

Public Service Commission of Wisconsin
Surrebuttal Testimony of Daniel Grant
Division of Energy Regulation

American Transmission Company LLC, ITC Midwest LLC, and Dairyland Power Cooperative
Docket 5-CE-146

June 11, 2019

1 **Q. Please state your name.**

2 A. My name is Dan Grant.

3 **Q. Did you previously file direct and supplemental direct testimony in this docket?**

4 A. Yes, I did.

5 **Q. What is the purpose of your surrebuttal testimony?**

6 A. The purpose of my surrebuttal testimony is to respond to statements made in the rebuttal
7 testimonies of American Transmission Company LLC (ATC) witness Tom Dagenais, and
8 Midcontinent Independent System Operator, Inc. (MISO) witness Matthew Ellis.

9 **Q. Have you prepared any additional exhibits accompanying your surrebuttal**
10 **testimony?**

11 A. Yes, the following exhibits accompany my surrebuttal testimony:

- 12 1. Ex.-PSC-Grant-6 – an excerpt of testimony by Dan Litchfield in docket
13 9697-CE-100 about expected generating limitations on the Badger Hollow
14 facility;
- 15 2. Ex.-PSC-Grant-7 – a construction schedule for the Badger Hollow facility;
16 and,
- 17 3. Ex.-PSC-Grant-8 – a summary of the capacity factors of some of the wind
18 electric generating facilities identified as “explicitly conditioned” on the
19 construction of the Cardinal-Hickory Creek transmission line.

1 **Q. Are there any general statements you would like to make before responding to the**
2 **rebuttal testimony submitted by the applicants' and other parties' witnesses?**

3 A. Yes. Upon review of the points brought up by Messrs. Dagenais and Ellis in their
4 rebuttal testimony, in my professional opinion, I do not find that the concerns raised
5 require me to change the scope or substance of my direct testimony or supplemental
6 direct testimony. My surrebuttal testimony will address certain issues brought forth in
7 the applicants' and other parties' rebuttal testimony that I believe are necessary to clarify
8 my direct testimony.

9 **Use of Customer Benefit Metric (CBM) Methodology vs. Adjusted Production Cost (APC)**
10 **Methodology**

11 **Q. At Rebuttal-Applicants-Dagenais-16, Mr. Dagenais asserts that Commission staff**
12 **witnesses appear to question the validity of the CBM approach to calculating**
13 **potential project benefits. How do you respond?**

14 A. I noted clearly in my direct testimony at Direct-PSC-Grant-39 that I did not offer an
15 opinion about whether the CBM or APC methodology may be more appropriate to use.
16 ATC has used both methodologies in the preparation of the imputed economic benefits of
17 the project, so both methodologies were analyzed as part of a broader investigation by
18 Commission staff.

19 **Q. At Rebuttal-Applicants-Dagenais-25-26, Mr. Dagenais states that “For instance,**
20 **Commission staff analyzed the project’s energy cost savings benefits using only the**
21 **APC metric” and then makes a footnote reference to Ex.-PSC-Grant-4. Is that an**
22 **accurate statement?**

1 A. No. Ex.-PSC-Grant-4 has clearly labeled columns that address both the CBM and APC
2 methodologies. Both methodologies were used in my analysis.

3 **Inclusion of Generation West of the Mississippi River by Commission Staff**

4 **Q. Both Mr. Dagenais at Rebuttal-Applicants-Dagenais-30-31 and Mr. Ellis at**
5 **Rebuttal-MISO-Ellis-r-17-19 criticize Commission staff for not incorporating**
6 **generation that is in the MISO interconnection queue that is west of the Mississippi**
7 **River in the “Wisconsin renewable generation” scenario. Specifically, Mr. Dagenais**
8 **states “Commission staff gave preferential treatment to 550 MW of**
9 **Wisconsin-based generation, while ignoring all this other potential development**
10 **occurring to the west of the state.”¹ How do you respond?**

