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Before the Public Service Commission of Utah

In the Matter of PacifiCorp's 2017 Integrated Resource Plan	Docket No. 17-035-16 Joint Comments of Utah Clean Energy and Southwest Energy Efficiency Project on 2017 IRP Update

I. INTRODUCTION

Utah Clean Energy (UCE) and the Southwest Energy Efficiency Project (SWEEP) are concerned about PacifiCorp's dramatic cuts to demand-side management (DSM) targets in the 2017 Integrated Resource Plan Update (Update) and the corresponding cuts to DSM program implementation that PacifiCorp has made to their 2018 DSM programs. The proposed cuts to DSM savings are not in the public interest as DSM continues to be a highly cost-effective energy resource and offers value that the Company is not considering, such as grid flexibility, long-term risk reduction, and mitigating load growth from electrification, which we do not think is adequately captured in the IRP load forecast.

II. COMMENTS ON THE 2017 IRP UPDATE

a. The 2017 IRP Update Shows a Significant Decline in DSM.

As compared to the 2017 Integrated Resource Plan (IRP), the level of Class 2 DSM selected in the Update shows a very significant level of decline. This comes at a time when the cost of energy efficiency continues to be highly affordable when compared with other resources.

For example, the average cost of DSM programs implemented by Rocky Mountain Power (RMP) in 2017 was $0.0283 per kWh saved.[1] RMP's 2017 program year energy savings were cost effective, with a benefit-cost ratio of 2.23 under the utility cost test.[2] In other words, every $1.00 invested in energy efficiency incentive programs yielded $2.23 in savings for RMP ratepayers in 2017. RMP's reduction in energy efficiency is not in the public interest as energy efficiency continues to be a highly cost-effective energy resource that provides economic savings to utility ratepayers.

In addition, a levelized costs of $0.0283 per kWh saved makes energy efficiency cost less than all other new supply side resources in the Update, with the exception of repowered wind generation in the Energy 2020 project.[3] At this cost energy efficiency is less expensive than the average electricity cost as modeled in the IRP in every year of the planning horizon.[4] Given this, we find it surprising that the PacifiCorp models have dramatically reduced the level of DSM in the Update compared with the 2017 IRP. PacifiCorp's planned reductions in energy efficiency is setting PacifiCorp's DSM targets up to be among the lowest performing in the nation.

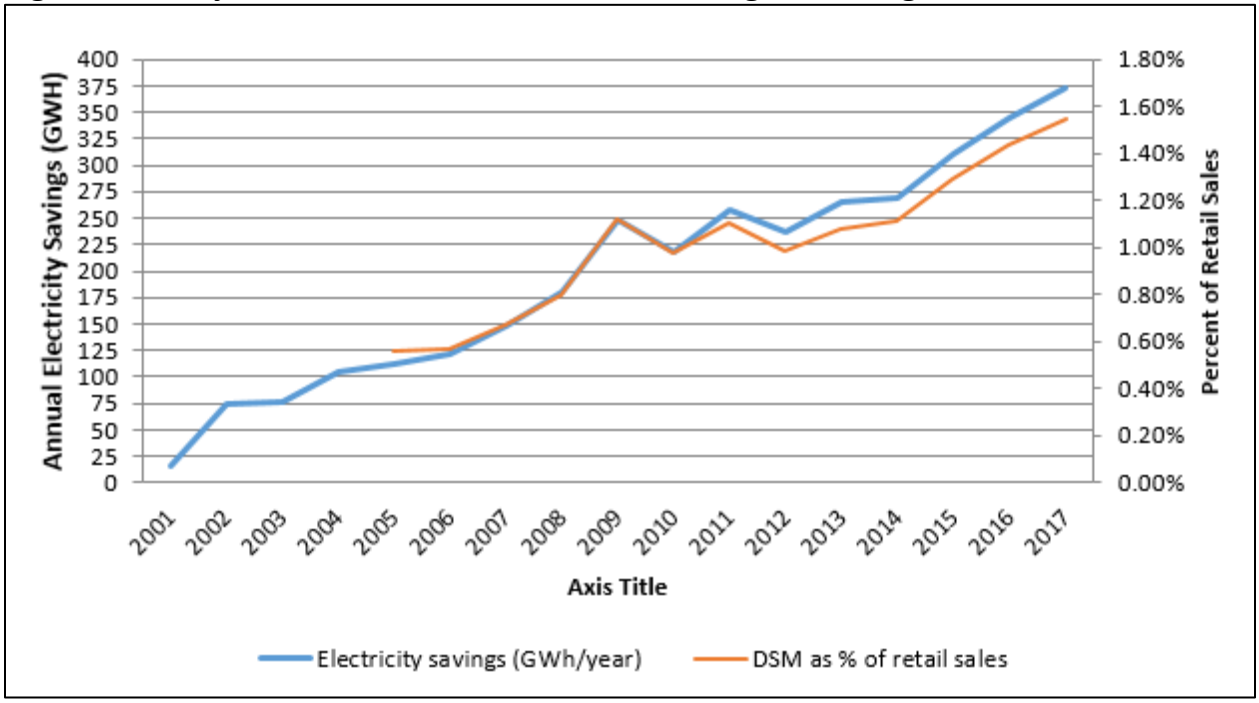
In 2018 RMP significantly reduced incentives in the commercial lighting segment because it was exceeding the savings level from their November 2017 forecast. The increased level of electricity savings is not due to a transformed market, as claimed by the company, but instead to incorrect assumptions in PacifiCorp's Update and improved technologies lowering the levelized cost of these measures from an estimated $0.06/kwh in the CPA to $0.02/kwh in the 2017 program year, and potentially lower now. This is one example of the issues with setting

