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BEFORE THE STATE OF WASHINGTON
ENERGY FACILITY SITE EVALUATION COUNCIL

In the Matter of Application No. 2009-01: WHISTLING RIDGE ENERGY LLC; WHISTLING RIDGE ENERGY PROJECT	EXHIBIT NO. 18.00r
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APPLICANT’S PREFILED REBUTTAL TESTIMONY
WITNESS #19: CAMERON YOURKOWSKI

Q Please state your name and business address.

A My name is Cameron Yourkowski. My business address is 917 SW Oak, Suite 303, Portland, Oregon 97205.

Q What is your present occupation and profession, and what are your duties and responsibilities?

A I am a Transmission Policy Associate for Renewable Northwest Project (“RNP”). My duties and responsibilities include providing technical analysis and policy

1 recommendations related to renewable energy development, transmission scheduling
2 and policy, and variable energy resource integration.

3

4 Q Please describe RNP, its composition and mission.

5

6 A RNP was founded in 1994, as a broad coalition of public interest and environmental
7 organizations and energy companies created to actively promote development of the
8 Northwest region's renewable energy resources. RNP works for a clean energy
9 future by: (1) working with local organizations and energy companies to get workable
10 renewable projects on the ground; (2) actively promoting policies supporting
11 renewable energy development; (3) encouraging utilities and customer groups to
12 invest in new renewable energy resources; and (4) nurturing the development of a
13 market for renewable energy.

14

15 Q Please identify what has been marked for identification as Exhibit No. 18.01r.

16

17 A Exhibit No. 18.01r is a résumé of my education background and employment
18 experience.

19

20 Q Are you able to answer questions under cross examination regarding your testimony?

21

22 A Yes.

23

24 Q Please describe the purpose of your testimony.

25 /////

26 /////

1 A Although RNP does not, as a practice, advocate for particular wind energy projects or
2 other renewable energy projects, RNP offers this testimony to address the significant
3 omissions and misstatements in the testimony of Professor Robert J. Michaels,
4 Friends/SOSA Exhibit Nos. 30.00-30.18 (the “Michaels’ Testimony”), which appears
5 to have been prepared by a witness who is unfamiliar with our regional electricity
6 market and its related policies. This testimony corrects erroneous conclusions in the
7 Michaels’ Testimony regarding the level and nature of demand for renewable energy
8 in the Pacific Northwest, how renewable energy is integrated into the regional
9 transmission grid, the benefits of renewable energy in displacing fossil fuels and their
10 associated emissions, and the role of the Bonneville Power Administration (“BPA”)
11 in both renewable energy markets and in operating BPA’s transmission grid.

12
13 Q Do you agree with the conclusion of the Michaels’ Testimony at page 5, lines 7-9,
14 that “WRE is unlikely to produce abundant energy at reasonable cost, both in context
15 of northwest power markets and relative to alternative sources of energy or energy
16 services.”

17
18 A No, the testimony mischaracterizes how renewable energy is integrated into the
19 region’s electric transmission grid and marketed in the Northwest and California
20 energy markets. The Michaels’ Testimony mischaracterizes (1) how renewable
21 energy is reliably integrated in the Northwest, (2) how renewable energy is scheduled
22 in the Northwest, and (3) BPA’s role in buying and consuming, and relative demand
23 for, renewable energy in the Pacific Northwest. The Michaels’ Testimony gave no
24 weight to the broad public support in the Pacific Northwest and California for
25 expanding the use of new, renewable energy resources as a way to reduce reliance on

26 /////

1 fossil fuels and offset the emission of greenhouse gases associated with the generation
2 of electricity from coal and natural gas.

3

4 Q Please describe the broad public support for new renewable energy in Washington,
5 Oregon and California.

6

7 A The broad public interest for supporting new, renewable energy resources and
8 reducing greenhouse gases has been codified in Washington, Oregon, and California
9 through laws requiring utilities to gradually increase the percentage of their electricity
10 supply from renewable energy resources. This legislation is referred to generally as
11 “renewable portfolio standards” or “RPSs.” As a result of Washington’s, Oregon’s,
12 and California’s RPSs, and the cost competitiveness of new renewable resources,
13 there has been and will continue to be strong demand from utilities for renewable
14 energy.

