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# State of Utah
DEPARTMENT OF COMMERCE
## Office of Consumer Services

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To: Utah Public Service Commission

From: Office of Consumer Services
Michele Beck, Director
Cheryl Murray, Utility Analyst
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Date: January 3, 2019

Subject: In the Matter of the Application of Rocky Mountain Power to Modify Funding Amounts Previously Authorized by the Sustainable Transportation and Energy Plan Act, and to Allocate Additional Funds to the Solar and Storage Technology Project. Docket No. 16-035-36.

**Introduction and Background**

On November 13, 2018, Rocky Mountain Power (Company) filed with the Public Service Commission of Utah (Commission) an application to modify previously approved funding amounts for programs authorized by the Sustainable Transportation and Energy Plan Act (STEP) and to allocate additional funds to the solar and storage technology project (Application). The Company seeks Commission authorization to:

1. Revise the funding for projects associated with the Clean Coal Technology Program (CCTP) pursuant to U.C.A § 54-20-104;
2. Increase the limit of STEP incentive payments for the Commercial Line Extension Pilot Program (Line Extension Pilot); and
3. Increase funding for the Solar and Energy Storage Program (SESP) in southern Utah.

The Commission, on November 28, 2018, issued a Scheduling Order and Notice of Hearing setting forth the following schedule for the case:

| | |
|---|---|
| Comments | January, 3, 2019 |
| Reply Comments | January 17, 2019 |
| Hearing | January 22, 2019 |

The programs and funding at issue in this docket result from the Sustainable Transportation and Energy Plan Act, signed into law in March 2016. Although expenditures under STEP are subject to Commission review to ensure they are prudent and in accordance with the purposes of the program some of the program parameters are quite prescriptive, such as those for clean coal technologies. The Office of Consumer Services (Office) will address each of the three requests below.

**Clean Coal Technologies**

The Clean Coal technologies at issue are authorized by statutes in Utah Code. Specifically, UCA §54-20-104. Clean coal technology program:

(1) Subject to Subsection (2), the commission shall authorize, before July 1, 2017, and, subject to funding, approve a program that authorizes a large-scale electric utility to investigate, analyze, and research clean coal technology.
(2) The Commission may review the expenditures made by a large-scale electric utility for a program described in Subsection (1) in order to determine if the large-scale electric utility made the expenditures prudently in accordance with the purpose of the program.

As described in 54-7-12.8(6)(b)(ii)(A) the Commission is to authorize the Company to allocate an annual average of $1,000,000 for the clean coal technology program.

The previously approved clean coal technologies at issue in the Application are:

- Alternative NOx Project,
- Co-Firing test of woody-waste (biomass) materials, and
- Cryogenic Carbon Capture technology.

The first STEP Annual Report submitted on April 30, 2018 in Docket No. 18-035-16, included the Company's conclusion to abandon the Alternative NOx Project due to the inability to acquire vendors who would be able to meet the project's criteria. The Division of Public Utilities (Division) and the Office supported abandonment of the project for reasons articulated in the Company's filing. The Commission, in its August 3, 2018 order, found the proposal to abandon the Alternative NOx Project to be reasonable, but required the Company to obtain approval for any redeployment of the funds. Abandonment of the Alternative NOx Project frees up $1,245,465 of committed clean coal technology STEP funds of which the Company now seeks to reallocate $1,161,501 to other previously approved clean coal technologies – biomass and cryogenic carbon capture projects, leaving $83,964 unallocated.

The Company seeks approval to reallocate the funds as follows: (Application page 6 at 19)

**Table 3:** Proposed Funding Change

| Clean Coal Project | Original | Reallocate Remaining Funds Alt. NOx | Proposed Funding |
|---|---|---|---|
| Woody Waste Co-Firing | $ 789,873 | $ 748,980 | $ 1,538,853 |
| CO2- Capture (CCC) | 1,174,857 | 412,521 | 1,587,378 |
| Alternative Nox | 1,245,465 | (1,245,465) | - |
| Unallocated Funds | 0 | 83,964 | 83,964 |
| Total | $ 3,210,195 | $ - | $ 3,210,195 |

*Woody Waste Project (Biomass)*

The woody waste pilot program at Hunter 3 as originally approved consisted of a co-firing test of coal and processed woody waste to be obtained from two companies located in Utah, Amaron Energy and AEG Coalswitch. The co-firing test was anticipated to last approximately 18 hours and the program was allocated $789,873 of STEP funds.

