

19-035-02 / Rocky Mountain Power  
December 4, 2019  
OCS Data Request 2.1

## OCS Data Request 2.1

**Case P-45CNW without Gateway South.** Please run a case based on the parameters of P-45CNW but remove Gateway South as a resource selection. Please provide the resulting resource portfolio, stochastic mean PVRR (benefit)/cost and risk adjusted PVRR versus P-45CNW.

## Response to OCS Data Request 2.1

Throughout the 2019 Integrated Resource Plan (IRP) modeling process, Energy Gateway Segment F (Gateway South or GWS) was endogenously selected by the System Optimizer model (SO model) in nearly every resource portfolio. In the preferred portfolio, the year-end 2023 in-service date enables 1,920 megawatts (MW) of new wind capable of qualifying for 40 percent of the full value of production tax credits (PTC) before they expire. The persistence of the SO model selection of GWS in nearly every portfolio obviated the need for a counterfactual case that eliminates GWS from the preferred portfolio. Nonetheless, PacifiCorp recognizes there is broad stakeholder interest in understanding how the preferred portfolio and system costs might be impacted if GWS is assumed to be removed from the preferred portfolio. Consequently, in response to this data request, PacifiCorp has produced a range of cases to evaluate portfolio and system cost impacts when GWS is removed as a resource option.

### Case 1 (Counterfactual with Third-Party Firm Transmission):

The first counterfactual case eliminates GWS as a resource option. However, even if GWS is not constructed, it is unrealistic to assume that PacifiCorp transmission would not be obligated to construct *any* transmission system upgrades out of eastern Wyoming to accommodate Federal Energy Regulatory Commission (FERC) jurisdictional requests for open access transmission tariff (OATT) interconnection service and transmission service. Indeed, both PacifiCorp's interconnection queue and its separate transmission service queue currently contain requests for service that are contingent upon GWS being constructed. Even conservatively examining only the transmission service (not interconnection service) queue, only third-party requests for service out of eastern Wyoming, and assuming no additional third-party request for transmission service will be submitted, PacifiCorp transmission would need to identify a non-GWS alternative to granting a request for 500 MW of FERC-jurisdictional OATT firm point-to-point (PTP) transmission service. Based on preliminary, high-level estimates only, granting that PTP request without GWS would trigger the need for a 230 kilovolt (kV) transmission line by the end of 2023, at a minimum. Therefore, this counterfactual case includes the cost of a 230 kV transmission line at the end of 2023, net of incremental wheeling revenue.

PacifiCorp has conservatively been assuming that 12 percent of system transmission costs are recovered by third-party transmission customers. A review of PacifiCorp's transmission usage relative to the usage of third-party transmission customers since 2012 shows that third-party usage has been increasing each year. In 2018, third-party usage was nearly 19 percent of the total. The table below shows the present value revenue

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requirement differential (PVRR(d)) for the counterfactual case, inclusive of the estimated transmission upgrades to accommodate the queued 500 MW PTP request. Results are shown assuming 12 percent and 19 percent of system transmission costs are recovered by third-party customers. Please refer to Attachment OCS 2.1 for the counterfactual resource portfolio.

Study	Stochastic Mean (\$m)			Risk Adjusted (\$m)		
	Pref. Port. PVRR	Case 1 (No GWS) PVRR	(Benefit)/ Cost of GWS PVRR(d)	Pref. Port. PVRR	Case 1 (No GWS) PVRR	(Benefit)/ Cost of GWS PVRR(d)
12% Third-Party Revenue	\$23,207	\$23,474	(\$267)	\$24,376	\$24,657	(\$282)
19% Third-Party Revenue	\$23,018	\$23,369	(\$350)	\$24,178	\$24,548	(\$371)

Case 2 (No New Natural Gas Resources):

The counterfactual case described above accelerates the addition of new natural gas-fired capacity. Considering the risk that future policy developments such as a price on carbon emissions may increase the costs of operating these resources in the future, PacifiCorp developed an additional counterfactual case that assumes no new natural gas-fired resources can be added to the portfolio. As described above, this case also includes estimated transmission service request (TSR)-driven costs associated with a queued 500 MW request for firm PTP transmission service. This counterfactual is compared to Case P-29, which includes GWS but similarly eliminates new natural gas-fired capacity as a resource option. The table below shows the PVRR(d) for the second counterfactual case relative to Case P-29. Results are shown assuming 12 percent and 19 percent of system transmission costs are recovered by third-party customers. Please refer to Attachment OCS 2.1 for the counterfactual resource portfolio.