[1] Rocky Mountain Power Demand-Side Management 2017 Annual Energy Efficiency and Peak Load Reduction Report, Appendix 2 Utah Cost Effectiveness, Table 5 – 2017 Total Portfolio Cost-Effectiveness Results, page 3.
[2] *Id*., page 6.
[3] PacifiCorp 2017 IRP, Table 6.2 and PacifiCorp 2017 IRP Update, Table 5.6.
[4] PacifiCorp 2017 IRP Update, pages 57-58.

DSM targets based solely on IRP modeling, where technologies and costs can change dramatically even within a short period of time.

Between 2008 and 2017, RMP generated increased levels of electricity savings along with improved ratio of DSM as a percentage of retail sales, see Figure 1.[5]

Figure 1 - Rocky Mountain Power Demand-side Management Program Trends



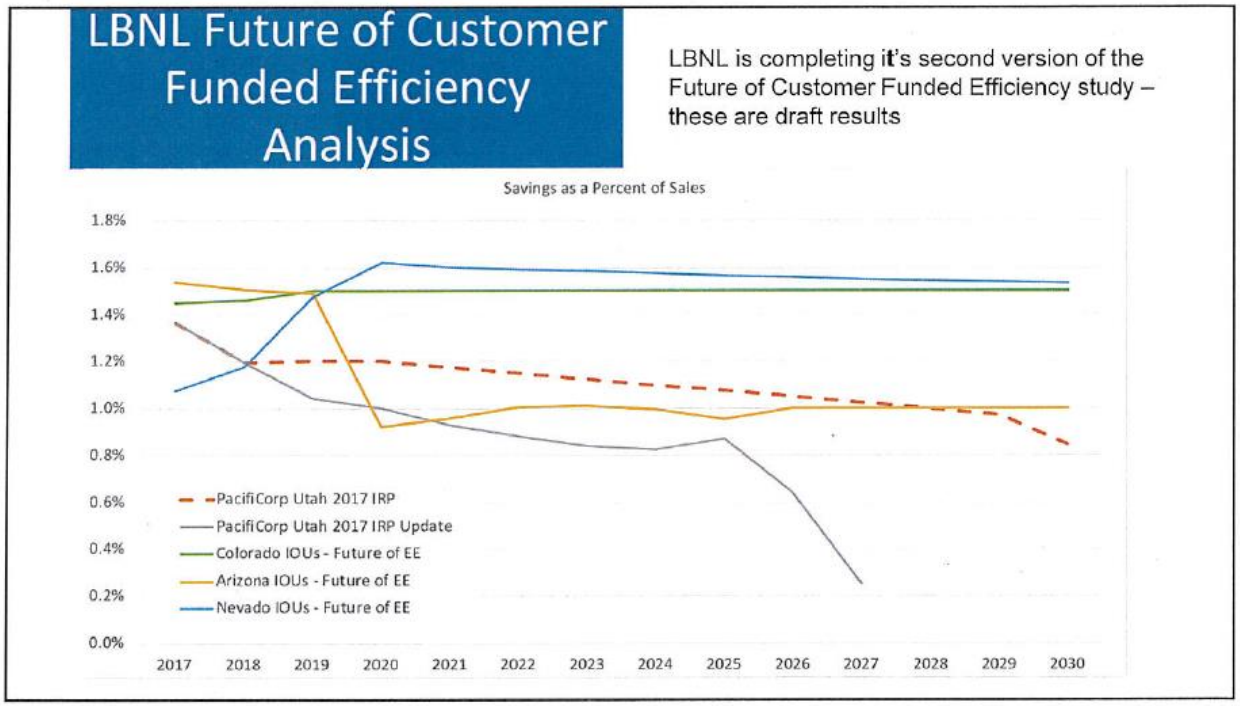
The 2017 IRP Update sets the stage for dramatic reductions in the amount of electricity savings RMP achieves as a percentage of retail sales. As illustrated in Figure 2 (grey line), according to the Update, RMP would move from meeting approximately 1.4% of its retail sales in 2017 with energy efficiency to under 0.4% by 2027, well below the median for U.S. utility programs.[6,7]