The Company now seeks approval to expand the co-firing test by increasing "the amount and type of sensors and measurements taken during the test burn, facilitate a longer test burn by increasing the amount of Coalswitch biomass material purchased, and add funding for an owner's engineer to assist with project planning and performance assessment."[1]

The Company asserts that a clearer picture of boiler operation, characterization of fuels, measurement of gas species and deposition sampling can be obtained through the expansion of the amount and type of sensors as proposed. By increasing the amount of Coalswitch processed woody waste material from approximately 432 tons to approximately 2,000 tons the test burn could be conducted with 10 percent biomass to 90 percent coal and increased from 18 hours to approximately 90 hours for the Coalswitch product. The Company requests approval to add $748,980 from the Alternative NOx project to the woody waste pilot program making the total funding for the project $1,538,853. The Application states that the test burn has been moved to the 1st quarter of 2019 to accommodate the potential expanded plan.

Regarding the current availability of woody waste material the Division asked the Company to "Please verify that Coalswitch currently has 2,000 tons of woody waste material produced for the test in Q1 of 2019. If not, please explain the time required to produce the required wood waste material." (DPU Data Request 9.12)

The Company's response was as follows:

> "Coalswitch will acquire and process the biomass material after the company indicates how much material will be used for the test burn at Hunter Unit 3. If the Utah Public Service Commission (UPSC)

[1] Application p.7.

> approves the expansion of the biomass test, it is expected to take three to six months to procure, process, and deliver the material to the Hunter plant. The test burn is now tentatively scheduled for the second quarter of 2019, and is dependent upon the result and timing of UPSC's decision." (Company response to DPU Data Request 9.12)

In its November 13, 2018 Application the Company anticipated conducting the burn test in the first quarter of 2019[2]. The Company is now looking at the second quarter of 2019 to allow time for Coalswitch to acquire, process and deliver the necessary biomass material to the Hunter plant.

Although the Office has no expertise in the area of the purposed test burn intuitively it seems that the longer period should provide a better assessment of the usefulness of woody waste in combination with coal. That being said the Office does have concerns with the availability of woody waste in quantities necessary to prove useful to future coal plant operations if the test is successful.

*Cryogenic Carbon Capture™ technology*

Phase I of the Cryogenic Carbon Capture (CCC) project is jointly funded with the United States Department of Energy (DOE), which provides the majority of funds. The Commission approved $1,174,857 of STEP funding in the first phase of the CCC project.

The Company now seeks to expand the scope of the CCC project to plan for exploring the scalability of these and related unit operations. The expanded scope will include: "demonstration projects that will result in measurable reduced emissions; investment in promising technologies and applications that may advance technologies that when fully developed and applied in utility scale will allow for coal-fired generation resources to operate with reduced carbon emissions; funding and providing opportunities for industry-targeted areas of research than can be performed by Utah industries; and promotion of Utah's clean energy technology companies." (Application page 8 at 25). Confidential Appendix B to the Application provides details of the proposed enhancements to the project as well as identifying the new tasks, reporting and payment schedule.

In response to DPU DR 9.3 the Company provided Sustainable Energy Solutions (SES) quarterly milestone reports which have indicated progress in the work they are undertaking.

*Additional Comments*

The Office believes that the requested reallocation of clean coal project funds meets STEP Act requirements. The Office recommends that if the Application is approved the Commission reiterate that its prior requirements regarding accounting and reporting for

[2] The test burn was originally planned for the third quarter of 2018.

Clean Coal Technology STEP projects continues with any additional funding approved in this docket.

**Commercial Line Extension Pilot Program**

In the original request for approval of the Commercial Line Extension Pilot Program the Company stated "This Commercial Line Extension Pilot Program is designed to promote economic development by supporting installation of electrical infrastructure within commercial developments." (September 12, 2016 application page 29 at 58) Installing electrical infrastructure backbone for an entire development at one time, rather than piecemeal, reduces the cost and results in improved design. The program was also designed to encourage electric vehicle use by providing for electrical conduit extensions to potential electrical vehicle charging station locations. The Company requested approval to spend $2,500,000 over the five-year pilot program period and estimated the program costs at $500,000 per year. The Commission approved the Company's request.

