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BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of Rocky Mountain Power's Proposed Tariff Revisions to Electric Service Schedule No. 37, Avoided Cost Purchases from Qualifying Facilities	Docket No. 17-035-T07 **PREFILED DIRECT TESTIMONY OF NEAL TOWNSEND REGARDING SCHEDULED 37 AVOIDED COSTS FOR QUALIFYING FACILITIES**

The Renewable Energy Coalition, (the "**Coalition**") hereby submits the attached Prefiled Direct Testimony of Neal Townsend Regarding Scheduled 37 Avoided Costs for Qualifying Facilities on behalf of the Coalition.

Respectfully submitted this 20th day of July, 2017.

SMITH HARTVIGSEN, PLLC

/s/ Adam S. Long
Adam S. Long
Attorney for the Renewable Energy Coalition

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing was served on this 20th day of July, 2017 upon the following as indicated below:

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DIRECT TESTIMONY OF NEAL TOWNSEND

On behalf of the Renewable Energy Coalition

Docket No. 17-035-T07

July 20, 2017

INTRODUCTION

Q Please state your name and business address.

A My name is Neal Townsend. My business address is 215 South State Street, Suite 200, Salt Lake City, Utah, 84111.

Q By whom are you employed and in what capacity?

A I am a Principal in the firm of Energy Strategies, LLC. Energy Strategies is a private consulting firm specializing in economic and policy analysis applicable to energy production, transportation, and consumption.

Q On whose behalf are you testifying in this proceeding?

A My testimony is being provided on behalf of the Renewable Energy Coalition ("REC").

Q Please describe your educational background.

A I received an MBA from the University of New Mexico in 1996. I also earned a B.S. degree in Mechanical Engineering from the University of Texas at Austin in 1984.

Q Please describe your professional experience and background.

A I have provided regulatory and technical support on a variety of energy projects at Energy Strategies since I joined the firm in 2001. Prior to my employment at Energy Strategies, I was employed by the Utah Division of Public Utilities as a Rate Analyst from 1998 to 2001. I have also worked in the aerospace, oil and natural gas industries.

Q Have you previously filed testimony before this commission?

A Yes. Since 1997, I have testified in 13 dockets before the Utah Public Service Commission on electricity and natural gas matters.

Q Have you testified before utility regulatory commissions in other states?

A Yes. I have testified in utility regulatory proceedings before the Arkansas Public Service Commission, the Illinois Commerce Commission, the Indiana Utility Regulatory Commission, the Kentucky Public Service Commission, the Michigan Public Service Commission, the New Mexico Public Regulation Commission, the Public Utilities Commission of Ohio, the Public Utility Commission of Oregon, the Public Utility Commission of Texas, the Virginia Corporation Commission, and the Public Service Commission of West Virginia.

OVERVIEW AND CONCLUSIONS

Q What is the purpose of your direct testimony in this proceeding?

A My testimony responds to several changes proposed by Rocky Mountain Power ("RMP" or the "Company") for calculating avoided cost pricing to Qualifying Facilities ("QFs") under Schedule 37 within the framework of the Partial Displacement Differential Revenue Requirement ("PDDRR") method that RMP is advocating be adopted for calculating Schedule 37 rates in this proceeding. I also respond to the Company's assertion that the 2021 Wyoming Wind project planned by the Company should not be the basis of avoided cost pricing.

Q What are your primary conclusions and recommendations?

A Since renewable resources are included in the 2017 Integrated Resource Plan ("IRP"), it makes sense to recognize that renewable QFs can defer RMP's renewable generation investments. Therefore, RMP's proposal to calculate avoided costs for a renewable QF based on the avoided cost of a Company renewable resource is a positive development.

However, RMP's proposal to limit the displacement of a renewable resource to resources of the same type as the QF is unduly restrictive and unreasonable. Instead, any renewable Schedule 37 QF should be able to have its avoided cost pricing determined based on displacement of the next renewable resource irrespective of type, with appropriate adjustments for capacity equivalence. The total avoided capacity and energy cost that results from removing the "like for like" restriction will more reasonably reflect the avoided cost of the deferred resource within the framework of the PDDRR method that RMP is advocating be adopted for calculating Schedule 37 rates in this proceeding, and therefore will provide more reasonable pricing for Schedule 37 power within that framework.

I further recommend that the Commission rule affirmatively that the 2021 Wyoming Wind resource should be considered as an appropriate proxy for the purpose of determining avoided capacity and energy costs for all Schedule 37 renewable QFs. In addition, the Commission should consider whether Schedule 37 renewable QFs should be credited with (the equivalent of) avoided transmission costs given the linkage between development of the 2021 Wyoming Wind resource and the addition of Energy Gateway transmission capability.

