

Rocky Mountain Power Utah Carbon Reduction Progress Report

December 31, 2014



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Introduction

In accordance with the Utah Energy Resource Procurement Act (“Act”), Title 54 Chapter 17 Section 604, Rocky Mountain Power (“Company” or “Rocky Mountain Power”) respectfully submits its Carbon Reduction Progress Report (“Report”) to the Public Service Commission of Utah (“Commission”) on the development and maintenance of a plan for meeting the targets set forth under Title 54 Chapter 17 Section 602.

Under Section 604 of the Act, the Report is required to set forth:

- (a) The actual and projected amount of qualifying electricity through 2025;
- (b) The source of the qualifying electricity;
- (c) An analysis of cost-effectiveness of renewable energy sources;
- (d) A discussion of conditions impacting the renewable energy source and qualifying electricity markets;
- (e) Any recommendation for a suggested legislative or program change; and
- (f) Any other information requested by the Commission or considered relevant by the electrical corporation;

Summary

As demonstrated in this report, Rocky Mountain Power is positioned to meet its 20 percent target requirement of an estimated 5,150,168 megawatt-hours of renewable energy in 2025 from existing Company-owned and contracted renewable energy resources. Exhibit A of this Report includes the actual and projected amount of qualifying electricity through 2025 and a list of associated renewable energy resources. Conditions impacting the Company’s renewable energy resource and qualifying electricity markets and deployment include applicable laws and the availability of tax incentives, wildlife habitat impacts, changing environmental policies, emerging carbon emissions regulations, the Company’s participation in the Energy Imbalance Market (“EIM”), transmission and infrastructure costs, and energy policy directives from the Company’s multiple jurisdictions.

Additionally, forecast implementation outcomes reflected in this Report are contingent on factors such as changes in customer demand for electricity; the availability of cost-effective resources; capacity increases; regulatory changes; market, policy and technology development; interest rates; and a multitude of other market and industry conditions. As such, representations in this

Report regarding implementation plans and future events or conditions are forward-looking statements and may differ from actual future results.

Information provided in this report and the exhibits referenced herein are largely supported by the Company's integrated resource planning ("IRP") process, which provides a framework for the Company's future actions in order to continue providing customers reliable, reasonable-cost service with manageable risks.

Title 54 Chapter 17 Section 602 (3) (a) Actual and projected amount of qualifying electricity through 2025 and (b) the source of qualifying electricity;

Pursuant to the Title 54 Chapter 17 Section 604 of the Act, the amount and sources of qualifying electricity through 2025 are provided in Exhibit A of this report.

Title 54 Chapter 17 Section 602 (3) (c) (i) An analysis of the cost-effectiveness of renewable energy sources for other than a cooperative association; or (ii) an estimate of the cost of achieving the target for an electrical corporation that is a cooperative association;

The Company performs its long-term resource planning activities through its IRP, which is filed with the Commission every other year. The IRP provides a framework for future actions that will be taken to provide reliable, reasonable-cost service with manageable risks to the Company's customers. The IRP is developed with participation from numerous public stakeholders, including regulatory staff, advocacy groups, and other interested parties.

Through its IRP, the Company performs a load and resource balance to determine resource needs over a 20-year planning horizon. The Company then develops several different resource portfolio alternatives that could be pursued to meet its projected resource needs and evaluates comparative cost and risk metrics among these resource portfolio alternatives. In developing resource portfolio alternatives, the Company ensures that state resource acquisition mandates and policies, including Utah's renewable energy targets, are met. In selecting its preferred portfolio, the Company considers measures of risk-adjusted portfolio costs, customer rate impacts, carbon dioxide emissions, and supply diversity. The selected preferred portfolio is anticipated to be the most cost-effective mix of resources to meet future customer needs, while balancing diverse stakeholder interests and meeting energy resource policies. This comprehensive planning process provides analysis addressing the cost-effectiveness of renewable energy sources in the Company's long-term resource plan.