[5] Graph developed by Utah Clean Energy based on data from Utah Public Service Commission, *found at* https://psc.utah.gov/wp-content/uploads/sites/35/2017/05/DSM-Program-History-05172017.xlsx; Rocky Mountain Power (see note 1); and PacifiCorp's Q4 2017 FERC Form 1, Page 304, *found at* https://www.ferc.gov/docs-filing/forms/form-1/data.asp.

[6] Technical analysis from National Renewable Energy Lab and Lawrence Berkeley National Laboratory for Utah Solar Energy Innovation Network, May 2018 (unpublished analysis).

[7] Table 9 2016 net incremental electricity savings by state, ACEEE 2017 State Scorecard, page 29, *found at* http://aceee.org/research-report/u1710.

Figure 2 – Dramatic Reduction in Performance of Rocky Mountain Power DSM Selections as Compared to Other Utilities



This huge drop in energy savings is counter the Utah Legislature's HJR9, *Joint Resolution on Cost-effective Energy Efficiency and Utility Demand-side Management*, through which the Utah Legislature expressed support for energy efficiency programs and encouraged electricity savings levels for RMP of no less than 1% of retail sales.[8] As noted above, the reduced levels of energy savings proposed in the Update fall well below this 1% level. Utah's population (and associated growth in new buildings and demand for additional electricity consumption, etc.) is expected to double by 2050. During this time energy efficiency should be increased not decreased.

More troubling is that RMP is adjusting program delivery and incentive levels in high performing programs to prevent implementation of DSM from exceeding the levels identified in

[8] H.J.R. 9 Joint Resolution on Cost-effective Energy Efficiency and Utility Demand-side Management (2009), *found at* https://le.utah.gov/~2009/bills/static/HJR009.html.

the Update. One example of this is in the Commercial Lighting program.[9] Around the country, commercial lighting programs are seeing large growth, as prices come down for linear LED technologies and the variety of LED bulbs grows to offer solutions for additional applications. However, this transition is just beginning and commercial lighting measures still require utility support to speed the transition. The infancy of this market can be seen by comparing baseline energy consumption data in PacifiCorp's own Conservation Potential Study (CPA). As shown in Table 1 below, the average energy intensity for the two largest lighting categories in Utah's commercial office market segments has increased over the past two years. In a transformed market, where LEDs dominated, one would expect the baseline energy intensity (kwh/ft^2) to decrease, as efficient LEDs replace older technologies and are installed in new buildings.

Table 1 - Average Baseline Energy Intensity for Lighting

Market Segment	Lighting Technology	2017 CPA Baseline Intensity (kwh/ft^2)[10]	2019 CPA Baseline Intensity (kwh/ft^2)[11]
Large Office	Linear Lighting	1.76	1.87
Large Office	High-Bay Fixtures	1.31	1.10
Small Office	Linear Lighting	1.54	1.68
Small Office	High-Bay Fixtures	1.51	1.64

An increase in average energy intensity shows a market where inefficient fluorescent lamps are still dominating. In a recent lighting market study by Xcel Colorado, Xcel found that

[9] PacifiCorp, 45-Day Notice, May, 17 2018, *found at* https://www.rockymountainpower.net/content/dam/rocky_mountain_power/doc/Business/Save_Energy_Money/UT_wattsmartBusiness_Planned_Changes_May_for_July_2018.pdf.