Study	Stochastic Mean (\$m)			Risk Adjusted (\$m)		
	P-29 PVRR	Case 2 (No GWS) PVRR	(Benefit)/ Cost of GWS PVRR(d)	P-29 PVRR	Case 2 (No GWS) PVRR	(Benefit)/ Cost of GWS PVRR(d)
12% Third-Party Revenue	\$23,328	\$24,077	(\$750)	\$24,503	\$25,293	(\$791)
19% Third-Party Revenue	\$23,145	\$23,958	(\$813)	\$24,311	\$25,170	(\$859)

Case 3 (Alternative Renewables):

Considering that the level of renewable energy is reduced in the first counterfactual case and considering strong customer interest in ensuring more renewable resources are added to the system, PacifiCorp also conducted a counterfactual case that includes renewable energy at levels that are similar to those in the preferred portfolio. Note: PacifiCorp was unable to include renewable energy levels that match the preferred portfolio, because without GWS, there are insufficient transmission upgrades available across the system to achieve a comparable level of renewable resources as the 2019 IRP Preferred Portfolio.

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Consequently, this counterfactual case includes renewable resources that represent just 74 percent of the renewable nameplate capacity and just 77 percent of the renewable energy in the preferred portfolio. As described above, this case also includes estimated TSR-driven costs associated with a queued 500 MW request for firm PTP transmission service. The table below shows the PVRR(d) for the third counterfactual case relative to the preferred portfolio. Results are shown assuming 12 percent and 19 percent of system transmission costs are recovered by third-party customers. Please refer to Attachment OCS 2.1 for the counterfactual resource portfolio.

Study	Stochastic Mean (\$m)			Risk Adjusted (\$m)		
	P-29 PVRR	Case 2 (No GWS) PVRR	(Benefit)/ Cost of GWS PVRR(d)	P-29 PVRR	Case 2 (No GWS) PVRR	(Benefit)/ Cost of GWS PVRR(d)
12% Third-Party Revenue	\$23,207	\$24,186	(\$979)	\$24,376	\$25,403	(\$1,027)
19% Third-Party Revenue	\$23,018	\$24,057	(\$1,038)	\$24,178	\$25,269	(\$1,092)

#### Conclusions:

The results above show that quantified benefits from GWS and associated new wind range between \$267 million and \$1.09 billion. These benefits are conservative as they do not include the non-quantified benefits associated with the new transmission line, which include (also listed at page 75, Volume I of the 2019 IRP):

- Adding a parallel path to the Gateway West Sub-Segment D.2 project (Aeolus-to-Bridger/Anticline), which will improve the reliability of the 230 kV system in Wyoming for the loss of either 500 kV line.
- Strengthens the PacifiCorp transmission system (increased fault duty) by interconnecting the geographically drivers areas of eastern Wyoming and southern Utah together, allowing additional generation resources to be connected.
- Improves grid reliability by providing better operational control of the backbone transmission system by interconnecting two areas of the PacifiCorp transmission system that are abundant in two different forms of renewable resources, specifically wind rich eastern Wyoming with the solar rich areas of southern Utah.
- Provides anticipated improvements in eastern Utah reliability by providing a potential future high voltage source and power delivery option to meet the projected oil expansion and corresponding load growth (Ashley, Vernal).
- Improves the southern Utah transmission system reliability by providing congestion relief on the 345 kV lines during outage conditions.

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- Supports PacifiCorp's North American Electric Reliability Corporation's (NERC) TPL-001-4 transmission system reliability efforts, which are necessary to improve grid reliability performance.
- Assists PacifiCorp in meeting its OATT obligations to identify and construct the transmission system upgrades necessary to accommodate FERC-jurisdictional requests for interconnection service and transmission service.

