ROCKY MOUNTAIN POWER
A DIVISION OF PACIFICORP

October 11, 2010

United States Department of Interior
Bureau of Land Management, Wyoming State Office
5353 Yellowstone Road
P.O. Box 1828
Cheyenne, Wyoming 82003
Attention: Ms. Tamara Gertsch

RE: PacifiCorp/Rocky Mountain Power
Energy Gateway South 500kV Transmission Project
Revised Standard Form 299 Right-of-Way Application

Dear Ms. Gertsch:

PacifiCorp/Rocky Mountain Power is submitting for your consideration and action a revised Standard Form 299 (SF299) application for PacifiCorp/Rocky Mountain Power's proposed Energy Gateway South 500 kilovolt (kV) Transmission Project (Project), which amends the original application filed by PacifiCorp on November 30, 2007.

This revision is submitted to identify PacifiCorp/Rocky Mountain Power's proposed alternative route corridors currently being considered for detailed analysis, and to update the Project description. More specifically, changes from the original SF299 application reflected in this revision include:

- Project reduction to single-circuit 500kV transmission line from Aeolus Substation to Clover Substation
- Revised Project study area map identifying a refined set of alternative route corridors
- Description of Project structures and facilities
- Updated physical specifications
- Updated list of authorizations and pending applications filed for similar projects that may provide additional relevant information to the Bureau of Land Management

Please do not hesitate to contact me if you have any questions. I may be contacted by telephone at (801) 220-2518 or (801) 842-5783 or by electronic mail at Todd.Jensen@PacifiCorp.com.

Yours sincerely,

Todd Jensen
Director, Main Grid Transmission and Delivery

ENERGY GATEWAY SOUTH TRANSMISSION PROJECT

Revised Standard Form 299 Right-of-Way Application
Attachment A

Revised from December 2008 Submittal

Submitted to:

Bureau of Land Management
Wyoming State Office
5353 Yellowstone Road
Cheyenne, Wyoming 82003

Submitted by:

PacifiCorp/Rocky Mountain Power

October 2010

This attachment presents information requested in Standard Form (SF) 299.

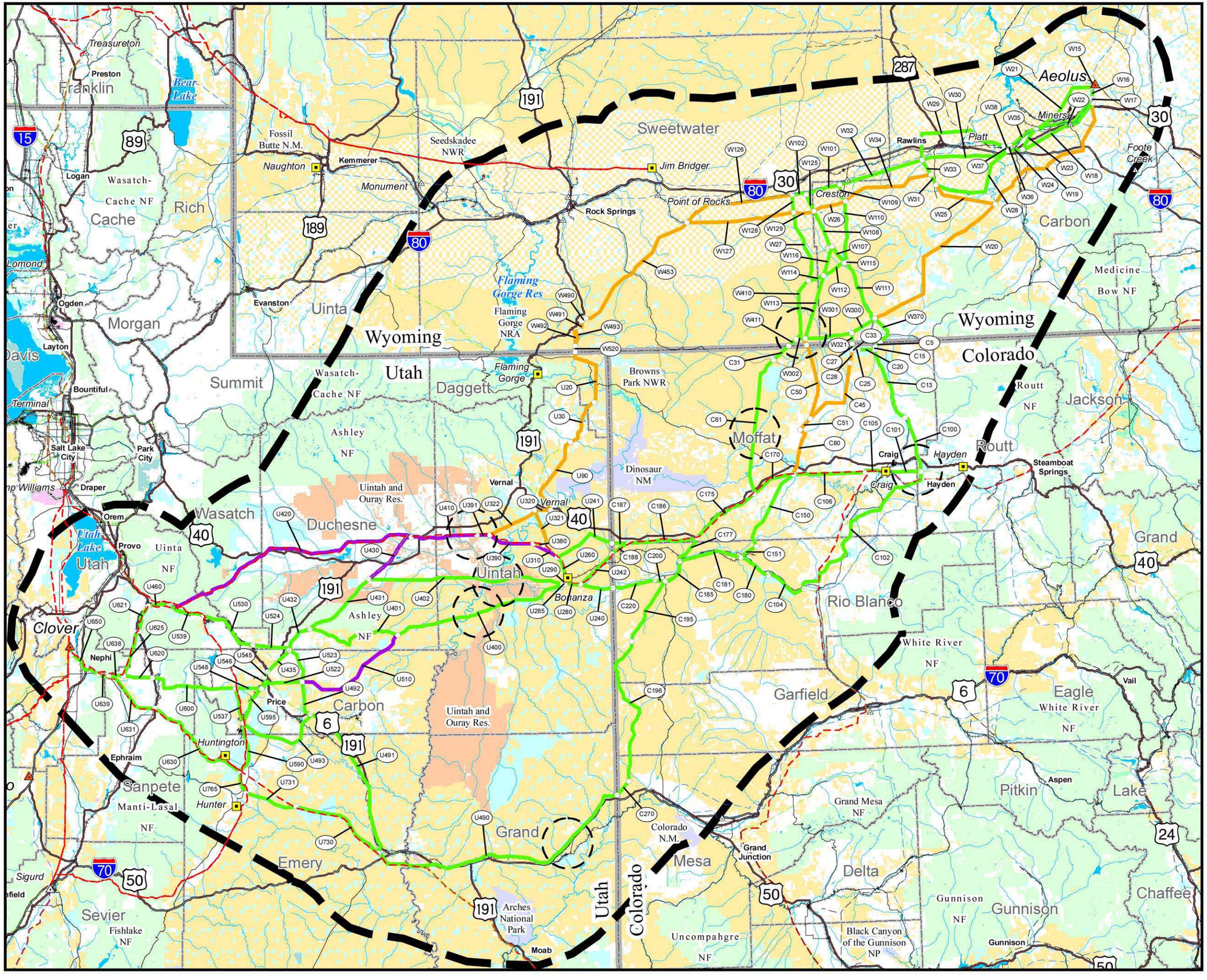
7) Project description (*describe in detail*): (a) type of system or facility (*e.g., canal, pipeline, road*); (b) related structures and facilities; (c) physical specifications (*length, width, grading, etc*.); (d) term of years needed; (e) time of year of use or operation; (f) volume or amount of product to be transported; (g) duration and timing of construction; and (h) temporary work areas needed for construction.