[10] PacifiCorp Demand-Side Resource Potential Assessment for 2017-2036, Appendix A, Tables A-91 and A-92, pages 105 and 106, *found at* http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Demand_Side_Management/2017_DSM_Potential_Study/PacifiCorp_DSM_Potential_Vol4A-G_Class2_Appendix_FINAL_2017-02-14.pdf.

[11] 2019 Market Characterization Spreadsheet provided to SWEEP and UCE on July 13, 2018.

about 77% of the lighting in commercial buildings was fluorescent lighting in 2015.[12] About half of this was more efficient types of fluorescent lighting (T8 and T5 lamps) but about half was inefficient T12 type fluorescent lighting, and the penetration of LEDs into the commercial market was less than 1% in 2015. Federal energy efficiency standards on fluorescent lamps were expected to have largely eliminated inefficient T12 fluorescent lamps in the marketplace, but Xcel Colorado found that this was not the case. A loophole in the federal standards, namely allowing continued production and sale of T12 lamps with a high color-rendering index (CRI), was being exploited to maintain widespread sale and use of low-cost but inefficient T12 lamps.

Recent technological innovation led to the development and commercialization of a brand new energy-efficient lighting option—LED lights. LED light tubes (so-called TLED lamps) can now replace fluorescent lamps. Complete LED fixtures can now replace fluorescent light fixtures (luminaires). This new technology, which had close to zero market penetration as of 2015, reduces energy consumption compared to efficient fluorescent lighting by approximately 50% simply through LED light tube replacement. And by installing occupancy sensing, personal tuning and/or daylighting controls in conjunction with LED lights, an additional 24-38% energy savings can be realized.[13] Thus, far from being transformed, the commercial lighting market is primed for aggressive utility-sponsored DSM efforts to promote new TLED lights.

[12] The Cadmus Group. Colorado Light Market Study. January 14, 2016, *found at* https://www.xcelenergy.com/staticfiles/xe/PDF/Regulatory/CO-DSM/CO-Regulatory-DSM-Lighting-Market-Study.pdf.

[13] D. York et al. New Horizons for Energy Efficiency: Major Opportunities to Reach Higher Electricity Savings by 2030. Washington, DC: ACEEE. Sept. 2015. p. 119, *found at* http://aceee.org/sites/default/files/publications/researchreports/u1507.pdf.

In our October 24, 2017 joint comments submitted in response to the 2017 IRP, UCE and SWEEP urged the Commission to direct RMP to acquire "all cost-effective" DSM.[14] In response, the Company stated that through the IRP process the company "continues to identify all energy resources that are cost-effective compared to resource alternatives."[15] However, it appears that the IRP modeling process continues to undervalue DSM resources. The undervaluing of DSM is likely due to an overly conservative CPA. For example, when calculating the Class 2 DSM potential from the 2017 CPA, PacifiCorp identified an achievable technical potential of 2,842,304 MWh with a levelized cost of less than $22.54/MWh.[16] Assuming RMP could acquire an equal amount of energy efficiency in each year, the annual achievable technical potential at this cost would be 142,115 MWh. In 2017, RMP acquired over twice as many Class 2 DSM resources at less than this average levelized cost.

We request that the Commission direct RMP to include additional granularity in the CPA for the 2019 IRP, similar to the level of detail in Xcel Energy's commercial lighting market study. Specifically, we would ask for the percentage of market participants that have already adopted the most efficient technologies through the Wattsmart incentive programs and an estimate of the percent that has not yet adopted the incentivized technology. By breaking down each market into these percentages, PacifiCorp will be better equipped to understand true saturation levels of efficient technologies. This will help ensure that DSM programs are tailored to address actual saturation levels, instead of false signals such as drops in prices due to

[14] Initial Comments of Utah Clean Energy and Southwest Energy Efficiency Project. October 24, 2017, page 14, *found at* https://pscdocs.utah.gov/electric/17docs/1703516/297571InitCommUCE,SWEEP10-24-2017.pdf.
[15] Rocky Mountain Power Reply Comments. December 15, 2017, page 19-20, *found at* https://pscdocs.utah.gov/electric/17docs/1703516/298525RMPReplyComm12-15-2017.pdf.
[16] This is the sum of the four least expensive bundles in Tables 6.13 and 6.14 of the 2017 IRP.

technological advances that may be misinterpreted as an indication that the DSM incentive programs are no longer necessary.

b. DSM Benefits are not Adequately Represented in the 2017 IRP Update.

