APPENDIX A – APPLICANT'S INTERESTS AND OBJECTIVES

Project Background

The Applicant for the Energy Gateway South Transmission Project (Project), PacifiCorp, serves more than 1.7 million retail electric customers (native load) in the states of California, Idaho, Oregon, Utah, Washington, and Wyoming (Figure 1). The Project would be built in the service area of Rocky Mountain Power (the Company), a business unit of PacifiCorp, which delivers electricity to more than a million retail customers in its service area, which includes Utah, Wyoming, and Idaho.

Within the Company's service area, there has been more than a decade of population growth and economic prosperity. Coupled with an increase in per-customer electric usage, this growth has resulted in a significant increase in the overall demand for electricity. As a result, the transmission system used to provide the Company's customers with access to low-cost generating resources and provide reliable service is now fully utilized. Consequently, significant new transmission infrastructure is needed to adequately serve the Company's existing and forecasted customer needs.

Since 1996, the population in the counties served by the Company has grown substantially. While near-term economic conditions have slowed, the Company's service territory continues to growth in all customer segments, and currently forecasts an increase overall energy usage across its system at an average of 2.3 percent per year over the next 5 years and by 2 percent each year over the next 10 years (Section 2.3). The Company currently has approximately 12,500 megawatts (MW) of existing resources, and its 10-year planning forecast predicts it will need approximately 15,000 MW by 2020 (Section 2.3).

The Company's need for the Project is tied to its obligations as a regulated utility to increase its transmission capacity and to provide safe, reliable electricity to its customers at a reasonable cost. The purpose of this Project is to alleviate constraints within the Company's existing transmission system, provide integration of additional planned and existing transmission segments and improve system reliability and operational flexibility of the bulk electric system. The addition of this line also would provide opportunity to maintain the system with fewer operational constraints.

Numerous studies have been used to inform the design of the Company's recommended bulk electric transmission additions, which resembles a triangular footprint over Idaho, Utah, and Wyoming, with paths extending into Oregon and Washington. The footprint defined by these studies is now known as Energy Gateway. PacifiCorp's priority in building Energy Gateway is to meet the needs of its customers.

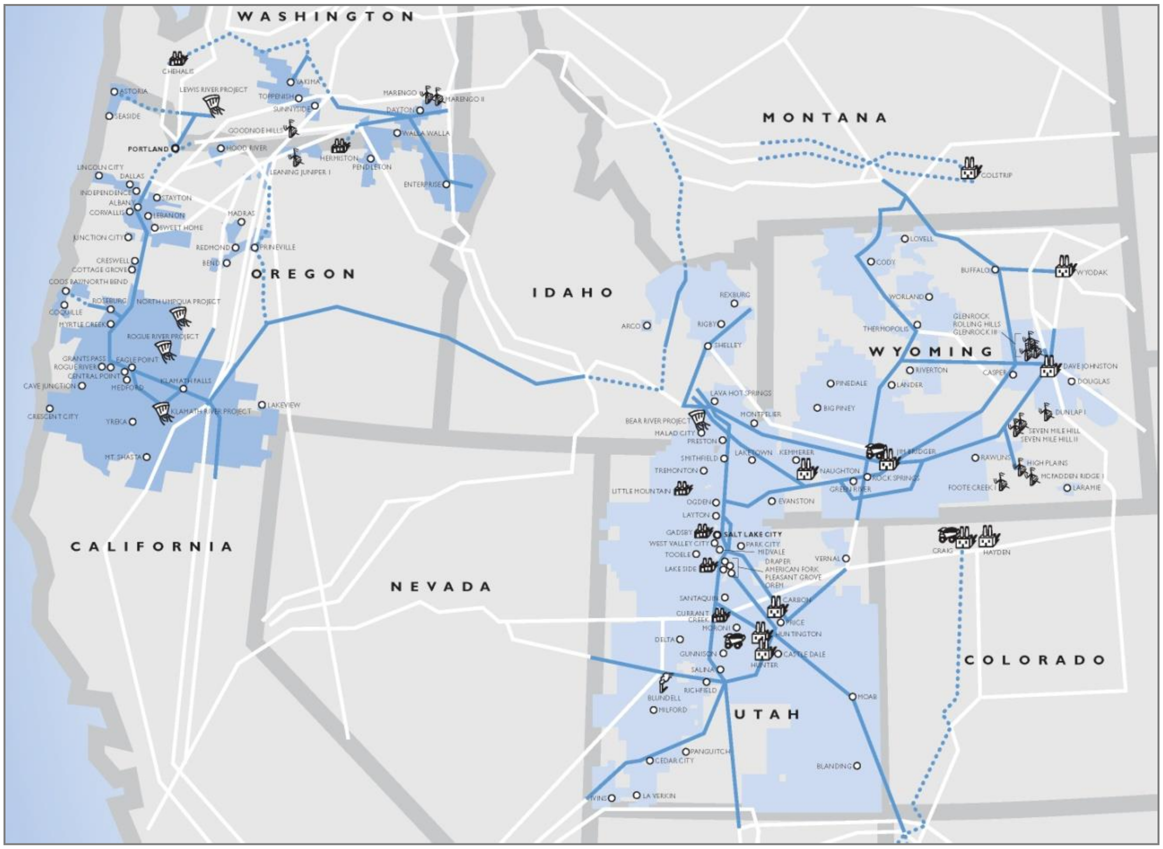


Figure 1 PacifiCorp Service Territory

1.0 Acronyms and Definitions

Several acronyms and technical concepts are used in the document and the reader will better understand this report by becoming familiar with the following terms:

- **Adjacent Transmission Circuits:** (as defined by Western Electricity Coordinating Council [WECC] TPL-001-WECC-CRT-2 System Performance Criterion) Two transmission circuits with separation between their center lines less than 250 feet at the point of separation with no Bulk Electric System circuit between them. Transmission circuits that cross, but are otherwise separated by 250 feet or more between their centerlines, are not Adjacent Transmission Circuits.
- **Bulk Electric System**: The electrical generation resources, transmission lines, interconnections with neighboring systems and associated equipment generally operated at voltages of 100 kilovolts (kV) or higher. Radial transmission facilities serving only load with one transmission line source generally are not in this definition.
- **Contingency Analysis**: The assessment of risk that certain scenarios resulting from outage events may pose to an electrical network.
- **Electrical Transfer**: Power in an alternating current (AC) electric network does not travel along any one set path. Instead, power flows from a "generation source" to a "load sink" along all the paths that can connect them. This means that changes in generation and transmission at any point in the system will change loads on generators and transmission lines at every other point—often in ways not easily controlled.

- **Electrical Transmission Capacity**: The amount of power, measured in megawatts (MW), flowing over each transmission line. This amount must remain at or below the line's rated capacity to prevent thermal overloading or power-supply instability such as phase and voltage fluctuations. Capacity limits vary, depending on the length of the line, type/size of the line conductor and the transmission voltage.
- **Energy Gateway Program:** The Company's large-scale transmission expansion program that consists of three principal legs: Energy Gateway Central, Energy Gateway West, and the subject project, Energy Gateway South Transmission Project. The Company also considers the Sigurd to Red Butte 345kV No. 2 Project to be within the scope of the Energy Gateway Program.
- **Extra-high Voltage (EHV):** Electric transmission facility energized at 300,000 volts (300kV) or greater.
- **Fault:** A condition when one or more electrical conductors contact the ground and/or each other typically resulting in protective equipment tripping out of service to stop the fault current that is several times larger in magnitude than the current that normally flows through a circuit.
- **Generation Tripping:** An intentionally engineered loss or shut-down of generation facilities in response to system disturbances.
- **Load Shedding:** An electrical power outage wherein customer's electrical service is interrupted. Causes can be due to insufficient electrical generation capacity or transmission system outages. Load shedding, under certain contingency conditions, may be used by an electric utility company in order to avoid a cascading event that may result in a widespread blackout of the power system.
- **Mean Time Between Failures (MTBF):** The elapsed time between failures of a system element or event during operation.
- **North American Electric Reliability Corporation (NERC)**: NERC is a self-regulatory, non-government organization that has statutory responsibility to regulate bulk power system users, owners, and operators through the adoption and enforcement of standards for fair, ethical and efficient practices. As of June 18, 2007, the Federal Energy Regulatory Commission (FERC) granted NERC the legal authority to enforce reliability standards with all users, owners, and operators of the bulk power system in the United States, and made compliance with those standards mandatory and enforceable.
- **Redundancy**: The duplication of critical system components or transfer capacity of a system with the intention of increasing or maintaining reliability, usually in the case of a backup or fail-safe.
- **Contingency Reserves**: The generating capacity immediately available to a system operator to meet customer demand in the event of a generator(s) failure or transmission system outages. (i.e., contingencies).
- **Western Electricity Coordinating Council**: WECC is the regional entity responsible for coordinating and promoting bulk electric system reliability in the Western Interconnection (one of the two major AC power grids in North America, the other being the Eastern Interconnection). In addition, WECC assures open and non-discriminatory transmission access among members, provides a forum for resolving transmission access disputes and provides an environment for coordinating the operating and planning activities of its members as set forth in the WECC Bylaws.