In this Application the Company explains that over the past year, incentives have been provided to just nine developments. The total costs of the backbone facilities developed to date have ranged from $13,035 to $102,670 with incentives paid ranging from $2,607 to $20,534. Spent and committed funds are well below the budgeted $500,000 per year.

The Company now requests approval to raise the incentive level provided for commercial line extension projects from $50,000 to $250,000 per approved project. The Company asserts that "raising the incentive limit to $250,000 from $50,000 will expand the Line Extension Pilot to a variety of projects, helping move the objective of the program forward with larger developers". (Application page 9 at 30)

Concerned with the request for such a large increase in the incentive amount, the Office questioned how the Company determined that $250,000 was the appropriate incentive level. The Company responded to OCS 22.1 by referring the Office to the Company's response to DPU 8.3 below.

| **Calculations deriving $250,000 STEP upper limit** | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| Total Allocation | $ 2,500,000 | | | | |
| Start Date | 6/30/2017 | | | | |
| End date | 12/31/2021 | 4.50 | total years available | | |
| Current date | 11/2/2018 | 3.16 | remaining years | | |
| Time Elapsed | | 1.34 | years elapsed | | |
| Funds committed in 2017 | $ 14,843 | $ 29,465 | per year calculated | 12/31/2017 | 0.50 |
| Funds committed in 2018 | $ 95,799 | $ 114,724 | per year calculated | 1/1/2018 | 0.84 |
| Funds committed Total | $ 110,643 | $ 82,474 | per year average | | |
| Projected future spend at 2018 rate | $ 302,939 | | | | |
| Remaining funds | $ 2,389,357 | $ 755,595 | Remaining per year | | |
| Projected surplus at current spend rate | $ 2,086,419 | $ 659,796 | surplus per year at 2018 spend rate | | |
| | | | | | |
| Number of large projects that can be accomodated | 8.3 | | Projected surplus/$250k | | |

Further responding to OCS 22.1 the Company stated: "In addition, the Company has had conversations with a large developer who is working on a multi-year project that could potentially use STEP funds well in excess of the $50,000 per phase limit. The Company believes the funding for this potential project will be in the public interest because it would be used to install backbone facilities and facilitate installation of electric vehicle (EV) charging stations, thus promoting EV use in the Community."

At the current spend rate over the 3.16 remaining years of the pilot project the Company projects a surplus of $2,086,410, which is the majority of the original $2,500,000. The Company projects that at the increased incentive level of $250,000, 8.3 large projects can be accommodated in the remaining years of the pilot program leaving $250,000 in surplus funds. The Company's calculation includes an assumption that the existing spend rate for non-large projects will continue as in the past. (Company response to OCS data request 25.3) The Company asserts that increasing the incentive limit will expand the Commercial Line Extension Pilot to a variety of projects, thus moving the objectives of the program forward with larger developers.

The Office understands the Company's desire to fully utilize the funds allocated to the Commercial Line Extension Pilot Program. However, we question if such a large increase in the incentive amount is reasonable.

The Office recommends that if the Commission approves the requested increase in the incentive level that the Company be required to augment its STEP annual report related to the Commercial Line Extension Program with the number of applications submitted, the number of applications selected to receive incentives and identify if recipients have received multiple incentive awards. Additionally, for each incentive awarded the report should include: 1) size of the project; 2) cost of the project; 3) amount of the incentive awarded; and 4) number of charging stations added.

**Solar and Energy Storage Program (SESP)**

In its December 29, 2016 Phase One Report and Order approving an initial set of STEP programs, the Commission approved a budget of $7.0 million for the Solar and Energy Storage Program (SESP) with an anticipated project start date of January 2017 and a final in-service date of December 2020. The SESP involves the combination of two technologies: 1) a 650 kW solar photovoltaic (PV) electric generation resource and 2) a 5 MWh battery system located in Panguitch, Utah. Though the project will be connected to the distribution system, the purpose of the SESP is to address summer overloading issues on the Company's 69 kV transmission line feeding the area. The typical solution to such an overloading problem would be to rebuild the transmission line to increase its capacity.

The Company's financial analysis in its original filing showed that the net present value (NPV) of the costs for the SESP option was $650,000 (or 14%) less than the NPV of costs for the transmission rebuild option. Therefore, also considering the knowledge that could be gained from the solar/battery pilot program, the Commission found that pursuing the SESP option would be in the public interest.

