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BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of the Application of Rocky Mountain Power for Approval of a Significant Energy Resource Decision and Request to Construct Wind Resource and Transmission Facilities	**DOCKET NO. 17-035-40**

SECOND SUR REBUTTAL TESTIMONY OF KATE BOWMAN

ON BEHALF OF

UTAH CLEAN ENERGY

DATED this 15th day of May, 2018

_/s/ Hunter Holman__________

Hunter Holman
Attorney for Utah Clean Energy

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I. Introduction

Q. Please state your name and business address.

A. My name is Kate Bowman. My business address is 1014 2nd Ave, Salt Lake City, Utah 84103.

Q. Are you the same Kate Bowman that provided direct, rebuttal, and surrebuttal testimony in this docket?

A. Yes

Q. On whose behalf are you testifying?

A. I am testifying on behalf of Utah Clean Energy.

Q. What is the purpose of your second sur-rebuttal testimony?

A. I will respond to the rebuttal testimony of Mr. Bradley Mullins, on behalf of the Utah Association of Energy Users (UAE) and Utah Industrial Energy Consumers (UIEC); Mr. Philip Hayet, Mr. Bela Vastag, and Ms. Donna Ramas of the Office of Consumer Services (the "Office"); Ms. Nancy Kelly of Western Resource Advocates (WRA); and Ms. Zenger and Mr. Peaco of the Division of Public Utilities (the "Division").

Q. Please summarize your testimony.

A. PacifiCorp's (the "Company") proposed new wind and transmission projects ("Combined Projects") represent a time-limited opportunity to mitigate risk for ratepayers by beginning to transition towards low-risk renewable resources at reduced costs. The economic and social benefits to ratepayers associated with the Combined Projects are significant, and the Company's assumptions regarding future fuel and carbon costs are conservative. The actual long-term benefits of the Combined Projects will likely exceed the benefits considered and discussed by the Company in its proposal.

The Combined Projects position the Company well in the event of higher carbon prices in the future. They act as a hedge against future carbon regulation that may impose obligations on the Company to invest in cleaner forms of energy, or may increase the price of fossil fuel generation or carbon emissions.

By investing in the Combined Projects now the Company can leverage Production Tax Credits ("PTCs"). While it would be possible to delay construction of the Combined Projects, it would result in an additional cost to ratepayers equal to the value of the foregone PTCs.

The benefits of the Combined Projects are impacted by the company's ability to deliver on its obligations as described and within the prescribed timeframe. The ratepayer risks associated with the Combined Projects can be mitigated by introducing ratepayer protections and including solar resources to help maximize economic benefits and diversify the Company's investment. Utah Clean Energy is supportive of the risk mitigation recommendations provided by the Office of Consumer Services as described in this testimony.

Several parties oppose the Combined Projects due to concerns that the costs will outweigh ratepayer benefits. As is the case with any long-term resource decision, we cannot have certainty about the future in which the Combined Projects will operate. However, in the most recent version of the proposal, the Company included a number of conservative assumptions regarding carbon and fuel costs that underestimate the benefits of the Combined Projects. Specifically:

- The Combined Projects hedge against future fuel price fluctuations. Fuel prices are currently very low, and there is much more potential for fuel prices to rise above the Company's forecasts than there is for them to drop below the Company's forecasts.
- The Combined Projects hedge against higher prices for carbon dioxide (CO2) resulting from new regulation, carbon taxes, or costs associated with CO2 emissions. The Company has revised expectations regarding CO2 prices downward in their January 16, 2018 filing as compared to their June 30, 2017 filing. To the extent that CO2 is regulated or taxed before 2030, as anticipated in the June 2017 filing, or is taxed sooner or at a higher price than anticipated in either forecast, the benefits of these projects will be higher than the Company's projections.
- The value of mitigating climate change and its associated costs to Utahns and ratepayers is not accounted for in the Company's analysis. The Commission should consider the exigency of the need to transition to carbon-free resources, and costs and risks associated with continued reliance on fossil fuels, when evaluating the Combined Projects.

