**Consulting Agreement Study**

**Completed for**

Customer

**Studies for**

Mona

Borah

Red Butte

Gonder

Amps

**February 2014**

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# Description of Transmission Consulting Study Scope

Customer and PacifiCorp are parties to a Transmission Consulting Study Agreement (“Agreement”), Customer contract number XXXX-XXXXX. The Agreement allows for Customer to engage PacifiCorp for transmission planning consulting services where PacifiCorp shall act as Customer's consultant to evaluate specific study requests submitted from time to time by Customer, and provide high level descriptions and general cost estimates of facility requirements, for possible Network Resource designations or terminations.

In accordance with Section 2 of the Agreement, Customer submitted written requests for study. This study report evaluates the Transmission Provider’s main grid system to identify any system constraints in order to supply the requested service for the following requests:

## Mona Study Request Summary

* Customer has requested information regarding the ability of a power purchase at Mona as a designated resource for delivery to Goshen
* The request is for 300 MWs.
* Customer is looking to identify how much of a Mona designated network resource (“DNR”) can be delivered to Goshen on the PacifiCorp system without upgrades on a monthly and year-round basis and without additional transmission arrangements from third parties.
* Should third-party arrangements be needed, Customer is looking to identify the location and the amount of transmission that will need to be acquired from such third-parties.
* Customer is looking to identify the amount of reservation priority pursuant to section 2.2 of PacifiCorp’s Open Access Transmission Tariff (“OATT”).
* The start date for this transmission service request is July 1, 2016.
* No end date for this transmission service request was indicated.

## Borah Study Request Summary

* Customer has requested information regarding the ability to designate a Network Resource at Borah for delivery to Goshen.
* The request is for 150 MW.
* Customer is looking to identify how much of a Borah DNR can be delivered to Goshen on the PacifiCorp system without upgrades on a monthly and year-round basis and without additional transmission arrangements from third parties.
* Should third-party arrangements be needed, Customer is looking to identify the location and the amount of transmission that will need to be acquired from such third-parties.
* Customer is looking to identify the amount of reservation priority pursuant to section 2.2 of PacifiCorp’s OATT.
* The start date for this transmission service request is July 1, 2016.
* No end date for this transmission service request was indicated.

## Red Butte Study Request Summary

* Customer has requested information regarding the ability to designate a Network Resource at Red Butte for delivery to Goshen.
* The request is for 200 MW.
* Customer is looking to identify how much of a Red Butte DNR can be delivered to Goshen on the PacifiCorp system without upgrades on a monthly and year-round basis and without additional transmission arrangements from third parties.
* Should third-party arrangements be needed, Customer is looking to identify the location and the amount of transmission that will need to be acquired from such third-parties.
* Customer is looking to identify the amount of reservation priority pursuant to section 2.2 of PacifiCorp’s OATT.
* The start date for this transmission service request is July 1, 2016.
* No end date for this transmission service request was indicated.

## Gonder Study Request Summary

* Customer has requested information regarding the ability to designate a Network Resource at Gonder for delivery to Goshen.
* The request is for 200 MW.
* Customer is looking to identify how much of a Gonder DNR can be delivered to Goshen on the PacifiCorp system without upgrades on a monthly and year-round basis and without additional transmission arrangements from third parties.
* Should third-party arrangements be needed, Customer is looking to identify the location and the amount of transmission that will need to be acquired from such third-parties.
* Customer is looking to identify the amount of reservation priority pursuant to section 2.2 of PacifiCorp’s OATT.
* The start date for this transmission service request is July 1, 2016.
* No end date for this transmission service request was indicated.

## Amps Study Request Summary

* Customer is looking to identify the amount of reservation priority pursuant to section 2.2 of PacifiCorp’s OATT that Customer would be entitled to at Hot Springs across the AMPS line.
* The current understanding is that approximately 45 MWs of the existing capacity across the Amps line is used to serve Customer customer loads.