The Energy Gateway South Project is one part of PacifiCorp/Rocky Mountain Power's overall transmission expansion program, called the Energy Gateway Program, which will add more than 1,900 miles of new transmission lines connecting PacifiCorp/Rocky Mountain Power's customers to new and existing generation resources and provide stronger ties to established energy markets. The Energy Gateway Program is composed of several large-scale projects that will address customers' increasing electric energy use, improve system reliability, and connect new renewable resources and other generation resources to customers throughout PacifiCorp's six-state service area and the western United States.

As proposed, the Energy Gateway South project (Project) would be comprised of a high-voltage alternating current (AC) transmission line that would run between existing, planned, and proposed substations. A proposed single-circuit 500-kilovolt (kV) transmission line approximately 400 miles in length would begin at the planned Aeolus Substation near Medicine Bow, Wyoming and terminate at the Clover Substation near Mona, Utah. The Clover Substation was previously known as the Mona Annex Substation. Several alternative routes between these two termini have been proposed to date and PacifiCorp/Rocky Mountain Power has not yet identified its proposed alternative, but anticipates doing so as the public scoping and alternative formulation process proceeds. A map of the Project study area, which includes the proposed alternative routes, is presented as Figure 1 – Alternative Routes Map. A detailed project description will be provided after detailed engineering is complete.

As proposed, the Project would connect two planned substations and two proposed series compensation substations including:

- Planned Aeolus Substation—this substation is planned to be in service prior to the Energy Gateway South project.
- Planned Clover Substation—this substation would interconnect to the existing Mona Substation and existing 345kV transmission system in Utah. The Clover Substation is proposed as part of the Mona to Oquirrh Transmission Line Project.
- Proposed Series Compensation Substations 1 and 2—two series compensation substations are proposed at two separate points between the Aeolus and Clover Substations to improve the transport capacity and efficiency of the transmission line.



ALTERNATIVE ROUTES - STAGE I

Legend

Project Features

- Link Number
- Link Node
- Alternative Route
- Recommended for Elimination by Rocky Mountain Power
- Recommended for Elimination by BLM
- Project Area Boundary
- Series Compensation Station Site

Utility Facilities

- Planned Substation
- Existing Power Plant
- Existing Substation
- 500kV+/- DC Transmission Line
- 500kV Transmission Line
- 345kV Transmission Line
- 230 to 287kV Transmission Line
- 138 to 161kV Transmission Line
- 115kV Transmission Line

Transportation Features

- Interstate Highway
- US Highway
- State Highway
- Railroad

Land Jurisdiction

- Department of Defense
- Department of Energy
- Indian Reservation
- USDA Forest Service
- USDI Bureau of Land Management
- USDI Bureau of Reclamation
- USDI Fish and Wildlife Service
- USDI National Park Service
- State Land

Sources:
Transportation: US Department of Transportation, NTAD2008
Land Jurisdiction: BLM State Office Colorado, Utah, Wyoming 2008
POWERmap, powermap.platts.com

NOTE: Substation locations are schematic and do not necessarily represent precise locations.

Date last revised: October 6, 2010

The alternative routes shown on this map are preliminary and may be revised and/or refined throughout the development of the project.