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OCS Data Request 2.2

## OCS Data Request 2.2

**Case P-45CNW without Gateway South but allowing selection of additional 345 kV lines as outlined in the August 2019 NTTG Economic Study Request (ESR) report.**

Please run a case based on the parameters of P-45CNW but remove Gateway South as a resource selection and add the transmission facilities from the referenced NTTG report as potential resources. Assume these additional transmission resources would have the same in-service date as assumed for Gateway South. From the NTTG ESR report, these resources are:

- (1) Two 345 kV circuits between Aeolus and Anticline (154 Miles) [or an alternate could be using the Gateway West line at 500 kV already under construction and add second 345 kV],
- (2) A single 345 kV circuit from Anticline to Bridger,
- (3) Two series compensated 345 kV circuits between Anticline and Populus (203 Miles),
- (4) A single series compensated 345 kV circuit between Populus and Midpoint (153 Miles),
- (5) A single series compensated 345 kV circuit between Midpoint and Hemingway (130 miles),
- (6) With two Hemingway 345/500 kV transformers (700 MVA each).
- (7) Line shunt reactors to balance 90% the line charging of each circuit and bus shunt reactors for the remaining 10%.

A link to the NTTG ESR report is here:

[https://www.nttg.biz/site/index.php?option=com\\_docman&view=download&alias=3243-nttg-2019-economic-study-request-report-draft-08-27-2019&category\\_slug=2019-esr-study-report-development&Itemid=31](https://www.nttg.biz/site/index.php?option=com_docman&view=download&alias=3243-nttg-2019-economic-study-request-report-draft-08-27-2019&category_slug=2019-esr-study-report-development&Itemid=31)

For convenience, a copy of the report is also attached.

Please provide the resulting resource portfolio, stochastic mean PVRR (benefit)/cost and risk adjusted PVRR versus P-45CNW.

## Response to OCS Data Request 2.2

Based on the conclusion in the Northern Tier Transmission Group (NTTG) economic study report that determined the proposed solution was not a better solution for the region due to added congestion, project timing and other issues, PacifiCorp does not believe the requested case is feasible, and consequently, the company has not produced the requested

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analysis. For a full read of the results from the NTTG economic study and stakeholder comments, please refer to NTTG's website at the following link:

[https://nttg.biz/site/index.php?option=com\\_docman&view=list&slug=nttg-committees&Itemid=31](https://nttg.biz/site/index.php?option=com_docman&view=list&slug=nttg-committees&Itemid=31)

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### OCS Data Request 3.1

Please reference the Company's response to OCS 2.1 and provide:

- (a) The System Optimizer (SO) PVRRs for each of the cases discussed in the response.
- (b) A map showing the location of the 230 kV transmission line needed for the referenced 500 MW of OATT PTP transmission service.
- (c) The costs included for the 230 kV transmission line broken out into high level categories (e.g. transmission line, substations, etc.).
- (d) Identification of the source of the 500 MW OATT PTP transmission service request (i.e. name, location, queue number(s), generation type, etc.).
- (e) An explanation as to why the 230 kV line was not needed and not included in the preferred portfolio (Case P-45CNW).
- (f) An explanation verifying that if Gateway South is constructed, it will provide sufficient capacity to service both the referenced 1,920 MW of new wind and the 500 MW OATT PTP transmission service request.

### Response to OCS Data Request 3.1

- (a) Please refer to the table below for a comparison of System Optimizer (SO) model present value of revenue requirements (PVRR) results for each of the cases described in the Company's response to OCS Data Request 2.1:

Case 1 (Counterfactual with Third-Party Firm Transmission):

The first counterfactual case eliminates Energy Gateway South (or GWS) as a resource option.

Study	System Optimizer (\$m)		
	Preferred Portfolio PVRR	Case 1 (No GWS) PVRR	(Benefit)/Cost of GWS PVRR(d)
12% Third-Party Revenue	\$21,624	\$22,406	(\$783)
19% Third-Party Revenue	\$21,435	\$22,301	(\$867)

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Case 2 (No New Natural Gas Resources):

The second counterfactual case accelerates the addition of new natural gas-fired capacity.

Study	System Optimizer (\$m)		
	P-29 PVRR	Case 2 (No GWS) PVRR	(Benefit)/Cost of GWS PVRR(d)
12% Third-Party Revenue	\$21,798	\$22,860	(\$1,062)
19% Third-Party Revenue	\$21,615	\$22,741	(\$1,126)

Case 3 (Alternative Renewables):

Considering that the level of renewable energy is reduced in the first counterfactual case and considering strong customer interest in ensuring more renewable resources are added to the system, PacifiCorp also conducted a counterfactual case that includes renewable energy at levels that are similar to those in the preferred portfolio.