PROPOSED CHANGES TO THE CALCULATION OF SCHEDULE 37

Q What is Schedule 37?

A Schedule 37 provides published avoided cost prices approved by the Commission for smaller QFs. Schedule 37 prices are available for cogeneration facilities up to 1 MW in

size and for small power production facilities, such as wind, solar, and hydro, up to 3 MW.

Q Is RMP proposing any changes to the calculation of Schedule 37 avoided cost pricing in this docket?

A Yes. RMP is proposing changes to several avoided cost inputs, including market prices, which were updated using the Company's March 31, 2017 Official Forward Price Curve, as well as integration costs and wind and solar capacity contributions that were updated based on the assumptions and results of RMP's 2017 IRP, which was filed on April 4, 2017.

In addition to these input updates, RMP is proposing several changes to its Schedule 37 pricing methodology, which are discussed by RMP witness Daniel J. MacNeil. The proposed changes in methodology are the subject of my testimony.

Q What is the current methodology for setting Schedule 37 rates in Utah?

A Schedule 37 rates, which were approved by the Utah Public Service Commission on May 27, 2016, are based on sufficiency-period avoided costs that are calculated using two GRID model simulations. The first simulation excludes any new QF resources. The second simulation includes an additional 10-MW baseload QF resource at zero cost and displacement of front-office-transactions. The avoided energy cost is determined by the resulting net power cost difference between the two GRID runs divided by the energy produced by the QF resources. Avoided energy costs during a deficiency period begin coincident with the next deferrable major thermal resource identified in PacifiCorp's most recent IRP or IRP update and are equal to the fixed and variable costs of a proxy resource, which is currently a combined cycle combustion turbine.

Q What changes does the Company proposed to make in its filing?

A As explained by Mr. MacNeil, RMP proposes that Schedule 37 rates specific to each resource type be calculated using the PDDRR method that was approved by the Commission for determining non-standard avoided costs under Schedule 38. The Company proposes that the following specific changes be adopted in combination with the use of the PDDRR method:

- Renewable resources would displace the next deferrable "like" renewable resource identified in the preferred portfolio of the 2017 IRP, after the queue of potential QFs. For non-renewable resources, or if no "like" renewable resources remain in the 2017 preferred portfolio through the expected term, the next deferrable major thermal resource would be displaced, after accounting for the potential QF queue.
- Avoided energy costs would be calculated using the expected output of a 10 MW resource of each type and would be net of the value of displaced resources from the 2017 IRP preferred portfolio.[1]

Q What is your assessment of these proposed changes?

A As I stated above, since renewable resources are included in the 2017 IRP, it makes sense to recognize that renewable QFs can defer RMP renewable generation investments. Therefore, the RMP proposal to calculate avoided costs for a renewable QF based on the avoided cost of a Company renewable resource is a positive step. However, I

[1] Direct testimony of Daniel J. MacNeil, p. 3.

recommend that the "like for like" eligibility *restrictions* proposed by the Company be rejected.

Under the Company's proposal, a renewable Schedule 37 QF could only be credited with avoiding the cost of a renewable resource of the same type, i.e., a wind QF could only be credited with deferring a wind plant in the IRP, a solar QF could only be credited with deferring a solar plant in the IRP, and so on. The implication of this restriction is that a renewable QF using a resource whose next deferability occurs relatively late in the IRP, such as solar, would be precluded from being credited with deferring any renewable facilities that are deferrable earlier in the IRP, such as wind. Similarly, a renewable resource such as small hydro, which does not appear as a deferrable resource in the 2017 IRP, could conceivably be precluded from receiving capacity credit for deferring any renewable resources at all.

These restrictions are unreasonable because they prevent a renewable QF from being fairly compensated for its ability to defer renewable plants that the Company is planning to add, solely because the QF's resource type differs from the resource type that the Company determines is deferrable sooner in its IRP. Implicit in RMP's advocacy for these restrictions is the notion that the Company is somehow unable to partially (or wholly) defer a wind plant when a renewable QF using a different technology timely comes on line.

This premise strikes me as highly implausible. When considering adding new resources in its IRP, the Company must consider the impact of long-term QF contracts on the need for Company-owned capacity after taking account of the capacity characteristics

of the QF resources. This evaluation must be performed irrespective of QF resource type. The idea, say, that new solar QF contracts would have no influence on whether Company-owned wind resources need to be added in the future is unreasonable and objectionable.

Q Does RMP explain its rationale in limiting renewable displacements to "like for like" situations?

A No. The Company offers no justification for this restriction in its testimony in this case.

Q Are you aware of any situations in Utah in which avoided costs are determined on a "like for like" basis?