In its 2013 IRP, filed with the Commission in April 2013, the Company reported that policy and market developments have contributed to higher renewable resource costs and reduced benefits. On the policy front, the long-term outlook for federal tax incentives that have traditionally

benefited new renewable resources are highly uncertain. At the same time, continued declines in forward natural gas prices, influenced by continued growth in prolific shale gas plays in North America, and reduced load forecasts have depressed forward wholesale electricity prices. As the Company reported in its 2013 IRP, the need for renewable energy sources will be driven by state-specific renewable portfolio standard (“RPS”) regulations.

This observation was supported by extensive resource portfolio modeling that was conducted both with and without assumed state RPS requirements. In quantifying comparative cost and risks among resource portfolio alternatives in the 2013 IRP, the Company reported an analysis showing that new wind resource capacity needed to meet state RPS targets increased levelized resource portfolio costs by between \$30 and \$60 per megawatt-hour (MWh) of expected energy generation from these resources, depending upon future carbon dioxide policy assumptions. Consequently, the 2013 IRP and 2013 IRP Update preferred portfolios excluded these renewable energy sources from its plan and the Company identified, and has been implementing, near-term action items to seek lower-cost RPS compliance strategies by acquiring renewable energy credits. As the 2013 IRP Update preferred portfolio illustrates, the Company plans to meet its customers’ needs over the next 10 years largely through energy efficiency resources and front office transaction (“FOT”) resources. The Company will also actively continue looking for opportunities to acquire cost-effective renewable resources.

The Company is presently performing modeling analysis in support of its 2015 IRP, which will be filed with the Commission in March 2015. While this analysis has not yet been completed, future federal tax incentives remain uncertain and wholesale electricity price forecasts have continued to fall relative to those used to inform the 2013 IRP. These factors continue to limit the cost-effectiveness of new renewable resources. Nonetheless, improved operating performance and prospective federal policy developments, such as the Environmental Protection Agency’s (“EPA”) proposed Clean Power Plan (discussed in the next session of this report), may improve the cost-effectiveness of new renewable resources for compliance purposes going forward. The Company has and will continue to assess the cost-effectiveness of renewable energy sources in its IRP process to ensure its long term planning efforts are aligned with the most current market and policy developments.

Title 54 Chapter 17 Section 602 (3) (d) A discussion of conditions impacting the renewable energy source and qualifying electricity markets;

The following conditions may impact the renewable energy source and qualifying electricity markets:

Federal Tax Credits: The availability of federal tax credits will impact the deployment of new renewable resources. Future access to tax credits that encourage renewable energy development remains uncertain. Relevant federal tax credits include:

- The *Production Tax Credit* (PTC). The PTC provides a (maximum) 2.3 cent per kilowatt-hour credit for electricity generated using qualifying renewable resources. This tax incentive expired at the end of 2013, but was extended through the end of 2014. To qualify for this credit, projects must have commenced construction, as defined by the Internal Revenue Service, prior to January 1, 2015.
- The *Investment Tax Credit* (ITC). The ITC provides a credit equivalent to 30 percent of project expenditures with no maximum. While the credit is primarily used with solar energy systems, other eligible technologies include fuel cells and small wind turbines (100 kilowatts and less). For geothermal systems, microturbines, and combined heat and power resources, the credit is 10 percent. All eligible systems must be placed in service on or before December 31, 2016.

Wildlife Habitat Impacts: Federal and state management and regulation of wildlife and natural habitats can impact renewable resources. The Endangered Species Act, Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act, and agency regulations, guidelines and permitting requirements associated with these and other laws, can affect the timing, compliance, and other costs associated with new or existing renewable resources.

