



Oregon

Kate Brown, Governor

Public Utility Commission

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October 20, 2020

Via Electronic Filing

OREGON PUBLIC UTILITY COMMISSION
ATTENTION: FILING CENTER
PO BOX 1088
SALEM OR 97308-1088

RE: Docket No. UE 358 – In the Matter of PORTLAND GENERAL ELECTRIC COMPANY, Advice No. 19-02, New Load Direct Access Program.

Attached for filing today is the report requested by the Commission at the August 25, 2020 Public Meeting. The Commissioners and stakeholders reviewed this report, and no further questions or comments were received. No further action is needed.

/s/ Mark Brown

Mark Brown
Utility Program
Filing on Behalf of Public Utility Commission Staff
(503) 378-8287
Email: mark.brown@state.or.us

**PUBLIC UTILITY COMMISSION OF OREGON
REDACTED STAFF REPORT**

DATE: October 1, 2020

TO: Public Utility Commission

FROM: Scott Gibbens

THROUGH: Bryan Conway and John Crider

SUBJECT: PORTLAND GENERAL ELECTRIC:
(Docket No. UE 358)
PGE New Load Direct Access Cap Calculation and Methodology

STAFF RECOMMENDATION:

Staff recommends that the Commission affirm use of PGE's currently approved methodology for NLDA cap calculations.

DISCUSSION:

Issue

Whether the Commission should affirm the manner in which the Schedule 689 cap is calculated in order to accurately reflect the expected load in the program.

Applicable Rule

Commission Order No. 20-002 states:

We find reasonable PGE's approach of evaluating eligibility on the forecasted load based on the distribution facility plans, as memorialized in the binding NLDA contract. Due to the potential variety of circumstances of potential NLDA customers, we recognize a need for flexibility and thus decline to adopt a strict bright line approach. We agree with PGE that this as an area in which the company should exercise discretion, and work constructively with potential customers. Where circumstances require a more flexible approach, we find that such evaluations must instead be addressed on a case-by-case basis between PGE and the customer. In the event agreement is not reached, the parties may seek resolution from the Commission.

[REDACTED]

[REDACTED]

[END CONFIDENTIAL]

Staff Process and Findings

Staff held a workshop on September 3, 2020, with all available stakeholders to discuss the cap methodology, potential alternatives, load factor considerations, and planning process of customers. During the call, two participants representing separate data centers discussed their design and implementation process for the construction of new projects. They noted that they have a relatively formulaic approach to the process, which results in a fairly high level of certainty in their power needs particularly over the one to two year time frame. Assuming their project is successful, with fully utilized services, they stated that their distribution service requirements align relatively closely to their actual power usage. Staff notes the significance of this as roughly 62 percent of the total NLDA demand is from data centers. During the workshop, the only proposed alternative approach to the current methodology, was to utilize minimum load agreement numbers to provide a range of potential outcomes, Staff discusses its concern with this approach later in the report.

Staff further asked PGE a series of data requests which aimed to better illustrate each customer's expected demand, how the Company would plan for the load if it were going to serve the customer, and how minimum load agreements are set among other things. Staff notes that there was concern raised from participants over the disclosure of sensitive information to competitors through this process. As a result, PGE provided non-customer specific information.

Staff notes that there were two potential concerns raised by stakeholders at the August 25, 2020, public meeting, which sum up to the overall concern that the distribution planning amount does not equate to the actual load utilized in the program.

The first is that the distribution planning number does not accurately reflect the peak load for a given customer. Contingency planning often results in added distribution

planning requirements to ensure that the distribution equipment is not overburdened. Further, in order to reduce the potential added cost of further investment, some customers may ask for additional distribution capacity in the event they expand operations in the future. This means that the peak load will normally be less than the distribution plan. Staff notes however that the participants from the workshop, who represented the majority of the industry type currently in the queue have relatively small contingencies built in because they can forecast relatively accurately. One stakeholder stated, “we are only going to pay for what we will use.” As discussed later in this report, Staff also could not find any suitable alternative to the use of distribution planning numbers. In Staff’s opinion, it is the only metric that is objective, has cost incentives for the customer to estimate accurately, is generally applicable, and is at least somewhat correlated with peak load.

The second question regarding the use of the distribution methodology is that the peak load does not equate to average load. This concern lead Staff to examine the load factors for the interested customers. Because load factors are a measure of total demand divided by the peak demand over time, they can be used to identify how different the peak (distribution capacity as a proxy) numbers are to the expected load in the program. Staff performed independent research in order to identify a range of average or expected load factors for each Standard Industrial Classification (SIC) code of the customers in the queue.¹ After identifying at least two independent load factor estimates for each SIC, Staff took the highest and lowest load factors identified through its research and PGE’s estimates to produce high and low estimates of actual estimated customer demand in the program.