In its November 13, 2018 Application to modify STEP program funding, the Company is asking to "allocate additional funds to the solar and storage technology project". The Company requests that the approved budget for the SESP be increased by $1.75 million to $8.75 million. This is a 25% increase in the capital costs. The table below compares the original capital cost budget for the SESP with the revised amounts.[3]

**STEP Solar and Energy Storage Program Cost Summary**

| Costs | Original | Revised | Diff | % Diff |
|---|---|---|---|---|
| Project Development* | 500,000 | 1,145,000 | 645,000 | 129.0% |
| Interconnection | 750,000 | 308,000 | -442,000 | -58.9% |
| Solar Farm | 1,950,000 | 1,820,996 | -129,004 | -6.6% |
| Battery | 3,800,000 | 5,476,004 | 1,676,004 | 44.1% |
| Totals | 7,000,000 | 8,750,000 | 1,750,000 | 25.0% |

*Includes property, environmental and owners engineer (OE) costs

In addition to the 25% increase in capital costs, the operation, maintenance, administrative and other general (OMAG) costs have also increased from the original estimates. The table below compares the original total OMAG budgets for the SESP and the transmission rebuild options with the revised amounts.[4] As the table shows, there is a significant increase in the on-going OMAG expenses for the solar/battery project.

**Operation, Maintenance, Administrative and Other (OMAG) Costs**

| | Original | Revised | Diff | % Diff |
|---|---|---|---|---|
| Solar/Battery | 448,558 | 2,880,000 | 2,431,442 | 542.1% |
| Rebuild Transmission Line | 920,000 | 952,000 | 32,000 | 3.5% |

[3] The original capital cost budget numbers are from the Company's September 2016 STEP Application while the revised budget numbers are from the Company's December 6, 2018 response to DPU Data Request 8.4 and December 28, 2018 response to OCS Data Request 21.1 – 1st Supplemental.

[4] The original OMAG budget numbers are from the Company's September 2016 STEP Application while the revised budget numbers are from the Company's December 17, 2018 response to OCS Data Request 21.1. Note: The Company's response to DPU Data Request 5.1 clarified that the project descriptions "Battery + Solar" and "Battery Only" were reversed in the table on page 12 of Exhibit D in the September 2016 STEP Application.

The Company did not provide workpapers supporting the two tables above which made it difficult to determine to what extent the original and revised budgets are precisely comparable. For example, the original OMAG numbers appear to reflect a 12 year life for the solar/battery project. Revised OMAG amounts in the table are 16-year totals representing annual amounts of $180,000 and $59,500 for the solar/battery and transmission rebuild options, respectively. The Company did not explain why it used different operating lives in its revised analysis.

To explain the increase in costs, the Company in its "Additional Funding Request" for the SESP filed as Attachment C to this Application, stated:

> *A few factors were identified that have caused the increase in costs from previously estimated costs. These include, but are not limited to, impact of trade tariffs, increase in contractor costs for project solar and storage integration and commercial risks, increased cost for battery storage due to high demand and limited supply, and higher construction due to low unemployment and higher labor costs, as well as any other costs that might not have been considered in previous cost estimate.*

The Company's description above explaining the cost increases is very general. The Office seeks to understand more specifically what system components, and therefore, what drivers are behind the cost increases – particularly for the large increases in battery capital costs and solar/battery OMAG costs shown in the two tables above. In OCS Data Request 21.1, the Office requested for each project "a detailed reconciliation between the OMAG and Capital costs shown [in the Company's original Application] and the Company's current cost estimates." The Company did not provide a detailed cost reconciliation in its initial response to this DR. The Office followed up with the Company requesting more detailed information and received additional information on December 28, 2018 (OCS 21.1 – 1st Supplemental). Some additional clarification was provided on the increase in battery costs but no additional information was provided on OMAG costs. Overall, very little information has been provided in support of the large cost increases.

In its "Additional Funding Request" for the SESP, the Company also stated that it released its SESP RFP to nine pre-qualified vendors but in the end only received a final bid from one vendor. In response to OCS Data Request 23.1, the Company stated that the primary reason for such a low response to the SESP RFP was that the vendors "indicated that they were too busy with larger, longer term or more profitable projects." It is troubling that Utah ratepayers are on the hook for the costs of this SESP project when they are based on the RFP response from only one bidder.