0 10 20 40 60
Miles

Prepared by: epg

DRAFT

ENERGY GATEWAY SOUTH TRANSMISSION PROJECT

NATIONAL SYSTEM OF PUBLIC LANDS

G:\EGS_TWE\Appl\EGS\Base\Aeolus_To_Clover\EGS_BLMFO_Base_11_by_17_800K_September_Routes.mxd

(a) Type of system or facility

An extra high-voltage transmission line system, including proposed Series Compensation Stations 1 and 2, are being proposed as 500kV AC facilities.

(b) Related structures and facilities

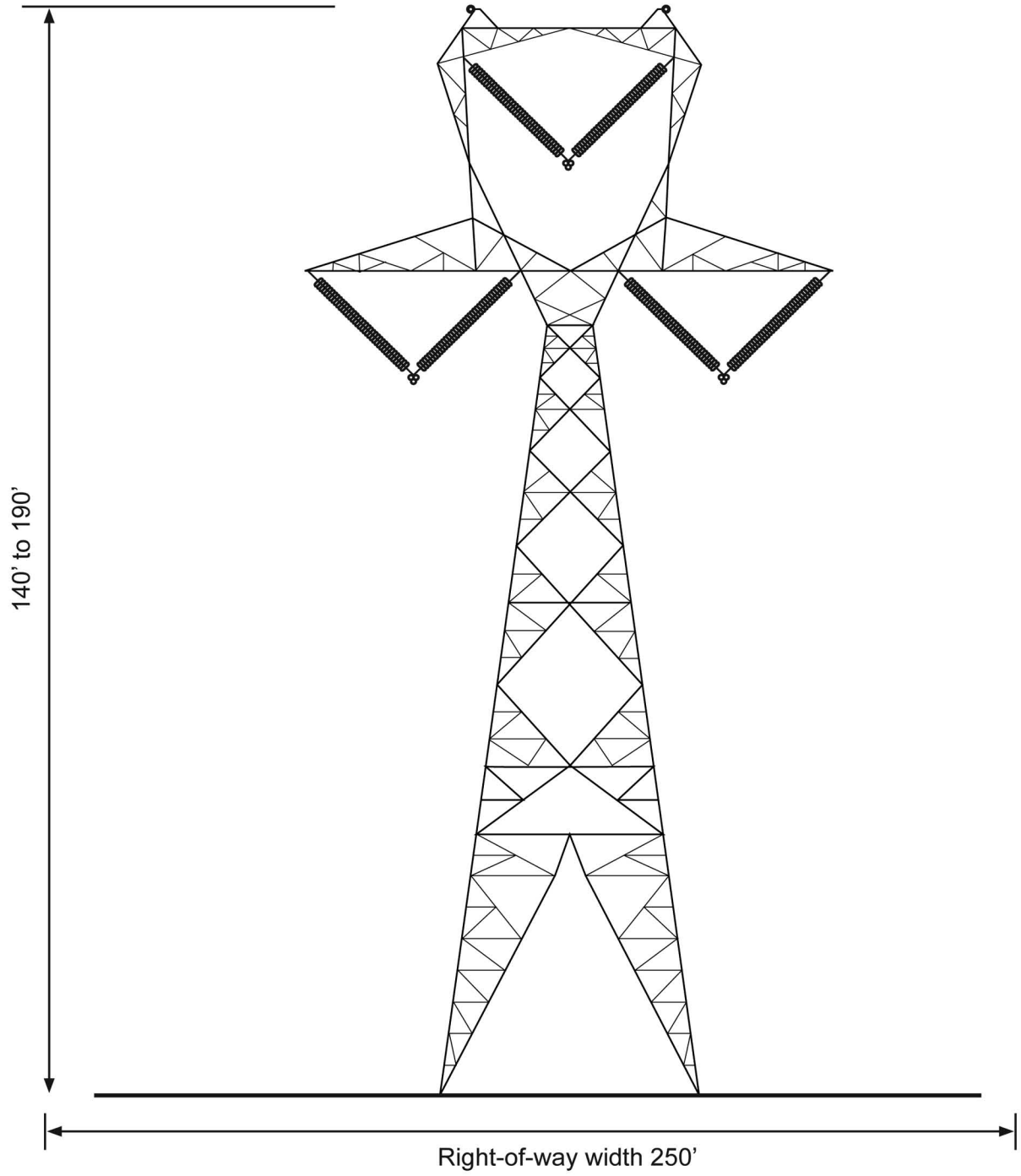
Designs for typical 500kV transmission line structures are illustrated in Figure 2 – Typical 500kV AC Single-Circuit Structure, and a more detailed description of transmission line segments, substations, and ancillary facilities is included in Attachment B – Project Description.

