

DEPARTMENT OF PUBLIC SERVICE REGULATION
BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MONTANA

IN THE MATTER OF NorthWestern
Energy's Application for Approval of
Capacity Resource Acquisition

REGULATORY DIVISION

Docket No. 2019.12.101

**PREFILED DIRECT TESTIMONY
OF THOMAS J. SCHNEIDER
ON BEHALF OF MONTANA ENVIRONMENTAL INFORMATION CENTER
("MEIC")**

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TABLE OF CONTENTS

I.	Expert Witness Information	1
II.	Purpose and Summary of Testimony	2
III.	Background Information	5
IV.	State Policies Regarding Resource Procurement	6
V.	Colstrip Unit 4 Regulatory History	12
A.	2008 Acquisition Decision.....	13
B.	2018-2019 Rate Case	17
VI.	NorthWestern Proposed Acquisition of an Additional Interest in CU4 in This Docket.....	23
A.	Deficiencies in Planning Process Leading Up to NorthWestern’s CU4 Acquisition Proposal.....	24
B.	The Proposed CU4 Acquisition is not a Legitimate “Opportunity Resource”	31
C.	NorthWestern Has Failed to Consider Viable and Cost-Effective Alternatives to the Proposed CU4 Acquisition.....	35
D.	Evaluation of Whether Pre-Approval is in the Public Interest	38
VII.	Summary of Conclusions and Recommendations	41

I. Expert Witness Information

Q: PLEASE PROVIDE YOUR NAME, TITLE AND EMPLOYER.

A: My name is Thomas J. Schneider. I provide consulting services to public and private sector clients in the energy industries, primarily in the regulatory arena. I am retired, but I agreed to testify in this docket because of its significance for Montana, integrated least-cost resource planning and competitive resource acquisitions, and ratepayer issues.

Q: PLEASE PROVIDE A DESCRIPTION OF YOUR EXPERIENCE.

A: I have been involved in energy regulation since 1977. I served as a publicly elected commissioner on the Montana Public Service Commission (“PSC”) for three four-year terms from 1977-1980, 1981-1984 and again between 2003- 2006. I served as Commission Chair from 1983 to 1984. During my time on the Montana PSC, I frequently represented the PSC in energy matters in the West and nationally. As a Commissioner, I appeared or testified before various U.S. House and Senate subcommittees, Montana Legislative committees, the Federal Energy Regulatory Commission, the Canadian National Energy Board, and the Bonneville Power Administration. In 1980, I served as President of the Western Conference of Public Service Commissioners (“WCPSC”) and as a member of the Executive Committee of WCPSC for five years. I served on the National Association of Regulatory Utility Commissioners (“NARUC”) Ad Hoc Committee on the National Energy Act and on the Board of Directors of the

1 National Regulatory Research Institute (“NRRI”) at Ohio State University. I was
2 involved in the implementation of the Regional Energy Act in 1980.

3 Between my second and third terms on the Montana Public Service Commission,
4 from 1985 to 2002, I established a national utility regulatory consulting practice,
5 focusing on rate and public policy matters in electricity, natural gas, and
6 telecommunications, among other topics. In that capacity, I testified as an expert
7 witness addressing technical and policy issues in federal court cases in the U.S.
8 District Courts of Pennsylvania and Montana, a State District Court in Montana,
9 and before state utility regulatory commissions in Utah, Washington, Minnesota,
10 Illinois, Arizona, Idaho, Texas, Missouri, and Montana.

11 From 2007 to 2013, I was employed by the Western Electricity Coordinating
12 Council and held several senior roles in regional transmission planning, reliability
13 standards, and compliance.

14 A copy of my professional resume, which includes my employment history,
15 education, awards, and professional associations and activities, is attached as
16 Exhibit TJS-1 to this testimony. I have testified as an expert witness before the
17 Montana Public Service Commission on numerous occasions.

18 II. Purpose and Summary of Testimony

19 **Q: WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

20 **A:** I was asked by the Montana Environmental Information Center (“MEIC”) to
21 provide testimony that may assist the Montana Public Service Commission

1 (“PSC” or “Commission”) with evaluating whether NorthWestern’s Application
2 to acquire Puget Sound Energy’s (“Puget”) 12.5 percent interest in Colstrip Unit 4
3 (“CU4”), is consistent with state resource planning and procurement policies and
4 the public interest.

5 **Q: PLEASE SUMMARIZE YOUR PRINCIPAL CONCLUSIONS AND FINDINGS REGARDING**
6 **NORTHWESTERN ENERGY’S APPLICATION FOR APPROVAL OF CAPACITY**
7 **RESOURCE ACQUISITION IN THIS DOCKET.**

8 **A:** The Commission’s consideration of NorthWestern’s application in this docket
9 benefits from a close review of state policies favoring long-term resource
10 planning and competitive solicitation, Colstrip Unit 4’s regulatory history in the
11 state, and NorthWestern’s own recent resource procurement and planning process.
12 These historical and policy considerations weigh firmly against the Commission’s
13 approval of NorthWestern’s Application in this docket.

14 At the outset, NorthWestern’s Application to acquire Puget’s 12.5 percent interest
15 in CU4 is inconsistent with decades-old state policies favoring long-term planning
16 and competitive resource acquisitions in lieu of single source resource
17 acquisitions. Additionally, NorthWestern’s characterization of the CU4
18 acquisition as an “opportunity resource” is unsupported, where NorthWestern was
19 actively pursuing a CU4 acquisition throughout the 2019 resource procurement
20 planning process. Accordingly, NorthWestern’s failure to consider the
21 acquisition in the planning process was unjustified and deprives the Commission
22 and the public of essential information about the costs, benefits, and trade-offs
23 associated with the proposed acquisition.

1 The regulatory history of Colstrip Unit 4 provides a clear example of the risk
2 associated with opportunity resource acquisitions that state procurement policies
3 were designed to mitigate. In 2008, the Commission approved NorthWestern’s
4 request to rate-base its interest in Colstrip Unit 4 as an “opportunity resource” at
5 an inflated valuation—based on an incomplete application presenting inflexible
6 terms and conditions. At that time, the Commission cautioned NorthWestern that
7 future acquisitions should incorporate long-term planning and adequate
8 examination of costs and alternatives.

9 Unfortunately, the Commission’s 2008 decision adopting NorthWestern’s inflated
10 valuation of the unit likely continues to impact NorthWestern’s ability to make an
11 unbiased decision about the future of Colstrip Unit 4. As other owners pull away
12 from CU4 based on cost-considerations as well as changing political and legal
13 landscapes, NorthWestern fails to even re-examine the remaining economic life of
14 the asset to inform its decision-making. The uncertainties of the future of
15 Colstrip, including the impact of losing the reciprocal sharing agreement with
16 Colstrip Unit 3 assuming that unit goes offline in 2025, operational challenges of
17 CU4, and developments in power markets, make additional investment in the
18 plant at this time unreasonable.

19 The far-reaching consequences of the pre-approval of Colstrip Unit 4 in 2008
20 persists today. NorthWestern continues to invest in CU4, expecting ratepayers to
21 bear the risk of the consequences of early retirement of the asset. Notably, ten
22 years after the Commission rate-based CU4, NorthWestern requested the approval
23 of several million dollars of capital investment expenditures at Colstrip Unit 4,

1 maintaining the position that the 2008 pre-approval of the asset curtailed the
2 Commission's authority to disallow the recovery of capital expenditures related to
3 rate-based resources.

4 Through the 2019 planning process and the Application in this docket,
5 NorthWestern has not legitimately considered reasonable alternatives to the
6 proposed CU4 acquisition—including pursuing other opportunity resources and
7 market alternatives. Although NorthWestern has emphasized short-term
8 transmission constraints to justify its failure to fully evaluate market
9 opportunities, NorthWestern has not taken steps to acquire long-term firm import
10 capacity that could enable reliable and cost-effective capacity purchases. In
11 addition to the opportunities to acquire new firm import capacity, the Colstrip
12 Transmission System will continue to provide reliable transfer capacity to support
13 one-for-one replacement of Colstrip generation with new resources, including
14 variable resources, which increased with the retirements of Colstrip Units 1 and 2,
15 and will continue to increase with the assumed retirement of Unit 3 in 2025 and/or
16 decreased reliance on Colstrip generation throughout the region.

17 III. Background Information

18 **Q:** PLEASE DESCRIBE THE MATERIALS YOU REVIEWED IN PREPARATION FOR YOUR
19 TESTIMONY.

20 **A:** I have reviewed NorthWestern's original and supplemental Applications in this
21 docket, and the discovery requests and responses in this docket. I also reviewed
22 the Colstrip Ownership and Operation Agreement. I reviewed numerous other

1 publicly available documents associated with Colstrip. While I signed the non-
2 disclosure agreements, I have not reviewed any of the confidential documents
3 covered by the Protective Orders.

4 IV. State Policies Regarding Resource Procurement

5 **Q: PLEASE PROVIDE YOUR UNDERSTANDING OF THE STATE OF MONTANA’S**
6 **POLICIES REGARDING UTILITY RESOURCE PROCUREMENT.**

7 **A:** State policies favor long-term planning and competitive resource acquisitions, in
8 lieu of single source resource acquisitions. The Montana legislature revamped the
9 statutory framework for resource procurement in the 2019 legislative session.
10 Currently, “[i]t is ... the policy of the state to encourage utilities to acquire
11 resources using a competitive solicitation process and in a manner that will help
12 ensure a clean, healthful, safe, and economically productive environment.”¹ “To
13 advance this policy, the commission shall require long-range plans every 3 years
14 from utilities[.]”² Among other things, such plans must include “an evaluation of
15 the full range of cost-effective means for the public utility to meet the service
16 requirements of its Montana customers, including conservation or similar
17 improvements in the efficiency by which services are used including demand-side
18 management programs[.]”³ These provisions emphasize, but do not change, the
19 state’s long-standing policies regarding planning and resource procurement.

¹ MCA § 69-3-1202(1)(b).

² Id. § 69-3-1202(2)(b).

³ Id. § 69-3-1204(2)(a)(1).

1 **Q: PLEASE PROVIDE A HISTORICAL SUMMARY OF UNDERLYING AND ONGOING**
2 **EFFORTS TO ADOPT RATIONAL INTEGRATED RESOURCE PLANNING AND**
3 **COMPETITIVE RESOURCE SOLICITATIONS AND ACQUISITIONS.**

4 **A: The roots for efforts to establish the framework for Integrated Least-Cost**
5 **Resource Planning and Acquisition (“IRPA”) and competitive resource**
6 **solicitations and acquisition date back over three decades to Montana Power**
7 **Company’s (MPC) proposal to acquire a 74-MW share of CU4 on a sole source**
8 **basis from its non-utility division (the Colstrip 4 Lease Management Division) in**
9 **Docket 88.6.15.⁴**

10 The rate case in Docket 88.6.15 was highly contentious and a number of
11 intervenors challenged the sole source process and the resulting cost of the
12 proposed purchase. While that case was pending, on October 20, 1988, Montana
13 Power Company, District XI Human Resource Council, and the Natural
14 Resources Defense Council entered an agreement to address some of the
15 controversy regarding MPC’s proposal and establish the Conservation and Least-
16 Cost Planning Advisory Committee. MPC’s goal was to establish a meaningful
17 framework for long term integrated least-cost resource planning and competitive
18 resource acquisitions that would avoid or mitigate contentious issues that were
19 otherwise likely to arise in future cases. On October 16, 1990, the Advisory
20 Committee submitted its Integrated Least-Cost Planning Report and

⁴ This history also is summarized in Energy and Telecommunications Interim Comm., Program Evaluation: Least-Cost Integrated Resource and Electricity Supply Resource Planning (Jan. 16, 2018), at <https://leg.mt.gov/content/Committees/Interim/2017-2018/Energy-and-Telecommunications/Meetings/Jan-2018/Exhibits/final-irp-program-review.pdf>, and attached as Exhibit TJS-2.

1 Recommendations to MPC and the Montana Public Service Commission. The
2 Report was generally known as the “Red Book”. I was honored to serve on the
3 Advisory Committee for a number of years on behalf of Northern Plains Resource
4 Council. In reviewing that Report to prepare for this testimony I am struck by the
5 comprehensive foundation that it laid for IRPA three decades later.

6 The legislative and regulatory actions to establish and improve upon a framework
7 for IRPA have continued from those early efforts until the present. Following
8 Montana’s failed experiment with de-regulation of the electric sector in 2003, the
9 Montana Legislature adopted new policies and requirements for re-integrated
10 utilities’ planning and procurement practices, and required Commission rule-
11 making to implement the new provisions.⁵

12 In response, the Commission adopted new Default Supply Guidelines, which built
13 upon the earlier collaborative work on IRPA. The Guidelines provide detailed
14 guidance on long-term electricity supply resource planning and procurement, with
15 the following goals:

16 (a) to facilitate a utility's provision of adequate and reliable electricity
17 supply services, stably and reasonably priced, at the lowest long-term
18 total cost;

19 (b) to promote economic efficiency and environmental responsibility;

⁵ MCA §§ 69-8-419, 421.

1 (c) to facilitate a utility's financial health;

2 (d) to facilitate a process through which a utility identifies and cost-
3 effectively manages and mitigates risks related to its obligation to
4 provide electricity supply service; and

5 (e) to build on the fundamental rate-making relationship between the
6 Commission and the utility to advance these goals.

7 The Guidelines also formalized the Commission's position on the importance of
8 stakeholder input, stating that "an independent advisory committee of respected
9 technical and public policy experts may provide an excellent source of upfront,
10 substantive input that would help mitigate risk and improve resource procurement
11 outcomes in a manner consistent with these guidelines."⁶ Importantly, the
12 Guidelines were meant to provide "the standards against which the commission
13 will evaluate electricity supply resources for which a utility requests approval
14 under 69-8-421, MCA," i.e., pre-approval.⁷

15 Following the Commission's adoption of the Guidelines, in 2004, NorthWestern
16 Energy established a formal Electric Technical Advisory Committee ("ETAC") to
17 advise the utility in its resource procurement planning. ETAC is effectively a
18 continuation of MPC's Least-Cost Planning Advisory Committee. Members of
19 ETAC generally include Commission staff, and representatives from the Montana

⁶ ARM 38.5.8201(2).

⁷ ARM 38.5.8201(4).

1 Consumer Counsel, Northwest Power Planning Council, Montana Department of
2 Environmental Quality, and various energy and conservation advocacy groups.⁸

3 The core principles of resource planning and procurement have survived
4 deregulation and the bankruptcies of both MPC and NorthWestern. A continuing
5 theme and emphasis has been to recognize and incorporate cost effective demand
6 side management and renewable energy resources into the integrated resource
7 planning and competitive acquisition framework from the “Red Book” Report in
8 October 1990 to the present statutory and regulatory framework.⁹ Early efforts
9 sought to incorporate the cost and risks of environmental externalities and to
10 better reflect a societal cost perspective in evaluating competitive resource
11 alternatives. Carbon sensitive evaluations, adders, proxies or environmental
12 benefit factors were among approaches employed.

⁸ Minutes from ETAC’s September 19, 2019 meeting address the historical purpose of stakeholder input in procurement planning, stating, “...The general idea was to meet with critics to get advice and an understanding of the differing positions to allow for discussion so that issues could be worked out before they turned into unnecessary conflict. These conversations are mostly technical, but some are policy. Essentially, the point of ETAC was not to gather public opinion and input, but to purposely seek advice from people that you believe will have a different view of things...”, available at <http://www.northwesternenergy.com/docs/default-source/documents/etac/meeting-notes-2019-09-19.pdf>.

⁹ E.g. MCA § 69-3-1204 (2019 Legislation requiring integrated resource plans to incorporate costs and benefits of increased demand-side management); In Re Consideration of the Adoption of Energy Policy Act of 2005 Standards Regarding Net Metering, Fuel Diversity, Fossil Fuel Generation Efficiency, Smart Metering, & Interconnection, Docket No. N2006.5.60, Order 6792 ¶ 6 (Dec. 5, 2006) (NorthWestern’s observation of legal requirement to “conduct an efficient supply resource planning and procurement process that evaluates the full range of cost-effective supply and demand-side resources”); In Re the Submission of Montana Power Company’s 1995 Elec. Integrated Least Cost Res. Plan, Docket No. 95.6.30, Order 5884 ¶ 6 (Dec. 19, 1995) (critiquing MPC’s 1995 resource plan for failing to adequately consider demand-side resources).

1 **Q: DOES MONTANA HAVE SPECIAL POLICIES REGARDING THE PROCUREMENT OF**
2 **“OPPORTUNITY RESOURCES”?**

3 **A:** Yes. Under the 2019 legislation, public utilities generally “shall conduct a
4 competitive solicitation process” in order to obtain pre-approval of a resource.¹⁰
5 At NorthWestern’s request, the Legislature created an exception to this
6 requirement for the acquisition of an “opportunity resource,” which is “an
7 electricity supply resource necessary to meet a need demonstrated in a plan in
8 accordance with 69-3-1204(2)(a)(iv) that is either new or existing and that
9 remains unknown as to its availability for purchase until an opportunity to
10 purchase arises.”¹¹ Only for such an opportunity resource may a utility conduct a
11 sole-source acquisition, if it seeks preapproval under MCA § 69-8-421. Although
12 the legislation specifically allowing sole-source acquisition of opportunity
13 resources was newly enacted in 2019, the legislation confirms long-standing
14 policies in Montana circumscribing such acquisitions to very limited
15 circumstances. As discussed in Section VI below, those circumstances do not
16 exist here.

¹⁰ MCA § 69-3-1207(1).

¹¹ Id. § 69-3-1207(5), (6).

V. Colstrip Unit 4 Regulatory History

Q: PLEASE DESCRIBE YOUR UNDERSTANDING OF THE HISTORY OF NORTHWESTERN'S RATE-BASED 222-MW INTEREST IN COLSTRIP UNIT 4.

A: Colstrip Unit 4 is a 740-MW coal-fired generating plant located in Rosebud County in Montana.¹² In 2002, NorthWestern acquired an undivided thirty percent leasehold interest in Colstrip Unit 4 from the Montana Power Company. In 2007, NorthWestern purchased the ownership interests under those leases, which had been held by Mellon Leasing and SGE (New York), for \$187 million, and transferred those interests to an unregulated subsidiary, Colstrip Lease Holdings LLC.¹³ Colstrip Unit 4 is owned by several entities including NorthWestern Energy (successor to Montana Power Company), Talen Energy (successor to PPL Montana), Puget Sound Energy, Inc., the Avista Corporation, Portland General Electric Company, and PacifiCorp; each owner is party to a Joint Ownership and Operation Agreement that operates Colstrip Unit 4 in conjunction with a sister unit, Colstrip Unit 3, as a single project.¹⁴ NorthWestern and Talen operate under a reciprocal sharing agreement and share costs and output of the two units, which is the equivalent to each entity owning a fifteen

¹² NorthWestern Corp.'s Application for Approval of its Interest in Colstrip Unit 4 as an Electricity Supply Resource under Certain Terms and Conditions Including Certain Treatment of Net Operating Losses ("NWE 2008 App."), Docket No. 2008.6.69, Final Order 6925f ¶ 21 (Nov. 13, 2008) ("Order 6925f").

¹³ NWE 2008 App. at 7, 9 (filed June 27, 2008); Order 6925f at ¶¶ 21, 22, 102, 132.

¹⁴ Order 6925f ¶ 21; Docket No. 2018.2.12, NorthWestern Resp. to MEIC-006, attached as Exhibit TJS-3.

1 percent share of each of Unit 3 and Unit 4.¹⁵ A combined breakdown of
2 ownership interests of Colstrip Units 3 and 4 are shown in the following table.¹⁶

COLSTRIP OWNERSHIP		
	Unit 3	Unit 4
Puget Sound Energy	25%	25%
Talen Energy	30%	
Portland General Electric	20%	20%
NorthWestern Energy		30%
Avista Corp.	15%	15%
PacifiCorp	10%	10%

A. 2008 Acquisition Decision

3 **Q: PLEASE DESCRIBE YOUR UNDERSTANDING OF NORTHWESTERN’S 2008**
4 **APPLICATION TO RATE BASE COLSTRIP UNIT 4 IN DOCKET D2008.6.69.**

5 **A:** As in the present docket, NorthWestern’s 2008 application for pre-approval of its
6 current 222-MW share of CU4 at a value of \$407 million reflected a sole-source
7 acquisition outside of any long-term planning or competitive solicitation
8 process.¹⁷ NorthWestern requested an expedited timeline for review within 120
9 days from the date of filing.¹⁸

¹⁵ Id.; Docket No. 2018.2.12, NorthWestern Resp. to MEIC-006, attached as Ex. TJS-3, and MEIC-028, attached as Exhibit TJS-4.

¹⁶ Chris Dorrington, Div. Admin’r. of Air, Energy, and Mining, Mont. Dep’t. of Env’tl. Quality, Table 1, “Changing Energy Landscapes and Community Impacts in Montana,” available at <https://www.naseo.org/Data/Sites/1/ccs-workshop/dorrington.pdf> (accessed July 3, 2020).

¹⁷ Order 6925f ¶¶ 22, 23.

¹⁸ Id. at ¶ 23.

1 **Q: PLEASE DESCRIBE YOUR UNDERSTANDING OF NORTHWESTERN’S REQUEST TO**
2 **RATE BASE COLSTRIP UNIT 4 AT A VALUE OF \$407 MILLION.**

3 **A:** As described above, NorthWestern paid a total of \$187 million to purchase its
4 thirty percent interest in Colstrip Unit 4 one year before its 2008 application to
5 transfer that asset to the utility from its unregulated subsidiary and include the
6 asset in NorthWestern’s rate base.¹⁹ The \$407 million requested by NorthWestern
7 was unrelated to the price it paid for its interest in Colstrip Unit 4 in 2007, and
8 instead reflected a market valuation of the plant.²⁰ As summarized by the
9 Commission in the Final Order, “Notwithstanding the Montana law at § 69-8-
10 421(6)(a), MCA, which permits the PSC to approve or deny an application for an
11 electricity supply resource in whole or in part, NorthWestern asserted its
12 Application should be deemed withdrawn unless the terms and conditions listed
13 above are met.”²¹

14 **Q: WHAT WAS THE OUTCOME OF NORTHWESTERN’S 2008 APPLICATION TO RATE-**
15 **BASE COLSTRIP UNIT 4, IN DOCKET D2008.6.69?**

16 **A:** After holding a hearing in September 2008, the PSC issued a final order
17 approving NorthWestern’s application to rate-base NorthWestern’s interest in
18 Colstrip Unit 4 at the proposed \$407 million valuation.²² As a result of the
19 Commission’s decision, NorthWestern collects capital-related revenues far in
20 excess of its actual costs of \$187 million for its 222-MW interest in CU4.

¹⁹ Id. at ¶¶ 22, 102, 132.

²⁰ Id.

²¹ Id. at ¶ 25.

²² Id. at p. 65, ¶ 1; NWE 2008 App. at 1, 4-5.

1 Consequently, Colstrip Unit 4 has consistently been among the most expensive
2 resources for NorthWestern’s customers.²³

3 **Q: PLEASE DESCRIBE ANY UNDESIRABLE CONSEQUENCES OF NORTHWESTERN’S**
4 **INTEREST IN COLSTRIP UNIT 4 BEING RATE-BASED AT AN AMOUNT \$220**
5 **MILLION MORE THAN IT PAID FOR THOSE INTERESTS.**

6 **A:**In addition to the significant costs for ratepayers associated with NorthWestern’s
7 interest in CU4, I agree with Ron Binz’s testimony in the rate case that, “One
8 potentially overlooked issue is a combination of economic and environmental
9 matters ... utilities across the country are closing coal-fired plants and replacing
10 them with less-costly and cleaner alternatives, including wind and solar. The
11 closures are motivated by both economic and environmental considerations.”²⁴
12 Thus, “[i]t is easy to see how the excess valuation of Colstrip Unit 4 will affect
13 NorthWestern’s ability to make an informed decision about the future of Colstrip
14 Unit 4.”²⁵ In other words, NorthWestern’s significant rate base for its existing
15 ownership of Colstrip Unit 4 makes it difficult for NorthWestern to exercise
16 objective, unbiased judgment about the future of the plant and the reasonableness
17 of expenditures to maintain it.

²³ J. Brown, Montana Consumer Counsel, “Residential Electricity Rates of NorthWestern Energy through June 2017” (Version 2017.01), available at <https://leg.mt.gov/content/Committees/Administration/Consumer%20Counsel/Reports/NWERateGraphs.pdf>; see also In the Matter of NorthWestern Energy’s 2019 Electric Supply Resource Procurement Plan, Docket No. 2019.08.052, Synapse Comments on NorthWestern Energy’s Final 2019 Electricity Supply Resource Procurement Plan 17-18 (Feb. 14, 2020) (“Synapse Comments”), attached as Exhibit TJS-5.

²⁴ In Re NorthWestern Energy’s Application for Authority to Increase its Retail Electric Utility Service Rates and for Approval of its Electric Service Schedules and Rules, Docket No. 2018.2.12, (“Docket No. 2018.2.12”) Pre-filed Dir. Test. of Ronald J. Binz, at RJB-31:20 through 32:2 (Feb. 12, 2019) (“Binz Test.”), attached as Exhibit TJS-6.

²⁵ Id. at RJB-33:7-8.

1 NorthWestern appears to acknowledge this paradox in accounting for the risk of
2 early closure of CU4, noting in its 2018 Form 10-K Report to the Securities and
3 Exchange Commission (as reported to the NorthWestern Audit Committee)
4 regarding the potential “early closure of our generation facilities.” “If recovery of
5 our remaining investment in such facilities ... could result in ... increased cost of
6 operations ... [and] are not recovered from customers could have a material
7 adverse impact on [NorthWestern’s] results of operations.”²⁶ Putting a finer point
8 on this issue, NorthWestern informed its Board of Directors in 2018 that the
9 company co-owners’ reluctance to approve significant capital maintenance
10 expenditures “[p]uts NorthWestern in a difficult position, as we will not be fully
11 depreciated until 2043 and need the plants to [be] operated and maintained in a
12 reasonable manner - not run to failure.”²⁷

13 **Q: DID THE COMMISSION EXPRESS ANY CONCERNS RELATED TO THE PUBLIC**
14 **INTEREST IN ITS DECISION TO RATE-BASE NORTHWESTERN’S INTEREST IN**
15 **COLSTRIP UNIT 4?**

16 **A:** Yes. The Commission raised multiple concerns. First, the Commission noted
17 that NorthWestern’s Application as filed did not meet the minimum filing
18 requirements of the Commission, largely due to “time constraints caused by the
19 Company’s asset sale process.”²⁸ The Commission cautioned that in the absence

²⁶ Resp. to MEIC-015 (“Audit 2019 02 11”).

²⁷ See In the Matter of NorthWestern Energy’s Application for Annual PCCAM Filing and Application for Approval of Tariff Changes, Docket No.2019.09.058, NorthWestern Resp. to MEIC-036, attached as Exhibit TJS-7.

²⁸ Docket No. 2019.08.052, Mont. Pub. Serv. Comm’n Comments in Response to NorthWestern Energy’s 2019 Electricity Supply Procurement Plan ¶ 219 (July 1, 2020) (“Commission Comments”) attached as Exhibit TJS-8.

1 of complete information, including a long-term portfolio cost analysis, the
2 Commission and Intervenors were deprived of the opportunity to “assess how rate
3 basing CU4 affects both long-term portfolio costs and risks compared to other
4 alternatives and the status quo.”²⁹ The Commission cautioned that “[a]s
5 NorthWestern continues to acquire resources as a vertically integrated utility,
6 resource decisions need to be based on long-term resource planning.”³⁰

B. 2018-2019 Rate Case

7 **Q: PLEASE SUMMARIZE NORTHWESTERN’S APPLICATION IN DOCKET 2018.2.12.**

8 **A:** In 2018, 10 years after the Commission rate-based NorthWestern’s interest in
9 CU4, NorthWestern submitted an application stating that its “currently authorized
10 rates for its Electric Utility service are no longer just and reasonable rates as they
11 do not allow NorthWestern to recover its costs of providing electric supply
12 delivery service nor do they provide NorthWestern an opportunity to earn a fair
13 and reasonable return on its investments.”³¹ NorthWestern’s application stated
14 that it had “a revenue deficiency ... of \$34,861,573” and requested an increase in
15 the rate base in that amount.³² Specific to Colstrip, NorthWestern sought to
16 recover \$42,639,513 in capital expenditures that are common to Colstrip Units 3
17 and 4.³³

²⁹ Id.

³⁰ Id. at ¶ 236.

³¹ NorthWestern Energy’s Application for Authority to Increase Retail Utility Service Rates and For Approval of Electric Service Schedules and Rules Allocated Cost of Service and Rate Design, Docket No. 2018.2.12, at 4 (filed September 28, 2018) (“NWE 2018 App.”).

³² Id. at 5-6.

³³ See Docket No. 2018.2.12, NorthWestern Resp. to MEIC-003 (updated Dec. 18, 2018), attached as Exhibit TJS-9.

1 **Q: DID NORTHWESTERN ADVANCE ANY POSITION IN THE 2018-2019 RATE CASE**
2 **RELATED TO THE IMPACT OF THE COMMISSION’S PRE-APPROVAL DECISION ON**
3 **NORTHWESTERN’S ENTITLEMENT TO RECOVER CAPITAL EXPENDITURE COSTS?**

4 **A:** Yes. In its post-hearing briefing before the Commission in the 2018-2019 rate
5 case, NorthWestern argued that the Commission retains little discretion to deny
6 capital expenditures on an asset that has been pre-approved for inclusion in rate-
7 base.³⁴ Specifically, NorthWestern advanced the position that, once an asset is
8 rate-based, the Commission must presume that NorthWestern exercised
9 reasonable judgment in its investments.³⁵

10 **Q: IN YOUR OPINION, DOES NORTHWESTERN’S POSITION RELATED TO ITS**
11 **RECOVERY OF CAPITAL EXPENDITURES IN THE RATE CASE COUNSEL ANY**
12 **CAUTION FOR THE COMMISSION IN THIS DOCKET?**

13 **A:** I do not agree with NorthWestern’s position that it is entitled to any presumption
14 regarding the recovery of future capital expenditures related to rate-based
15 resources. In fact, whether or not the Commission approves the proposed
16 acquisition, it will be essential for the Commission to closely scrutinize future
17 capital expenditures in Colstrip Unit 4 (with respect to NorthWestern’s existing
18 interest and any expanded interest), particularly due to NorthWestern’s likely lack
19 of objectivity with respect to such investments as described above.

³⁴ Docket No. 2018.2.12, NorthWestern’s Opening Brief 8-10 (July 10, 2019).

³⁵ Id.

1 **Q: WHAT WAS THE OUTCOME OF THE NORTHWESTERN’S APPLICATION IN THE**
2 **2018-2019 RATE CASE?**

3 **A:** Immediately before the contested case hearing, NorthWestern and certain
4 Intervenors, including Montana Consumer Counsel, the Montana Large Customer
5 Group, the Federal Executive Agencies, and Walmart filed a Stipulated
6 Settlement Agreement with the Commission.³⁶ The stated parties stipulated to,
7 and the Commission ultimately approved, a \$6.5 million increase for
8 NorthWestern’s electric utility operations, effective for rates beginning March 1,
9 2020.³⁷

10 **Q: PLEASE DESCRIBE THE COMMISSION’S FINAL DECISION IN THE RATE CASE AS IT**
11 **RELATES TO COLSTRIP UNIT 4.**

12 **A:** The Commission “refrain[ed] from reaching a decision on the Colstrip revenue
13 requirement” because it determined that “it is neither appropriate nor necessary to
14 selectively approve a single element of the overall generation revenue
15 requirement”³⁸ The Commission also noted that it was “unable to find that
16 NorthWestern’s proposed CU4 revenue requirement is either reasonable or
17 unreasonable.”³⁹ Specific to capital expenditures, the Commission declined to
18 make a finding addressing NorthWestern’s requested capital expenditures because

³⁶ Docket No. 2018.2.12, Order 7604u (Dec. 20, 2019) (“Order 7604u”); Docket No. 2018.2.12, Amended Stipulation and Settlement Agreement of NorthWestern Energy, the Montana Consumer Counsel, the Montana Large Customer Group, the Federal Executive Agencies, and Walmart (May 13, 2019).

³⁷ Order 7604u ¶¶ 2, 6.

³⁸ Id. at ¶ 9.

³⁹ Id. at ¶ 121.

1 it determined that its approval of the revenue requirement stipulation foreclosed
2 the Commission from amending Colstrip’s rate base.⁴⁰

3 **Q: PLEASE DESCRIBE THE COMMISSION’S OBSERVATIONS REGARDING**
4 **NORTHWESTERN’S PROJECTED RETIREMENT DATE FOR COLSTRIP UNIT 4 IN**
5 **THE RATE CASE.**

6 **A:** The Commission observed that “NorthWestern’s current depreciation schedule
7 [with a projected retirement in 2042] for CU4 is significantly longer than those
8 currently in place for the remaining CU4 owners.”⁴¹ The Commission further
9 noted that other owners’ retirement dates for CU4, “which are exhausted at the
10 latest by 2030,” “casts significant doubt regarding the operation of Colstrip
11 beyond 2027 or 2030.”⁴² The Commission suggested that “an investigation
12 docket or annual reporting requirements could provide the Commission with
13 valuable information regarding this significant operational risk.”⁴³

14 **Q: IN YOUR OPINION, WHAT IMPLICATIONS DO THE OBSERVATIONS MADE BY THE**
15 **COMMISSION IN THE RATE CASE REGARDING NORTHWESTERN’S PROJECTED**
16 **RETIREMENT DATE FOR COLSTRIP UNIT 4 HAVE FOR THE APPLICATION IN THIS**
17 **DOCKET?**

18 **A:** In my opinion, the Commission’s astute observations regarding the uncertain
19 future of Colstrip Unit 4 in the rate case ring true in the current docket. Adding to

⁴⁰ Id.

⁴¹ Id. at ¶ 343.

⁴² Id.

⁴³ Id.

1 the concerns the Commission raised, NorthWestern has assumed a retirement date
2 for CU4 based solely on a depreciation schedule, and has not performed any
3 analysis of the remaining economic life of the plant since it was initially placed
4 into rate base in 2008.⁴⁴ These issues regarding remaining economic life create
5 significant risk, in my opinion, that further investment in the plant will prove to be
6 imprudent in the event of a closure before 2042. In the absence of a clear picture
7 of the remaining useful life of the unit, I would caution the Commission against
8 approving NorthWestern's Application. Again, Ron Binz's testimony in
9 NorthWestern's rate case succinctly captures the cautionary admonition: "If you
10 find yourself in a hole, stop digging."⁴⁵

11 **Q: PLEASE DESCRIBE THE COMMISSION'S DISCUSSION OF FORWARD-LOOKING**
12 **REGULATORY TREATMENT OF NORTHWESTERN'S INTEREST IN CU4.**

13 **A:** The Commission noted that several issues regarding Colstrip remained unresolved
14 at the end of the rate case, including "retirement dates and stranded costs,
15 remediation costs, and community transition funding."⁴⁶ Although the
16 Commission refrained from initiating a Colstrip investigation docket as a result of
17 the rate case, it retained the authority to initiate a proceeding to investigate the
18 unresolved issues in the future.⁴⁷ The Commission also noted in its final order in
19 the rate case that it expected NorthWestern to seek approval to acquire Puget

⁴⁴ See NorthWestern Resp. to MEIC-002; see also Docket No. 2018.2.12, NorthWestern Resp. to MEIC-007, attached as Exhibit TJS-10.

⁴⁵ Docket No. 2018.2.12, Binz Test. at RJB-35 fn.75.

⁴⁶ Order 7604u ¶ 351.

⁴⁷ Id. at ¶ 349.

1 Sound’s twenty-five percent share in CU4.⁴⁸ The Commission forecasted that
2 “there is no doubt that in this new contested case docket [for the acquisition of
3 additional shares in Colstrip Unit 4], [the unresolved] CU4 issues . . . will require
4 investigation.”⁴⁹ The Commission reiterated in its order on reconsideration that,
5 although it did not set the scope of the acquisition docket, it anticipated that the
6 issues noted in the final order of the rate case were likely to arise in the
7 acquisition docket, and resolution of these issues would potentially foreclose the
8 need for a stand-alone investigation.⁵⁰

9 **Q: HAVE ANY OF THE CIRCUMSTANCES UNDERLYING THE COMMISSION’S 2008**
10 **DECISION TO RATE-BASE CU4 CHANGED SINCE THE FINAL ORDER IN THAT**
11 **DOCKET?**

12 **A:** Yes, numerous Commission findings supporting its determination that rate-basing
13 CU4 in 2008 was in the public interest are based on circumstances that since have
14 changed, and thus would not support a decision in 2020 to include an additional
15 interest in CU4 in NorthWestern’s rate base. Among the most significant changes
16 is that the reciprocal sharing agreement that the Commission attributed with
17 making CU4 “much more secure than a stand-alone coal plant”—under which
18 Talen and NorthWestern share the costs and output of their respective interests in
19 CU3 and CU4—will likely become obsolete in 2025 when CU3 is assumed to
20 retire.⁵¹ Further, as Anna Sommer and Michael Milligan discuss more in their

⁴⁸ *Id.* at ¶ 350.

⁴⁹ *Id.* at ¶ 351.

⁵⁰ Docket No. 2018.2.12, Order 7604v ¶ 109 (May 20, 2020).

⁵¹ Order 6925f ¶ 232; NorthWestern Resp. to MEIC-036a.

1 testimony in this docket, given the operational issues and high expense of
2 operating CU4, as well as other developments in power markets, power available
3 on the market is, in some instances, a less expensive, and more stable, option for
4 ratepayers as compared to CU4.

5 **VI. NorthWestern Proposed Acquisition of an Additional Interest**
6 **in CU4 in This Docket**
7

8 **Q: DO YOU HAVE CONCERNS RELATED TO NORTHWESTERN’S PRE-APPROVAL**
9 **REQUEST IN THIS DOCKET IN LIGHT OF THE STATE’S ENERGY PROCUREMENT**
10 **POLICIES AND THE REGULATORY HISTORY OF CU4?**

11 **A:** Yes. I have significant concerns that NorthWestern’s Application in this docket
12 replicates many of the same flaws from the 2008 docket that resulted in a costly
13 resource for NorthWestern’s ratepayers. Once again, NorthWestern seeks
14 expedited approval of an “opportunity resource,” without having considered the
15 resource in a robust planning process and competitive acquisition process or
16 supported the application with adequate information to determine that the
17 acquisition is in the public interest.⁵²

18 **Q: IS NORTHWESTERN’S PREAPPROVAL APPLICATION IN THIS DOCKET**
19 **CONSISTENT WITH MONTANA’S PROCUREMENT POLICIES AND REQUIREMENTS?**

20 **A:** No. First, leading up to the filing of this Application, NorthWestern failed to
21 engage in a robust resource planning process that fully explored alternatives and
22 responded to rigorous technical input and deficiencies identified by stakeholders,

⁵² See MCA § 69-8-421(2); ARM 38.5.8228(2)(c) (minimum filing requirements for pre-approval).

1 ETAC, Synapse, and the Commission. Importantly, the 2019 Plan did not
2 evaluate or even reference NorthWestern’s plans to acquire an additional interest
3 in CU4. Second, NorthWestern’s characterization of the CU4 acquisition as an
4 “opportunity resource” is unfounded. Third, NorthWestern has not considered
5 reasonable alternatives to the CU4 acquisition, either in the context of the 2019
6 Plan or its Application in this docket.⁵³

A. Deficiencies in Planning Process Leading Up to NorthWestern’s CU4 Acquisition Proposal

7 **Q: PLEASE EXPLAIN YOUR COMMENT THAT NORTHWESTERN ENERGY FAILED TO**
8 **ENGAGE IN A ROBUST RESOURCE PLANNING PROCESS.**

9 **A:** The 2019 Plan is deficient in both process and substance. The September 19,
10 2019, ETAC minutes illustrate the concern about the 2019 planning process and
11 NorthWestern’s failure to engage ETAC in a meaningful way. The minutes
12 indicate that members are concerned that NorthWestern engages ETAC to
13 “comment[] on decisions that have already been made” rather than looking for
14 direction and did not respond to the feedback that ETAC provided. Importantly,
15 NorthWestern failed to disclose, fully discuss and obtain robust input from ETAC
16 for the proposed CU4 acquisition as an “opportunity resource” outside the 2019
17 Plan and competitive acquisition processes.⁵⁴ It is important to recognize that the
18 last substantive ETAC meetings occurred in July and September of 2018 fully one

⁵³ See Commission Comments ¶¶ 98-120, attached as Ex. TJS-8.

⁵⁴ Meeting Summary, NorthWestern Energy Electric Technical Advisory Committee (Sept. 19, 2019), available at <http://www.northwesternenergy.com/docs/default-source/documents/etac/meeting-notes-2019-09-19.pdf>.

1 year before the 2019 Plan was released in August 2019 and before NorthWestern
2 entered negotiations with Puget for the CU4 purchase at issue here.⁵⁵ The first
3 mention of the significant CU4 acquisition proposal with ETAC occurred in the
4 January 7, 2020 meeting, after NorthWestern filed a notice of intent to seek
5 preapproval with the Commission. The purpose of the January 7, 2020 ETAC
6 meeting was to discuss NorthWestern’s 2020 Montana RFP for capacity
7 resources, as identified by the 2019 Plan. NorthWestern explained that the RFP
8 assumes approval of the CU4 acquisition, even though it was nowhere discussed
9 in the 2019 Plan.⁵⁶

10 The upshot of this flawed process is another resource intensive pre-approval case
11 before the Commission with multiple Intervenors presenting cases in opposition
12 to preapproval for CU4 as an “opportunity resource.” This circumstance
13 effectively repeats the conditions when MPC first attempted to rate base CU4
14 three decades ago, which prompted Montana’s initial commitment to long-term
15 resource planning and stakeholder involvement, and again in the 2008 purchase of
16 its thirty percent share of CU4.

17 **Q: HOW IS THE 2019 PLAN DEFICIENT IN SUBSTANCE?**

18 **A:** I agree with many of the criticisms of the 2019 Plan identified in the
19 Commission’s comments, and the comments of its consultant, Synapse. Both the

⁵⁵ See <http://www.northwesternenergy.com/our-company/regulatory-environment/etac>.

⁵⁶ Meeting Summary, NorthWestern Energy Electric Technical Advisory Committee (Jan 7, 2020), at <http://www.northwesternenergy.com/docs/default-source/documents/etac/etac-meeting-notes-1-7-20.pdf>; NWE Resp. to MEIC-075.

1 Commission and Synapse identified substantial deficiencies in NorthWestern’s
2 portfolio modeling, assumptions, additional resource alternatives that
3 NorthWestern did not consider, regional market assumptions and constraints upon
4 the competitive solicitations processes and RFPs.⁵⁷ Specifically, among other
5 things, Synapse noted that the PowerSimm model was constrained “from being
6 able to select a unit for retirement if its economics are poor relative to other units
7 over the course of the planning period.”⁵⁸ Further, Synapse observed and the
8 Commission concurred that resource options evaluated in NorthWestern’s
9 modeling process “consisted of only long-lived physical resources and wholesale
10 spot market energy purchases,” and “d[id] not allow for direct purchase of
11 market-based capacity resources.”⁵⁹ Further, the Commission and Synapse
12 critiqued NorthWestern’s assumptions regarding the capacity contribution of wind
13 and solar resources, and NorthWestern’s failure to model any scenario in which
14 such resources are credited for a higher capacity value.⁶⁰ Additionally, the
15 Commission observed that the 2019 Plan does not evaluate “whether transmission
16 investments could cost-effectively expand access to market or other supply
17 resources,” which the Commission labeled “a significant omission in the 2019
18 Plan.”⁶¹ Ultimately, the Commission questioned “the adequacy, accuracy, and
19 value of the 2019” Plan for purposes of informing the Commission’s evaluation of
20 resource acquisitions.

⁵⁷ Commission Comments ¶¶ 98-121, attached as Ex. TJS-8; Synapse Comments, attached as Ex. TJS-5.

⁵⁸ Synapse Comments at 17, attached as Ex. TJS-5.

⁵⁹ Commission Comments ¶ 103, attached as Ex. TJS-8.

⁶⁰ Id. ¶¶ 106, 111.

⁶¹ Id. ¶ 117.

1 I agree with the Commission's conclusion that the procedural and substantive
2 deficiencies with the 2019 Plan undermine its value in evaluating NorthWestern's
3 resource acquisitions. It certainly does not provide a proper basis for evaluation
4 of the proposed CU4 acquisition at issue in this docket, which NorthWestern
5 failed to even consider in the 2019 Plan.