2.0 Applicant's Need

2.1 Summary

PacifiCorp needs to make improvements to its bulk transmission network in order to transport electricity reliably from generation resources (owned generation and market purchases) to various load centers. Additional transmission infrastructure is needed to:

- Maintain compliance with mandated national reliability standards that require the Company to have a plan to: "operate to supply projected customer demands and projected Firm Transmission Services, at all demand levels over the range of forecast system demands…."[1]
- Meet obligations and requirements specifically required under the Company's Open Access Transmission Tariff (OATT) approved by the Federal Energy Regulatory Commission (FERC).
- Insure customers have an adequate supply of reliable and low-cost energy
- Reliably deliver power to continuously changing customer energy-supply demands under a wide variety of system-operating conditions.
- Supply all electrical demand and energy requirements of customers at all times, taking into account scheduled and unscheduled system outages.
- Allow the Company to access energy available from existing markets and to sell excess generation to those existing markets when it is economic to do so for customers.
- Support options for generation resource development including economically feasible renewable generation as specified in the Company's current and future Integrated Resource Plans.
- Meet the current and reasonably anticipated energy supply requirements, policies, rules and laws at the federal level and in the states the company serves.

In particular, the Project is needed to fulfill the following key responsibilities of the Company:

Serve Native Load. The Company is responsible for providing electric service to 1.7 million retail customers in the states of California, Idaho, Oregon, Utah, Washington, and Wyoming. The Company has a legal obligation to ensure sufficient firm point-to-point and network transmission capacity is available to meet the electric demands of all its customers now and into the future.

Serve Third-Party Network Customers. In addition to providing service to its native load customers, the Company also is required to provide transmission service to its third-party network customers, which in turn directly serve customers in these same states. The Company has a legal responsibility to provide reliable transmission service to third parties to the degree transmission capacity is available.

Ensure Reliability. The Project is needed to improve the Company's ability to provide reliable electrical service to all its customers in a nondiscriminatory manner. The Project also is needed to provide redundancy during transmission and generation contingencies for other planned and existing transmission segments (Gateway West and Gateway Central, respectively), thereby providing operational flexibility for the bulk electric system, ensuring reliability, and supporting capacity ratings for each segment.

Access to Energy Resources. The Company has a legal obligation to transport identified third-party network generation to serve network loads. The Project is needed to provide the Company with access to rich and diverse generation resources throughout its service territory needed to meet the growing

[1]NERC Transmission Planning Standard TPL-002-1.

electrical demands of its customers. In general, expansion of the transmission system is needed to accommodate a variety of future resource scenarios and plans.

Maximize Infrastructure Benefits. When interconnected to the wider electric system in the west, the Project would function as a fully interconnected electric system element in the west-wide electric grid and would be expected to carry its fully rated capacity (1,500 MW of electrical power flow) across the system. When interconnected with other Energy Gateway segments (Gateway West and Gateway Central), the Project would allow all Energy Gateway segments to achieve their fully rated capacities.

2.2 Applicant's Needs as a Regulated Utility

The Company is a vertically integrated electric utility under the jurisdiction of the FERC and six state regulatory commissions. The Company sells electricity primarily in the retail market, with sales to residential, commercial, industrial, and other customers. It also sells electricity in the wholesale market when excess electricity generation exists or when required for other system-balancing activities. The Company's business unit of the PacifiCorp operates under oversight and regulatory controls of the Public Service Commission of Utah, Wyoming Public Service Commission, and the Idaho Public Utilities Commission. PacifiCorp also provides service to more than 730,000 retail customers in the states of Oregon, Washington, and California under the trade name Pacific Power. Pacific Power is subject to the regulatory oversight of the Oregon Public Utility Commission, Washington Utilities and Transportation Commission, and California Public Utilities Commission.

As provided in the Company's OATT under Sections 15.4, 28.2, and 28.3, the Company is obligated to expand its transmission system to provide requested firm point-to-point and network transmission service, and to construct and place in service sufficient capacity to deliver resources reliably to network and native load customers. The Company's Attachment K of the OATT also requires planning for the expansion of the system to ensure that its transmission system meets industry, regulatory, and reliability standards. The Company is subject to both mandated and voluntary standards directed at increasing supply of renewable ("green") energy sources as part of its overall least-cost risk-adjusted energy-resource portfolio. The Energy Gateway program and the Project are both needed to ensure these long-term requirements are met. The Company, under the NERC and WECC reliability standards, needs to plan, construct and operate its system in a manner that accounts for the overall reliability of the nation's electric supply system.

Additionally, the Company requires new transmission capacity to adequately serve its customers' load and growth needs across the next 20-year horizon and beyond. Recognizing the potential regional benefits of trying to "upsize" the Project (such as maximizing the use of energy corridors, minimizing environmental impacts, and improved economies of scale), the Company included in its original Energy Gateway plan the potential for doubling the Project's capacity to encourage third-party commitments and equity partnerships necessary to support such an investment. In the years since the May 2007 announcement of Energy Gateway, the Company has pursued such partnerships but due to the significant costs inherent in transmission investments—and the Company's obligation to shelter its customers from costs and risks associated with "upsizing" the Project exclusively for the third-parties' benefit—these commitments have not materialized. The Company is committed to building Energy Gateway to meet the needs of its customers and is moving ahead with the appropriate investments to do so, which for the Project is reflected by its description as a single-circuit 500kV facility.