For SIC Code 26: Paper Manufacturing, Staff found a range from 50 percent to 78 percent with an average of 62 percent. For SIC Code 36: Electronic Components, Staff found a range from 55 percent to 90 percent with an average of 71 percent. Staff notes that this category has the largest variance in estimates, potentially due to the variety of manufacturing types present in the SIC code category. For SIC Code 7371: Computer Programing Services, Staff found a range from 80 percent to 90 percent with an average of 87 percent. Staff notes that this SIC code was more uniquely defined in the available literature and thus the estimates have a much more narrow range. Staff also notes that it was unable to find any academic studies which reported an average load factor as low as 80 percent, however found several articles which purported the average load factor could be found to be as low as 80 percent and thus decided to include this as the low estimate.

¹ The Standard Industrial Classification are four-digit codes that categorize the industries that companies belong to based on their business activities. The first two numbers are the major group, the third is the industry code, and the last is the industry sector.

Table 2

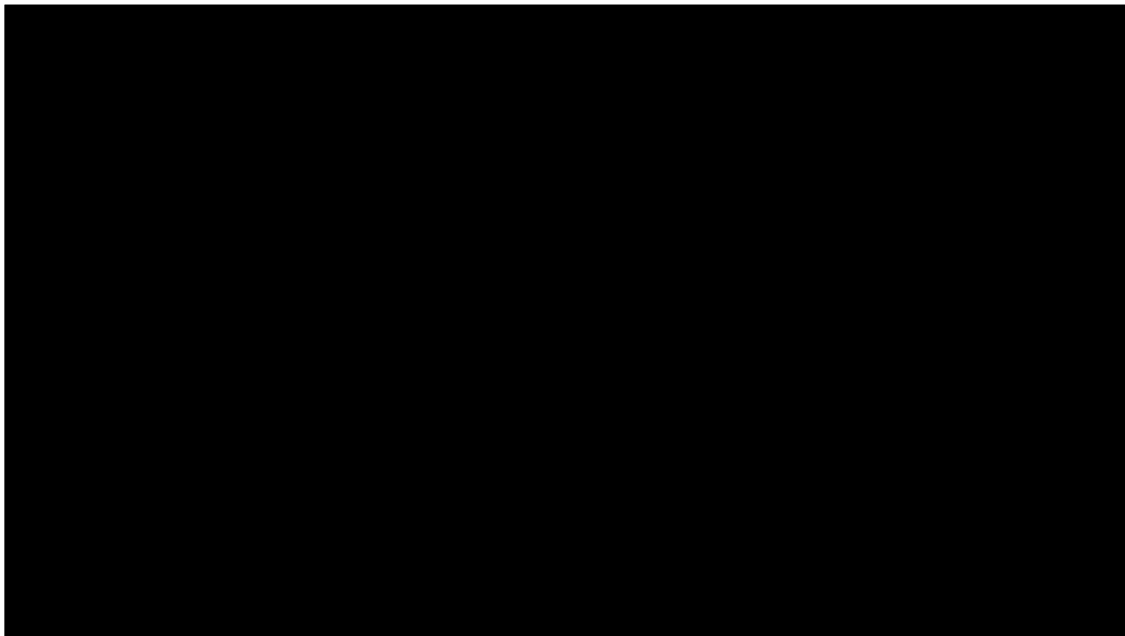
[BEGIN CONFIDENTIAL]

The table consists of 10 columns and 10 rows. The top row is almost entirely redacted with black boxes. The second row contains some white cells, but many are obscured by black redaction boxes. The third row is mostly white with a few black boxes. The fourth row is mostly white with a few black boxes. The fifth row is mostly white with a few black boxes. The sixth row is mostly white with a few black boxes. The seventh row is mostly white with a few black boxes. The eighth row is mostly white with a few black boxes. The ninth row is mostly white with a few black boxes. The tenth row is mostly white with a few black boxes.

[END CONFIDENTIAL]

FIGURE 1

[BEGIN CONFIDENTIAL]





[END CONFIDENTIAL] Should the Commission decide to take this information into consideration, Staff recommends it does so during the waiver process where the nuances can be fully examined, as opposed to setting any sort of alternative rule for the program in general.