11 A. These claims are not warranted. In a data request response to the original Commission
12 completeness determination, the applicants agreed to add approximately 561 megawatts
13 (MW) of electric generating capacity west of the Mississippi River at the behest of
14 Commission staff that was not included in the original modeling performed by the
15 applicants.² These units consisted of the Crystal Lake Wind Farm II (interconnection
16 queue number G735) with 200 MW, the Odell Wind Farm (G826) with 200 MW, the
17 Black Oak Wind Farm (G858/H071) at 95 MW, and the Saratoga Wind Farm (J614) at
18 66 MW.³ In another data request response, the applicants declined to update the PROMOD
19 model to reflect other units that were implicitly conditioned on Cardinal-Hickory Creek,
20 which would have resulted in an additional 1.7 gigawatts (GW), including about 1.5 GW of

¹ Rebuttal-Applicants-Dagenais-30

² Ex.-PSC-Data Request: Responses 1.205 and 1.215

³ Note that the Black Oak Wind Farm is actually 78 MW nominal capacity, though the applicants modeled it at 95 MW.

1 wind energy, all west of the Mississippi.⁴ At the time, the applicants cited the lack of
2 signed generator interconnection agreements by a certain cutoff date and “strategic
3 flexibility” in the model, thereby declining Commission staff’s request to increase
4 generation west of the Mississippi in the model. I have discussed in detail the various
5 amounts of Regional Resource Forecast (RRF) units that MISO modelers have already
6 embedded in the Advanced Alternative Technologies (AAT) and Policy Regulation (PR)
7 futures in my direct testimony at Direct-PSC-Grant-8-9, none of which are associated with
8 generator interconnection queue projects. These RRF generators were all present in the
9 ATC models submitted and not modified by Commission staff, excepting the sensitivities I
10 performed for my supplemental direct testimony.

11 **Q. Would it have been appropriate for Commission staff to add additional generation**
12 **to the west of the Mississippi River, in addition to what has already been discussed**
13 **as suggested Commission staff edits or existing RRF units in the model?**

14 A. In my opinion, no. The applicants, with information from MISO, would be in a better
15 position to model the generator characteristics of any individual generators west of the
16 Mississippi River they wished to add, and could best assess deployment of such
17 resources.

18 **Criticism of Commission Staff Modeling of Badger Hollow and Red Barn Wind Farm**

19 **Q. Mr. Dagenais at Rebuttal-Applicants-Dagenais-28-29 and Mr. Ellis at**
20 **Rebuttal-MISO-Ellis-r-19-20 both assert that the Badger Hollow solar electric**
21 **generating facility and Red Barn wind electric generating facility should have been**

⁴ Ex.-PSC-Data Request: Response 1.206

1 **modeled differently, citing ongoing Definitive Planning Phase (DPP) studies being**
2 **performed by ATC and MISO. Describe their concerns.**

3 A. In the original application materials, specifically the Planning Analysis Document (PAD)
4 supplied by ATC, Badger Hollow and Red Barn were listed as being local to the area of
5 the project and were not identified as being implicitly or explicitly conditional on
6 Cardinal-Hickory Creek. In his rebuttal testimony, Mr. Dagenais notes this situation has
7 changed, citing a [REDACTED]
8 [REDACTED].⁵
9 Messrs. Dagenais and Ellis both describe the [REDACTED]
10 [REDACTED]. Mr. Dagenais
11 also points to other network upgrades not being modeled that, according to him, may
12 understate the base case cost to Wisconsin customers.

