Docket No. 21-035-09

UAE Exhibit 4

PacifiCorp Large Generator Interconnection
Feasibility Study Report
Completed for LGIQ#0409
May 4, 2012

PACIFICORP
A MIDAMERICAN ENERGY HOLDINGS COMPANY

Large Generator Interconnection
Feasibility Study Report

Completed for
LGIQ#Q0409

Proposed Interconnection

Primary: To PacifiCorp's Existing Freezeout substation at 230 kV

Alternate: To PacifiCorp's Existing Shirley Basin substation at 230 kV

May 4, 2012

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1.0 DESCRIPTION OF THE GENERATING FACILITY

Interconnection Customer proposed interconnecting 316.8 MW of new generation to PacifiCorp's ("Transmission Provider") existing Freezeout 230 kV substation located in Carbon County, Wyoming. The Interconnection Customer has also requested an alternative interconnection to the Transmission Providers existing Shirley Basin 230 kV substation be studied. The project will consist of 176 Vestas V90 1.8 MW wind turbine generators with a total output of 316.8 MWs.

The requested commercial operation date is September 30th, 2014.

The Transmission Provider has assigned the project "Q0409."

2.0 SCOPE OF THE STUDY

The Interconnection Feasibility Study ("Study") report shall provide the following analyses for the purpose of identifying any potential adverse system impacts that would result from the interconnection of the Large Generating Facility as proposed:

- preliminary identification of any circuit breaker short circuit capability limits exceeded as a result of the interconnection;
- preliminary identification of any thermal overload or voltage limit violations resulting from the interconnection; and
- preliminary description and non-binding estimated cost of facilities required to interconnect the large generating facility to the transmission system and to address the identified short circuit and power flow issues.

3.0 TYPE OF INTERCONNECTION SERVICE

The Interconnection Customer has selected *Network Resource (NR)* interconnection service, but has also elected to have the interconnection studied as an *Energy Resource (ER).* The Interconnection Customer will select NR or ER prior to the facilities study.

4.0 DESCRIPTION OF PROPOSED INTERCONNECTION

For a interconnection to the 230 kV Freezeout substation, the installation of a new line position and circuit breaker, the installation of communication equipment, metering equipment and protection and control equipment will be required as well as relocating the Freezeout – Miners 230 kV transmission line.

For a interconnection to the 230 kV Shirley Basin substation, the existing substation yard will need to be expanded, the existing bus will need to be extended and two new breakers will need to be installed. An interconnection to this substation will also require moving the Shirley Basin – Difficulty transmission line and the installation of communication, metering and protection and control equipment.

4.1 Other Options Considered (NERC Requirement)

The Interconnection Customer has requested the Transmission Provider study an alternate 230 kV point of interconnection to the Shirley Basin substation. The discussion for the alternate point of interconnection can be found in section 5.1.2.2 of this report.

Alternatives to the Gateway Project were not considered, as it is unlikely that new transmission lines could be constructed with an earlier in-service date than the Gateway Project.

5.0 STUDY ASSUMPTIONS

- All active higher priority transmission service and/or generator interconnection requests will be considered in this study and are listed in Appendix 1. If any of these requests are withdrawn, PacifiCorp reserves the right to restudy this request, and the results and conclusions could significantly change.

- For study purposes there are two separate queues:

    - Transmission Service Queue: to the extent practical, all network upgrades that are required to accommodate active transmission service requests and are expected to be in-service on or after the Interconnection Customer's requested in-service date for the Project will be modeled in this study.

    - Generation Interconnection Queue: when relevant, interconnection facilities associated with higher queue interconnection requests will be modeled in this study. However, network upgrades required to provide delivery will only be modeled for projects which have requested network resource integration service only or qualified facility status. No generation will be simulated from any higher queued project unless a commitment has been made to obtain transmission service.

- The Interconnection Customer's request for energy or network resource interconnection service in and of itself does not convey transmission service. Only a Network Customer can make a request to designate a generating resource as a network resource. Since the queue of higher priority transmission services requests may be different when and if a Network Customer's requests network resource designation for this generation facility, the available capacity or transmission modifications, if any, necessary to provide network resource interconnection service may be significantly different. Therefore, the Interconnection Customer should regard the results of this study as informational rather than final.

- Under normal conditions, the Transmission Provider does not dispatch or otherwise directly control or regulate the output of generation facilities. Therefore, the need for transmission modifications, if any, which are required to provide network resource interconnection service will be evaluated on the basis of 100 percent deliverability (i.e., no displacement of other resources in the same area). However, a network customer can elect to designate more generating resources in an area than can be accommodated by existing or planned transmission capacity. The network customer would then be required to dispatch the resources so as to limit total generation so as not to exceed the network customer's transmission rights.

- This study assumes that the Project will be integrated into the Transmission Provider's system at either the existing 230 kV Freezeout or Shirley Basin substations.

- The Interconnection Customer will construct and own any facilities required between the point of interconnection and the Project.

- Generator tripping will be required for certain outages.

- All facilities will meet or exceed the minimum WECC, NERC, and the Transmission Provider's performance and design standards.

- The Energy Gateway West, Windstar – Populus (2016–2018) and Energy Gateway South, Aeolus - Mona (2017-2020) project are assumed to be in-service. These dates conflict with Interconnection Customer's requested in-service date.

- Completion of the following projects is critical to this interconnection request: Windstar to the proposed Aeolus 230 kV transmission line #1, rebuilding the existing 230 kV transmission line from Dave Johnston to the proposed Aeolus substation and the 500 kV system between the Aeolus and Populus substations.

- This report is based on information available at the time of the study. It is the Interconnection Customer's responsibility to check the Transmission Provider's web site regularly for Transmission system updates at http://www.pacificorp.com/tran.html

5.1 Energy Resource (ER) Interconnection Service

Energy resource interconnection service allows the Interconnection Customer to connect its generating facility to the Transmission Provider's transmission system and to be eligible to deliver electric output using firm or nonfirm transmission capacity on an as available basis. Consistent with PacifiCorp's Open Access Transmission Tariff, the facility will be studied such that deliverability will be determined to PacifiCorp's aggregate network loads assuming some portion of existing network resources are displaced by the output of the Interconnection Customer's large generating facility. Energy resource interconnection service in and of itself does not convey transmission service.

5.1.1 Discussion

The new Q0409 facility can be interconnected to the primary point of interconnection at Freezeout substation as an Energy Resource on an as available transmission basis. This requires moving the Freezeout to Standpipe (Miners) transmission line terminal from the existing cross bay to the most western cross bay for reliability in order to prevent simultaneous loss of lines or loss of the generator due to a stuck breaker event.