In summary, the Company's obligations as a regulated utility require it to:

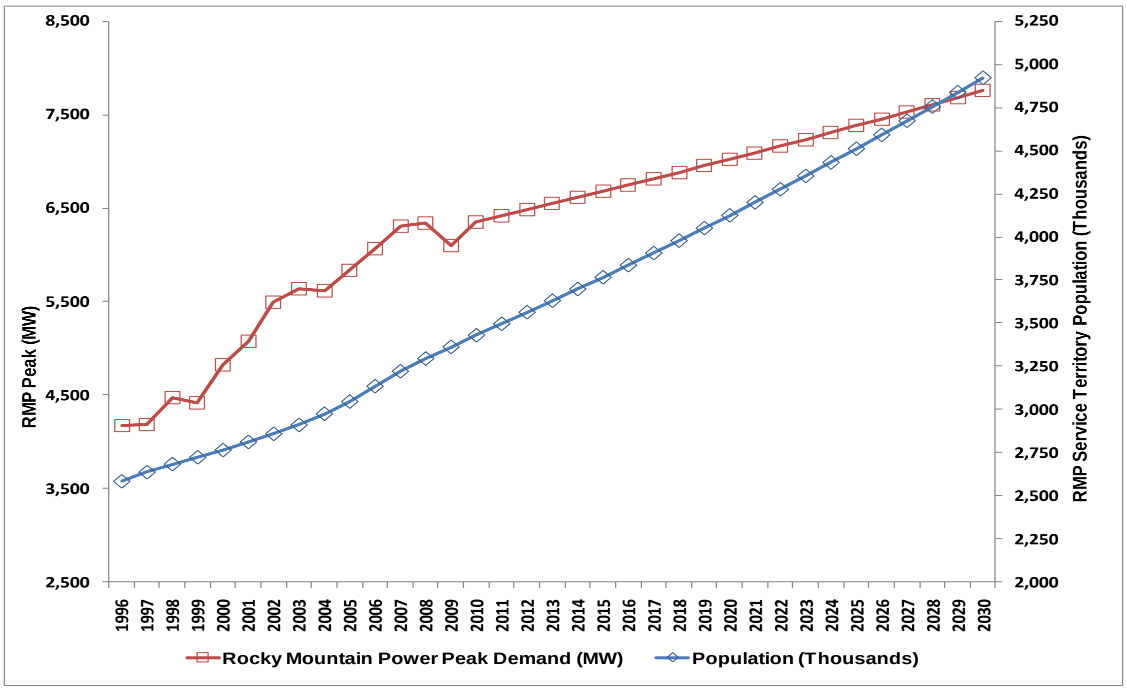
- Provide increased capacity as required to serve existing and growing loads.
- Meet contract obligations provided for under transmission service agreements.

- Identify reliability and system constraints within the Company's existing transmission system that necessitate the improvement and/or development of new transmission paths.
- Provide safe, reliable electricity to its customers at a reasonable cost.
- Ensure sufficient infrastructure is available to generate, transmit, and distribute electricity to its 1.7 million retail customers.

2.3 Need to Increase Capacity

Current and Projected Electrical Demand

Since 1996 the population in the counties served by the Company has grown substantially[2]. Along with this growth there has been an even greater growth in the demand for electricity[3] (Figure 2). As a regulated utility serving these counties, the Company needs to provide safe, reliable service to existing and future customers on a nondiscriminatory basis.



Data derived from IHS Global Insight. Not to be reproduced without permission.

Figure 2 – Growth of Rocky Mountain Power's Peak Demand and Population in its Service Territory

While near-term economic conditions have slowed, the Company's service territory continues to see growth within all customer segments. One of the more significant drivers of this growth is demand from the extractive industries in the states served by the Company. The Company currently forecasts an increase in overall energy usage across its system at an average of 2.3 percent each year over the next 5 years and by 2 percent each year over the next 10 years[4] (Figure 3).

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[2]SOURCE: IHS Global Insight state and county estimates, December 2010.
[3]SOURCE: Rocky Mountain Power billing system.
[4]SOURCE: Rocky Mountain Power 2011 Business Plan.