Alternative Approaches

Staff does not believe that any general alternative approach reasonably exists. Staff notes that the cap calculation methodology must be able to be applied to a wide range of customer circumstances. Although historic load factor information could be utilized for some current customers, it would not be available for all customers. In addition, as Staff demonstrated, industry average information does not change the necessity for the majority of the customers to acquire a waiver. The idea of utilizing minimum load agreements (MLA) to provide a range has further issues. The first is that they are not universally required; the majority of the customers in the queue do not have MLA's in place. MLA's are based on the cost associated with serving the customers distribution needs compared to the potential risk of recouping the utility's investment. This means that for PGE, the minimum load agreed to is not based on any assumption of actual load but on costs and risks which only marginally relate to the customer's load. For the customer, it is incentivized to negotiate MLA amounts as low as possible, to mitigate the risk that expected load does not materialize. Thus, because the MLA's are only marginally based on expected load, and they only exist for a small subset of the current queue, Staff does not believe they should be used to even provide a range from which to make assumptions about program participation.

Alternative Considerations

The one unknown factor in this analysis is which customers will ultimately enroll in the program. As Staff noted, there are four waivers pending before the Commission. It is possible to envision any number of different iterations of customer enrollments which may or may not produce discrepancies between the current cap methodology and an expected program load when load factor discounts are taken. However, as Staff has shown in the previous analysis, the large majority of the queue customers operate in high load factor industries (+80 percent), meaning that the difference between PGE's

conservative estimate and what the true demand may be is small. The conservative approach further has the benefit of ensuring there is little potential for a customer to initially qualify to enroll in the program only to later be disqualified because the cap has been exceeded. The current approach sets up program rules which will protect COS customers, but allow the Commission to hear any further nuances during the waiver process, and make more informed decisions with a better understanding of the risks than a generic change to the cap methodology may do.

Conclusion

Staff recommends that the Commission continue to utilize PGE's currently approved methodology for NLDA cap calculations. Should a participant have unique circumstances which may alter the Commission's waiver considerations, they should be addressed during the customer's waiver application.

Citations:

- Michael Starke Nasr Alkadi (2013). Assessment of Industrial Load for Demand Response across U.S. Regions of the Western Interconnect. Oak Ridge National Laboratory. <https://info.ornl.gov/sites/publications/files/Pub45942.pdf>
- Ghatikar, Rish & Piette, M. & Fujita, K. Sydney & Mckane, Aimee & Han, Junqiao & Radspieler, Anthony & Mares, K. & Shroyer, Dave. (2010). Demand Response and Open Automated Demand Response Opportunities for Data Centers. <https://www.researchgate.net/publication/255215593>
- Sen, Tapajyoti (2009). Electrical and Production Load Factors. A Thesis Submitted to the Office of Graduate Studies of Texas A&M University. <http://oaktrust.library.tamu.edu/bitstream/handle/1969.1/ETD-TAMU-2009-12-7475/SEN-THESIS.pdf;jsessionid=83A2FB0051086F61DD523294501C1753?sequence=2>
- Comerford, Tim (2015). How Utilities Attract Mission-Critical Facilities. BIGGINS LACY SHAPIRO & COMPANY, LLC. <https://blstrategies.com/missioncritical#:~:text=Simply%20stated%2C%20data%20centers%20require%20a%20lot%20of%20power.&text=Many%20data%20center%20operators%20will,typically%20around%2080%2D85%20percent.>
- PGE Responses to UE 358 Staff Data Requests 29-34 (See Attachment A).

September 16, 2020

TO: John Crider
Public Utility Commission of Oregon

FROM: Karla Wenzel
Manager, Regulatory Policy and Strategy

PORTLAND GENERAL ELECTRIC
UE 358
PGE Response to OPUC Data Request No. 030
Dated September 2, 2020

Request:

Please provide Staff with a detailed update of each participant and queue applicant's requested load in the NLDA (by service point), distribution service requirement (if different from requested load), minimum load agreement numbers, facility type, and energization timing. If requested load or distribution service requirement differs from PGE's amount it is counting for that customer towards the cap, please provide a narrative explanation of any differences.

Response:

The information requested is confidential customer information. It will be necessary for PGE to obtain a modified protective order before such information can be provided to Staff.

Notwithstanding the forgoing, for purposes of determining load contributing towards the cap, PGE is accepting the customer's load number or, if planning for distribution facilities that assumes a load different than what the customer provided, PGE is using the load being planned for. With regard to all the customers in the queue, only two customers have minimum load agreements with PGE. Customers were not required to provide load or energization dates when requesting a place in the non-binding participation queue.