# Overall Assumptions

The following assumptions were used in this study:

1. Each study request is considered separately and is not evaluated cumulatively or combined with other DNR or transmission considerations.
2. For the purposes of this discussion, existing network transmission (NT) rights into the Goshen area are reallocated based on 2016 proportional seasonal (winter/summer) Goshen area load (refer to Appendix 1 for compilation of forecasted loads submitted by network customers for the 2013 Load and Resource Study). The seasonal assumed allocation is as follows:

Summer Winter

Customer 42.59% 62.89%

Third Party 55.62% 32.60%

Third Party 1.79% 4.51%

Presumably, network allocations would be updated annually following completion of the Load and Resource and Network Allocation Studies, which include a comparison with historical load values.

# Goshen Area Transmission Rights – 328 MW

As all of the transmission service at issue requires delivery to Goshen, it is helpful to start with a recount of PacifiCorp’s existing transmission rights into the Goshen area. PacifiCorp Transmission has 328 MW of transmission capacity into the Goshen area which consists of the following (refer to Figure 1):

* 148 MW on the Grace – Goshen 161 kV line (currently fully allocated to a third party)
* 90 MW of northbound transmission rights on the AMPS 230 kV line (40 MW allocated to a third party during November, December, January, February and March; 29 MW allocated to a third party during April and May)
* 90 MW of southbound transmission rights on the AMPS 230 kV line (currently fully allocated to a third party)

Additionally, a third party customer has point-to-point and other contractual rights with Idaho Power Company for the delivery of 500 MW from Borah and Brady (250 MW each) to Kinport. As these are third party rights, they cannot be reallocated by PacifiCorp Transmission. Negotiation with the third party customer and/or Idaho Power Company would be necessary to facilitate a transaction from Borah or Brady to Kinport. Assuming such a transaction was negotiated, power could then be delivered to Goshen on PacifiCorp’s Kinport – Goshen 345 kV line. At present, there is 250 MW of available transfer capability on the Kinport – Goshen 345 kV line.

*Figure 1 – Goshen Area Transmission*

*Figure 2: Excerpt from PacifiCorp Transmission Scheduling Map*

*Figure 3 – Utah Transmission Path Constraints*

# Study Results for Requested Points

## Mona DNR (POR), Goshen (POD)

Request: 300 MW

Approximate transmission capacity with no improvements: 206 MW winter/140 MW summer

The schedule path(s) to accommodate this transaction would likely be (Refer to Figure 2, above, for a diagram of PacifiCorp’s schedule paths):

1. Mona (MPAC) to PACE

PACE to NUT

NUT to Path C

Path C to Goshen

1. Mona (MPAC) to PACE

PACE to NUT

NUT to Path C

Path C to Brady

Brady to Antelope

Antelope to Goshen

As of December 23, 2013, 300 MW of unallocated transmission capacity could be allocated from Mona as far north as Path C.

Transmission capacity northbound on Path C is constrained by a simultaneous operating nomogram with the Bridger West path. A portion of the existing third party network transmission rights across Path C could be re-allocated to Customer to serve network load; however, transmission rights into the Goshen area remain limited and the amount that could be allocated to Customer is approximately 206 MW winter/140 MW summer. The basis for this allocation follows.

Based on the forecast load profile for 2016 (see Appendix 1), Customer network transmission rights into the Goshen area would total 328 x 62.89% = 206.2 MW winter and 328 x 42.59% = 139.7 MW summer. This analysis allocates Customer the full 90 MW of northbound capacity rights on the AMPS line (Brady to Antelope) for both winter and summer. (A third party customer is allocated the full 90 MW of southbound AMPS line capacity (90 MW) for both winter and summer as it has an existing DNR that utilizes this specific path.) The remaining seasonal network rights 116 MW winter (206 - 90 = 116) and 50 MW summer (140 - 90 = 50) would be on the Grace – Goshen 161 kV line.