The new Q0409 facility can be interconnected to the chosen alternate point of interconnection at the Shirley Basin substation as an Energy Resource. This requires moving the Shirley Basin to Difficulty transmission line terminal from the existing cross bay to the east cross bay for reliability to prevent loss of simultaneous lines in and out of substation or generators due to stuck breaker event.

For both options, without network upgrade, the output of the Q0409 project is significantly limited by transmission constraints. As discussed in section 5.2.1

5.1.2 Requirements

5.1.2.1 Generating Facility Modifications

The Generation and Interconnection facilities owned by the interconnection customer are required to operate under automatic voltage control with the voltage sensed electrically at the point of interconnection. The generating and interconnecting facility should have sufficient reactive capacity to enable the delivery of 100 percent of the plant output to the point of interconnection at unity power factor measured at 1.0 per unit voltage under steady state conditions.

Generators capable of operating under voltage control with a voltage droop are required to do so. Studies will be required to coordinate the voltage droop setting with other facilities in the area.

As per NERC standard VAR-001-1a, the Transmission Provider is required to specify voltage or reactive power schedule at the Point of Interconnection. Under normal conditions, the Transmission Provider's system should not supply reactive power to the generation/interconnection facilities.

In general, generation and interconnection facilities should be operated to maintain the voltage at the point of interconnection between 1.01 pu to 1.04 pu. At the Transmission Provider's discretion, these values might be adjusted depending on the operating conditions. Within this voltage range, the generating and interconnecting facilities should operate so as to minimize the reactive interchange between the generation/interconnection facilities and the Transmission Provider's system (delivery of power at the point of interconnection at approximately unity power factor). The voltage control settings of the generation and interconnection facilities must be coordinated with the Transmission Provider prior to energization (or interconnection). The reactive compensation must be designed such that the discreet switching of the reactive device (if required by the interconnection customer) does not cause step voltage changes greater than +/- 3% on the Transmission Provider's system.

All wind turbines must meet the FERC/WECC low voltage ride-through requirements as specified in the interconnection agreement.

5.1.2.2 Transmission Modifications

Primary Point of Interconnection – To the existing Freezeout substation

The following facilities are required:

- Move the Freezeout – Miners 230 kV transmission line to the existing west most cross bay.
- Add one circuit breaker to the existing west most cross bay.
- Connect the line terminal for the Q0409 Project to the existing east side cross bay.

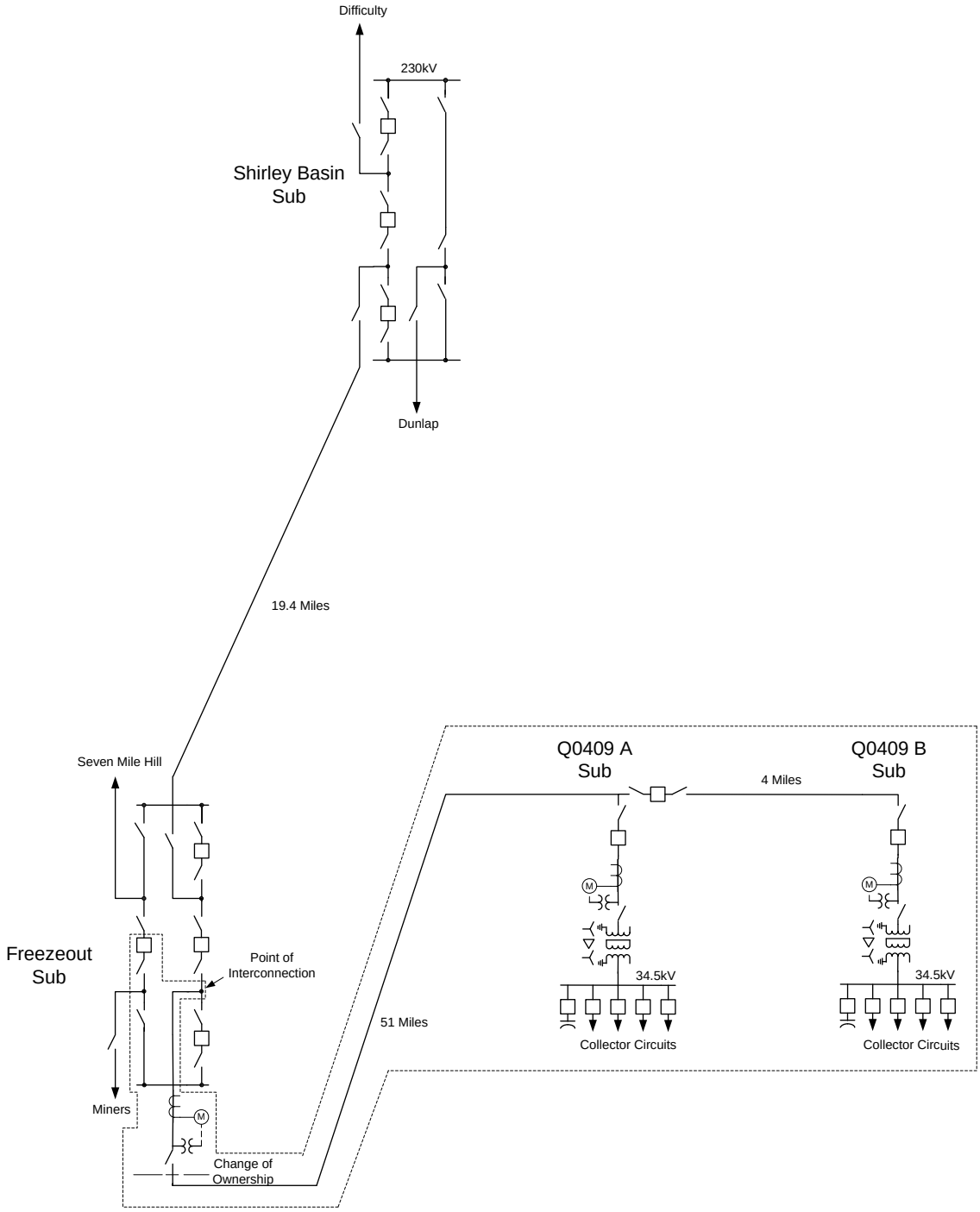

Figure 1: System one line diagram
(Primary point of interconnection at Freezeout Substation)

Alternate Point of Interconnection – To the existing Shirley Basin substation

The following facilities are required:

- Extend the Shirley Basin north bus and construct a partial cross bay to accommodate the Q0409 line terminal equipped with two AB switches but no breaker.
- Add two circuit breakers to the existing east most cross bay at Shirley basin substation.
- Move the Shirley Basin – Difficulty 230 kV transmission line termination to existing east most cross bay at Shirley Basin substation.