6 **Q: WAS NORTHWESTERN ENERGY ENGAGED IN ANY OTHER PROCESSES LEADING**
7 **UP TO THIS DOCKET THAT ARE RELEVANT TO NORTHWESTERN'S CU4**
8 **ACQUISITION PROPOSAL?**

9 **A:** Yes. NorthWestern participated in a collaborative process to develop the
10 Montana Renewables Development Action Plan ("MRDAP"), which was initiated
11 in December 2017 and co-sponsored by BPA's Administrator and CEO, Elliot
12 Mainzer, and Montana Governor Steve Bullock.⁶²

13 The MRDAP collaborative process included representatives of the 5 investor-
14 owned utilities that share ownership of CU3 and CU4, and of the Colstrip
15 Transmission System ("CTS"). Additionally, BPA constructed and owns the CTS
16 line from Townsend to Garrison and west to the Idaho border. The collaborative
17 participants also included regulatory and other state agencies (MT PSC, DEQ,
18 MCC) in the four Pacific Northwest states, the Northwest Power and
19 Conservation Council, renewable resource developers, conservation groups, and
20 individuals. The collaborative MRDAP was to examine and mitigate potential

⁶² See BPA & State of Montana, Montana Renewables Development Action Plan (June 2018), at <https://www.bpa.gov/Projects/Initiatives/Montana-Renewable-Energy/Documents%20Montana/Montana-Renewables-Development-Action-Plan-June-2018.pdf> and attached as Exhibit TJS-11 (appendices omitted).

1 barriers to development of renewable resources in Montana to serve markets in
2 Montana and the Pacific Northwest. MRDAP was among the most constructive
3 and effective process in my forty plus year career in Montana and regional energy
4 issues. The MDRAP plan was developed January through June 2018, and the
5 collaborative partners continued over the following eighteen months or so to meet
6 quarterly and report on progress—implementing the plan and resolving
7 outstanding issues. That collaborative time frame is parallel with development
8 and submission of NorthWestern’s 2019 Plan and its early efforts to acquire
9 Puget’s share of CU4 as an “opportunity resource.”

10 **Q: PLEASE DESCRIBE THE RELEVANCE OF THE MONTANA RENEWABLES**
11 **DEVELOPMENT ACTION PLAN TO THE ISSUES PRESENTED IN THIS PREAPPROVAL**
12 **CASE.**

13 **A:** The MRDAP does not support NorthWestern’s continuing emphasis on the
14 continued necessity to operate CU4 for reliability. I will note several key findings
15 that address reliability concerns and the importance of the backbone transmission
16 system to Montana for renewable resource development and markets in Montana
17 and the Northwest.

- 18 • Transmission system capacity will become available as coal-fired
19 generation at Colstrip retires.⁶³
- 20 • The existing transfer capacity of the Colstrip Transmission System (CTS)
21 can, with relatively minor investments (compared to new line builds)

⁶³ Id., p.11, Finding 5.

1 support one-for-one replacement of Colstrip generation with new
2 resources, including variable energy resources.⁶⁴

3 • As long as the Colstrip 500-kV system remains intact and with proper
4 enhancements, steady state and dynamic studies indicate new transmission
5 lines are not required to maintain high transfer capability.⁶⁵

6 • The 500-kV system is also essential for reliable load service both within
7 Montana and for supporting exports to the Pacific Northwest.⁶⁶

8 While much of the MRDAP focuses on identifying opportunities for renewable
9 energy export from Montana to BPA's transmission system, the report's
10 numerous findings on the ability of the CTS to maintain high transfer capability
11 are also very significant for electricity imports into Montana and use within the
12 NorthWestern system in Montana.⁶⁷

13 Consequently, the CTS is capable of reliable service at high levels of transfer
14 capability for imports, exports and service within Montana as Colstrip Units 3 and
15 4 ultimately retire. That is good news for Montana and the northwest,
16 NorthWestern's ratepayers, the economy, employment and the environment.

⁶⁴ Id., Finding 8.

⁶⁵ Id., p.12, Finding 9.

⁶⁶ Id., Finding 10.

⁶⁷ There are a number of additional Findings on Remedial Action Schemes (RAS): no thermal limit violations in any Colstrip retirement scenarios; dynamic analysis found reliable stress performance with no voltage excursions; specific frequency response study will be reviewed when replacement resources and locations are identified; voltage support depends on location but can be provided by numerous methods; blackstart, sub-synchronous resonance, RAS, and WECC Path ratings can be addressed at the time of Colstrip unit retirements and location and type of replacement generation is known. Id., Findings 11-15.

1 **Q: HOW DID NORTHWESTERN ADDRESS THE FINDINGS IN THE MRDAP IN THE**
2 **2019 PLAN OR ITS CU4 PRE-APPROVAL APPLICATION.**

3 **A:** Despite the significant collaborative effort to identify transmission opportunities
4 that reduce the need for ongoing reliance on Colstrip generation, NorthWestern
5 did not adequately account for or discuss the MRDAP’s findings in the 2019 Plan
6 or its application in this docket. Indeed, at the conclusion of the collaborative
7 MRDAP process, NorthWestern lobbied the 2019 Legislature for carte blanche
8 approval of its CU4 acquisition, and after that effort was unsuccessful,
9 approached Puget to commence the transaction at issue in this docket.

10 **Q: DO YOU HAVE OTHER CONCERNS ABOUT NORTHWESTERN’S PROCESS FOR**
11 **ACQUIRING CU4?**

12 **A:** Yes. NorthWestern’s proposal to acquire CU4 as an “opportunity resource”
13 outside of the competitive solicitation means that NorthWestern, the Commission,
14 and the public cannot evaluate alternatives to the acquisition on an even playing
15 field. As Synapse noted, “. . . NorthWestern has not put Colstrip options to a
16 competitive test against alternative opportunity resources”⁶⁸ To the extent the
17 CU4 acquisition is approved and included in the base portfolio in the RFP, other
18 competitive resource alternatives cannot fully and fairly compete to fill the full
19 capacity resource need and are economically disadvantaged. NorthWestern’s
20 approach is plainly inconsistent with the resource planning and competitive

⁶⁸ Synapse Comments at 23, attached as Ex. TJS-5.

1 acquisition standards developed by the Commission and legislature over the past
2 30 years, as described in Section IV above.

**B. The Proposed CU4 Acquisition is not a Legitimate
“Opportunity Resource”**

3 **Q: PLEASE EXPLAIN YOUR STATEMENT THAT NORTHWESTERN’S**
4 **CHARACTERIZATION OF THE CU4 ACQUISITION AS AN “OPPORTUNITY**
5 **RESOURCE” IS UNFOUNDED.**

6 **A:** MCA section 69-3-1207 (5) and (6) define an “opportunity resource,” in part, as a
7 resource that was “unknown as to its availability for purchase until an opportunity
8 to purchase arises.” NorthWestern’s proposed CU4 acquisition plainly does not
9 meet this definition as there is no basis to conclude that it was “unknown” at the
10 time of NorthWestern’s 2019 resource planning. The 2019 Plan was submitted to
11 the Montana Commission on August 20, 2019. In fact, NorthWestern was
12 actively pursuing such an acquisition throughout the 2019 Legislative session, and
13 promoted SB331 and related legislation to eliminate regulatory oversight of the
14 acquisition. Even setting aside these legislative efforts and accepting for the sake
15 of argument NorthWestern’s position that only the current iteration of the
16 acquisition transaction is relevant to this docket, the evidence shows that
17 NorthWestern approached Puget about the purchase no later than July 2019—
18 before NorthWestern had submitted its final 2019 Plan to the Commission.⁶⁹
19 There was no compelling reason for NorthWestern to omit the acquisition from its

⁶⁹ NorthWestern Resp. to MEIC-027.

1 normal planning process. For a proposed CU4 acquisition of this magnitude and
2 obvious sensitivity, NorthWestern failed to reconvene ETAC (which had not met
3 for nearly a year), engage in robust discussion, and incorporate the CU4 proposal
4 into the finalized and released Plan. Such a significant project demanded
5 disclosure and updated analyses and results before the 2019 Plan was issued.

6 The circumstances of NorthWestern’s proposed CU4 acquisition in this case stand
7 apart from other resource acquisitions the Commission considered as “opportunity
8 resources.” Namely, in its 2014 Final Order in the Hydro acquisition docket, the
9 Commission explained:

10 [T]he acquisition of the Hydroelectric Facilities via a competitive
11 solicitation process would have been unworkable and possibly lead
12 to the loss of the opportunity to rate base these assets. The
13 Commission agrees with NorthWestern for purposes of this unique
14 acquisition opportunity, that a competitive solicitation was not
15 feasible because NorthWestern was responding to PPLM’s process,
16 there was no time to run a competitive solicitation, and there is no
17 way to build new hydroelectric generation of this capacity in
18 Montana.⁷⁰

19 Based on these circumstances, the Commission found “that NorthWestern
20 satisfied the Commission’s procurement rules in procuring this unique
21 opportunity resource.”⁷¹

22 The proposed acquisition of CU4 from Puget was not a newly identified
23 “opportunity resource” that required immediate action to avoid a lost opportunity.
24 Unlike with the Hydro purchase, NorthWestern is in control of the process for

⁷⁰ In Re the Application of NorthWestern Energy for Hydro Assets Purchase, Docket No. 2013.12.85, Order 7323k ¶ 157 (Sep. 26, 2014).

⁷¹ Id. ¶ 158.

1 acquiring CU4 and there is no urgency that would prevent NorthWestern from
2 including the purchase in a competitive solicitation. The right of first refusal in
3 the ownership agreement assures that all other owners have the opportunity to
4 participate on a pro rata basis under the same terms. If one of the other owners
5 had attempted to acquire Puget's share of CU4, NorthWestern could participate
6 on a pro rata basis under the same terms, just as Talen has chosen to do in the
7 supplemental application in this case. There would not exist a threat to
8 NorthWestern that CU4 would be a lost "opportunity resource" requiring
9 immediate action outside the IRPA framework.

10 **Q: DO YOU AGREE WITH THE DIRECT TESTIMONY OF MR. HINES AT JDH-6 THAT**
11 **THE UNIQUE CHARACTERISTICS OF THE CAPACITY ACQUISITION MAKE IT**
12 **NEARLY IMPOSSIBLE FOR IT TO HAVE BEEN PART OF A COMPETITIVE**
13 **SOLICITATION?**

14 **A:** No, in my opinion, the distinction he draws is unfounded. Competitive
15 solicitations can be designed to assure that multi-dimensional characteristics are
16 encouraged and considered and that assessment of such characteristics can be
17 performed. In particular, the concern Mr. Hines cited regarding the ability to
18 account for the sale of power back to Puget is not justified, where the value of the
19 Power Purchase Agreement ("PPA") may be modeled and considered in any
20 competitive solicitation. Further, NorthWestern's establishment of a Reserve
21 Fund is not relevant to the value of the CU4 acquisition, where it simply reflects
22 an accounting decision by NorthWestern about how to credit customers for net
23 purchased power costs. In any event, negotiations can tailor contracts to assure

1 such characteristics are secured. It is particularly important that an experienced,
2 sophisticated, and respected independent third party administrator be selected for
3 the competitive solicitation and acquisitions, especially where NorthWestern has
4 an existing ownership share and financial incentives that may affect its ability to
5 make informed (and unbiased) decisions about the future of CU4 as described
6 above at TJS-15:10 through TJS-16:12.

7 **Q: DOES THE PROPOSED CU4 ACQUISITION UNREASONABLY SHIFT RISK TO**
8 **RATEPAYERS?**

9 **A:** Absolutely. The long-term planning process and reliance on competitive
10 solicitations are meant to mitigate risks by ensuring that resources are fully vetted
11 for their ability to meet NorthWestern's resource needs with the lowest overall
12 costs and risks. Preapproval is designed to ensure that a utility does not have to
13 take on undue risk of a new resource by assuring cost-recovery for prudent
14 investments. But before shifting that risk to customers, the Commission's Default
15 Supply Guidelines require a robust analysis to ensure risks are appropriately
16 identified and mitigated and that the utility is not foregoing lower-cost, lower-risk
17 resources. By pursuing the CU4 acquisition as an "opportunity resource" rather
18 than part of a robust planning process and competitive resource solicitation and
19 acquisition process, NorthWestern side-stepped these consumer protections.
20 NorthWestern's application in this docket does not fill the gaps left by the 2019
21 Plan by reasonably considering alternative resources. For these reasons, it is my
22 opinion that pre-approval of the CU4 acquisition would be inconsistent with

1 Montana’s procurement policies and requirements, and shift unreasonable risk to
2 NorthWestern’s Montana ratepayers.

C. NorthWestern Has Failed to Consider Viable and Cost-Effective Alternatives to the Proposed CU4 Acquisition

3 **Q: HAVE YOU IDENTIFIED OTHER POTENTIAL RESOURCE ACQUISITIONS WHICH**
4 **NORTHWESTERN FAILED TO PURSUE AS IT PROCEEDED WITH CU4 AS AN**
5 **“OPPORTUNITY RESOURCE”?**

6 **A:** Yes, in addition to the multiple comments by the Commission, Synapse, and
7 others about additional resource alternatives, I will describe two resource
8 alternatives. First, Puget Sound Energy in March 2020 acquired 40 MW of hydro
9 capacity under a fifteen year contract with Energy Keepers, Inc. (“EKI”), the
10 marketing agent for the Confederated Salish & Kootenai Tribes (“CSKT”), from
11 the former Kerr Dam.⁷² Puget was able to acquire 40 MW of hydroelectric
12 generation under a fifteen year contract from a known resource from within
13 Montana at the same time Puget is seeking to unload its twenty-five percent share
14 of CU4 to NorthWestern (and now Talen). Likewise, industrial customers in
15 Montana, who were previously served by Talen Energy, have also sought
16 resource purchases from the former Kerr Dam.⁷³ NorthWestern failed to explore
17 and pursue other non-coal fired resources in its own backyard. Notably,

⁷² See T. Lutey, Major Colstrip owner to buy hydropower from Western Montana tribes, *Billings Gazette* (Mar. 29, 2020), available at https://billingsgazette.com/business/major-colstrip-owner-to-buy-hydropower-from-western-montana-tribes/article_9b3b2573-f730-5d58-ae1c-b5662dd26b7f.html.

⁷³ *Id.*

1 NorthWestern operated Kerr for about a year before turning over the operation to
2 CSKT in 2015.⁷⁴

3 **Q: ARE THERE OTHER ALTERNATIVES THAT YOU BELIEVE ARE PARTICULARLY**
4 **IMPORTANT THAT NORTHWESTERN FAILED TO PURSUE?**

5 **A:** Yes. I concur with the Commission and with Synapse's Comments (2.1 Market
6 energy and capacity purchases), as well as Michael Milligan's testimony in this
7 docket, that NorthWestern should consider long-term market-based capacity
8 resource alternatives.⁷⁵

9 **Q: NORTHWESTERN EMPHASIZES THE RISK OF RELYING UPON REGIONAL MARKET**
10 **PURCHASES AS INCREASINGLY SCARCE AND EXPENSIVE AND THAT**
11 **TRANSMISSION IMPORT CONSTRAINTS ARE RISKY AND PROBLEMATIC**
12 **ESPECIALLY DURING WINTER PEAK PERIODS. WHAT IS YOUR OBSERVATION?**

13 **A:** NorthWestern has continued to rely on short term market purchases over short
14 term import available transmission capacity ("ATC"). However, NorthWestern
15 has not evaluated firm import paths in lieu of short-term import ATC.⁷⁶
16 NorthWestern's failure to conduct this analysis is unreasonable. During
17 NorthWestern's development of the 2019 Plan, the level of firm import ATC on

⁷⁴ See NorthWestern Resp. to MEIC-043(a), (b); see also NorthWestern Resp. to TDW-017 and TWD-030.

⁷⁵ Commission Comments ¶ 103, attached as Ex. TJS-8.

⁷⁶ NorthWestern Resp. to MEIC-110 (Request: Provide all analyses or other documents prepared by NorthWestern or any other person or entity regarding NorthWestern's acquisition of additional firm import capacity on Path 8 and Path 18 in lieu of relying on the short term service via ATC described at page 6-8 and Table 6-1; Response: NorthWestern Transmission has sometimes reserved ATC on its own system to import Balancing Authority products such as contingency reserves. It is the load serving entities responsibility, including Northwestern Energy Supply and other load serving entities in the BA such as cooperatives and other FERC OATT customers, to designate resources and reserve transmission capacity to serve load. NorthWestern Energy Supply has not conducted any such analyses.); see also NorthWestern Resp. to MEIC-109.

1 Paths 8 and 18 were reasonably significant.⁷⁷ However, by June 25, 2019 just
2 before the 2019 Plan was filed, the long term firm import ATC on Paths 8 and 18
3 had dropped significantly as reflected on Table 6-1 from Chapter 6 of the Plan.⁷⁸
4 The long term firm import ATC on Paths 8 and 18 dropped from 734 MW on
5 10/1/2018 to 336 MW on 6/25/2019, a reduction of nearly 400 MW of firm
6 import ATC.⁷⁹ Despite NorthWestern’s claimed “urgent need” and stated
7 concerns about import market price exposure and import transmission constraints,
8 NorthWestern failed to secure firm transmission import opportunities which were
9 then lost to other entities over the same period that NorthWestern was developing
10 its 2019 Plan and pursuing the twenty-five percent Puget share of CU4.
11 NorthWestern’s failure to assess and pursue firm regional resource purchases and
12 firm import ATC to mitigate its alleged market exposure and transmission risk
13 exposure is unacceptable.⁸⁰ NorthWestern should not allow the remaining ATC
14 capacity to also be lost without undertaking a serious analysis of the cost and
15 benefits of obtaining such firm import capacity.

16 Similarly, Synapse identified potential firm resource opportunities from BPA as
17 another viable option to satisfy a portion of NorthWestern’s alleged “urgent
18 flexible and peak capacity needs” for capacity resources.⁸¹ NorthWestern’s
19 response to MCC-092 again reflects an unjustified distinction between a

⁷⁷ See M. Cashell, Vice President – Transmission, NorthWestern Transmission System - Presentation to ETAC 9-6-18, slide 7, <http://www.northwesternenergy.com/docs/default-source/documents/etac/2018/etac-transmission-presentation-9-6-18.pdf>, and attached as Exhibit TJS-12.

⁷⁸ 2019 Plan, TABLE 6-1 Estimated Long Term Path Availability (6/25/2019), excerpt attached as Exhibit TJS-13.

⁷⁹ Compare Ex. TJS-12 with Ex. TJS-13.

⁸⁰ See Commission Comments ¶¶ 18, 19, 117, attached as Ex. TJS-8.

⁸¹ Prefiled Dir. Test. of John D. Hines at JDH-15.

1 requirement to acquire needed resources through a competitive solicitation and an
2 acquisition process with its designation of CU4 as an “opportunity resource.”

3 Additionally, key reasons that entities join the Energy Imbalance Market (“EIM”)
4 and potentially a Regional Transmission Organization (“RTO”) are to broaden
5 and diversify the resource base and access enhanced regional resource flexibility
6 to meet their continuing needs on a more cost effective basis. The preapproval of
7 CU4 as an “opportunity resource” in advance of NorthWestern’s announced
8 participation in the EIM in 2021 and ultimately in an RTO by 2025 would be a
9 costly and risky commitment given the serious deficiencies identified by Synapse
10 and in the Commission’s Comments on the 2019 Plan on June 30, 2020.⁸²

D. Evaluation of Whether Pre-Approval is in the Public Interest

11 **Q: WHAT IS NORTHWESTERN’S PRIMARY ECONOMIC JUSTIFICATION FOR THE CU4**
12 **ACQUISITION?**

13 **A:** NorthWestern focuses upon its estimate of combined purchased power cost
14 savings and net revenues under the PPA with Puget during the period ending
15 2025, given the uncertainties about continued operations of CU4 thereafter.⁸³
16 However, as described in the pre-filed testimony of Anna Sommer, the PPA is
17 unlikely to yield significant revenues, and may actually result in losses through
18 2025.⁸⁴

⁸² See also Pre-filed Dir. Test. of Anna Sommer and Pre-filed Dir. Test. of Michael Milligan in this docket.

⁸³ Pre-filed Dir. Test. of Bleau J. LaFave at BJL-24.

⁸⁴ See Pre-filed Dir. Test. of Anna Sommer.

1 **Q: ARE NORTHWESTERN’S OTHER JUSTIFICATIONS FOR THE CU4 ACQUISITION**
2 **VALID?**

3 **A:** No. I agree with Michael Milligan’s assertions in his testimony in this docket
4 regarding NorthWestern’s flawed flexibility analysis as it relates to the proposed
5 acquisition. Further, in light of the alternative resource opportunities described
6 above, in the testimony of Anna Sommer and Michael Milligan, and the
7 Commission and Synapse comments on the 2019 Plan, NorthWestern’s claim that
8 the CU4 acquisition is needed to fill NorthWestern’s capacity gap is also
9 unfounded.

10 **Q: IN LIGHT OF YOUR FINDINGS, DO YOU BELIEVE PRE-APPROVAL OF THE**
11 **PROPOSED CU4 ACQUISITION IS IN THE PUBLIC INTEREST?**

12 **A:** No. Not only has NorthWestern failed to support any rational justification for a
13 public-interest finding, the risks associated with NorthWestern’s failure to
14 consider the CU4 acquisition as part of a robust planning process with the
15 requisite stakeholder input and competitive solicitation process are unreasonable
16 and unnecessary. NorthWestern’s application raises the specter of history
17 repeating itself. NorthWestern’s 2008 request for expedited pre-approval of its
18 existing 222 MW share of CU4 as an “opportunity resource”—based on an
19 incomplete application presenting inflexible terms and conditions—resulted in an
20 extremely costly asset for NorthWestern’s customers. I respectfully urge the
21 Commission to reject NorthWestern’s repetition of that approach in this docket.

1 **Q: IS PREAPPROVAL NECESSARY FOR NORTHWESTERN TO ACQUIRE CU4 AS AN**
2 **“OPPORTUNITY RESOURCE” FROM PUGET?**

3 **A:** No. NorthWestern could proceed with the CU4 Capacity Acquisition and, under
4 traditional ratemaking standards, later seek recovery of costs by demonstrating the
5 resource is “actually used and useful for the convenience of the public.”⁸⁵.
6 Integrated resource planning requirements and competitive solicitations are
7 encouraged for all utility resource acquisitions. However, such processes are
8 required, subject to the narrow exception for legitimate “opportunity resource[s],”
9 only to the extent the utility seeks preapproval of the acquisition under MCA §
10 69-8-421.⁸⁶ Thus, so long as NorthWestern does not seek preapproval, the utility
11 could acquire an additional share of Colstrip Unit 4 outside of resource planning
12 and competitive solicitation processes.

13 I note that denying NorthWestern’s pre-approval application does not mean that
14 NorthWestern may not close the purchase agreement with Puget; rather, if
15 NorthWestern acquires Puget’s interest in CU4 without the Commission’s pre-
16 approval, the Company—rather than its customers—will bear the risks associated
17 with likely increased costs associated with maintaining and operating the plant.

⁸⁵ MCA § 69-3-1202(2)(a).

⁸⁶ Id. §§ 69-3-1202, 69-3-1207, 69-8-421.

VII. Summary of Conclusions and Recommendations

Q: PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATIONS FOR THE COMMISSION’S DISPOSITION OF NORTHWESTERN’S APPLICATION FOR PREAPPROVAL OF THE PROPOSED CU4 ACQUISITION.

A: The Commission should deny this preapproval request for a resource acquisition of CU4 as an “opportunity resource” because it conflicts with the state’s long-standing resource procurement policies in the following ways:

- Leading up to NorthWestern’s application in this docket, NorthWestern did not engage in an adequate long-term integrated resource planning process with robust stakeholder input. Among other things, the 2019 Plan failed to meaningfully consider numerous alternatives—including the acquisition of long-term ATC and market purchases—that could meet NorthWestern’s claimed capacity need with lower costs and risks for its customers as the Comments of Synapse and the Commission Findings make clear (FF98-121); and
- NorthWestern cannot justify omitting consideration of the CU4 acquisition from the 2019 Plan or a competitive solicitation process, where NorthWestern was engaged in vigorous efforts to make such an acquisition throughout the 2019 planning process, including during the 2019 Legislative session; and
- Pre-approval of the proposed CU4 acquisition is not in the public interest in light of the risks associated with NorthWestern’s failure to consider the

1 CU4 acquisition as part of a robust planning process with the requisite
2 stakeholder input and competitive resource solicitation process.

3 Because the CU4 acquisition does not satisfy policies designed to protect the
4 interests of Montana electricity customers, and NorthWestern's application fails
5 to provide adequate information to otherwise ensure that the acquisition would
6 result in just and reasonable rates and allow NorthWestern to provide "adequate
7 and reliable electricity supply service at the lowest long-term total cost," and
8 "cost-effectively manage[] and mitigate[] risks" to its customers, the Commission
9 should find the CU4 acquisition is not in the public interest.⁸⁷

10 **Q: DOES THIS CONCLUDE YOUR TESTIMONY?**

11 **A:** Yes, it does.

⁸⁷ ARM 38.5.8203.

Exhibits to Direct Testimony of Thomas J. Schneider
on behalf of Montana Environmental Information Center

Exhibit TJS-1

Docket No. 2019.12.101

Thomas J. Schneider

1815 E. Broadway
Helena, MT 59601

Cell: 360-852-1354
tjschneider48@gmail.com

PROFESSIONAL EXPERIENCE

Individual and Pro Bono Consulting Capacity, Helena, MT

2015-2018

Montana Renewables Development Action Plan

1/2018 - Present

Appointed to participate in a transparent, collaborative process co-sponsored by Elliot Mainzer, Administrator and CEO of BPA, and MT Governor Steve Bullock to mitigate barriers to the development of MT renewable energy resources to serve the regional market. Project participants included all six owners (NWE, PSE, AVA, PGE, PAC, and BPA) of the Colstrip Transmission System; renewable energy developers; state and regional agencies; and environmental groups. My project focus included planning, commercial policies, and operations, addressing the reliability, available transfer capacity, tariff, market, and contractual issues associated with the retirement of the Colstrip units, and potential repurposing of the twin 500 kV transmission system to transport MT renewable resources. The Montana Renewables Development Action Plan report was released in June 2018, and reporting on progress continues quarterly.

Expert Witness Testimony – Bonneville Power Administration

1/2017

Provided pro bono expert witness testimony to the Bonneville Power Administration, 2018 Rate Adjustment Proceeding, Docket No. BP-18, on behalf of the Sierra Club and the Montana Environmental Information Center.

**Western Electricity Coordinating Council
Salt Lake City, Utah and Vancouver, WA**

2007-2013

Director, Corporate Compliance

3/2012-12/2013

Responsible for independent oversight and monitoring of compliance with applicable reliability standards by the WECC Reliability Coordinator and Interchange Authority. Developed and maintained the Internal Compliance Program to establish the responsibilities, reporting protocols, and internal compliance audit scheduling. Contracted with audit consultants and participated as observer or member of internal audit teams. Reported to WECC executive team in weekly meetings and reported independently to the WECC Board.

Manager, Compliance Coordination

3/2010 – 3/2012

Coordinated compliance department's input into NERC and regional reliability standards development programs. Worked closely with compliance auditors and WECC Standards staff to discuss and reconcile perspectives on draft standards. Spearheaded analysis of historic violations of reliability standards in WECC as part of WECC's State of the Interconnection project. Analysis focused on violations of higher risk requirements that could trigger or contribute to system outages. Worked with NERC analysts who were interested in the strategy and methods developed at WECC.

Managing Director, Planning and Standards

3/2008-3/2010

Responsible for WECC and NERC Reliability Standards Development Processes. Worked with WECC staff and Members to develop draft regional reliability standards, and proposed language for draft standards being developed at NERC. Led WECC team in discussions with FERC staff, seeking approval of pending WECC Regional Standards. Led efforts to address FERC staff concerns about frequency issues in WECC. Responsible for long-term transmission expansion planning, the NERC long-term resource assessment, base cases/studies, and renewable integration studies supporting TEPPC and PCC. Led the WECC TEPPC's team

effort, successfully securing a \$14.5 million DOE grant, extending from 2010-2014, to support long-term Regional Transmission Expansion Planning (RTEP). The DOE funding expanded and enhanced WECC's staffing levels, tools, and modeling capabilities for 10 and 20 year scenario development. Successfully advocated a funding proposal to support participation by environmental, conservation, renewable resource advocates, tribal representatives, NGOs, and other stakeholders in technical work groups and development of long-term planning scenarios and plans.

WECC's Hearings Officer***1/2007 – 3/2008***

Developed procedural rules and the framework for a compliance hearing body to afford due process for Registered Entities to contest alleged violations by the WECC compliance monitoring and enforcement processes. Gave workshop presentations throughout the region for outreach and education on potential hearings and settlements related to alleged violation of reliability standard requirements. The presentations were part of the overall WECC Compliance training workshops conducted in the region prior to the effective enforcement date of reliability standards.

Commissioner, Montana Public Service Commissioner (PSC)**2003 – 2006**

Publicly elected Commissioner of a district representing nine counties in central MT, including Helena and Great Falls. The elected MT PSC structure is made up of five geographic districts with staggered four year terms. Focused on integrated resource planning and acquisition, natural gas procurement strategies, the conditions related to the bankruptcy and reorganization of the state's major electric and gas utility, approval of a major wind project, funding level allocations of universal system benefits programs for energy efficiency, DSM, low-income utility programs, renewable energy, and efforts to establish an RTO in the Northwestern region.

Consultant**1985 - 2002**

Established a national utility regulatory consulting practice in 1985, focusing on rate and public policy matters in electricity, natural gas and telecommunications, anti-trust, deregulation, competition, low income and environmental issues.

- Testified as an expert witness before a U.S. District Court in Pennsylvania, a Montana District Court, and the respective state utility regulatory commissions in Utah, Washington, Minnesota, Illinois, Arizona, Idaho, Missouri, Texas and Montana.
- Clients included State PUC Staffs, State Attorney Generals, low-income agencies, consumer and environmental groups, municipal governments, schools, and utilities.

Commissioner, Montana Public Service Commission (PSC)**1977-1984**

Publicly elected Commissioner on the Montana Public Service Commission from a district representing 11 counties in southeastern MT, including Billings. Major policy issues and rate decisions involved issues related to Colstrip Units 3 and 4, the Bell System breakup, implementation and rate decisions related to the National Energy Act of 1978 (PURPA, NGPA, FUA, etc.), extreme economic impacts of double-digit inflation and unemployment, dramatic increases in natural gas costs, OPEC curtailment, and pricing actions. Public protest and involvement in PSC proceedings escalated significantly.

- Appeared or testified before various U.S. House and Senate subcommittees, Montana State Legislative committees, the Federal Energy Regulatory Commission, the Canadian National Energy Board, the Northwest Power Planning Council, and the Bonneville Power Administration.
- In 1980, served as President of the Western Conference of Public Service Commissioners (WCPSC) (14 states) and as a member of the Executive Committee of the WCPSC for five years.

Petroleum Engineer**1970-1976**

Employed in petroleum engineering positions (oil and natural gas production and drilling operations) throughout the Rocky Mountain region with Amoco Production, Philips Petroleum, Bison Operating Company, and as an individual consultant.

EDUCATION**Montana Tech, The University of Montana, Butte, Montana****1966-1970**

B.S. with honors in Petroleum Engineering.

Gold Medal Award from the Montana Society of Engineers as the “Outstanding Graduate of 1970.”

AWARDS

Montana Environmental Information Center, Conservationist of the Year, 2018, for lifetime achievement.

NW Energy Coalition, Bob Olsen Memorial, Conservation Eagle Award, 2006, “In recognition of his leadership for a clean and affordable energy future.”

Northern Plains Resource Council, Bob Tully Spirit Award, 1989.

Exhibits to Direct Testimony of Thomas J. Schneider
on behalf of Montana Environmental Information Center

Exhibit TJS-2

Docket No. 2019.12.101

Program Evaluation

Least-Cost Integrated Resource and Electricity Supply Resource Planning

Montana Public Service Commission



ENERGY AND TELECOMMUNICATIONS INTERIM COMMITTEE

January 16, 2018
Authored by: Sonja Nowakowski

Introduction

The Energy and Telecommunications Interim Committee’s statutory duties allow for an in-depth overview of programs, including laws, rules, budget, and on-the-ground implementation of programs, administered by the Montana Public Service Commission (PSC). The committee may focus more specifically on a particular subject that the PSC administers, pursuant to 5-5-230, MCA. That law provides the ETIC with “administrative rule review, draft legislation review, program evaluation, and monitoring functions for the department of public service regulation and the public service commission.”

The ETIC allocated time to a programmatic review of Montana’s integrated resource planning and supply procurement processes. At the January 16 ETIC meeting, the committee will hear from the PSC concerning the agency’s role in planning and will learn more about utility perspectives.

Montana’s utility planning statutes raise multiple related utility policy issues, ranging from demand-side management requirements to preapproval processes and qualifying facility contracts. The information in this report focuses on the planning aspects outlined in law and rule. It only touches on other related issues, many of which are worthy of their own programmatic review. Montana’s integrated least-cost resource planning and procurement planning also require a look at Montana’s overall energy policies and how those policies have changed over the years. This report provides an overview of the planning processes in law. It does not capture the details of integrated resource or procurement plans themselves, which result in several volumes of reports and hundreds of pages of corresponding comments filed with the PSC every two years.

The Montana Integrated Least-Cost Resource Planning and Acquisition Act, codified in Title 69, chapter 3, was largely developed around providing public participation requirements and guidance to the Montana Power Company (MPC), but the act currently does not apply to NorthWestern Energy. Montana-Dakota Utilities (MDU) is the only utility in Montana that submits a plan under the statute. After Montana’s experiment with deregulation and before its return to regulation in 2007, the Montana Legislature developed an “electricity supply resource procurement plan” process. The process was originally intended for use by default suppliers operating in Montana’s deregulated market. When Montana reregulated utilities in 2007, NorthWestern, a default supplier, became a public utility regulated pursuant to Title 69, chapter 8. NorthWestern therefore does not submit an integrated least-cost resource plan but instead submits an electricity supply resource procurement plan. While the plan requirements are similar, the history and rules surrounding those plans are different. The review in this report examines similarities and differences. This also covers changes made by the 2017 Legislature that altered aspects of the electricity supply resource procurement plans, with the adoption of Senate Bill 168 (Chapter 422, Laws 2017).

While Montana has two distinct planning processes for two different utilities operating in the state, the processes are similar in more ways than they differ. Both planning processes emphasize long-term planning that results in the lowest-cost, most reliable, and most efficient mix of generation resources. Both planning processes focus on:

- the fundamental relationship between resource planning and procurement and ratemaking; ;
- the role of environmental and societal externalities in resource portfolios;
- the use of competitive resource solicitations;
- an evaluation of market uncertainty and risk;
- an assessment of the optimal mix of supply and demand; and
- public involvement and stakeholder input.

Integrated Resource Planning

History

The backbone of Montana's integrated resource planning and procurement process is the result of an October 1988 agreement between Montana Power Company, District XI Human Resource Council, and the Natural Resources Defense Council. The road to agreement is worthy of an in-depth look. The agreement grew out of controversy that surrounded MPC's decision, and the legal wrangling that followed, to build and utilize power from Colstrip Unit 3 and, more specifically, Unit 4. Entities were concerned about the disposition of MPC's share of Colstrip Unit 4 power and about MPC's commitment to developing conservation resources. MPC agreed to budget \$2.4 million for its conservation programs and agreed to the creation of a Conservation and Least Cost Planning Advisory Committee to review and advise MPC concerning its conservation acquisition plans.¹ The committee was tasked with:

- defining least-cost resource planning as it related to MPC;
- establishing criteria for determining least-cost resources;
- determining the appropriate role of demand-side resources in planning; and
- establishing the appropriate role of competitive bidding in planning.

The agreement established the members of the committee to include MPC, the Human Resource Council, Montana environmental interests, Montana consumer interests, the Montana business community, Northwest Regional Power Planning Council, and the Montana Department of Natural Resources and Conservation.

In exchange, the Human Resource Council and the Natural Resources Defense Council agreed to make no legal challenge to a number of MPC issues pertaining to the use of power generated at Colstrip Unit 4, particularly a series of dockets that were before the Montana Public Service Commission.

The agreement surrounding Colstrip Unit 4 and the subsequent birth of integrated resource planning in Montana did not occur in a vacuum. In 1973, MPC and several other utilities filed an application with the Department of Natural Resources and Conservation for a certificate of environmental compatibility and public need under the Major Facility Siting Act for Colstrip Units 3 and 4. To acquire the certificate, the utilities had to demonstrate that there was a need for the energy produced; that the facilities would serve the public interest, convenience, and necessity; and that the loads and resources forecast by the utilities demonstrated an energy deficit in the future. In addition, MPC had to demonstrate that the additional units were the lowest-cost alternative for consumers and the best choice available for future power needs. The state concluded that energy produced by Colstrip Units 3 and 4 was needed and in 1976 granted the certificate. The decision was appealed to the Montana Supreme Court on two occasions.²

Those court cases, however, did not address an issue before the Montana PSC — changes in the rates paid by Montana consumers resulting from the construction of Units 3 and 4. After completion of Colstrip 3 in 1983, MPC filed an application with the PSC to increase electric service rates to reflect the inclusion of Colstrip 3 and associated facilities in its rate base. The request was for \$96.4 million to increase revenues by about 55 percent. It was the largest rate increase request ever filed in Montana. The PSC ultimately determined Colstrip 3 was not “used and useful” and could not be included in MPC's rate base.³ While some interim rate increases were granted, MPC

¹ Montana Power Company, District XI Human Resource Council, and Natural Resources Defense Council, agreement, signed and dated October 20, 1988.

² Northern Plains Resource Council v. Board of Natural Resources and Conservation, 181 Mont. 500, 594 P.2d 297 (1979); and Northern Plains Resource Council v. Board of Natural Resources and Conservation, 183 Mont. 540, 601 P.2d 27 (1979).

³ Docket No. 83.9.67, Order No. 5051c, Montana Public Service Commission.

responded by announcing they would reduce the budget for construction and work at Unit 4. Three of the five utility partners in Colstrip requested a delay until financial issues were sorted out. The delay was expected to result in 300 workers being furloughed.⁴ In the meantime, the PSC decision on Unit 3 went to the Montana Supreme Court, and the Court ruled that MPC's acquisition of a certificate and a finding of usefulness and need under the Major Facility Siting Act did not limit the PSC's statutory ratemaking authority.⁵

But the rate case was not over. In 1984, MPC also filed a petition for judicial review of the PSC order under certain provisions of the Montana Administrative Procedure Act. In June 1985, a District Court ruled in favor of MPC, finding that the PSC had unlawfully denied MPC the \$96.4 million rate increase in 1984. The ruling sent the request back to the PSC for reconsideration, opening up debate about the statutory timelines during which the PSC was to make a decision. In August 1985, the PSC reversed course after its 1984 decision and voted to increase MPC's electric rates by about \$80.3 million, phased in over an eight-year period. A final appeal before the Montana Supreme Court was dismissed in November 1985.⁶ MPC decided to sell its 210 megawatts at Colstrip 4, largely because of the financial difficulties the utility encountered after the PSC's original finding that Colstrip 3 was not needed and should not be in the rate base. MPC also reached an agreement concerning future integrated resource planning.

Concerns about utility planning and procurement were not unique to Montana or to decisions about Colstrip. In the late 1960s, energy planners in the Northwest determined that increased demand would outstrip the capacity of existing hydroelectric resources. This was expected to affect Washington, Oregon, Idaho, and Montana. Regional planners were encouraged to start planning and building large thermal plants. MPC and a consortium of Washington utilities pursued the Colstrip facilities. The Washington Public Power Supply System, authorized by the state of Washington, began planning to construct five nuclear plants. Several factors combined to delay construction schedules and to drive costs to inflate for the nuclear facilities. In 1983, the Washington Public Power Supply System defaulted on \$2.24 billion in municipal bonds. It was the largest bond default in the United States. Four of the plants were never completed.⁷

Adding to the misery, electricity demand across the Northwest in the late 1980s and early 1990s fell far short of earlier projections, in part because of increasing consumer rates to finance new generation and in part because of economic recession. The Northwest ended up with an energy surplus. In energy circles, this was deemed a colossal planning failure. In response, utility planners started scrutinizing energy demand and consumption, resource selection, and associated risks. Integrated resource planning and state requirements for planning resulted.

Montana's Conservation and Least Cost Planning Advisory Committee in October 1990 issued its report and recommendations concerning integrated least-cost resource planning and acquisition in Montana. It was "the culmination of an historic, sixteen month collaborative effort by representatives of groups which actively participate in energy policy and regulatory processes in Montana including: Montana Power Company, District XI Human Resource Council, Montana Power Company Large Users Group, Montana Environmental Information Center,

⁴ Glenn Pacini, "Colstrip 3," the University of Montana, Theses, Dissertations, Professional Papers (1986), paper 8670.

⁵ *Montana Power Company v. Public Service Commission*, 692 P.2d 432 (1984).

⁶ *Montana Power Company v. Public Service Commission*, No. 85-445 (1985).

⁷ "Seduced and Abandoned? Utilities and WPPSS Nuclear Plants," *Columbia Magazine* (Fall 1991), Vol. 5, No. 3., Washington State Historical Society.

Northern Plains Resource Council, Montana Department of Natural Resources and Conservation, and Northwest Power Planning Council,” wrote Gerald Mueller, coordinator of the committee.⁸

Planning Takes Its First Steps

The committee provided recommendations to the PSC and to MPC to implement integrated resource planning. MPC was advised to petition the PSC to institute guidelines for least-cost planning and competitive acquisition processes and to approve methods for acquiring qualifying facility (QF) resources that would be compatible with integrated least-cost planning and competitive resource acquisition. The committee’s October 1990 report stated: “The decades of the 1970s and 1980s have demonstrated conclusively the enormous cost implications of utility resource decisions to the economies of our region and state as well as individual industries, businesses, local governments, farms and ranches, and households. Ratepayers who need and consume electricity must support and insist that both MPC and its regulators have available and apply the information, expertise, and tools — and hence the budget and personnel — to develop, implement, and oversee integrated least-cost resource planning and acquisition.”⁹

Based on the committee report and recent events, the PSC also became increasingly interested in integrated least-cost planning and competitive resource acquisition. The commission established a proceeding to examine the issues and in October 1990 issued a Notice of Investigation, inviting interested parties to comment on the appropriate procedure. After collecting public comment, the PSC determined that some form of least-cost planning needed to be developed in Montana. The “second stage” of integrated resource planning began in late 1991 with the PSC developing administrative rules articulating guidelines for the development of utility least-cost plans. The third stage was to be the actual implementation of utility least-cost planning.

The rulemaking at the PSC moved forward. Stakeholders had much to say about the rules. “One principal theme is the minimization of resource planning controversy. To their credit, these proposed rules stress clear, concise utility resource plans so that a utility ensures that it communicates effectively. The rules also provide the opportunity for meaningful feedback to the utility from interested parties, the public, and the Commission. This feedback is essential, and we hope the Commission takes advantage of it,” wrote MPC commenting on the proposed rules.¹⁰

Montana-Dakota Utilities raised a multitude of concerns with the proposed rules. MDU is a multijurisdictional utility, and the utility raised concerns about Montana resource planning creating problems with North Dakota and South Dakota regulatory commissions. Both MDU and MPC also raised a fundamental concern that the Montana PSC was not authorized by the Montana Legislature to “mandate its vision of integrated resource planning.” The Montana Legislature in 1981 and 1985 had rejected planning proposals.¹¹ MPC in 1992 told the PSC that a legislative sanction for the guidelines “would be beneficial to all parties.”

Nevertheless, in December 1992 the PSC adopted rules requiring both MPC and MDU to submit integrated least-cost resource plans, beginning with MPC in March 1993. The rules remain in place today.¹²

⁸ “Integrated Least Cost Planning Report and Recommendations to Montana Power Company and Montana Public Service Commission” (October 1990), p. i.

⁹ *Ibid.*, p. 28.

¹⁰ Docket No. 90.8.49, In the Matter of Proposed Adoption of Rules on Integrated Least Cost Planning and Electric Utilities, Comments of the Montana Power Company, p.2.

¹¹ House Bill 780, 1981 Montana Legislature, and House Bill 868, 1985 Montana Legislature.

¹² 38.5.2001 through 38.5.2012, Administrative Rules of Montana.