DSM provides important benefits to our utility system, including grid flexibility, long-term risk reduction, and mitigating expected load growth of electrification. These benefits are not adequately captured in the Update.

i. Grid Flexibility

Continued investment in DSM is an important strategy to help Utah's utility grid become more nimble while incorporating more renewable energy. Enhanced demand response will help shift demand away from times that variable renewable energy generation is unavailable and shift demand to time that renewable energy generation is plentiful.

ii. Long-Term Risk Reduction

In addition to the positive economic impacts to ratepayers, energy efficiency and DSM also provide important risk reduction benefits in light of the risks posed by climate change. The Climate Science Special Report (CSSR), a part of the Fourth National Climate Assessment, highlights documented and anticipated changes that result from human-caused emissions of greenhouse gases. These changes include projected increases of large forest fires in the western United States, expected continuation and lengthening of drought periods, and more frequent heatwaves.[17] Increased frequency of heatwaves not only pose risks to public health but also create spikes in electricity demand, which have strained much of the country's electricity grid this summer. In this new reality of a changing climate, increased levels of DSM directly helps

[17] Climate Science Special Report: Fourth National Climate Assessment, Volume I, Executive Summary, *found at* https://science2017.globalchange.gov/chapter/executive-summary/.

blunt the increased demand for electricity. The CSSR makes clear the necessity for dramatic reductions of greenhouse gas emissions to avoid the most severe impacts of climate change, which pose significant immediate and long-term risks. While in recent years emissions growth rates have slowed as economic growth has become less carbon-intensive, the slowing trend is not yet sufficient to "limit global average temperature change to well below 3.6°F (2°C) above preindustrial levels" the accepted limit of warming to prevent potentially irreversible changes to our planet's climate.[18] The CSSR emphasizes that "choices made today will determine the magnitude of climate change risks beyond the next few decades." Given energy efficiency's role in reducing greenhouse gas emission through reduced demand for fossil fuel-based electricity generation and the imperative to make choices today that contribute to reduced emissions, we believe that it is in the public interest to investigate high DSM scenarios in the 2019 IRP process.

Opportunities exist today to mitigate climate change emissions in economically positive ways. For example, the company recently released findings from its unit-by-unit coal analysis. The study examined the costs and benefits of retiring PacifiCorp's coal units by 2022. Based on the results of the study the company determined that additional study was warranted to more fully understand the effects of early coal unit retirements. While PacifiCorp deemed its coal unit study to be confidential, the company's conclusion that additional analysis is warranted suggests there could be benefits to early coal-unit retirements. This conclusion is substantiated by the recent analysis completed by Energy Strategies, which found that many of PacifiCorp's coal fleet is uneconomic when compared to renewable energy resources. We believe that, given the cost-effectiveness of DSM, that DSM resources are also more economic. In light of the studies

[18] *Id.*

indicating early economic coal plant retirement, DSM is likely to be a valuable resource to help replace retired capacity.

State policy has recently taken a step toward institutionalizing analysis of climate risks and promotion of solutions to climate pollution. Through the passage of the *Concurrent Resolution on Environmental and Economic Stewardship*, Utah lawmakers and the Governor support prioritizing "use of sound science to address causes of a changing climate" while encouraging state agencies to "reduce emissions through incentives and support of growth in technologies and services that will enlarge our economy."[19] Utility-sponsored energy efficiency incentive programs are a proven strategy to reduce demand for electricity, which, in RMP's Utah service territory is still supplied largely by coal generation (approximately 62%).[20] Reducing demand for electricity generation from fossil-fuel based power plants is an essential strategy to curb greenhouse gas emissions, mitigate direct contributions to climate change, while also growing Utah's economy. Energy efficiency and DSM should be allowed to compete directly with coal units in future IRP processes. We request that the Commission direct PacifiCorp to allow the SO to select DSM as a resource on equal footing to all other potential resources, which would require the SO to consider coal units outside the scope of the regional haze analysis.