Negotiation with the third party customer and/or Idaho Power Company would be necessary to facilitate any additional capacity from Borah or Brady to Kinport for the remaining 94 winter/160 MW summer. At present, there is available transmission capacity of 250 MW on PacifiCorp’s Kinport to Goshen 345 kV line.

## Borah DNR (POR), Goshen (POD)

Request: 150 MW

Start date: July 1, 2016

Approximate transmission capacity with no improvements: 150 MW winter /140 MW summer

The schedule path(s) to accommodate this transaction would likely be (Refer to Figure 2, above, for a diagram of PacifiCorp schedule paths):

1. Borah to Path C

Path C to Goshen

1. Borah to Path C

Path C to Brady

Brady to Antelope

Antelope to Goshen

PacifiCorp Transmission Services does not have network transmission rights from Borah to Kinport; however, power could be scheduled southbound to Path C and then north into the Goshen bubble. Assuming a network allocation totaling 206/140 MW winter/summer split between the Grace-Goshen line and the AMPS transmission line rights, the winter rights would be sufficient to meet the 150 MW request; summer rights of 140 MW would fall 10 MW short. Negotiation with the third party customer and/or Idaho Power Company would be necessary to utilize Idaho Power’s transmission lines between Borah and Kinport to accommodate the remaining 10 MW of capacity during the summer months. At present, there is 250 MW of transmission capacity available on Kinport to Goshen 345 kV line.

## Red Butte DNR (POR), Goshen (POD)

Request: 200 MW

Start date: July 1, 2016

Approximate transmission capacity with no improvements: 0 MW winter/ 0 MW summer

PacifiCorp has an internal constrained transmission path from southern Utah to central Utah, referred to as the North of Huntington/Sigurd cutplane (refer to Figure 3 above). At this time, there is no available transmission capacity across this cutplane. As this POR would be considered a new request rather than a roll-over of existing Goshen area transmission rights, system improvements necessary to accommodate a DNR at Red Butte would be studied when a transmission service request is filed.

## Gonder DNR (POR), Goshen (POD)

Request: 200 MW

Start date: July 1, 2016

Approximate transmission capacity with no improvements: 0 MW winter/ 0 MW summer.

As mentioned in Section 4.3, there is no available transmission capacity across the North of Huntington/Sigurd cutplane (refer to Figure 3 above). As a DNR at Gonder must cross this cutplane, this POR cannot be accommodated without system improvements, which would be studied when a DNR transmission service request is filed.

## AMPS Line

Request: At least 45 MW

Start date: July 1, 2016

Approximate transmission capacity with no improvements: 90 MW winter/ 90 MW summer

PacifiCorp Transmission has 90 MW of bi-directional transmission rights on the AMPS 230 kV line. As indicated in Section 4.1, in recognition that a third party customer has a DNR that utilizes the full 90 MW of southbound AMPS line capacity, Customer could be allocated the full 90 MW of AMPS line northbound (Brady to Antelope) capacity rights as part of its overall Goshen NT allocation.

Appendix 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Goshen Area Load and Resource Forecast (2013)** | | | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |
| **Goshen Winter Non-Coincident Load Table (%)** | | | | | | | | | | |
| Year | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 |
| Third Party | 32% | 33% | 33% | 33% | 33% | 33% | 33% | 33% | 33% | 33% |
| Third Party | 4% | 4% | 5% | 5% | 5% | 5% | 5% | 6% | 6% | 6% |
| Customer | 63% | 63% | 63% | 63% | 62% | 62% | 62% | 61% | 61% | 61% |
| **Total Goshen Coincident Load** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** |
|  |  |  |  |  |  |  |  |  |  |  |
| **Goshen Summer Non-Coincident Load Table (%)** | | | | | | | | | | |
| Year | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
| Third Party | 56% | 56% | 56% | 56% | 56% | 55% | 55% | 55% | 55% | 55% |
| Third Party | 1% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 3% |
| Customer | 43% | 43% | 43% | 43% | 43% | 43% | 42% | 42% | 42% | 42% |
| **Total Goshen Coincident Load** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** |