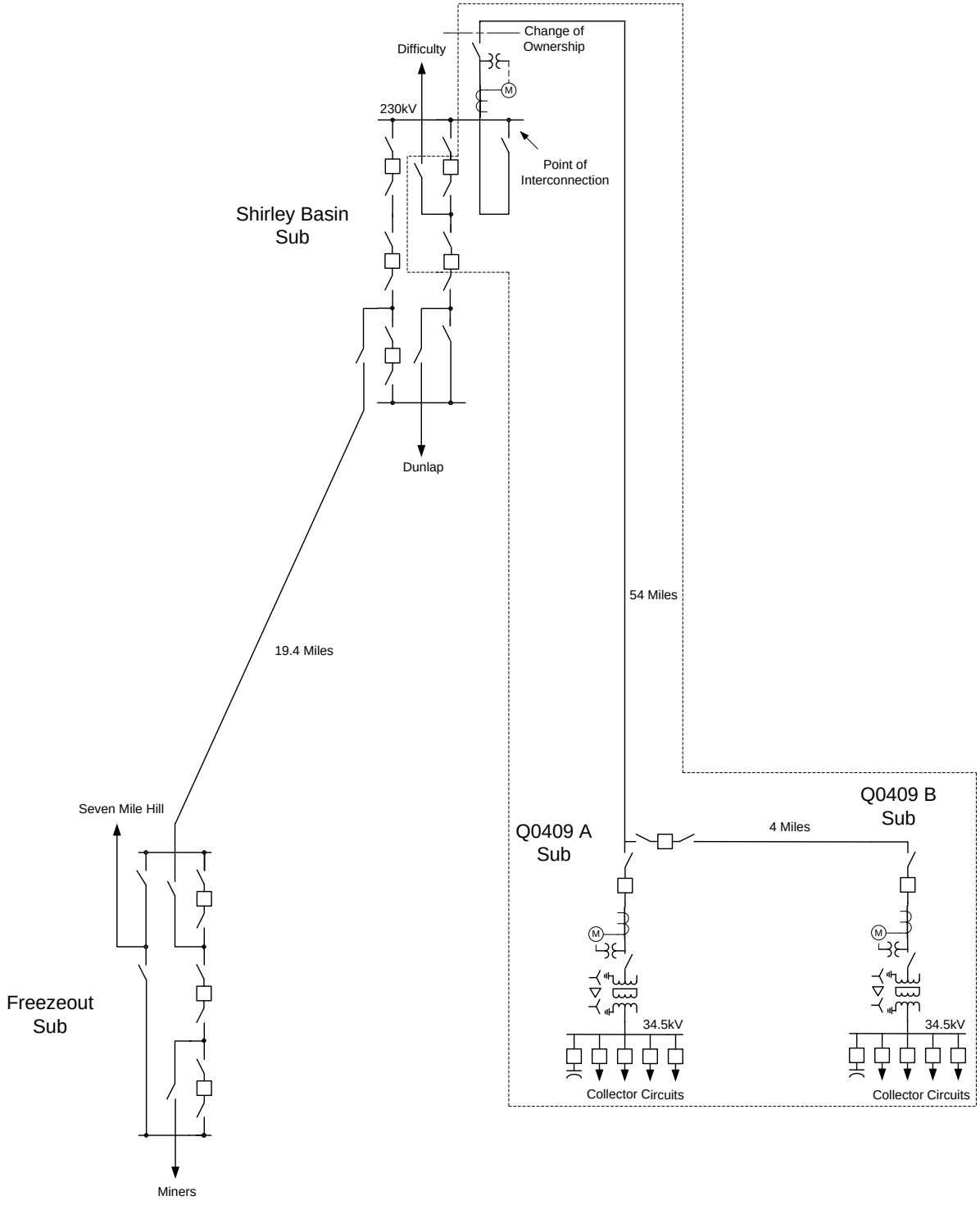

Figure 2: System one line diagram
(Alternate point of interconnection at Shirley Basin)

5.1.2.3 Existing Circuit Breaker Upgrades – Short Circuit

The increase in the fault duty on the system as a result of the addition of the generation facility with 176 – Vestas V90 1.8 MW wind turbine generators fed through two 230 – 34.5kV 75/100/125MVA step up transformers with 12% impedance at the 125 MVA base will not push the fault duty above the interrupting rating of any of the existing fault interrupting equipment.

5.1.2.4 Protection Requirements

The protective relay requirements will be similar regardless of whether the primary or the alternate point of interconnection substation is used. The tie line between the point of interconnection substation and the first collector substation will use a line current differential relaying system. An optical fiber cable will need to be installed with the transmission line to support the communication for the line relays. This optical fiber cable will also support the communication for the operational data. The Transmission Provider will supply a relay panel to be installed at the first collector substation control building which will contain relays that are compatible with the relay system to be installed at the point of interconnection substation for the tie line.

The only difference in the protective relay requirement between the two interconnection alternatives is that a bus differential relay will need to be installed at the Shirley Basin substation if that alterative connection is used. This relay is to detect faults on the bus section that currently has the Difficulty line connected to it. This line is being moved to provide the added system reliability of having alternating system line – generation connection around the ring bus.

The Interconnection Customer will be responsible for the designing and installation of the line protective relays for the 230kV line between the two collector substations. These relays will need to detect and clear 230kV line faults in six cycles or less.

A relay will be installed at the point of interconnection substation that will monitor the voltage magnitude and frequency. If the magnitude or frequency of the voltage is outside of normal range of operation, a signal will be sent over the communication system to the collector substations. At the collector substations this signal is to trip open all of the 34.5kV feeder breakers to disconnect the wind turbine generators. By tripping the 34.5kV breakers instead of the 230kV breakers the station service to the wind farm is maintained to facilitate the restoration of the generation.

5.1.2.5 Data (RTU) Requirements

In addition to the need for operational data and control at the point of interconnection substation data for the operation of the power system will be needed from the collector substations Q0409A and Q0409B. This data can be acquired by installing a RTU at the Q0409A collector substation.

Listed below is the data that will be acquired from the collector substations and the point of interconnection substation.