At this time, it is anticipated that self-supporting lattice single-circuit tangent structures made of dulled galvanized steel would be predominantly used in conjunction with dead end structures in selective locations (at angle and turning points). This structure type was primarily selected because: (1) it provides a reliable, economic design and construction alternative, (2) it facilitates alternative construction methodology if necessary, (3) it facilitates energized (live line) maintenance techniques, (4) a delta conductor configuration minimizes electro-magnetic field (EMF) effects, and (5) its open architecture reduces visual landscape impacts when viewed at a distance. The tower height would range between approximately 140 feet and 190 feet. The average span between towers would be approximately 1,000 to 1,500 feet (4 to 5 structures per mile). Additional structure types may be engineered and developed to mitigate site specific environmental constraints or conflicts with existing land use issues.

PacifiCorp/Rocky Mountain Power proposes to acquire a permanent 250-foot-wide right-of-way for the construction and operation of the Project. The determination of the right-of-way width is primarily based on two main criteria: (1) sufficient horizontal conductor clearance must be maintained to the right-of-way edge under all conditions and (2) sufficient room must be provided within the right-of-way to perform transmission line maintenance.

The proposed Series Compensation Substations 1 and 2 would be located at separate points between the planned Aeolus Substation and the planned Clover Substation. Circuit breakers and related switching equipment, bus supports and other equipment would be installed for the 500kV transmission line(s) structures. Additional equipment, including 500kV series capacitors and 500kV transformers and shunt reactor banks, and emergency generators along with all associated site preparation, fencing, foundations, protection, control, communications equipment, and metering would be installed. Locations for the series compensation stations have not yet been identified but generally would be located equidistant between the planned Aeolus Substation and the planned Clover Substation. Permanent access roads to all substations would be required and in general, substation access roads would be a minimum of 20 feet in width and a maximum of 27 feet in width depending on the slope conditions. Final design for the 500kV transmission system, including proposed series compensation substations, would not be determined until further transmission planning and engineering studies have been completed.

Figure 2 - Typical 500kV AC Single-Circuit Structure



NOTE: The self-supporting lattice single-circuit is the structure that would be used predominantly.

NOT TO SCALE

(c) Physical Specifications

The transmission system length would be approximately 400 miles (depending on the alternative route selected) with a right-of-way width of 250 feet. The transmission system is required to maintain adequate physical separation from other existing extra-high voltage transmission lines as required by the North American Electric Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC) reliability standards and PacifiCorp/Rocky Mountain Power's experience and requirements. A more detailed project description, including physical specifications of the transmission line segments, substations, and ancillary facilities is included in Attachment B – Project Description. Final design for the proposed transmission line and substation facilities will be determined upon further transmission planning and engineering studies.

(d) Term of years needed

The requested term of right-of-way grant for the Project is 50 years.

(e) Time of year or use of operation

The transmission line(s) would operate year-round and on a daily basis, 24 hours a day. Maintenance activities would be scheduled and coordinated with other facilities to avoid service interruptions to customers served by the line(s).

(f) Volume or amount of product to be transported

The proposed transmission line would have a Planned Rating of approximately 1,500 megawatts (MW) of power. WECC'S Three Phase Rating Process and Procedures will determine the final Approved Ratings. The amount of energy transferred on the transmission line at any given time may vary depending upon the needs of customers, system configurations, and the demands of the larger interconnected electrical system.

(g) Duration and timing of construction

A minimum of 3 years is anticipated to construct the proposed substations and transmission line with construction projected to begin in April 2017.

(h) Temporary work areas needed for construction

Temporary work areas would be determined during preliminary design and compliance with the National Environmental Policy Act (NEPA), through the development of an Environmental Impact Statement (EIS). Approximately one 20-acre construction yard would be required every 25 miles (locations to be determined and located on private property to the maximum extent possible). Approximately one 10-acre fly yard will be required every 10 miles (locations to be determined and located on private property to the maximum extent possible). A temporary work area of approximately 250 feet by 250 feet (1.43 acres per structure) would be needed at each tower site. Line tensioning sites would require approximately a 250' width x 700' length every 3 miles (4.02 acres). More information on the typical dimensions

for and associated with 500kV transmission line components is included in Attachment B – Project Description.

8) Attach a map covering area and show location of project proposal.

The location of the Project, including the proposed alternative routes being considered for detailed analysis, is presented in Figure 1 – Alternative Routes Map.

9) State or local government approval:

Applications for all required state and local permits would be submitted during, or after, the Bureau of Land Management (BLM) and U.S. Forest Service's (USFS) review and approval process, as appropriate.

10) Nonreturnable application fee:

An application fee was filed with the original Project right of-way application submittal in May 2007 (under the name Jim Bridger to Crystal Project).

12) Give statement of your technical and financial capability to construct, operate, maintain, and terminate system for which authorization is being requested.