Study	System Optimizer (\$m)		
	Preferred Portfolio PVRR	Case 3 (No GWS) PVRR	(Benefit)/Cost of GWS PVRR(d)
12% Third-Party Revenue	\$21,624	\$23,136	(\$1,513)
19% Third-Party Revenue	\$21,435	\$23,007	(\$1,573)

- (b) The request is for 500 megawatts (MW) of service from Aeolus Substation in Wyoming to Clover Substation in Utah. A map is not available, but would run the exact route that the Energy Gateway South line would run. The 230 kilovolt (kV) line would be built to accommodate this request rather than building the 500 kV Energy Gateway South line.
- (c) Please refer to Confidential Attachment OCS 3.1 which provides the estimated costs used for the 230 kV transmission line broken out into high level categories.
- (d) The 500 MW Open Access Transmission Tariff (OATT) point-to-point (PTP) transmission service request (TSR) information is as follows:
- i. Customer: The information is not publically available at this time.
  - ii. Please refer to the Company's response to subpart (i) above.
  - iii. Queue Number: TSR 2594.



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- iv. Generating Facility: To be located in Wyoming.
  - v. Generation Type: Wind.
  - vi. Point of Receipt (POR): PacifiCorp's Aeolus substation, as represented by the "WYOEAST" POR.
  - vii. Point of Delivery (POD): PacifiCorp's Clover substation represented by the "MDWP" POD.
- (e) PacifiCorp has no existing means to meet the contemplated PTP TSR as described in the Company's response to OCS Data Request 2.1 without the construction of Energy Gateway South. In all cases where Energy Gateway South is selected, the construction of Energy Gateway South provides a means to meet such a request without the need for the more restrictive 230 kV transmission line.
- (f) The addition of the Energy Gateway South project will increase transfers from eastern Wyoming to southern Utah by 1,700 MW. In achieving this transfer capability, technical studies have demonstrated that the project can provide enough strength to the eastern Wyoming transmission system that 1,920 MW of additional generation can be interconnected, while meeting Western Electricity Coordinating Council (WECC) and North American Electric Reliability Corporation (NERC) planning criteria. The generation interconnection study related to the 500 MW OATT PTP TSR has not been completed; hence the related TSR has not been evaluated.

Confidential information is provided subject to the Commission's confidentiality rules R746-1-603 and R746-1-605.

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### **OCS Data Request 3.2**

Please refer to the Company's response to OCS 2.2. The OCS notes that the conclusions from the referenced NTTG economic study were based on a comparison of the alternative 345 kV transmission project to the NTTG regional plan containing both Gateway South and Gateway West. The preferred portfolio only contains Gateway South. The OCS respectfully requests that the Company reconsider its response to OCS 2.2 and run the additional case as outlined in OCS 2.2.

### **Response to OCS Data Request 3.2**

The Company considered the Office of Consumer Services' (OCS) request contained in OCS Data Request 2.2 and reiterated in OCS Data Request 3.2. The purpose of the integrated resource planning (IRP) process is not to perform transmission planning assessments or test various possible transmission build scenarios until they are vetted by the Company. Other processes, including the Federal Energy Regulatory Commission (FERC) Order 1000 regional planning activities conducted under the Northern Tier Transmission Group (NTTG), exist to evaluate prospective transmission builds.

As discussed in Attachment B (Path C Corridor Constraints) of the NTTG's 2019 economic study request (ESR) report, the ESR transmission construction alternatives are not feasible to meet the resource selection timing of the IRP due to physical construction constraints south of Populus and the additional timeline required to permit the other transmission segments contemplated in the ESR. Because this alternative was determined to not be viable, the Company has not produced the requested analysis. The four-year action plan provided in PacifiCorp's 2019 IRP, Volume I, Chapter 9 (Action Plan) would not be impacted. For more information, please refer to NTTG's 2018-2019 Regional Transmission Plan Final dated December 19, 2019, a copy of which is publicly available on the Open Access Same-Time Information System (OASIS) and can be accessed by utilizing the following website link and go to folder "NTTG Information", and then folder "NTTG Documents and Meeting Notices - 2019":

<http://www.oasis.oati.com/ppw/index.html>

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OCS Data Request 4.1

### **OCS Data Request 4.1**

Please refer to Table 8.4 on page 217 of PacifiCorp's 2011 IRP entitled "Portfolio Comparison, 10-year Customer Rate Impact". Please perform the necessary analyses and provide similar tables for the 2019 IRP comparing P-45CNW (the 2019 preferred portfolio) to the top performing 2019 IRP CP-Series portfolios (pages 227 – 230) and to the two portfolios resulting from OCS 2.1 and 2.2. Please provide these customer rate impact tables for:

- (a) The Action Plan period, i.e. 5-years – through the end of 2024. (b)  
A 10-year period – through the end of 2029.