Carbon Regulations: In June 2014, the EPA proposed the first new source performance standards for carbon dioxide emissions under the Clean Air Act. When finalized, this rule will establish carbon dioxide emission standards for certain new fossil fuel-fired electric generating units. The EPA has also proposed state-based emission guidelines to address greenhouse gas emissions from existing fossil fuel-fired electric generating units, known as the Clean Power Plan. The details of the new source performance standard and the Clean Power Plan are subject to change since the rules have not been finalized at the time of this report. However, it is likely that renewable energy development will be incentivized either as a direct compliance mechanism or as an indirect beneficiary of increased regulatory and economic pressures applied to fossil fuel-fired electric generating units.

Other Environmental Regulations: The EPA is in the process of proposing, finalizing, and implementing other environmental regulations that impact fossil fuel-fired electric generating units. Some of the regulations include: Mercury Air Toxic Standards, Regional Haze Rules, Coal Combustion Residuals rulemaking, Effluent Limitation Guidelines, Cooling Water Intakes rulemaking, and National Ambient Air Quality Standards. The combined effect of these rules will increase environmental compliance costs for fossil fuel-fired electric generating units, making them increasingly uneconomic.

Energy Imbalance Market: An EIM is an automated system which efficiently dispatches resources across multiple balancing authorities in real time to serve electricity demand with the

least-cost resources. Participation in an EIM results in more effective integration of renewable resources by capturing diversity across a larger footprint, optimizing dispatch and reducing reserve requirements to maintain reliability. The Company is an inaugural participant in the EIM operated by the California Independent System Operator, and anticipates numerous system benefits for customers from participating in the EIM. The EIM was launched on November 1, 2014.

Cost and Performance Implications: The deployment of renewable energy resources continues to be challenged by their intermittent and variable nature, causing them to incur additional costs for integration. Although the manufacturing costs for some technologies (i.e. solar panels), has declined in recent years, there has also been a decrease in natural gas prices, which has contributed to falling wholesale electricity market prices. Consequently, the current and projected wholesale market value (i.e. avoided cost) of energy generated by renewable energy sources has fallen. Improved operating performance characteristics of renewable energy sources, such as new designs intended to increase energy production capability for some wind plant locations or reduced degradation from solar panels, could improve the cost-effectiveness of renewable resources relative to the wholesale electricity market.

Transmission: In many instances renewable resources are located in areas away from load centers, necessitating the construction of new transmission lines. The additional cost associated with new transmission, along with the constraints of existing transmission congestion pose challenges for renewable energy development. Further, the siting and permitting of new transmission lines across the western United States have proven to be difficult and lengthy.

Other State and Local Policies: State and local policies can have an impact on the development of renewable resources. The state and local policies the Company are subject to range from state renewable portfolio standards and state tax incentives to local property and sales taxes. As a multi-jurisdictional utility operating across six states, the Company complies with varying state and local policies, while providing safe, reliable, and cost-effective electricity to its customers.

Title 54 Chapter 17 Section 602 (3) (e) Any recommendations for suggested legislative or program change;

As mentioned above, in June 2014, the EPA issued a proposed rule to regulate carbon emissions from existing electric generating units. If implemented as proposed, Utah will be required to submit an implementation plan on how the state will comply with the rule, by June 2016 (if no extension is sought by the state and granted by the EPA). One of the compliance mechanisms included in the proposed rule is the development of renewable energy. The Company recommends that the state review and consider legislative or program changes to existing statutes

(particularly Title 54 Chapters 12 & 17 (54-12 & 17) that may serve or assist the state in the development of its compliance plan in light of potential EPA requirements.

Title 54 Chapter 17 Section 602 (3) (f) For other than a cooperative association, any other information requested by the commission or considered relevant by the electrical corporation;

The 2013 IRP and the 2013 IRP Update were filed with the Commission on April 30, 2013 and March 31, 2014, respectively. These filings are relevant to the 2015 Utah Carbon Reduction Report. The 2013 IRP and 2013 IRP Update incorporated RPS requirements from across the Company's six-state service territory, including Utah's Carbon Emission Reduction Program, in an effort to determine the need for incremental renewable resources for compliance. The 2013 IRP and 2013 IRP Update are available on the Web at <http://www.pacificorp.com/es/irp.html>.