PacifiCorp/Rocky Mountain Power has successfully constructed, operated, and maintained similar electrical facilities throughout the states of Wyoming and Utah (and its six-state service territory) for more than 75 years. PacifiCorp/Rocky Mountain Power has the technical and financial capability to construct, operate, and maintain the proposed Project.

13a) Describe other reasonable alternative routes and modes considered.

Regional corridor feasibility studies were completed from Wyoming to southern Nevada to assist in developing transmission corridors. Results of the studies identified corridor options that would minimize potential environmental impacts. The preliminary corridors for study were typically up to 4 miles wide and were included in the Preliminary SF 299 application submitted to the BLM in 2007. Subsequent to the 2007 analysis, additional review and screening of the alternatives has been performed with further consideration for the following criteria:

- Presence of designated or proposed utility corridors
- Presence of other existing linear facilities
- Sensitive resource areas and land use constraints (at a macro level)
- Substation interconnection requirements
- System planning criteria including separation requirements from existing and planned bulk electric facilities
- Construction, minimized line length, operation, and maintenance of facilities

PacifiCorp/Rocky Mountain Power's interdisciplinary team used the following process to further identify alternative routes:

- Utilize federally-designated utility corridors as feasible, but minimize the use of utility corridors that contain existing extra-high voltage transmission lines
- Parallel linear facilities, such as pipelines, low voltage transmission lines, etc.

- Minimize segments and/or line mileage that conflicts with the NERC and/or WECC planning criteria, and would result in reduced reliability or capacity.

Figure 1 – Alternative Routes Map depicts the proposed alternative routes that were identified through the screening process and that are currently being considered. Further detailed environmental studies, engineering studies, and field review/surveys will be required for the proposed alternative transmission line routes, substations, and series compensation substations as part of the NEPA process.

13b) Why were these alternatives not selected?

PacifiCorp/Rocky Mountain Power has not selected a proposed alternative at this time. The PacifiCorp/Rocky Mountain Power interdisciplinary team eliminated some preliminary routes due to incompatibility with the Company's regulatory obligations and industry transmission planning standards. Alternative routes that have been eliminated from consideration at this time include routes that:

- do not meet the purpose and need for the Project;
- do not meet system reliability or planning criteria for the Project; or
- are not practical to construct or financially infeasible.

Based on preliminary comments from federal and state agencies, some alternative routes were also eliminated based on non-compliance with land management plans and known sensitive resources.

Alternative routes and substation sites that meet the Project's purpose and need will be considered during the NEPA process.

13c) Give explanation as to why it is necessary to cross federal lands.

In order to interconnect the transmission line with all necessary terminal points (substations), the crossing of federally managed land primarily administered by the BLM and USFS would be required. Generally, the study area is identified as open range and undeveloped; however, incorporated cities and other populated areas are dispersed throughout. Generally, alternatives identified outside of urban areas would cross federally managed land.

14) List authorizations and pending applications filed for similar projects which may provide information to the authorizing agency (*Specify number, date, code, or name*).

Five preliminary right-of-way applications have been or are being filed with the BLM for EHV transmission lines within the Project study area:

(1) Mona to Oquirrh 500/345kV Transmission Corridor Project, filed January 2007 with the BLM Salt Lake and Fillmore field offices by PacifiCorp/Rocky Mountain Power,
(2) Wyoming-West Transmission Corridor Project (Wyoming-West), filed in March 2007 by National Grid and the Wyoming Infrastructure Authority (WIA)—at this time National Grid and WIA are not moving forward with Wyoming West;
(3) Dave Johnston to Hemingway 500kV Transmission Project (Gateway West), filed in May 2007 by PacifiCorp/Rocky Mountain Power and Idaho Power Company,

(4) TransWest Express 500kV Transmission Project (TransWest Express), filed in November 2007 by National Grid, revised by National Grid in February 2008, and then reassigned to TransWest Express LLC in September 2008, and

In August 2007, Arizona Public Service (APS), PacifiCorp/Rocky Mountain Power, WIA, and National Grid entered into an agreement to collaborate on the development of the TransWest Express and Energy Gateway South projects. Since this time, APS, WIA, and National Grid have withdrawn from the agreement, and the right-of-way application and related BLM project file for the TransWest Express Project has been assigned to TransWest Express LLC.

PacifiCorp/Rocky Mountain Power has established a working relationship with Idaho Power Company in respect to the development of Gateway West as part of a regional transmission solution.

15) Provide statement of need for project, including the economic feasibility and items such as: (a) cost of proposal (*construction, operation, and maintenance*); (b) estimated cost of next best alternative; and (c) expected public benefits.

The energy needs of PacifiCorp/Rocky Mountain Power's customers have significantly increased the electrical demands placed on the supply system over the past 25 years. As a result, the current transmission system that has provided consumers with access to low cost generating resources and ensures the delivery of reliable service is now fully utilized. Looking to the future, prudent action by PacifiCorp/Rocky Mountain Power requires that electric infrastructure be planned and constructed.