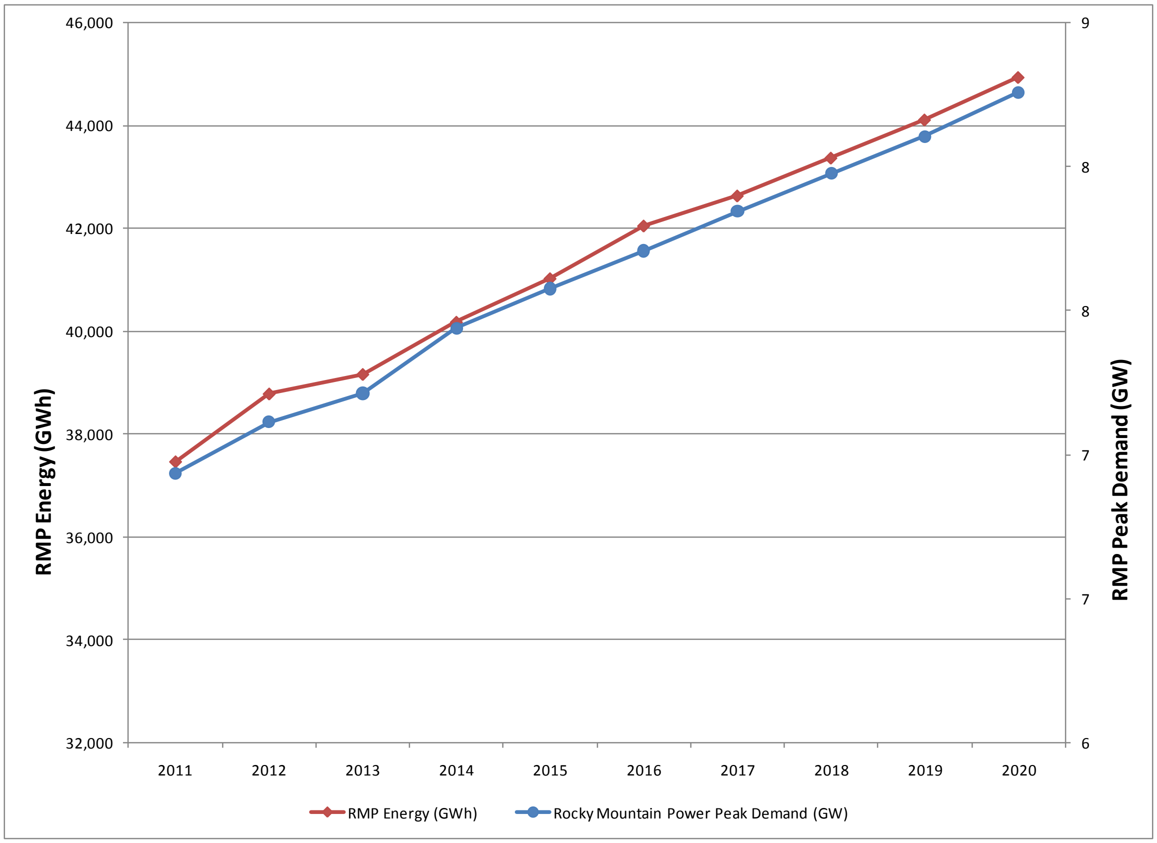

Figure 3 – Forecast Growth of Rocky Mountain Power's Energy Delivery and Peak Demand

The Company's transmission business operates independently of its merchant function and markets its transmission services using an Open Access Same-time Information System (OASIS). The Company's wholesale transmission services are regulated by FERC under cost-based regulation subject to the Company's OATT, which requires it to provide transmission service to eligible wholesale customers. Therefore, in addition to ensuring transmission capacity is available to meet the needs of its retail customers, the Company has an obligation to ensure sufficient transmission capacity is available to meet the growing needs of its third-party network customers.

The Company currently has approximately 12,500 MW of existing resources (Figure 4), and its 10-year planning forecast predicts it will need approximately 15,000 MW, including reserves, by 2020. As demonstrated in Figure 4, there will be a deficit in existing resources due to a combination of retiring generation resources, expiring energy and capacity contracts, and growth in existing and new customer demand for energy that will result in an energy capacity resource gap of 3,852 MW. Furthermore, the Company's eastern-system peak is expected to continue growing faster than the western-system peak, with average annual growth rates of 2.4 percent and 1.4 percent, respectively, over the forecast horizon.