Policymakers Provide Direction

In part because of planning failures in the Northwest, federal policymakers also had become increasingly interested in planning requirements. In 1980, Congress passed the Pacific Northwest Electric Power Planning and Conservation Act. It authorized the states of Montana, Idaho, Oregon, and Washington to create a council that would develop a 20-year power plan. The plan was aimed at ensuring the region had adequate, efficient, economic, and reliable power.¹³ These planning efforts have continued since, with updates every five years. The 1992 Energy Policy Act also required that state regulatory commissions consider adoption of an integrated resource process, requiring utilities to develop an analytical framework to compare “equitably and systematically supply and demand-side resources.” Utilities also were required to provide opportunities for public participation and comment during the planning process.¹⁴

In 1993, Representative Joe Quilici (D-Butte) introduced House Bill 390 establishing the Montana Integrated Least-Cost Resource Planning and Acquisition Act. Quilici testified before the House Business and Economic Development Committee that the bill had three purposes:

- clarify the PSC authority to require electric and natural gas utilities to file a report with the PSC;
- clarify that utilities could recover costs if they invested in energy efficiency or other investments consistent with the plans that went before the PSC; and
- eliminate duplication between planning requirements before the PSC and those required under the Major Facility Siting Act.

There were no opponents to the legislation in the House or Senate committees. The Montana PSC testified on its rulemaking and stated that it firmly believed the commission had sufficient legal authority to require integrated resource planning. However, the PSC noted that disagreement existed on that front — disagreement that could be settled by the courts or the Legislature. Then-PSC Chairman Bob Anderson urged the Legislature to take action. “We respect the process that produced this bill. It represents a way of settling differences in a constructive way instead of the polarized, contentious way of the past. This bill represents one of the positive legacies of the Colstrip era,” Anderson testified on February 10, 1993, before the House committee.

The legislation passed 99-0 in the House and 48-0 in the Senate and took effect March 24, 1993. It included \$50,000 per biennium for PSC staff to process future plans.

Montana Integrated Least-Cost Resource Planning and Acquisition Act

The Montana Integrated Least-Cost Resource Planning and Acquisition Act is in Title 69, chapter 3, part 12, of the Montana Code Annotated. The statute reads in part: “It is the policy of the state of Montana to supervise, regulate, and control public utilities. To the extent that it is consistent with the policy and in order to benefit society, the state encourages efficient utility operations, efficient use of utility services, and efficient rates. It is further the policy of the state to encourage utilities to acquire resources in a manner that will help ensure a clean, healthful, safe, and economically productive environment.”¹⁵ The statute goes on to direct the PSC to adopt rules requiring a public utility to prepare and file a plan.

The plan requirements are left largely up to commission rule but must include an evaluation of a full range of cost-effective means for the utility to meet service requirements for Montana customers, including conservation and

¹³ Northwest Power and Conservation Council, “About,” <https://www.nwccouncil.org/about>.

¹⁴ Section 114, Energy Policy Act of 1992, Public Law 102-486.

¹⁵ 69-3-1202(1), MCA.

improvements in efficiency. The law also requires the PSC to conduct a public meeting to receive public comment on a plan. The commission also may comment on a plan, but the comments are not considered a preapproval of a project. The Montana Department of Environmental Quality (DEQ) is statutorily given a role to review a plan and comment. A plan can be used by the DEQ in the event that it dovetails with a Major Facility Siting Act application. The Consumer Counsel also is instructed to review a plan and invited to provide comments.

MPC was instructed to file its first plan on March 15, 1993, and on March 15 of each odd year thereafter. MDU was to file its first plan on September 15, 1993, and on September 15 of each odd year thereafter. Pacific Power and Light Company was to file its first plan on May 15, 1994, and on May 15 of each even year thereafter. All other electric utilities were to file plans by March 15, 1994.

The rules, again adopted in 1992 prior to the legislation authorizing planning, include goals as well. However, throughout the rules, the goals are referenced as “guidelines.” Under policy, “it is the goal of these integrated least-cost resource planning guidelines to encourage electric utilities to meet their customers’ needs for adequate, reliable and efficient energy services at the lowest total cost while remaining financially sound. To achieve this goal, utilities should plan to meet future loads through timely acquisition of an integrated set of demand- and supply-side resources. Importantly, this includes actively pursuing and acquiring all cost-effective energy conservation. The cost effectiveness of all resources should be determined with respect to long-term societal costs.”¹⁶ Along with the least-cost plan, each utility also submits an action plan illustrating how the plan will be implemented over the near term under various load and resource scenarios.

The rules, unlike the statute, define integrated least-cost resource planning as “an ongoing, dynamic and flexible process which:

- explicitly manages the consequences of uncertainty and risk associated with a utility’s market characteristics and supply alternatives,
- integrates the demand-and supply-side resources that represent the least cost to society over the long-term,
- explicitly weighs a broad range of resource attributes (e.g., environmental externalities) in the evaluation of alternative resources,
- is reasonably understandable to interested persons (including members of the general public) and the commission,
- involves stakeholders and nonutility expertise in utility resource planning,
- results from a planning process within the utility which facilitates communication and coordination among the entities dealing with utility finances, demand forecasts, demand- and supply-side resource evaluations, as well as other relevant entities, and
- continually monitors and develops data on the cost effectiveness and actual productivity of conservation programs.”

Integrated Resource Planning Guidelines

The rules or guidelines provide utilities policy and planning guidance and are not a mandate in terms of investment decisions. Although the rules repeatedly use the term “guideline,” they remain rules. Once adopted, administrative rules are published in the Administrative Rules of Montana (ARM) and have the force of law. The rules also contain a number of requirements.

¹⁶ 38.5.2001, Administrative Rules of Montana.

The rules discuss competitive resource solicitations. All-source solicitations should include “the broadest practical group of potential demand- and supply-side resource providers,” including QFs, nonutility independent power producers, publicly owned and investor-owned utilities, power marketing agencies, demand-side resources, and efficiency improvements.

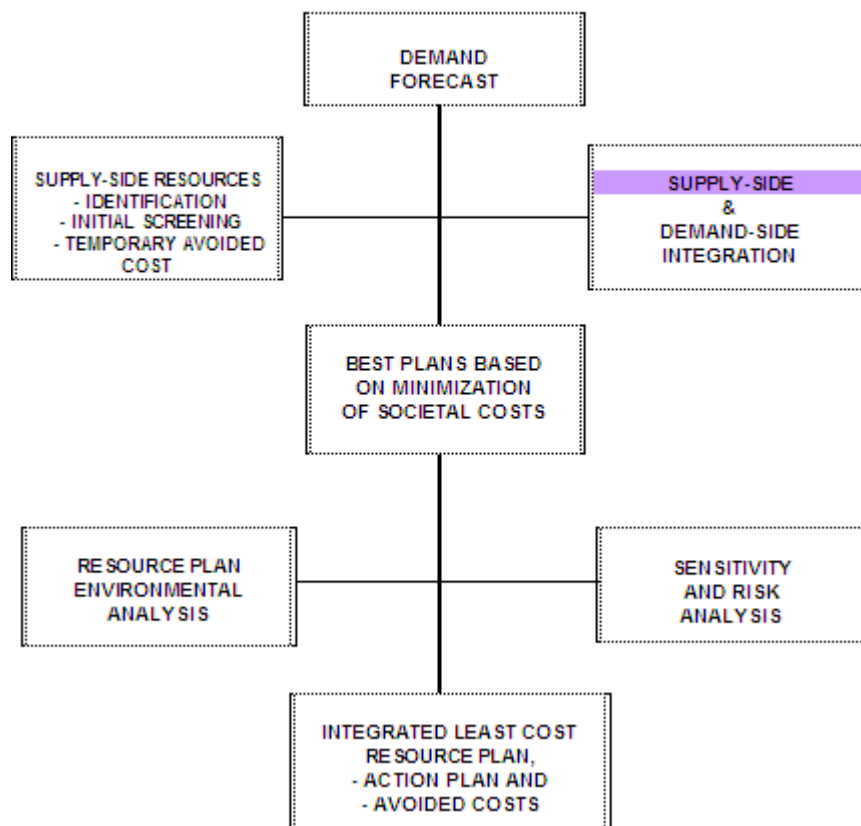
As in statute, the rules outline a process for public participation. Utilities are instructed to make plans available for public inspection at utility offices designated as follows: MPC — Butte, Missoula, Helena, Bozeman, Great Falls, Billings, Havre, Glasgow, Lewistown, and Hamilton; Pacific Power and Light Company — Kalispell and Libby; and MDU — Glendive, Miles City, and Billings. Utilities are also to make their plans available for public inspection at each county library and each university, college, and junior college library in their Montana service territories.¹⁷

The rules require that utility investment in conservation measures installed on the customer’s side of the meter be considered cost-effective up to 115 percent of the utility’s long-term avoided cost, for example. A range of environmental impact mitigation and control costs are required to be quantified, estimated, or evaluated, or all three. Utilities are to weigh, rank, evaluate, and select

individual energy resources. The rules also require the application of process planning cycles and provide an example (Figure 1). A long-term resource planning process also should recognize and utilize rate design to yield demand-side resources and to ensure that, to the extent possible, the goals and objectives of all rate design efforts are consistent with the goal and definition of integrated least-cost planning. Least-cost resource plans are intended to provide the best balance of objectives to:

- minimize the societal cost of producing energy services;
- minimize the costs of risk not incorporated into the formal cost analysis;
- minimize the environmental and other external costs not incorporated into the formal cost analysis;
- maintain economical levels of service reliability that incorporate consideration of customers’ value of service reliability; and

FIGURE 1
LEAST COST PLANNING OPTIMIZATION PROCESS EXAMPLE



¹⁷ 38.5.2012, Administrative Rules of Montana.

- distribute costs and benefits equitably.

No later than 60 days following the close of a written comment period, the PSC holds a hearing on the plan. Finally, based on its review of the plan and consideration of the comments of others, the PSC may issue a general statement indicating whether “the plan conforms to the guidelines.” A plan, however, does not bind the PSC in its review of utility resource plans in conjunction with a rate case or for the purposes of setting rates.

Deregulation Derails Planning

MPC filed its final, complete integrated least-cost resource plan on June 28, 1995. The commission received comments from interested parties in writing and orally at public hearings. The commission also employed a consultant to review MPC’s plan and to report to the commission whether the plan was consistent. The two most commonly recurring comments were that MPC did not model demand-side resources on an equivalent and comparative basis with competing supply-side resources, and that MPC’s significant reduction in planned demand-side resource expenditures and acquisition was unjustified from social, utility, and competitive perspectives. The PSC determined the plan to be adequate but noted a number of deficiencies. One finding read: “To the extent MPC determines that the benefits of further integration of transmission and distribution are not cost justified, MPC should document this determination in its 1997 plan.”¹⁸ The company also discussed an alternative planning process for 1997 that would allow MPC to implement its 1995 plan amid the restructuring that was occurring in the national electric industry.

On February 4, 1996, MPC filed a motion with the PSC to waive the requirement for filing an integrated least-cost resource plan. In its motion, MPC stated that in lieu of a comprehensive resource plan it would file a status report by March 15, 1997. It did so, and in April 1997, the commission issued a notice of filing and opportunity to comment on the status report. No comments were received.

In January 1997, MPC and a number of Montana’s large customers brought forward a legislative proposal to deregulate retail electricity supply in Montana. By May 1997, the Montana Legislature passed and approved Senate Bill 390. In passing Senate Bill 390 (Chapter 505, Laws of 1997), the 1997 Legislature noted that competitive markets exist, that Montana customers should have the freedom to choose their electricity supplier, that Montana consumers should be protected, and that the financial integrity of Montana utilities should be maintained.¹⁹

Integrated resource planning in Montana took a backseat to the larger policy issue of deregulation. In September 1997, MDU filed its plan with the PSC. “In these times of rapidly changing conditions in the economy and the electric utility industry, especially with the deregulation and restructuring of the industry, it is imperative that Montana-Dakota have flexibility and risk minimization as an integral part of resource planning.”²⁰

In 2001, the California energy crisis began to unfold, with wholesale energy prices in California increasing by 270 percent from the previous year.²¹ Suspicion that Enron and other power marketers and suppliers were gaming the California system to maintain high electricity prices also began to surface. The power crisis spilled over into other

¹⁸ Docket No. 95.6.30, Order No. 5884, Montana Public Service Commission, December 26, 1995.

¹⁹ For text of testimony in support and in opposition, see the committee minutes of Senate Bill 390 during the 1997 legislative session.

²⁰ Montana-Dakota Utilities Co., 1997 Integrated Resource Plan, Submitted to the Montana Public Service Commission, September 15, 1997, p. 1-2.

²¹ Congress of the United States, Congressional Budget Office, “Causes and Lessons of the California Electricity Crisis” (Washington, DC, September 2001), p. viii.

states as California scrambled to secure out-of-state power. Wholesale energy prices in the Pacific Northwest, including in Montana, rose to unprecedented levels.²²

The 2003 Legislature continued to address the evolution of deregulation in Montana. It passed House Bill 509 addressing default supply planning, establishing an Energy and Telecommunications Interim Committee, and requiring a cost recovery mechanism. In addition, it passed Senate Bill 247 allowing for preapproval of default supply resources. The Legislature also further extended the date for full customer choice until July 1, 2027.

Electricity Supply Resource Procurement Plans

History

The Montana PSC in July 2002 initiated a roundtable process with a multitude of stakeholders to develop guidelines for default supply resource planning and procurement in Montana. A goal, among several others, was to establish an integrated resource planning process for default suppliers. NorthWestern, the default supplier, and other stakeholders participated. NorthWestern advocated for clear procurement process rules that would decrease the uncertainty that default suppliers were facing. On the subject of Montana's integrated resource planning, NorthWestern Energy wrote: "The original (integrated resource plan) had several objectives. One was to encourage utilities to use competitive solicitation in the acquisition of new resources (both supply-and-demand-side resources), rather than continuing their reliance on company owned generation resources; a second was to require explicit consideration of external effects in resource acquisitions; a third was to give the public a larger voice in resource acquisition efforts, and a fourth was to develop long-term plans for resource acquisitions that could be understood by the Commission and public at large. The movement to choice has decreased both the scope of and need for [integrated resource planning]. The need for these guidelines in the utility resource planning process has decreased greatly due to the passage of SB 390 and the subsequent movement to customer choice."²³

The PSC and stakeholders developed a proposal that was later introduced in the 2003 Montana Legislature as House Bill 509. The legislation, among many things, allowed the PSC to adopt rules governing resource planning and procurement. It did not, however, allow for preapproval of supply contracts.

In 2003, Senator John Cobb (R-Augusta) introduced Senate Bill 247 directing the PSC to preapprove procurement of electricity by a default supplier that first developed a plan. The bill was similar to a California statutory model for preapproval of electricity supply contracts. The bill required the default supplier to submit a procurement plan in compliance with objectives set by the PSC. If the objectives were met, and barring some exceptions, the PSC would then grant preapproval for the electricity supply contracts.

As outlined in the bill, by December 31, 2003, the PSC would adopt rules to guide default supply resource acquisition. House Bill 509 established a "default supplier" to be a distribution services provider of a utility that had restructured in accordance with Title 69, chapter 8.

NorthWestern Energy testified before the Senate Energy and Telecommunications Committee on January 30, 2003, that preapproval was essential to ensuring the financial integrity of the company acting as the default supplier and was important to customers because it allowed for securing long-term contracts at lower prices. The concept of a

²² Jeff Martin and Todd Everts, "The Electrical Utility Industry Restructuring Transition Advisory Committee," report to the Governor and 58th Legislature (December 2002).

²³ D2002.7.93, NorthWestern Energy's comments to PSC regarding default electric supply service.

planning process in SB 247 became less important than debate about preapproval. Originally, preapproval allowed a default supplier to apply to the commission for advance approval of a power supply purchase agreement. The PSC was also prohibited from subsequently disallowing the recovery of costs incurred under an approved preapproval agreement based on contrary findings.

Bob Rowe, chairman of the PSC at the time, was a leading opponent to the proposal. Rowe supported the intent of the legislation to give the default supplier authority, direction, and the appropriate regulatory environment to enter into long-term contracts. He advocated for the existing authority of the PSC to evaluate purchase agreements and the processes outlined in HB 509. The Consumer Counsel also opposed preapproval, raising concerns that it shifted the risk to small consumers, removed incentives for cost control, removed flexibility, changed the PSC's role from regulator to manager, and was unnecessary and duplicative of HB 509. Questions were raised in 2003, and continue to be raised today, about whether NorthWestern would truly have an incentive to complete a comprehensive planning process with preapproval and its impact on company risk.

Senate Bill No. 247 was approved by the House 84-16 and by the Senate 44-5. The legislation outlined both an electricity supply resource procurement planning process and preapproval.

On January 29, 2004, NorthWestern Energy filed its first default electricity supply resource procurement plan. The PSC invited public comment on the proposal and hosted workshops. Multiple entities commented, ranging from Rocky Mountain Power to the Montana Environmental Information Center. The PSC raised concerns about the plan's failure to reflect a long-term resource planning analysis and failure to optimize specific types and quantities of resources within the portfolio or timing of resource procurements before July 2007.²⁴

In 2007, when the Montana Legislature passed and approved House Bill 25, Montana's experiment with deregulation ended. With changes made by the 2007 Legislature, NorthWestern Energy began pursuing its own generation assets, using the guidelines put into place in HB 25 and directing the PSC on the steps to be followed in reviewing and potentially approving NorthWestern Energy's electricity supply resources. To ease concerns about financing new power plants, NorthWestern began to utilize preapproval for certain, significant generating projects it hoped to build or acquire. Preapproval was to provide some level of cost recovery assurance prior to constructing or acquiring generation assets.

Montana Planning and Procurement Guidelines

Montana's electricity supply resource planning and procurement requirements are outlined in 69-8-419 and 69-8-420, MCA. As a public utility regulated under chapter 8, NorthWestern Energy is required to plan for future electricity supply resource needs and to procure new resources when needed. Objectives include to:

- provide adequate and reliable electricity supply service at the lowest long-term total cost;
- conduct an efficient electricity supply resource planning and procurement process that evaluates the full range of cost-effective electricity supply and demand-side management options;
- identify and cost-effectively manage and mitigate risks related to its obligation to provide electricity supply service;
- use open, fair, and competitive procurement processes whenever possible; and
- provide electricity supply service and related services at just and reasonable rates.

²⁴ Docket No. N2004-1.15, NorthWestern Energy's Default Electricity Supply Resource Procurement Plan, August 17, 2004.

Similar to integrated resource planning law, the electricity supply resource planning law grants the PSC broad rulemaking authority to guide the planning process. The PSC is required to review the plan, provide the public with an opportunity to comment, and issue written comments on the plan within nine months of receiving it. Changes by the 2017 Legislature now also require the commission to host two public meetings to allow for comment on the plan.

Much like in the statute, planning guidelines are intermingled with procurement guidelines throughout the rules. The rules outline how a utility conducts long-term electricity supply resource planning and procurement. “Long-term” is defined as “a time period at least as long as a utility’s electricity supply resource planning horizon,” and “planning horizon” is defined as “the longer of: the longest remaining contract term in a utility’s electricity supply resource portfolio; the period of the longest lived electricity supply resource being considered for acquisition, or 10 years.”²⁵ Planning begins with an evaluation of existing resources and an assessment of a utility’s resource needs, based on the planning horizon and the goals and objectives established in rule. In addition, the goals and objectives should guide the utility’s cost allocation and rate design practices as well as overall risk mitigation.

The rules, adopted in 2004 and updated following reregulation in 2008, provide “guidance” on long-term electricity supply resource planning and procurement. They do not impose specific resource procurement processes or mandate particular resource acquisition. They are considered a framework. The guidelines also supersede the least-cost planning rules. Goals are also established in rule and are similar to those for integrated resource planning. However, the goals of the two planning processes do slightly differ, as outlined in **Table 1**. The goals of the statute are stated above. The rules also state objectives, listed in order of importance, which include to:

- provide customers adequate and reliable electricity supply services, stably and reasonably priced, at the lowest long-term total cost;
- design rates that are equitable and promote rational, economically efficient consumption decisions;
- assemble and maintain a balanced, environmentally responsible portfolio of electricity supply resources coordinated with economically efficient cost allocation and rate design that most efficiently provides electricity supply services to customers over the planning horizon;
- maintain an optimal mix of electricity supply resources with respect to underlying fuels, technologies, and associated environmental impacts, and a diverse mix of long, medium, and short duration power supply contracts with staggered start and expiration dates; and
- maximize the dissemination of information to customers regarding the mix of resources and the corresponding level of emissions and other environmental impacts associated with electricity supply service through itemized labeling and reporting of the portfolio’s energy products.

In the integrated planning rules, utilities are to weigh and rank existing and potential resources on the basis of their environmental impacts. Utilities are also encouraged to recognize the external benefits associated with resources that “correct or reduce existing environmental damage.” In electricity supply resource planning and procurement, the utility is to plan in an environmentally responsible manner by “recognizing and incorporating into electricity supply resource portfolio planning, management, and procurement processes and decision-making ... to encourage utilities to acquire resources in a manner that will help ensure a clean, healthful, safe, and economically productive environment.”

²⁵ 38.5.8202, Administrative Rules of Montana.

A utility is encouraged to use competitive solicitations with short-list negotiations as a preferred procurement method. A utility is also encouraged to design requests for proposals based on its resource needs assessment. Competitive solicitations should treat bidders fairly, promote transparent portfolio planning and electricity supply resource procurement processes, and contribute to achieving the goals and objectives of the guidelines.²⁶ The utility is also encouraged to employ an independent third party to develop competitive solicitations, if affiliate interests are not involved.

TABLE 1

Plan	Required	Goal	Authority	Timeline for PSC Review	Public Participation
Montana Integrated Least-Cost Resource Planning and Acquisition Act	Sept. 15 of odd-numbered years	“It is the goal of these integrated least cost resource planning guidelines is to encourage electric utilities to meet their customers’ needs for adequate, reliable and efficient energy services at the lowest total cost while remaining financially sound. To achieve this goal, utilities should plan to meet future loads through timely acquisition of an integrated set of demand- and supply-side resources. Importantly, this includes actively pursuing and acquiring all cost effective energy conservation. The cost effectiveness of all resources should be determined with respect to long-term societal costs.”	69-3-1201 through 69-3-1205, MCA 38.5.2001 through 38.5.2012, ARM	No timeline	Presubmission: Utility should involve the public in resource planning. Process should be thoroughly documented and reasonably understandable. Postsubmission: Written comments within 30 days after plan submitted and public hearing 60 days after written comment period closes.
Electricity Supply Resource Procurement Plans	Dec. 15 of odd-numbered years	“The goals of these electricity supply resource planning and procurement guidelines are: (a) to facilitate a utility’s provision of adequate and reliable electricity supply services, stably and reasonably priced, at the lowest long-term total cost; (b) to promote economic efficiency and environmental responsibility; (c) to facilitate a utility’s financial health; (d) to facilitate a process through which a utility identifies and cost-effectively manages and mitigates risks related to its obligation to provide electricity supply service; and (e) to build on the fundamental rate making relationship between the commission and the utility to advance these goals.”	69-8-419 through 69-8-420, MCA 38.5.8201 through 38.5.8229, ARM	Written comments within 9 months	Presubmission: Utility should maintain a broad-based advisory committee to review, evaluate, and make recommendations on technical, economic, and policy issues related to electricity supply resource portfolio planning, management, and procurement. Postsubmission: 2 public hearings in area of the state encompassed by the plan.

²⁶ 38.5.8212, Administrative Rules of Montana.

Unlike the integrated resource planning rules, the electricity supply planning process does not establish a threshold for cost-effective conservation. However, a utility should design programs and associated marketing and verification measures, as necessary, to ensure that its procurement of demand-side resources is optimized in the context of the goals and objectives of the planning guidelines. A utility should also evaluate the cost-effectiveness of demand-side resources and programs based on its long-term avoidable costs. Cost-effectiveness evaluations of demand-side resources are to encompass avoidable electricity supply, transmission, and distribution costs.

Stakeholder Input

Stakeholder input both during development of a plan by a utility and during PSC review of a plan is encouraged in both sets of rules. Transparency and stakeholder input in utility planning, however, continue to be an issue that is raised by both environmental and customer advocates.

The electricity supply resource planning rules encourage NorthWestern to establish an independent advisory committee of “respected technical and public policy experts” to assist the utility in developing its biennial plans. Throughout the rules, utilities are encouraged to utilize the independent advisory committee to assist the utility with items ranging from demand-side management to risk mitigation. Stakeholder input is further solidified in 38.5.8225, ARM, with the suggestion that “an independent advisory committee of respected technical and public policy experts may provide an excellent source of upfront, substantive input to mitigate risk and optimize resource procurement outcomes consistent with these guidelines.”

Shortly after adoption of the PSC rules establishing stakeholder input in 2004, NorthWestern Energy established a formal Electric Technical Advisory Committee (ETAC) to advise the utility in its preparation of the biennial resource procurement plan. ETAC membership has typically included representatives of various stakeholder entities that are interested, active participants in regulated electric services matters in Montana. Gerald Mueller was the first committee facilitator. Members have historically included Montana Public Service Commission staff, Montana Consumer Counsel, Northwest Power Planning Council, Montana Department of Environmental Quality, Renewable Northwest Project, Montana Environmental Information Center, District XI Human Resource Council, and Natural Resources Defense Council. According to the 2004 plan: “Up to this point, for practical purposes, NWE has limited its communications with stakeholders in developing the default supply plan primarily to the Technical Advisory Committee. However, NorthWestern Energy is well aware of the importance of communicating the default supply plan to the broader public and providing reasonable opportunities for review and input from all interested stakeholders.”²⁷ NorthWestern also announced it would implement a communications plan to facilitate stakeholder input. The plan would include advertising, public meetings, an online forum for comments on the company’s default supply plan, and placement of the default supply plan in town offices, libraries, and city halls.

Despite the development of a communications plan and the use of the ETAC, NorthWestern has been criticized for its planning process and the use of its ETAC in planning for the future. In preparing the 2015 procurement plan, NorthWestern held only five ETAC meetings during the process. Some stakeholders commented that NorthWestern’s process and use of the ETAC during the 2015 planning cycle was improper. “The current structure of the planning process is such that advisory committee meetings are closed-door and invite-only with participation limited to utility-approved stakeholders. The utility has denied at least one interested stakeholder the ability to attend

²⁷ NorthWestern Energy 2004 Electric Default Supply Resource Planning and Procurement Plan, January 2004, vol. 1, p. 39.

meetings and has consistently expressed resistance against making the process more open,” according to testimony filed in September 2017 by the Montana Environmental Information Center.

In its review of NorthWestern’s 2015 procurement plan, the PSC provided comment and instruction. The PSC wrote: “Rather than proceeding immediately to acquire new resources, NorthWestern should pursue a rigorous stakeholder process to validate the conclusions in the 2015 Plan. To enable NorthWestern to undertake such a process, the Commission will extend the deadline for NorthWestern to file its next plan to December 15, 2018. Active engagement with its technical advisory committee for a two-year period and a commitment to devote sufficient resources to the planning process may lead to a better planning process, higher-quality modeling and analysis, and greater confidence in planning results. NorthWestern should provide the Commission with written status reports every six months, and the Commission will hold this docket open to receive them”²⁸

NorthWestern has responded by providing the requested status reports and pledging to increase ETAC participation. A roster of participants from a summer 2017 meeting is included in **Table 2**.

TABLE 2

Participant	Organization
Beki Brandborg	Facilitator
Chuck Magraw	Natural Resources Defense Council
Brian Fadie	Montana Environmental Information Center
Frank Bennett, John Bushnell, Luke Hansen, Joe Simatz, Mike Babineaux, Jonathan Pytka, Jim Williams, Ella Caillouette, June Pusich-Lester, Carrie Harris, Deb Mullowney, Bleau LaFave, John Hines	NorthWestern Energy
Diego Rivas	NW Energy Coalition
Mike Dalton, Will Rosquist	Montana Public Service Commission
Jamie Stamatson	Montana Consumer Counsel
Tom Power	District XI Human Resource Council
Patrick Barkey	UM-Bureau of Business and Economic Research
Brien Dekiep	Northwest Power and Conservation Council
Chris Pope	Consumer
Jeff Blend	Montana Department of Environmental Quality

²⁸ Docket No. N2015.11.91, Montana Public Service Commission comments in response to NorthWestern Energy’s 2015 Electricity Supply Procurement Plan.

MDU's integrated resource plans, which historically have not been as heavily scrutinized by the public as NorthWestern's proposals, also utilize a public advisory group (PAG). The PAG has been used by MDU since 1994 to provide input on MDU's biennial plan from a non-utility perspective. This advisory group reviews, evaluates, and recommends modifications to MDU's planning process, resource plans, resource acquisition processes, and efficiency programs from the perspective of customers, government agencies, and public interest organizations.

Participants in the PAG are non-utility personnel from the states served by MDU: Montana, North Dakota, and South Dakota. The advisory group reflects the proportions of MDU's load: Montana, 30 percent; North Dakota, 60 percent; and South Dakota, 10 percent. The PAG members include representatives from consumer advocacy groups, government agencies (including regulatory bodies), business concerns, and academia. There are two members from Montana: Barbara Roberts, Action for Eastern Montana, and Garrett Martin, Montana DEQ.

Fiscal Overview

Integrated resource planning and electricity supply procurement planning are not only labor intensive for utilities but also take PSC staff time. However, compared to other PSC duties, resource planning consumes less PSC time than many other activities. The PSC estimates that in 2016 about 7 percent of its rate analysts' time was spent on resource planning requirements and review. Because the plans are filed biennially, staff time is approximated. In 2016, PSC's rate analysts spent about 14 percent of their time on qualifying facility dockets and issues, 10 percent on cost tracker dockets, 18 percent on general rate case proceedings, and 6 percent on telecommunications regulation.

The PSC is funded primarily by a fee that is levied on regulated companies based on funding appropriated by the Legislature for a specific fiscal year. Fees are deposited directly into a state special revenue account and are based on a percentage of the gross operating revenue from all activities regulated by the commission for the calendar quarter of operation. The agency's total annual budget is about \$4.4 million and includes about 35 FTE.

In 1993, a fiscal note for House Bill 390 included \$50,000 per biennium for PSC staff to process integrated resource plans. In conjunction with Senate Bill 247, the 2003 Legislature made a \$500,000 one-time biennial appropriation restricted to costs for consultants to assist the commission in processing preapproval applications within the 180-day statutory timeframe and evaluating utility resource procurement plans. The bill also allows the PSC to charge the utility a fee commensurate with the costs of the consultant or advisory services in procurement and planning. The utility, at the commission's direction, deposits the fee into the commission's account in the special revenue fund pursuant to 69-8-421, MCA. The initial fee charged to the utility is based on the commission's estimate of costs for the consultant or advisory services. The commission then has the ability to revise the fee amount as the actual costs become known.

PSC records show that in 2004 the PSC made a payment to Quantec, an energy services consultant, for \$16,715 out of the \$500,000 biennial appropriation for review of the electric supply plan. NorthWestern then reimbursed the PSC for the Quantec payment. In the 2004-2005 biennium, the PSC processed two preapproval applications, for power purchase agreements between NorthWestern and Basin Creek Equity Partners and Judith Gap, respectively, without drawing on the appropriation. In relation to NorthWestern's request to preapprove the Dave Gates Generating Station in 2008, the PSC charged a fee of \$65,600 for consulting services.

In future planning cycles, the commission did not engage independent consultants or advisory services to evaluate a utility's resource procurement plans. However, in 2013, the PSC did charge NorthWestern in the context of the proposed hydroelectric acquisition for resource procurement planning purposes. The PSC hired a consultant to

evaluate the “PowerSimm model” and an engineer to evaluate NorthWestern’s due diligence on the condition of the dams. The consultant costs were about \$110,000.

Outlook

Long-term utility planning as required in Montana’s integrated resource and procurement planning statutes and rules is a time-intensive process and produces large amounts of useful information, but determining the success of planning is rather subjective. As one best-practices report noted: “For an IRP process to be deemed successful, it should include both a meaningful stakeholder process and oversight from an engaged public utilities commission. A successful utility’s resource plan should include consideration in detail of the following elements: a load forecast, reserves and reliability, demand-side management, supply options, fuel prices, environmental costs and constraints, evaluation of existing resources, integrated analysis, time frame, uncertainty, valuing and selecting plans, action plan, and documentation.”²⁹ Montana’s statutes require these elements. However, there is debate about how well utilities execute the requirements every two years.

A June 2017 report from the Lawrence Berkeley National Laboratory reiterated the importance of integrated resource planning. However, the report found there is little empirical data assessing the effectiveness of planning processes and implementation. The research showed that only a limited amount of information developed during a planning process is actually put to use when making procurement decisions, as utilities and regulators rely more heavily on more up-to-date information. According to the report: “It is generally recognized that integrated resource planning is a stakeholder-driven process that provides guidance for future procurement decisions that, in principle, assure that future resources are least cost and risk. It follows that achieving these objectives requires the planning process to produce and transfer information that is useful for the procurement process. However, to the best of our knowledge, there has been little or no research conducted that assesses the effectiveness (or usefulness) of resource plans by tracing their relationship to procurement decisions made after the plan was originally filed.”³⁰

On September 15, 2017, MDU submitted its 2017 integrated resource plan to the PSC. The public was invited to comment on the four-volume report through January 15, 2018. The plan encompasses load forecasting, demand-side analysis, supply-side analysis, and integration and risk analysis. The PSC is in the early stages of its review and analysis. NorthWestern Energy is expected to file its procurement plan by December 15, 2018. NorthWestern also has indicated that it plans to submit a rate case in 2018. The PSC will process both dockets. It is also possible that the 2018 plan may have relevance to the 2018 rate case. If the 2018 procurement plan contains information applicable to NorthWestern’s marginal costs, which will be a factor in the net metering benefit-cost study and could also be a factor in the cost of service and rate design portion of the case, that information will be important to the rate case.

Montana policymakers, regulators, utilities, and a variety of stakeholders provide oversight to the planning process in Montana. Those groups are also key to determining how and whether planning processes and the plans that are generated as a result of those processes are improved in the future.

²⁹ Rachel Wilson and Bruce Biewald, “Best Practices in Electric Utility Integrated Resource Planning: Examples of State Regulations and Recent Utility Plans,” Synapse Energy Economics Inc. for the Regulatory Assistance Project with funding provided by the Southern Alliance for Clean Energy (June 2013).

³⁰ Juan Pablo Carvallo, Alan H. Sanstad, and Peter H. Larsen, Ernest Orlando Lawrence Berkeley National Laboratory, “Exploring the Relationship Between Planning and Procurement in Western U.S. Electric Utilities,” report prepared for the U.S. Dept. of Energy Transmission Permitting and Technical Assistance Office of Electricity Deliver and Energy Reliability (June 2017).

Exhibits to Direct Testimony of Thomas J. Schneider
on behalf of Montana Environmental Information Center

Exhibit TJS-3

Docket No. 2019.12.101

NorthWestern Energy
Docket No. D2018.2.12
Electric General Rate Review

Montana Environmental Information Center/Sierra Club
Set 1 (001-0012)

Data Requests received October 30, 2018

MEIC-006 Witness:

Subject: Colstrip Units 3/4 Agreements

Please provide the current reciprocal agreement between NorthWestern and Talen concerning Colstrip Units 3 and 4, and all amendments thereto.

RESPONSE:

See Attachment.

Execution

AMENDED AND RESTATED NORTHWESTERN/PPL COLSTRIP UNITS 3 & 4 GENERATING PROJECT RECIPROCAL SHARING AGREEMENT

This AMENDED AND RESTATED NORTHWESTERN/PP&L COLSTRIP UNITS 3 & 4 GENERATING PROJECT RECIPROCAL SHARING AGREEMENT (this "Agreement"), is entered into as of October 16, 2009 (the "Effective date"), by and between PPL MONTANA, LLC, a Delaware limited liability company ("PPL Montana"), and NORTHWESTERN CORPORATION, a Delaware corporation ("NorthWestern" and, collectively, with the PPL Montana, the "Parties").

RECITALS:

A. The ownership, operation and maintenance of the Project is governed by that certain Ownership and Operation Agreement, dated as of May 6, 1981 and amended on October 11, 1991 and July 13, 1998, by and between The Montana Power Company, a Montana corporation ("MPC"), Puget Sound Energy, Inc. (formerly named "Puget Sound Power & Light Company"), a Washington corporation, Avista Corporation (formerly named "Washington Water Power Company"), a Washington corporation, Portland General Electric Company, an Oregon corporation, and PacifiCorp (successor by merger to the Maine corporation named "Pacific Power & Light Company"), an Oregon corporation (as amended, modified and supplemented from time to time, the "Ownership Agreement"). Unless otherwise defined in this Agreement (including the Recitals), all other capitalized terms used in this Agreement have the meanings assigned to such terms in the Ownership Agreement.

B Colstrip 3 and Colstrip 4 are relied upon by NorthWestern and PPL Montana to serve their respective customers.

C. The contractual provisions of the Ownership Agreement require the coordinated operation of Colstrip 3 and Colstrip 4. In furtherance of such coordination and cooperation, the Parties are concurrently executing and delivering an Amended and Restated Project Committee Vote Sharing Agreement (the "Voting Agreement") that will govern the voting of their Shared Vote (as defined therein) that relates to their Project Shares in the Project.

D. The Assignment and Assumption Agreement (Colstrip 3&4 Agreements) made and entered into as of the 17th day of December, 1999 (the "Colstrip 3/4 Assignment") by and between MPC and PPL Montana (under its then name "PP&L Montana, LLC"), was entered into in connection with PPL Montana acquiring all of MPC's right, title and interest in Colstrip 3 and a 15% Project Share. Contemporaneously with the effectiveness of the Colstrip 3/4 Assignment, PPL Montana became the Operator of the Project. MPC retained all of its right, title and interest in Colstrip 4 and a 15% Project Share.

E Upon the effectiveness of the Colstrip 3/4 Assignment, MPC and PPL Montana became party to the MPC/PP&L Colstrip Units 3 & 4 Generating Project Reciprocal Sharing Agreement entered into as of December 17, 1999 (the "Original Reciprocal Sharing Agreement").

F. On February 15, 2002 MPC was merged into The Montana Power, L.L.C., a Montana limited liability company which was the surviving entity in such merger. On February 15, 2002, NorthWestern acquired the sole membership interest in The Montana Power, L.L.C. which was then renamed "NorthWestern Energy, L.L.C." On November 20, 2002, NorthWestern Energy, L.L.C. transferred substantially all of its assets (including all of its remaining Colstrip and Colstrip-related interests) to NorthWestern.

G. As of the Effective date, (i) NorthWestern's Colstrip 4 Project Share (as defined in the Voting Agreement) is no longer subject to the Colstrip 4 Leveraged Lease Documents (as defined in the Original Reciprocal Sharing Agreement) and (ii) the PPL Colstrip 3 Project Share is subject to similar documentation (collectively, the "Colstrip 3 Leveraged Lease Documents") as more particularly identified in Annex I to the Voting Agreement.

NOW, THEREFORE, in consideration of the foregoing premises, and for other consideration the sufficiency and receipt of which is hereby acknowledged, the Parties agree to the following terms and conditions:

AGREEMENT

Section 1. Effective Date and Term. This Agreement shall become effective as of the date first written above and shall continue in full force and effect until the end of the term of the Ownership Agreement in accordance with Section 32 thereof. Termination of this Agreement shall not affect the Parties' respective rights and obligations under the Ownership Agreement as Project Users with 15% Project Shares.

Section 2. Confirmation and Agreement. Consistent with Section 2(c) of the Ownership Agreement, the Parties hereby confirm and agree as follows:

(a) subject to the provisions of the Ownership Agreement, each Party holds a fifteen percent (15%) Project Share in the Project;

(b) subject to the provisions of this Agreement and the Ownership Agreement, each Party shall be (i) entitled to schedule and take an amount of generation from the Project up to but not to exceed such Parties' respective Project Shares of Net Generating Capability and (ii) obligated to take or otherwise dispose of a percentage of the minimum energy production from the Project in accordance with such Party's Project Share in the Project and Section 13(d) of the Ownership Agreement irrespective of whether a particular cost is specific to Unit 3 or Unit 4; and

(c) except for (i) charges payable by the Parties pursuant to Section 12 of the Ownership Agreement, (ii) coal transportation charges payable by the Parties pursuant to the Coal Transportation Agreement, and (iii) other Costs of Operation the Project Users pay based on each Project User's allocation of generation (e.g., lime and

diesel fuel), the Parties shall be responsible for their respective Project Shares of Costs of Operation and Costs of Construction irrespective of whether a particular cost is specific to Unit 3 or Unit 4.

Section 3. Representations and Warranties. Each Party represents and warrants to the other as of the date of this Agreement that:

(a) such Party is duly formed and validly existing under the laws of the jurisdiction of its organization and is duly authorized to do business in each other jurisdiction in which it is required to be so qualified with full power and authority to perform its obligations hereunder and that the execution, delivery and performance of this Agreement has been duly authorized by such Party;

(b) this Agreement has been duly executed and delivered by such Party and constitutes the legal, valid, binding and enforceable agreement of such Party enforceable in accordance with its terms against such Party subject to the effect of bankruptcy, insolvency, moratorium and other similar laws relating to creditors' rights generally, whether existing at law or in equity, by general equitable principles and by an implied covenant of good faith and fair dealing;

(c) no consent, approval or authorization of, or filing, registration or qualification with, any court or governmental authority on the part of such Party is required for the execution and delivery of this Agreement by such Party and the performance of its obligations and duties hereunder, other than those that have been made or obtained; and

(d) such Party is in material compliance with all laws and legal requirements applicable to its business.

Section 4. Assignment; Third Party Beneficiaries. Any transfer or assignment by either Party of any part of its interest under this Agreement to any other Person (an "Assignee") shall be subject to the satisfaction of each of the following conditions: (a) the assigning Party under this Agreement shall be simultaneously transferring or assigning a corresponding portion of its Project Share to such Assignee and (b) such Assignee shall have assumed in writing the corresponding duties and obligations of the assigning Party which arise and are attributable to the period after the effective date of the assignment. Nothing in this Agreement, express or implied, is intended to confer on any person or entity other than the Parties and their successors and assigns permitted hereunder any rights, remedies, obligations or liabilities under or by reason of this Agreement.

Section 5. Governing Law. This agreement shall be governed by and construed in accordance with the laws of the State of Montana without regard to conflicts of laws principles.

Section 6. Severability. Any provision of this Agreement that is prohibited or unenforceable in any jurisdiction shall, as to such jurisdiction, be ineffective to the extent of such prohibition or unenforceability without invalidating the remaining provisions of this Agreement, and any such prohibition or unenforceability in any jurisdiction shall not invalidate or render unenforceable such provision in any other jurisdiction.

Section 7. Notices and Communications.

(a) Unless otherwise specified herein, all notices under this Agreement shall be in writing and shall be (i) delivered personally; (ii) sent by a recognized overnight mail or courier service, with delivery receipt requested; or (iii) sent by facsimile transmission, followed by written confirmation, to the Parties at the addresses telephone and facsimile numbers set forth on the signature pages hereto.

(b) All notices sent under this Agreement shall be effective when received by the other Party, except that any facsimile which is received after 5:00 p.m. at the location of the receiving Party shall be deemed to be effective on the next business day.

(c) Each Party may change its notice information set forth above by written notice to the other Party pursuant to this Section 7.

Section 8. Counterparts. This Agreement may be executed in any number of counterparts, all of which together shall constitute a single instrument.

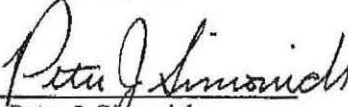
Section 9. Conflicts. In the event of a conflict between the Asset Purchase Agreement dated as of October 31, 1998 by and between MPC and PP&L Global, Inc., on the one hand, and this Agreement, on the other hand, the terms and provisions of this Agreement shall govern.

Section 10. Amendments and Waivers. This Agreement may be amended, supplemented or otherwise modified only in writing executed and delivered by each Party. Notwithstanding the foregoing, the Parties shall not enter into any amendment, supplement, or modification to this Agreement which conflicts with the terms and conditions of the Ownership Agreement. No waiver of any right under this Agreement shall be binding unless such waiver is in a writing by the Party to be bound. No failure to exercise and no delay in exercising, on the part of any Party, any right, remedy, power or privilege under this Agreement, shall operate as a waiver thereof; nor shall any single or partial exercise of any right, remedy, power or privilege under this Agreement preclude any other or further exercise thereof or the exercise of any other right, remedy, power or privilege.