The Project will help ensure customers now and in the future have adequate sources of safe and reliable electricity including new sources of renewable energy provided by wind generation located in Wyoming. PacifiCorp/Rocky Mountain Power provides an essential public service and is obligated to provide safe, reliable, efficient and adequate service thereby meeting the growing electrical demands of its customers.

This Project will fulfill the following key responsibilities of PacifiCorp/Rocky Mountain Power in meeting those obligations:

- Transmission capacity – provide incremental levels of increased transmission capacity for use by PacifiCorp's network customer's longer term and additionally provide opportunities for third-party transmission users to acquire access and to maintain PacifiCorp/Rocky Mountain Power's ability to continue to meet existing contract commitments for transmission service.
- Meeting customer demand – support the increasing electrical needs demanded by retail customers in the region, and meeting those demands both now and for the long term. Electric customers' demands for more electricity continue to grow along with their expectations for increased reliability.
- Reliability – provides increased reliability by adding to the region's existing transmission infrastructure, which is now capacity constrained and is operationally limited. The Project will substantially improve PacifiCorp/Rocky Mountain Power's ability to provide reliable electrical service to its customers through access to energy resources.
- Access energy resources—the Project is expected to provide necessary options to transport electricity generated from new and existing facilities anticipated to be built in Wyoming, which has substantial energy resources to serve PacifiCorp/Rocky Mountain

Power's growing load centers. These energy resources include new renewable generation sources like wind, in addition to conventional thermal resources.

(a) Cost of proposal (construction, operation, maintenance):

The approximate cost of the transmission line project is anticipated to be $1.5 billion.

(b) Estimated cost of next best alternative

This right-of-way application identifies several transmission line alternative routes. As the Project progresses through the EIS process, detailed studies would be completed and alternative routes would be evaluated in detail.

(c) Expected public benefits

The transmission line(s) would increase reliability and maintain economic viability of electricity to consumers throughout the western states. Other public benefits may include increased employment in rural areas, as part of transmission line(s) construction and operation, and an increased tax base.

16) Describe probable effects on the population in the area, including the social and economic aspects, and the rural lifestyles.

The Project may provide the impacted population with job opportunities (e.g., construction, operation, maintenance) and increased tax revenues based on the value of the Project's assets. All aspects of the Project's impact on the rural lifestyle would be examined in detail in the EIS. On a regional scale, the Western Interconnection would benefit from an additional improvement to the electrical system's capacity to provide safe, adequate, reliable, and efficient energy.

17) Describe likely environmental effects that the proposed project would have on: (a) air quality; (b) visual impact; (c) surface and ground water quality and quantity; (d) the control or structural change on any stream or other body of water; (e) existing noise levels; and (f) the surface of the land, including vegetation, permafrost, soil, and soil stability.

Mitigation measures would be developed, where necessary, to minimize potential environmental impacts to natural and human resources.

(a) Air quality

Construction of the Project would have relatively short-term and localized effects on air quality in the Project area, from fugitive dust and emissions from equipment exhaust.

(b) Visual impacts

Effects on visual resources would result from the visibility of Project facilities (e.g., transmission structures, conductors, and substation), vegetation clearing, and ground-disturbing construction activities. Viewers potentially affected by the Project include residences, recreationists, and travelers along roads. Mitigation measures would be implemented to reduce visual impacts where practicable.

(c) Surface and ground water quality and quantity

Effects to water resources are anticipated to be minimal. Minimal changes to drainage patterns are expected. Potential effects to surface water would be short-term during construction.

(d) Control or structural change on any stream or other body of water

The Project would not create any control or structural change of any perennial stream or other permanent body of water. Efforts would be made to place the transmission structures outside perennial streams and all other water bodies.

(e) Existing noise levels

Noise levels resulting from the Project would be almost entirely due to construction-related activities, which would result in a temporary increase in noise levels during daytime hours. Measures would be implemented to mitigate potential noise effects to receivers during construction activities. The Project would comply with all local noise ordinances during construction, maintenance, and operation.

(f) The surface of land including vegetation, permafrost, soil, and soil stability

For operational safety reasons, any tall-growing species vegetation in the Project's right-of-way would be removed. Impacts to vegetation would be temporary at each transmission line structure, except for the actual location of the transmission structure where vegetation would be removed. There may be impacts to vegetation from construction and maintenance access, depending on final construction design. Vegetation within existing rights-of-way, but outside of the Project's construction area, would not be impacted.

Potential impacts to soil stabilization from the Project would be minimal and would be mitigated.

18) Describe the probable effects that the proposed project would have on (a) populations of fish, plant life, wildlife, and marine life, including threatened and endangered species; and (b) marine mammals, including hunting, capturing, collecting, or killing these animals.