Note: If the length of modeling runs is excessive or a barrier for completing this request, the OCS would appreciate receiving partial results, as available, in this order: P-45CNW, OCS 2.1, OCS 2.2, P-47CP, P-46CP, P-53CP, remaining cases.

### **Response to OCS Data Request 4.1**

The Company objects to this request because it asks the Company to perform new analysis that has not been performed for the 2019 IRP. The Company objects to this request because it is overly broad and unduly burdensome. Notwithstanding this objection, the Company provides the following:

The "10-year Average Incremental Customer Rate Impact" is presented in PacifiCorp's 2019 Integrated Resource Plan (IRP), Volume II, Appendix L (Stochastic Simulation Results), Table L.66, page 269.

The data is provided on the confidential data disk accompanying PacifiCorp's 2019 IRP, specifically folder "Chapters + Appendices\_CONF\Appendix L - Stochastic Simulation Results\_CONF", file "Tbl L.65 & L.66 - Customer Rate Impact 20191011 CONF.xlsx".

The Company has not prepared the customer rate analysis requested in OCS Data Request 2.1, nor has the Company performed the study requested in OCS Data Request 2.2.

PacifiCorp Transmission Services

Docket No. 19-035-02 - Attachment to OCS Comments dated February 4, 2020

Long Term Firm Request Queue (Active Requests)