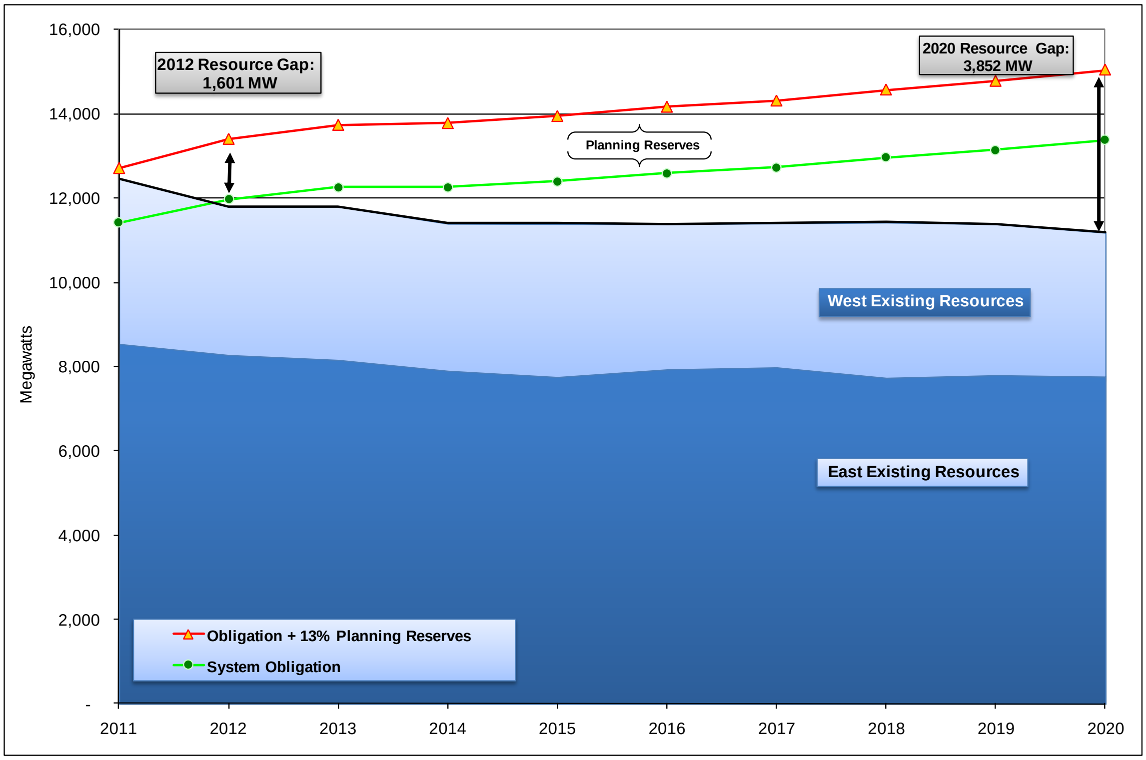

Figure 4 – System Capacity Resource Gap (PacifiCorp 2011 IRP)

Existing Transmission Capacity, Constraints, and Regional Planning

Capacity refers to the amount of power a transmission line can reliably deliver. Capacity is measured in MWs and is limited by the current (in amperes) that the wire can carry or the minimum voltage levels delivered to the substations. Multiple transmission lines generally located in similar alignments and operating electrically in parallel are referred to as electrical transmission "paths." The capacity ratings of the paths are based on meeting established reliability criteria. The Company's high-voltage transmission system is composed of multiple 230kV, 345kV, and 500kV segments. Based on current projections, loads, and the dynamic blend of energy resources are expected to become more complex over the next 20 years, which will challenge the existing capabilities of the transmission network. The Company along with other regional utilities has determined that the Western Interconnection requires additional transmission facilities to meet increased demand for electrical transmission, including the accommodation of multiple renewable-generation projects.

Transmission reliability and the ability to address capacity or congestion issues in a timely manner represent important planning considerations for ensuring that peak load and energy obligations are met on a reliable basis. The cycle time to add significant transmission infrastructure is often longer than adding generation resources or securing third-party resources. Transmission additions must be integrated into regional plans and then permits must be obtained to site and construct the physical assets. Inadequate transmission capacity limits the ability to access what would otherwise be cost effective generating resources.

In the Western Interconnection, regional planning has evolved into a three-tiered approach where an interconnection-wide entity, in this case WECC, conducts regional planning at a very high level, several sub-regional planning groups focus with greater depth on their specific areas, and transmission providers perform local planning studies within their sub-region. This coordinated planning helps to ensure that customers in the region are served reliably and at the least cost. The Company is one of the founding members of the Northern Tier Transmission Group (NTTG). Originally formed in early 2007, NTTG has an overall goal of improving the operation and expansion of the high-voltage transmission system that delivers power to consumers in seven western states. The NTTG footprint includes approximately 4.3 million customers and more than 29,000 miles of transmission lines within Oregon, Washington, California, Idaho, Montana, Wyoming, and Utah.

Repeated sub-regional studies have concluded the critical need to alleviate transmission congestion and move transmission-constrained energy resources to regional load centers. These include the Rocky Mountain Area Transmission Study dated September 2004, the Western Governors' Association Transmission Task Force Report dated May 2006, and the NTTG Fast Track Project Process in 2007, the Transmission Expansion Planning Policy Committee (TEPPC) 2009 Annual Report, the 2009 TEPPC Western Interconnection Transmission Path Utilization Study, plus subsequent the Company planning studies In addition, the WECC Seams Steering Group-Western Interconnection (SSG-WI) of 2005 analyzed this region, and its results were included in the 2006 U.S. Department of Energy (DOE) National Electric Transmission Congestion Study (DOE 2006). The 2006 DOE study identifies the region from Wyoming to the west as a conditional constrained area, meaning that any generation developed in Wyoming will require additional transmission. These studies helped inform the design of the Company's recommended bulk electric transmission additions, which took on a consistent footprint establishing a triangle over Idaho, Utah, and Wyoming, with paths extending into Oregon and Washington. The footprint defined by these studies is now known as Energy Gateway. Studies also were performed in 2007 through the NTTG Fast Track Project Process and as part of the approved NTTG 2011 Biennial Transmission Plan, which indicated a strong need for a series of independent transmission segments, each of which addresses an independent purpose, though all are part of the larger grid. Gateway South is an important component of the needed grid expansion identified by that planning effort.