Section 11. Full Force and Effect. The Original Reciprocal Sharing Agreement, as amended and restated hereby, shall remain in full force and effect and is hereby adopted, ratified and confirmed by each of the parties. This Agreement shall be effective on the Effective Date.

IN WITNESS WHEREOF, each of the Parties has executed this Agreement as of the Effective Date.

PPL MONTANA, LLC

By: 

Name: Peter J. Simonich

Title: Vice President/COO

Address

for Notices: 303 North Broadway
Billings, Montana 59101

NORTHWESTERN CORPORATION

By: _____

Name: Robert C. Rowe

Title: President and Chief Executive Officer

Address


for Notices: 40 East Broadway
Butte, Montana 59701-9394

IN WITNESS WHEREOF, each of the Parties has executed this Agreement as of the Effective Date.

PPL MONTANA, LLC

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Butte, Montana 59701-9394

Exhibits to Direct Testimony of Thomas J. Schneider
on behalf of Montana Environmental Information Center

Exhibit TJS-4

Docket No. 2019.12.101

**NorthWestern Energy
Docket No. D2018.2.12
Electric General Rate Review**

**Montana Environmental Information Center/Sierra Club
Set 2 (013-034)**

Data Requests received November 9, 2018

MEIC-028 Witness:

Subject: Colstrip Unit 3

Please explain how the 15 percent of Colstrip Unit 3 generation that NorthWestern is obligated to take is calculated under the reciprocal agreement with Talen.

RESPONSE:

The reciprocal sharing agreement (provided in response to Data Request MEIC -006) between NorthWestern and Talen provides for each party to hold a fifteen (15%) project share of the project. As such, both NorthWestern and Talen are subject to the provisions of the Ownership and Operation Agreement (“OOA”), provided in response to Data Request MEIC -025, as if we were a 15% owner of the project (instead of having a 30% ownership interest on only one of the units). Section 13 of the OOA details scheduling obligations for each owner.

Exhibits to Direct Testimony of Thomas J. Schneider
on behalf of Montana Environmental Information Center

Exhibit TJS-5

Docket No. 2019.12.101

Comments on NorthWestern Energy's Final 2019 Electricity Supply Resource Procurement Plan

Prepared for Montana Public Service Commission

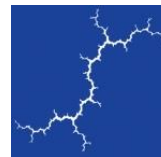
February 14, 2020

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CONTENTS

1.	INTRODUCTION	1
2.	POWERSIMM MODELING	2
2.1.	Market energy and capacity purchases	3
2.2.	Capacity credit given to renewables	6
2.3.	Capital costs of renewable resources	11
2.4.	Limited alternative resource options	14
2.5.	Modeling errors and omissions	15
3.	COMPETITIVE PROCUREMENT PROCESS	20
4.	OPPORTUNITY RESOURCES.....	23

1. INTRODUCTION

NorthWestern Energy (“NorthWestern,” “NWE,” or “the Company”) implemented a capacity-based long-term approach to resource planning beginning with its 2015 Electricity Supply Resource Procurement Plan (“2015 Plan”). The aim was to address the imbalance between projected peak loads and the Company’s owned and contracted physical resources. In its 2015 Plan, submitted in March 2016, the Company proposed a strategy to achieve minimal resource adequacy over a 10-year period, acquiring flexible generating capacity according to the results of an analysis of portfolio costs and risks. The analysis used the PowerSimm planning model developed by Ascend Analytics. In February 2017, the Montana Public Service Commission (“PSC” or “Commission”) issued comments finding the 2015 Plan to be deficient in areas relating to resource adequacy, evaluation of different types of capacity, and areas of uncertainty, among others. In supplemental comments issued by the PSC in December 2017, the Commission emphasized the relationship between the regional electric system and NorthWestern’s capacity needs as well as the importance of testing the market for available resources. NWE was directed to file its next resource plan in December 2018.

After a request for extension, NorthWestern Energy issued its *Draft 2019 Electricity Supply Resource Procurement Plan* (“Draft Plan”) on March 5, 2019. Stakeholders and the public were given 60 days to submit comments to NWE on its resource plan. The utility reviewed these comments and submitted its *2019 Electricity Supply Resource Procurement Plan* (“Final Plan”) in August 2019.

NorthWestern’s Final Plan describes its current capacity deficit of 645 megawatts (MW), which is expected to increase to 725 MW by 2025 without new peaking capacity. The Company currently meets peak demand needs through market purchases and proposes to add up to 200 MW per year of flexible capacity from 2022 to 2025 in order to close its capacity gap. NorthWestern describes its need as one for “flexible capacity,” which is defined by the Company as a resource that can be dispatched on demand to ramp up or shut down relatively quickly. The resulting “least-cost resource” portfolio that results from its PowerSimm capacity expansion modeling consists exclusively of new gas-fired Reciprocating Internal Combustion Engines (RICE) of various sizes.¹ NorthWestern is quick to assert that the modeling results do not represent a commitment to RICE generation, however, and that all new resources will be procured through a competitive resource solicitation conducted by the Company. NorthWestern has stated that the resources procured through these competitive solicitations may or may not be those identified in the modeling conducted for its Final Plan.

The Montana PSC hired Synapse Energy Economics, Inc. (Synapse) as a consultant to evaluate NWE’s efforts in both its Draft Plan and Final Plan to address the Commission’s concerns with the 2015 Plan. This included participation in NorthWestern’s stakeholder process and review of the PowerSimm model

¹ 2019 Electricity Supply Resource Procurement Plan. Table 10-2.

used by NorthWestern for resource portfolio modeling. For the purpose of these comments, Synapse obtained “Dashboard” access to the PowerSimm model used by NorthWestern for its 2019 Electricity Supply Resource Procurement Plan. This means that Synapse was able to see the inputs used in the modeling and the associated outputs but could not make any edits or run the model. We submitted comments on the Draft Plan to NorthWestern on May 5, 2019 that addressed several areas of concern identified by the Montana Commission. These concerns included resource adequacy, evaluation of alternative resources, uncertainty, stakeholder involvement, the forecast horizon, specific elements of NorthWestern’s transmission system, and the competitive procurement process.

These comments on NorthWestern’s Final Plan address our findings on the adequacy of the resource planning process as well as the modeled resource portfolios. These comments represent a deeper analysis into the PowerSimm modeling performed by Ascend Analytics at the direction of the Company and the input values that lead to certain results. We do not repeat certain comments that we made on the Draft Plan, particularly in instances where we believed that NorthWestern had sufficiently addressed areas of concern identified by the Commission. However, some issues that we identified in the Draft Plan remain issues in the Final Plan. For those areas, we provide additional analysis. Of particular concern are the capacity values given by NorthWestern to renewable resources in the PowerSimm modeling, which we believe lead to an overreliance on new thermal capacity in the resulting resource portfolios. We identify and describe a number of other issues in subsequent sections of this report.

2. POWERSIMM MODELING

In its 2017 comments on NWE’s previous resource plan, the Commission requested that the Company provide increased transparency around the modeling process and give legitimate stakeholders access to the PowerSimm model in future planning processes. The Company has provided Synapse, as consultants to the PSC, “dashboard” access to the PowerSimm model’s user interface via remote access and allowed us to view input and output variables through this interface. We could not make any changes to any input assumptions nor could we execute any of our own PowerSimm model runs. Synapse is the only party to have such access to PowerSimm, and NWE did not grant access to the capacity expansion resource portfolio modeling runs until after it had published the Draft Plan. There was no opportunity for Synapse or any other ETAC member or stakeholder to suggest alternative model runs that should be done by NWE and Ascend prior to the publication of the Draft plan. Stakeholders were also unable to evaluate the adequacy of the use of the PowerSimm model or the subsequent conclusions about resource adequacy and resource procurements presented in the Draft Plan. This creates the sort of “information asymmetry that undercuts the legitimacy of NorthWestern’s resource-planning exercise” that the Commission warned about in 2017.² After review of the Draft Plan, several stakeholders

² Montana Public Service Commission Comments in Response to NorthWestern Energy’s 2015 Electricity Supply Procurement Plan. Docket No. N2015.11.91. February 2, 2017. Page 17.

(including Synapse) proposed alternate input assumptions and scenarios to be modeled in PowerSimm. Nonetheless, NorthWestern did no new modeling runs between the Draft Plan and this Final Plan. The modeling results presented in NWE’s Final Plan are thus dated March 2019. Ascend Analytics, consultants to NorthWestern, also confirmed that it had not executed any new modeling on behalf of the utility between the publication of the Draft Plan and the Final Plan.

Based on its single set of PowerSimm scenarios from March 2019, NorthWestern concluded in the Final Plan that the best way to meet its capacity deficit and ensure resource adequacy is to procure hundreds of MW of “flexible” gas-fired generation in the form of RICE units. This is essentially a foregone conclusion given certain of the input assumptions and constraints present in the PowerSimm model that favor thermal resources over renewables and storage. First, NorthWestern did not allow for market capacity purchases in its modeling runs, which leads PowerSimm to build 985 MW of gas-fired generation over the analysis period in the Base portfolio. Inclusion of an option to purchase capacity from the market likely would have led to a smaller capacity build and lower revenue requirement in the resulting resource portfolio. Second, the low capacity credit for renewable resources, i.e. the resource’s contribution to peak, and the higher capital cost of renewables practically guarantees that the PowerSimm model will not select these resources as part of a least-cost resource portfolio under reference assumptions. Another factor affecting renewable resource selection is NorthWestern’s use of an atypical method to calculate effective load carrying capability (ELCC) values for wind and solar. This method, described in Section 2.1, resulted in little to no capacity credit being allocated to these resources.

In addition, several observed modeling errors beg the question as to whether additional errors could have been discovered with more time with the PowerSimm model. Specific concerns with the PowerSimm modeling that we were able to identify following the issuance of the Draft plan include the following:

1. NorthWestern failed to correctly set up and model the High Natural Gas Price scenario.
2. PowerSimm cannot endogenously retire uneconomic resources.
3. The fixed operations and maintenance (O&M) costs assigned to solar are much higher than industry benchmarks such as NREL’s 2019 ATB.
4. There are discrepancies between the model and the plan with regard to the costs and nameplate capacity for new resources.

The following sections describe each of these issues in more detail.

2.1. Market energy and capacity purchases

One of the critical deficiencies of the analysis, which we called out in our comments on the Draft Plan as well, is that the analytical construct does not allow for direct purchase or procurement of market-based capacity resources. The ARS module of PowerSimm does not include, for example, slice-of-system contracts for short-term capacity from those Pacific Northwest providers or utilities that may be long on

capacity. The modeling is “limited to resources with known and measurable operating characteristics,”³ and thus omits possible resource supply paths that include bilateral purchases of regional capacity despite the fact that NorthWestern stated in its plan that it “will continue to rely on wholesale power markets to meet some portion of our capacity need.”⁴

The approach to determining an optimal capacity expansion should allow for inclusion of market-based capacity resources. The Current portfolio includes only NorthWestern’s existing resources and does not meet the presumed 16 percent planning reserve requirements because it lacks the market purchases on which NWE currently relies. NWE should therefore define and develop a “Current Plus Market Capacity” scenario which includes market-price-based capacity resources to allow for an apples-to-apples comparison to other scenarios.

NorthWestern notes that the regional shortfall in capacity expected in 2021–2022 is on the order of 300–400 MW.⁵ Southwest supply availability, and hydro levels, could eliminate or increase this estimated need. NWE also notes that different entities in the region have different capacity positions. For instance, Avista (notably, now an expected CAISO Energy Imbalance Market, or EIM, participant in 2022) is long on capacity (page 2-13) while NorthWestern is short. These facts support the general notion that bilateral procurements of capacity should be an economically efficient way to ensure there is not an overbuilding of requirement in the Pacific Northwest. This is particularly applicable for a region about to become better integrated, economically, through the EIM—which also allows for more efficient “sharing” of any needed “flexible” capacity. The impending entry of more Pacific Northwest entities into the EIM, and enhancements to that EIM (towards an RTO-like construct in 2025), make it even more certain that a significant part of the economically optimum outcome for ratepayers in the region is to “share” (i.e., buy and sell) capacity resources and not overbuild.

Given that context, NorthWestern’s statement on page 2-15 that it “should not continue to rely on the short-term regional energy market to meet its future capacity needs” is unsupported. There is generally sufficient capacity and the region is integrating at a faster rate than envisioned in 2015 (the time of NWE’s last supply plan). The Company’s near-term resource plans should explicitly incorporate this integration and defer any investments that might be better valued after seeing the economic picture when a more integrated region emerges over the next two to five years.

Lastly, as we noted earlier in this section, the best way to assess the value of potentially deferring any ratepayer-funded capacity investments (instead, capturing the value of the marketplace for NWE ratepayers) is to explicitly include a scenario in the Final Plan that contains capacity provision through short-term purchases (of capacity and/or firm energy) to allow for comparison to scenarios that would otherwise consider commencing build-out of NWE resources in the near term.

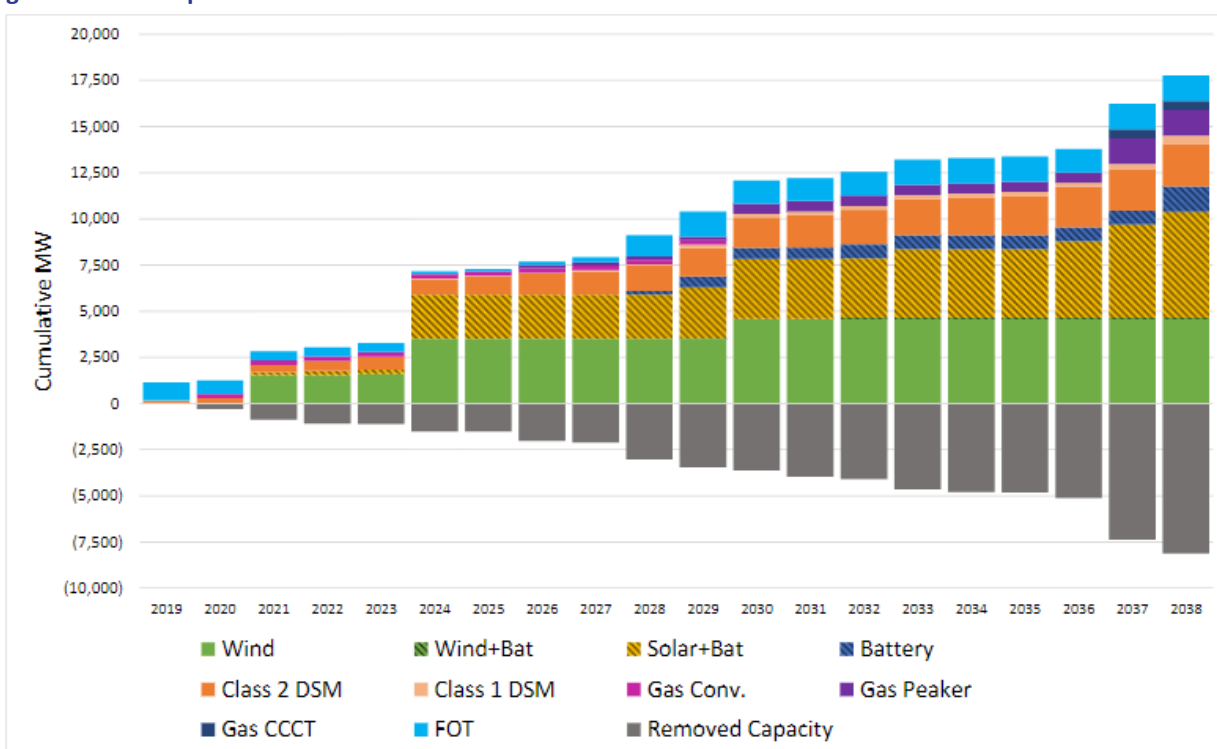
³ 2019 Electricity Supply Resource Procurement Plan. Page 10-2.

⁴ 2019 Electricity Supply Resource Procurement Plan. Page 11-11.

⁵ 2019 Electricity Supply Resource Procurement Plan. Page 2-10.

Other utilities in the Pacific Northwest region have incorporated market capacity purchases in resource portfolio modeling. For example, in PacifiCorp's 2019 IRP, the preferred portfolio selected a sizeable amount of market purchases, which PacifiCorp calls "Front Office Transactions," in both the near term and long term.⁶ Figure 1 shows the optimal resource portfolio from PacifiCorp's most recent IRP. The Front Office Transactions are abbreviated "FOT."

Figure 1. PacifiCorp 2019 IRP Front Office Transactions



Source: 2019 IRP Preferred Portfolio (All Resources). PacifiCorp 2019 IRP, Volume I.

NorthWestern addresses its impending participation in the EIM, but at best it is unclear if, or to what extent, its resource planning and portfolio analyses actually explicitly account for the transformed energy, ancillary service, and capacity market constructs that will exist in the region in 2021–2022 and beyond. In our comments on the Draft Plan, we asked that NWE ensure that its Final Plan describe in detail how the transformed constructs are explicitly represented in the modeling work that produces various estimates of net present value (NPV) for resource portfolios. This has not yet been done to our satisfaction.

⁶ 2019 Integrated Resource Plan, PacifiCorp. Available at https://www.pacifiCorp.com/content/dam/pcorp/documents/en/pacifiCorp/energy/integrated-resource-plan/2019_IRP_Volume_I.pdf

Bonneville Power Administration (BPA) is in the process of making a set of final decisions to join the EIM.⁷ Avista announced in April 2019 that it will join the EIM. The CAISO marketplace will institute its day-ahead enhancements in the fall of 2021⁸ (those enhancements have been underway for some time). It is likely that similar day-ahead market improvements will be part of the EIM perhaps as early as 2022. NWE is joining the EIM in 2021 and expects that a market construct akin to an RTO will be in place by 2025 (page 5-10). These facts will directly, if not forcefully, bear on the nature, timing, cost, and need for the capacity resources NWE discusses in its plan.

An RTO market construct implies the ability for participating utilities to effectively buy and sell capacity in a more efficient manner than currently exists in the somewhat balkanized environment of the Pacific Northwest (e.g., multiple balancing areas). The timing of these EIM developments is such that it is critical that NWE's action plan, and any possible procurement alternatives, explicitly recognize the changing landscape and not commit ratepayers to inefficient or costly investments in resources prior to knowing how the new market construct could allow NWE to reduce costs for its customers.

NorthWestern in its supply plan emphasizes a need for flexible supply and describes requirements for additional incremental (INC) and decremental (DEC) capacity. However, NWE does not address how the different market construct will affect any need for INC and DEC requirements within the Company's service territory, compared to overall requirements across the EIM footprint. NWE acknowledges that the EIM allows for "reductions in flexibility reserves" and "sub-hourly dispatch benefits and savings" (page 5-5), but NWE should ensure its supply planning analyses explicitly incorporate a construct that aligns with the realities of the EIM in 2021 and 2022, and 2025 and beyond. For example, NorthWestern acknowledges that "the market itself addresses intra-hour balancing" (page 5-10) and thus concerns about NWE having sufficient INC/DEC capacity may be somewhat moot, since regional capability (reflecting regional supply and load diversity effects) will be the more salient factor.

2.2. Capacity credit given to renewables

The capacity credit the Company gives to potential new solar and wind resources is prohibitively low in the PowerSimm modeling. New solar resources are credited for none of their nameplate capacity (0 percent) even though there is now, and will be in the future, a summer peak (during daylight hours when solar PV produces) that is only slightly lower than NorthWestern's winter peak. Also, new wind resources are credited for just 1.9 percent of nameplate even though Montana's winter wind profile is strong, is generally sustained during peak evening hours, and will contribute towards supporting winter peak loads. As a result, NorthWestern's Base portfolio builds only new gas resources and fails to build any solar or wind projects. Based on nameplate capacity information provided in Tables 7-6 and 7-7 of NWE's 2019 Final Plan, as well as the Reserve Margin Capacity inputs taken from PowerSimm, Synapse

⁷ See., e.g., April 26, 2019 BPA news piece, at <https://www.bpa.gov/news/newsroom/Pages/Energy-Imbalance-Markets-The-Grid-Mod-and-Strategic-Plan-connection.aspx>.

⁸ CAISO. 2019. *Day Ahead Market Enhancement Status and Next Steps*. Stakeholder Call. Available at: <http://www.caiso.com/Documents/Presentation-Day-AheadMarketEnhancementsInitiativeUpdate-May2-2019.pdf>.

was able to calculate the capacity credit tied to each resource. Right away, one will see that all gas resources can contribute 87–95 percent of their nameplate capacity towards NWE’s reserve margin. While it is true that renewable resources do not provide as much firm capacity as a gas resource, assigning a near-zero or zero credit causes these resources to be undervalued, and thus they are never selected by ARS in the Base portfolio.

Table 1. Western Montana reserve margin capacity by resource

Resource	Nameplate Capacity (MW)	Reserve Margin Capacity (MW)	Calculated Capacity Credit (%)
<i>Source</i>	<i>2019 RPP, Table 7-6</i>	<i>PowerSimm</i>	
Gas Resources			
Simple Cycle 1x0 CT- 50 MW Frame	48.1	44	91.5%
Simple Cycle 1x0 CT- 25 MW Aeroderivative	28.1	25.9	92.2%
Simple Cycle 1x0 CT- 50 MW Aeroderivative	47.4	42.63	89.9%
Combined Cycle 2x1 CT- Frame/Industrial CT	133.3	123	92.3%
DGGS Buildout 3x0 RICE - 18 MW	58.2	50.67	87.1%
Simple Cycle 1x0 RICE- 18 MW	19.4	16.89	87.1%
Simple Cycle 1x0 RICE- 9 MW	9.6	9.17	95.5%
Storage			
Battery Storage	26.3	25	95.1%
Renewables			
Wind Energy	105	1.9	1.8%
Solar PV	105	0	0.0%

Table 2. Eastern Montana reserve margin capacity by resource

Resource	Nameplate Capacity (MW)	Reserve Margin Capacity (MW)	Calculated Capacity Credit (%)
<i>Source</i>	<i>2019 RPP, Table 7-7</i>	<i>PowerSimm</i>	
Gas Resources			
Simple Cycle 1x0 CT- 50 MW Frame	51.4	44	85.6%
Simple Cycle 1x0 CT- 50 MW Aeroderivative	49.6	47.8	96.4%
Combined Cycle 2x1 CT- Frame/Industrial CT	140.2	129.6	92.4%
Simple Cycle 1x0 RICE- 18 MW	19.4	16.89	87.1%
Simple Cycle 1x0 RICE- 9 MW	9.6	9.17	95.5%
Storage			
Battery Storage	26.3	25	95.1%
Renewables			
Wind Energy	105	1.9	1.8%
Solar PV	105	0	0.0%

The differences in capacity credit between new gas and renewable resources leads PowerSimm to select new gas resources when allowed to optimize in every resource portfolio. The only exception to this is the No Carbon Additions portfolio, in which the model is constrained to add only resources that emit no carbon dioxide. The resource additions under each modeled portfolio are shown in Table 3. Resources highlighted in orange were hard coded into PowerSimm by Ascend Analytics.

Table 3. Resource additions in each of NorthWestern’s modeled portfolios

Resource	Current	Unconstrained Expansion	Base	Pumped Hydro	Wind	Solar	Li-ion Battery	Carbon Cost	High Carbon Cost	High Natural Gas	No Carbon Additions
105 MW Solar	0	0	0	0	0	210	0	0	0	0	0
105 MW Wind	0	0	0	210	210	105	0	0	420	0	1680
100 MW Pumped Hydro	0	0	0	100	0	0	0	0	0	0	300
26.3 MW Li-ion Battery	0	0	0	0	0	0	105.2	0	0	0	631.2
25 MW Aero	0	525	0	0	0	0	0	0	0	0	0
18 MW Rice	0	162	738	828	936	720	828	702	756	738	0
9 MW Rice	0	180	189	0	0	198	0	216	162	189	0
19.4 MW Rice - DGGS	0	58.2	58.2	58.2	58.2	58.2	58.2	58.2	58.2	58.2	0
Total Additions	0	925.2	985.2	1,196.2	1,204.2	1,291.2	991.4	976.2	1,396.2	985.2	2,611.2

In every resource portfolio shown in Table 3 that allows for the addition of carbon-emitting resources, the PowerSimm model adds at least 828 MW of new gas capacity. PowerSimm must build resources to meet NWE’s 16 percent reserve margin, and those that do not receive a higher firm capacity credit are therefore severely disadvantaged in the modeling. If these resources are not credited for providing any capacity to the grid, the model will not choose to build them regardless of their competitive low cost in the market. Additionally, a low capacity credit can inflate the cost of portfolio renewables by overbuilding resources with low firm capacity representations at a high cost. Synapse has seen no evidence that NorthWestern evaluated any alternative scenarios for uncertainty around the capacity credits for renewable resources.

The capacity credits given to wind and solar in this resource plan do not align with the historical contributions of these resources in the NorthWestern service territory, nor do they align with industry standard assumptions around capacity crediting. Treatment of ELCC for renewable resources must account for different values based on a summer peak need and a winter peak need, both of which occur on NWE’s system. Solar PV generally does not contribute to winter peak needs, but it does contribute to summer peak needs. In contrast, wind has a much higher contribution for winter peak needs than for summer peak needs. While a zero-capacity credit for solar in winter months may be reasonable,

NorthWestern should allow intermittent resources to provide different capacity requirements on a monthly basis, so that their benefit in summer peak months is recognized.

In Chapter 4 of the Final Plan, Northwestern states that it determines resource peak-load contribution based on production during historical peak-load periods, as demonstrated in its Table 4-1. NWE's Table 4-1 lists historical peak-load contributions for some existing wind resources but lists the peak-load contribution as "TBD" for newer renewables. The modeling output workbooks provided to Synapse indicate that the default capacity credit for all existing solar and wind resources without sufficient historical data is 10 percent and 5 percent respectively. Thus, a credit of 0 percent and 1.9 percent for new generic resources does not align with historical output.

This capacity credit also conflicts with general industry understanding of solar and wind operation. In CAISO, the 2018 solar and wind ELCCs ranged from 0-47.5 percent by month and resource, with an average annual ELCC for both around 22.6 percent. While the CAISO system differs substantially from the NWE service territory, CAISO's treatment of ELCC is a relevant model for utilities. The Navigant NEM study described in Chapter 4 of the Final Plan assigns a 6.1 percent capacity contribution factor to behind-the-meter solar resources in the NorthWestern service territory and points to the need for a more comprehensive analysis across the region.

Using simulated hourly load, wind, and solar data provided by Ascend Analytics, Synapse was able to estimate the forecasted solar and wind contributions to daily energy load (on peak days) over the time period of 2020 through 2048. This data was provided by project for the existing wind and solar resources represented in Table 4-1 of NorthWestern's plan. For the purpose of our high-level analysis, we took the average of the hourly load, wind output, and solar output values across the 100 simulations executed by Ascend.

Upon looking at the annual winter peak day over the time period through 2025, we observe that wind on NWE's system on average can contribute close to 30 percent of daily energy load, while solar contributes about 1 percent of daily energy load on average. For the summer peak day, wind can contribute around 12 percent of daily energy load, and solar increases to contribute 4 percent of daily energy load. Data from 2020 through the middle of the decade is the most indicative of wind contribution to NWE's load, as the data we were provided included projects that retire beginning 2027. Table 4 below provides our calculated wind and solar contributions to daily energy load on winter and summer peak days through 2025.

Table 4. Wind and solar contributions to daily energy load in winter and summer peak days, through 2025

Year	Winter Peak Day		Summer Peak Day	
	Solar	Wind	Solar	Wind
2020	1.0%	26.8%	4.6%	12.0%
2021	1.1%	28.4%	4.5%	12.5%
2022	0.9%	29.4%	4.4%	12.1%
2023	1.1%	28.7%	4.4%	12.4%
2024	1.0%	27.8%	4.4%	11.9%
2025	1.3%	29.8%	4.4%	11.8%

Source: Underlying data from Ascend Analytics. Reflects 538 MW of wind (nameplate), and 97 MW of solar PV.

Contributions to daily energy requirements do not reflect the expected contribution of the wind or solar resource to capacity needs during the peak hours, but they do highlight the critical importance of the resource to meeting energy requirements over the course of a peak winter or summer day. The average peak hour (winter, 6 PM) contribution from wind from our computations was greater than 40% in all years, although we did not control for correlations between load level and wind level within the 100 simulations provided by Ascend in the PowerSimm model.

One of the projects included in the wind data we received was for the proposed 320 MW Beaver Creek wind-plus-storage project (four wind turbines at 80-MW each, plus 160 MWh of battery storage). These data included contributions from this project for the years 2020–2037. The contributions of this project were excluded from the analysis in Table 4 above, but we note that when the project is added back to the mix, the average contribution of wind projects increases noticeably. Figure 2 and Figure 3, below, represent the average simulated winter peak day in 2020 with and without the Beaver Creek resource, respectively.

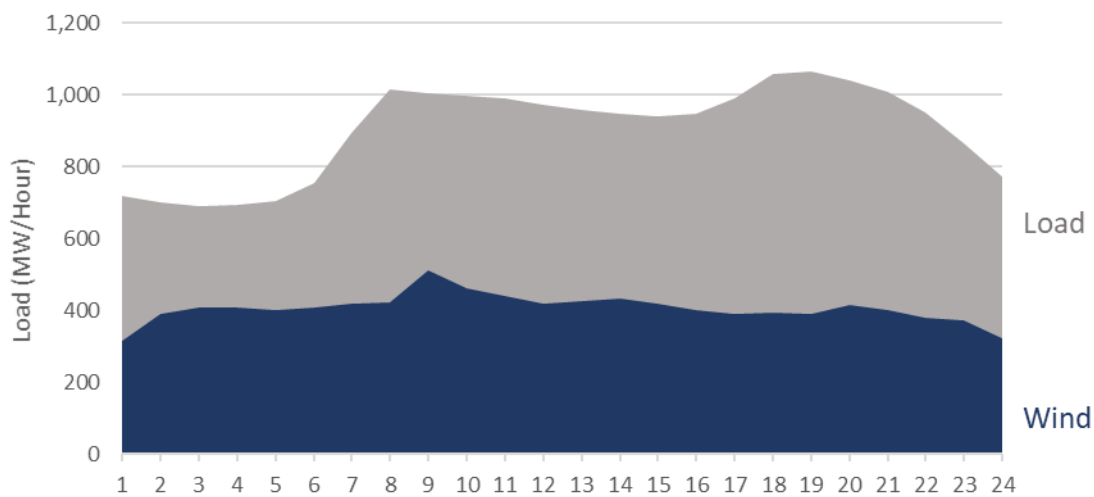
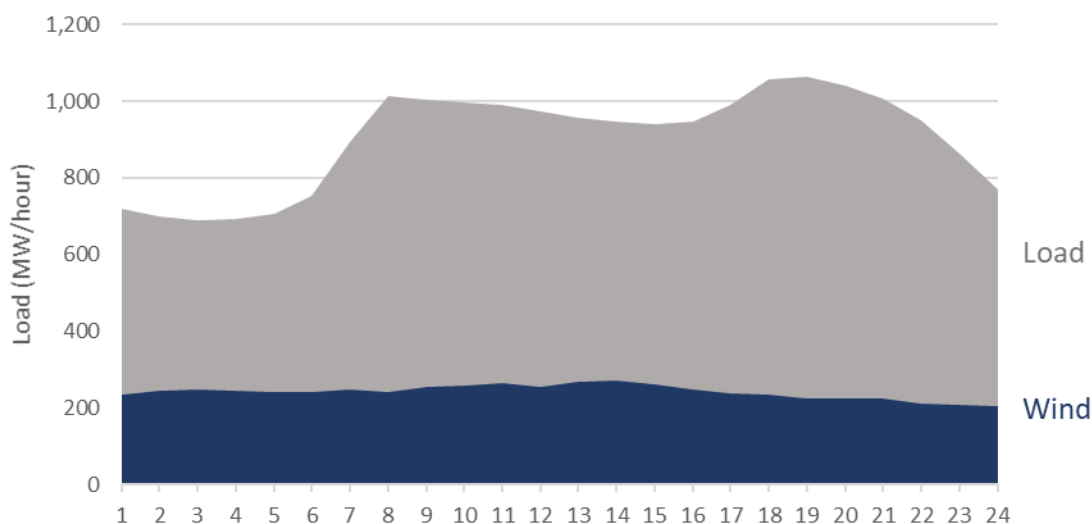
Figure 2. Average hourly energy contribution on peak day with Beaver Creek

Figure 3. Average hourly energy contribution on a peak day without Beaver Creek



Source for Figures 2 and 3: Underlying data from Ascend Analytics. Reflects 320 MW of additional wind (nameplate) capacity and 160 MWh of battery storage capacity.

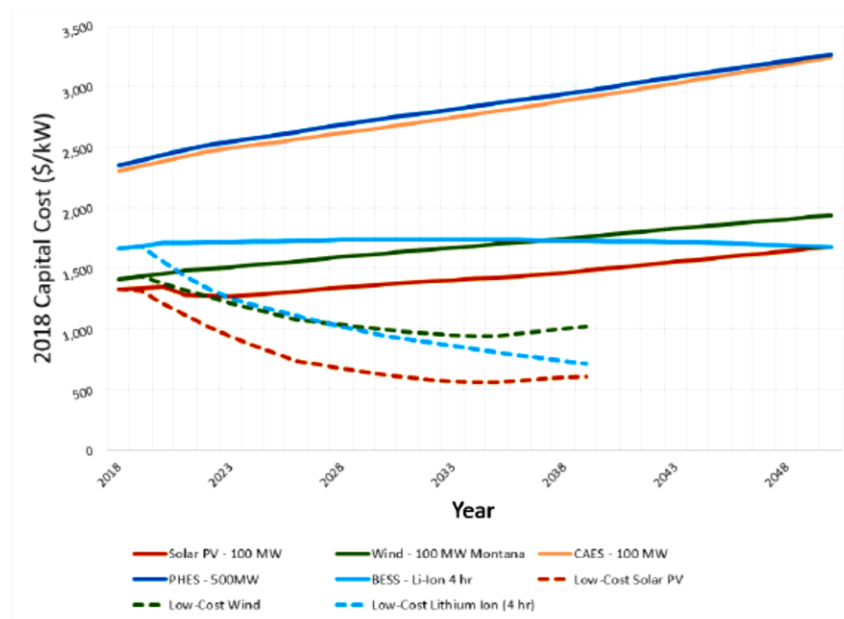
2.3. Capital costs of renewable resources

In Chapter 11 of its Final Plan, NorthWestern notes that it received comments from several parties stating that the unsubsidized costs of renewable resources are too high.⁹ Comments also noted that Ascend Analytics developed lower cost trajectories for wind, solar, and Li-ion batteries but did not use those costs in portfolio modeling.¹⁰ Those trajectories are shown in Figure 4, below.

⁹ 2019 Electricity Supply Resource Procurement Plan. Page 11-4.

¹⁰ 2019 Electricity Supply Resource Procurement Plan. Page 11-5.

Figure 4. NorthWestern’s new resource costs for renewables and batteries



Source: 2019 Electricity Supply Resource Procurement Plan. Figure 7-2.

NorthWestern’s response to these comments is that the original Base Case was re-run with the lower cost trajectories for these resources, and these lower cost futures had no effect on the resource selection. Therefore, NorthWestern chose not to include these resources, at these lower costs, as an option in future scenario modeling.¹¹ This is flawed, as described below.

NorthWestern has repeatedly stated its need for firm capacity resources and used this stated need to impose constraints in its PowerSimm modeling that do not realistically allow the model to choose anything other than thermal generators. First, PowerSimm is required to build toward NWE’s required reserve margin, which causes the model to select only those resources that can contribute firm capacity toward the Company’s reserves. As described above, NorthWestern gave solar a capacity credit of zero and wind a credit of 1.9 percent. The PowerSimm model will thus never choose either of these resources to meet a capacity need, no matter the price. The exception to this is if those resources are selected in combination with a resource that provides capacity but not energy, such as batteries or pumped storage. Ascend modeled only standalone resources, and we see in Table 3, above, that when pumped storage resources are hard-coded in the Pumped Storage resource portfolio, the model also chooses wind resources as part of the optimal resource mix. Paired renewables-plus-storage resources were not selectable resources in PowerSimm as part of either the Draft or Final plans, but we would expect to see these resources evaluated as part of the upcoming competitive solicitation process.

¹¹ 2019 Electricity Supply Resource Procurement Plan. Page 11-6.

If renewable resources receive a low capacity value, a capacity optimization model might choose to build renewables anyway for energy purposes. This would occur if the all-in cost of energy (capital plus any fixed and variable costs) is less than the marginal price of energy on a utility's system, and the least-cost option for energy generation is to build and run renewables that would displace higher cost existing resources, resulting in a net savings. NorthWestern has repeatedly stated that it is energy-long, and thus has little need for resources that provide only energy and not capacity. To that end, NWE constrained market sales of energy within PowerSimm to no more than 10 percent over annual customer load with the intent of preventing the model from overbuilding resources for the express purpose of selling energy into the market.¹² This constraint may be limiting any renewable builds that would provide low-variable cost energy to NorthWestern's system. Also, in a world with a more integrated Pacific Northwest marketplace, that would value winter energy (for example), a market sales limit of 10% of customer load is arbitrary and analytically unsupported.

NorthWestern modeled several portfolios in which specific levels of renewable and storage resources were manually forced into the model. Those include, specifically, the "Pumped Hydro," "Wind," "Solar," and "Li-ion Battery" portfolios. The resource portfolios and their revenue requirements are shown in Table 5.

Table 5. Modeled resource portfolios and associated revenue requirements

Portfolio	NPV Revenue Requirement (\$M)	Difference from Base
Base	\$5,717	-
Pumped Hydro	\$5,923	\$206
Wind	\$5,893	\$176
Solar	\$5,914	\$197
Li-ion Battery	\$5,732	\$15
Carbon Cost	\$5,883	\$166
High Carbon Cost	\$6,034	\$317
High Natural Gas	\$5,714	(\$3)
No Carbon Additions	\$6,240	\$523

Sources: 2019 Electricity Supply Resource Procurement Plan. Figures 10-1, 10-2, and 10-3.

At a minimum, it would have been useful for NorthWestern to model the portfolios that fix the additions of renewable and storage resources using the lower cost trajectories. The Li-ion Battery portfolio has a revenue requirement that is only \$15 million more than NorthWestern's Base portfolio under reference capital costs. A lower capital cost for battery storage technologies would lower the revenue requirement associated with that particular portfolio, perhaps bringing the cost below that of the Base portfolio.

¹² 2019 Electricity Supply Resource Procurement Plan. Page 10-4.

Adjustments to both the capacity values given to renewables and the capital cost trajectories associated with renewable and storage technologies in the PowerSimm modeling would result in the most meaningful set of resource portfolios. While NorthWestern can defer actual capacity additions to the competitive solicitation process, the importance of including current and reasonable assumptions in the resource planning process should not be overlooked or undervalued.

2.4. Limited alternative resource options

In order to test the market, NorthWestern issued an RFI in July 2018, designed to assess “potentially available resources for potential inclusion in capacity planning.” While the RFI responses align somewhat with the slate of resources available in the modeling analysis, NWE has overlooked some key resource options. We described this limiting of potential resource options in our comments on the Draft Plan that were submitted to NorthWestern in May. However, the Company did not perform any additional model runs with an updated list of resource options, and so we believe that this comment should be reiterated here.

Table 6 below shows the number of responses to the Company’s RFI by resource type in order of frequency, as compared to the number of resources NWE provided to its model. Solar plus storage, hydroelectric, internal combustion plus storage, coal, demand response, and wind plus storage resources are all absent from the available modeled resource slate. In contrast, NWE models three combined cycle resources when no relevant developers responded to the RFI. While the modeling exercise must not be perfectly aligned with an RFI, the dearth of renewable resource options and excess of natural gas-fired options available to the model seems incongruous.

Table 6. Number of July 2018 RFI responses versus available modeled resources by resource type

Resource Type	RFI	Modeled
CT/ICE	6	5
BESS	5	2
Solar + Storage	5	0
Wind	4	1
Hydro	3	0
Coal	2	0
CT/ICE + Storage	2	0
DR/DSM	2	0
PV	1	1
Wind + Storage	1	0
CAES	0	1
CC	0	3
Geothermal	0	1
Pumped Hydro	0	1

Based on the RFI, Northwestern should include at least two paired storage resource options, and it should consider whether the abundance of gas-fired resource options influences the modeling exercise unreasonably.

2.5. Modeling errors and omissions

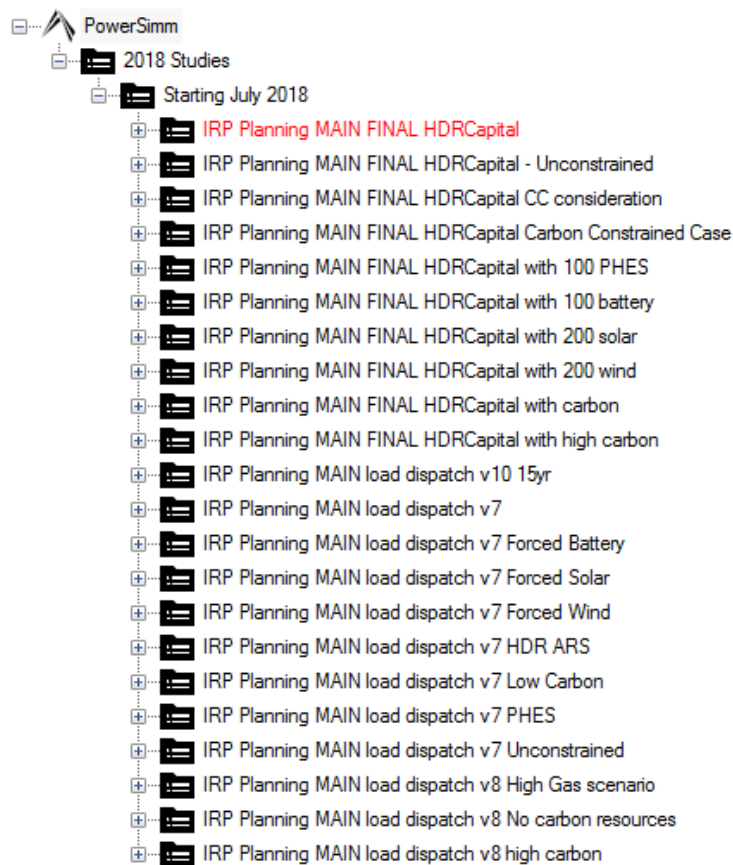
The PowerSimm modeling contains certain data entry-type errors that we observed in our review. We describe those errors here.

NorthWestern did not properly model a High Natural Gas Price scenario

NorthWestern claims in the Final Plan that it modeled a High Natural Gas Prices Scenario, which contains all of the assumptions included in the Base portfolio but escalates gas prices at 150 percent of the Base case escalation. The Company also claims that, as in the Base portfolio, resources were added to the portfolio using constrained ARS analysis.¹³ However, upon looking at the setup of the PowerSimm model, Synapse noticed that there was no High Gas Price capacity expansion portfolio, meaning PowerSimm would be unable to run a constrained ARS analysis with this new sensitivity (see Figure 5, in which there is a “load dispatch” study for a High Gas scenario, but no “HDRCapital” study). Additionally, the load dispatch portfolio labeled as the “High Gas scenario” uses the same forward price curve (AECO 2018) for natural gas as the Base scenario, as opposed to using prices 150% higher than the Base scenario as stated in the Plan (see Figure 6). For these reasons, we believe that NorthWestern did not actually model a High Natural Gas Price scenario despite describing one in its plan.

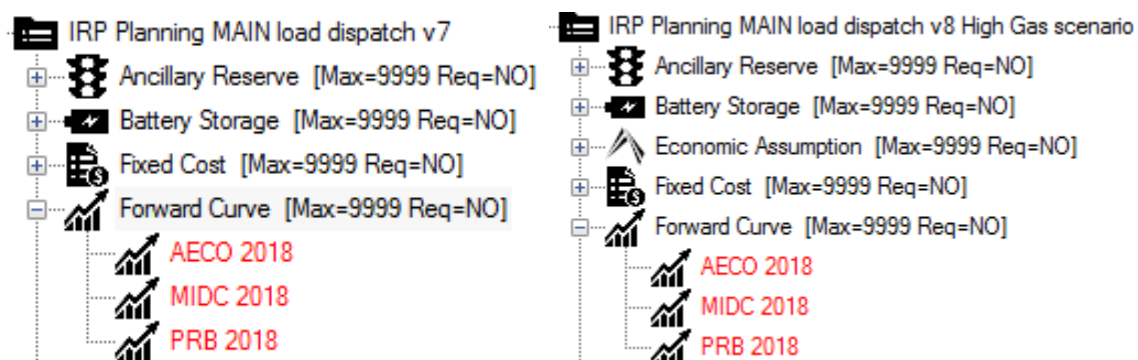
¹³ 2019 Electricity Supply Resource Procurement Plan. Page 10-15.