From the point of interconnection substation:

Analogs:

- Net Generation real power
- Net Generator reactive power

Accumulator Pulses:

- Interchange metering kWH

From the Q0409 A Collector Station:

Analogs:

- Transformer real power
- Transformer reactive power
- Real power flow through each of the 34.5 kV line feeder breakers
- Reactive power flow through each of the 34.5 kV line feeder breakers
- Reactive power flow from each of the shunt capacitor banks
- A phase 230 kV transmission voltage
- B phase 230 kV transmission voltage
- C phase 230 kV transmission voltage
- Wind speed

Status:

- All 230 and 34.5 kV breakers
- Line Relay Alarm

From the Q0409 B Collector Station:

Analogs:

- Transformer real power
- Transformer reactive power
- Real power flow through each of the 34.5 kV line feeder breakers
- Reactive power flow through each of the 34.5 kV line feeder breakers
- Reactive power flow from each of the shunt capacitor banks

Status:

- All 230 and 34.5 kV breakers

5.1.3 Cost Estimate – Freezeout substation

Direct Assignment Costs	
Q0409 Collector substation – Engineering, procurement and installation of protection and control, metering and communications equipment.	$1,100,000
Freezeout substation – Engineering, procurement and installation of metering, switches and the substation take off structure.	$1,000,000
Sub-total Direct Assigned Costs	**$2,100,000**
Network Upgrade Costs	
Point of interconnection substation (Freezeout substation) – Engineering, procurement and installation of a new line position and circuit breaker, the installation of communication, metering and protection and control equipment and relocating the 230 kV Freezeout – Miners transmission line.	$2,200,000
Sub-total Network Upgrades	**$2,200,000**
Total Cost – ER Interconnection Service – Interconnection Only	**$4,300,000**

5.1.4 Cost Estimate – Shirley Basin substation

Direct Assignment Costs	
Q0409 Collector substation – Engineering, procurement and installation of protection and control, metering and communications equipment.	$1.100,000
Shirley Basin substation – Engineering, procurement and installation of metering, switches and the substation take off structure.	$1,000,000
Sub-total Direct Assigned Costs	**$2,100,000**
Network Upgrade Costs	
Point of interconnection substation (Shirley Basin substation) – Engineering, procurement and construction to expand yard, extend the existing bus and install two new breakers. The Project will also require moving the Shirley Basin – Difficulty transmission line and installing communication, metering and protection and control equipment.	$4,500,000
Sub-total Network Upgrades	**$4,500,000**
Total Cost – ER Interconnection Service – Interconnection Only	**$6,600,000**

5.1.5 Schedule

It will take approximately 18 months from the execution of a large generator interconnection request to engineer, procure, and construct the facilities necessary to interconnect the proposed Project.

5.1.6 Maximum Amount of Power that can be delivered into Network Load, with No Transmission Modifications (for informational purposes only).

Prior to the completion of the Gateway projects, 0 MW can be delivered on a firm basis to the Transmission Provider network load. For at least some hours on an 'as capacity is available basis', 100% of the project output (316.8 MW) can be delivered to Transmission Provider network load.

5.1.7 Additional Transmission Modifications Required to Deliver 100% of the Power into Network Load (for informational purposes only)

See Section 5.2.2.2 Network Resource (NR) interconnection service.

5.2 Network Resource (NR) Interconnection Service

Network resource interconnection service allows the Interconnection Customer to integrate its large generating facility with the Transmission Provider's transmission system in a manner comparable to that in which the Transmission Provider integrates its generating facilities to serve native load customers. The transmission system is studied at peak load, under a variety of severely stressed conditions. In order to determine the transmission modifications, if any, which are necessary in order to deliver the aggregate generation in the area of the point of interconnection to the Transmission Provider's aggregate load, and assumes that some portion of existing network resources are displaced by the output of the Interconnection Customer's large generating facility. Network resource interconnection service in and of itself does not convey transmission service.

5.2.1 Discussion

Wyoming has more generation than load, as such, surplus energy is always exported to other states and the transmission paths to Transmission Provider's main network load areas in Washington, Oregon, Northern California, Southeast Idaho and Utah are fully committed on a firm basis. In order to accommodate additional exports from Wyoming, the Transmission Provider announced plans to construct new transmission lines (the Energy Gateway projects) for this purpose. An overview of these plans can be found on the Northern Tier Transmission Group website (http://www.nttg.biz/site/) or at the Informal Message section of Transmission Providers OASIS website (http://www.oasis.pacificorp.com/OASIS/PPW/).

Transmission Provider's transmission expansion plan is in phase 3 status in the Western Electricity Coordinating Council's project rating review process. These new lines are expected to be completed in stages; the in-service dates for Energy Gateway West facilities range from 2016 to 2021 and Energy Gateway South facilities from 2017 to 2020. The Transmission Provider plans to reserve an amount of transmission capacity on these new transmission lines for network customer use. Since these lines, as proposed, will extend from the Project area to PacifiCorp's main network load areas in Utah, Oregon, Washington, and California, this study assumes that this request will be accommodated by the amount reserved for network customer use.

Until the Energy Gateway projects are in service, the Transmission Customer will be required to limit scheduled power from this area (including the new facility) to amounts within the Transmission Customer's existing rights across the constrained transmission paths in Wyoming including TOT 4A and TOT 4B. Due to the amount of existing designated network resources in eastern Wyoming, it is expected that transmission constraints will significantly limit the use of existing and new generating resource in this area for service to network loads. In a practical sense, an additional 316.8 MW of generation prior to the Energy Gateway project is not feasible due to the amount of projected surplus of generating resources in this area.

With the Energy Gateway project in service, the new facility can be interconnected to the Freezeout substation as a Network Resource with some transmission improvement. With the addition of the Q0409 Project at Freezeout, the outage of the Platte – Standpipe 230 kV line causes the Freezeout to Aeolus 230 kV line to load above its emergency rating. Therefore, a new 230 kV line between Freezeout and Aeolus will be required.

With the Energy Gateway project in service and the proposed alternate point of interconnection, the new facility can be interconnected to the Shirley Basin substation. The future Energy Gateway West project increases the new TOT 4A capacity, while the addition of generation at the Shirley Basin substation reduces the overall transfer capacity on the lines south from Dave Johnston/Windstar towards Aeolus by the ratio of approximately 1:1; this is acceptable for a designated network resource.

The completions of the following projects are critical to this interconnection request:

- Windstar to proposed Aeolus 230 kV transmission line #1 (Energy Gateway West – estimated line in service 2016 – 2018).

- Rebuild the existing 230 kV transmission line from Dave Johnston to proposed Aeolus substation (Energy Gateway West – estimated line in service 2016 – 2018).

5.2.2 Requirements

5.2.2.1 Generating Facility Modifications

See Section 5.1.2.1.

5.2.2.2 Transmission Modifications

For either the primary or alternate point of interconnection and in addition to all of the transmission requirements indicated in Section 5.1.2; in order to deliver 100% of power to network load, 316.8 MW of Energy Gateway project capacity is required.