Q. Has your recommendation that the Commission approve the Combined Projects changed?

A. No. I continue to support the conclusion that the Combined Projects are in the public interest based on the combination of the factors for consideration listed in Utah Code § 54-17-302 (3)(c), which include both long-term and short-term impacts, risk, and 'other factors determined by the commission to be relevant.' It is in the best interest of ratepayers to proactively adopt carbon-free renewable resources as quickly and as economically as possible, and the Combined Projects, along with additional economic solar projects, will help facilitate that transition and mitigate risk. However, upon reviewing the Office's recommended consumer protections, I would add that I support and join the Office in recommending protections that mitigate risk for ratepayers.[1]

When evaluating the costs and benefits of the Combined Projects as presented by the Company and other parties, I also recommend that the Commission consider the significant costs to Utahns and ratepayers associated with climate change, as allowed by Utah Code § 54-17-302 (3)(b)(i)(F**).**

Finally, I recommend the Commission direct the Company to examine the results of the solar RFP to see if incorporating solar resources – which are also more economic in the near term while the 30% Federal Investment Tax is still in place – provide an even more cost-effective solution either in combination with or in addition to the Combined Projects.

II. Factors Mitigating the Risk Associated with the Combined Projects

A. Ratepayer Protection

Q. Do you agree with Mr. Hayet that certain ratepayer protection components would help reduce the risk associated with the Combined Projects?

[1] Office's proposals found in Second Rebuttal Testimony for the Office filed in Docket 17-035-40 on April 17, 2018 including testimony of Bela Vastag, lines 36 –38 and 69 – 81, testimony of Philip Hayet, lines 958 – 981, and testimony of Donna Ramas, lines 39 – 49.

A. Yes. Several parties have made recommendations to reduce risk associated with the Combined Projects for ratepayers. The Company should be held accountable for delivering the Combined Projects as proposed. The Combined Projects must be completed on time in order to capture the Production Tax Credits, so it is very important that the Combined Projects are completed as scheduled. For this reason, it is reasonable for the Company to assume more risk than is typical for a failure to deliver the Combined Projects as scheduled. The Office proposed a suite of recommendations for ratepayer protection in rebuttal testimony filed April 17, 2018.[2] I support the Office's proposed ratepayer protections.

Q. Are there additional ways to mitigate risk to ratepayers?

A. Yes. A Power Purchase Agreement (PPA) limits risk to ratepayers because customers pay a fixed priced for power and only pay for the power that is actually delivered. Several parties have addressed the Company's solar sensitivity analysis, which evaluated the benefits from pursuing solar PPAs from the recent solar RFP instead of or in conjunction to the Wind Projects. Mr. Hayet of the Office notes that the solar sensitivity modeling demonstrates that solar PPAs provide benefits to customers and that PPAs involve less risk for customers compared to a Company self-build project.[3] Ms. Zenger of the

[2]The Office's proposed ratepayer protections are summarized in the Second Rebuttal Testimony of Mr. Vastag in Docket 17-035-40 as follows:

1) The capital and O&M costs of the proposed projects should be capped.
2) PTC and energy benefits should be guaranteed at 95% of the forecasted amounts.
3) Recovery of the costs of the new transmission facilities from wholesale (OATT) transmission customers should be guaranteed to be at least 12%, i.e. retail ratepayer's share of these costs should be capped at 88%.
4) The Commission should specifically approve a Utah jurisdictional total cost for the proposed projects.
5) The Office recommends that the Company's proposed RTM should be denied.

Additional detail regarding these recommendations is provided Second Rebuttal Testimony of Philip Hayet, lines 958 – 981, and second rebuttal testimony of Donna Ramas, lines 39 – 49.

[3] Docket 17-035-40, Second Rebuttal Testimony of Philip Hayet for OCS, April 17, 2018, lines 581 – 585.

Division and Mr. Mullins of UAE/UIEC also note that PPAs help avoid risk for customers.[4] Acquiring resources through a combination of self-build projects, Build Transfer Agreements, and Power Purchase Agreements will diversity the Company's asset portfolio, further protecting ratepayers.

B. <u>SOLAR RESOURCES</u>

Q. Have other parties made recommendations regarding the responses to the Solar RFP?

A. Yes**.** The Office, the Division, and WRA all note that the Company's solar sensitivity analyses appear to demonstrate that there are economic opportunities to acquire low-cost solar resources that offer benefits to customers.[5] UAE/UIEC expresses concern that the responses to the solar RFP may in fact be more economic than the Combined Projects,[6] and the Division states that an investment in the Combined Projects represents an opportunity cost because it may result in the Company "foreclosing other, possibly economic alternative generation resources, battery storage capabilities, plant closures, or transmission alternatives by investing $2.245 billion now."[7]

[4] Docket 17-035-40, Second Rebuttal Testimony of Joni Zenger for DPU, April 17, 2018, lines 207 – 210.
Docket 17-035-40, Second Rebuttal testimony of Bradley Mullins for UAE/UIEC, April 17, 2018, lines 329 – 340.