Figure 5. PowerSimm portfolio setup



Source: Screen capture taken from NorthWestern's PowerSimm model dashboard.

Figure 6. PowerSimm load dispatch setup for Base and High Gas scenarios



Source: Screen capture taken from NorthWestern's PowerSimm model dashboard.

NorthWestern states that “The High Natural Gas Prices scenario had no effect on resource selection.”¹⁴ However, we cannot know this with any certainty given that this scenario was not actually included as an optimized run in PowerSimm. Additionally, the net present value of revenue requirement (NPVRR) for the High Natural Gas scenario is shown as being approximately \$3 million less than the Base portfolio, for which NorthWestern has not provided an explanation.

It would have been wise for NorthWestern to model a scenario, or sensitivity to its Base scenario, in which winter gas supply was curtailed. The Company notes that “[c]urrently, gas-fired generation on the system operates utilizing interruptible gas transportation arrangements. As a result, during the coldest days of the year, gas supply to electric generation is subject to curtailment.”¹⁵ The Company’s emphasis has consistently been on its winter peak throughout the stakeholder process and in both the Draft and Final Plan. While two of the simple cycle options considered in the Plan, the 50 MW aeroderivative CT and the 18 MW RICE, include the option to switch to a backup fuel in the event that the natural gas supply to the power generation facility is curtailed,¹⁶ NorthWestern did not model or otherwise attempt to quantify the risk associated with gas curtailment.

PowerSimm cannot endogenously retire uneconomic resources

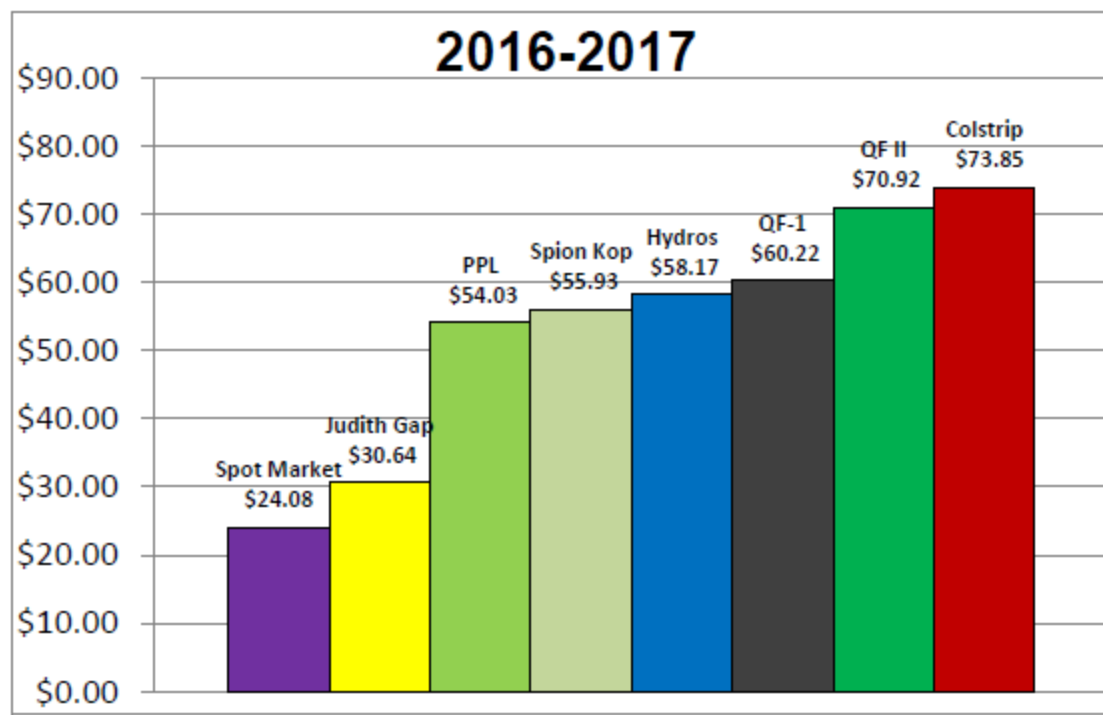
In PowerSimm, projects can be defined as new assets, existing assets, or retirement options. However, in NorthWestern’s model, all resources were set up as either new or existing assets, thus preventing the model from being able to select a unit for retirement if its economics are poor relative to other units over the course of the planning period. Crucially, this means the model does not have the capability to optimize the early retirement of potentially uneconomic units arising from exposure to existing operational costs or future operational plus fixed (including capital investment) costs. This is important with respect to the operation of the Colstrip units. They are the most expensive resource in NorthWestern’s resource portfolio, as shown in Figure 7, inclusive of all costs collected in rates.

¹⁴ 2019 Electricity Supply Resource Procurement Plan. Page 10-21.

¹⁵ 2019 Electricity Supply Resource Procurement Plan. Page 6-27.

¹⁶ 2019 Electricity Supply Resource Procurement Plan. Page 7-18.

Figure 7. Selected NorthWestern electricity average unit prices



Source: Montana Consumer Counsel. 2017. Residential Electricity Prices of NorthWestern Energy Through June 2017. Available at: <https://leg.mt.gov/content/Committees/Administration/Consumer%20Counsel/Reports/NWERateGraphs.pdf>.

NorthWestern does not model any scenarios with early retirements for Colstrip 3 or 4, despite comments from the public requesting such a scenario.¹⁷ One method to remedy this would be to allow PowerSimm to optimize retirement dates endogenously.

Fixed O&M costs for solar resources

The solar resource fixed O&M assumptions in PowerSimm used in NorthWestern's IRP modeling were unreasonably high, at \$21.60/kW-year for a new 100 MW solar installation.¹⁸ Lazard's Levelized Cost of Energy study from 2019, which was referenced by several stakeholders in their comments on the Draft Plan, estimates that utility-scale solar PV Fixed O&M costs are between \$9–\$12 per kW-year.¹⁹ NREL's 2019 ATB estimates 2019 Fixed O&M costs to be about \$13 per kW-year²⁰ with costs continuing to decline in real terms over time. This means that industry standards are about two-times lower than

¹⁷ 2019 Electricity Supply Resource Procurement Plan. Page 11-4.

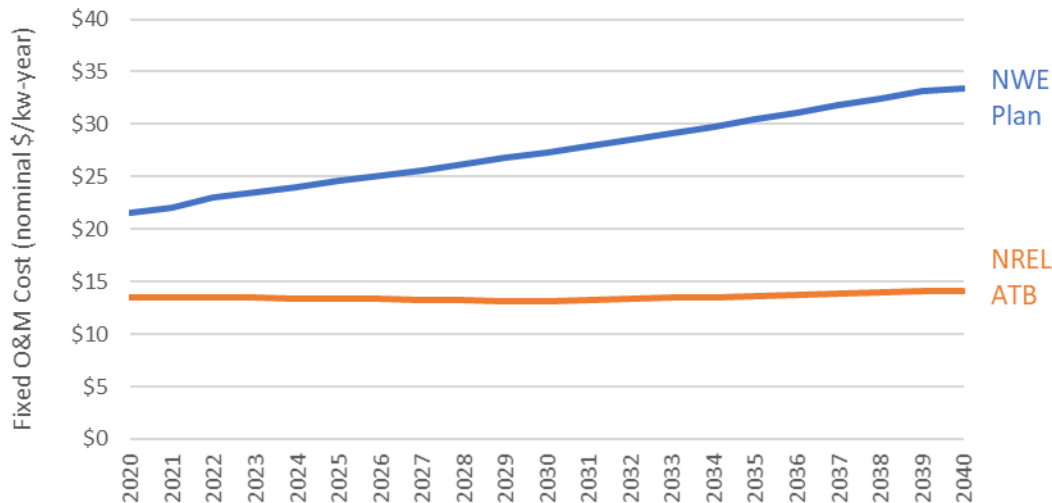
¹⁸ 2019 Electricity Supply Resource Procurement Plan. Page 7-8.

¹⁹ Lazard, *Lazard's Levelized Cost of Energy Analysis- Version 13.0* p. 16 (Nov. 2019). Available at <https://www.lazard.com/perspective/lcoe2019>

²⁰ NREL, ATB: Utility-Scale PV (2019), Mid-Case. Available at <https://atb.nrel.gov/electricity/2019/index.html?t=su>

what NorthWestern assumes in its plan. A comparison between NorthWestern’s assumption and the NREL 2019 ATB is shown in Figure 8.

Figure 8: Solar fixed O&M cost comparison



This assumption is an important one because the PowerSimm model considers capital, fixed, and variable costs of new resources in its optimization. A high fixed cost is one more disadvantage unreasonably given to solar resources by NorthWestern, in addition to higher capital costs and a capacity credit of zero.

Discrepancies between the Final Plan and the PowerSimm interface

There are multiple places in the PowerSimm model where the inputs, whether they be costs or resource attributes, do not match the values published in the Plan. Synapse raised these concerns to NorthWestern and received the response that some of the discrepancies in cost values may be attributed to rounding and/or annual escalation, but that they could not say definitively. While we cannot confirm whether or not the changes listed in Table 7 impact the final results, it does raise some flags. For example, the nameplate capacity listed for the wind resource in Tables 7-6 and 7-7 of the resource plan is 105 MW, while the capacity value in PowerSimm is 100 MW. This affects the ELCC of wind, because the 1.9 MW Reserve Margin Capacity results in a 1.9 percent ELCC if the 100 MW value from PowerSimm is used, and a 1.8 percent ELCC if the 105 MW value from the Final Plan is used. While this difference is slight, it is nonetheless NorthWestern’s responsibility to ensure that the values published in the Plan are reflected accurately in modeling inputs to ensure transparency throughout this process.

Table 7: Observed discrepancies between the Final Plan and PowerSimm

Resource	Category	Final Plan	PowerSimm
9 MW RICE	Capital Costs	\$2,324/kW	\$1,987/kW
9 MW RICE	Fixed O&M Costs	\$54.62/kW-year	\$56.88/kW-year
Wind	Capital Costs	\$1,410/kW	\$1,330/kW
Wind	Fixed O&M Costs	\$37/kW-year	\$24/kW-year
Wind	Nameplate Capacity	105 MW	100 MW
Solar	Nameplate Capacity	105 MW	100 MW
Li-Ion Battery Storage	Nameplate Capacity	26.3 MW	25 MW

3. COMPETITIVE PROCUREMENT PROCESS

The Company intends to procure any new resources through the RFP process, soliciting competitive proposals from a variety of resources. NorthWestern has stated that the resources procured through these competitive solicitations may be those identified in the Final Plan, but that it is more likely that resources not identified or modeled will be those that are actually acquired by the Company.²¹

NWE's issuance of an RFP for capacity procurement contains several, severe flaws which essentially restrict the ability for resources to compete to serve NorthWestern's needs and do not adhere to the spirit of House Bill 597 because of the effective restriction to competition. Those flaws are:

1. Limiting resources to those considered "dispatchable," even though NWE's need is for incremental capacity resources, not necessarily for 100 percent incrementally dispatchable capacity resources.
2. Not allowing for wind resources absent storage characteristics to participate in the bidding process. Additionally, while NWE indicates it will model the entire portfolio of resource bids received, the RFP still indicates a very low capacity contribution ascribed to wind resources.
3. Restricting resource participation by defining overly stringent resource output duration tiers that are not supported by any PowerSimm modeling result requiring such lengthy duration.

²¹ 2019 Electricity Supply Resource Procurement Plan. Page 11-3.

Each of these is addressed in turn below.

Northwestern's need is for capacity resources to meet its peak load, plus reserve requirements. With its entry into the EIM in 2021, the overall need for any one utility to hold a certain level of dispatchable resources is lessened.²² NWE did not compute a minimum value of required dispatchable resources for its system, and the value of any capacity resource bidding into the RFP can be assessed (through the portfolio modeling) without first limiting the potential entry of new resources. This may particularly effect solar and wind resources, which while technically dispatchable in a downward direction, and potentially dispatchable in an upwards direction (if postured, and "held back" for energy production), are not generally considered dispatchable. NWE should remove this requirement from the RFP and allow its portfolio modeling process to address the extent to which a given respondent to the RFP, with a dispatchable resource, adds value for NWE.

Wind resources in central Montana are being modeled by NWE at a 44 percent annual capacity factor, reflecting the strength of this resource for NWE. Montana wind is stronger in the winter, and weaker in the summer; thus, contributions to winter peak needs can be expected. NWE's winter credit of 1.9 percent is too low: NWE used a cumulative frequency computation, and not an explicit ELCC computation, to arrive at this value. NWE offers no credible reason for the stringent, 95 percent confidence parameter it uses to arrive at the 1.9 percent value.

We note that winter peaking regions usually recognize the strength of the resource, such as Saskatchewan assigning a 20 percent credit for wind, based on use of the median value for wind capacity during peak hours, and not reflective of a 95 percent confidence of exceedance. If a cumulative frequency computation is to be used, NWE should consider using a median level of expected wind output during winter peak periods. Preferably, a true ELCC computation should be used to determine capacity contributions from wind resources (for winter) and solar resources (for summer).

In Avista's draft 2020 IRP, the location of wind resources determines the capacity credit they receive. Northwest wind receives a 5 percent capacity credit for its operational contribution to winter peak, while Montana wind receives a 40 percent capacity credit.²³ This fairly dramatic difference in wind capacity contribution crediting reflects the distinction between, for example, Columbia Gorge winter peak period wind patterns, and those of central Montana (with vastly different topography and

²² Notably, EIM improvements may allow for even less flexible capacity to meet Resource Sufficiency requirements, according to the CAISO. October 2019: <http://www.caiso.com/InitiativeDocuments/IssuePaper-ExtendedDayAheadMarket.pdf>. "Resource sufficiency evaluation: Since resource participation in EDAM will be voluntary, i.e. there will not be an obligation to offer specific resources into the day-ahead market, this initiative must develop resource sufficiency evaluation criteria and related rules. Similar to the existing criteria and rules in the EIM, EDAM resource sufficiency rules must ensure that balancing authority areas do not inappropriately lean on the capacity, flexibility, or transmission of other balancing authority areas. As part of this, **this initiative will explore potential mechanisms to trade resource flexibility and/or balancing authority area obligations needed to pass the resource sufficiency evaluation** between EDAM balancing authority areas." (emboldened emphasis added).

²³ Avista. 2020. *Electric Integrated Resource Plan*. Available at: <https://www.myavista.com/-/media/myavista/content-documents/about-us/our-company/irp-documents/2020-avista-electric-irp-tac-draft.pdf?la=en>.

meteorological characteristics) during the same time periods.²⁴ Similarly, in PacifiCorp’s most recent IRP, wind and solar resources receive different capacity credits based on location. The values for standalone wind, solar, and storage are shown in Table 8. Capacity contributions rise when paired with storage, as shown in Table 9.

Table 8. PacifiCorp’s final capacity contribution values for wind, solar and storage.

	Capacity Factor (%)	Capacity Contribution (%)	
	Annual	S	W
Solar			
Idaho Falls, ID	28%	12%	13%
Lakeview, OR	29%	15%	14%
Milford, UT	32%	10%	23%
Yakima, WA	25%	12%	10%
Rock Springs, WY	30%	11%	19%
Wind			
Pocatello, ID	37%	19%	27%
Arlington, OR	37%	57%	21%
Monticello, UT	29%	18%	22%
Goldendale, WA	37%	57%	21%
Medicine Bow, WY	44%	13%	35%
Stand-alone Storage			
2 hour duration		78%	89%
4 hour duration		94%	100%
9 hour duration		98%	100%

Source: PacifiCorp. 2019 Integrated Resource Plan. Volume II, Appendices M-R. Page 404.

²⁴ See, for example, a memo and presentation by John Fazio (Senior Systems Analyst) of the Northwest Power and Conservation Council, August 2, 2016, on “System Capacity Contribution of Montana Wind Resources”, available at https://www.nwcouncil.org/sites/default/files/3_131.pdf.

Table 9. PacifiCorp's final capacity contribution values for wind and solar combined with storage.

	Capacity Factor (%)	Capacity Contribution (%)	
	Annual	S	W
Solar & Storage			
Idaho Falls, ID	28%	33%	37%
Lakeview, OR	29%	35%	39%
Milford, UT	32%	30%	48%
Yakima, WA	25%	33%	34%
Rock Springs, WY	30%	31%	43%
Wind & Storage			
Pocatello, ID	37%	38%	50%
Arlington, OR	37%	77%	44%
Monticello, UT	29%	37%	44%
Goldendale, WA	37%	76%	44%
Medicine Bow, WY	44%	32%	58%

Source: PacifiCorp. 2019 Integrated Resource Plan. Volume II, Appendices M-R. Page 405.

Storage resources can compete with gas-fired capacity for capacity provision. NWE's tier specification is overly stringent. Peak periods do not require peaking output from a single resource to be sustained for 20 hours, or even 10 hours, as NWE's tier structure demands. Storage resources of durations ranging from 2 hours to 6 hours are commonly seen to provide sufficient capacity to cover peak periods or contingency event operation. NWE provides no technical or computational (PowerSimm modeling) justification for the stringent (i.e., too high) tier threshold duration values.

4. OPPORTUNITY RESOURCES

NorthWestern notes that opportunity resources, which are existing or new-build resources that remain unknown as to their availability until the purchase opportunity arises, may be obtained outside of the competitive solicitation process. There are currently two opportunity resources of note. The first is the availability of Puget Sound Energy's 25 percent share of Colstrip Unit 4, which is available to NorthWestern for \$1. If NWE were to purchase this asset, it would acquire 185 MW of generation but sell 90 MW back to Puget Sound Energy for the next five years. Though the capital cost is practically zero, as shown in Figure 7, Colstrip has the highest operating cost of any of NorthWestern's units. It is also counter to the behavior of other utilities in the Pacific Northwest region that are actively retiring or divesting themselves of existing coal units.

To our knowledge, NorthWestern has not put Colstrip options to a competitive test against alternative opportunity resources, especially, for example, what may be available from Bonneville Power Administration (BPA) or merchant providers. Such an analysis would include updated capacity values for

renewables, as described in Section 2.2, lower capital cost trajectories for renewable resources, and a price on emissions of carbon dioxide associated with federal regulations.

In the Final Plan, NorthWestern describes the potential Regional Haze risk facing Colstrip Units 3 and 4, stating that:

*It is likely that Colstrip Units 3 and 4 will undergo analysis to determine whether additional controls will be required. NorthWestern cannot predict how the results of this analysis may, or may not, affect Colstrip Units 3 and 4. For purposes of the Plan, we assume Colstrip Units 3 and 4 will not require additional material upgrades to comply with the RHR during the 20-year planning period of the Plan. Obviously, should Montana conclude Units 3 and 4 require material upgrades a detailed analysis would be required at that time.*²⁵

Future analysis of the Colstrip 4 acquisition should consider the risk of additional upgrades to comply with Regional Haze rules.

Second, BPA is currently in the process of more aggressively seeking longer-term contracts for its resources. In its 2018 Strategic Plan, BPA states that it seeks to:

*Increase power revenues through new market opportunities for clean capacity. BPA will seek to increase revenues from its secondary sales by pursuing new capacity market opportunities and using new and improved approaches for ancillary and control area service offerings. Taking a more systematic approach, BPA will also develop, package and sell a portfolio of products and services to take advantage of real-time, short-term, cyclical, long-term and emerging opportunities. BPA's long-term objective is to re-subscribe the federal system to its preference customers through new long-term contracts in 2028. However, BPA will also target potential sales of surplus or excess federal power to entities that seek low-carbon power or other FCRPS attributes (such as flexibility and responsiveness). These entities may include investor owned utilities, high-tech facilities and qualified community choice aggregators. Targeting these sales will serve as a hedge against declining secondary revenues and create longer-term sales opportunities if we experience a reduction in the amount of power that preference customers buy from BPA after 2028.*²⁶

The availability of such resources from BPA should be explored and evaluated by NorthWestern outside of its competitive solicitation process.

²⁵ 2019 Electricity Supply Resource Procurement Plan. Page 9-16.

²⁶ Bonneville Power Administration. 2018 Strategic Plan. Page 36. Available at: <https://www.bpa.gov/StrategicPlan/StrategicPlan/2018-Strategic-Plan.pdf>.

Exhibits to Direct Testimony of Thomas J. Schneider
on behalf of Montana Environmental Information Center

Exhibit TJS-6

Docket No. 2019.12.101

DEPARTMENT OF PUBLIC SERVICE REGULATION
BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MONTANA

IN THE MATTER OF THE Application
by NorthWestern Energy for the
Authority to Increase Retail Electric
Utility Service Rates and for Approval of
Electric Service Schedules and Rules and
Allocated Cost of Service and Rate
Design

REGULATORY DIVISION

Docket No. D2018.2.12

**PREFILED DIRECT TESTIMONY
OF RONALD J. BINZ
ON BEHALF OF MONTANA ENVIRONMENTAL INFORMATION CENTER
("MEIC") AND SIERRA CLUB**

1 accumulated deferred income taxes of \$33.5 million. This yields a remaining
2 accounting value of \$303.1 million.

3 Case 3 adopts the Colstrip Unit 4 valuation based on the purchase cost of \$187
4 million. As in Case 1, the original valuation is increased by \$42.6 million,
5 decreased by the depreciation reserve of \$113 million, and then decreased by the
6 accumulated deferred income taxes of \$33.5 million.

7 Case 2 is similar to Case 3 except that, instead of using the actual accumulated
8 deferred income taxes accrued over 10 years, the value is “modeled” assuming the
9 lower plant valuation had been used during the 10-year period. This conservative
10 approach was used because the impact of the 2018 Tax Cut and Jobs Act.

11 **Q: WHAT CONCLUSION DO YOU REACH?**

12 **A:** Without clawing back the revenues collected by NorthWestern over ten years
13 using the inflated valuation for Colstrip Unit 4, the Commission could adjust rates
14 in this case by setting NorthWestern’s rates using an accounting value of Colstrip
15 Unit 4 of \$100 million. This action would strike a balance between shareholder
16 and consumer interest and restore regulation of Colstrip Unit 4 to a cost basis.

17 **Q. BESIDES HIGHER CONSUMER RATES, ARE THERE OTHER UNDESIRABLE EFFECTS**
18 **OF USING AN EXCESSIVE VALUATION FOR COLSTRIP 4 IN NORTHWESTERN’S**
19 **RATE BASE?**

20 **A.** Yes. One potentially overlooked issue is a combination of economic and
21 environmental matters. As this Commission knows well, utilities across the
22 country are closing coal-fired power plants and replacing them with less-costly

1 and cleaner alternatives, including wind and solar. These closures are motivated
2 by both economic and environmental considerations.

3 Initially, lower natural gas prices were making coal plants uneconomic in
4 organized markets. Subsequently, the costs of wind and solar energy have fallen
5 very sharply and, at least for plants in operation during the pendency of federal
6 tax incentives, are cheaper in many places than fossil alternatives. Remarkably,
7 the all-in costs of wind and solar energy are now often lower than the operating
8 costs of older coal plants.

9 In March 2018, ALLETE Clean Energy announced the contract to provide
10 NorthWestern with 80 MW of wind power. The Missoulian reported that the
11 price of the wind power is \$21.03/MWh.⁷¹ This amount is likely lower than the
12 marginal cost of Colstrip Unit 4 and lower than the cost of energy purchased by
13 NorthWestern from other generating companies like Talen Energy. And, as low
14 as that price is, even lower prices are showing up in other western markets.

15 In the western United States, Xcel Energy is a leading proponent of what it calls
16 “steel for fuel,” closing coal generating plants and replacing them with utility-
17 owned solar and wind facilities. The phrase refers to the trend of near-zero-cost
18 renewable facilities (made of steel) replacing fuel-cost-dominant fossil plants.
19 Using this strategy, Xcel recently announced the early retirement of two coal units
20 in Pueblo, Colorado, replacing the energy with a mixture of solar, wind, and

⁷¹ Tom Lutey, Planned central Montana wind farm will sell power to NorthWestern at a much lower price, Missoulian, Mar 30, 2018, https://missoulian.com/news/state-and-regional/montana/planned-central-montana-wind-farm-will-sell-power-to-northwestern/article_78ae316f-16e9-5fde-9904-d07c9ce50b5c.html.

1 possibly some gas generation. The new facilities will operate at lower cost than
2 the retired plants and, notably, this strategy by Xcel is also positive for the
3 Company's financial health. In other words, Colorado consumers get lower rates
4 and the utility improves its financial situation. Ownership of wind and solar
5 facilities gives the Company a larger rate base and avoids the fuel-cost-dominated
6 costs of fossil generation.

7 It is easy to see how the excess valuation of Colstrip Unit 4 will affect
8 NorthWestern's ability to make an informed decision about the future of Colstrip
9 Unit 4. Stated bluntly, Colstrip Unit 4 is a cash cow for investors. In 2019,
10 NorthWestern shareholders and lenders will derive approximately \$41 million in
11 capital-related revenues from Colstrip Unit 4 (return plus depreciation). If the
12 Commission had used a cost basis for Colstrip Unit 4 in 2008, the 2019 capital
13 revenue requirement would be less than \$20 million, even assuming the full
14 amount of the proposed rate base additions.

15 **Q: AS A FORMER STATE UTILITY REGULATOR, DO YOU THINK THE COMMISSION**
16 **COULD JUSTIFY REDUCING THE RATE BASE VALUATION OF COLSTRIP UNIT 4?**

17 **A:** Yes, I do. In approaching this issue, the Commission must balance two
18 competing regulatory principles: maintenance of past regulatory actions versus
19 equitable considerations and consumer protection. In my view as a former state
20 utility regulator, there is no compelling equitable reason to stick with the market
21 valuation established by the 2008 rate base order. The 2008 Commission
22 announced numerous concerns about NorthWestern's proposal, many of which
23 ultimately materialized. As shown by MEIC and Sierra Club witness David

1 Schlissel, the plant has not functioned as predicted and its operating costs are
2 higher than projected.⁷²

3 Bottom line, NorthWestern has charged rates based on the inflated plant balance
4 for ten years. In view of the changed circumstances, it is reasonable to reduce the
5 plant balance to the level of its traditional depreciated original cost. Indeed, this
6 is the Commission's role as it seeks to establish just and reasonable rates.

7 I agree with Professor Bonbright: the cost of service approach is preferable to the
8 market valuation approach. Utility regulation principles do not require the
9 Commission to maintain a consistent methodology between rate cases: "Under the
10 statutory standard of 'just and reasonable' it is the result reached not the method
11 employed which is controlling. ... It is not theory but the impact of the rate order
12 which counts."⁷³

13 In the alternative, if the Commission wants to maintain methodology consistent
14 with its 2008 decision, it should require NorthWestern to perform an updated
15 market valuation of Colstrip Unit 4. MEIC and Sierra Club witness David
16 Schlissel shows in his testimony that the market value of Colstrip Unit 4 has
17 dropped sharply.⁷⁴

⁷² See Schlissel Test. at DAS-22 to -34.

⁷³ Hope Natural Gas Co., 320 U.S. at 602.

⁷⁴ See Schlissel Test. at DAS-5 to -42.

1 **Q: IF THE COMMISSION DETERMINES NOT TO ADJUST THE RATE BASE VALUE OF**
2 **COLSTRIP UNIT 4, ARE THERE OTHER RATE MAKING ALTERNATIVES IT SHOULD**
3 **CONSIDER?**

4 **A:** Yes. Recall the First Law of Holes.⁷⁵ The Commission should not worsen an
5 already unfair situation by approving even higher revenues for Colstrip Unit 4
6 (and Colstrip Unit 3) in this docket. Higher Colstrip Unit 4 revenue requirements
7 in this case derive from two issues. First, NorthWestern is seeking to increase
8 Colstrip rate base by \$42.6 million over the 2008 levels, representing net capital
9 additions to the plant since it was placed into rate base.

10 Second, NorthWestern is proposing to maintain the use of a return of 8.25% for
11 Colstrip Unit 4, a rate of return that is higher than the one that NorthWestern
12 proposes for all other investment, 7.42%. Of course, the rate of return adopted by
13 the Commission in this case might well be lower than 7.42%. Interestingly, the
14 Commission adopted 8.25% rate of return in 2008 as a way of mitigating the rate
15 impact of rate basing Colstrip Unit 4:

16 *The PSC determines the CU4 revenue requirement for the life of the*
17 *plant should be based on a 10 percent ROE and a 6.5 percent cost of*
18 *debt, and maintaining the 50/50 capital structure. These changes*
19 *provide a significant benefit to ratepayers.*⁷⁶

20
21 In its findings, however, the Commission also explicitly recognized the shift of
22 risk to ratepayers to be considered by a future Commission:

23 *Any future sale, transfer, etc. of NWE's interest in CU4 will require*
24 *regulatory approval of the PSC. The proper ratemaking treatment of*

⁷⁵ "If you find yourself in a hole, stop digging."

⁷⁶ Order 6925f at ¶ 264.

1 *any future gains on any activity involving CU4 will be determined by*
2 *the PSC. In making that determination, the PSC will recognize that*
3 *ratepayers have carried the risk of loss since the issuance of this*
4 *Order.*⁷⁷

5
6 Now is the time for the Commission to account for the ongoing risk to ratepayers
7 of maintaining Colstrip Unit 4 in establishing a rate of return for this asset.

8 **Q: WHAT IS THE EFFECT OF USING A DIFFERENTIAL RATE OF RETURN FOR**
9 **COLSTRIP UNIT 4?**

10 **A:** The Commission viewed 8.25% as a benefit to consumers in 2008 when the
11 balance of plant was permitted a return of 9.15%. MEIC and Sierra Club asked
12 NorthWestern in discovery to calculate the difference in return of using the higher
13 8.25% rate of return for Colstrip Unit 4. NorthWestern responded that the
14 revenue requirement would decrease by \$2.3 million if a consistent rate of return
15 was used for Colstrip Unit 4 rate base.⁷⁸ Of course, the difference would be larger
16 if the Commission finds that a lower rate of return is correct.

17 **Q: PLEASE SUMMARIZE YOUR RECOMMENDATION TO THE COMMISSION**
18 **REGARDING THE APPROPRIATE RATE OF RETURN FOR COLSTRIP UNIT 4?**

19 **A:** MEIC and Sierra Club have not taken a testimonial position on the appropriate
20 rate of return for NorthWestern in this case. NorthWestern has proposed that the
21 Commission adopt a return of 7.42% for its assets, except for Colstrip Unit 4.
22 This return is based on several inputs provide by several Northwestern witnesses:

⁷⁷ Order 6925f at p. 65, ¶ 4.

⁷⁸ NWE Resp. to MEIC-081. NorthWestern did not provide workpapers with this response. Consequently, it is unclear whether NorthWestern's response included the change in income tax. If not, the revenue requirement associated with a change from 8.25% to 7.42% would be reduced by \$3.1 million.

Exhibits to Direct Testimony of Thomas J. Schneider
on behalf of Montana Environmental Information Center

Exhibit TJS-7

Docket No. 2019.12.101

Board Update – Colstrip MATS compliance

- Beginning in June 2018, Colstrip was not able to maintain compliance on a site wide average for the particulate limit required by Federal Mercury and Air Toxic Standard (MATS).
- Particulate is used at Colstrip for a surrogate to limit emission of hazardous metal air pollutants (except for Mercury) as allowed by the MATS rule – the limit is 0.03lbs per million BTU
- All the limits in the rule were established as standards for existing emission sources like Colstrip. The standards (limits) were based on emission reductions achieved by the average of the top 12% of the best controlled sources in each category.
- Colstrip had been in compliance with these rules since April 2016 when Colstrip was first required to complete testing to demonstrate compliance under the MATS rule. Quarterly testing from April 2016 until June 2018 showed Colstrip in compliance throughout the period.
- The Unit 3 test on 6/21 resulted in a 0.043 lb/mmBtu particulate emissions level and the Unit 4 test on 6/26 resulted in a 0.051 lb/mmBtu particulate emissions level. Both are above the limit of 0.03 lb/mmBtu. Units 1 & 2 were not calculated in the test as both were off-line for the 2nd quarter of 2018.
- Continuous emission monitoring systems (CEMS) for particulate monitoring at Colstrip did not give an early indication of any problems with meeting the emission standards required by MATS rule during a quarterly emissions test. CEMS upgrades are being investigated so as to provide better indications of ongoing emissions.
- Montana Department of Environmental Quality (MTDEQ) was contacted by phone on June 28 by operator to inform them that Colstrip did not pass the quarterly compliance test for particulate. They were also informed that both Unit 3 and Unit 4 were off-line and would only be on-line for testing and evaluation until the problem was resolved. MTDEQ agreed with the strategy
- The plants were only operated for evaluation and testing since June 28 to identify and take corrective action to resolve the compliance issue. Third party consultants were retained to assist with investigation and corrective actions.
- While a great number of potential causes of the deviation from compliance have been investigated, no single cause has yet to be identified. Further evaluation may provide conclusive results, however, an effort was initiated to improve the performance of the scrubbers to get the plants back into compliance.
- Temporary measures to ensure there is a reduced amount of mist eliminator carryover in the scrubber was initiated in Colstrip Unit 4 when a second layer of mist eliminators was temporarily placed over the first layer – this resulted in improved performance of the scrubbers relative to particulate.

- A more permanent solution to scrubber carryover was engineered in the form of perforated plates to be installed above the mist eliminators (to accomplish the same reduction in scrubber carryover that the temporary installation in Unit 4 had accomplished)
- Unit 4 was scheduled for a compliance test on Sept 6th (with the temporary 2nd layer of mist eliminators installed) resulting in a particulate emission level of 0.021 lb/mmBtu - well below the site-wide average particulate limit of 0.03 lb/mmBtu. Another test will be scheduled at Unit 4 with the perforation plates installed (installation was complete as of Sept 17th, follow up test has not yet been scheduled).
- Unit 3 had a compliance test on Sept. 11th (all the perforation plate installation is complete on that unit) – the test resulted in an emission level of 0.024lb/mmBtu.
- On 8/29, Talen and MTDEQ had a call about the compliance issue at the Colstrip facility where much of the discussion was aimed at interpretation of the 30 day rolling average provision of the MATS rule and the number of days Colstrip was in violation (interpretation results in approx. 77 to 140 days of non-compliance). MTDEQ has since sent Talen an information request (on 8/31) to help inform them on a number of topics as they address the extent of violation.
- Root cause of the problem has not yet been identified, instead a solution was engineered as described above (perforation plates installed in the scrubbers) to regain compliance with the MATS rule. Root cause analysis is ongoing.
- Colstrip 3&4 was released for economic operation on 9/12. The dispatch was limited as necessary to accommodate the installation of the perforation plates at Unit 4 scrubber vessels. Following installation of the perforation plates on 9/19, both Units were made available for max economic dispatch.

Coal Contract

- NorthWestern and Talen have engaged Baker Botts (Elaine Walsh) to represent us in negotiating with WECO for a 10 year contract for lowest price coal over that time frame with reasonable termination provisions.
- While we are still participating with contract negotiations with the other Colstrip 3&4 owners and WECO, no progress is really ever made in that group as the other owners are constantly changing their requirements
 - From 10 year term to 5 year term to possibly 2y extension of old contract
 - From cost plus to fixed price
 - From lowest cost coal to mine to higher cost coal
 - From wanting to get coal from a new mine area to specifically excluding those areas

- WECCO has suspended any active negotiation as until their financial situation is resolved (appears that reorganization bankruptcy is imminent)

Co-Owner letters to Talen

- Puget, PacifiCorp, Portland, Avista have all forwarded letters to Talen stating that they will not approve the budget without additional justification for capital projects as a result of “changes in the regulatory life of the Colstrip Units”
 - All the letters are copies of each other
 - As such, all letters call for a greater degree of economic analysis
 - All cite a particular project – \$20M final superheat project that needs more justification
 - All offer PacifiCorp’s services in economic modelling to justify projects
- Not one of the other owners asked for NorthWestern to send this request nor was anyone at NorthWestern consulted about sending this in the first place
- Citing a change in the regulatory life of the units is interesting in that the regulatory life is not factor in budget approval per the ownership agreement–
 - Budget shall be submitted for approval – approval must not be unreasonably withheld
- No single owner or group of owners, other than 100% vote can just shut-down the units. It appears that owners noted above are going to actively pursue a shut down without 100% of the ownership based on increasing the risk to operations by not approving budget items that are necessary for continued reliable operations which will force outages and increase costs – the plan is to not maintain the facility
 - This is expected to be the first attempt in an expected long line of projects that each will vote not to proceed with and happily take increased outages as a consequence
 - As we progress toward 2027 (Avista and Puget date to be fully depreciated and in a position to not have any stranded costs relative to Colstrip closure) and later dates for PacifiCorp and Portland – they will be less likely to vote to approve any project
 - Anything that increases the useful life of the project past the dates for each company is not likely to produce positive results with additional modelling
 - Anything with a relatively long payback period is not likely to produce positive modelling results
- It is probably safe to say that budget approval is being unreasonably withheld – the merchant operator is advising the replacement of the final superheat panel – why would they, of all the owners, be recommending a capital project of this magnitude unless it was economically justified.
- Puts NorthWestern in a difficult position, as we will not be depreciated until 2043 and need the plants to operated and maintained in a reasonable manner – not run to failure.

Exhibits to Direct Testimony of Thomas J. Schneider
on behalf of Montana Environmental Information Center

Exhibit TJS-8

Docket No. 2019.12.101

Service Date: July 1, 2020

DEPARTMENT OF PUBLIC SERVICE REGULATION
BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MONTANA

IN THE MATTER OF NorthWestern)
Energy's 2019 Electricity Supply)
Resource Procurement Plan) DOCKET NO. 2019.08.052

MONTANA PUBLIC SERVICE COMMISSION COMMENTS
IN RESPONSE TO NORTHWESTERN ENERGY'S
2019 ELECTRICITY SUPPLY PROCUREMENT PLAN

BACKGROUND

1. In December of odd-numbered years, NorthWestern Energy ("NorthWestern") must file a comprehensive, long-term portfolio management and electricity supply resource procurement plan with the Montana Public Service Commission ("Commission"). Mont. Admin. R. 38.5.8226(1). The Commission must review the plan and provide an opportunity for public comment on the plan. Mont. Code Ann. § 69-8-420(3)(b) (2019). Within nine months of the receipt of a plan, the Commission must issue written comments that identify any concerns with how the plan complies with Montana law and Commission rules and ways the concerns can be remedied. Mont. Code Ann. § 69-8-420(3)(c).

2. On February 2, 2017, in written comments on NorthWestern's 2015 Electricity Supply Procurement Plan ("2015 Plan"), the Commission provided NorthWestern an extension to December 15, 2018, to file its next procurement plan.

3. On December 20, 2017, in supplemental comments on the 2015 Plan, the Commission declared its intention to retain consulting services pursuant to Mont. Code Ann. § 69-8-421 to evaluate NorthWestern's planning process and resulting procurement plan. After issuing a Request for Proposal ("RFP") in March 2017, the Commission retained Ecosystem Research Group ("ERG") and its subcontractor, Synapse Energy Economics, Inc. ("Synapse") in May 2017. Contract PSC-2018-0003K.

4. On November 13, 2018, NorthWestern filed a *Motion for Extension* requesting additional time to file its procurement plan, which the Commission granted on December 5, 2018.

5. On August 20, 2019, NorthWestern filed its 2019 Electricity Supply Resource Procurement Plan (“2019 Plan”). The Commission issued a *Notice of Electricity Supply Procurement Plan, Opportunity to Comment, and Public Meetings* on October 25, 2019.

6. On November 4, 2019, Sierra Club filed a *Motion for Access to PowerSimm Model and an Extension of the Public Comment Period*. On November 18, 2019, the Commission denied Sierra Club’s request for access to PowerSimm and extended the public comment period until January 3, 2020. On December 20, 2019, the Commission further extended the public comment period until January 6, 2020.

7. In addition to accepting written public comment, the Commission held five public meetings to receive oral and written comment on the 2019 Plan: December 9, 2019, in Helena; December 17, 2019, in Missoula; December 30, 2019, in Bozeman; January 2, 2020, in Billings; and January 3, 2020, in Lewistown.

8. On February 14, 2020, Synapse filed a report of its evaluation of the 2019 Plan.

2019 PLAN SUMMARY

9. The 2019 Plan determines that NorthWestern’s current resource portfolio is 645 MW short of meeting expected peak loads. NorthWestern currently relies on short-term wholesale energy market purchases to supplement production from owned and contracted resources during high-load periods. The 2019 Plan indicates it would be risky to maintain the current level of reliance on energy market purchases for several reasons:

- The retirement of about 3,600 MW of coal-fired generation in the region may cause energy shortages during peak-load hours in the Pacific Northwest as early as 2021, according to the Seventh Power Plan developed by the Northwest Power and Conservation Council (“NWPPCC”);
- Significant in-state coal generation is expected to retire in the near future, making NorthWestern even more reliant on the Mid-Columbia wholesale market to import electricity over congested transmission lines;
- As more entities in the region join organized regional markets, NorthWestern believes it will have fewer options for bi-lateral trading partners;
- Due to an expected influx of intermittent, renewable generation in the region, NorthWestern predicts volatility surrounding hour-to-hour and sub-hourly market prices will increase, making exposure to the market more risky and potentially more expensive for ratepayers.

10. In November 2018, NorthWestern announced plans to join the Western Energy Imbalance Market (“Western EIM”) in 2021. NorthWestern expects market development in the West to continue to mature, leading to the development of a full Regional Transmission Organization (“RTO”) by 2025. The 2019 Plan presumes that NorthWestern will be a member of an RTO by 2025 and that NorthWestern will need to acquire enough capacity to achieve a 16% reserve margin in order to participate in the RTO. Accordingly, PowerSimm modeling for the 2019 Plan required the addition of about 700 MW of capacity to NorthWestern’s supply portfolio by 2025. The 2019 Plan sets forth an action plan for NorthWestern to initially acquire about 400 MW of capacity through an RFP process, and add about 200 MW annually thereafter to achieve a 16% reserve margin by 2025.

11. In developing the 2019 Plan, NorthWestern attempted to improve stakeholder involvement through its Electric Technical Advisory Committee (“ETAC”). NorthWestern hired a moderator to guide 18 ETAC meetings before the filing of the 2019 Plan. NorthWestern also held four workshops on the PowerSimm model for the benefit of ETAC members. In addition, NorthWestern held three public meetings prior to the release of the draft plan to receive comment on the plan before filing it with the Commission.

12. For the first time, the energy and peak load forecasts in the 2019 Plan included the impact of net energy metering (“NEM”) systems. A NEM penetration study, conducted by the National Renewable Energy Laboratory (“NREL”) on behalf of the Commission, and later refined by Navigant Consulting, estimated that installed capacity of NEM solar PV systems in Montana will grow from about 11 MW in 2017 to 270 MW in 2038, with the assumption that NEM customers continue to receive credit at the full retail rate for energy generated. NorthWestern expects the growth in NEM customers to provide 40 aMW of energy and 146 MW of summer peak capacity by 2038. The 2019 Plan assumes NEM customers will not make any contribution to winter peak capacity.

13. NorthWestern retained Navigant Consulting to analyze the minute-by-minute variation in NorthWestern’s load over the course of a test year (July 2016 to June 2017) in order to better understand how increasing generation from Variable Energy Resources (“VERs”), such as wind and solar, will impact the operational needs of its system. Load-following resources, which are used to respond to variable customer demand and variable wind and solar production,

may have the capability to quickly ramp up generation (“INC”) or the capability to quickly turn generation down (“DEC”), or both.

14. Navigant concluded that NorthWestern’s system should have a baseline of 120 MW of INC, 155 MW of DEC, and regulation capacity of +/-25 MW (50 MW of regulation comprised of +25 MW and -25 MW). Navigant also studied the incremental amount of INC and DEC that would be necessary to integrate additional VERs on the system, and found that NorthWestern should acquire 60 MW of INC and 55 MW of DEC to integrate approximately 185 MW of additional wind capacity planned for the system.

15. The 2019 Plan explains that NorthWestern continues to receive a high level of interest from QFs seeking to sell power to the utility under requirements of the Public Utility Regulatory Policies Act (“PURPA”). NorthWestern has recently received requests for avoided cost calculations or draft power purchase agreements (“PPAs”) for a collective 2,545 MW of QF capacity, with the vast majority of the requests coming from large QFs that do not qualify for the standard rate tariff. NorthWestern notes that over half of the approximately 550 MW of QF capacity currently in its portfolio was acquired since the beginning of 2016.