5.2.3 Cost Estimate – Freezout substation

Interconnection – ER Only	$4,300,000
NR Interconnection	
316.8 MW x $1 M/MW capacity of the Gateway Project	$316,800,000
Build a new 230 kV transmission line from Freezeout to Aeolus	$1,500,000
Total Cost – NR Interconnection Service – Interconnection Only	**$322,600,000**

5.2.4 Cost Estimate – Shirley Basin substation

Interconnection – ER Only	$6,600,000
NR Interconnection – 316.8 MW x $1 M/MW	$316,800,000
Total Cost – NR Interconnection Service – Interconnection Only	**$323,400,000**

5.2.5 Schedule

It will take approximately 104 months from the execution of a large generator interconnection request to engineer, procure, and construct the facilities necessary to interconnect the proposed Project.

6.0 PARTICIPATION BY AFFECTED SYSTEMS

Transmission Provider has identified the following as affected systems: Basin Electric, WAPA, and Tri-State Generation and Transmission Association. Copies of this report will be shared with each affected system.

7.0 APPENDIX 1: QUEUE FOR INTERCONNECTION REQUEST

QUEUE	OASIS AREF	Completed Request Received	Control Area	Type of Request	POR (TSR) / Location of Interconnection (GI)	POD (TSR)	Start Date (TSR) / Commercial Operation (GI)	MW
2		1/19/2001	East	N/A	SF Phosphates Substation, 230 kV		2/1/2002	11
3		1/23/2001	East	N/A	West Valley Substation, 138 kV		9/1/2001	200
7		3/7/2001	East	N/A	Foote Creek Substation, 34.5 kV		8/1/2001	50
8		3/8/2001	East	N/A	Monument Switching Station, 230 kV		10/1/2004	110
9		4/1/2001	East	N/A	Rowley Substation, 138 kV		6/15/2001	80
11		7/20/2001	East	N/A	Gatsby Substation, 138 kV		9/1/2002	120
12		8/27/2001	East	N/A	Longhollow Switching Station, 138 kV		12/26/2003	146
18		10/21/2002	East	N/A	Northwest Substation, 46 kV		10/6/2004	25
20		04/30/03	East	GEN	Mona 345kV		03/22/06	280
21		04/30/03	East	GEN	Mona 345kV		03/22/06	245
29a		09/18/03	East	GEN	Goshen 161kV		02/12/06	64.5
29b		09/18/03	East	GEN	Goshen 161kV		10/20/10	129
44		06/03/04	East	ER	Timp - Tri-City Line, 138kV		07/29/07	535-S/567-W
47		10/04/04	East	GEN	Goshen - Rigby Line, 69kV		11/30/07	19.5
52		03/28/05	East	GEN	Terminal Sub Distribution Circuit, 12.47kV		07/20/06	3.2
59		08/24/05	East	NR	North of Antelope Mine Sub, 230kV		06/01/11	250-S/285-W
60		10/03/05	East	NR	Pavant - Gonder Line, 230kV		12/31/11	200
61		10/03/05	East	NR	Pavant - Gonder Line, 230kV		12/31/11	200

QUEUE	OASIS AREF	Completed Request Received	Control Area	Type of Request	POR (TSR) / Location of Interconnection (GI)	POD (TSR)	Start Date (TSR) / Commercial Operation (GI)	MW
66		12/05/05	East	NR	Blundell Geothermal Sub		10/19/07	11-S/15-W
73		03/27/06	East	GEN	Spanish Fork - Santaquin, 46Kv		07/31/08	18.9
310	339268	04/12/06	East	NT	PACE (Resource)	PACE	04/15/06	141
78		04/25/06	East	NR	Mona Substation, 345Kv		04/25/06	59
80		05/08/06	East	ER	Birch Creek - Ben Lomond, 230Kv		11/01/09	240
90		06/22/06	East	ER	Uinta Long Hollow, 138kV		05/15/08	60
93		09/19/06	East	GEN	Tooele Substation, 47-kV		03/01/08	1
95		10/06/06	East	NR w/ER	Tooele-Dugway line, 46kV		06/30/08	71.4
96		10/09/06	East	NR w/ER	Uinta Long Hollow, 138kV		07/02/08	79.5
107		11/14/06	East	NR	Timp-Tri-City line, 138kV		08/18/08	79/49
111		12/8/06	East	NA	2700 East 11600 South, Sandy, UT		08/09/07	0.511
117		01/18/07	East	NR w/ER	Miners-Difficulty Line, 230kV		12/09/08	99
118		01/18/07	East	NR w/ER	Miners-Difficulty Line, 230kV		12/09/08	19.5
540	393373	1/18/07	East	NT	PACEW (Resource)	PACEW	03/01/08	99
119a		01/29/07	East	NR w/ER	Foote Creek Sub. 230kV		09/30/09	127.5
120		02/08/07	East	NA	Existing point of service in Laramie, WY		10/04/07	0.65
126		03/05/07	East	NR	Near Glenrock Mine 230kV		01/02/09	237
128		03/13/07	East	NR w/ER	Near Cove Fort sub, 138kV		10/31/11	80

QUEUE	OASIS AREF	Completed Request Received	Control Area	Type of Request	POR (TSR) / Location of Interconnection (GI)	POD (TSR)	Start Date (TSR) / Commercial Operation (GI)	MW
129		03/30/07	East	N/A	Oquirrh-Lark, 46-kV		04/01/09	4.8
130		04/26/07	East	NR w/ER	Miners-Difficulty Line, 230kV		10/01/11	300
132		05/07/07	East	NR w/ER	Miners-Difficulty Line, 230kV		10/01/12	361
135		5/22/07	East	NR w/ER	Dave Johnston Plant, 230kV		10/01/12	500
136		5/22/07	East	NR w/ER	Windstar Plant, 230-kV		10/01/13	500
137		5/22/07	East	NR w/ER	Windstar Plant, 230-kV		07/01/14	1000
138		5/22/07	East	N/A	Green River 12 circuit, 12.5kV		05/22/09	0.575
139		5/25/07	East	N/A	University Substation, 46kV		10/09/09	7.6
150		7/13/07	East	N/A	PacifiCorp's 24.9-kV Circuit, QRY15, out of Quarry Substation		6/18/2009	1
153		8/8/07	East	NR w/ER	Dave Johnston-Yellowcake Line, 230-kV		10/28/10	200.5
154		8/10/07	East	N/A	Goshen-Ucon Line, 69-kV		04/30/12	19.8
161		9/4/2007	East	N/A	14.4-kV Circuit out of Pinedale Substation		1/22/2009	0.05
162		9/28/2007	East	N/A	PacifiCorp's 24.9-kV Circuit, SML21, out of South Milford Substation		2/6/2009	10-S/10.5-W
165		10/12/2007	East	N/A	3474 N. 3rd Street		3/11/2008	0.03
171		11/8/2007	East	N/A	PacifiCorp's 69-kV, Sand Hills Line between Casper & Platte Junction		12/25/2009	19.5