[5] Docket 17-035-40, Second Rebuttal Testimony of Mr. Hayet, lines 492 – 585.
Docket 17-035-40, Second Rebuttal Testimony of Joni Zenger, DPU, April 17, 2018 lines 207 – 210.
Docket 17-035-40, Second Rebuttal Testimony of Mr. Mullins, lines 38 – 40.
Docket 17-035-40, Prefiled Response Testimony of Nancy Kelly for Western Resource Advocates, April 17, 2018, lines 416 – 420.

[6] Docket 17-035-40, Second Rebuttal Testimony of Mr. Mullins, lines 329 – 340.

[7] Docket 17-035-40, Second Rebuttal Testimony of Ms. Zenger, lines 357 – 361.

Q. **Do you agree with the statements that the Company should consider other economic options apart from the Combined Projects?**

A. Yes, the Investment Tax Credit (ITC) creates an opportunity to acquire low-cost solar resources just as the PTC creates an opportunity to acquire low-cost wind resources. I would note that the opportunity costs that Ms. Zenger addresses also apply to the Combined Projects. The Company has an opportunity to invest in wind resources now while the PTCs are available. If the Combined Projects are forgone, ratepayers will likely pay more for future wind resources. The Company should take advantage of the PTCs now through the Combined Projects and also explore other opportunities to acquire economic renewable resources, especially while the ITC remains in place. To the extent that the Company can maximize benefits to ratepayers by taking advantage of economic opportunities, perhaps from the solar RFP, the Company should do so.

III. The Combined Projects Provide a Benefit to Ratepayers

A. THERE IS A NEED TO ADOPT COST EFFECTIVE CLEAN ENERGY RESOURCES

Q. Generally, how have parties responded to the Company's Second Supplemental Direct Testimony and Exhibits?

A. For the purpose of brevity I do not reiterate every comment voiced by parties, but in general the overarching concerns of the Office, the Division, and UAE/UIEC appear to be that the Company's assessment of the benefits of the Combined Projects are overstated while risks are uncertain or understated, suggesting that the status quo is more economic for ratepayers. Some parties are also concerned about the modeling assumptions used when evaluating the costs and benefits of the Combined Projects, that the Company does not have an imminent need for new energy resources, or that there are opportunities to take advantage of lower-priced resources, including solar.[8]

Ms. Kelly of Western Resource Advocates finds that the economic case for the Combined Projects supports their approval; that modeling sensitivities show that it is cheaper to invest in the Combined Projects than to continue to operate the existing system, and that the acquisition of the Combined Projects, and other renewables, will help the Company meet challenges and address uncertainty associated with a transitioning industry.[9]

Q. Do you agree with the Office, the Division, and UAE/UIEC that the benefits of the Combined Projects are too uncertain for the Company's proposal to be in the public interest?

A. No, I do not. First, the PTC creates an opportunity to invest in clean energy resources at a reduced cost to ratepayers. The current value of the Production Tax Credits is 2.4 cents per kilowatt-hour.[10] If this project were to be constructed forgoing the PTC, it is reasonable to assume that it would be at an equivalently higher cost to ratepayers.

Second, all long-term resource decisions must inherently rely on assumptions about the future. Renewable resources insulate ratepayers against uncertainty by providing reliable carbon-free long-term power at zero fuel costs. There is no certainty that fuel prices will remain at their current low in the future. Proactive and economic investments in energy

[8] Docket 17-035-40, Second Rebuttal Testimony of Mr. Mullins, lines 24 – 47.
Docket 17-035-40, Second Rebuttal Testimony of Mr. Hayet, lines 39 – 64.
Docket 17-035-40, Second Rebuttal Testimony of Ms. Zenger, lines 39 – 85.
Docket 17-035-40, Second Rebuttal Testimony of Mr. Peaco for the Division, April 17, 2017, lines 16 – 69.
[9] Docket 17-035-40, Second Rebuttal Testimony of Ms. Kelly, lines 42 – 56.