The Project is not anticipated to have an adverse impact on the populations of fish, marine life, marine mammals, including hunting, capturing, collecting, or killing these animals. Potential effects to populations of plant life, wildlife, including threatened and endangered species, would be evaluated in the NEPA compliance process. Mitigation measures would be developed where necessary to minimize potential environmental impacts.

19) State whether any hazardous material, as defined in this paragraph, would be used, produced, transported, or stored on or within the right-of-way or any of the right-of-way facilities, or used in the construction, operation, maintenance, or termination of the right-of-way or any of its facilities.

No hazardous material would be produced, transplanted, or stored on, or within the Project right-of-way. Petroleum products, such as gasoline, diesel fuel, and lubricants, would be present on-site during construction. These products would be used to fuel and lubricate vehicles and equipment but would be contained within fuel trucks or in approved containers. Vehicle-fueling and maintenance activities would not occur in any environmentally sensitive areas. When not in use, such materials would be stored properly to prevent drainage or accidents during Project construction.

Construction, operation, and maintenance activities would comply with applicable federal, state, and local regulations regarding the use of hazardous materials. Hazardous materials would not be drained onto the ground or into streams. Totally enclosed containment would be provided for all trash. All construction waste, including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials, would be removed and transported to a disposal facility authorized to accept such materials. Spills are not expected, but should they occur, would likely be minimal and would be immediately addressed. All potentially hazardous materials would be addressed in the EIS and the final Plan of Development.

Mitigation measures would be developed where necessary to minimize potential environmental impacts.

20) Name all the Department(s)/Agency(ies) where this application is being filed.

The Project primarily crosses federal lands managed by the BLM and the USFS. This right-of-way application has been filed with the BLM Wyoming State Office.

ENERGY GATEWAY SOUTH TRANSMISSION PROJECT

Revised Standard Form 299 Right-of-Way Application
Attachment B – Project Description

Revised from December 2008 Submittal

Submitted to:

Bureau of Land Management
Wyoming State Office
5353 Yellowstone Road
Cheyenne, Wyoming 82003

Submitted by:

PacifiCorp/Rocky Mountain Power

October 2010

Per request of the Bureau of Land Management (BLM), PacifiCorp/Rocky Mountain Power is providing a more detailed description of the Energy Gateway South Project (Project).

1.0 PROJECT DESCRIPTION

1.1 Substation and Ancillary Facilities Descriptions

Table 1-1 describes the anticipated components of each substation.

TABLE 1-1
SUBSTATION AND ANCILLARY FACILITIES DESCRIPTIONS

Substation	Description
Aeolus Substation	▪ *Planned* substation to be constructed as part of proposed Energy Gateway West Project ▪ Planned access road is gravel and would not need extension ▪ 500kV circuit breakers and related switching equipment ▪ Bus and support structures ▪ 500kV line termination structures approximately 135 feet in height ▪ 500kV shunt reactor bank(s) ▪ 500kV shunt capacitor bank(s) ▪ Potential and current transformers ▪ Control, protection, and communications equipment
Series Compensation Substation #1	▪ *Proposed* Substation ▪ Access road required ▪ Perimeter security fence ▪ 500 kV circuit breakers and related switching equipment ▪ 500kV line termination structures approximately 135 feet in height. ▪ Bus and support structures ▪ 500kV shunt reactor banks ▪ 500kV series capacitors ▪ Emergency generator ▪ Potential and current transformers ▪ Control, protection, and communications equipment ▪ Control building
Series Compensation Substation #2	▪ *Proposed* Substation ▪ Access road required ▪ Perimeter security fence ▪ 500kV circuit breakers and related switching equipment ▪ 500kV line termination structures approximately 135 feet in height ▪ Bus and support structures ▪ 500kV shunt reactor banks ▪ 500kV series capacitors ▪ Emergency generator ▪ Potential and current transformers ▪ Control, protection, and communications equipment ▪ Control building
Clover Substation	▪ *Planned* substation ▪ Access road would be gravel. Access road length is to be determined based on final design of ultimate layout ▪ Perimeter security fence

