Exhibit B

Rocky Mountain Power

Investment Justification for

Microgrid Project

Sustainable Transportation and Energy Plan

Utah Innovative Technologies Team

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iginator: *Sustainable Transportation and Energy Plan Workgroup*

1 **Executive Summary**

As part of the Sustainable Transportation Energy Plan (STEP), a Utah statute, Rocky Mountain Power (the Company) should authorize $250,000 to deploy a microgrid demonstration project at the Utah State University Electric Vehicle Roadway (USU EVR) research facility and test track. The project is a collaborative effort between Rocky Mountain Power, Utah State University Sustainable Electrified Transportation Center (SELECT) and Hill Air Force Base to demonstrate the ability to integrate generation, energy storage, and controls to create a microgrid.

2 **Microgrid Background**

The U.S. Department of Energy defines a microgrid as “a group of interconnected loads and distributed energy resources, within clearly defined electrical boundaries, that acts as a single controllable entity with respect to the grid and can connect and disconnect from the grid to enable it to operate in both grid-connected or islanded mode.”

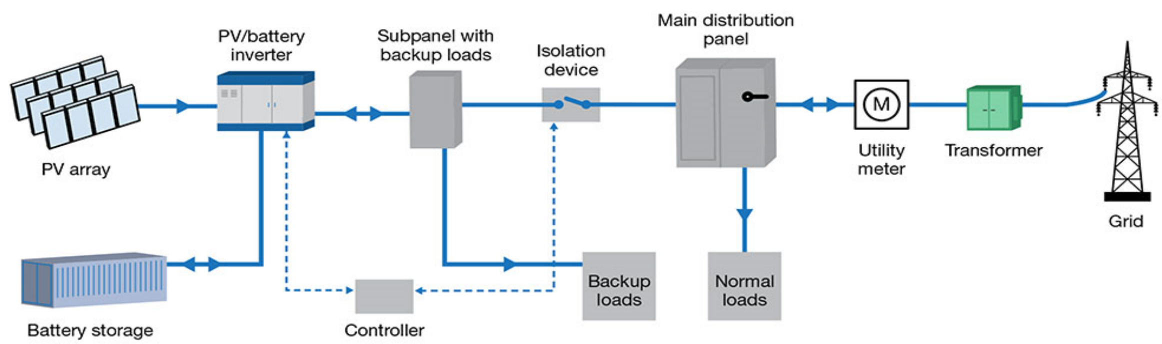

Figure 2 This figure shows a schematic diagram for a dc-coupled solar microgrid in which the PV array and energy storage system both connect to the dc bus of a multiport power converter.

Figure 1

Figure 1 is a simplified block diagram of a singular microgrid, with the defined electrical boundary as all devices connected left of and including the isolation device. It should be noted that the microgrid differs from a simple backup power system due to its unique ability to automatically integrate and coordinate generation, energy storage, controllable loads, and the grid intertie equipment within the microgrid and interact with the utility’s grid as an aggregated single system. As illustrated in Figure 1, the microgrid controller acts as a vital piece of equipment that can essentially manage itself, operate autonomously or grid connected, and seamlessly connect and disconnect from the utility electric grid based on demand and supply requirements. Each dynamic entity of the microgrid system is individually monitored and controlled to optimize performance and operational cost of the system.

Multiple microgrid pilot projects have been deployed in the United States, such as at Duke Energy, on university campuses, or on military bases. The objectives of these pilot projects typically focus on gaining a better understanding of microgrid technology and distributed energy resources, developing control algorithms for the microgrid component interaction, and in determining use cases for microgrid and distributed energy resource systems.

3 Purpose and Necessity

With increasing distributed energy resources interconnecting to the grid, the Company expects light industrial and commercial customers may operate as microgrids to optimize energy costs and improve reliability by having the ability to isolate the facility from the grid during power disturbances and/or outage situations. The purpose of the microgrid demonstration project is to:

- Demonstrate the feasibility of operating a microgrid on the Company's system and its effectiveness in automatically transitioning from grid-connected to islanded mode to provide uninterrupted power supply, thereby improving reliability.
- Assess the gap between microgrid system costs and existing value streams.
- Understand impacts on the Company's distribution system to inform interconnection policy and standards for integrating microgrids.
- Determine the feasibility of microgrids providing ancillary services and further, if necessary, provide recommendations for a microgrid service program.

4 Benefits

- Qualifies the viability of operating a microgrid on the Company's distribution system, and any resultant reliability improvement.
- Assists in understanding the intricacies of microgrid system operation, costs and their ability to address other value streams such as reliability, load shaping and power quality.
- Creates a quantified list of Company distribution system impacts resulting from the interconnection of microgrids.
- Enables the creation of policy and standards for subsequent microgrid interconnection requests, if and when allowed by the Company.
- Enables the potential development of a future microgrid service program.

5 Public Interest Justification

In the state of Utah, the Company continues to experience rapid growth in penetration levels of distributed energy resources. In fact, the rate of net energy metered interconnections has doubled annually for the past four years.