15

16 Q How have the citizens of Washington demonstrated their support for renewable
17 energy?

18

19 A In 2006, the citizens of Washington passed a state-wide initiative (I-937) requiring
20 certain utilities in the state of Washington to invest in cost-effective energy efficiency
21 and to procure at least 15 percent of their electricity supply from qualifying
22 renewable energy resources by 2020.

23

24 Q Would the WRE wind energy facility be a qualifying renewable energy resource
25 under the Washington RPS?

26 /////

1 A Yes, the WRE wind energy facility will be a qualifying resource under the
2 Washington RPS, as well as under the Oregon RPS and possibly under the California
3 RPS.

4
5 Q Do you agree with the statement at page 7, lines 2 that “Whether it is exported or kept
6 in the Pacific Northwest, wind power in excess of current amounts is of little value to
7 Washington State”?

8
9 A No, the statement ignores several factors, including the broad public interest in
10 Washington in increasing the amount of new, renewable energy in the region, as
11 demonstrated by voter initiative I-937, the significant contribution to local economic
12 development that a new renewable resource makes to the state, and the diversity new
13 renewable energy facilities add to the electricity system.

14
15 Q Please comment on the statement in the Michaels’ Testimony’s claims at page 6, lines
16 2-3, that “[wind projects] can be costly for the system operator to integrate reliably.”

17
18 A Wind, hydroelectric, coal, gas-fired, and nuclear energy generating facilities each
19 impose their own costs and constraints on the transmission grid. In fact, BPA is
20 currently proposing a separate balancing charge for the cost of integrating fossil fuel-
21 fired electric generation resources. BPA has already imposed a rate to recover the
22 costs of providing balancing reserves to wind generators. BPA is currently not
23 expecting to increase the rates for wind integration (currently \$5-6/MWh) for the next
24 rate period by more than 2-3%, showing that there is rate stability. In addition, BPA
25 is undertaking various pilot projects in an effort to improve its ability to better
26 integrate additional amounts of wind energy at lower cost to wind generators.

1 Q Please comment on the statement at page 6, lines 5-6, that "... fossil-fuel generators
2 can also be used for balancing... .. wind power may have environmental
3 consequences even though it does not directly burn any fuels."

4
5 A This statement is not relevant to balancing renewable energy in the Pacific Northwest
6 because the region relies primarily on BPA's hydroelectric resources for so-called
7 "within-hour" balancing of wind output, not fossil-fuel generators, as the testimony
8 suggests.

9
10 Q Please comment on Professor Michaels' characterization of BPA's effect on regional
11 demand for energy and renewable energy.

12
13 A On page 6, lines 8-11, Professor Michaels claims "Currently, BPA is able to meet
14 nearly all of its customers' power demands from available resources, including
15 improved efficiency of use, and the growth of wind power on its grid will not be of
16 help in meeting expected future shortfalls in peaking capacity." BPA's loads,
17 resource mix, efficiency measures, and capacity needs are not particularly relevant to
18 evaluating the value of the WRE wind facility. First, Professor Michaels' analysis of
19 the Pacific Northwest's demand for energy (he does not separately look at the
20 demand for renewable energy) appears to begin and end with BPA; however, BPA is
21 but one of many utilities in the Pacific Northwest. As Professor Michaels' notes at
22 page 17, lines 20-21, BPA provides no more than 1/3 of the wholesale energy in the
23 Pacific Northwest. Second, and more importantly, unlike most other large utilities in
24 the Pacific Northwest and California, BPA is not subject to state RPS requirements to
25 purchase certain minimum amounts of renewable energy. BPA owns the majority of
26 the high-voltage transmission system in the Pacific Northwest and therefore plays a

1 major role in transmitting renewable energy to other utilities; however, of the over
2 3000 MW of wind generating capacity located in BPA's transmission balancing
3 authority, less than 250 MW is under contract for sale to BPA. Therefore, although
4 BPA is certainly one of many potential customers for the output of the project, there
5 are several other utilities that have a much greater demand for the output of the WRE
6 facility due to their RPS compliance obligations.