TABLE 1-1 SUBSTATION AND ANCILLARY FACILITIES DESCRIPTIONS	
Substation	**Description**
	▪ 500kV and 345kV circuit breakers and related switching equipment ▪ Bus and support structures ▪ 500kV/345kV transformer bank ▪ 500kV shunt reactor bank ▪ 500kV series capacitors ▪ Emergency generator ▪ Potential and current transformers ▪ Control, protection, and communications equipment ▪ Control building
Ancillary Facilities	
Communications and Control Facilities	▪ Regenerator sites are required to amplify the system control and monitoring signals carried over the fiber optic cable attached to the transmission towers ▪ A total of 10 regenerator sites will be needed ▪ Regenerator sites will be located either within a substation or at another location along the route remote from a substation ▪ Regenerator sites remote from a substation are 100 X 100 feet with a 75 X 75-foot fenced area ▪ Typical building dimensions within the fenced area are 12 feet wide X 32 feet long X 9 feet tall ▪ The fiber OPGW cable supported on the transmission structures would be routed in and out of the regenerator site building from the nearest transmission structure either underground or overhead along two independent diverse paths ▪ Electronic equipment, required to support the fiber optic cable installation would be located inside the building ▪ At sites not within a substation, an LP fueled emergency generator would be installed to provide backup power during an outage of the local electric distribution system supply ▪ Maximum regenerator site spacing is 55 miles or less depending on access and proximity to local electric distribution lines ▪ The primary siting criteria for a regenerator site located outside of a substation would be: adjacent to the transmission line right-of-way, proximity to existing low voltage electric distribution lines to provide power to the facility, and the ability to easily access the site by vehicle
Other	▪ Distribution line extensions are required to provide operational power and station service power at: o Regenerator Sites – for standalone regeneration stations o Series Compensation Substation #1 o Series Compensation Substation #2 ▪ Typically provided from an existing distribution line located in proximity to the site ▪ Not required for Aeolus and Clover Substations since these are currently planned and/or will exist at the time of Project construction

1.2 TRANSMISSION LINE DESCRIPTIONS

The following section describes the typical transmission line components.

TABLE 1-2
TRANSMISSION LINE DESCRIPTIONS[a]

Transmission Line	Description
Transmission Line Facilities	▪ Three-phase 500kV construction for all tower designs, conductor spacing, and clearances ▪ Nominal Voltage: 500kV AC line-to-line ▪ Capacity: 1,500 MW per circuit ▪ Conductors: bundled 1949.6 kcmil 42/7 ACSR/TWD "Athabaska/TW", with three subconductors per phase o Non-specular finish o Subconductor triple bundle configuration: triangular o Estimated subconductor diameter: 1.504 inches ▪ One OPGW - wire diameter: 0.637 inches, containing 48 fibers ▪ One EHS steel overhead ground wire - estimated shield wire diameter: approximately 0.495 inches ▪ Typical minimum design conductor ground clearance: 34 feet ▪ Proposed structure types: lattice steel single- circuit structures; dulled galvanized steel finish ▪ Typical structure heights varies between 140 and 190 feet ▪ Approximate distance between structures: 1,000 to 1,500 feet ▪ Right-of-way width: 250 feet ▪ The exact quantity, structure type and height, distance between and placement of the structures would depend on the final detailed design of the transmission line, which is influenced by the terrain, land use, and economics. Alignment options may also slightly increase or decrease the quantity, location, and height of structures ▪ Regeneration stations located at maximum spacing of 55 miles common to all segments (see ancillary facilities description in Table 1-1) ▪ Two series capacitor substations would be located along the line ▪ Line length: approximately 425 miles

Notes:

[a] Approximately 10 to15 miles (less than 3 to 4% of the overall Project) of 345kV transmission line and structures will need to be built to interconnect the planned Clover Substation with the existing Mona Substation, but further studies are needed before more definitive information can be provided.

TABLE 1-3
TYPICAL DIMENSIONS FOR 500kV TRANSMISSION LINE COMPONENTS[a]

Feature	Description
	500kV Lattice
Land Temporarily Disturbed	
Structure Work Area	250 x 250 feet per structure
Wire-pulling Sites	250 x 700 feet per 3 miles
Wire-tensioning Sites	250 x 700 feet per 3 miles
Wire-splicing Sites	100 x 100 feet per 3 miles
Construction Yards	Approximately one 20-acre site every 25 miles, location to be determined
Fly Yards	Approximately one 10-acre site every 10 miles, locations to be determined
Land Permanently Required	
Structure Base (area)	40 feet x 60 feet (tangent) 50 feet x 80 feet (deadend)
Right-of-way width	250 feet
Access Roads	
New Roads Required	Approximately 1.1 to 2.5 miles of new road per mile of transmission line where new roads are required depending on local terrain, slope, geology, etc. Existing roads will be used wherever possible.
New Spur Roads Required	Approximately 0.2 to 0.3 mile of new spur roads per mile of transmission line where new spur roads are needed.
Improve Existing Roads	Existing roads will be improved to 14 feet wide or smoothed to width of berm.
Other	
Typical Structure Heights	Between 140 and 190 feet
Approximate distance between Structures	1,000 to 1,500 feet
Regeneration Stations	Maximum spacing of 55 miles common to all segments

Notes:
[a]The exact quantity, structure type and height, distance between and placement of the structures would depend on the final detailed design of the transmission line, which is influenced by the terrain, land use, and economics. Alignment options may also slightly increase or decrease the quantity, location, and height of structures