A Yes, capacity payments for renewable QF resources under Schedule 38 are based on the capital costs of the next "like" deferrable renewable resource, so long as such a cost-effective renewable resource is present in the Company's planned resources.[2]

Q Since "like for like" renewable deferrals are currently approved for Schedule 38, why should the "like for like" restriction proposed by RMP for Schedule 37 be rejected in this proceeding?

A In this proceeding, RMP is seeking a change in methodology for calculating Schedule 37 avoided costs. Therefore, it is appropriate to consider at this time whether the restrictions proposed by RMP in the "like for like" approach are reasonable. I believe these restrictions are *not* reasonable.

It is one thing to *allow* "like for like" renewable deferrals as an alternative to requiring pricing for renewable QFs to be based on deferring *thermal* units, which is what occurs today under Schedule 38; having the "like for like" alternative available for pricing renewable QF capacity is an improvement over basing avoided costs for

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[2] Docket No. 12-035-100, Order at 20.

renewable QFs solely using thermal deferrals. However, it is problematic for the "like for like" concept to be used restrictively to preclude the capacity from a solar QF, say, from being priced based on displacing a Company wind plant.

Q If a solar QF is credited with partially displacing a Company wind plant, doesn't that create a mismatch between the capacity of the deferred wind plant and the solar QF?

A It is true that solar and wind plants have different capacity availabilities and that difference needs to be taken into account in determining the QF's capacity credit. But, of course, capacity-equivalence calculations are already used when renewable QFs displace thermal units. Determining the capacity equivalence when solar or another renewable resource displaces wind is a logical extension of this current practice.

Q Since solar resources generally have higher capacity availabilities than wind resources, wouldn't allowing solar QFs to displace Company wind plants result in capacity payments to solar QFs that are too high?

A No. Because solar resources generally have higher capacity availabilities than wind resources, it stands to reason that when an avoided wind capacity value is translated into a payment structured as "per-MW of solar capacity," the avoided capacity price, in isolation, may appear high at first glance. However, examining avoided capacity prices in isolation is misleading because, in accordance with the PDDRR the method, capacity and energy prices for any QF are inextricably linked. If both are considered in tandem, then the combined result will temper the impact of capacity pricing viewed in isolation.

Capacity pricing and energy pricing must be considered in tandem because the GRID runs used to determine avoided energy costs also take into account the displacement of the output from the deferred resource. So, for example, if a 1 MW east-

side tracking solar facility were to displace 3.8 MW of east-side wind in the determination of avoided capacity price, then the GRID run (starting in the deferral year) would remove 3.8 MW worth of wind resources in the "with QF" case.[3] This means that the tracking solar resource – which would produce 2,716 MWh per year in this example – would be responsible for displacing 13,715 MWh per year of nearly free energy (at the margin) from the deferred wind plant.[4,5] The net effect of such a displacement is a minimal, or even negative, avoided energy cost (in isolation) for a tracking solar QF when tracking solar displaces wind. Further, if the displaced wind plant is eligible for production tax credits ("PTCs"), the foregone benefit from the PTCs will be included in the avoided cost calculation.[6] Combining the very low or negative avoided energy cost with the seemingly "too-high" avoided capacity cost – and taking into consideration foregone PTCs when applicable – produces a *total* avoided cost that reasonably represents the true avoided cost of the displaced wind plant within the framework of the PDDRR method. So while, in isolation, both the avoided capacity cost *and* avoided energy cost may appear to be unreasonable (one too high, the other too low), taken together, they produce an accurate avoided cost result within the PDDRR framework.

Ultimately, it is RMP's costs that are being avoided through the PDDRR calculation. So long as the all-in price paid to the renewable QF reasonably reflects the

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[3] The 3.8 MW of east-side wind displacement is derived by applying the ratio of the capacity contribution of each resource type. The IRP east-side tracking solar capacity contribution is 59.7%; the IRP east-side wind capacity contribution is 15.8%. The ratio is 59.7%/15.8% = 3.8.

[4] IRP east-side tracking solar energy = 1 MW x 31% capacity factor x 8,760 = 2,716 MWh.
IRP east-side Wyoming wind energy = 3.8 MW x 41.2% capacity factor x 8,760 = 13,715 MWh.

[5] The wind energy is not entirely free because wind integration costs must also be taken into account.

[6] For planning purposes, RMP treats PTCs as a negative fixed cost, and thus an offset against capacity costs.

costs avoided by the Company after taking into account the capacity equivalence and energy displacement provided by the QF resource, it should not matter whether the Company's next deferrable renewable plant is being deferred by a wind QF, solar QF, or a renewable QF using another technology.

Q Does RMP's proposal to limit the deferral of a renewable resource to resources of the same type as the QF have real implications, or are your concerns primarily theoretical?