QUEUE	OASIS AREF	Completed Request Received	Control Area	Type of Request	POR (TSR) / Location of Interconnection (GI)	POD (TSR)	Start Date (TSR) / Commercial Operation (GI)	MW
172a		11/19/07	East	NE w/ER	Firehold - Flaming Gorge, 230 kV line		06/01/12	150
172b		11/19/07	East	NE w/ER	Firehold - Flaming Gorge, 230 kV line		04/01/13	150
173		11/20/07	East	NE w/ER	230-kV Firehole Substation		06/01/12	150
175		12/7/07	East	NE w/ER	Craven Creek to Chappel Creek 230 kV		11/30/12	150
184		1/7/08	East	NE w/ER	Miners-Difficulty Line, 230kV		10/01/12	99
185		1/7/08	East	NE w/ER	Miners-Difficulty Line, 230kV		10/01/12	98
186		1/7/08	East	NE w/ER	Miners-Difficulty Line, 230kV		10/01/12	99
191		1/25/08	East	NR w/ER	PAC's 230 kV Jim Bridger - Aeolus		08/01/14	500
198		2/20/08	East	NR	PacifiCorp's 230-kV Miners-Freezeout Line		12/31/10	100
199		2/20/08	East	NR	PacifiCorp's proposed 230-kV Aeolus Substation		12/01/14	200
200		2/20/08	East	NR	PacifiCorp's proposed 230-kV Aeolus Substation		12/01/14	100
201		2/20/08	East	NR	PacifiCorp's proposed 230-kV Aeolus Substation		12/31/15	100
203		2/26/08	East	NR w/ER	Shirley-Basin Substation on the PacifiCorp's 230-kV Miners-Difficulty Line		09/30/10	111

QUEUE	OASIS AREF	Completed Request Received	Control Area	Type of Request	POR (TSR) / Location of Interconnection (GI)	POD (TSR)	Start Date (TSR) / Commercial Operation (GI)	MW
209		4/1/08	East	NR w/ER	PacifiCorp's 34.5 kV Foote Creek substation		12/17/10	49.5
213		4/22/08	West	N/A	Bernice #22 circuit out of Bernice Substation		8/4/2009	0.3
214		4/24/08	East	N/A	Pinedale Circuit #23		02/18/09	1.96
217		5/1/08	East	N/A	Craven Creek Substation		03/01/09	6
220		5/12/08	East	NR w/ER	Latigo Substation between Casper and Windstar 230-kV line		11/20/09	100.5
947	493092	5/23/08	East	NT	PACE (Resource)	PACE	6/1/2012	316, 562
224a		5/27/08	East	NR w/ER	PacifiCorp's 345 kV Mona substation		05/15/15	320
224b		5/27/08	East	NR w/ER	PacifiCorp's 345 kV Mona substation		05/15/15	230
233		7/1/08	East	NR w/ER	Shirley-Basin Substation on the Miners-Difficulty 230-kV line		12/31/10	200.5
236		7/21/08	East	NR	PacifiCorp's 230-kV Miners-Freezeout Line		12/31/10	100
252		11/25/08	East	N/A	Customer's existing 46-kV system		3/1/2009	0.23
253		11/26/08	East	N/A	1600 West B Avenue, Utah Industrial Depot, Tooele, Utah		2/20/2009	0.05
255		12/23/08	West	NR w/ER	3.2 miles NE of PacifiCorp's Goshen Substation		05/20/12	151.8

QUEUE	OASIS AREF	Completed Request Received	Control Area	Type of Request	POR (TSR) / Location of Interconnection (GI)	POD (TSR)	Start Date (TSR) / Commercial Operation (GI)	MW
256		1/14/09	West	NA	HPS 12 Circuit		04/15/09	1.696
267-A		4/13/09	East	NR w/ER	PacifiCorp's 345-kV Jim Bridger Power Plant, Point of Rocks, WY		6/12/10	18.3/22
267-B		4/13/09	East	NR w/ER	PacifiCorp's 345-kV Jim Bridger Power Plant, Point of Rocks, WY		5/5/13	18.3/22
267-C		4/13/09	East	NR w/ER	PacifiCorp's 345-kV Jim Bridger Power Plant, Point of Rocks, WY		5/22/11	18.3/22
267-D		4/13/09	East	NR w/ER	PacifiCorp's 345-kV Jim Bridger Power Plant, Point of Rocks, WY		5/27/12	18.3/22
270-A		4/30/09	East	ER	PacifiCorp's Huntington Power Plant, Huntington, UT		11/21/10	16.2
270-B		4/30/09	East	ER	PacifiCorp's Huntington Power Plant, Huntington, UT		4/30/15	16.2
271-A		4/30/09	East	ER	PacifiCorp's Hunter Power Plant, Castledale, UT		4/13/10	17.0
271-B		4/30/09	East	ER	PacifiCorp's Hunter Power Plant, Castledale, UT		4/30/15	17.0
271-C		4/30/09	East	ER	PacifiCorp's Hunter Power Plant, Castledale, UT		4/30/16	8.7

QUEUE	OASIS AREF	Completed Request Received	Control Area	Type of Request	POR (TSR) / Location of Interconnection (GI)	POD (TSR)	Start Date (TSR) / Commercial Operation (GI)	MW
272		5/14/09	East	NR w/ER	PacifCorp's proposed new substation on the 230-kV Miners-Difficulty Line		9/30/10	12.0
1145	563529	6/26/09	East	NT	PACEW	PACEW	4/1/10	25.0
282		8/7/09	East	N/A	PacifiCorp's 138/46-kV Lampo Substation		9/25/09	0.0360
290-A		9/22/09	East	NR/ER	17 miles south SE of Rock Springs, WY		6/30/12	100.8
290-B		9/22/09	East	NR/ER	17 miles south SE of Rock Springs, WY		12/31/12	100.8
290-C		9/22/09	East	NR/ER	17 miles south SE of Rock Springs, WY		6/30/13	50.4
291		9/25/09	East	NR/ER	PacifiCorp's Emery to Spanish Fork 345 kV line		12/31/11	100.0
295		10/1/09	East	NR/ER	PacifiCorp's 230-kV bus at Aeolus Basin substation		8/5/15	403.2
1167	581025	10/5/09	East	NT	PACE	PACE (Load)	3/1/11	53-94
1169	583608	10/14/09	East	NT	GSHN	GSHN (Load)	1/1/13	32-64
1170	583614	10/14/09	East	NT	PACE	PACE (Load)	9/1/10	1-21
301		10/27/09	East	NR/ER	PacifiCorp's proposed new substation adjacent to the Lake Side Power Gen Facility		6/1/14	707-S/670-W