7

8 Q Do you agree with the statement page 11, lines 13-15, that "The implication is clear: a
9 system dependent on wind must also invest in dispatchable generation equal to
10 significant fraction of that capacity."

11

12 A No. This statement has little relevance to the current situation in the Pacific
13 Northwest. Increasingly, the region is finding new ways to access the flexible
14 capacity embedded in the existing interconnected mix of generators, decreasing
15 integration costs without investing in any new capacity.

16

17 Q Please address the assertions on page 13, lines 3-6, that "Here the added costs (e.g.
18 extra balancing reserves for integration) are likely to be higher when pre-existing
19 wind capacity is larger. The added benefits at the margin will be smaller, since a later
20 addition to the wind fleet will displace fossil generation with lower incremental costs
21 than an early addition."

22

23 A These statements also have little relevance to the current situation in the Pacific
24 Northwest. Because of the within-hour diversity (e.g., the effect of wind variation
25 from one project to offset the variation from another project) of wind projects (even
26 within the Columbia River Gorge), BPA is actually seeing declining reserve

1 requirements per installed MW of wind capacity. I believe that what Professor
2 Michaels is referring to is a scenario where a system reaches a level of wind
3 penetration that crosses a threshold and begins using more costly balancing reserves
4 (thus moving up the supply curve); however, the Pacific Northwest is nowhere near
5 this level of wind penetration and is not exhibiting the marginal cost relationships
6 Michaels describes. I reach this conclusion because BPA and its wind and other
7 transmission customers are currently developing, considering or implementing
8 several operational changes that will reduce the need for BPA to provide balancing
9 reserves for wind energy. For example, BPA and the region's utilities and wind and
10 independent energy producers have a pilot underway to allow wind generators (and
11 eventually other electricity generating resources) to adjust their transmission
12 schedules on a more frequent basis. This is also known as the "intra-hour scheduling
13 pilot." This one step alone will significantly reduce the amount and the cost of
14 resources that BPA is required to maintain. Similarly, proposed rules recently
15 published by the Federal Energy Regulatory Commission ("FERC") also call for
16 transmission providers to allow more frequent schedule changes as a way to minimize
17 costs associated with balancing the output of variable energy resources. *See Notice of*
18 *Proposed Rulemaking on Integration of Variable Energy Resources*, 133 FERC ¶
19 61,149 (2010). In addition, BPA and wind companies are increasingly accessing
20 new, more cost effective and environmentally preferred sources of balancing reserves,
21 such as formalized arrangements that reduce or shut off completely natural gas and
22 coal fired generators during periods of high wind energy production. BPA has also
23 facilitated a "self-supply" program, which significantly reduces BPA's balancing
24 reserve requirement by allowing wind generators to access non-BPA resources to
25 balance the variable output of wind generating facilities. *See Exhibit No. 18.02r.*
26

1 Q Do you agree with the testimony at page 16, lines 8-10, that “BPA now states that
2 further use of hydro capacity for balancing will affect efficiency and reliability, as
3 well as its ability to meet non-electrical obligations such as fish migrations”?

4
5 A There is no citation for the BPA statement that the testimony references and such a
6 statement ignores the fact that BPA and the region’s utilities and wind generators are
7 taking active steps to increase the capacity of the Federal Columbia River Power
8 System (“FCRPS”) to integrate renewable energy resources while at the same time
9 preserving reliability of the BPA transmission grid. In addition to the initiatives
10 discussed above, BPA has implemented Dispatcher Standing Order (DSO) 216,
11 which allows BPA to manage the costs of integrating wind by limiting the need for
12 balancing reserves that would be rarely used. Through its intra-hour scheduling pilot
13 program and other wind integration initiatives, BPA and its wind generator customers
14 are working to increase its ability to integrate additional renewable energy while
15 preserving system reliability. *See* Bonneville Power Administration, “Summary of
16 the Upcoming BPA Wind Integration Team Work Plan 2.0” (Nov. 2010), which is
17 attached as Exhibit No. 18.02r.