[10] IRS Notice 2017-33.

resources that protect ratepayers from increases in future fuel costs and the consequences of carbon regulation are in the public interest.

Third, resource decision proposals characterized as economic opportunities may be in the public interest without an imminent capacity need. In her second rebuttal testimony, Ms. Ramas of the Office cites Joelle Steward of the Company's discussion of previous examples where the Commission determined that economic opportunity projects were in the public interest.[11]

Q. How do you response to the following statement from Ms. Zenger of the Division: "The status quo, in other words, requires no additions of the type the Company is advocating."[12]

A. The status quo is likely to result in a costlier future compared to an investment in the Combined Projects. As described in my direct testimony from December 5, 2017, scientific consensus has determined that it is necessary to reduce net global carbon dioxide emissions substantially by 2040, and that emissions must become zero or negative by the end of the century.[13] In order to meet the CO2 concentrations laid out by the Climate Science Special Report released by the White House in 2017[14] and CO2

[11] Docket 17-035-40, Second Rebuttal Testimony of Ms. Ramas, lines 179 – 189.

[12] Docket 17-035-40, Second Rebuttal Testimony of Ms. Zenger, lines 53 – 54.

[13] In order to limit global annual average temperature rise to 3.6°F (2°C) or less, compared to preindustrial levels. Climate Science Special Report: Fourth National Climate Assessment, Volume I. Executive Summary, P22. (https://science2017.globalchange.gov/)

[14] Ibid

targets agreed to by the overwhelming majority of the international community, we must make significant reductions to CO_2 emissions in the next few years. A rapid transition to clean energy resources is necessary and requires exactly the type of resource additions the Company has proposed. The PTC creates an additional opportunity to begin this necessary transition at a lower cost to ratepayers. On the other hand, if the Company waits a few years to pursue the new wind projects, they are likely to be more expensive.

Q. Several parties have concluded that the Company has not demonstrated that the Combined Projects will result in the least-cost, least-risk acquisition, production, and delivery of electricity as required by Utah Code § 54-17-302.[15] How do you respond?

A. I have already discussed that the Combined Projects, after considering all relevant factors, are in the public interest. The parties opposing the projects do not fully consider the range of factors laid out in Utah Code for consideration when determining whether a project is in the public interest and would result in just and reasonable rates. Utah Code § 54-17-302 describes factors for consideration in determining whether an energy resource decision is in the public interest, including "whether it will most likely result in the acquisition, production, and delivery of electricity at the lowest reasonable cost" to customers (Utah Code § 54-17-302 (3)(c)(i)). Among the remaining five factors for consideration are long-term and short-term impacts, risk, and "other factors determined

[15] Docket 17-035-40, Second Surrebuttal Testimony of Mr. Mullins, lines 29 – 31.
Docket 17-035-40, Second Surrebuttal Testimony of Mr. Hayet, lines 1010 – 1012.
Docket 17-035-40, Second Surrebuttal Testimony of Ms. Zenger, lines 602 – 604.
Docket 17-035-40, Second Surrebuttal Testimony of Mr. Peaco, lines 1313 – 1317.

by the commission to be relevant" (Utah Code § 54-17-302 (3)(c)(ii,iii,vi)). The Combined Projects will hedge against future fuel price fluctuations and higher prices on CO2, avoiding risk for ratepayers. I have also described the additional value of mitigating the costs of climate change for Utahns and ratepayers, which is not included in the Company's analysis and can be considered under Utah Code § 54-17-302 (3)(c)(vi). Further, the wider lens of Utah Code § 54-3-1 provides guidelines for just and reasonable ratemaking, which include the following considerations:

- the cost of providing service to each category of customer
- economic impact of charges on each category of customer
- the well-being of the state of Utah
- methods of reducing wide periodic variations in demand of such products, commodities or services
- means of encouraging conservation of resources and energy

When considering the Combined Projects, the costs of which will ultimately be assigned to customers through rates, it is important to consider the economic impacts of Combined Projects on each category of customer and on customers as a whole. It is also important to consider the value the Combined Projects will offer in the latter three categories under § 54-3-1 by conserving resources, reducing customer risk associated with fuel price fluctuations, and addressing climate change and its attendant risks and costs in support of the well-being of the state of Utah. The parties opposing the combined projects have not appropriately considered all of these factors in their analysis.

