was not available for incorporation in this planning cycle, it will be used in the future to inform resource decisions.

NorthWestern’s consultant E3 has completed and reported on two phases of the Basin Creek operational analysis to assess historical use of the facility and answer Commission questions regarding operational decisions and dispatch. The results of the E3 studies are contained in a report titled “Basin Creek Dispatch Study” which is included in Volume 2, Chapter 5 to provide a full and detailed explanation of the independent analysis performed by E3 and their conclusions.

In summary, E3 concluded that “*Existing dispatch of the Basin Creek units is consistent with the Energy Supply Function’s directive to minimize customer costs.*” The context of

the conclusion was made with reference to the evaluation of Basin Creek operations during 2013 and the structure of the supply portfolio, operational protocols, and market conditions at that time. Phase 2 of the evaluation determined that while there could be opportunity to “relax restrictions” on the products provided by Basin Creek such as regulation services, the opportunity to reduce costs are limited due to the amount of time that Basin Creek can operate according to its air quality permit.

Related to the load variability study required in Order No. 6943e (“Order”), Docket No. D2008.8.95, as discussed in Chapter 11, NorthWestern has conducted considerable analysis and modeling for this plan to identify the overall system load following and regulation requirements. This work uses an estimate of the respective load following and regulation requirement responsibilities for retail and wholesale customers based on transmission system level data. NorthWestern has identified interval electric load data available at the substation level, as well as the composition of customer class electric usage served by the substations. The Company is currently considering opportunities to use this substation load data to leverage the work completed for this plan to further evaluate the relative contribution of retail and wholesale customers to the within-hour load fluctuations that drive regulation capacity needs.

*21. In addition to the changing nature of NorthWestern’s asset portfolio, the way in which energy, capacity, and ancillary services are procured in the wholesale market is evolving. One example is the centrally dispatching real-time energy market that PacifiCorp has joined, which NV Energy, Puget Sound Energy, and Arizona Public Service Corp. also intend to join. NorthWestern should study the benefits and costs of joining this market, in addition to explaining the findings and results of the Northwest Power Pool Market Assessment and Coordination Initiative in which it is engaged. These initiatives not only involve the ways that assets are dispatched into the market (as well as related tariff issues that could impact NorthWestern’s business), but also the ways that an entity’s resource sufficiency is measured. PacifiCorp, additionally, has indicated that it may join as a full Participating Transmission Owner of the California ISO. This would have even farther-reaching implications. In its next plan, NorthWestern should more closely examine how changes in the wholesale market affect its retail business.*

**Response:** Chapter 7 provides a review of NorthWestern’s participation in and understanding of market developments in the WECC. NorthWestern staff have attended regional meetings and participated in utility forums to stay apprised of the progress and status of utility initiatives. NorthWestern has not yet reached decisions concerning participation in any of the developing markets.

*22. The 2013 Plan maintains NorthWestern’s 6 aMW annual DSM acquisition goal, which was set following an energy efficiency potential study completed in 2009. Energy efficiency technologies, markets, and NorthWestern’s avoided costs have changed since 2009. NorthWestern should consider reassessing energy efficiency potential in its service area, including the reasonableness of its annual 6 aMW DSM acquisition goal. In addition, NorthWestern’s DSM programs should be responsive to changing markets and avoided costs even if overall acquisition goals remain appropriate. In that regard, NorthWestern should reassess whether residential lighting has been transformed by federal lighting standards for alternative bulb types, and consider whether the utility’s role in continuing to incent this technology is useful.*

**Response:** In 2016, Nexant will complete an assessment of remaining cost effective DSM potential in NorthWestern’s Montana service territory based on avoided costs derived from the 2015 Plan. The results of this assessment will inform program design and DSM savings targets starting in 2016/2017 program year. The program assessment will include evaluation of federal lighting standards and potential impacts to DSM programs.

*23. The Commission’s planning and procurement rules emphasize transparency, stakeholder involvement, and diligent documentation of decision-making. Admin. R. Mont. 38.5.8201 et seq. Future plans should include a glossary of key terms included in the plan, especially terms used in PowerSimm reports and used to explain PowerSimm operations and outputs. Additionally, future plans should contain key model input and output data electronically, including forward price information, simulated monthly electricity and natural gas prices, CO2 costs or adders, resource production, and average and peak demand information with and without DSM impacts. Finally, stakeholders should have reasonable opportunities to test NorthWestern’s modeling assumptions and results, both before a plan is filed (through ETAC) and subsequently where NorthWestern seeks to recover costs, obtain preapproval or set avoided cost rates (through data requests). Ideally, robust analysis preceding a resource plan will reduce the need for subsequent analysis in contested cases.*

**Response:** NorthWestern and its advisors have endeavored to present a resource planning document using language and references that are less technical and more readable for all stakeholders and interested parties. The use of utility and modeling terminology and acronyms is unavoidable so NorthWestern has included a glossary of terms to help readers. The more technical analytical and modeling components of the Plan are found in Volume 2 and are being made available in electronic form on NorthWestern’s website and on a CD to be included with printed versions of Volume 1. Twenty-year portfolio simulations produce enormous amounts of output data. The output data for all portfolios simulated in PowerSimm and presented in the Plan are included in Volume 2, Chapter 7.