18
19 Q Please comment on the statement at page 16, lines 10-12, that “... hydro operations to
20 accommodate wind power do not provide the same rate payer benefits that would
21 accrue if wind displaced thermal capacity.”

22
23 A This statement highlights the Professor Michaels’ lack of understanding of BPA and
24 the Pacific Northwest energy market and wind industry. Roughly 80% of the wind in
25 BPA’s transmission balancing area is exported out of BPA’s transmission balancing
26 area in firm hourly (and sometimes half-hourly) scheduled amounts. Every single

1 MWh of wind energy delivered to a receiving utility is serving a MWh of customer
2 load that would have otherwise been met by a conventional resource. Wind energy is
3 most often displacing the carbon dioxide and associated emissions from natural gas
4 fired power plants and, increasingly, coal fired plants. See GE Energy Consulting,
5 CALIFORNIA ENERGY COMMISSION INTERMITTENCY ANALYSIS PROJECT: APPENDIX B,
6 IMPACT OF INTERMITTENT GENERATION ON OPERATION OF CALIFORNIA POWER GRID,
7 126-28 (July 2007), which is attached as Exhibit No. 18.03r and available in full at
8 [http://www.energy.ca.gov/2007publications/CEC-500-2007-081/CEC-500-2007-081-](http://www.energy.ca.gov/2007publications/CEC-500-2007-081/CEC-500-2007-081-APB.PDF)
9 [APB.PDF](http://www.energy.ca.gov/2007publications/CEC-500-2007-081/CEC-500-2007-081-APB.PDF); PJM, POTENTIAL EFFECTS OF PROPOSED CLIMATE CHANGE POLICIES ON
10 PJM'S ENERGY MARKET, 2-3, 17-18 (Jan. 2009), which is attached as Exhibit
11 No. 18.04r and available in full at [http://www.state.nj.us/dep/cleanair/hearings/pdf/](http://www.state.nj.us/dep/cleanair/hearings/pdf/09_potential_effects.pdf)
12 [09_potential_effects.pdf](http://www.state.nj.us/dep/cleanair/hearings/pdf/09_potential_effects.pdf). Wind energy is a zero-emission energy resource with no
13 fuel costs and the receiving utility and its customers avoid the environmental risks
14 and costs associated with thermal generation.

15
16 Q At page 18, lines 6-8, Professor Michaels claims, “[BPA] also has legal obligations to
17 accept power from qualifying wind turbines in the area and integrate it into the
18 region’s electricity supply if sufficient transmission capacity is available [cites to high
19 water report].” Is this correct?

20
21 A BPA generally follows FERC guidelines for the interconnection, transmission, and
22 within-hour balancing for all requesting generators, renewable or conventional. BPA
23 is not obligated to buy or consume the power and so the interconnecting wind
24 generation has no direct impact on BPA’s load/resource balance, as this section of the
25 testimony suggests.

26 /////

1 Q At page 21, lines 5-7, Professor Michaels claims, “Exhibit 30.09 states that [BPA]
2 currently carries nearly 2,000 MW of balancing capacity, an amount which must
3 increase as its wind obligations rise.” Is this correct?

4 A No. Professor Michaels’ number represents roughly 1,000 MWs of incremental, or
5 *inc*, generating capacity and 1,000 MWs of decremental, or *dec*, generating capacity.
6 Only *inc* capacity has an impact on capacity requirements consistent with the
7 testimony’s focus on long-term peaking requirements. Second, that balancing
8 capacity is for wind, load, and thermal generators. Third, FY10-11 to FY12-13 BPA
9 rate case documents show the reserve requirement decreasing in absolute terms and
10 per unit, primarily due to self-supply and the value of diversity, respectively.
11

12 Q At page 22, lines 4-17, Professor Michaels claims, “Low flows in April and high
13 flows in June demonstrated to BPA that events ‘can stress the hydro system to the
14 brink with the current wind fleet’ [cites to BPA resource program].” Please comment
15 on this.
16

17 A I don’t actually see this citation in the exhibits. BPA’s high water report describes
18 several simultaneous system conditions that stressed the system, from my perspective,
19 the least of which is the within-hour balancing of wind energy. This section of the
20 testimony seems very carefully crafted; without directly attributing cause and effect,
21 the line of questioning implies wind is the cause of BPA’s system problems, yet not
22 even BPA has drawn this conclusion. Professor Michaels testified on page 22, lines
23 12-14 that

24 “Over the same interval, BPA reached the limits of its abilities to balance
25 wind output that it was bound to accept when feasible, and had to order wind
26

1 generators to stop producing or curtail their access to transmission.”