All of these studies show that the existing generation is using all of the transmission capacity from Wyoming and that the addition of generation resources will require more transmission capacity. These studies also show that the cost of generation and transmission in Wyoming is typically much less than energy from other locations.

On a broader scale, the DOE also sponsored a study through Idaho National Laboratories to assess the economic impact of *not* building transmission upon the Pacific Northwest. The report was published in July 2008 and used a preliminary engineering review and analysis of planned transmission projects to preliminarily rank the projects based on estimates of their potential economic value, likelihood of execution, resource area(s) being accessed, size, and value to the transmission system as a whole. Although the Project's primary purpose is to serve customers in Utah and the Southwest, it ranked 5th (of 15 major projects) in importance for the Pacific Northwest[5]. This conclusion provides a strong indicator that the Project is important on both a local and regional scale.

2.4 Need to Ensure Reliability

Transmission systems in the United States must be planned, operated, and maintained according to NERC[6] reliability standards. All system planners, users, owners, and operators of the bulk-power system

[5]Idaho National Laboratory: The Cost of Not Building Transmission (2008).

[6]NERC's mission is to improve the reliability and security of the bulk power system in North America. To achieve that, NERC develops and enforces reliability standards; monitors the bulk power system; assesses future adequacy; audits owners, operators, and users for preparedness; and educates and trains industry personnel. NERC is a self-regulatory organization that relies on the diverse and collective expertise of industry participants. As the Electric

and regional entities must comply with these reliability standards or face significant penalties for noncompliance. Regionally, the Company also is governed by WECC[7] standards and criteria, which may be more stringent than those required by NERC. Compliance with these standards requires transmission systems to be planned and constructed with sufficient levels of redundancy to maintain reliable operation in the event of a loss or outage of system elements (i.e., transmission line segment or substation element). NERC and WECC performance requirements also require detailed risk assessments of system impacts that would result from a multitude of outage scenarios. Compliance with these standards and regional criteria is not optional for the Company as a Transmission Owner and Transmission Planner under NERC registration.[8]

The NERC and WECC standards and criteria are performance-based. Therefore, they do not dictate the site-specific locations of proposed transmission lines. The physical arrangement of new and existing lines and corridors is left to the transmission provider because it is most knowledgeable about the best method to meet system performance requirements and manage reliability risks and costs. Should a transmission provider fail to meet NERC standards and WECC criteria resulting in widespread uncontrolled loss of generation or customer demand, it would be required per WECC System Performance Criteria TPL-001 WECC-CR-2, WRS5, to take action "so that future occurrences of the event will not result in cascading, or it must demonstrate that the MTBF is greater than 300 years (frequency less than 0.0033 outages/year) and approved by PCC." Severe measures would be required to meet this elevated level of required system performance.

NERC Transmission Planning Standard TPL 002 states that "system simulations and associated assessments are needed periodically to ensure that reliable systems are developed that meet specified performance requirements with sufficient lead time, and continue to be modified or upgraded as necessary to meet present and future system needs."

This means the Company must have a forward-looking transmission plan of action to reliably serve current and anticipated future customer demands under all expected operating conditions, including normal system operations (all system elements in service) and during system contingencies (where elements of the transmission system are out of service), both planned or unplanned.

Collectively these standards are designed to protect the West's interconnected electrical grid by dictating minimum performance levels of transmission system reliability for projects like this Project. In the event

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Reliability Organization, NERC is subject to audit by the FERC and governmental authorities in Canada (NERC 2008).

[7]WECC and the nine other NERC regional reliability councils were formed due to national concern regarding the reliability of the interconnected bulk power systems, the ability to operate these systems without widespread failures in electric service, and the need to foster the preservation of reliability through a formal organization. WECC's service territory extends from Canada to Mexico. It includes the provinces of Alberta and British Columbia, the northern portion of Baja California, Mexico, and all or portions of the 14 western states in between (WECC 2008a).

[8]NERC and WECC standards and criteria that apply to the Company's transmission system and design of the Project include but are not limited to:

- NERC TPL-001 – System Performance Under Normal Conditions
- NERC TPL-002 – System Performance Following Loss of a Single BES Element
- NERC TPL-003 – System Performance Following Loss of Two or More BES Elements
- NERC TPL-004 – System Performance Following Extreme BES Events
- TPL 001-WECC-1-CR – System Performance Criteria Normal Conditions
- TPL 002-WECC-1-CR – System Performance Criteria Following Loss of a Single BES Element
- TPL 003-WECC-1-CR – System Performance Criteria Following Loss of Two or More BES
- TPL 004-WECC-1-CR – System Performance Criteria Following Extreme BES Events

that the Company's new transmission line fails to perform in accordance with these reliability requirements, the Company may be required by WECC and NERC to limit the capacity or operation of the lines to levels that would not cause major disturbances or disruptions to the Western Interconnection. Therefore, the Project has been designed such that a common-mode outage would not result in a reduction of its rated capacity (de-rating). This approach protects the Company's ability to maintain its obligations to its native load and network customers and minimizes the risk of a de-rating. If the Project were subject to a de-rating, then the Company would be required to mitigate for the lost capacity. Given the scale of the Project, this scenario would require the design and construction of an additional 500kV transmission facility.