16. NorthWestern contracted with Nexant Consulting to perform an Electric Energy Efficiency Market Potential Study (“EE Potential Study”) in 2016 in order to determine the potential for achievable, cost-effective electric energy efficiency savings in its Montana service territory. NorthWestern has historically used a 10% environmental benefits factor for evaluating the cost-effectiveness of demand-side management (“DSM”) measures and programs. DSM measures demonstrating a benefit-to-cost ratio of 0.90, as measured by a total resource cost test (“TRC”) were considered cost-effective. The 2019 Plan states that carbon costs have recently begun to be included in avoided cost calculations, which, according to NorthWestern, replaces the 10% environmental benefit factor. The 2019 Plan states that due to this development, NorthWestern will evaluate DSM programs in the future using a TRC benefit-to-cost ratio of 1.0 or greater. It will also restrict DSM program lives to 15 years in the cost-benefit analysis, as a result of Commission Order 7500d in Docket No. D2016.5.39 and the Commission’s Supplemental Comments in Docket No. N2015.11.91.

17. NorthWestern is the Balancing Authority (“BA”) for the transmission system in the majority of the state and is responsible for maintaining reliability on the system in accordance with standards developed by the North American Electric Reliability Corp.

(“NERC”). In 2016, NERC implemented a Reliability Based Control (“RBC”) standard to measure and maintain reliability within BAs in the Western Electricity Coordinating Council. Under RBC, NorthWestern must be able to increase or decrease generation to correct imbalances within 30 minutes after the frequency in its BA exceeds RBC tolerance limits. NorthWestern believes that meeting the RBC standard will require more flexible generation capacity as more renewable, intermittent generation comes onto the system. NorthWestern uses Dave Gates Generating Station (“DGGS”), Colstrip, owned hydro assets, and Basin Creek to comply with RBC standards in its BA.

18. According to the 2019 Plan, NorthWestern interconnects to the Bonneville Power Administration’s (“BPA”) transmission system at BPA’s Eastern Intertie, which provides the Garrison-Townsend link of the 500-kV Colstrip transmission line. NorthWestern considers the 500-kV line to be particularly important to the transmission system because it allows for the transport of electricity from Colstrip to other load centers in the state, facilitates market transactions through its direct connection to the Mid-C market, and effectively ties together lower transmission voltage systems in NorthWestern’s BA. BPA’s Eastern Intertie, on Path 8, and the intertie in Brady, Idaho, on Path 18, are historically the most commonly used transmission paths by NorthWestern for importing power into Montana, due to congestion issues on other lines.

19. The 2019 Plan examines transmission capacity that was available on the BPA and Brady interties during several high-load days during 2018 and 2019, and finds that there was limited or no transmission capacity available to import electricity on those two lines during the days examined. NorthWestern is heavily reliant on market purchases to serve heavy load hours. The 2019 Plan expresses a concern that overreliance on the market, coupled with a strained transmission system, could lead to reliability issues in the BA and/or extremely high prices of imported power. NorthWestern believes that the closure of Colstrip Units 1 & 2 will exacerbate the problem, as there would be less generation available in-state and more reliance on market imports.

20. NorthWestern has begun to expand the wireless network that it uses for communication among devices in its distribution network. NorthWestern recently acquired the rights to two commercial mobile radio spectrum licenses for use in such communication. NorthWestern currently uses a pilot Supervisory Control and Data Acquisition (“SCADA”)

system on the network, which allows for wireless communication with distribution substations. NorthWestern intends to upgrade the SCADA system to an Advanced Distribution Management System (“ADMS”), which should allow NorthWestern to obtain more real-time information from the distribution system and thus more efficient network operation.

21. The 2019 Plan explains that NorthWestern is deploying smart meters in South Dakota and intends on deploying smart meters in Montana in the near future. The installation of smart meters should allow NorthWestern to begin exploring more rate design options that provide real-time price signals to customers, such as time-of-use rates or demand charges.

22. NorthWestern is exploring smart metering network software applications that would allow the utility to offer voluntary demand response programs to customers. The 2019 Plan states that NorthWestern will also be considering resource portfolios in the future that include curtailable load through demand response programs.

23. The ADMS software includes a module that would allow NorthWestern to communicate with privately owned distributed energy resources (“DER”), which would facilitate better integration of the projects into the network. NorthWestern intends to roll out the ADMS DER module within five years.

24. NorthWestern has invested \$2.5 million in Kilowatt Labs, Inc., a company that designs and manufactures super-capacitor energy storage and power management solutions.

25. NorthWestern did not include a carbon adder in the analysis it conducted in the 2019 Plan, except for two sensitivity portfolios, the Carbon Cost portfolio and the High Carbon Cost portfolio.

26. The 2019 Plan discusses environmental regulations in the region and their potential impacts on the Colstrip generating plant. NorthWestern expects Montana to submit a State Implementation Plan (“SIP”) for the second planning period of the regional haze rule by early 2020. NorthWestern states that it is possible that Colstrip Units 3 & 4 could require additional controls as a result of the SIP, but the 2019 Plan presumes that no material upgrades to Colstrip will be required.

27. In August 2012 Talen Energy and the Montana Department of Environmental Quality signed an Administrative Order on Consent Regarding Impacts from Wastewater Facilities (“AOC”). The AOC sets up a program for remediation and closure of Colstrip’s

holding ponds. NorthWestern's share of the capital costs and financial assurance costs associated with the AOC were included in the 2019 Plan.

28. As in prior resource plans, NorthWestern used the PowerSimm planning model, developed by Ascend Analytics, to evaluate various potential future supply portfolios. Historically, the inputs for the PowerSimm model have been based on structural relationships between certain key variables that existed in the past, such as the relationship between extreme weather and high loads. However, for the 2019 Plan, the model no longer assumes the historical relationship between natural gas prices and electricity market prices will persist. Historically, a natural gas resource tended to be the marginal production resource, and the cost of gas together with the heat rates (a measure of efficiency) of natural gas fired generators tended to determine the wholesale price of electricity at Mid-C. The 2019 Plan assumes that this relationship will weaken in the future as increasing amounts of renewable generation are acquired to meet climate objectives of various states in the Pacific Northwest. NorthWestern presumes the influx of renewable generation in the region will result in lower market prices, on average, because of low or zero fuel costs associated with wind and solar resources. However, NorthWestern also believes the increase in renewable generation in the region will lead to market prices that fluctuate to a greater extent, due to the intermittent nature of the resources.

29. The electricity market price curve forecasted in the 2019 Plan is constructed using actual forward market price strips at Mid-C through 2021, then escalated thereafter based on Ascend's projected implied heat rate. The natural gas price forecast is based on forward market price strips at AECO through 2021, then escalated thereafter using a rate developed for Henry Hub in EIA's 2018 Annual Energy Outlook. NorthWestern predicts natural gas market prices will increase by about 62% between 2019 and 2035, whereas NorthWestern expects nominal Mid-C electricity market prices to decrease by about 7% over the same period of time.

30. NorthWestern uses the Automatic Resource Selection ("ARS") module of PowerSimm in the 2019 Plan; the ARS module automatically selects the mix and timing of resource additions which would minimize the net present value cost of NorthWestern's supply portfolio under various planning scenarios. In addition to the constraints detailed above, other constraints to the model used in the 2019 Plan include:

- No new resources placed into the portfolio prior to 2022, to comport with a competitive solicitation process;

- Market sales constrained to no more than 10% of annual customer load, to prevent the model from selecting resources that would be used primarily to sell power into the market.

31. The model selected an expansion of 58 MW (three 18 MW RICE units) at DGGS in every portfolio modeled except for the one that restricted the addition of carbon-emitting resources. The majority of resources selected in all portfolios modeled for the 2019 Plan were thermal, natural gas-fired RICE units. NorthWestern emphasizes that modeling results do not necessarily indicate a specific resource acquisition strategy. Rather, the 2019 Plan states that all resources are subject to a competitive bidding process.

32. NorthWestern analyzed the rates for retail customers under each of the modeled portfolios and found that the impacts would be similar in nearly all cases because nearly all portfolios achieve a 16% resource adequacy margin by 2025. If the cost of the resources actually procured to achieve resource adequacy by 2025 is roughly the same as the cost of resources modeled in the 2019 Plan, the retail rate impact would be about \$0.025/kWh, an increase of about \$18.75/month (20%) for a typical residential customer.

33. Based on its assessment of future load obligations, existing resources, regional supply conditions, market transformation trends, and modeling results in the 2019 Plan, NorthWestern concludes that it should begin making arrangements to acquire peaking capacity as soon as possible.

34. NorthWestern acknowledges that it is possible that opportunity resources not predicted in the 2019 Plan could become available. The 2019 Plan states that, should an opportunity resource become available, NorthWestern will evaluate it in a manner consistent with the methodologies contained in the 2019 Plan.

35. In addition to its conclusion to acquire peaking capacity, NorthWestern sets forth an Action Plan that identifies general goals it intends to pursue:

- Follow through with its decision to join the Western EIM in 2021 and continue to monitor the development of an RTO in the Pacific Northwest;
- Use an RFP process to initially acquire 400 MW of flexible capacity;
- Continue to explore operational efficiencies;
- Pursue RPS and CREP obligations;

- Monitor the results of the ongoing Northwest Power Pool Resource Adequacy Evaluation initiative and provide the results of the evaluation to the Commission as an addendum to the 2019 Plan once it become available;
- Seek opportunities to acquire demand response resources through competitive solicitations and agreements with larger load customers;
- Monitor the development of emerging technologies; and
- Monitor the policies and assumptions in the 2019 Plan and adjust strategy as necessary.

PUBLIC COMMENT SUMMARY

36. The Commission received approximately 784 comments from the public in response to NorthWestern's 2019 Plan. Individuals submitted 770 comments, and organizations submitted 16. In summary, 461 individual comments support reduced use of fossil fuels to generate electricity, 634 support greater use of renewable energy resources, and 336 found NorthWestern's analysis of the costs of natural gas resources and the Colstrip plant lacking. Thirty-one public comments supported the 2019 Plan and 51 supported continued supply from the Colstrip plant. Organizational comments are summarized below.

37. Montana Consumer Counsel ("MCC") recommends that the Commission require NorthWestern to provide analysis and information from models and procedures within the planning process when NorthWestern requests preapproval for a resource that was not considered in the 2019 Plan. This is especially true for NorthWestern's proposed acquisition of an additional share of Colstrip Unit 4, which was discussed significantly during the 2019 legislative session, yet somehow was not addressed in the 2019 Plan. The failure to model an increased ownership in Colstrip—nor consider cleanup and remediation costs associated with the plant, is a significant shortcoming of the 2019 Plan.

38. The 2019 Plan inadequately evaluates tradeoffs and benefits associated with continued market reliance. For the past decade, NorthWestern has relied on wholesale market purchases to fulfill much of its capacity need, and it continues to do so as NorthWestern's generation portfolio is several hundred megawatts short of meeting peak load. The 2019 Plan does not demonstrate that those regional markets should be abandoned in favor of building or acquiring new generation assets. This is especially true as NorthWestern anticipates being in an RTO by 2025, an eventuality that underscores the need to analyze whether maintaining a certain

level of exposure to the market may be cheaper for ratepayers than building or acquiring large amounts of generation assets.

39. The 2019 Plan failed to discuss or model planned plant construction, even though NorthWestern projects declining long-term regional market prices to result from significant additions of variable energy resources.

40. The 16% reserve margin that NorthWestern identifies as a goal in the 2019 Plan is arbitrary and bears no relationship to NorthWestern's participation in an EIM or a more fully developed market. Such a high reserve margin suggests that some of NorthWestern's planned capacity acquisition may not be used and useful to the utility's Montana ratepayers. Due to an increasing amount of variable resources in its portfolio, NorthWestern should continue to analyze and evaluate its needs for ancillary services and update its VER Study as system and market conditions change.

41. MCC states NorthWestern must provide a more robust explanation of how the cost of gas pipelines factors into the analysis of an acquisition of any new gas resources. NorthWestern should also further evaluate the pace of DSM acquisition, given the amount of cost-effective DSM still available in NorthWestern's system, and evaluate any declines in cost-effectiveness, especially given NorthWestern's current market exposure, which could be ameliorated with DSM resources.

42. Missoula County and City of Missoula (joint comments) advocate for increased development of renewable energy. The carbon forecast in the 2019 Plan is too low, and carbon costs should be considered in any competitive solicitation for resources.

43. Montana AFL-CIO states that the 2019 Plan should include NorthWestern's current ownership of Colstrip Unit 4, and that NorthWestern should seek in-state generation to meet peak loads.

44. Montana Department of Environmental Quality ("DEQ") states that the Commission should support public engagement and transparency in planning processes. While NorthWestern facilitated more ETAC meetings and provided additional public meetings compared to prior plans, it did not provide substantive opportunities for comment after the draft plan was released.

45. DEQ acknowledges the concern of potential regional power capacity constraints, which could affect grid reliability and increase electricity market prices at peak demand.

However, the 2019 Plan would benefit from further analysis of regional supply coordination, regional market opportunities, and customer-sited storage. For example, while there are risks in continued market reliance, the 2019 Plan does not quantify them and makes no attempt to quantify how future technological advances could mitigate those risks.

46. The 2019 Plan failed to adequately account for the potential of energy efficiency and demand response opportunities, including advanced metering and rate design options. Customer-facing investments in metering infrastructure, communications systems, and data management tools have the potential to reduce billing costs, improve outage tracking, and establish economically efficient rate designs that can reduce peak capacity constraints.

47. DEQ recommends that NorthWestern mitigate risks of future carbon pricing by using a carbon cost in the 2019 Plan's base case analysis, a planning approach adopted by other regional utilities. DEQ notes that NorthWestern's natural gas generation cost forecasts omit important cost and risk factors, including the cost of carbon offsets, which are required by Montana law to accompany new natural gas-fired generation facilities.

48. DEQ asserts that the 2019 Plan should address in more detail the risk of relying on interruptible natural gas transmission contracts for existing and potential future natural gas plants, especially when gas supplies and excess transmission capacity are also limited. For example, NorthWestern should model the risk of reduced DGGS generation from interruptible natural gas supply events. Similarly, NorthWestern should model natural gas transmission infrastructure capital expenditures and operation and maintenance costs.

49. The 2019 Plan should include additional analysis of risks related to Colstrip Unit 4 and, if NorthWestern pursues additional ownership of Colstrip or other flexible capacity through an RFP process, the resource addition should be subject to rigorous analysis of costs, risks, and alternatives. NorthWestern should: model groundwater remediation and decommission costs associated with Colstrip; include a forecast of Colstrip coal supply prices, which has been included in prior supply plans; develop a plan for the possibility of an early Colstrip retirement; and analyze the net cost or benefit to customers of issuing ratepayer-backed Montana Energy Impact Assistance Bonds.

50. DEQ notes that NorthWestern should continue to develop its analyses for dispatchable renewable resources and customer-sited storage to more accurately determine the capacity that various types of resources provide to NorthWestern's system.

51. Sierra Club comments that NorthWestern should provide more transparent access to the modeling inputs and assumptions throughout the planning process to allow for more through vetting by third parties.

52. Sierra Club contends that the 2019 Plan understates costs related to gas generation and overstates costs related to renewables and batteries. The omission of gas delivery costs could amount to a 10-15% understatement of the marginal production cost of simple cycle gas generators. This error overstates the competitiveness of new gas generators relative to alternatives, including existing resources, market purchases, and renewable alternatives, and also natural gas plant capacity factors, which further underestimates the levelized costs of new gas generation. Similarly, NorthWestern failed to include pipeline capital expenditures, even though it received multiple comments on the topic. Those expenditures could include trunk-line pipeline expansion and pipeline laterals. The Sierra Club requests the Commission to direct NorthWestern to re-run all planning models to correct for this omission.

53. Sierra Club comments that NorthWestern's portfolio scenario of high gas prices indicates a production cost increase of less than 1%, which likely indicates that either NorthWestern's high gas price scenario used only a modest increase in gas price or there is another fundamental flaw in NorthWestern's analysis.

54. Sierra Club notes that NorthWestern overstates renewable and storage costs, and notes that market forecasts for wind, solar, and lithium ion battery technologies are, depending on the resource, much lower than NorthWestern's market forecasts. Similarly, NorthWestern deviated from several industry standard evaluation practices, including those related to battery size, carbon pricing, and the length of planning horizon for net-present-value calculations. Thus, renewable resource and storage cost estimates are overstated, which inappropriately skews the 2019 Plan to select natural gas resources over other alternatives. Similarly, NorthWestern understates the capacity values of renewables and storage, citing to various third-party and national capacity values for similar technologies. The low capacity contributions in the 2019 Plan limit the value that these technologies provide, which again skews the optimal resource selection to natural gas resources.

55. Sierra Club states that NorthWestern's resource adequacy analysis overstates its need for capacity. For example, NorthWestern incorrectly gave market purchases zero credit for meeting reliability criteria. Similarly, NorthWestern does not need new capacity resources to

participate in the EIM, and NorthWestern should have accounted for the benefits of EIM participation, instead of only factoring in the costs. NorthWestern failed to model how solar imports could continue to increase the availability of low-cost market purchases, and NorthWestern focused narrowly on regional coal plant retirements without commensurate analysis of tangible new capacity additions in the Pacific Northwest region. Sierra Club asserts that any proposed ownership change associated with Colstrip must be subject to rigorous analysis.

56. Sierra Club states that NorthWestern's analysis related to wind and solar integration is flawed. For example, NorthWestern's linear scaling of operating reserve needs at higher renewable penetrations is incorrect, and NorthWestern's analysis overstates the challenges of integrating renewable resources. This includes limiting the geographic diversity of possible resources, not evaluating fast renewable ramp rates, utilizing renewable forecast errors contrary to industry standard practices that incorporate actual or even synthetic data, utilizing system deviation response times different than what NERC requires, and not accounting for output deviations of conventional resources when providing operating reserves. These errors further devalue what renewable resources could provide to NorthWestern's system and emphasize the selection of natural gas resources.

57. Montana Environmental Information Center ("MEIC") recommends that NorthWestern's planning meetings should be more transparent and open to the public, even though the 2019 planning process saw improvement from the 2015 Plan. NorthWestern's process contrasts with that of the other five owners of Colstrip, which have an open-doors planning process. Because the questionable transparency of PowerSimm in its modeling of the various resource procurement options in the 2019 Plan, it is necessary to analyze the assumptions, constraints, data, and other inputs to understand how conclusions in the plan are arrived at. This is underscored by the fact that seemingly small deviations in PowerSimm parameters can have fundamental impacts on the plan's resource selection. For example, placing limitations on resource acquisition of 200 MW per year skews resource selections away from renewable resources, which benefit from greater economies of scope and scale with greater size. Because NorthWestern was not sufficiently transparent in providing access to PowerSimm, the Commission should require the utility to clearly define, justify, and fully explain the impact of the constraints and other key PowerSimm assumptions for future planning exercises.

58. MEIC notes that NorthWestern's gas-only resource strategy inappropriately fails to model necessary costs. For example, necessary gas infrastructure costs were not included in the cost of gas-fired resources. This omission is conspicuous, as both the 2013 and 2015 Plans included detailed discussion of pipeline capacity challenges facing a significant build-out of gas fired resources, which indicated that even moderate increases in natural gas consumption would exceed NorthWestern's then-current natural gas pipeline capacity.

59. MEIC notes that the 2019 Plan fails to adequately identify risks associated with relying on the natural gas market, namely price increases and spikes, even though the 2019 Plan relies heavily on risks associated with relying on the electricity markets to justify natural gas expansions. This omission is circumspect, as not only has NorthWestern specifically addressed natural gas market price risk in other dockets, but also strongly supports the need for new natural gas generation based on extreme natural gas market prices experienced during February 2019. These faults lead the 2019 Plan to inappropriately account for the costs of natural gas.

60. MEIC notes that the 2019 Plan should have considered a portfolio that paired solar with storage resources.

61. MEIC asserts that the 2019 Plan incorrectly assumes a zero capacity contribution for solar resources, and it fails to model hydroelectric facility upgrades, which amounted to 84 MW of additional capacity and were specifically identified in the 2015 Plan.

62. The analysis of impacts of RTO participation is incomplete in the 2019 Plan. Given the significant uncertainties surround creation and implementation of RTOs, NorthWestern should have considered alternative market opportunities beyond joining a not-yet-established RTO by 2025.

63. MEIC notes that the 2019 Plan focuses incommensurately on regional generation retirements and lacks corresponding discussion of generation additions. The 2019 Plan indicates that Puget Sound Energy and PacifiCorp have planned between them to add over 6,000 MW of new generation by 2036. In ignoring those and other regional resource additions, the 2019 Plan creates a risk for ratepayers that NorthWestern will build unnecessary resources.

64. MEIC states that the 2019 Plan does not adequately analyze risks related to its existing share of Colstrip Unit 4, including potential increases in the cost of coal, the possibility of escalating O&M and CapEx at the plant, and how increased Colstrip Unit 4 outages may impact the value of the resource. The 2019 Plan should have analyzed the risks of early closure

of Colstrip Unit 4, and of acquiring an increased share of the plant, as well as the subject of potential Colstrip Community Transition Funding.

65. MEIC notes that the Commission should question NorthWestern's carbon intensity metric, which inappropriately blurs actual carbon reductions with generation portfolio carbon intensity. Adding more renewable resources may reduce the carbon intensity of a portfolio, but it does not reduce carbon emissions.

66. MEIC recommends that the Commission should find that NorthWestern's plan is fundamentally deficient and that pre-approval of resources based on it would not be in the public interest.

67. Mitsubishi Hitachi Power Systems Americas, Inc. encourages NorthWestern to consider gas-to-hydrogen replacements of retiring coal units. MHPS recently announced a utility-scale project in Utah that may provide benefit to NorthWestern when it the EIM in 2021.

68. AARP Montana supports cost-effective renewable resources and believes the Commission's top priority should be reliable service at affordable prices. Many AARP members live on low or fixed incomes, and increases utility bills can disproportionately impact its members. The Commission should consider the value of market purchases, as opposed to the creation of additional generation plants and related increase to customer rates. The Commission should scrutinize any decision of NorthWestern to join an RTO, an action which could result in hidden costs to customers, the ceding of regulatory authority to RTOs or federal regulators, an overbuild of both transmission and generation resources, and limited transparency of and access to RTO proceedings.

69. Colstrip Energy Limited Partnership ("CELP") states that advancing the planned retirement dates for Colstrip Units 3 and 4 is not feasible due to natural gas and electric infrastructure limitations. NorthWestern's system is capacity constrained, comprising of 645 MW less than its purported reserve requirement for joining the EIM. Premature retirement of Colstrip, which could prevent CELP from entering into a new PURPA contract with NorthWestern after its current contract expires in 2024, would add to that capacity deficit.

70. CELP underscores the need for NorthWestern to renew its contract with CELP as new power supply development options are constrained due to infrastructure limitations. NorthWestern's electric transmission system is not able to import capacity from outside Montana as a means of replacing generation resources inside Montana. Additionally, the option to build

new natural gas electric generation resources inside Montana is constrained by limited in-state natural gas pipeline capacity. Dispatchable resources are necessary amid increased reliance on renewable generation.

71. CELP notes that service reliability inside Montana will be impaired if Colstrip Unit 4 is prematurely retired, as there is no practical option to replace the unit at this time. Economically planned new and replacement resources should be phased in over the next two to three decades, as opposed to an accelerated acquisition of resources in the next half decade.

72. CELP asserts that NorthWestern should operate Colstrip Unit 4 through 2042, and should extend its contract with CELP through 2042. CELP is a reliable, low-cost generation resource located in Montana. It is a 35 MW waste coal plant, with a contract set to expire in 2024, that provides inexpensive generation as the cost of waste coal is much less expensive than the pre-spent coal. Extending CELP's contract with NorthWestern would have significant economic and retail customer impacts by providing a cost-effective, already constructed resource and the Commission should consider the significant economic contributions that Colstrip provides to Montana's state economy.

73. Montana Renewable Energy Association ("MREA") supports increased transparency of and participation in ETAC, and the expansion of ETAC membership to include additional key stakeholders, such as MREA.

74. MREA states that the distributed generation study conducted by Navigant is inaccurate and skews critical aspects of the cost-benefit analysis. MREA notes that Navigant overestimated 2018 solar adoption by 82% compared to the low forecast, and 140% compared to the high forecast - errors that result in an overestimation of solar adoption of between 7.4 MW and 12.5 MW. Because both the Legislature and the Commission have doubted the accuracy of the Navigant report, the Commission should ensure that future planning documents are informed by sound studies and reliable data.

75. MREA supports the 2019 Plan's discussion of emerging technologies that support the use of smart grid technologies and microgrids. Future planning documents should continue to analyze and determine the extent to which such technologies, combined with distribution networks, should be pursued by NorthWestern.

76. Renewable Northwest ("RN") states that NorthWestern provided insufficient time and inadequate materials to stakeholders during the planning process, which prevents them from

providing proper analysis and feedback. NorthWestern's responses to RN's comments on the draft 2019 Plan were largely uninformative and did not address the substance of RN's comments. Though NorthWestern has been more transparent in provided technical materials to inform RN's understanding of the draft plan, there still has been insufficient material and time to provide detailed comments.

77. RN notes that the cost assumptions for solar, storage, and renewables combined with storage appear to be significantly above market forecasts. Recent third-party figures for solar and storage resources significantly undercut low-cost scenarios in NorthWestern's 2019 Plan forecasts. Large discrepancies in renewable price forecasts have led other Commissions, such as the Arizona Commission, to decline to acknowledge a utility's procurement plan.

78. RN states the failure of the 2019 Plan to address renewables plus storage is concerning, as several utilities in other states have engaged in requests for proposals which have indicated those combined technologies are economically viable and could result in least-cost resources. The 2019 Plan's failure to model combined technologies prevents a fair accounting and survey of least-cost resources available in Montana.

79. RN notes that the 2019 Plan underestimates the risks of gas-fueled generation and does not adequately analyze associated infrastructure costs for such generation. New gas resources are both risky and long-lived, and to the extent NorthWestern invests in these resources, it should commit to bearing the full suite of risks associated with gas price volatility rather than maintaining the possibility of passing the costs of future price spikes to customers.

80. RN recognizes the lack of transmission capacity available to access energy imports across Path 8 during peak load events. Those constraints threaten reliability by preventing NorthWestern from accessing the deepest pool for energy available during peak events. However, instead of building capital intensive peaking facilities, NorthWestern should work with BPA and other stakeholders to determine if the Montana-to-Washington transmission upgrade can meet NorthWestern customer needs for peak loads. That project could result in 550 MWs of additional capacity and provide more benefits to ratepayers than generation overbuilds.

81. RN supports NorthWestern's efforts to join the WEIM for the potential benefits it can bring to ratepayers.

82. RN identifies additional concerns it has with the 2019 Plan: NorthWestern failed to analyze or develop programs for load management or voluntary load-reduction programs; the

Commission should direct NorthWestern to prioritize development of a demand response program before pursuing capacity additions; NorthWestern's failure to include potential natural gas transmission upgrades undermines the feasibility of investment in natural gas infrastructure; NorthWestern failed to justify how its recommended resource additions are economic compared to continued reliance on market purchases; and the 2019 Plan, which relies heavily on developing natural gas generation resources, stands in stark contrast to the planning objectives of many regional utilities and Commissions, which focus more on renewables, demand response, and storage capabilities.

83. Last Chance Audubon comments that renewable development is preferable to dependence on fossil fuel generation.

84. Central Montana Resource Council states that the Plan lacks sufficient emphasis on DSM and fails to adequately value storage, specifically the Gordon Butte pumped hydro storage project.

85. Northern Plains Resource Council states that the 2019 Plan should have modeled combined wind, solar, and storage projects, and that it lacks comprehensive modeling of DSM opportunities. The 2019 Plan should have included scenarios in which Colstrip retires sooner than expected, and NorthWestern should be open to modeling or validating new resource mix options that were not specifically analyzed in the 2019 Plan. NorthWestern should have included a cost analysis of Colstrip cleanup and allocation of costs between shareholders and ratepayers. The 2019 Plan fails to include a thorough proposal of how NorthWestern will meet its CREP obligation in the future.

86. GB Energy Park LLC ("GBEP") does not agree that gas-fired generation resources will provide the most reliable, cost-effective solutions to meet NorthWestern's capacity and flexibility needs. An analysis performed by a GBEP-retained consultant indicates that GBEP's advanced pumped storage facility is the lowest cost choice capacity resource for NorthWestern. The analysis finds that all-in cost for the Gordon Butte project amounts to \$181.22/kW-yr, compared to \$194.96/kW-yr for NorthWestern's current least expensive asset (DGS) and \$349.91/kW-yr for NorthWestern's most expensive resource (Colstrip Unit 4).

87. GBEP states that the 2019 Plan fails to model the full value and benefits of energy storage assets like Gordon Butte. Those benefits include grid stability, transmission services, stackable ancillary services, system optimization, and flexible capacity. This is a concern

because the 2019 Plan model and framework will be used to evaluate proposals submitted during competitive solicitations and will also be used to evaluate opportunity purchases.

88. GBEP notes that there are significant unanalyzed costs and risks associated with the development of new gas generation resources, such as the development of linear facilities (pipe and transmission facilities), which could be difficult to permit, costly, and potentially unfeasible.

89. GBEP states that the 2019 Plan's failure to significantly analyze risks associated with future carbon assets is conspicuous.

90. NW Energy Coalition ("NWECC") states that NorthWestern has made significant gains since the 2015 planning cycle in improving the transparency and adequacy of the planning process.

91. NWECC asserts that the 2019 Plan relies exclusively on supply resources and mistreats and ignores demand-side resources. Although NorthWestern has projected a significant capacity deficit over the past two planning cycles, it has not expanded its analysis of demand-side resources, focusing instead on generation acquisition, even though NorthWestern was encouraged, since the 2015 Plan, to address demand-side resources by both stakeholders and the Commission. Demand-side resources represent the most readily available energy resource for NorthWestern and are very cost-effective, as evidenced by NorthWestern's procurement of 30.35 MW in demand-side reductions in the past five years for only \$35.1 million.

92. NWECC makes recommendations regarding demand-side resources: the Commission should require NorthWestern to utilize either the Total Resource Cost ("TRC") test, as described in the California Standard Practice Manual, or the Utility Cost Test; avoided and deferred transmission upgrades should be included in TRC benefits, especially given the transmission restraints in NorthWestern's system; the Commission should require NorthWestern to estimate capacity contribution values for energy efficiency resources; the Commission should consider evaluating demand-side resources as it evaluates other supply resources, as opposed to the current practice of using a cost-effectiveness standard; and the Commission should consider requiring NorthWestern to conduct a demand-only RFP because, as NorthWestern seeks flexible supply, it should not ignore flexible demand.

93. NWECC notes that NorthWestern's objective of a 16% reserve margin is unwarranted at this time and, if adopted, would be one of the largest reserve margins in the northwest.

94. NWECC states that the 2019 Plan ignores risks related to the Colstrip Generating Station.

SUMMARY OF SYNAPSE EVALUATION

95. The Commission contracted with Ecosystem Research Group and its subcontractor, Synapse Energy Economic, Inc., to evaluate NorthWestern's 2019 Plan and review how NorthWestern addressed the Commission's concerns with NorthWestern's 2015 Plan. Synapse provided comments on the draft version of the 2019 Plan to NorthWestern on May 5, 2019. Synapse submitted a final report to the Commission on February 14, 2020.

96. Synapse addresses the following aspects of NorthWestern's 2019 Plan:

- The inputs and constraints included in PowerSimm modeling made the selection of thermal resources to meet resource adequacy needs a foregone conclusion. Synapse notes that 1) NorthWestern did not allow for market capacity purchases in modeling runs; 2) the low capacity credit and higher-than-industry-standard capital costs assigned to renewables in the 2019 Plan makes renewable resources unfavorable for selection in a least-cost portfolio; 3) NorthWestern uses an atypical method to calculate effective load carrying capability ("ELCC") values for wind and solar; and 4) NorthWestern's modeling overlooked potential resource options, including resources paired with storage.
- Several modeling errors were discovered that favored thermal resources, including 1) an improperly modeled High Natural Gas Price scenario; 2) modeling was not allowed to automatically retire uneconomic resources; 3) the fixed operations and maintenance costs assigned to solar are higher than industry averages; and 4) the model and the 2019 Plan contain discrepancies with regard to the costs and nameplate capacity for new resources.
- NorthWestern's RFP for capacity procurement contains flaws that restrict the ability of resources to compete, including 1) limiting resources to those considered "dispatchable," despite NorthWestern's needs for incremental capacity resources; 2) not allowing for wind resources absent storage characteristics to participate in the RFP, and assigning a very low capacity contribution to wind; and 3) defining overly stringent resource output duration tiers which are not supported by PowerSimm modeling results.
- NorthWestern does not compare the availability of Puget Sound Energy's 25% ownership share of Colstrip Unit 4 to other potential opportunity resources, including what may be available from BPA or merchant providers. NorthWestern also does not

model any risk of additional upgrades to comply with regional haze rules for the potential acquisition of Colstrip Unit 4.

97. The full Synapse report is found in Appendix A.

COMMISSION COMMENTS

98. NorthWestern is required to provide adequate and reliable electricity supply services and facilities. Mont. Code Ann. §§ 69-3-201, 69-8-419. Although NorthWestern's 2019 Plan does not explicitly define these concepts in relation to supply, the Commission interprets the statutory terms "adequate" and "reliable" based on electric industry standards. Using definitions of NERC, NWPCC states that "a power system is *reliable* if it is both adequate and secure. An *adequate* electric system is able to supply the aggregate electrical demand and energy requirements of customers at all times, taking into account scheduled and reasonably expected unscheduled outages of system elements. A *secure* system can withstand sudden disturbances, such as electrical short circuits or unanticipated loss of system elements." NWPCC, *Columbia River Basin Fish and Wildlife Program 2014*, Appendix R. At their core, NorthWestern's resource plans should objectively evaluate all available options for providing customers adequate and reliable service at the lowest, long-run total cost, given uncertainty and associated risk. Mont. Code Ann. § 69-8-419.

99. As far back as 2012, the Commission recognized evolving resource adequacy constraints in the Pacific Northwest and endorsed NorthWestern's intent to define its own system-specific resource adequacy standards. *In the Matter of NorthWestern Energy's December 2011 Electricity Supply Resource Procurement Plan*, Dkt. N2011.12.96, Commission Comments, (Sept. 28, 2012). The Commission acknowledges NorthWestern's conclusion in the 2019 Plan that, absent new resource development, the Pacific Northwest regional electrical system is likely to be inadequate within the next few years due to the retirement of significant coal-fueled generation capacity. The Commission also acknowledges that over a similar time horizon, NorthWestern's existing owned and contracted resources do not by themselves provide sufficient capacity and energy to satisfy typical industry standards for adequacy and reliability. Further, because NorthWestern's electrical system is integrated into the Pacific Northwest regional electrical system, regional resource inadequacy could potentially result in resource inadequacy on NorthWestern's system due to retirements of in-state coal-fueled generation capacity.

100. The Commission agrees with the basic premise of the 2019 Plan that NorthWestern should take steps to assure that controlled capacity and energy resources are capable of providing retail customers adequate and reliable service. In addition, the Commission generally finds that the Action Plan Items listed in Volume 1, Chapter 13, of the 2019 Plan are reasonable. In particular, the Commission supports NorthWestern's plan to rely on an independently administered competitive solicitation process to identify available resource options. However, several significant aspects of NorthWestern's approach to competitive solicitation are not adequately explained in the 2019 Plan.

101. NorthWestern's proposed competitive solicitation strategy involves three steps: 1) seek short-term capacity to bridge the gap until long-term capacity is acquired; 2) issue an initial RFP for up to 400 MW of capacity (term not specified); and 3) issue additional RFPs with a goal of achieving a 16% capacity reserve margin by 2025. 2019 Plan, Vol. 1, Ch. 3. According to the 2019 Plan, NorthWestern will use competitive solicitations to evaluate resources comprised of different structures, terms, and technologies. In this context, the 2019 Plan does not define "short-term" capacity and "long-term" capacity. The 2019 Plan provides no explanation for how NorthWestern intends to seek "short-term" capacity. Nor does it explain whether NorthWestern's objective is to solicit offers that enable it to evaluate and/or acquire a diverse mix of capacity resources, especially with respect to their contract durations or physical lives within the resource portfolio, as required by the Commission's rules. Mont. Admin. R. 38.5.8204(1)(d) (addressing the objective of a diverse mix of long, medium, and short duration power supply resources), Mont. Admin. R. 38.5.8210 (addressing an assessment of the flexibility of the existing resource portfolio with respect to, among other things, contract lengths), and Mont. Admin. R. 38.5.8219 (addressing resource diversity and resource scheduling flexibility as ways to mitigate risk). In future plans, NorthWestern should more thoroughly describe and support near-term resource solicitation strategies.

102. Notably, on December 12, 2019, in Docket 2019.11.093, NorthWestern submitted Competitive Solicitation Information, including a draft RFP. The draft RFP appears to equate "long-term" capacity with PPA terms of at least three years or acquisitions of assets with at least three years of remaining life. To the extent the 2019 Plan's use of the term "long-term" in the context of solicitations for capacity resources refers to periods of three years or longer, the solicitation strategy appears generally reasonable. However, NorthWestern's stated RFP strategy

of a 16% capacity reserve margin by 2025 appears to conflict with its Action Plan Item regarding regional resource adequacy initiatives, which states that different reserve margin targets and timing could apply. In addition to being premature, the commitment to a 16% reserve margin in the 2019 Plan appears unnecessary, in that NorthWestern does not intend to achieve it, at least with long-term capacity resources, prior to filing its next plan.

103. The Synapse evaluation found that a critical deficiency in the 2019 Plan is that its analytical construct does not allow for direct purchase of market-based capacity resources. That is, the set of resource options evaluated in the PowerSimm portfolio cost-modeling process consisted of only long-lived physical resources and wholesale spot market energy purchases. The Commission also finds this to be a critical deficiency because NorthWestern intends to use competitive solicitations to evaluate capacity resource offers with lives of three to as many as 25-30 years. However, the 2019 Plan provides no explanation or support for how, in applying the PowerSimm portfolio cost-modeling process to offers received in the solicitation process, the cost and risk tradeoffs of resources with differing time commitments will be assessed.

104. The Commission encourages NorthWestern to take a deliberate approach to procuring capacity resources, one that accounts for the pace of technological change in renewable and storage resources, wholesale market transformation, and the Northwest Power Pool's resource adequacy initiative, and economic, load, and regulatory uncertainties. Through revisiting its planning assumptions and engaging frequently with stakeholders, NorthWestern should pursue the risk mitigation strategies and procurement considerations in the Commission's rules in order to assemble a diverse mix of capacity resources that minimize costs for customers.

105. Regarding the portfolio modeling and analysis in the 2019 Plan, NorthWestern has improved on the 2015 Plan. However, the Commission still finds that the analysis in the 2019 Plan is deficient in several important respects.

106. In its evaluation, Synapse concluded that the PowerSimm modeling for the 2019 Plan did not adequately consider alternative scenarios in which wind and solar resources contribute relatively more to NorthWestern's capacity needs. In addition, Synapse was critical of the limited evaluation of an alternative, lower capital cost scenario for wind, solar, and battery storage resources. Notably, the Commission finds no explicit statement in the 2019 Plan regarding NorthWestern's modeling assumptions for the capacity value of new wind and solar resources. Synapse, which had dashboard access to the PowerSimm model, reported that new

wind resources were assumed to contribute capacity equal to 1.9% of their nameplate capacity and that new solar resources were not credited with any capacity value. In future plans, NorthWestern should describe key modeling assumptions with more transparency and specificity. In contrast to NorthWestern's assumptions, Energy + Environmental Economics ("E3") explained during a NorthWestern informational meeting with the Commission in April 2019 that, based on its analysis, wind and solar contribute 7% and 12%, respectively, to Pacific Northwest capacity requirements. Arne Olson PowerPoint, *Resource Adequacy in the Pacific Northwest*, p. 13 (Apr. 2, 2019). If E3's estimates are representative of the capacity that wind and solar resources in Montana could be credited with in an RTO, NorthWestern's assumptions appear to be too low. A thorough analysis of the capacity provided by wind and solar resources is important to assessing both NorthWestern's capacity needs and cost-effective ways of fulfilling those needs. Given the degree of uncertainty on this matter, the regional analysis by E3, and the possibility of NorthWestern joining an RTO by 2025, the absence of any scenario or sensitivity analysis that credits wind and solar resources with relatively more capacity value is a deficiency in the 2019 Plan.

107. NorthWestern retained HDR Engineering ("HDR") to develop the cost and operating parameters of the resource alternatives that were evaluated in the PowerSimm portfolio cost modeling process. Several commenters and Synapse addressed the resulting assumptions for the capital costs of wind, solar PV, and Li-ion battery resources. In general, the Commission does not find the HDR-based assumptions for those resources unreasonable. However, the 2019 Plan states that NorthWestern evaluated "lower cost" cost curves for those resources, developed by Ascend Analytics, in the ARS run that resulted in the Base Case portfolio. Because that evaluation did not change the ARS resource selection, NorthWestern did not further include the "lower cost" cost curves in the PowerSimm modeling. Consequently, the cost modeling for the 2019 Plan did not evaluate a scenario that combined the "lower cost" cost curves for wind, solar PV, and Li-ion batteries with higher natural gas costs, coupled with the presumption of membership in an RTO (which, as discussed above, could potentially result in higher capacity credit for Montana wind and solar resources). Given the importance of thoroughly considering plausible future scenarios in order to inform resource acquisition strategies and development of near-term Action Plan Items, the Commission finds the 2019 Plan deficient for not including such a scenario.

108. In addition, the Synapse evaluation determined that NorthWestern did not, in fact, evaluate the high natural gas price scenario at all. Instead, in running the high natural gas price scenario NorthWestern mistakenly used the base case natural gas price forecast, not the high natural gas price forecast developed for that scenario. That is, it input the wrong gas price forecast. The Commission finds that this error represents a deficiency in the 2019 Plan.

109. Another input error involves natural gas delivery costs. In testimony filed in docket 2019.12.101, NorthWestern states that the modeling of new natural gas resources failed to account for the cost of moving natural gas supply across NorthWestern's system to deliver it to the generators, which depressed operating costs by \$4 to \$5 per MWh.

110. According to NorthWestern's response to comments on the draft plan, the 2019 Plan does not account for the costs of upgrading natural gas delivery facilities because the resources evaluated in the 2019 Plan are generic proxy resources. The natural gas system upgrades for a particular gas plant would be location-specific and, therefore, cannot be known until an RFP is issued and bids for specific resources are obtained. There is some merit to this response. However, the plan would be more informative if it provided information on the potential for natural gas system upgrade costs to change the preferred resource strategy. NorthWestern should consider conducting scenario analyses that explore a range of natural gas system upgrade costs. However, the potential need for system upgrades exist for all resources, not just natural gas resources. For example, in several recent PURPA dockets the Commission has seen a range of costs related to interconnecting variable energy QF resources. Therefore, evaluating system upgrade cost scenarios should be done consistently.

111. In defining the characteristics of the resources evaluated in PowerSimm, NorthWestern assigned a single, annual capacity contribution to each resource individually. The 2019 Plan does not clearly explain what time periods were examined to derive the capacity contributions for new resources. The fact that new solar resources are assigned a capacity contribution value of zero suggests that NorthWestern examined only winter periods. However, NorthWestern's system or the system operated by the RTO assumed to exist in 2025 may exhibit significant loss of load probabilities in other periods. Therefore, in future plans NorthWestern should consider a broader, seasonal approach to evaluating its capacity needs. The approach taken in the 2019 Plan does not account for the possibility that wind and solar resources may have complementary production profiles that, when combined, provide capacity value. For

example, solar may contribute more to summer capacity requirements and wind more to winter capacity requirements. At a minimum, NorthWestern should consider defining the characteristics of a paired resource alternative comprising geographically diverse wind and solar projects, through application of the Southwest Power Pool (“SPP”) method or some other method. This could provide insight into how such a paired resource alternative, which the model could evaluate together with storage resources, compares to other resource options. For future plans, NorthWestern should consider defining a paired resource option or, alternatively, define monthly capacity contributions for individual resources and monthly capacity requirements. In addition, NorthWestern should consider the use of system-specific or regional ELCC-based capacity contributions. While the Commission is hopeful that the Northwest Power Pool resource adequacy initiative will be useful in this regard, NorthWestern should not depend entirely on that initiative as it begins its next planning cycle. In any case, NorthWestern should clearly explain the method and time periods it examines to derive resource capacity contributions in the next plan.