Title 54 Chapter 17 Section 602 (4) The plan and progress report required by Subsections (1) and (2) may include procedures that will be used by the electrical corporation to identify and select any renewable energy resource and qualifying electricity that satisfy the criteria of Subsection 54-17-201 (2)(c)(ii)

The Company will continue to evaluate the need for resources through its IRP process, which is used to perform comparative cost and risk analysis of resource alternatives over a 20-year planning horizon. As discussed herein, the Company routinely updates its long-term resource plan, capturing changes in market and policy developments that might influence near-term resource acquisition plans. Once the IRP identifies the need for renewable resources, the Company implements an action plan to procure cost effective resources from the market, consistent with applicable competitive procurement guidelines and/or statutes. Cost-effective renewable resources to be applied to the target renewable energy goal can be acquired via issuance of RFPs, bilateral acquisition of assets or development rights, bilateral acquisition of power purchase agreements, qualifying facilities (QF) where the Company holds the rights to the renewable energy credits, and the purchase of renewable energy credits associated with other renewable resources. Consistent with § 54-17-502 of the Act, the Company will compliantly notify the Commission when it intends to issue an RFP. The IRP Action Plan is the road map to the renewable resource acquisition strategy that will be implemented through these various acquisitions methods.

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Exhibit A**

As defined in the Energy Resource Procurement Act (“Act”), Title 54 Chapter 17 Section 601, Rocky Mountain Power (“Company” or “Rocky Mountain Power”) hereby submits the following summary of the retail sales, adjusted retail sales, target renewable energy goal in 2025, and the estimated eligible qualifying electricity in 2025.

	MWh	Comment
Retail Sales	27,076,817	CY 2022 Forecasted Retail Sales inclusive of reductions attributed to demand side management.
Adjusted Retail Sales	25,750,838	CY 2022 Forecasted Retail Sales reduced by generation from non-qualifying zero emissions generation.
Target	5,150,168	20% of Adjusted Retail Sales
Total Eligible Generation	36,375,550	Estimated amount of qualifying electricity in 2025 inclusive of actual and estimated banked renewable electricity from qualifying renewable energy sources.

2015 Utah Carbon Reduction Progress Report
Exhibit A – Key Assumptions

Retail Sales

To arrive at the retail sales forecast, the initial load forecast is reduced by Class 2 demand-side management¹ (DSM) as well as line losses. The retail sales forecast in the report is consistent with the load forecast utilized in the 2013 IRP Update, filed on March 31, 2014.

Adjusted Retail Sales

The adjusted retail sales forecast is based on the (forecasted) retail sales, reduced by the:

- (a) estimated amount of kilowatt-hours attributable to electricity generated or purchased in a given calendar year from qualifying zero carbon emissions generation; and
- (b) estimated amount of kilowatt-hours from electricity generated or purchased from generation located within the geographic boundary of the Western Electricity Coordinating Council that derives its energy from one or more of the eligible resource types defined in Section 54-17-601(1) (b) of the Act but does not satisfy the definition of a renewable energy source or that otherwise has not been used to satisfy Subsection 54-17-602(1).

Generation from the following non-qualifying zero emissions resources² are included in determining the adjusted retail sales for the target year:

Ashton	Grace	Paris	Soda Springs
Big Fork	Last Chance	Prospect 1	Swift
Clearwater 1	Lemolo 1	Prospect 2	Toketee
Clearwater 2	Lemolo 2	Prospect 4	Viva Naughton
Eagle Point	Merwin	Slide Creek	Yale
Fish Creek	Oneida	Soda	

Energy Efficiency

The estimated kilowatt-hours attributable to reductions from DSM are based on the Class 2 DSM projections for Utah as reported in the 2013 IRP Update.