QUEUE	OASIS AREF	Completed Request Received	Control Area	Type of Request	POR (TSR) / Location of Interconnection (GI)	POD (TSR)	Start Date (TSR) / Commercial Operation (GI)	MW
306-A		11/13/09	East	NR/ER	PacifiCorp's Amassa Substation, (DJ-Difficulty 230-kV)		1/31/11	48.3
310		12/21/09	East	N/A	PacifiCorp's 34.5-kV Parowan Substation		10/31/10	20.0
311		12/22/09	East	N/A	Three Peaks Substation Substation		10/31/10	20.0
313		12/22/09	East	NR	PacifiCorp's 138 kV switch 132 located 3/4 mile N of the generation facility site		12/31/12	25-S/65-W
314		12/31/09	East	NR	PacifiCorp's 34.5-kV West Cedar Substation		12/31/10	20.0
315		1/19/10	East	NR/ER	T8S, R32E, SW Section 22		11/1/12	160.0
1190	603498	2/15/10	East	NT	PACE	PACE (Load)	7/1/10	1-12
322		2/22/10	East	N/A	PacifiCorp's 69-kV line out of Dubois Substation		9/30/11	15.6
323-A		3/3/10	East	NR/ER	PacifiCorp's 230-kV Sunbeam Substation		5/31/11	21.6
323-B		3/3/10	East	NR/ER	PacifiCorp's 230-kV Sunbeam Substation		11/30/11	21.6
324		3/8/10	East	N/A	Parowan - Rocky Mountain Power Substation		8/10/12	40.0
1202	614127	4/9/10	East	NT	WYOEAST	WYODAK (Load)	11/17/10	35.0

QUEUE	OASIS AREF	Completed Request Received	Control Area	Type of Request	POR (TSR) / Location of Interconnection (GI)	POD (TSR)	Start Date (TSR) / Commercial Operation (GI)	MW
332		4/29/10	East	N/A	PacifiCorp's 24.9-kV circuit, SML21, out of South Milford Substation		6/1/11	2.8
1209	617716	5/3/10	East	NT	GSHN	GSHN (Load)	1/1/13	11-39
1210	618363	5/3/10	East	PTP	PACE	MDWP	6/1/11	3.0
1214	618940	5/14/10	East	NT	WYOCENTRAL	WYOCENTRAL (Load)	10/1/10	10.0
1215	620282	5/19/10	East	NT	PACE	PACE (Load)	6/30/11	14-17
333		5/17/10	East	N/A	PacifiCorp's 24.9 kV circuit, SML21, out of South Milford Substation		10/1/11	2.8
1216	621679	5/27/10	East	NT	PACE	PACE (Load)	7/1/10	8-15
335		6/1/10	East	NR/ER	PacifiCorp's Amassa Substation, (DJ-Difficulty 230-kV)		3/1/12	49.5
336		6/2/10	East	NR/ER	New 345 kV substation to be adjacent to the west of existing Lake Side Power		6/1/15	0.0
341		6/10/10	East	NR/ER	PacifiCorp's Goshen Substation at 161 kV		11/1/12	120.0
1223	625986	6/17/10	East	NT	WYOEAST	WYOEAST (Load)	1/1/11	2.0
1224	626003	6/17/10	East	NT	PACE	PACE (Load)	10/1/10	2.0
1225	626275	6/17/10	East	NT	WYOEAST	WYOEAST (Load)	12/10/10	2-9
1226	626951	6/22/10	East	PTP	PACE	REDB	6/4/14	400.0
1229	626453	6/23/10	East	NT	PACE	PACE (Load)	7/1/11	23-150

QUEUE	OASIS AREF	Completed Request Received	Control Area	Type of Request	POR (TSR) / Location of Interconnection (GI)	POD (TSR)	Start Date (TSR) / Commercial Operation (GI)	MW
1230	626791	6/23/10	East	NT	PACE	PACE (Load)	2/24/11	15-30
1231	626864	6/23/10	East	NT	PACE	PACE (Load)	11/1/10	6.0
1236	630525	7/15/10	East	NT	WYOEAST	WYOEAST (Load)	6/1/11	3-15
1237	634125	8/3/10	East	NT	PACE	PACE (Load)	10/1/10	3-8
1238	635532	8/9/10	East	NT	WYOEAST	WYOEAST (Load)	7/31/13	13-67
348		8/9/10	East	N/A	PacifiCorp's 24.9-kV Circuit, QRY15, out of Quarry Substation		4/30/11	0.22
1241	637972	8/20/10	East	NT	PACE	PACE (Load)	7/1/13	21.0
1243	637977	8/20/10	East	NT	PACE (Resource)	PACE	11/30/11	22.0
1244	637979	8/20/10	East	NT	PACE (Resource)	PACE	11/30/11	22.0
1247	642592	9/16/10	East	PTP	PACE	FourCorners345	11/1/10	65.0
1248	645170	9/22/10	East	PTP	PACE	MDWP	1/1/12	3.0
1251	645781	9/29/10	East	NT	PACE	PACE (Load)	10/1/11	2-4
1252	645790	9/29/10	East	NT	PACE	PACE (Load)	12/1/10	1-8
1256	648008	10/8/10	East	NT	PACE (Resource)	PACE	5/1/14	660.0
1258	648377	10/12/10	East	NT	PACE	PACE (Load)	5/1/13	13.0
1263	656398	11/9/10	East	NT	DJ	WYOEAST (Load)	12/1/10	1.0
363		12/13/2010	East	N/A	PacifiCorp's 24.9-kV Southfork Circuit, 4H27, out of South Cody Substation		TBD	0.1

QUEUE	OASIS AREF	Completed Request Received	Control Area	Type of Request	POR (TSR) / Location of Interconnection (GI)	POD (TSR)	Start Date (TSR) / Commercial Operation (GI)	MW
365		12/20/2010	East	N/A	PacifiCorp's 34.5-kV N Rawlins Curcuit, 9H440, out of Platte Substation		5/1/2011	0.11
367		12/27/2010	East	N/A	PacifiCorp's proposed Sigurd-Red Butte 345-kV transmission line		1/1/2014	169-S/172-W
1282	673963	1/21/2011	East	NT	PACE	PACE	6/1/2014	60
1285	675661	1/31/2011	East	NT	GSHN (Resource)	GSHN	10/1/2012	26
1286	675662	1/31/2011	East	NT	GSHN (Resource)	GSHN	10/1/2012	28
1287	675663	1/31/2011	East	NT	GSHN (Resource)	GSHN	10/1/2012	26
1288	675664	1/31/2011	East	NT	GSHN (Resource)	GSHN	10/1/2012	28
1289	675665	1/31/2011	East	NT	GSHN (Resource)	GSHN	10/1/2012	28
1295	681332	2/23/2011	East	PTP	PACE	REDB		
375		3/4/2011	East	NR/ER	Difficulty Substation		10/1/2014	351
1299	684287	3/2/2011	East	NT	PACE	PACE (Load)	3/1/2012	22-27
377		3/9/2011	East	ER/NR	Kennecott Power Plant, PacifiCorp's proposed Curry Peak Substation and Magna Substation		1/1/2014	269.4-S/275-W
1305	686836	3/18/2011	East	NT	PACE	PACE (Load)	4/1/2011	3-6
1311	691628	3/29/2011	East	NT	PACE	PACE (Load)	6/1/2012	75-100
384		3/30/2011	East	NR/ER	Pinto Substation		12/31/2012	60