112. The 2019 Plan assumes fixed O&M costs for solar resources that are higher than the benchmark costs in NREL’s 2019 Annual Technology Baseline. Coupled with the deficiencies and concerns discussed above, this assumption might have further distorted the portfolio modeling results, and it therefore represents an additional deficiency in the 2019 Plan.

113. The evaluation by Synapse found that the draft RFP NorthWestern submitted in Docket 2019.11.93 identified selection criteria based on a resource attribute, i.e., “ride-through capacity,” that is not described, analyzed, or supported by modeling in the 2019 Plan. The Commission considers this a deficiency in the 2019 plan because, according to NorthWestern, the method used to evaluate resources in the 2019 Plan will be applied to offers received in response to its RFPs. Absent a transparent description and analysis of this resource attribute in the 2019 Plan, the Commission is unable to comment on whether its inclusion as part of the selection criteria in the solicitation process is reasonable. In addition, NorthWestern will need to justify the selection of resources based, in part, on this resource attribute in future Commission proceedings, in which the details and importance of the attribute will be considered for the first time. The presentation of important resource attributes and selection criteria for the first time in a contested case reduces the public interest benefits of the resource planning process and should be avoided.

114. A discrepancy appears to occur in the modeling results for the two types of storage resources evaluated in the 2019 Plan. In the scenario of 100 MW of pumped hydro storage capacity being added to the portfolio and the remainder of the resources selected using ARS, the model selected 210 MW of wind resource. However, when 100 MW of Li-ion battery storage was added to the portfolio and the remainder of the resources selected using ARS, no wind was selected. As the capacity attributes of pumped hydro and battery storage are similar, those results seem contradictory. This, together with other errors, such as the failure to model the high gas cost scenario and the discrepancies Synapse observed between information in the PowerSimm model and information reported in the Plan, undermines the Commission's confidence in the modeling results. The Commission finds this discrepancy particularly noteworthy because the total cost of the Li-ion battery storage portfolio is nearly identical to the Base Case (preferred) portfolio, indicating that it is possible that, under multiple alternative scenarios, batteries paired with wind resources could outperform thermal natural gas plants. This reinforces the importance of proceeding cautiously and deliberatively in acquiring capacity resources so as not to commit customers to resource choices that are not least-cost in the long run.

115. NorthWestern's application for preapproval of a capacity acquisition in Docket 2019.12.101 includes testimony stating that a "sub-hourly or flexible credit, consistent with the 2019 Plan, was added to the new resources." However, in its review of the 2019 Plan, the Commission was unable to find any reference to or explanation of either a sub-hourly or flexible credit, any calculation of such a credit, or how a credit was used in portfolio modeling. This discrepancy further highlights issues with the transparency and completeness of the 2019 Plan.

116. The 2019 Plan does not adequately analyze and explain the impacts that the Western EIM is expected to have on NorthWestern's ancillary services requirements and how those impacts are incorporated into the PowerSimm model. The Commission notes that Navigant, in its study of NorthWestern's need for regulation and load following capacity, identified a need for monitoring and further analysis of those requirements. Ancillary service requirements for existing and new wind and solar resources is frequently an issue in PURPA proceedings, which, on this issue, have sometimes involved analysis in NorthWestern's resource plans. Thus, NorthWestern should revisit this issue in future planning cycles.

117. The 2019 Plan does not include an analysis of whether transmission investments could cost-effectively expand access to market or other supply resources. The Commission agrees with commenters that this is a significant omission in the 2019 Plan, particularly given the emphasis in Chapter 6 on import limitations.

118. In its discussion of demand-side resources, the 2019 Plan states that NorthWestern will restrict the program lives of DSM measures to 15 years for purposes of analysis, due to the Commission's Order 7500d in Docket D2016.5.39. However, in response to comments received on the draft of the 2019 Plan, NorthWestern states that, because certain QF orders (including Order 7500d) are currently under legal review, NorthWestern stands by its decision to use a 20-year planning horizon. Those two approaches to evaluating resources are in conflict and result in disparate treatment of demand- and supply-side resources in the 2019 Plan. Because a foundational principle of electric utility integrated resource planning is equivalent treatment of demand- and supply-side resources, NorthWestern should remedy that disparate treatment in future plans.

119. For some time, NorthWestern has discussed updating its electric energy efficiency potential study to incorporate avoided capacity costs in DSM cost-effectiveness analyses. In the 2015 Plan, NorthWestern expected the study to be finished in the first quarter of 2017. In the 2019 Plan, NorthWestern states that it expects the study to be completed by the end of 2019. NorthWestern's lack of progress on this issue is a concern, particularly given that demand response resources could be offered in NorthWestern's solicitation process, which is already underway. NorthWestern should complete the study expeditiously so that it may inform NorthWestern's evaluation of any demand response offers to its solicitation, as well as discussions of the DSM stakeholder group authorized in Docket 2018.02.012, and, ultimately, its next resource plan.

120. In total, the Commission observes that NorthWestern's electricity procurement planning process is more transparent, accessible, and analytically rigorous than the process that produced the 2015 Plan. The Commission commends NorthWestern for these improvements. However, the concerns and deficiencies addressed above are substantial enough that they call into question the adequacy, accuracy, and value of the 2019 Plan. NorthWestern can remedy that concern by working with stakeholders to address the deficiencies described in these comments in developing the next plan. NorthWestern should also consider these comments as it evaluates

offers to its capacity RFP and in future dockets that substantively rely on the results of the 2019 Plan or the underlying assumptions, analyses, and portfolio modeling constructs. Examples of such dockets include preapproval applications, PURPA-related qualifying facility dockets or petitions, and general rate applications requesting to add new generation assets to NorthWestern's rate base.

121. NorthWestern's next plan will likely not be filed until 2022, given the new three-year planning cycle established in House Bill 597 (2019). Mont. Code Ann. § 69-3-1204 (effective July 1, 2020). As NorthWestern begins a new planning cycle, it should keep the Commission, its stakeholder advisory group, and the public informed regarding the development of regional markets and the work of the Northwest Power Pool's resource adequacy initiative. In addition, as NorthWestern develops its next plan, it should track, document, and report in the plan each request to perform modeling of alternative portfolio scenarios or to use alternative assumptions, how NorthWestern responded to those requests, and, if applicable, the results of the requested modeling.

DONE AND DATED this 30th day of June, 2020, by a vote of 4-1, with Commissioner Koopman dissenting.

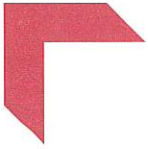
BY ORDER OF THE MONTANA PUBLIC SERVICE COMMISSION

BOB LAKE, Chairman
BRAD JOHNSON, Vice Chairman
ROGER KOOPMAN, Commissioner
TONY O'DONNELL, Commissioner
RANDALL PINOCCI, Commissioner

Exhibits to Direct Testimony of Thomas J. Schneider
on behalf of Montana Environmental Information Center

Exhibit TJS-9

Docket No. 2019.12.101



December 18, 2018

Mr. Will Rosquist
Administrator, Regulatory Division
Montana Public Service Commission
1701 Prospect Ave.
P. O. Box 202601
Helena MT 59620-2601

RE: Docket No. D2018.2.12 – Electric General Rate Review
MEIC Set 1 Data Requests (001-012)
Updated response to MEIC-003

Dear Mr. Rosquist:

Enclosed for filing is NorthWestern Energy's updated response to Data Request MEIC-003 in the MEIC-Sierra Club Set 1 Data Requests (001-012) in Docket No. D2018.2.12.

This data response has been hand delivered to the Montana Public Service Commission and the Montana Consumer Counsel. It has also been mailed to the remainder of the service list, e-filed on the PSC website, and emailed to counsel of record and other parties as listed on the Certificate of Service.

If you have any questions, please call Joe Schwarzenberger at (406) 497-3362.

Sincerely,

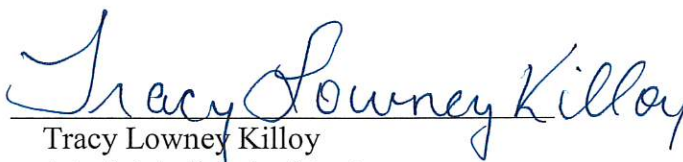
Tracy Lowney Killoy
Administrative Assistant
Regulatory Affairs

Enclosures

CERTIFICATE OF SERVICE

I hereby certify that 1 original and 10 3-hole-punched copies of NorthWestern Energy's updated response to Data Request MEIC-003 in MEIC/Sierra Club Set 1 Data Requests (001-0012) in Docket No. D2018.2.12 have been hand delivered to the Montana Public Service Commission with one copy hand delivered to the Montana Consumer Counsel this date. It has also been e-filed with the Montana Public Service Commission, mailed by postage prepaid via first class mail to the remainder of the service list below, and emailed to the email list below.

Date: December 18, 2018


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**NorthWestern Energy
Docket No. D2018.2.12
Electric General Rate Review**

**Montana Environmental Information Center/Sierra Club
Set 1 (001-0012)**

Data Requests received October 30, 2018

MEIC-003 Witness: Lail, part c

Subject: Colstrip Capex Projects

Please provide a list of all Colstrip capex projects which NorthWestern is seeking to add to rate base in this proceeding, including the following information for each project:

- a. When the project was completed;
- b. An explanation of why the project was undertaken; and
- c. The total amount that NorthWestern is seeking to add to rate base for each project.

RESPONSE:

a. – c.: Please see Attachment.

Please note that capital additions are subject to the Ownership and Operation Agreement (“OOA”), which will be provided in response to Data Request MEIC-025. As defined in the OOA, “Capital Additions” are necessary to assure design capability and reliability or are required by government agencies and regulations. The Attachment contains a list of capital projects. It does not list projects individually for which NorthWestern’s costs were under \$50,000 and, instead, aggregates them into groupings by year.

The Net Book Value column on the Attachment does not represent the 13-month average balance for rate base. The Net Book value reflects an application of the depreciation rate to original cost for the period and does not include timing differences or AFUDC.

UPDATED RESPONSE (December 18, 2018):

NorthWestern’s original response did not reflect property insurance proceeds that NorthWestern received related to repairs after an outage at Colstrip Unit 4 in 2013. The capital projects associated with the property insurance are 10012230, 10020215, and 10020809. The insurance proceeds are reflected in NorthWestern’s books and records as a reduction to the actual repair costs. In addition to the correction for insurance proceeds, NorthWestern identified and corrected two errors in the original response related to amounts reflected for capital projects 10019068 and 10019069. The Revised Attachment reflects the corrections for these items noted above.

Project ID	Project Description	Plant in Service Date	Net Book Value
Various	Various Projects below \$50K (41 total)	1/1/2009	340,177.83
10012248	Cooling Tower Fill Rpl, U4	6/1/09	486,957.53
10012297	Air Preheater Basket Rpl, U4	6/1/09	216,057.68
10012260	Capital Project Support,U4	8/31/09	233,440.78
10012904	LP 1&2 Turbine Rebuild, U4	10/28/09	787,261.61
10010968	NOx Control, Unit 4	10/30/09	710,373.65
10012286	BaseTurbine-Generator OH, U4	10/30/09	452,410.95
10012231	LP Turbine, U4	10/30/09	165,554.68
10012242	Boiler Water Wall Rpl, U4	10/30/09	62,136.30
10012254	Scrubber IDFanMtr Rewind, U3-4	10/30/09	58,914.12
10012237	High Energy Pipe Snubbers,U4	10/30/09	56,148.58
10012244	ContinuousEmissionMonitor,U34	12/3/09	47,876.72
10010002	Mercury Control, U3-4	12/31/09	813,379.20
10012243	Groundwater Mitigation, U3-4	12/31/09	54,966.20
Various	Various Projects below \$50K (35 total)	1/1/2010	465,480.48
10013639	Waste Water Trtmnt Plnt, U3-4	12/31/10	527,238.46
10013648	Mercury Control, U3-4	12/31/10	78,526.49
10013638	Groundwater Mitigation, U3-4	12/31/10	68,360.97
Various	Various Projects below \$50K (48 total)	1/1/2011	695,047.67
10013637	LP Turbine Replacement, U3	6/27/11	2,205,822.13
10015269	Generator Reliability, U3	6/27/11	683,038.63
10015268	Turbine Gen Base Overhaul,U3	6/27/11	612,192.03
10015347	SeparatedOverFireAirBucket,U3	6/27/11	273,541.64
10015281	Air Preheater Basket Repl, U3	6/27/11	244,367.11
10013657	BoilerSootblowerRetract Rpl,34	6/27/11	132,779.28
10015264	Auxiliary Turbine Overhaul, U3	6/27/11	122,798.64
10015279	Flue Gas Duct Repl, U3	6/27/11	120,598.62
10015276	Boiler Coutant Slope, U3	6/27/11	114,228.90
10013633	DCS Turbine Controls, U3	6/27/11	112,508.54
10015277	BoilerWindboxDamperBearing,U3	6/27/11	107,947.02
10015270	IP Turbine Overhaul, U3	6/27/11	71,802.84
10015296	BoilerEconomizerSupportTube,U3	6/27/11	61,111.97

Project ID	Project Description	Plant in Service Date	Net Book Value
10013647	Effluent Holding Pond Dike,U34	12/31/11	380,401.87
10015299	CircWtrPmp&MotorRebld, U3-4	12/31/11	62,431.08
10015274	DCS Upgrade, U3-4	12/31/11	56,622.51
10016126	Scrubber ID Fan Rotor Repl, U3-4	12/31/11	51,189.50
Various	Various Projects below \$50K (43 total)	1/1/12	504,611.16
10015330	"C" ForcedEvapBldg Upgd,U3-4	5/15/12	155,591.25
10017210	Generator Reliability, U3	5/30/12	254,329.00
10017227	HazardousAirPollutant HAPS,U3	8/21/12	355,399.74
10015356	Building Roof Replacement,U1-4	9/21/12	57,127.89
10015107	Coal Mill Hydraulic Rpl, U3-4	10/5/12	111,117.40
10017244	EHP Dike-Phase 2, U3-4	12/31/12	600,953.27
10017264	NERC CIP Infrastructure, U1-4	12/31/12	61,145.29
10019262	Boiler Damper Actuator Repl,U4	12/31/12	48,323.89
Various	Various Projects below \$50K (43 total)	1/1/2013	645,907.75
10012230	Generator Reliability, U4	2/1/13	-
10017253	ScrubberIDFanMtr Purchase,U3-4	2/8/13	100,659.78
10017215	MainTurbineMechOverspeed, U4	6/26/13	57,787.67
10017213	AuxTurbineOverspeed Repl,U4	6/26/13	54,744.70
10018991	Turbine/Generator Base OH, U4	6/27/13	554,564.29
10017216	Generator Rotor Rewind, U3-4	6/27/13	403,971.76
10017256	Coal Pipe Support Upgrade,U4	6/27/13	241,975.56
10019093	Boiler Burner Repl, Unit 4	6/27/13	173,416.14
10017257	BoilerBurnerCornerWtrWallRpl,4	6/27/13	122,820.99
10017211	Auxiliary Turbine Overhaul, U4	6/27/13	117,597.01
10019091	Boiler Coutant Bottom, Unit 4	6/27/13	115,139.01
10019064	IP Turbine Overhaul, Unit 4	6/27/13	111,920.84
10019092	Boiler Capital Scaffolding, U4	6/27/13	111,687.99
10018568	BoilerReheatSafetyVlveAdds-U4	6/27/13	107,988.67
10017255	Boiler Water Wall Repl, U4	6/27/13	101,853.58
10019096	Flue Gas Duct Repl, Unit 4	6/27/13	96,967.38
10019094	BoilerWindboxDamperBearing U4	6/27/13	95,218.23
10017214	Voltage Regulator Repl, U4	6/27/13	66,494.33

Project ID	Project Description	Plant in Service Date	Net Book Value
10019066	DCS PC/CommunicationRpl, U4	6/27/13	61,411.27
10019055	3A7&Diesel GenControl Rpl,U3-4	6/27/13	60,901.93
10019689	Coal Pipe Replacement, Un 4	6/27/13	49,748.40
10019088	Scrubber ID Fan Mtr Rewind,U34	7/1/13	68,908.24
10019086	Pond Lining, U3-4	8/29/13	661,732.50
10019070	Groundwater Mitigation, U3-4	12/31/13	44,723.46
Various	Various Projects below \$50K (55 total)	1/1/2014	856,907.70
10020215	Generator Repair, U4	1/23/14	527,646.06
10020372	AirPreheaterBasketRepl,U4	1/23/14	273,506.15
10020809	Generator Rotor Rewind, U3-4	5/16/14	-
10020276	DCS PC/Communication Rpl, 3	6/1/14	71,530.81
10019106	Final Superheat Section Rpl,U3	7/5/14	2,447,260.73
10020065	Turbine/Gen. Base Overhaul, U3	7/5/14	396,829.18
10020066	Air Preheater Basket Repl, U3	7/5/14	281,391.18
10020278	Boiler Coutant Bottom, U3	7/5/14	230,047.76
10019101	BoilerEconomizerTubeRpl,U3	7/5/14	218,517.23
10019104	Coal Pipe Support Upgd, Unit 3	7/5/14	197,357.38
10019102	BoilerBurnerCornerWtrWall U3	7/5/14	170,725.28
10020279	Boiler Capital Scaffolding	7/5/14	122,323.66
10015346	BoilerReheatSafetyValve, U3	7/5/14	116,909.01
10020281	Boiler Burner Repl, U3	7/5/14	113,441.76
10019054	Aux Turbine Overhaul, U3	7/5/14	104,489.15
10020284	Flue Gas Duct Repl, U3	7/5/14	91,476.37
10019099	Boiler Water Wall Repl, U3	7/5/14	72,512.31
10019056	Voltage Regulator Repl, U3	7/5/14	70,471.20
10020283	Generator Inspect/Repair, U3	7/5/14	68,074.66
10020290	Coal Pipe Repl, U3	7/5/14	51,079.63
10020318	Scrubber ID Fan Mtr Rewind,3-4	12/4/14	86,678.24
10020299	HVAC Chiller RplCntrlComplex34	12/8/14	107,820.18
10020310	Scrubber Alley Pipe Repl, U3-4	12/8/14	53,591.89
10020316	Pond Lining, U3-4	12/31/14	244,879.05
Various	Various Projects below \$50K (34 total)	1/1/2015	490,864.79

Project ID	Project Description	Plant in Service Date	Net Book Value
10022093	Building Roof Repl, U3-4	9/30/15	109,722.84
10022102	Compressed Air System,3-4	9/30/15	101,696.32
10022096	Turbine BridgeCraneControl,3-4	12/21/15	88,971.16
10022105	Pond Projects, U3-4	12/31/15	668,095.56
10022106	Scrubber ID Fan Motor Rewnd,34	12/31/15	82,425.20
Various	Various Projects below \$50K (11 total)	1/1/2016	255,567.88
10022111	Smartburn NOx Reduction,U4	6/30/16	1,934,906.69
10023672	Turbine/Gen Base OH-U4	6/30/16	747,697.56
10022113	Gas DeflectionArch Rpl,U4	6/30/16	629,907.42
10022078	LP 1A&1B FeedwaterHeaterRpl,U4	6/30/16	336,513.38
10022077	LP2A&2B Feedwater HeaterRpl,U4	6/30/16	334,164.49
10023669	HP Turbine Overhaul-U4	6/30/16	321,690.57
10022112	Boiler Sootblower Retract, U4	6/30/16	224,287.62
10023708	Boiler Capital Scaffolding-U4	6/30/16	152,770.09
10022073	Aux. Turbine Overhaul, U4	6/30/16	110,983.26
10022114	Boiler Water Wall Rpl, U4	6/30/16	104,628.45
10023717	PA Expansion Joint Repl-U4	6/30/16	99,393.78
10023713	Flue Gas Duct Repl-U4	6/30/16	94,802.06
10023709	Boiler Coutant Bottom Rpl-U4	6/30/16	80,188.59
10023707	Air Preheater Seal Repl-U4	6/30/16	76,031.94
10023715	Hot Air Gate Replacement-U4	6/30/16	74,102.44
10023671	Switchgear Modi NFPA-U4	7/31/16	133,435.31
10023670	Main TurbineLubeOil Cooler-U4	7/31/16	50,825.27
Various	Various Projects below \$50K (56 total)	1/1/2017	1,053,838.44
10023705/10025280	Smartburn NOx Reduction - U3	6/30/2017	1,414,469.43
10025119	Turbine/Generator Base Overhaul	6/30/2017	864,298.25
10020275	Main Step Up Transformer Overhaul	6/30/2017	731,809.17
10023703	Gas Deflection Arch Replacement	6/30/2017	609,700.65
10025120	HP Turbine Overhaul	6/30/2017	316,897.94
10025153	Boiler Economizer Tube Replacement	6/30/2017	223,093.20
10025144	Boiler Capital Scaffolding	6/30/2017	183,539.31
10019068	LP 2A & 2B Feedwater Heater Replacement	6/30/2017	347,060.45

Project ID	Project Description	Plant in Service Date	Net Book Value
10023701	Boiler Sootblower Retract Replacement	6/30/2017	168,289.45
10019069	LP 1A & 1B Feedwater Heater Replacement	6/30/2017	344,725.06
10025121	IP Turbine Overhaul	6/30/2017	157,837.94
10025141	Switchgear Modification-NFPA Compliance	6/30/2017	123,774.30
10025122	Generator Inspection/Repair	6/30/2017	116,534.63
10025155	Primary Air Expansion Joint Replacement	6/30/2017	116,411.59
10025147	Flue Gas Duct Replacement	6/30/2017	110,382.30
10025214	Generator Seal Oil Vacuum Tank	6/30/2017	109,229.41
10025143	Boiler Coutant Bottom	6/30/2017	107,390.01
10023702	Boiler Water Wall Replacement	6/30/2017	99,853.41
10023700	Boiler Snubber and Hanger Replacement	6/30/2017	80,456.75
10025208	Scrubber Outlet Duct Coating	7/31/2017	83,857.37
10025167	Elevator Refurbish	9/30/2017	58,013.18
10024366	CCR-B Cell Clearwell (A-Cell Closure and new Clearwell)	12/31/2017	2,057,678.19
10025170	Building Roof Replacement	12/31/2017	285,413.49
10025202	Scrubber ID Fan Motor Rewind	12/31/2017	137,741.74
10025203	Scrubber Mist Eliminator Replacement	12/31/2017	103,279.13
10025160	Circulating Water Pump & Motor Rebuild	12/31/2017	70,356.48
10025158	Ground Water Mitigation	12/31/2017	61,167.82
10025220	CCR - G Cell Design	12/31/2017	58,124.99
10025223	Pond Return Pumps-Diesel Generator	12/31/2017	54,717.71
	Totals		42,639,513.58

Exhibits to Direct Testimony of Thomas J. Schneider
on behalf of Montana Environmental Information Center

Exhibit TJS-10

Docket No. 2019.12.101

NorthWestern Energy
Docket No. D2018.2.12
Electric General Rate Review

Montana Environmental Information Center/Sierra Club
Set 1 (001-0012)

Data Requests received October 30, 2018

MEIC-007 Witness: White

Subject: Colstrip Unit 4 Depreciation

Please provide a copy of the most recent depreciation study for Colstrip Unit 4.

RESPONSE:

Please see Exhibit__ (REW-2) attached to the Prefiled Direct Testimony of Ron E. White. The 34-year life was established by the Commission in Docket No. D2008.6.69.

Exhibits to Direct Testimony of Thomas J. Schneider
on behalf of Montana Environmental Information Center

Exhibit TJS-11

Docket No. 2019.12.101

BONNEVILLE POWER ADMINISTRATION • STATE OF MONTANA

Montana Renewables Development Action Plan

June 2018



Bonneville
POWER ADMINISTRATION



Copies of this report are available on the Bonneville Power Administration website:
www.bpa.gov/Projects/Initiatives/Montana-Renewable-Energy/Pages/Montana-Renewable-Energy.aspx

This document is intended to represent a general consensus of participants. As such, any statement in this document may not necessarily represent the views of all participants.

All decisions, options or recommendations identified in this report regarding BPA are subject to additional subsequent public processes, such as a BPA rate case, tariff revision process or policy process, where BPA will make independent decisions before they may be adopted. In those subsequent public processes, BPA is not required or obligated to support or defend the decisions, options or recommendations identified in this report. In addition, participating jurisdictional entities are subject to state and Federal Energy Regulatory Commission filings and other regulatory requirements before adoption.

Contents

Letter from Montana Governor and Bonneville Power Administrator	2
Project leadership: Support for recommendations	4
Participating organizations and individuals	5
Introduction	7
Significant findings: Ability of Montana to provide renewables to the Northwest	10
Recommendations and action items	16
Next steps	19
Appendix	20
<i>Appendix A: Commercial Policy Subcommittee</i>	
<i>Appendix B: Planning Subcommittee</i>	
<i>Appendix C: Operations Subcommittee</i>	
<i>Appendix D: Interface Capacity Settlement Agreement between Bonneville and Northwestern Energy</i>	
<i>Appendix E: Montana to Pacific Northwest existing system and capacity</i>	
<i>Appendix F: Memorandum: The Colstrip Transmission System—Its Value to Montana and Planning for its Future</i>	
<i>Appendix G: Statement on market principles</i>	
<i>Appendix H: Existing Studies for Montana coal shutdown</i>	
<i>Appendix I: WECC Path 8</i>	
<i>Appendix J: Acronyms</i>	



To our Regional Partners

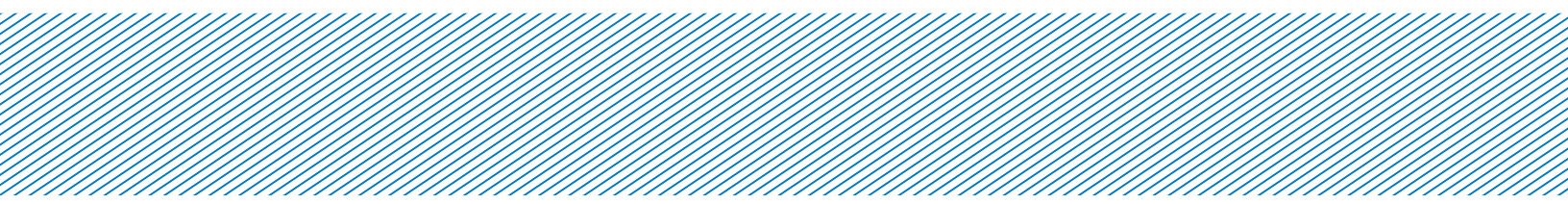
We are very pleased to release the Montana Renewables Development Action Plan, which clearly demonstrates the value of bringing a diverse group together from across the region for robust, honest and informed conversations to advance our mutual interests. We appreciate all of the participants who worked to make this an effective, informative and timely process to explore the different aspects of renewable resource development in Montana.

When we started this process in December 2017, our primary goal was to improve regional understanding of the opportunities and barriers to developing renewable resources in Montana and delivering that power to Northwest markets, where there is a growing demand for clean energy resources. Today, we have a much better shared understanding of what is needed to successfully develop new resources, and we have made real progress toward addressing the issues.

By bringing together the many parties who have a stake in these issues and studying them through an integrated, regional lens, we learned that nearly 360 megawatts of transmission capacity is available today to move power from Montana to the Pacific Northwest. We resolved a lingering issue around who can market 184 megawatts of capacity that is available to transfer energy from Montana to the west, which will create more certainty for transmission purchasers. And we determined there is sufficient capability in the existing transmission system to dynamically transfer 1,000 megawatts of variable energy resources to West Coast states.

In addition, we have made recommendations and identified actions that will continue to improve the ability of West Coast markets to access renewable generation in Montana.

Going forward, no single issue or action will result in opening Montana to renewable energy development. This action plan moves things forward substantially, but there is still work to do. Some of the actions will require bilateral and multilateral conversations, and



some of them will require other public processes, including some specific to Bonneville. As Montana seeks to increase its capacity to supply renewable resources within the region, there must be an equal demand from utilities seeking clean energy.

Most importantly, Montana continues to seek opportunities to further develop its renewable energy resources, providing good-paying jobs for Montanans, strengthening rural communities and supporting local schools, while protecting its quality of life. Montana is ready to help the region achieve its environmental and clean energy goals by complementing existing hydropower and other renewable generation in the Pacific Northwest. Through constructive partnerships like this one, we are moving forward to achieve those objectives.

We would like to thank all of the participants for bringing a collaborative attitude to the discussions and advancing the prospect of renewable energy development in Montana. We particularly extend our sincere gratitude to the steering committee members and workgroup co-chairs.

Sincerely,



Steve Bullock
Governor,
State of Montana

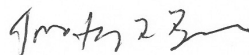


Elliot Mainzer
Administrator and CEO,
Bonneville Power Administration

Project leadership: Support for recommendations

The following report reflects the efforts of a broad set of participants over six months to examine barriers and provide recommendations designed to enable development of Montana renewable resources and their delivery to the Pacific Northwest. The co-leads of the project's Commercial Policy, Planning, and Operations Subcommittees and the Steering Committee support the high-level findings and recommendations contained in the Montana Renewables Development Action Plan.

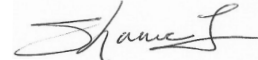
Steering Committee co-leads



Tim Baker
Montana Governor's Office
and Northwest Power and
Conservation Council




Mike Cashell
NorthWestern Energy

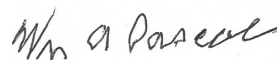


Shauna Tran
Puget Sound Energy

Commercial Policy Subcommittee co-leads



Brian Altman
Bonneville Power Administration



Bill Pascoe
Representing Orion Renewable Energy

Planning Subcommittee co-leads

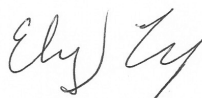


Patrick Rochelle
Bonneville Power Administration

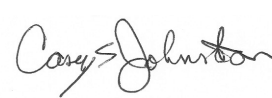


Cameron Yourkowski,
Renewable Northwest

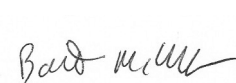
Operations Subcommittee co-leads



Libby Kirby
Bonneville Power Administration



Casey Johnston
NorthWestern Energy



Bart McManus
Bonneville Power Administration

Participating organizations and individuals

Sponsors

Steve Bullock, Governor, State of Montana

Elliot Mainzer, Administrator, Bonneville Power Administration

Facilitation

Vickie VanZandt, Facilitator

Brian Dekiep, Northwest Power and Conservation Council

Joshua Warner, Bonneville Power Administration

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Michael Cashell, NorthWestern Energy (co-lead)

Shauna Tran, Puget Sound Energy (co-lead)

Larry Bekkedahl, Portland General Electric

Carl Borgquist, Absaroka Energy

Johnny Casana, Pattern Energy Group

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Laura Raypush-Dombrowsky, PacifiCorp (alternate)

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Shaun Foster, Portland General Electric

Jeff Fox, Renewable Northwest

Stacy Gasvoda, Haymaker Wind

John Goroski, Flathead Electric Co-op

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Nate Hill, Puget Sound Energy

Doug Howell, Sierra Club

Joe Lucas, Western Montana Generation and Transmission

Chuck Magraw, Natural Resources Defense Council

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Brendan McCarthy, Portland General Electric

Andrew McLain, NorthWestern Energy

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Shauna Tran, Puget Sound Energy

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Northwest (co-lead)

Eli Bailey, Absaroka Energy

Don Bauer, Northwestern Energy

Scott Beyer, PacifiCorp

Jon Cichosz, Portland General Electric

Patrick Damiano, ColumbiaGrid

Bob Decker, Montana Public Service
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Conservation Council

Ray Ellis, Lincoln Electric Co-op

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Tom Kaiserski, Montana Governor's Office

Chelsea Loomis, Northwestern Energy

Phillip Popoff, Puget Sound Energy

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Tom Schneider, private citizen

Bill Shemley, PacifiCorp

Ed Weber, HDR, Inc.

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Administration (co-lead)

Casey Johnston, Northwestern Energy
(co-lead)

Bart McManus, Bonneville Power Adminis-
tration (co-lead)

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Kathee Downey, PacifiCorp

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Ken Neal, NaturEner

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Ed Weber, HDR, Inc.

Cameron Yourkowski, Renewable
Northwest

Editor

Kristel Turner, Bonneville Power
Administration

Introduction

As the Pacific Northwest's energy economy increasingly relies on clean energy, the state of Montana has an opportunity to play a significant role by growing its renewable resource base. Montana currently has more than 700 megawatts of installed wind capacity, but data shows that the state has the potential to develop significantly more renewable resources. This paper addresses the barriers to tapping Montana's renewable energy potential.

Background

Over the last decade, renewable resources in the Northwest have grown exponentially. In 2005, the Northwest Power and Conservation Council's (Council) Fifth Power Plan identified up to 6,000 megawatts of developable and potentially cost-effective wind power in the region. The power plan also recognized barriers and uncertainties surrounding the development of wind power. Accordingly, the Council called for a strategy to resolve those uncertainties. In response, a broad assembly of stakeholders produced the Northwest Wind Integration Action Plan in March 2007, and many of that plan's action items have been achieved. Today, more than 7,800 megawatts of wind capacity is installed in the Northwest.

Eleven years later, this Montana Renewables Development Action Plan supplements that plan to specifically address potential barriers to development of wind and other renewable resources in Montana.

The action plan is the result of a partnership between the state of Montana and the Bonneville Power Administration with critical contributions from stakeholders, who jointly hosted a series of conversations focused on the potential to develop a sustainable long-term strategy to support the development of potential new renewable energy resources in Montana. The extensive participation of many parties, including public and private utilities, regulators, advocates and renewable resource developers, has improved regional understanding of the opportunities and barriers to development of renewable resources in Montana. Through this collaboration, the region is moving forward to make new resources in Montana a reality.

Several developments are driving the focus on this geographic area:

- The cost of utility-scale renewable resources continues to decline.

- Although there is not an abundance of flexible reserves, utilities have gained experience and developed new tools for integrating renewables.
- Montana adopted a renewable portfolio standard of 15 percent by 2015.
- Oregon's renewable portfolio standard calls for 25 percent by 2025, and 50 percent by 2040.
- Washington's current renewable goal is 15 percent by 2020.
- Utilities are actively soliciting bids for renewable resources in the Pacific Northwest, not only to meet regulatory requirements, but to serve voluntary green power programs and the need for energy and capacity generally.
- Production tax credits for wind energy production and the investment tax credits for solar energy production will begin to phase out by the end of 2019, which means wind and solar resources will be most competitive in the near term.
- Units 1 and 2 of the Colstrip coal-fired power plant in Montana will retire from power production no later than 2022.



Factors influencing the development of renewables in Montana

The factors influencing the development of Montana's renewable resources are nested, with the availability of transmission being an important element. Other trans-

mission factors include transmission service rates and how transmission providers manage their queues for providing new transmission service. Developers must also acquire the ancillary products and services needed to balance and move the energy to load, as well as consider the characteristics the resources must have to count toward the renewable portfolio standard requirements of the western states. These are all elements of supply and demand, which will ultimately determine how much and how soon Montana-based renewable generation will be acquired by purchasers outside of Montana.

The intent of this project was to explore the physical and process issues facing Montana renewable resource development. The project arose from a diverse array of interested stakeholders with a mutual desire to explore the opportunities and challenges facing that development. The project's activities have culminated in this action plan, which includes an exploration of these nested issues, clarification of facts, development of a range of potential solutions to each of the barriers identified, and recommendations for resolution.

This effort has produced significant findings regarding the ability of Montana to provide renewable resources to the Pacific Northwest and has resulted in recommendations to enable this resource development. This action plan identifies 28 significant findings and 19 actions intended to remove barriers to the development and export of Montana renewable resources.

Project structure

The project was sponsored by Montana Governor Steve Bullock and BPA Administrator Elliot Mainzer. It was organized in a structure of three working subcommittees, guided by a steering committee. The work addressed (1) commercial policy, (2) planning, and (3) operational issues.

The three subcommittees worked collaboratively toward consensus of recommendations to resolve issues. All decisions, options or recommendations developed in this process regarding BPA are subject to additional subsequent processes, such as a BPA rate case, tariff filing or policy process before they may be adopted. In addition, jurisdictional entities are subject to state and Federal Energy Regulatory Commission filings and other regulatory requirements before adoption.

Summary of conclusions

The project subcommittees concluded that the environment for Montana renewables development is positive and would be enhanced by the actions recommended in this report beginning on Page 16. One of the project's significant conclusions is that the delivered cost of Montana renewables appears to be competitive with other renewable resources in the Northwest.

Even without further action, this process identified enough transmission capacity to move 360 megawatts of new renewables from Montana to parts of the Northwest. More transmission capacity will be available after the retirement of two units at the Colstrip Power Plant by no later than 2022, and the capacity could be increased further with the investment of relatively minor transmission upgrades, compared to the cost of building new transmission lines.

The process found that the existing transfer capability of the Colstrip Transmission System can, with relatively minor investments (compared to new line builds), support a one-for-one replacement of Colstrip generation with new resources, including variable energy resources.

In addition, there is enough available Dynamic Transfer Capacity (DTC) today at the Garrison interchange to accommodate the dynamic transfer of over 1,000 megawatts of wind. DTC is necessary for integrating variable resources—it is consumed when resource output fluctuates within the operating hour. The existing DTC can be doubled at relatively low cost if necessary.

Some of the actions identified in this process have already been completed. For example, BPA and NorthWestern Energy resolved a long-standing dispute over 184 megawatts of available transmission capacity from Montana to BPA. The resolution gives certainty to potential transmission customers looking for transmission capacity from Montana to markets in the west. Going forward, potential purchasers can acquire transmission capacity from either BPA or NorthWestern. If requested from NorthWestern, the capacity will be purchased from BPA at BPA's posted rate, and will result in the provision of a continuous path from Montana to BPA's network without being charged BPA's Montana Intertie rate. The Colstrip parties will receive any appropriate credit for any capacity purchased from BPA.¹

By following through on the remaining action items, the conditions for developing renewable resources would be further enhanced. These recommended actions range from modifying transmission agreements that may be needed to enable other parties to use the Eastern Intertie, to following through with work underway to relieve congestion on BPA's system to aid in delivery to Pacific Northwest load centers.

¹ Details of the agreement between NorthWestern and BPA can be found at Appendix D. The resolution must be approved by FERC.

Significant findings: Ability of Montana to provide renewables to the Northwest

The working subcommittees made a number of findings that frame the action items. Additional detail regarding these findings is provided in the appendix.

The transmission system in Montana is comprised of several owners' facilities, represented in Figure 1.

Major Montana Transmission

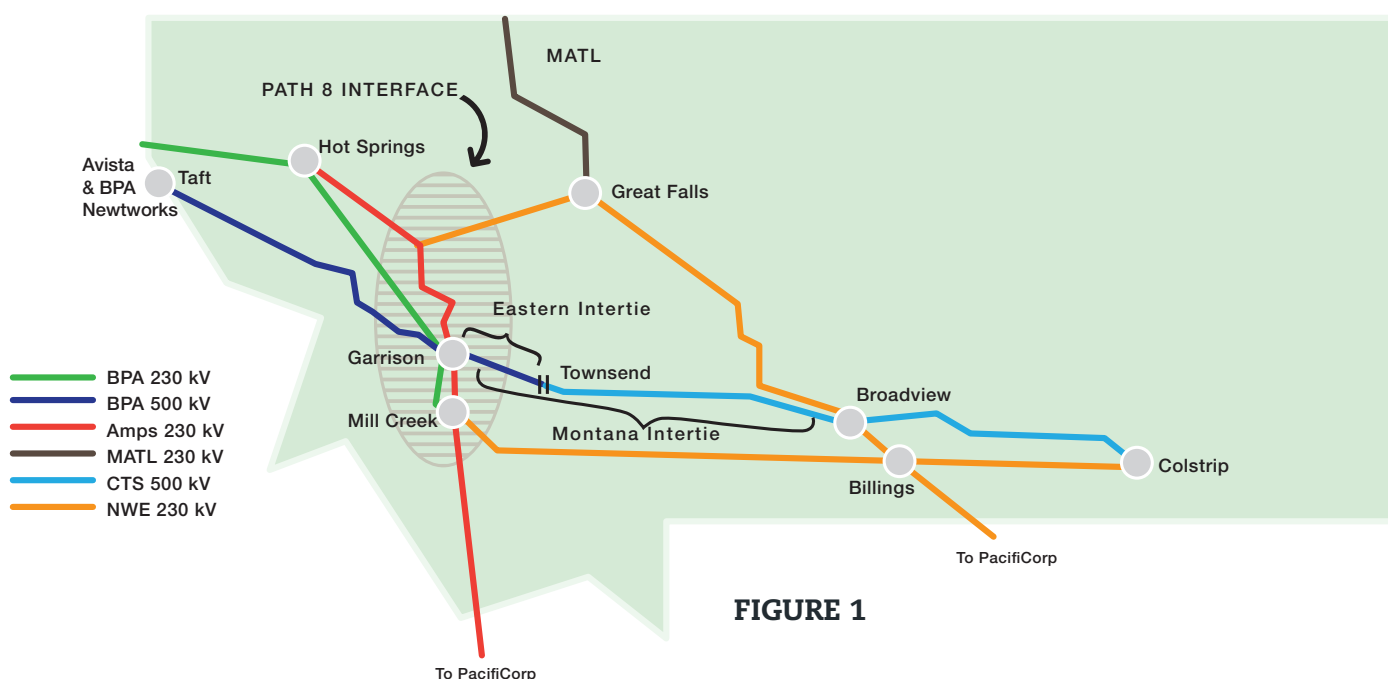


FIGURE 1

1

Advocates for Montana renewables (state government, developers and public interest groups) are “pushing” the export of Montana renewables. There needs to be a corresponding interest from potential purchasers “pulling” for the acquisition of Montana renewables.

2

The delivered cost of Montana wind resources to Pacific Northwest utilities appears to be competitive with other renewable resources. However, uncertainties about transmission and integration services can be impediments to securing contracts for Montana wind resources.

3

There is (or will soon be) a significant amount of transmission capacity – from existing available capacity, the planned retirement of Colstrip units 1 and 2, and relatively low-cost (compared to building new lines, though still in the \$ millions) transmission upgrades – to support the development of a substantial quantity of Montana renewables for export to the Pacific Northwest, but not necessarily all the way to the Interstate-5 (I-5) load centers.

4

Some segments of unused transmission system capacity exist today (Table 1, page 13).

5

Transmission system capacity will become available as coal-fired generation at Colstrip retires (see Table 2, page 13).

6

Assuming transmission service requests to pay for the investments, incremental available transmission capacity can be added with three projects (Table 2):

- a. BPA Remedial Action Scheme (RAS) installations - ~ \$2 million per site
- b. Colstrip Transmission Upgrade - ~\$252 million
- c. Montana-to-Washington Project - ~\$140 million

7

The Montana Intertie Agreement (MIA), originally conceived and written to move Colstrip generation to loads, has provisions that may need to be modified to facilitate future use of capacity on the BPA Eastern Intertie and the Colstrip Transmission System (CTS). BPA and the CTS parties agree that CTS parties can use their existing capacity rights under the MIA to move power they acquire other than Colstrip power, but some modification to the MIA is required to provide for third-party wheeling.

8

The existing transfer capability of the Colstrip Transmission System can, with relatively minor investments (compared to new line builds), support a one-for-one replacement of Colstrip generation with new resources, including variable energy resources.

9

As long as the Colstrip 500-kV transmission system remains intact and with proper enhancements, steady state and dynamic studies indicate new transmission lines are not required to reliably maintain high transfer capability.

10

The 500-kV system is also essential for reliable load service both within Montana and for supporting exports to the Pacific Northwest.

11

New generation must participate in Remedial Action Schemes, or RAS, the ability to quickly drop generation to protect the stability of the transmission system, and coordinate with the Colstrip Transmission System Acceleration Trend Relay (ATR) as long as the ATR or its replacement are required for the operation of the transmission system.

12

Under steady state conditions, review of the publicly available studies performed to date did not identify thermal limit violations for any of the Colstrip retirement scenarios considered. None of the studies identified new transmission lines as being required (as long as the 500-kV system is intact) in order to support the integration of new resources, including variable energy resources.

13

Review of the available studies that conducted dynamic stability analysis also found that the system performed reliably under stress, with no voltage excursions. Specific location and resource design will be reviewed for any necessary frequency response when replacement generation is identified.

14

Adequate voltage support in local areas may be a concern following Colstrip generation retirement. However, the location of replacement generation may help address it. Voltage control can be provided by a number of means, including generators, switched capacitors and reactors, static VAR compensators, pumped storage, or synchronous condensers.