B. Benefits of Fuel Price Hedge

Q. Do you agree with Ms. Kelly's assessment that the fuel price forecasts included in the Company's analysis of the Combined Projects are conservative?[16]

A. Yes. The Company provided an analysis of costs and benefits resulting from the Combined Projects for three fuel price forecasts, including low, medium, and high fuel prices based on OFPC natural gas prices and third-party forecasts. Ms. Kelly states that, "As with its April 2017 forecast, for the current vintage of natural gas prices, PacifiCorp's natural gas price forecasts appear not only reasonable, they appear conservative," and notes that the Company's OFPC is lower than both vendor forecasts and EIA forecasts.[17]

Q. What is the significance of Ms. Kelly's concerns?

A. Fuel price forecasts are a key driver of the economic benefits of the Combined Projects. The new wind projects will produce energy with zero fuel costs for the lifetime of the resource. The Combined Projects have an economic advantage to the extent that the levelized cost of producing wind energy is less than the cost of generating fossil-fuel energy. While the costs associated with energy produced throughout the lifetime of the wind projects are largely known, the future price of fuel is unknown. To the extent that fuel prices are lower than the Company's forecast, the Combined Projects could impose additional costs (or offer reduced benefits) compared to those predicted by the Company's analysis. However, if fuel prices rise above the Company's forecasted prices,

[16] Docket 17-035-40, Second Surrebuttal Testimony of Ms. Kelly, lines 279 – 287.

[17] Docket 17-035-40, Second Surrebuttal Testimony of Ms. Kelly, lines 279 – 287.

then the Combined Projects will deliver additional benefits to ratepayers compared to the Company's analysis.

Q. Is it reasonable to assume that fuel prices may increase beyond the Company's projections?

A. Yes. As noted by Ms. Kelly, the risk that the Company's natural gas price forecasts are too high is less significant than the risk associated with forecasts being too low.[18] This risk is asymmetrical: natural gas prices are currently low compared to historical averages, so there is little room for natural gas prices to decline further. On the other hand, natural gas prices have historically been much higher and there is potential for gas prices to rise much more than it is possible for them to fall. In the event of a disruption in availability or supply there is no upper limit on the potential price of fuel.

C. <u>BENEFITS OF CO2 PRICE HEDGE</u>

Q. In rebuttal testimony, Ms. Kelly asserts that the reduced CO2 assumptions included in the Company's January 15, 2018 filing are not reasonable. Do you agree?

A. Yes. Ms. Kelly's concerns are significant because benefits from the Combined Projects depend, in part, on assumptions related to future carbon regulations. Renewable resources emit no carbon emissions. Therefore renewable resources decrease risk associated with regulation that imposes costs on carbon emissions that would otherwise be passed on to ratepayers. Renewable resources are an important component of a least-cost, least-risk portfolio. Accelerating the procurement of renewables while the PTC and ITC are

[18] Docket 17-035-40, Second Surrebuttal Testimony of Ms. Kelly, line 291.

available to reduce costs for ratepayers is an economic strategy to reduce risks and future costs to ratepayers.

The Company provided an analysis of costs and benefits resulting from the Combined Projects for three carbon price forecasts, including low, medium, and high carbon costs. The low carbon price forecast does not actually assume a "low" cost for carbon, but in fact represents a future with zero carbon costs through 2036. The Company updated this price forecast in its January 16 filing, revising cost assumptions downward.[1] Ms. Kelly states that the "risk of carbon regulation is significantly greater than captured in the analysis of the Company," and explains that "the current regulatory environment is dynamic, highly uncertain, and has the potential to boomerang, advancing carbon regulation more rapidly than anticipated even in the April 2017 price forecast. EPA is required to regulate CO2 as a pollutant. While the timing and stringency of future CO2 regulation might be an issue, it would be naïve to assume that CO2 regulation will not be part of our future."[19]

Q. Do other parties doubt or dispute the likelihood of future carbon regulations?

A. Yes, in testimony for the Office, Mr. Hayet discusses the possibility that there will not be any carbon regulation in the 2036 planning horizon and possibly not in 2050 planning horizon.[20]

Q. How do you respond?

[19] Docket 17-035-40, Second Surrebuttal Testimony of Ms. Kelly, lines 352 – 353 and 346 – 350.