2 The choice of words here implies that technical abilities were met or exceeded. BPA
3 reached the limit of balancing reserves that had been previously agreed to in its
4 transmission rate and requested wind generators to curtail generation back to the
5 schedule. This represents an economic choice between BPA and the wind generators,
6 not a technical reliability issue. Roughly 1,000 MWa of wind were generated during
7 the June event; only a fraction of wind energy potential was curtailed over this time
8 period.

9

10 Q Professor Michaels seems to suggest that BPA is somehow incapable of integrating
11 the increasing amounts of wind energy. Do you agree?

12

13 A If this is what Professor Michaels is suggesting, I heartily disagree. As explained
14 above, BPA and its wind generator customers are working on several programs that
15 are and will continue to increase the amount of wind energy that can be integrated on
16 BPA’s system, while retaining system reliability.

17

18 Q At page 23, lines 19-21, Professor Michaels claims “Q. Will the growing amount of
19 wind power interconnected with BPA be of use in meeting the needs described in its
20 Resource Plan? A. In general, no.” How do you respond?

21

22 A BPA’s resource plan is nearly irrelevant to the value of wind power to the region or
23 the state of Washington. BPA is not the major load center or center of load growth;
24 BPA has no RPS requirement or cost exposure to carbon taxes. Again, BPA is
25 consuming roughly 8% of the wind connected to its system; the remaining 92% is
26 consumed by other utilities.

1 Q At page 24, lines 9-11, Professor Michaels claims, “In the PNW, however, the wind-
2 generated megawatt-hour will most often displace hydro energy...” Is this correct?

3

4 A The author has presented no evidence to support this statement. The testimony
5 ignores the fact that the utilities receiving wind energy transmitted over BPA
6 transmission lines are displacing higher-cost resources, which are typically either
7 natural gas or coal. Displacing fossil fuels and associated emissions and carbon
8 dioxide production, along with reduced exposure to natural gas price uncertainty and
9 volatility, is a primary benefit of wind and other forms of renewable energy.

10

11 Q Please summarize your testimony.

12

13 A In several key areas, the Michaels Testimony is either incorrect or ignores relevant
14 facts. First, BPA’s job is to market the power from the federal dams in the Pacific
15 Northwest and the region’s only nuclear facility. It owns and operates 70% of the
16 transmission capacity in the region. It is not a retail utility and therefore is not subject
17 to state RPSs. There is broad public support for renewable energy in the Pacific
18 Northwest and California, which has been codified through state laws requiring
19 utilities to procure a certain percentage of electricity supply from renewable energy.
20 These state RPS programs, in addition to the cost-competitiveness of new, renewable
21 resources, provide an important basis for demand for renewable energy. The
22 Michaels Testimony talks about the costs and challenges of integrating wind energy,
23 however, his conclusions should be rejected because he has not taken into account the
24 several wind integration initiatives currently underway at BPA to both expand the
25 flexibility of the federal hydroelectric system to integrate variable energy resources
26 and to preserve system reliability. Similarly, the conclusions in the Michaels

1 Testimony regarding the environmental benefits of using wind energy to displace or
2 offset conventional fossil-fuel resources are not particularly relevant to the resources
3 in the Pacific Northwest (primarily hydro-electric) that are used to balance the within-
4 hour variability of wind energy. In addition, they fail to acknowledge that one MWh
5 of renewable energy is generally offsetting one MWh of electricity that would
6 otherwise be generated by the receiving utility from natural gas or coal-fired
7 resources.

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9 Q Does this conclude your testimony?

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11 A Yes.

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