QUEUE	OASIS AREF	Completed Request Received	Control Area	Type of Request	POR (TSR) / Location of Interconnection (GI)	POD (TSR)	Start Date (TSR) / Commercial Operation (GI)	MW
1312	692513	4/4/2011	East	NT	PACE	PACE (Load)		3-7
1317	702580	5/11/2011	East	NT	PACE	PACE (Load)	04/01/12	70
1324	709133	6/2/2011	East	PTP	WYOCENTRAL	MDWP	6/1/2015	75
1325	709137	6/2/2011	East	PTP	WYOCENTRAL	MDWP	6/1/2015	75
1326	709355	6/7/2011	East	PTP	PACE	PACE	1/1/2015	20
396		8/4/2011	East	N/A	Circuit OQU18, Oquirrh #18 feeder, out of Oquirrh substation		12/1/2011	0.585
397		8/19/2011	East	N/A	Toquerville – Colman line		?	20
1351	728784	8/19/2011	East	NT	PACE	PACE (Load)	7/1/2014	50
1357	737417	9/21/2011	East	NT	WYOCENTRAL	WYOCENTRAL (Load)	10/1/2014	12
1359	739339	10/3/2011	East	PTP	DJ	YTP	1/1/2012	50
1361	741886	10/12/2011	East	NT	WYOCENTRAL	WYOCENTRAL (Load)	1/1/2012	37
403		10/25/2011	East	NR/ER	Sigurd Substation		7/1/2014	525
404		11/7/2011	East	N/A	Jerusalem - Moroni Feed Line		11/1/2013	11.8
1371		11/21/2011	East	NT	Four Corners (Resource)	PACE	1/11/2012	50
1376	752491	11/29/2011	East	NT	PACE	PACE (Load)	1/1/2013	5
1377	754172	12/5/2011	East	PTP	DJ	YTP	7/1/2012	50
1381	754455	12/6/2011	East	NT	PACE (Resource)	PACE	1/1/2012	1
1383	755336	12/6/2011	East	PTP	BORA	PACE	1/1/2013	85
1387	757099	12/19/2011	East	PTP	JBSN	WYOC	1/1/2013	100
1388	757098	12/19/2011	East	PTP	JBSN	WYOE	1/1/2013	100
1391	758483	12/28/2011	East	NT	GSHN (Resource)	GSHN	12/31/2012	80
1392	758471	12/29/2011	East	NT	PACE	PACE (Load)	6/1/2012	7
1395	759777	1/5/2012	East	NT	GSHN	GSHN	12/31/2012	40

QUEUE	OASIS AREF	Completed Request Received	Control Area	Type of Request	POR (TSR) / Location of Interconnection (GI)	POD (TSR)	Start Date (TSR) / Commercial Operation (GI)	MW
					(Resource)			
1396	759779	1/5/2012	East	NT	GSHN (Resource)	GSHN	12/31/2012	14
406		1/9/2012	East	NR/ER	Helper-MoabLine, 138kV		4/25/2013	65
1398	732298	1/10/2012	East	PTP	Four Corners (Resource)	PACE	01/11/12	50
407		1/17/2012	East	NR/ER	Rock Springs-Naughton Line, 230kV		12/31/2012	79.8
409		1/26/2012	East	NR/ER	Windstar-Aeolus line, 230kV		9/30/2014	320

8.0 APPENDIX 2: PROPERTY REQUIREMENTS

The following applies to property acquired by an Interconnection Customer, on which a point of interconnection substation will be built to accommodate the Customer's project. The property will ultimately be transferred to the Transmission Provider.

- Property must be environmentally, physically and operationally acceptable to the Transmission Provider without any material defects of title (or as approved by the Transmission Provider in writing) and without unacceptable encumbrances. The proposed substation property shall be a permitted or permittable use in all zoning districts. Property lines shall be surveyed and show all encumbrances, roads (private or public), easements (prescriptive or express), etc.

  Examples of potentially unacceptable environmental, physical, or operational conditions:

  - Environmentally unacceptable conditions may include, but are not limited to: known contamination of the property; evidence of environmental contamination by any dangerous, hazardous or toxic materials as defined by any governmental agency; violation of building, health, safety, environmental, fire, land use, zoning or other such regulation, ordinances, or statues of any governmental entities having jurisdiction over the property; underground or above ground storage tanks; known remediation sites on property; ongoing mitigation activities or monitoring activities; asbestos; or lead-based paint, etc. At a minimum, a phase I environmental study is required for the Transmission Provider land being acquired in fee. Evidence of environmental study shall be required prior to execution of the interconnection agreement.
  - Physically unacceptable conditions may include, but are not limited to: inadequate drainage; flood zone location; erosion issues; wetland overlays; threatened and endangered species; archeological or culturally sensitive areas; or inadequate sub-surface elements, etc. Geotechnical studies are required by the Transmission Provider.
  - Operationally unacceptable conditions may include, but are not limited to: inadequate access for the Transmission Provider's equipment; existing structures that require removal prior to substation construction; ongoing maintenance for landscaping or extensive landscape requirements; ongoing conditions, covenants or restrictions that are not acceptable to the Transmission Provider.

- The Interconnection Customer shall provide the Transmission Provider with fee title to the property. If fee title is not practicable, The Interconnection Customer shall provide the Transmission Provider a perpetual exclusive easement. All conveyance instruments shall be in a form acceptable to the Transmission Provider. The Interconnection Customer shall be required to provide title commitment and/or insurance to the extent the Transmission Provider deems necessary.
- The Interconnection Customer shall be required to identify any and all land rights affecting the proposed substation property, which are to be retained by the Customer prior to conveying the property. All retained land rights are subject to the Transmission Provider's approval.
- In the event the Interconnection Customer is constructing facilities to be owned by the Transmission Provider, the Interconnection Customer shall be obligated to obtain all permits and approvals required by all entities with jurisdiction to allow the proposed use including, but not limited to, conditional use permits, Certificates of Public Convenience and Necessity, environmental approvals etc., as well as all construction permits for the project.
- The proposed property shall be freely transferable to the Transmission Provider.