[20] Docket 17-035-40, Second Surrebuttal Testimony of Mr. Hayet, lines 461 – 463.

A. As discussed in my direct, rebuttal, and surrebuttal testimony in this docket, while it is possible that there will not be any carbon regulation in the next few years, the scientific consensus and the growing number of states and countries that have created climate policies indicates that it is probable that we will experience the effects of a cost on carbon during the planning horizon. There is widespread scientific consensus based on information available today that significant carbon dioxide emissions reductions are necessary to mitigate impacts of climate change.[21] The combustion of fossil fuels to generate electricity is the largest single source of CO2 emissions in the US, accounting for 34 percent of US CO2 emissions.[22] Therefore, the electricity industry is likely to be among the first impacted by any future regulations on CO2. As noted in my first surrebuttal testimony, in 2018 the Utah legislature passed HCR7, 'Concurrent Resolution

[21] As described in the Executive Summary of the Climate Science Special Report (CSSR),

"This assessment concludes, based on extensive evidence, that it is extremely likely that human activities, especially emissions of greenhouse gases, are the dominant cause of the observed warming since the mid-20th century. For the warming over the last century, there is no convincing alternative explanation supported by the extent of the observational evidence." (See Executive Summary: https://science2017.globalchange.gov/chapter/executive-summary/)

The Climate Science Special Report (CSSR) is an assessment of the science of climate change and is overseen by a Steering Committee composed of representatives from the National Oceanic and Atmospheric Administration (NOAA), the National Aeronautics and Space Administration (NASA), the Department of Energy (DOE), the US Global Change Research Program (USGCRP), and three Coordinating Lead Authors.

The findings of the CSSR "are based on a large body of scientific, peer-reviewed research, as well as a number of other publicly available sources, including well-established and carefully evaluated observational and modeling datasets. The team of authors carefully reviewed these sources to ensure a reliable assessment of the state of scientific understanding. Each source of information was determined to meet the four parts of the quality assurance guidance provided to authors (following the approach from NCA3): 1) utility, 2) transparency and traceability, 3) objectivity, and 4) integrity and security. Report authors assessed and synthesized information from peer-reviewed journal articles, technical reports produced by Federal agencies, scientific assessments (such as the rigorously-reviewed international assessments from the Intergovernmental Panel on Climate Change,1 reports of the National Academy of Sciences and its associated National Research Council, and various regional climate impact assessments, conference proceedings, and government statistics (such as population census and energy usage)." (See "About This Report: https://science2017.globalchange.gov/chapter/front-matter-about/.

[22] U.S. Environmental Protection Agency, "Overview of Greenhouse Gas Emissions". https://www.epa.gov/ghgemissions/overview-greenhouse-gases#carbon-dioxide.

on Environmental and Economic Stewardship', a bill that recognizes the impacts and risks that climate change poses to Utahns, "including wildfires, water scarcity, and flooding."[23] Further, HCR 7 encourages corporations and state agencies to reduce emissions. Outside the U.S., 42 countries have implemented a price on carbon.[24] These actions indicate that the paradigm is shifting towards regulating carbon.

I agree with Ms. Kelly's statement that "the [Company's] benefit results do not adequately capture the likelihood that carbon regulation will impose costs on fossil-fuel generation. Therefore, the benefit results undervalue the potential economic benefit of the Wind Projects."[25] In this context, "The acquisition of renewable energy constitutes a robust resource decision given future industry uncertainties."[26] On the other hand, there is risk associated with foregoing the Combined Projects in favor of the status quo: continued reliance on fossil fuel resources.

Q. How did the CO2 price forecasts change in the Company's most recent filing?

A. The low CO2 price forecast continues to assume no price on carbon until 2050. The medium CO2 scenario delays implementation of CO2 regulation from 2025 to 2030 and the forecast price in 2036 is reduced from approximately $13/Ton to $8/Ton. The new

[23] Utah State House of Representatives Concurrent Resolution 7 (2018)

[24] Carbon Pricing Leadership Coalition, https://www.carbonpricingleadership.org/who/

[25] Docket No. 17-035-40, Second Surrebuttal Testimony of Ms. Kelly, lines 356 – 358.