¹ Class 2 DSM refers to resources from non-dispatchable, firm energy and capacity product offerings/programs. These programs are those for which sustainable energy and related capacity savings are achieved through facilitation of technological advancements in equipment, appliances, lighting and structures, or repeatable and predictable voluntary actions on a customer’s part to manage the energy use at their facility or home. These programs generally provide financial and/or service incentives to customers to improve the efficiency of existing or new customer-owned facilities through the installation of more efficient equipment.

² All identified non-qualifying zero emissions generation is from hydroelectric resources.

Renewable Energy Source

The following resources are included in the analysis for determining the amount of eligible renewable energy to satisfy Subsections 54-17-602(1).

Blue Mountain	Wind
Campbell Hill - Three Buttes Windpower	Wind
Chevron Wyoming Wind Farm	Wind
Dunlap Ranch	Wind
Foote Creek	Wind
Foote Creek II	Wind
Foote Creek III	Wind
Glenrock	Wind
Glenrock III	Wind
Goodnoe Hills	Wind
High Plains	Wind
Latigo	Wind
Leaning Juniper	Wind
Marengo	Wind
Marengo II	Wind
McFadden Ridge I	Wind
Mountain Wind I	Wind
Mountain Wind II	Wind
Meadow Creek - Five Pine	Wind
Meadow Creek - North Point	Wind
Rock River	Wind
Rolling Hills	Wind
Seven Mile Hill	Wind
Seven Mile Hill II	Wind
Top of the World	Wind
Wolverine Creek	Wind

American Fork	Hydro – Utah
Cutler	Hydro – Utah
Draper Irrigation Company	Hydro – Utah
Fountain Green	Hydro – Utah
Granite	Hydro – Utah
Gunlock	Hydro – Utah
Olmstead	Hydro – Utah
Pioneer	Hydro – Utah
Sand Cove	Hydro – Utah
Snake Creek	Hydro – Utah
Stairs	Hydro – Utah
Upper Beaver	Hydro – Utah
Veyo	Hydro – Utah
Weber	Hydro – Utah
Big Fork	Hydro - Upgrade
Condit	Hydro - Upgrade
Copco	Hydro - Upgrade
Cutler	Hydro - Upgrade
J.C. Boyle	Hydro - Upgrade
Lemolo 1	Hydro - Upgrade
Oneida	Hydro - Upgrade
Prospect	Hydro - Upgrade
Stairs	Hydro - Upgrade
Yale	Hydro - Upgrade
Blundell 1	Geothermal
Blundell 2	Geothermal
Hill Air Force Base	Biogas

The generation from existing resources is as reported in the Company’s FERC Form 1 for the time period 1995 through 2012. Generation estimates from 2013 through 2019 are forecasted, and for years 2020 through 2025, the generation estimate was calculated using a three-year rolling average.

The allocation of resource generation for Utah is based on the 2010 Protocol³. The amounts are estimated based on historical allocation factors. For years 2001-2005, fiscal year end factors are used; in other years, including forecasted years, calendar year end factors are applied.

Renewable Energy Credit Transactions

For the time period covered in the analysis, the Company reduced the renewable resource generation output by the amount of renewable energy certificates (“REC”) that were/are forecasted to be monetized. For the historical period through 2013, REC sales allocated to Utah are estimated based on the actual total company REC sales for each given year. In years 2014 through 2016, the analysis includes a forecasted amount of RECs that may be sold, and estimated the Utah allocated amount. Due to the uncertainty of greenhouse gas regulation, the Company currently has not forecasted any REC sales beyond December 31, 2016.

³ “2010 Protocol” refers to how the costs and wholesale revenues associated with the Company’s generation, transmission and other common assets are allocated among its six state jurisdictions for purposes of establishing retail rates. The protocol also establishes how costs of state-specific requirements like demand-side management programs or resources acquired for state portfolio standards are allocated.