The increases in costs for this project are significant, especially the very large increase in on-going OMAG costs. In its December 29, 2016 Phase One Report and Order in this docket, the Commission ordered the Company to include all STEP-project related OMAG expenses in the STEP budget. In response to OCS 21.1, the Company stated that the OMAG for the SESP will be $180,000 per year for 16 years. The Company has not shown how the OMAG costs are included as part of the STEP budget which ends on December

31, 2021. The Commission should require the Company to update its total budget, including available remaining funds, to incorporate all OMAG costs through 2021 consistent with the December 29, 2016 order. The Office recommends that the Commission also consider whether it is in the public interest for ratepayers to pay such high levels of ongoing OMAG costs for the years the project is operational after 2021, particularly since the Company did not justify or explain the extraordinary increase in those costs.

Below is a table comparing the NPV of costs for solar/battery and transmission rebuild options and showing costs as originally filed in September 2016 and revised by this Application.[5]

**Net Present Value (NPV) of Costs**

| | Original | Revised | Diff | % Increase |
|---|---|---|---|---|
| Solar/Battery | (4,014,907) | (7,777,098) | (3,762,191) | 93.7% |
| Rebuild Transmission Line | (4,664,422) | (6,176,096) | (1,511,674) | 32.4% |
| Difference in NPVs | (649,515) | 1,601,002 | | |

The solar/battery option now appears to be considerably more costly than the transmission line rebuild option with the NPV of costs for the transmission line being $1.6 million less than the solar/battery option. In OCS 21.1 – 1st Supplemental, the Company explained that in addition to changes in costs for these projects, other assumptions have also changed such as the reduction in the federal corporate tax rate and changes in bonus depreciation. The Company did not provide workpapers for the calculation of these NPVs; and therefore, the Office is unable to analyze what changed between the original and revised calculation.

The Office notes that the NPVs in the table above do not take into account the difference in how costs are actually allocated for an investment in the distribution system versus an investment in the transmission system. While the costs for the solar/battery option, being on the distribution system, would be situs assigned to Utah ratepayers, the costs for the transmission rebuild option would be shared by all ratepayers. First, about 12% of the costs of a transmission investment would be covered by wholesale transmission customers and then only about 42% of the remaining 88% of the transmission rebuild costs would be allocated to Utah ratepayers. This actually makes the solar/battery option about $5.5 million more expensive for Utah ratepayers than the transmission rebuild option on an NPV basis.

The Office asserts that the Company needs to provide additional detailed information on the capital and OMAG cost increases before the Commission can approve the Company's request to allocate additional STEP funds to the Solar and Energy Storage Program. The Company has not been completely transparent in disclosing specifically whether increased capital and OMAG costs are due to increased hardware, software, EPC contractor costs,

[5] Revised NPVs are from Company's response to OCS Data Request 21.1.

etc. or due to other reasons. This is of particular concern since the costs were determined from a single bid. The Company has also indicated that development costs have gone from $500,000 to $1,145,000 simply because development has taken "nearly a three year period."[6] The STEP statute authorizes the Commission to approve innovative utility programs that are "in the interest of large-scale electric utility customers" (See Utah Code 54-20-105(1).) Without additional information about the cost increases, the Commission does not have adequate information to determine that the revised SESP expenditures are in the public interest.

**Recommendations**

The Office recommends that the Commission approve the Company's Application to increase funding amounts previously authorized by the Sustainable Transportation and Energy Plan Act for Clean Coal Technologies.

If the Commission approves the requested increase in the incentive level for the Commercial Line Extension Pilot Program the Office recommends that the Commission add reporting requirements to the STEP annual report as follows:

- Number of applications received,
- Number of applications selected
- Number of recipients that have received multiple incentive awards.

Additionally, for each Commercial Line Extension incentive awarded, the report should include:

- Size of the project;
- Cost of the project;
- Amount of the incentive awarded; and
- Number of charging stations added.

The Office recommends that the Commission require additional information and justification regarding the cost increases for the Solar and Energy Storage Program (SESP) and decline to approve those changes at this time.

We further recommend that the Commission specify that all previously ordered reporting requirements and accounting treatments are still in force and apply to additional funding as well. In particular, the Commission should affirm its requirement that all OMAG costs associated with STEP programs be included and deducted from the STEP budget.

CC: Chris Parker, Utah Division of Public Utilities
Jana Saba & Daniel Solander, Rocky Mountain Power
Service List

[6] Response to OCS Data Request 21.1 – 1st Supplemental.