[26] Docket No. 17-035-40, Second Surrebuttal Testimony of Ms. Kelly, lines 52 – 54.

high CO2 scenario delays implementation of CO2 regulation by one year, from 2025 to 2026, and increases to a high of about $19/Ton in 2036, compared to about $38/Ton.[27]

Q. How has this revised forecast affected the benefits associated with the Combined Projects?

A. The net impact of the Company's revised CO2 forecasts is a reduction of benefits associated with the Combined Projects. In the case of the medium CO2 scenario, the benefits are reduced by approximately $6.3 million in 2025 and a total of approximately $74 billion through 2036. In the case of the high CO2 scenario, the benefits are reduced by approximately $8.8 million in 2025 and a total of approximately $231 billion through 2036.[28]

Q. What conclusions do you draw from this analysis?

A. This analysis demonstrates that a slight shift in assumptions regarding carbon regulations, between a forecast the Company considered reasonable in June 2017 to the forecast used in the Company's January 2018 filing, resulted in significant changes to benefits experienced by ratepayers. The Company has provided an analysis of the "riskiest" possible situation with regard to benefits derived from CO2 costs: that there is zero cost on CO2 for the duration of the planning horizon. The impact on ratepayers of the "worst case scenario" with regards to these benefits is known. However, there is no upward bound on the potential cost of CO2. A reversion of the CO2 forecast to the assumptions used by the Company in June of last year results in an additional $74 - $230 million in

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[27] Rocky Mountain Power Figure 4-SD CO2 Price Data, Filed January 16, 2018.

[28] See Utah Clean Energy Exhibit 3 – Calculation of Change in CO2 Benefits.

benefits to ratepayers. If CO2 costs were to rise above the Company's forecast, additional benefits would accrue to customers. Given the current societal and regulatory trajectories towards regulating carbon, the Combined Projects are likely to convey more benefits to ratepayers than what the Company has projected.

D. <u>ADDITIONAL FACTORS TO CONSIDER</u>

Q. The Office, Division, and UAE and UIEC provide a discussion and analysis of the costs and benefits of the Combined Projects. Are there categories of costs and benefits that the Office and Division have not addressed that should be considered?

A. Yes. Utah Code § 54-17-302 directs the Commission to consider whether a significant energy resource decision is in the public interest, taking into consideration a variety of factors including "other factors determined by the commission to be relevant." In direct, rebuttal, and surrebutal testimony in this docket, I have provided information about the risks and costs of climate change as a factor for the Commission to take into consideration. These include risks and costs that will impact electricity generation and therefore Utah ratepayers specifically (such as rising temperatures and extended heat waves, a rise in the incidence of forest fires, disruptions in seasonal water availability, and increased variability and unpredictability) and those that will impact the health and well-being of Utahns generally (including increased ground level ozone, economic consequences and job losses, and increased droughts). In summary, the risks and costs of failure to curtail carbon emissions sufficiently to avoid the worst impacts of climate change are enormous. For this reason, it is in the best interest of Utah ratepayers to transition PacifiCorp's resource mix to carbon-free renewable resources as quickly and as economically as possible.

IV. Summary and Conclusions

Q. Please summarize your testimony.

A. Utah Clean Energy continues to support the approval of the Combined Projects and also the consideration and evaluation of the solar RFP results in conjunction with these projects. There is currently a time-limited opportunity to take advantage of the Federal ITC and PTC to procure very low cost wind and solar resources for the benefit of ratepayers. I do not dispute claims that there is risk associated with the Combined Projects, as is the case with any long-term resource acquisition, and I support the ratepayer protections recommended by Mr. Hayet, Mr. Vastag, and Ms. Ramas for the Office.

Although they are not without risk, the Combined Projects will provide significant long-term benefits for ratepayers. The Combined Projects will help insulate ratepayers from risk associated with fuel price fluctuations and regulation on carbon. In fact, due to the Company's conservative fuel price and carbon forecasts, the Combined Projects are likely to deliver benefits in excess of those reported in the Company's January 16, 2018 filing. Finally, the Combined Projects are an important step towards curtailing carbon emissions sufficiently to avoid the most costly impacts of climate change. When the Combined Projects are considered as a whole, and accompanied by reasonable ratepayer protections, I believe that they are in the public interest.

Q. Does that conclude your testimony?

A. Yes.