13 **Q. Do these criticisms invalidate the Commission staff analysis of these projects**
14 **modeled in PROMOD?**

15 A. Not necessarily. Messrs. Dagenais and Ellis are both careful to state that the changes
16 they present [REDACTED]
17 [REDACTED]. If [REDACTED] neither witness offers [REDACTED]
18 [REDACTED]. As I will discuss later in my
19 testimony, existing generating units explicitly conditioned on Cardinal-Hickory Creek do
20 not appear to be substantially impaired without the project in service. It was Commission
21 staff's understanding from the Badger Hollow project developer, as documented in the
22 testimony excerpt in Ex.-PSC-Grant-6, that the Badger Hollow project was expected to

⁵ Rebuttal-Applicants-Dagenais-28

1 be able to interconnect and mostly or fully generate without the presence of
2 Cardinal-Hickory Creek. Moreover, as demonstrated in Ex.-PSC-Grant-7, the project
3 scheduling for the completion of the Badger Hollow generating facility and associated
4 generator tie line is scheduled for commercial operation of the first 150 MW phase in
5 December 2020, years ahead of any commercial operation of Cardinal-Hickory Creek.
6 Regardless, Commission staff’s modeling was performed before the [REDACTED] study
7 was available, instead using a modeling basis that had been vetted and subsequently
8 approved by Commission action in the 5-BS-228 docket, representing the best knowledge
9 available to Commission staff at the time. Mr. Dagenais’ criticism of Commission staff
10 for not including an upgrade identified in the [REDACTED] study to the Eden-Spring
11 Green 138 kilovolt line for Badger Hollow to receive Energy Resource Interconnection
12 Status ignores the fact that Commission staff does not have access to the confidential
13 version of the studies that contain such information.⁶ Any version of the DPP phase
14 studies pertaining to Badger Hollow in dockets 9697-CE-100 and 9697-CE-101 were
15 necessarily restricted to public versions, as the Commission cannot consider need in its
16 determination of applications from wholesale merchant plants under Wis. Stat.
17 § 196.491(3)(d)2.

18 **Q. How well have wind electric generating facilities that are “explicitly conditioned” on**
19 **the construction of the Cardinal-Hickory Creek been operating without it?**

20 A. From publicly available information from the U.S. Energy Information Administration
21 reports 860 and 923, I found the following operational results for 2017 and 2018 for the
22 following “explicitly conditioned” units, as demonstrated in Ex.-PSC-Grant-8:

⁶ Rebuttal-Applicant-Dagenais-29

- 1 • Odell Wind Farm, 200 MW – approximately 46 percent capacity factor in
- 2 2017;
- 3 • Crystal Lake Wind Farm II, 200 MW – approximately 33 percent capacity
- 4 factor in 2017;
- 5 • Black Oak Wind Farm, 78 MW – approximately 45 percent capacity factor
- 6 in 2017, 41 percent in 2018 (may be a preliminary result); and
- 7 • Quilt Block Wind Farm, 98 MW – approximately 41 percent capacity
- 8 factor in 2018 (may be a preliminary result).

9 If these units are restricted in their operation due to a lack of the Cardinal-Hickory Creek
10 transmission line, it is not clear there is a substantial limitation. The actual capacity
11 factors listed above are in accordance with how we would expect such units to reasonably
12 operate.

13 **Criticism of PJM Interconnection Nuclear Unit Retirement Sensitivity**

14 **Q. At Rebuttal-Applicants-Dagenais-33-35, Mr. Dagenais raises concerns about the**
15 **validity of Commission staff’s sensitivity about the possible retirement of nuclear**
16 **generating units in the PJM Interconnect (PJM) area. Discuss the items he raised.**

17 A. Mr. Dagenais first incorrectly asserts that the sensitivity runs assumed “the retirement of
18 the Duane Arnold Energy Center nuclear plant in eastern Iowa and several additional
19 nuclear generation units in New Jersey,” which is factually incorrect.⁷ The selected PJM
20 units for the sensitivity included Davis-Besse Unit 1 and Perry Unit 1 in Ohio; Beaver
21 Valley Units 1 and 2, and Three Mile Island in Pennsylvania; with only Oyster Creek in
22 New Jersey. Mr. Dagenais also incorrectly asserts that the nuclear units closing in PJM
23 are necessarily replaced by local capacity.⁸ All of the listed PJM nuclear facilities have
24 been approved for closure with only transmission system upgrades and sometimes not