1/24/2020

Queue	OASIS AREF	Company	OASIS Request Receive	Written Application Receive	Control Are	Product	OASIS Status	POR	POD	MW	Start	End	SIS	FS
1223	625986	PAC Merchant	06/16/10	06/17/10	East	NT	Confirmed 8/22/13	WYOEST	WYOEST	2.000	01/01/11	01/01/30		
1308	690215	PAC Merchant	03/23/11	03/28/11	East	NT	Confirmed 6/9/11	WYOCENTRAL	WYOCENTRAL	1-8	07/31/11	07/31/31		
1332	712775	PAC Merchant	06/17/11	06/21/11	East	NT	Confirmed 9/21/11	WYOCENTRAL	WYOCENTRAL	1-4	10/01/11	01/01/31		
1357	737417	PAC Merchant	09/20/11	09/21/11	East	NT	Confirmed 11/9/11	WYOCENTRAL	WYOCENTRAL	12.000	10/01/14	10/01/31		
1407	770827	PAC Merchant	03/01/12	03/07/12	East	NT	Confirmed 8/22/13	WYONORTH	WYONORTH	4.000	05/01/12	01/01/32	SIS	
1456	780568	PAC Merchant	04/20/12	04/25/12	East	NT	Confirmed 6/29/12	WYOEST	WYOEST	811.000	07/01/12	07/01/32		
1458	780574	PAC Merchant	04/20/12	04/25/12	East	NT	Confirmed 6/29/12	WYOEST	WYOEST	280.000	07/01/12	07/01/32		
1521	804043	PAC Merchant	08/14/12	08/15/12	East	NT	Confirmed 5/12/16	WYOCENTRAL	WYOCENTRAL	0.100	10/15/12	08/23/22		
1524	805181	PAC Merchant	08/21/12	08/23/12	East	NT	Confirmed 8/22/13	WYOCENTRAL	WYOCENTRAL	5.000	11/01/12	01/01/21		
1633	77876136	PAC Merchant	02/14/13	03/07/13	East	NT	Confirmed 4/26/13	WYOEST	WYOEST	49.000	05/01/13	01/23/21		
1635	77877373	PAC Merchant	02/14/13	03/07/13	East	NT	Confirmed 4/26/13	WYOEST	WYOEST	8.660	05/01/13	07/22/22		
1696	7787134	PAC Merchant	02/14/13	03/27/13	East	NT	Confirmed 5/2/13	WYOEST	WYOEST	17.000	05/01/13	10/02/20		
1698	77979847	PAC Merchant	03/15/13	03/28/13	East	NT	Confirmed 5/2/13	WYOEST	WYOEST	99.000	06/01/13	01/01/30		
1742	78345997	PAC Merchant	06/13/13	06/18/13	East	NT	Confirmed 7/18/13	WYOEST	WYOEST	102.000	09/01/13	09/01/31		
1743	78346025	PAC Merchant	06/13/13	06/18/13	East	NT	Confirmed 7/18/13	WYOEST	WYOEST	21.000	09/01/13	09/01/31		
1780	78849614	PAC Merchant	10/18/13	10/22/13	East	NT	Confirmed 12/20/16	WYOCENTRAL	WYOCENTRAL	21.000	01/01/14	01/01/22	SIS	
1781	78865513	PAC Merchant	10/23/13	10/25/13	East	NT	Confirmed 12/20/16	WYOEST	WYOEST	20.000	01/01/14	01/01/23	SIS	
1787	78984295	PAC Merchant	11/22/13	11/26/13	East	NT	Confirmed 12/20/16	WYOEST	WYOEST	7.500	07/30/14	07/30/22	SIS	
1829	79495468	PAC Merchant	03/27/14	03/28/14	East	NT	Confirmed 4/23/14	WYOCENTRAL	JBSN	400.000	04/01/14	04/01/30		
1831	79486154	PAC Merchant	03/25/14	03/31/14	East	NT	Confirmed 11/4/16	WYOEST	WYOEST	80.000	06/30/16	07/01/36	SIS	
1834	79512146	PAC Merchant	03/31/14	04/04/14	East	NT	Confirmed 5/15/14	WYOEST	WYOEST	12.850	06/01/14	07/22/22		
1875	79798656	PAC Merchant	06/04/14	06/10/14	East	NT	Confirmed 5/12/16	WYOEST	WYOEST	2.000	06/18/14	06/18/20		
1905	80262401	PAC Merchant	09/23/14	09/25/14	East	NT	Confirmed 9/30/14	WYONORTH	WYODAK	25.000	10/01/14	10/01/25		
1906	80263832	PAC Merchant	09/23/14	09/25/14	East	NT	Confirmed 9/30/14	WYONORTH	WYONORTH	3.000	10/01/14	10/01/25		
1907	80263844	PAC Merchant	09/23/14	09/25/14	East	NT	Confirmed 9/30/14	WYONORTH	WYONORTH	3.000	10/01/14	10/01/25		
1908	80266136	PAC Merchant	09/24/14	09/25/14	East	NT	Confirmed 9/30/14	WYONORTH	WYODAK	18.000	10/01/14	10/01/25		