2.4.1 WECC Planning Studies to Establish Line Ratings

The WECC rating studies are required to account for outages or, in other words, events and circumstances that are deemed credible based on the utility's system operating experience and history. Within the Project area, there are other existing and planned EHV lines that the Company must consider when siting the proposed Project. If the proposed Project and the other EHV lines are all colocated in proximity then the Company must be able to demonstrate it has an acceptable back-up plan in place should they be simultaneously out of service for any reason.

For the Company to reliably serve immediate future loads within its service area, a new transmission line needs to be designed such that it meets NERC and WECC planning and reliability criteria. However, meeting these planning criteria does not relieve the Company of other performance-based standards enforced by WECC. In particular if a severe system disturbance occurs due to line outages, the Company's experience demonstrates that WECC may reduce the line ratings and useable capacity in order to restore system reliability. Under such a scenario, the Company would expect that construction of a new line would be needed to make up for the lost capacity.

2.4.2 Use of Federally Designated Corridors

As part of its original feasibility analysis, the Company considered routes in federally designated corridors located within the Project area, but suggested the removal of some routes from further consideration based upon many factors, including its fundamental need to comply with NERC and WECC requirements. The West-wide Energy Corridors (WWEC) Programmatic Environmental Impact Statement (PEIS) published by the Department of Energy, Bureau of Land Management, and Forest Service confirms that compliance with NERC and WECC standards is essential to reliability.[9]

The WWEC PEIS concludes that "…by far the most cost effective preemptive strategy against multiple simultaneous line loss involves ensuring adequate distance separation between lines at the planning stage. Experience among WECC system operators has also shown that the nature of the land between lines…should dictate safe separation distances on a case-by-case basis…[I]n forested areas or in areas where vegetation provides substantial amounts of fuel for fires, greater line spacings (up to 5 miles) may be necessary to prevent adjacent lines from becoming simultaneously involved in faults caused by ionized smoke."

The Company's planning for the Project, therefore, incorporates the findings of the WWEC PEIS as well as its own experience.

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[9] Programmatic Environmental Impact Statement, Designation of Energy Corridors on Federal Land in 11 Western States (DOE/EIS-0386); DOE 2008

2.4.3 Company and Industry Experience

As described above, the Company is required to use its experience when planning for new facilities. The Company has more than 100 years of experience with instances of multiple transmission lines located in the same general proximity experiencing simultaneous outages due to a variety of causes, including but not limited to fire and smoke, high winds, dust storms, ice storms, blizzards, lightning, landslides, earthquakes, vandalism, tower or conductor failure, equipment failure, airplane collisions, and other experience. The following examples demonstrate the need for the Company and the affected land-management agencies (e.g., Bureau of Land Management, Forest Service) to consider separation distances during the planning, design, and siting of the Project as a means to reduce risk to system reliability in the planning and construction of new transmission lines:

- **1981.** Fire forced two 345kV lines north of Camp Williams out of service and a third 345kV line cascaded, resulting in a Utah state-wide blackout.
- **1982–1983.** Landslides destroyed transmission towers on the two Emery to Sigurd 345kV lines.
- **1983.** Severe winds destroyed sections of seven lines between Salt Lake City and Ogden (345kV, 230kV and 138kV)
- **1990.** A U.S. Air Force jet clipped an overhead shield wire, which wrapped around the double-circuit 345kV and 230kV lines between Terminal and Ben Lomond substations, causing outages.
- **2000.** Fires in the corridor of Emery to Camp Williams and Huntington to Spanish Fork lines forced 345kV lines out of service.
- **2002–2003.** Multiple fires in the corridor between Mona and Camp Williams forced lines out of service.
- **2007.** Fire caused both the Mona to Huntington and Mona to Bonanza 345kV lines in Central Utah to be de-energized for fire crew safety.
- **2007.** Fire forced three 345kV lines connecting Jim Bridger in Wyoming and southeast Idaho out of service.

In addition to the Company's experience, other utilities in the WECC have experienced significant system outages:

- **1990.** Fires caused six simultaneous outages (along with 17 single-line outages) of two Round Mountain to Table Mountain 500kV lines in northern California. Fires burned randomly back and forth across the corridor for more than 12 miles. Customer load interruptions ranged from 90 MW to 1,000 MW at times.
- **1993.** High winds caused the loss of two adjacent 500kV line towers on the Pacific Intertie, leaving an estimated 5.2 million customers in several states without power. This simultaneous loss of two major EHV lines resulted in a system reliability and capacity review that led to the requirement in 1993 to build a third 500kV transmission line across the Pacific Intertie to restore capacity and improve reliability.