iii. Mitigating load growth from electrification:

Increasing energy efficiency investments will continue to be an essential strategy to mitigate increased electricity demand as transportation and heating electrification become more common and place additional demand on our electricity grids. A recent report from the National

[19] H.C.R. 7 Concurrent Resolution on Environmental and Economic Stewardship (2018), *found at* https://le.utah.gov/~2018/bills/static/HCR007.html.
[20] Rocky Mountain Power facts. 2017, *found at* https://www.rockymountainpower.net/content/dam/rocky_mountain_power/doc/About_Us/Company_Facts/RMP-Fact-Sheet.pdf.

Renewable Energy Laboratory found that by 2050 U.S. electricity consumption is likely to increase by 20% to 38% largely due to greater adoption of electric vehicles.[21] Further, The Brattle Group projects that utility sales have the potential to double as electrification of the transportation and heating sectors reaches their full technical potential.[22] Utility incentive programs designed to reduce electricity consumption in residential and commercial buildings (i.e, well-insulated building envelope, high performance windows, smart controls and appliances; through incentivizing the most efficient electric heating technologies; and incentivizing efficient EV chargers and TOU rate structures for heating and vehicle charging) will grow in importance into the future. The 2017 IRP Update doesn't appear to account for this significant increase in electricity demand and consumption. UCE requests that the Commission direct RMP to provide an analysis in the 2019 IRP of how the Company is planning for increased demand stemming from the electrification of the transportation and heating sectors.

III. CONCLUSION

As discussed above, PacifiCorp's DSM programs continue to be highly cost effective, delivering $2.23 in utility system benefits to customers for every dollar invested. In addition, the programs as they are delivered, continue to be the lowest cost resource when compared with new resources and average power prices in the 2017 Update. Given the high cost-effectiveness of PacifiCorp's DSM program, as measured by the Utility Cost Test, the company is leaving significant energy savings on the table and could significantly benefit customers by increasing

[21] NREL, Mai, Trieu, Paige Jadun, Jeffrey Logan, Colin McMillan, Matteo Muratori, Daniel Steinberg, Laura Vimmerstedt, Ryan Jones, Benjamin Haley, and Brent Nelson. 2018, Electrification Futures Study: Scenarios of Electric Technology Adoption and Power Consumption for the United States, *found at* https://www.nrel.gov/docs/fy18osti/71500.pdf.

[22] The Brattle Group, Weiss, Jurgen; Hledik, Ryan; Hagerty, Michael; Gorman, Will. 2017, Electrification: Emerging Opportunities for Utility Growth, *found at* http://files.brattle.com/files/7376_electrification_whitepaper_final_single_pages.pdf.

DSM program goals and budgets. Therefore, we urge the Commission to treat DSM resources modeled in the IRP as a minimum threshold and direct the company to adjust spending and savings goals to maximize energy savings and program cost effectiveness while maintaining savings of at least 1% of sales, assuming programs are cost effective. This would avoid PacifiCorp eliminating incentives for highly cost-effective programs to meet the lower DSM values selected in the IRP process. We also ask the Commission to direct PacifiCorp to include a high DSM scenario that includes the acquisition of "all cost effective" DSM resources under the Utility Cost Test as part of the company's 2019 IRP process. This scenario will allow the Commission, and other stakeholders, to compare the total utility costs and risks of increased DSM spending with PacifiCorp's preferred portfolio and Action Plan. In addition, we urge the Commission to direct PacifiCorp to allow DSM to compete directly with the company's coal units in the 2019 IRP process. Lastly, we ask the Commission to direct PacifiCorp to include in the 2019 IRP the following additional information and analyses: additional detail about the percentage of market participants that have already adopted the most efficient technologies through the Wattsmart incentive programs and an estimate of the percent that has not yet adopted the incentivized technology, and a discussion of how the Company is planning to address increased demand stemming from the electrification of the transportation and heating sectors.

Utah Clean Energy appreciates the opportunity to provide comments related to the 2017 IRP Update and recommendations for the 2019 and future IRPs.

RESPECTFULLY SUBMITTED,

Utah Clean Energy

/s/ Hunter Holman
Hunter Holman

Attorney for Utah Clean Energy