1909	80267664	PAC Merchant	09/24/14	09/26/14	East	NT	Confirmed 9/30/14	WYONORTH	WYOEST	163.000	10/01/14	10/01/25		
1916	80364853	PAC Merchant	10/20/14	10/22/14	East	NT	Confirmed 12/4/14	WYOEST	WYOCENTRAL	880.000	11/15/14	11/15/33		
1968	81000040	PAC Merchant	03/26/15	03/30/15	East	NT	Confirmed 4/30/15	WYOEST	WYOEST	2.000	04/01/15	04/01/30		
2042	81967014	PAC Merchant	12/08/15	12/09/15	East	NT	Confirmed 12/23/15	WYOEST	WYOEST	201.000	01/01/16	10/01/30		
2152	83786266	PAC Merchant	11/21/16	11/23/16	East	NT	Confirmed 1/9/16	WYOEST	WYOEST	0.230	01/01/17	01/01/22		
2164	83910778	PAC Merchant	12/13/16	12/20/16	East	NT	Confirmed 1/19/2017	WYOEST	WYOEST	17.000	12/14/16	12/14/30		
2174	83920277	PAC Merchant	12/15/16	12/29/16	East	NT	Confirmed 2/9/17	WYOEST	WYOEST	3.400	12/16/16	12/16/36		
2181	83915654	PAC Merchant	12/14/16	01/05/17	East	NT	Confirmed 2/9/17	WYOEST	WYOEST	5.000	12/15/16	12/15/36		
2183	83920245	PAC Merchant	12/15/16	01/05/17	East	NT	Confirmed 2/9/17	WYOCENTRAL	WYOCENTRAL	4.100	12/16/16	12/16/36		
2184	83920264	PAC Merchant	12/15/16	01/05/17	East	NT	Confirmed 2/9/17	WYOEST	WYOEST	4.000	12/16/16	12/16/36		
2185	83920268	PAC Merchant	12/15/16	01/05/17	East	NT	Confirmed 2/9/17	WYOEST	WYOEST	4.000	12/16/16	12/16/36		
2187	83927810	PAC Merchant	12/16/16	01/05/17	East	NT	Confirmed 2/9/17	WYOEST	WYOEST	3.000	12/16/16	12/16/31		
2264	84277046	PAC Merchant	02/17/17	02/20/17	East	NT	Confirmed 3/14/17	WYONORTH	WYONORTH	86.000	02/18/17	02/18/27		
2266	84279557	PAC Merchant	02/17/17	02/20/17	East	NT	Confirmed 3/14/17	WYOCENTRAL	WYOCENTRAL	4.000	02/18/17	02/18/27		
2286	84348468	PAC Merchant	03/01/17	03/01/17	East	NT	Received	WYOEST	JBSN	1,964.000	03/02/17	03/02/37	SIS	
2299	84600996	PAC Merchant	04/11/17	04/18/17	East	NT	Received	WYOEST	WYOEST	137.000	12/01/20	12/01/50	SIS	
2302	84607690	PAC Merchant	04/12/17	04/18/17	East	NT	Received	WYOEST	WYOEST	99-122	10/31/19	10/31/49	SIS	
2303	84607704	PAC Merchant	04/12/17	04/18/17	East	NT	Received	WYOEST	WYOEST	28.5-35.5	10/31/19	10/31/49	SIS	
2324	84754973	PAC Merchant	05/05/17	05/08/17	East	NT	Received	WYOEST	WYOEST	122.000	04/30/19	04/30/49	SIS	
2325	84755060	PAC Merchant	05/05/17	05/08/17	East	NT	Received	WYOEST	WYOEST	24.000	04/30/19	04/30/49	SIS	
2329	84784261	PAC Merchant	05/10/17	05/11/17	East	NT	Received	WYOEST	WYOEST	119.300	06/30/19	06/30/49	SIS	
2330	84784278	PAC Merchant	05/10/17	05/11/17	East	NT	Received	WYOEST	WYOEST	46.000	06/30/19	06/30/49	SIS	
2331	84784293	PAC Merchant	05/10/17	05/11/17	East	NT	Received	WYOEST	WYOEST	115.800	06/30/19	06/30/49	SIS	
2362	85227199	PAC Merchant	07/21/17	07/25/17	East	NT	STUDY	WYOEST	WYOEST	80.000	12/31/21	12/31/41	SIS	
2363	85227206	PAC Merchant	07/21/17	07/25/17	East	NT	STUDY	WYOEST	WYOEST	80.000	12/31/21	12/31/41	SIS	
2364	85227209	PAC Merchant	07/21/17	07/25/17	East	NT	STUDY	WYOEST	WYOEST	80.000	12/31/21	12/31/41	SIS	
2365	85227213	PAC Merchant	07/21/17	07/25/17	East	NT	STUDY	WYOEST	WYOEST	80.000	12/31/21	12/31/41	SIS	
2482	87263421	PAC Merchant	07/10/18	07/11/18	East	NT	Confirmed 9/10/18	WYOCENTRAL	WYOCENTRAL	13.000	07/10/18	01/01/22		