A There are real-world ramifications to the Company's proposal to restrict the deferral of a renewable resource to resources of the same type as the QF. According to Mr. MacNeil's testimony, the next deferrable resource for a Schedule 37 wind resource occurs in 2031, whereas for a Schedule 37 solar QF it does not occur until 2035.[7] The implication of PacifiCorp's proposal in this case is that wind QFs potentially could be credited with deferring a 2031 renewable resource, but a solar QF would not be given credit for deferring any renewable resources until 2035. In this situation, the capacity value of a solar deferral would be delayed for an additional four years relative to a wind deferral, significantly delaying the capacity recognition for a solar QF relative to wind. For other types of renewable QFs, i.e., those using technologies not utilized by RMP in the IRP, there might not be any recognition of deferrable renewable capacity at all.

The Company's "like for like" restrictions are arbitrarily restrictive and therefore are unreasonable.

Q Please summarize your recommendation to the Commission on the question of whether avoided cost calculations for renewable resources should be limited to deferring resources of the same type.

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[7] Direct testimony of Daniel J. MacNeil, p. 11.

A For the purpose of avoided cost pricing using the PDDRR method, the deferral of a renewable resource in the IRP by a Schedule 37 renewable QF should not be limited to resources of the same type. Rather, any renewable QF should be able to have its avoided cost pricing determined based on deferral of the next renewable resource irrespective of type, with appropriate adjustments for capacity equivalence. The total avoided capacity and energy cost that results will reasonably reflect the avoided cost of the deferred resource and therefore is a reasonable basis for pricing power produced by renewable QFs.

TREATMENT OF THE 2021 WYOMING WIND RESOURCE IN SCHEDULE 37 PRICING

Q Do you have any comments regarding RMP's assertion that the next deferrable wind resource does not occur until 2031?

A Yes. The preferred portfolio in the Company's 2017 IRP calls for 1,100 MW of Company wind resources to be added in 2021. However, Mr. MacNeil states that:

> The addition of a Utah wind QF project would not defer the new wind and transmission planned to come online by the end of 2020 in PacifiCorp's 2017 IRP preferred portfolio. Given the net benefits these projects provide to PacifiCorp's retail customers, it will pursue these projects even if new QF projects were added to the system in Utah.[8]

Q What is your reaction to this assertion?

A This is a very interesting statement. RMP is essentially saying that the Company considers the 2021 Wyoming Wind resource to be such a good deal for customers that the

[8] Id., p. 11.

Company will acquire as much of it as it physically can, irrespective of the availability of other supplies such as QF power, limited only by the transfer capability of the transmission system to deliver the 2021 Wyoming Wind to load (after taking into account the Energy Gateway transmission upgrade the Company is proposing). This is tantamount to declaring that the Company's demand for long-term power supply at the price of this resource is open-ended over some significant range. That being the case, the 2021 Wyoming Wind project clearly represents a reasonable basis for determining the avoided cost for renewable QFs under Schedule 37. Since, by its own admission, RMP's demand for long-term power at this price is open-ended over a significant range, it stands to reason that Schedule 37 renewable QFs that can provide long-term resources at the same cost RMP is incurring should be paid that same price. Notably, because of the unusual, open-ended nature of RMP's demand for long-term power at this price, it should not be necessary for the QF to actually displace the 2021 Wyoming Wind to qualify for this price, since RMP has declared the 2021 Wyoming Wind as "non-displaceable" (because the Company considers it to be such a good deal.).

In addition, the Company's assertion regarding the 2021 Wyoming Wind raises the question as to whether a Schedule 37 renewable QF should be credited *additionally* with (the equivalent of) avoided transmission costs, since the 2021 Wyoming Wind resource apparently requires incremental transmission investment from the Company in order to get built.

Q What is your recommendation to the Commission regarding the treatment of the 2021 Wyoming Wind resource in the determination of Schedule 37 avoided costs?

A I recommend that the Commission rule affirmatively that the 2021 Wyoming Wind resource should be considered as an appropriate proxy for the purpose of determining avoided capacity and energy costs for all Schedule 37 renewable QFs.

In addition, the Commission should consider whether Schedule 37 renewable QFs should be credited with (the equivalent of) avoided transmission costs given the linkage between development of the 2021 Wyoming Wind resource and the addition of Energy Gateway transmission capability.

Q In recommending that the 2021 Wyoming Wind resource should be considered for the purpose of determining avoided capacity and energy costs, are you also attesting to the reasonableness of the Company's preferred portfolio in its 2017 IRP?

A No. My recommendation is based on the principles of avoided cost pricing within the context of the PDDR method, which relies on the Company's IRP. I am not taking a position on whether the IRP itself or the 2021 Wyoming Wind project and the associated Energy Gateway transmission investment are reasonable.

Q Does this conclude your direct testimony?

A Yes, it does.