15

Blackstart, sub-synchronous resonance mitigation, RAS, and Western Electricity Coordinating Council path rating requirements can be addressed at the time of Colstrip unit retirements when the location and type of replacement generation is known.

16

Variable energy resources will need to participate in RAS, provide local voltage support and potentially frequency response. Retaining Colstrip units to serve as synchronous condensers (to provide voltage support and inertia) may be an option. The choice to exercise it would depend on detailed engineering studies when replacement generation location and characteristics are identified and all owners agree that it represents the best value alternative for provision of voltage support and inertia needs. Other potential options for inertia, voltage support, and frequency response are also available (i.e., pumped storage).

Table 1
Available transmission capacity
for Montana exports (2019)²

	East of Garrison	West of Garrison	West of Hatwai	Cross Cascades
NWE to AVA to Mid-C	297	360	360	0
NWE to BPA	246	0	0	0
Montana Intertie	184	0	0	0
Total	727	360	360	0

Table 2
Potential incremental additions to transmission
capacity for Montana exports post 2022

	East of Garrison	West of Garrison	West of Hatwai	Cross Cascades
BPA RAS Upgrade	0	200	200	0
PSE Colstrip 1&2 ³	300	300	300	300
Montana-to-Washington Project	0	600	550	0
Colstrip Transmission Upgrade	800	0	0	0
Total Incremental	1,100	1,100	1,050	300
Total with Existing ATC	1,827	1,460	1,410	300

² The ATC in this table is for informational purposes only and compiled from publicly available sources.

³ PSE's available transmission on the Colstrip Transmission System is managed by PSE's transmission function and posted on OASIS. Transmission rights on the BPA network west of Garrison are contracted and managed by PSE's merchant function and can be reassigned or redirected. The 300 MW from Colstrip to PSE's balancing authority area in 2022 is not reflective of the ATC currently posted on OASIS.

17

A significant amount of dynamic transfer capability (DTC) is available to support development of over 1,000 MW of Montana wind for export to the Pacific Northwest. DTC is necessary for compliance with Washington State's current renewable portfolio standard and enables options for integrating Montana wind in Pacific Northwest balancing authorities.

18

NorthWestern Energy does not have a DTC limit on its system.

19

DTC of +/- 170 MW (340 MW dynamic range) is available at the Garrison interchange point.

20

The capacity of wind generation that can be integrated is much greater than the DTC across the Montana Intertie. This amount is dependent on a number of factors, including the diversity of the wind generation and the location of the balancing resources.

21

DTC is only consumed when resources are moving around within the hour. More than 1,000 MW of Montana wind can be accommodated within the current limit with no changes.

22

If movement in one direction is not deemed to consume DTC on the Montana Intertie, integration of more than 1,400 MW of wind can be accommodated within the current limit.

23

DTC can be increased (approximately doubled) by automating voltage control actions on transmission reactive devices. This option would be low cost.

24

There are no DTC limitations between BPA and other Northwest parties. The DTC on the Montana Intertie is the limiting factor. If DTC on the Montana Intertie is significantly increased in the future, interchange points further west may then be limiting.

25

Because of diversity benefits, if a wind plant located in Montana is integrated with wind resources in or near the Columbia River Gorge, the incremental increase in the balancing reserve requirement is only 25 percent that of a same size plant in the Gorge.

26

There are potential flexible capacity resources on the eastern side of the Montana Intertie (e.g., pumped storage). Because these resources would be on the same side of the intertie as the potential wind, their use for balancing would lessen the DTC impact.

27

Many of the transmission and integration challenges faced by Montana developers could be mitigated by the development of a Pacific Northwest regional transmission organization. However, formation of a regional transmission organization is a complex endeavor with potentially significant cost and governance issues.

28

State elected officials and regulators have authority to establish policies regarding the selection of resources used to serve electric consumers in their jurisdictions. While recognizing state prerogatives in setting policies, state renewable portfolio standards should consider the impacts of additional eligibility requirements on out-of-state renewable resources, and the propriety of imposing such requirements.

Recommendations and action items

A summary of the recommended actions follows. Completed actions are colored green. Additional detail regarding these recommendations is provided in the appendix.

Recommendations & Action Items	Parties & Status
<p>1) BPA and the Colstrip Transmission System (CTS) owners should review the Montana Intertie Agreement (MIA) and the CTS Agreement and make modifications, as necessary, to facilitate future utilization of the Montana Intertie and CTS based on non-discriminatory, open access principles, and with the timing of production tax credits in mind. Possible modifications include:</p> <p>a) Addressing third-party and non-Colstrip use.</p> <p>b) Reviewing the appropriateness of the CTS and MIA five percent loss rate for third-party use.</p>	<ul style="list-style-type: none">• Avista• BPA• NorthWestern Energy• PacifiCorp• Portland General• Puget Sound Energy <p>Parties are currently meeting to address repurposing the transmission following Colstrip unit retirement and will include the loss rate as well.</p>
<p>2) Montana renewables project developers should present credible and executable transmission plans to potential purchasers. Purchasers considering Montana renewables should allow a reasonable period after a resource is identified for acquisition to work with the developer to execute the transmission plan.</p>	<p>Developers:</p> <ul style="list-style-type: none">• Absaroka• NaturEner• Orion• Pattern <p>Potential purchasers:</p> <ul style="list-style-type: none">• Avista• PacifiCorp• Portland General• Puget Sound Energy

Recommendations & Action Items	Parties & Status
3) As opportunities arise to meet flexible capacity needs for Montana renewables, BPA should consider requests for providing products and services for integrating resources located outside the BPA balancing authority.	<ul style="list-style-type: none"> • BPA
4) Pacific Northwest utilities that may have an interest in acquiring Montana renewables should include scenarios with Montana renewables when studying their flexible capacity needs.	<ul style="list-style-type: none"> • Avista • PacifiCorp • Portland General • Puget Sound Energy
5) BPA and NorthWestern Energy should seek a negotiated solution to the 184 MW transmission capacity dispute as soon as possible.	<ul style="list-style-type: none"> • BPA • NorthWestern <p>Completed June 18, 2018</p>
6) BPA should hold a pre-rate case workshop discussion on alternatives for the Montana Intertie rate.	<ul style="list-style-type: none"> • BPA and stakeholders <p>Stakeholders to bring proposals to pre-rate case workshops, which are scheduled bi-weekly through the summer of 2018.</p>
7) Avista, BPA, NorthWestern Energy, and transmission customers should work together to evaluate possible comparable changes to transmission tariffs and business practices that may be impediments to exporting Montana renewables.	<ul style="list-style-type: none"> • Absaroka • Avista • BPA • NorthWestern (Lead) • Orion • Renewable NW • Other interested parties
8) For service on the existing BPA network, BPA should evaluate the feasibility and business case for offering conditional firm service for Montana exports, especially as a bridge product to long-term firm on its external interconnections.	<ul style="list-style-type: none"> • BPA <p>In progress; to be completed by December 1, 2018</p>
9) BPA should consider modifying its tariff terms and conditions to allow for developer-funded National Environmental Policy Act (NEPA) costs to be re-funded if long-term firm service is ultimately purchased at rolled-in embedded cost rates. This would be consistent with how environmental and permitting costs are treated by other transmission providers under the Federal Energy Regulatory Commission's "greater of" pricing policy.	<ul style="list-style-type: none"> • BPA <p>In progress; to be completed by December 1, 2018</p>
10) BPA should complete its determination that resource movement in only one direction within an operating hour does not consume DTC.	<ul style="list-style-type: none"> • BPA <p>Completed March 6, 2018</p>

Recommendations & Action Items	Parties & Status
11) BPA should implement a new business practice and required systems to operationalize its DTC decision.	<ul style="list-style-type: none"> • BPA <p>To be completed by June 1, 2021</p>
12) BPA should modify its existing business practice to specify the current Garrison interchange DTC limit as is currently done for the southern intertie and the northern intertie.	<ul style="list-style-type: none"> • BPA <p>To be completed by September 1, 2018</p>
<p>13) BPA should undertake actions to increase available transfer capacity on the BPA network in order to allow imports from Montana to reach I-5 load centers.</p> <p>a) Consider administrative changes resulting in additional ATC availability</p> <p>b) Consider flexible, scalable options to meet service requests across network flowgates:</p> <ul style="list-style-type: none"> i. Non-wires ii. Planning re-dispatch iii. Battery storage iv. Demand-side management 	<ul style="list-style-type: none"> • BPA <p>Commercial assessment: To be completed in third quarter, 2018</p> <p>Corresponding cluster studies: To be completed in first quarter, 2019</p>
<p>14) Studies must be done in a formal interconnection process when specific generators are identified to include:</p> <p>a) Local voltage control</p> <p>b) Sub-synchronous resonance</p> <p>c) RAS design</p>	<ul style="list-style-type: none"> • NorthWestern Energy
15) A scope of work should be developed to guide the studies needed should a future retirement or an unexpected, sustained outage of Colstrip units 3 and 4 occur.	<p>Planning Subcommittee Completed April 27, 2018</p>
16) NorthWestern, with support from the other Colstrip Owners and BPA, should undertake timely blackstart, sub-synchronous resonance mitigation, RAS, and WECC (Western Electricity Coordinating Council) Path Rating requirements when specific replacement generation for Colstrip unit retirement is identified and the technical attributes are known.	<ul style="list-style-type: none"> • BPA • Colstrip Owners • NorthWestern Energy (lead)

Recommendations & Action Items	Parties & Status
17) Studies should be completed using actual Montana wind data to confirm the diversity characteristics and balancing reserve requirements of new Montana wind resources.	<ul style="list-style-type: none"> • BPA In progress; to be complete September 30, 2018.
18) NorthWestern's studies should be finalized that identify: <ul style="list-style-type: none"> a) Regulation and load following needs for existing wind resources; and, b) Regulation and load following needs for additional wind and solar resources. 	<ul style="list-style-type: none"> • NorthWestern Energy In progress; to be complete by July 31, 2018.
19) The viability of utilizing Colstrip units in condensing mode as well as the Gordon Butte pumped storage facility to provide voltage support, inertia, and frequency response should be studied as appropriate.	<ul style="list-style-type: none"> • Absaroka Energy (pumped storage) • NorthWestern Energy (lead)

Next steps

The subcommittees and steering committee concluded their formal work with the issuance of this report. To ensure that action items continue to move forward, BPA will track and responsible parties will report out on the items every three months via email. BPA and the State of Montana will sponsor a webinar for the steering committee and interested parties every six months as long as it is useful.

Exhibits to Direct Testimony of Thomas J. Schneider
on behalf of Montana Environmental Information Center

Exhibit TJS-12

Docket No. 2019.12.101

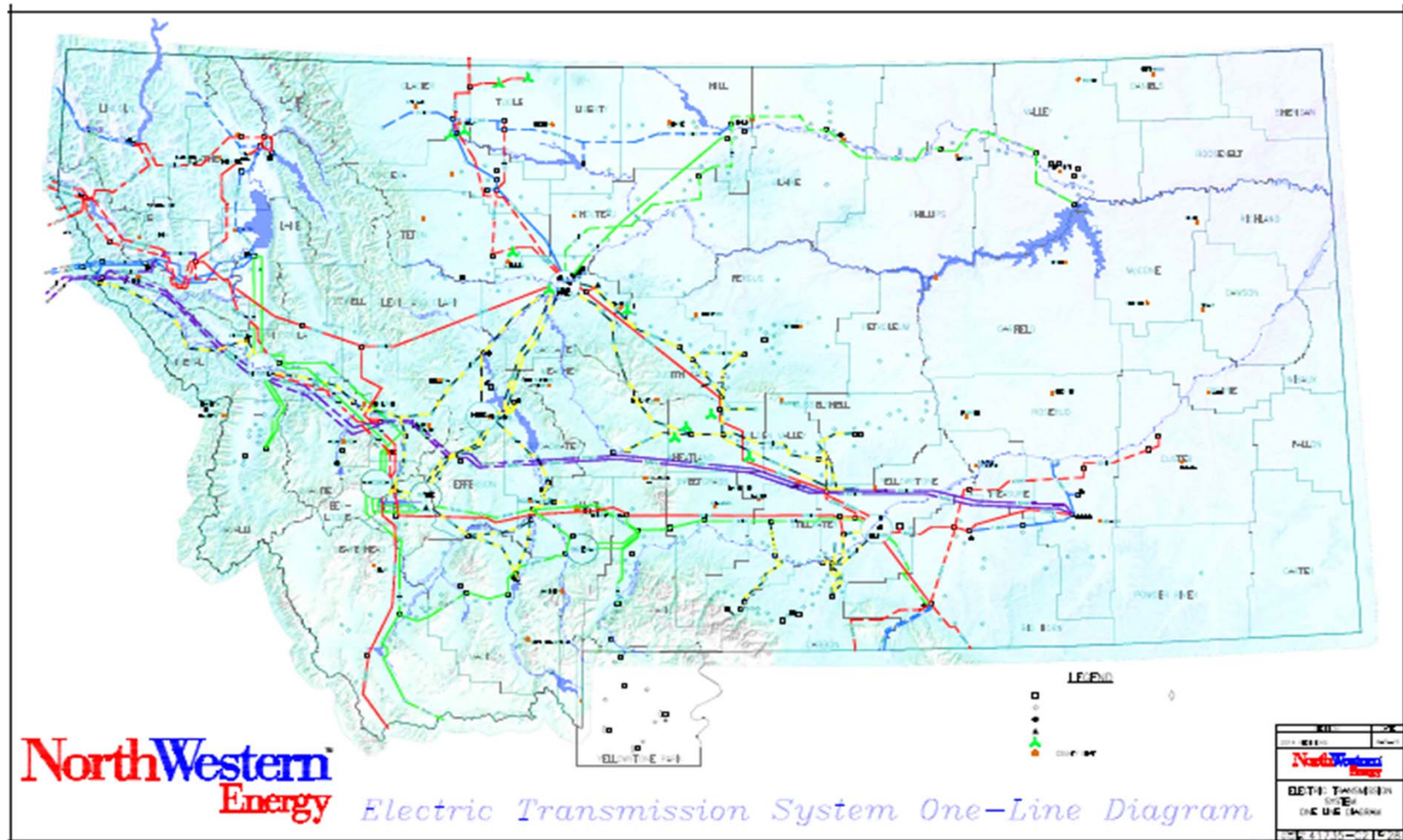


NorthWestern Transmission System - Presentation to ETAC 9-6-18
Mike Cashell – Vice President, Transmission

NorthWestern
Energy
Delivering a Bright Future



NorthWestern's Transmission System





Concepts and Definitions

- Open Access
 - FERC Order 890
 - Provides non-discriminatory access to all eligible customers
- Total Transmission Capacity (TTC)
 - Total designed and approved capacity
- Available Transmission Capacity (ATC)
 - Available capacity after considering commitments
- Reliability – adequacy and security of the transmission system to operate properly under stressed conditions



The Basics about Transmission

- What does the Transmission System Do?
 - Provides interconnections to other systems for export and import
 - Provides transmission paths from Designated Resources to Loads
 - Loads include NorthWestern's retail customers
 - Loads include NorthWestern's customers under the Open Access Transmission Tariff
 - Resources may be internal or external to NorthWestern's system
 - Provides access (to a point) to the regional energy market

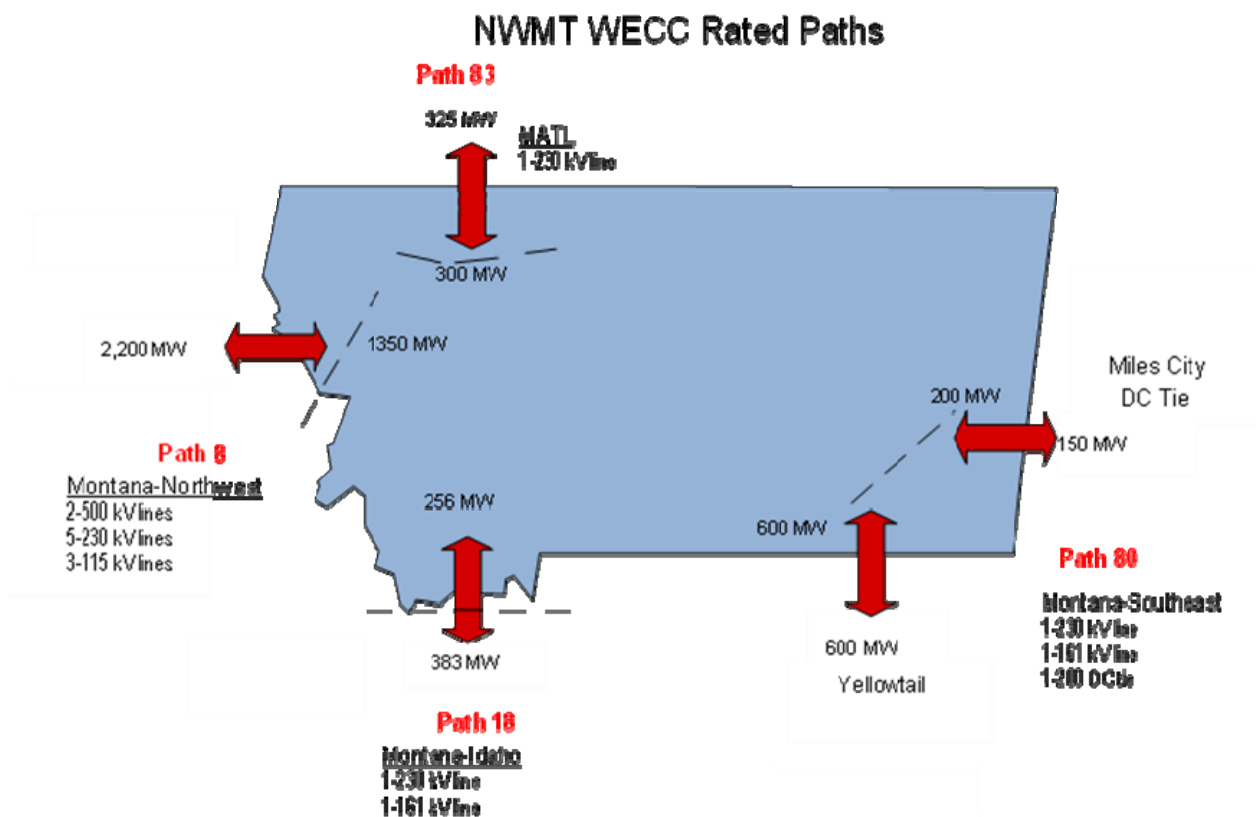


Why a Discussion about Transmission?

- Why is a transmission discussion important?
 - Transmission capacity is not unlimited
 - Transmission to prevailing markets can become “congested”
 - Transmission development, permitting and construction can be very difficult and very time consuming
 - NorthWestern’s Transmission system has experienced congestion recently
 - New, large loads on system



Interconnected System Paths - TTC





Interconnected System Paths – ATC

A Much Different Picture

October 1, 2018 Estimated Long Term Firm ATC (MW) by Path						
			Export TTC	Export ATC		Import TTC
						Import ATC
Path 8						
NW-MT to BPAT.NWMT			492	171		863
NW-MT to AVAT.NWMT			382	297		382
Path 18						
ANTE to BRDY			296	6		184
NWMT.SYSTEM to JEFF			87	0		72
Path 80						
NWMT.SYSTEM to MTSE			600	600		600
Path 83						
GTFALLSNWMT to MATL.NWMT			325	46		300



Energy Supply Portfolio

- Retail load of about 765 aMW
 - (Choice load approximately 425 aMW)
- Peak retail load of about 1,200 MW
- Owned resources and on-system resources under long-term contract produced 665 aMW in 2017
- Peak capacity of our resources is about 800 MW
 - Deficit of 400+ MW

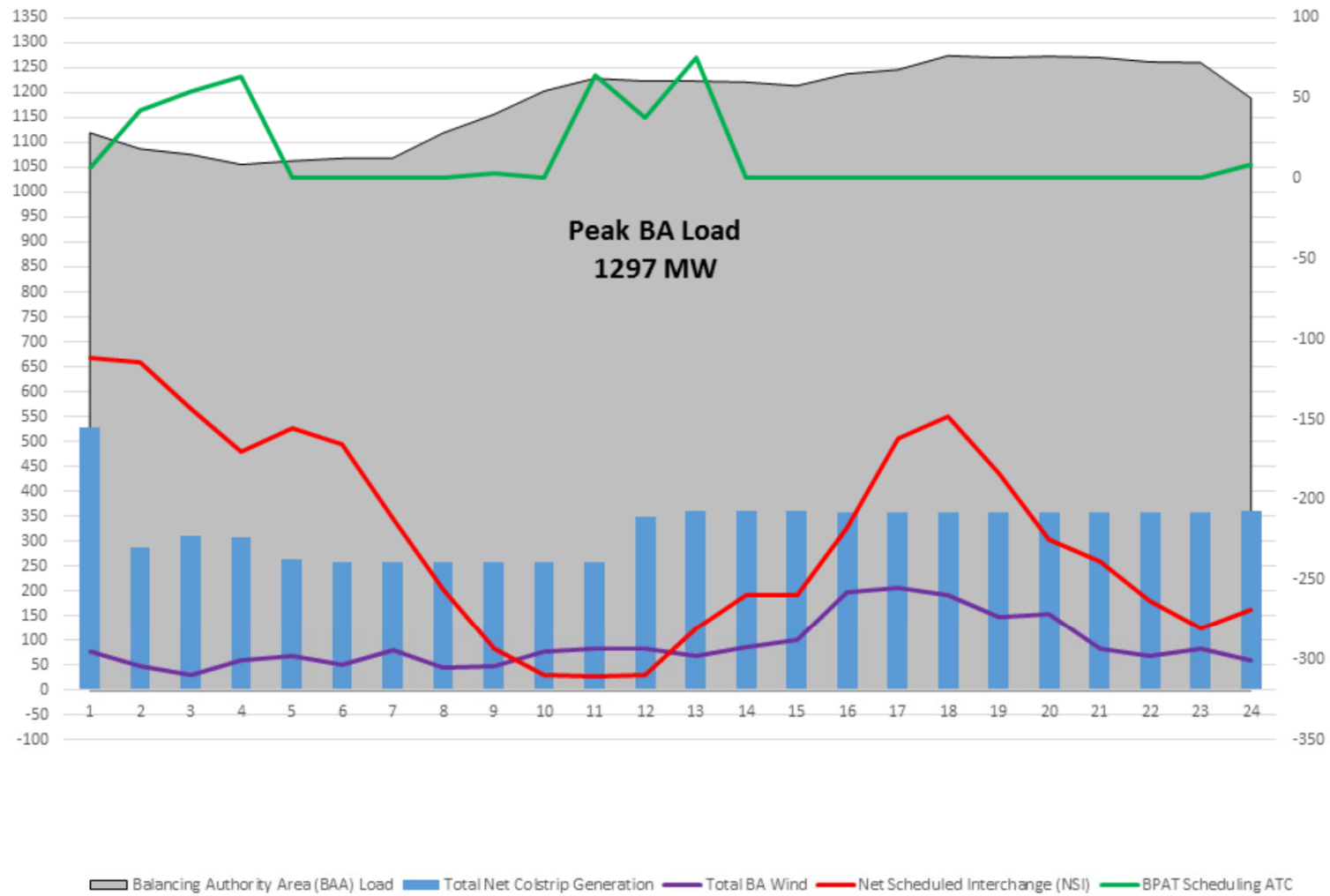


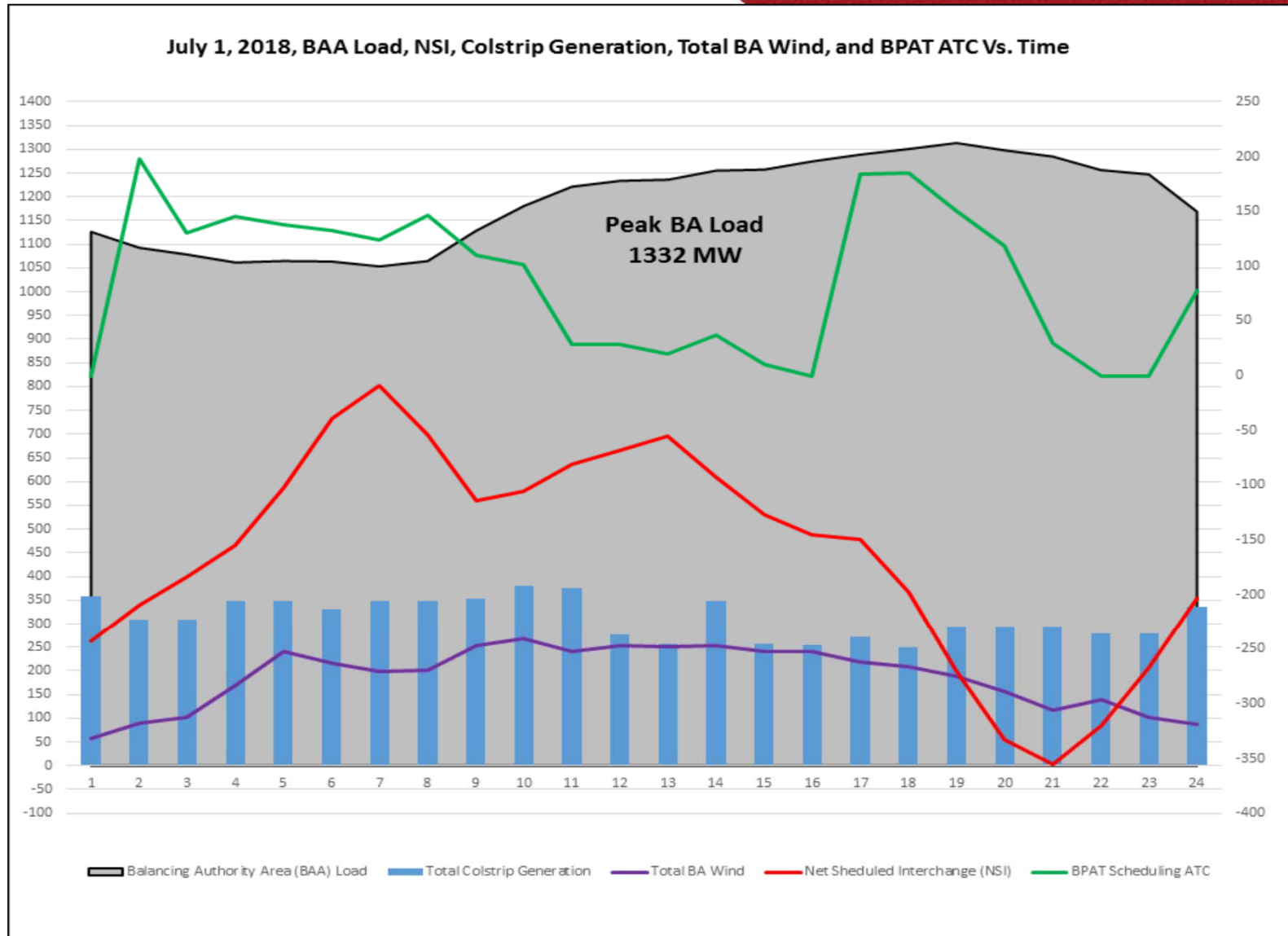
Terms on Following Slides

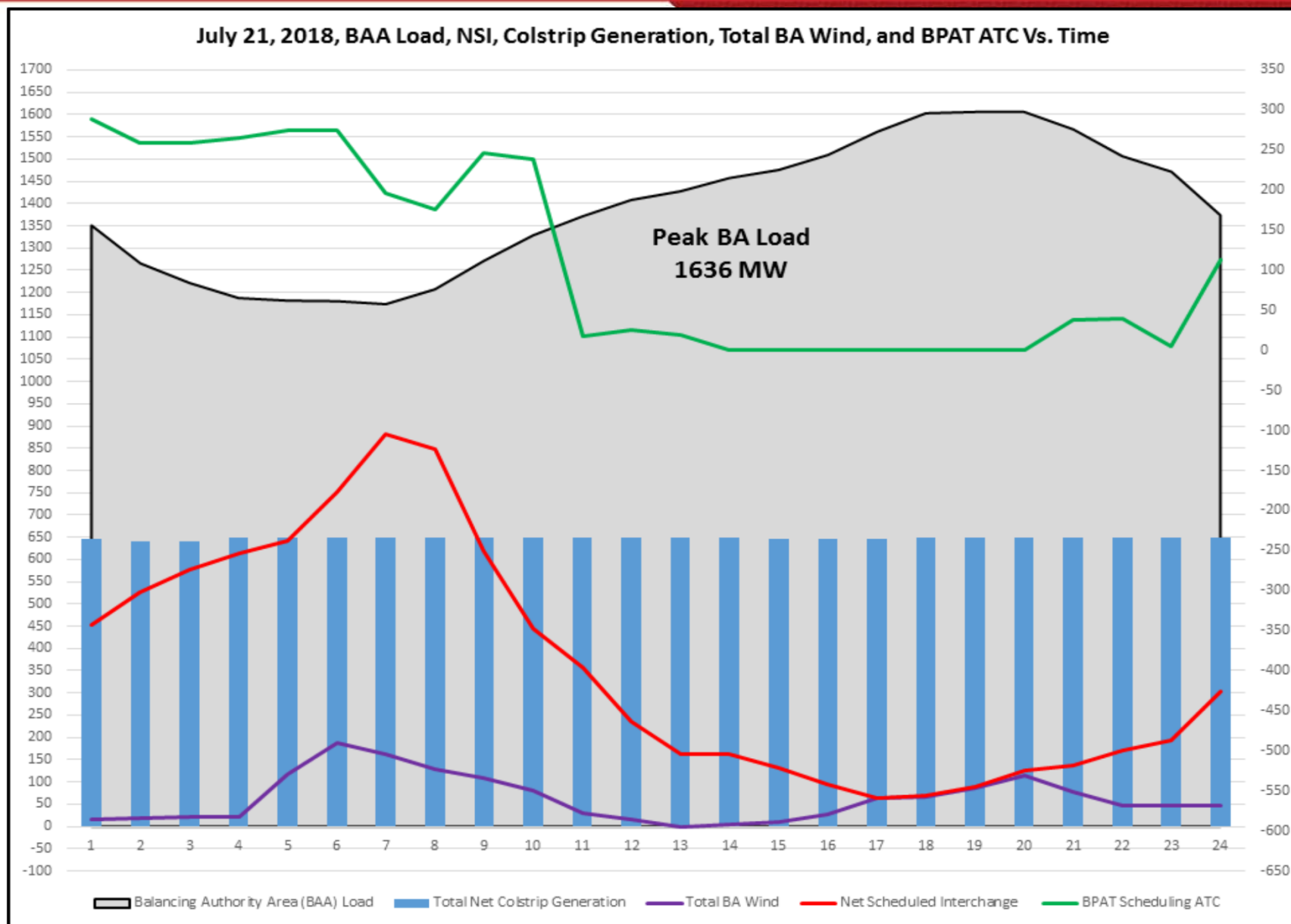
- BAA – Balancing Authority Area
- NSI – Net Scheduled Interchange
 - Negative number indicates import to BAA
- Total Transmission Capacity (TTC)
 - Total designed and approved capacity
- Available Transmission Capacity (ATC)
 - Available capacity after considering commitments.
- BPA – Bonneville Power Administration

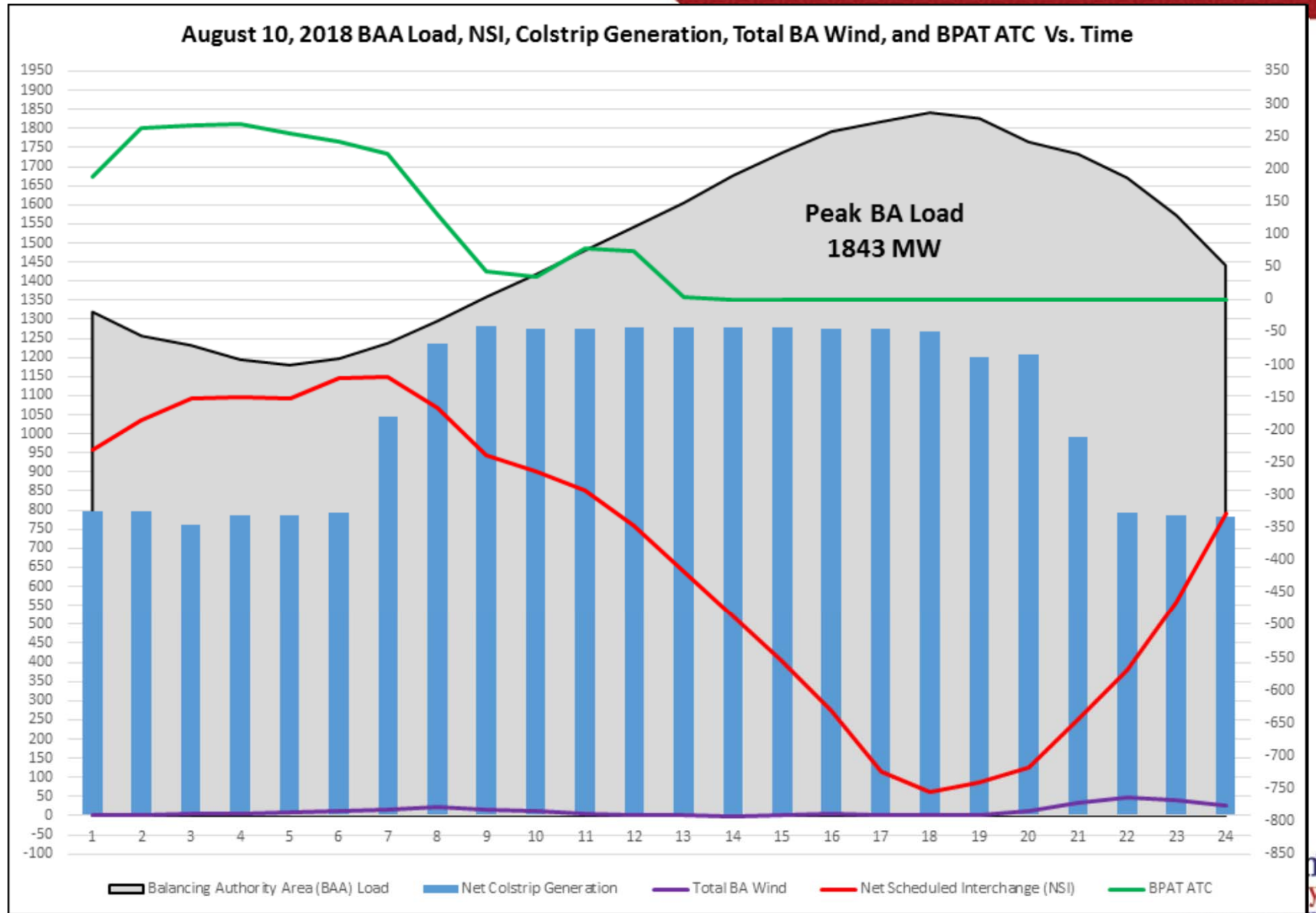


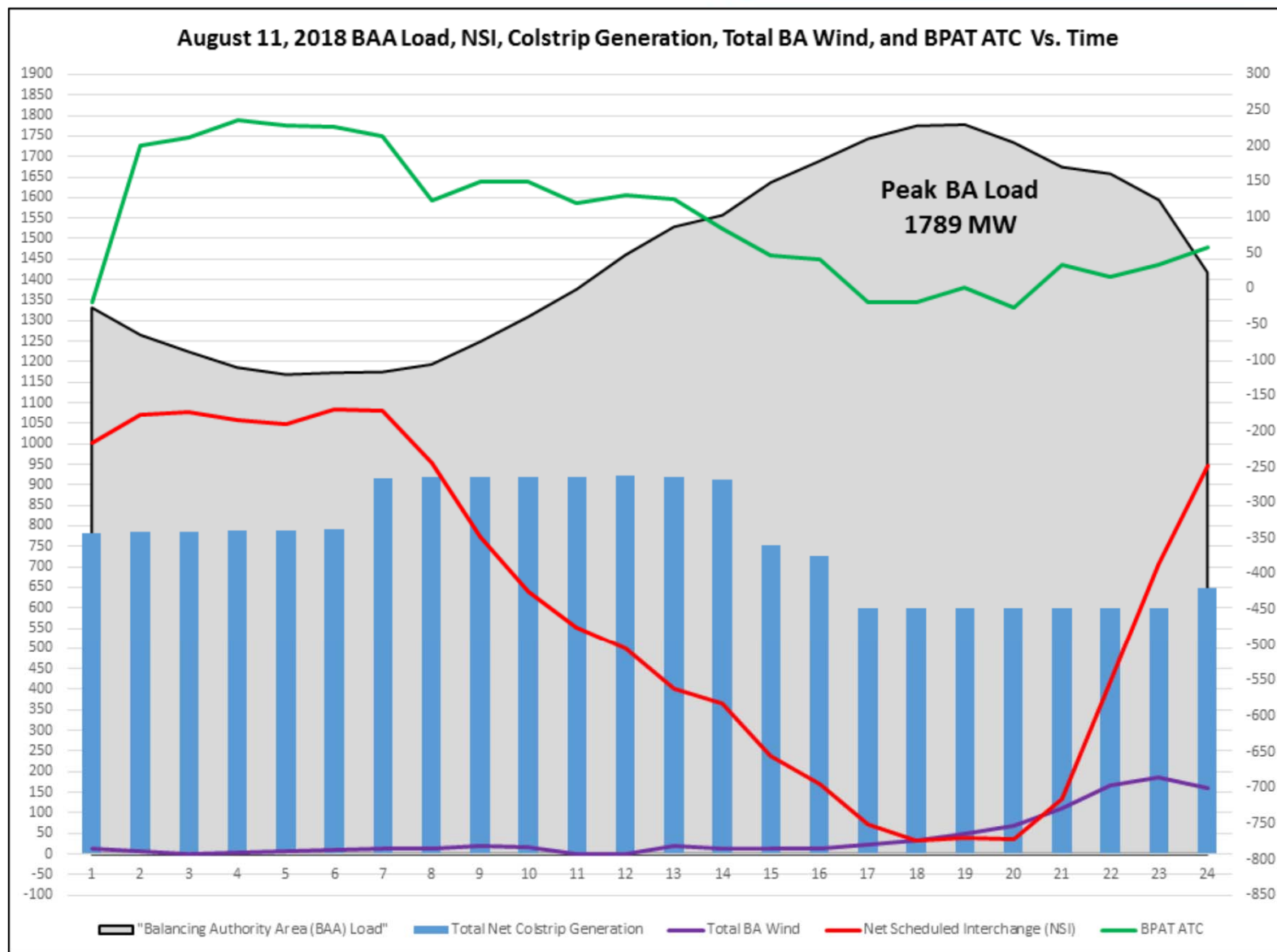
June 30, 2018, BAA Load, NSI, Colstrip Generation, Total BA Wind, and BPAT ATC Vs. Time













Takeaways and Concerns

- Import Capability from the most liquid market has been significantly stressed as shown in slides
- Causes included
 - Increasing peak loads (new peak BA load)
 - Reduced Montana dispatchable generation
- Concern about long-term generation reductions/retirements
- Significant reliance on market
- Long term generation resource planning
- Long term transmission planning

Exhibits to Direct Testimony of Thomas J. Schneider
on behalf of Montana Environmental Information Center

Exhibit TJS-13

Docket No. 2019.12.101



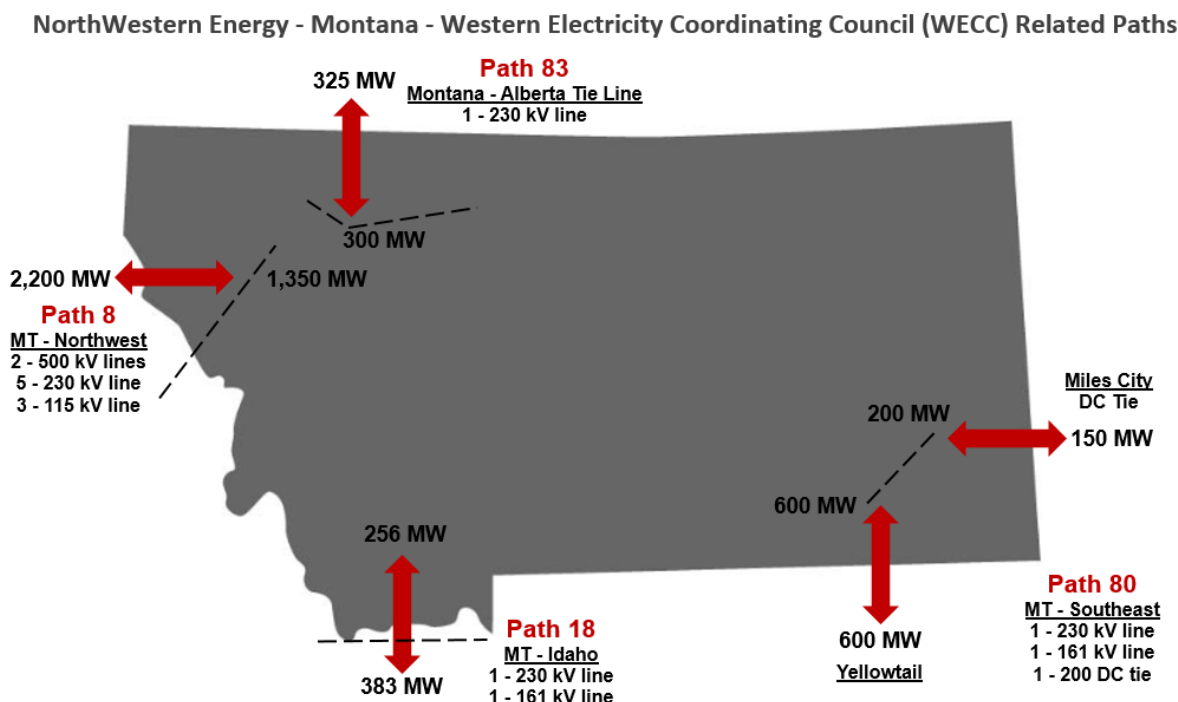
2019 Electricity Supply Resource Procurement Plan

Docket No. N2018.11.78

August 2019

- The other paths are not directly connected with the Mid-C Market and there are intermediate transmission systems with potentially significant transmission congestion issues associated with those paths.
- TTC is not ATC (the importance of this is explained below).

Figure 6-1. NorthWestern Interconnections to WECC



Transmission System Challenges

As noted above, ATC is transmission capacity available after accounting for all long term firm commitments. Once long term firm commitments are considered, parties may use remaining ATC on a short term basis.

Table 6-1 shows the estimated future long term export and import ATC considering firm transmission service requests as of June 25, 2019 for each path. As is indicated in the table, import ATC is quite limited compared to import TTC, including at the most utilized Path 8 interface with BPAT which is currently only 52 MW. This is of great concern because NorthWestern must currently purchase about 455 MW of peaking capacity from the market to serve retail customers (not considering network customer's shortfalls), and closure of Colstrip Units 1 and 2 eliminates approximately 310 MW of in-state capacity that could be used to serve load in Montana.

NorthWestern's experience from actual operations is that the Path 8 interface at BPAT and the Path 18 interface at Brady are the most commonly used and desired paths for importing power. Table 6-1 includes "long term" pending and confirmed commitments used to determine long term ATC, and does not consider any short term use. This is important because NorthWestern, and the choice customers on our system, commonly use short term service to serve loads. This is further discussed in the three actual events described later in this Chapter.

Table 6-1. Estimated Long Term Firm Path Availability

Estimated Future Long Term Firm ATC (MW) by Path (data as of June 25, 2019)					
Path	Export TTC	Export ATC	Import TTC	Firm Commitments (Importing)	Import ATC
Path 8					
NWE - MT to Bonneville Power Administration Transmission (BPAT)	492	252	863	811	52
NWE - MT to Avista Corp Transmission	382	297	382	170	212
Path 18					
NWE - MT (Anaconda) to Brady (ID)	296	0	184	184	0
NWE - MT System to Jefferson (ID)	87	73	72	0	72
Path 80					
NWE - MT System to SE MT (PAC & WAUW)	600	600	600	52	548
Path 83					
NWE - MT NW (Great Falls) to NW MT (MT- Alberta Tie Line)	300	300	300	74	226
TTC = Total Transmission Capacity (designed and approved)					
ATC = Available Transmission Capacity (accessible after confirmed and pending obligations)					

CERTIFICATE OF SERVICE

I hereby certify that on the 25th day of September, 2020, I served the foregoing by electronic mail on the following:

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