2491	87355175	PAC Merchant	07/25/18	07/26/18	East	NT	Confirmed 3/20/19	WYOEST	WYOEST	9.100	08/31/18	08/31/33		
2498	87518647	PAC Merchant	08/20/18	08/27/18	East	NT	STUDY	WYOEST	WYOEST	250.000	06/14/20	01/01/51	SIS	
2499	87518661	PAC Merchant	08/20/18	08/27/18	East	NT	STUDY	WYOEST	WYOEST	250.000	06/14/20	01/01/51	SIS	
2500	87518667	PAC Merchant	08/20/18	08/27/18	East	NT	STUDY	WYOEST	WYOEST	250.000	06/14/20	01/01/51	SIS	
2512	87785656	PAC Merchant	10/08/18	10/11/18	East	NT	Confirmed 11/15/18	WYOEST	WYOEST	4.000	10/08/18	10/08/38		
2571	88342474	PAC Merchant	01/08/19	01/09/19	East	NT	Received	WYOEST	WYOEST	49.000	05/31/19	05/31/39		
2588	88521137	PAC Merchant	02/06/19	02/08/19	East	NT	STUDY	WYOEST	WYOEST	120.000	11/30/20	11/30/40		
2594	88755100	Lucky Star Wind	03/14/19	03/11/19	East	PTP	STUDY	WYOEST	MDWP	500.000	01/01/24	01/01/29		
2614	88945946	PAC Merchant	04/15/19	04/16/19	East	NT	Confirmed 5/16/19	WYOCENTRAL	WYOCENTRAL	29.800	04/16/19	04/16/34		
2615	88945987	PAC Merchant	04/15/19	04/16/19	East	NT	Received	WYOCENTRAL	WYOCENTRAL	42.300	09/01/19	09/01/34		
2620	88953225	PAC Merchant	04/16/19	04/19/19	East	NT	Confirmed 1/6/2020	WYOCENTRAL	WYOCENTRAL	2.200	05/16/19	05/16/34		
2623	89032403	PAC Merchant	04/29/19	04/30/19	East	NT	Received	WYOEST	WYOEST	3.500	06/21/19	06/21/34		
2648	89212919	PAC Merchant	05/29/19	05/31/19	East	NT	Confirmed 6/27/19	WYOEST	WYOEST	7.500	05/30/19	05/30/34		
2649	89212969	PAC Merchant	05/29/19	05/31/19	East	NT	Received	WYOEST	WYOEST	23.300	03/15/20	03/15/35		
2659	89271360	PAC Merchant	06/07/19	06/11/19	East	NT	Confirmed 7/8/19	WYOCENTRAL	WYOCENTRAL	5.000	06/08/19	06/08/34		
2660	89272662	PAC Merchant	06/07/19	06/11/19	East	NT	Confirmed 7/8/19	WYOEST	WYOEST	1.680	06/08/19	06/08/34		
2664	89291861	PAC Merchant	06/11/19	06/13/19	East	NT	Confirmed 7/8/19	WYOEST	WYOEST	1.500	06/12/19	06/12/34		
2665	89291877	PAC Merchant	06/11/19	06/13/19	East	NT	Confirmed 7/8/19	WYOEST	WYOEST	2.000	06/12/19	06/12/34		
2675	89330350	PAC Merchant	06/17/19	06/18/19	East	NT	Confirmed 10/15/19	WYOEST	WYOEST	2.950	10/01/19	10/01/34		
2687	89371855	PAC Merchant	06/24/19	06/25/19	East	NT	Received	WYONORTH	WYONORTH	240.000	09/01/20	09/01/50		
2689	89372174	PAC Merchant	06/24/19	06/25/19	East	NT	Confirmed 7/31/19	WYOCENTRAL	WYOCENTRAL	5.000	06/25/19	01/01/27		
2695	89439570	PAC Merchant	07/05/19	07/08/19	East	NT	Confirmed 8/6/19	WYOEST	WYOEST	18.000	07/08/19	10/01/39		
2696	89439573	PAC Merchant	07/05/19	07/08/19	East	NT	Confirmed 8/6/19	WYOEST	WYOEST	20.000	07/08/19	10/01/39		
2697	89439576	PAC Merchant	07/05/19	07/08/19	East	NT	Confirmed 8/6/19	WYOEST	WYOEST	20.000	07/08/19	10/01/39		
2704	89502388	PAC Merchant	07/15/19	07/17/19	East	NT	Confirmed 8/13/19	WYONORTH	WYONORTH	2.910	07/16/19	07/16/34		
2705	89502414	PAC Merchant	07/15/19	07/17/19	East	NT	Confirmed 8/13/19	WYONORTH	WYONORTH	1.050	07/16/19	07/16/34		
2706	89503014	PAC Merchant	07/15/19	07/17/19	East	NT	Confirmed 10/16/19	WYONORTH	WYONORTH	1.500	09/15/19	09/15/34		
2711	89525666	PAC Merchant	07/18/19	07/23/19	East	NT	Confirmed 8/26/19	WYOEST						