As on-site generation and battery storage costs continue to decline, the Company expects net metering customers within the next 5 – 10 years to consider leveraging their on-site generation in a microgrid to improve reliability and optimize energy costs through other microgrid value streams. The state of Maryland has introduced legislation to provide tax incentives to install onsite battery storage systems. If other states or the federal government follow their lead, this will drive adoption rates higher and faster than in the past.

As noted in section 4, multiple microgrid pilot projects are underway in the United States, presumably in anticipation of a wider adoption in the future. The Company is confident the proposed microgrid demonstration project will provide the benefits outlined in section 4, and will deliver technical results associated with policies, standards, costs and value unique to the Company's system.

6 Legislative Compliance with SB115

The microgrid demonstration project meets the legislative intent of SB115 54-20-105-1(h) that pertains to "any other technology program" in the best interest of the customers in the state of Utah. This project falls under the STEP's discretionary allotment of funds as part of the Utah Innovative Technology category.

7 Alternatives Considered

A full microgrid deployment on a portion of Hill Air Force Base was considered. However due to the research and development nature of the microgrid demonstration project deliverables and cost savings, the USU EVR is being proposed. Hill Air Force Base will continue to be involved in the project as a research partner and will be actively evaluating microgrid for production level deployment given the tools and learnings developed in the proposed project. A localized microgrid pilot project is under consideration at HAFB to further test the commercial hypothesis of microgrids as a service as this project proves viable.

8 Purpose and Necessity – Risk Analysis

Company impacts without this project:

- Neglecting an emerging technology and failing to preemptively identify its associated impact to the Company distribution system could potentially put system reliability and power quality at risk as customers request and are granted interconnection.

Customer impact without this project:

- Without proactively vetting a microgrid pilot project and aligning policies and standards to lessons learned, customers requesting microgrid interconnection could face unnecessary delays as sites are individually assessed through company engineering review processes to ensure safe and reliable interconnection.
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8.1 Project Tasks and Deliverables

Optimization Modeling *Year 1*
Analyze load profiles and site characteristics for the USU EVR facility to determine optimal selection of microgrid components.
Generalize results and develop Rev 1 microgrid component planning tool.
Apply planning tool to Hill Air Force Base mobile air traffic control area.
Determine baseline impacts on utility system at the USU EVR.
Identify and document gap between microgrid value streams and system costs at the USU EVR.
Microgrid Deployment and Evaluation *Year 2*
Develop simulation models of USU microgrid based on commercially available components, analyze interoperability of components, load and existing control algorithms.
Make design modifications necessary for microgrid deployment and evaluation. See Appendix A for initial one-line design and Appendix B for pre-scoped equipment list.
Procure and deploy microgrid system and evaluate component operation.
Update microgrid simulation model based on hardware validated component operation; improve system control algorithm based on observed hardware data.
Deploy smart monitoring and smart inverter components and proposed energy/power management control algorithms.
Collect microgrid operational data throughout the project year.
Validation, Improvements, and Reporting *Year 3 Duration: 6 months*
Create fact sheets for planning tools and project developments and hardware data.
In coordination with the Company, identify existing gaps in the company's interconnection standards and propose recommendations.
Integrate new monitoring and inverter technologies into the microgrid and evaluate performance.
Analyze and quantify microgrid value streams.
Create final report.

8.2 Program Closure

In 2021, the Company will report back to the Utah Public Service Commission regarding lessons learned and the status of report recommendations. If it is necessary to report more often to comply with the STEP statute or other reporting requirement, the Company will comply with those requirements.

Post project completion, all equipment associated with the microgrid demonstration project installed at USU EVR will be owned and operated by USU EVR. The Company will reserve the right to access, participate in, and/or propose follow up projects involving the equipment.

8.3 Project Delivery Risk Factors

The project will be managed to mitigate typical project risks (design and construction resources, permitting material deliveries, weather, etc.) as it applies to scope, schedule, and budget. Appropriate documentation will be created, tracked and communicated to properly manage the project. The appropriate risk mitigation measures will be identified and resolved in the project development phase.

Given the emerging technologies associated with the project, in particular the control systems, there is some risk of incompatibility between various microgrid components, which may introduce additional time in the deployment stage of the project. These risks will be identified in detailed project plans with appropriate timeframes to resolve.

9 Target Costs

Costs	Prior Years	2018	2019	2020
10 Year Plan Budget:-STEP discretionary funding	N/A	$70,000	$110,000	$70,000
APR (Gross):	N/A	$70,000	$110,000	$70,000
- Reimbursements:	N/A	N/A	N/A	N/A
- Contingency:	N/A	N/A	N/A	N/A
APR (Net):	N/A	$70,000	$110,000	$70,000

10 Accounting Issues or Regulatory Recovery Issues

All expenses towards this project will be recovered through the accounting workflow setup for the Utah Innovative Technologies under the Sustainable Transportation and Energy Plan. For detailed information, refer to the overarching Utah STEP Accounting document.