⁷ Rebuttal-Applicants-Dagenais-33

⁸ Rebuttal-Applicants-Dagenais-34

1 even that, as in the case of Three Mile Island. Furthermore, the introduction of local
2 capacity to replace the retired generators obviates the entire basis for the sensitivity, since
3 no net change in the model would have been realized by switching one generator out for
4 another. Due to the geographic spread of the units throughout the PJM interconnection,
5 I believe Mr. Dagenais' concerns about "severe congestion" caused by the retirement of
6 these units in the sensitivity are unfounded.⁹

7 **Criticism of Not Including Possible Annual or Quarterly Operating Limits for Generating**
8 **Units Conditional on the Cardinal-Hickory Creek Project**

9 **Q. At Rebuttal-MISO-Ellis-r-20-21, Mr. Ellis criticizes Commission staff base case**
10 **modeling for the lack of inclusion of potential operating limitations that could exist**
11 **on generators conditioned on Cardinal-Hickory Creek currently in the**
12 **interconnection queue if the project is not approved. How do you respond?**

13 A. In his rebuttal testimony, Mr. Ellis admits "official annual/quarterly limits of conditional
14 units have not yet been calculated (as of May 2019)," which indicates no final
15 determination has been made of any values Commission staff or the applicants could
16 have applied to the base case.¹⁰ Lacking this necessary information, even if it would be
17 appropriate for such conditions to be added to the base case runs, any modeling runs
18 performed would necessarily be spurious. Moreover, to my knowledge the applicants did
19 not implement annual or quarterly operational limits on the explicitly conditioned units
20 west of the Mississippi River added back into the model at Commission staff request, nor
21 is it necessarily warranted based on actual generator performance, as I discussed earlier.

⁹ Rebuttal-Applicants-Dagenais-35

¹⁰ Rebuttal-MISO-Ellis-r-21

1 Regardless, if such finalized data had been available, the applicants could have modeled
2 it for their application or rebuttal materials for Commission consideration.

3 **Lack of Modification for RRF Units to Offset Generators Added by Commission Staff**

4 **Q. At Rebuttal-MISO-Ellis-r-19, Mr. Ellis criticizes Commission staff modeling for the**
5 **lack of modification to RRF units in Wisconsin that he believes are needed to be**
6 **removed or updated to offset the generators added to the “Wisconsin renewable**
7 **generation” by Commission staff. How do you respond?**

8 A. Upon reviewing the PR and AAT futures, it was not clear which RRF generators in
9 Wisconsin could have been reasonably removed to offset either the Badger Hollow or
10 Red Barn projects. Any RRF units that utilize natural gas fuel for generation would be
11 inappropriate to remove, due to the major operational differences when compared to
12 renewable RRFs. The two types of solar RRFs in the model are either [REDACTED]
13 [REDACTED] spread over [REDACTED] in each investor-owned utility service
14 territory with no clear method to determine which bus(es) to modify, or individual solar
15 facilities remote from the Eden substation area [REDACTED]
16 [REDACTED]
17 [REDACTED]). Similarly, the only two wind projects to modify would be either
18 the [REDACTED] that I discussed in
19 my supplemental direct testimony, or [REDACTED] which is modeled
20 to be electrically connected near [REDACTED]. This second wind project choice
21 did not seem reasonable as a candidate to remove or modify due to its remoteness from
22 the Eden substation, in my professional judgment. Furthermore, to my knowledge at the
23 time of writing the applicants did not modify RRF units west of the Mississippi River for

1 the additions of the explicitly conditioned generators I discussed earlier in this surrebuttal
2 testimony.

3 **Conclusion**

4 **Q. Does this conclude your pre-filed written surrebuttal testimony?**

5 A. Yes, it does.

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