11 Procurement and Project Delivery Strategy

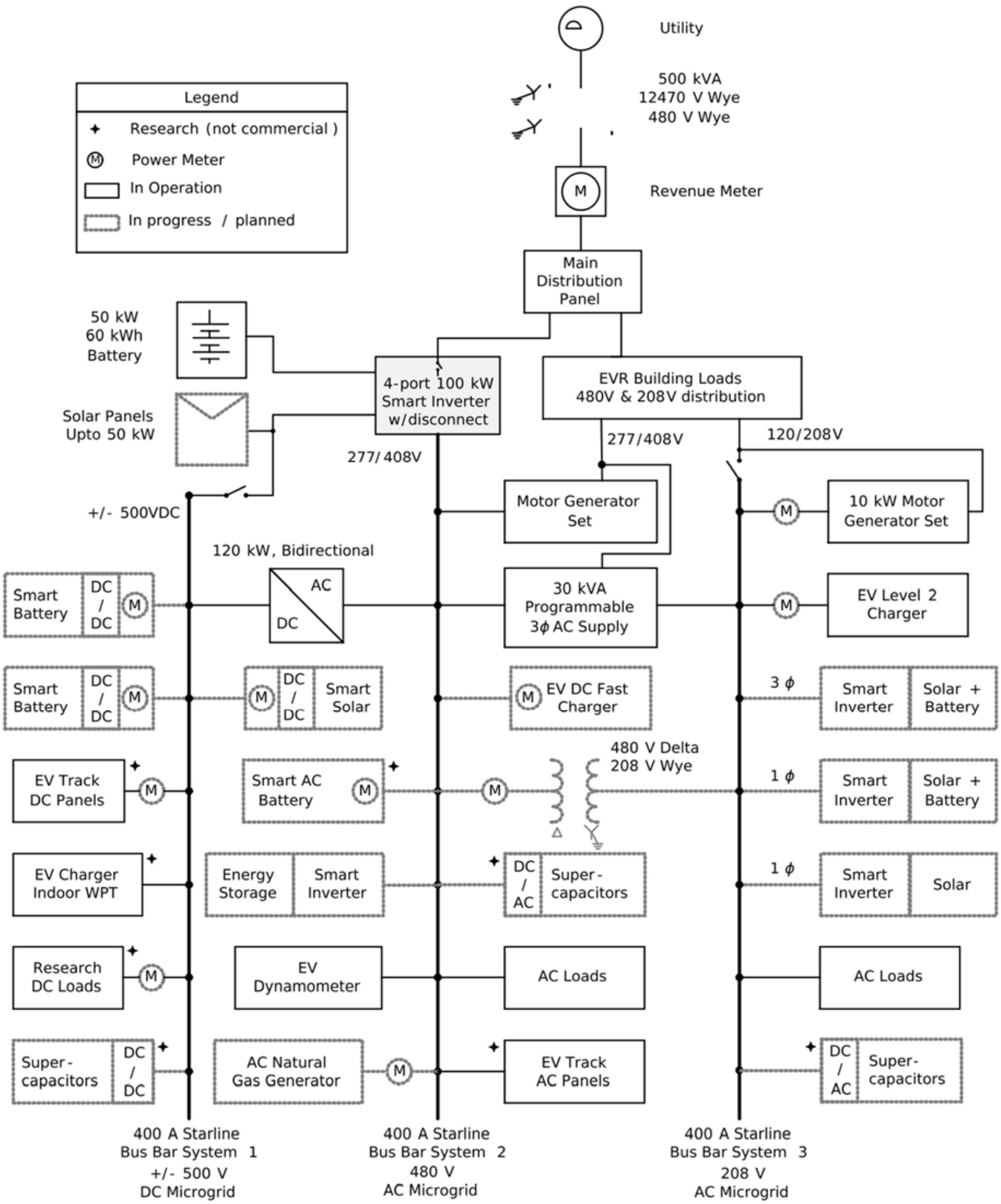
- Project specifications shall be developed in accordance with applicable engineering specifications and standard designs.
- Utah State University EVR shall procure microgrid equipment with approval from Company project team and will be reimbursed for approved purchases.
- Project delivery strategy to be determined by project team as outlined in Project Tasks and Deliverables.

12 Recommendation

- Purchase and install required microgrid components and controls to operate the USU EVR as a microgrid.
- Develop an optimization tool that will assist in assessing the gap between microgrid system costs and existing value streams.
- Create a report delineating impacts on the Company’s distribution system to inform interconnection policy and standards for integrating microgrids.

13 Appendices

APPENDIX A – USU EVR One Line Diagram



APPENDIX B – Equipment to be Procured and Installed at USU EVR

- DC optimizers with monitoring and control on solar panels
- Smart inverters and expansion of solar array for independent operation
- Commercial energy storage integrated with smart inverters
- Natural gas generator with smart meter and controls
- Smart meters on microgrid loads without integrated communications