At a Staff and stakeholder meeting February 13, 2020, concerns were raised that a customer might enter the participation queue and hold a place indefinitely, thereby locking out other customers who may wish to participate in the program. As a result, PGE added requirements to its Sch 689 that, beyond the one-year notification period, NLDA program participants have up to one additional year to energize their new service (by April 15, 2021 for initial program participants) or two years if substation construction and/or substation upgrades are required to serve the contracted load (by April 15, 2022 for initial program participants). This requirement is documented in PGE Sch 689 and notice of such requirement was provided to all queued customers in March 2020.

See answer to data request no. 029. The facility types are: high tech manufacturing, data center, paper manufacturing.

September 16, 2020

TO: John Crider
Public Utility Commission of Oregon

FROM: Karla Wenzel
Manager, Regulatory Policy and Strategy

PORTLAND GENERAL ELECTRIC
UE 358
PGE Response to OPUC Data Request No. 031
Dated September 2, 2020

Request:

Please provide Staff with any information regarding each queue applicant or program participant's actual load (aMW) and load factor to date for the service point in question, historical load and load factor at a similar facility owned by the customer, or industry average load factors based on facility type. If providing industry average load factors for facility type, please provide source of the information or narrative of estimation methodology. If providing historical load please provide more than five years of data if available.

Response:

The names of the customers in the non-binding participation queue have not been made public and the names, actual loads, load factors, historical loads and load factors at similar facilities owned by the customer are highly confidential customer information. Of the customers in the queue, only two customers have energized their service. As noted in PGE's response to DR 30, the types of customers in the queue include data centers, high tech manufacturing, and paper manufacturing. Data centers are expected to have load factors upwards of 90%, in PGE's experience with more established facilities. Below we have listed the average load factors of PGE load sectors for those sectors for which there are customers in the non-binding NLDA participation queue.

- Paper Manufacturing –
 - Load factor: 50%

- Data Centers
 - Load factor: 90%

- High-Tech Manufacturing
 - Load factor: 90%

September 16, 2020

TO: John Crider
Public Utility Commission of Oregon

FROM: Karla Wenzel
Manager, Regulatory Policy and Strategy

PORTLAND GENERAL ELECTRIC
UE 358
PGE Response to OPUC Data Request No. 032
Dated September 2, 2020

Request:

If PGE were serving each customer under a COS tariff, please provide a narrative description of how the Company would estimate load for planning purposes. Please provide Staff with an estimate of load for each customer based on this methodology.

Response:

In responding to this request, PGE is avoiding the provision of customer names or identifying information of customers in the NLDA queue as that is confidential customer information. As such, an estimate for each customer will not be provided until such time as a Modified Protective Order is issued in UE 358.

There are several specific PGE planning functions that need to consider load information; however, these various functions might consider loads in different ways due to the unique nature of their planning. Several relevant functions are:

- Distribution capacity planning
- Integrated Resource Planning (IRP)
- Internal budgeting and reporting

Distribution capacity planning must consider the maximum loading of a given facility to adequately serve the customer's needs. PGE will construct the same distribution facilities whether the customer intends to be on COS, long-term direct access, or new load direct access. The customer's supply choice doesn't impact those facility plans. While large changes in operations might warrant planning in multiple phases, professional engineering judgement must be used to consider what reasonable capacity needs exist when planning for the life of a project to allow for their growth over time. This is largely determined by the customer, as a part of the customer's request for service. When considering expected electrical demand, PGE typically uses a load factor tailored to the specific types of load, when planning facilities to meet the customer need.

PGE's load forecast informs the work of many internal planning functions; however, it focuses on system level needs, rather than specific locational capacity needs. With this focus in mind, the load forecast considers large customer loads differently than the capacity analysis described above. Growth over time is an important element of the load forecast. The planning implications for increased loads 6 years in the future might look very different than the same growth in 3 years. PGE's load forecast considers risk associated with both size and timing (or ramping) of large facility loads.

To add a new large load to the load forecast, PGE first considers the following, aimed at determining the reasonable likelihood that the load will materialize:

- Prepayment of construction costs or a signed MLA in lieu of prepayment;
- NLDA binding contract;
- Construction progress;
- Other indications;

Once a new large load is added to the load forecast, the forecast itself is developed by considering:

- Any information provided directly by the customer
- MLA, NLDA binding contract, or other contracted load amounts or facility capacity information
- Risk profile of customer or industry
- Load factor and ramping profile of similar customer facilities

Much of this information focuses on correctly capturing the timing of new customer loads, not the long-term total size. This is most important to the load forecast, which is a process that allows for updates to be made several times per year to capture changes in load expectations. For the purpose of estimating the ultimate size of a facility load, however, the information provided by the customer during facility design is and has always been most relevant. Recognizing that an industry specific load factor might be appropriate to convert MW to MWa, PGE believes that it is most appropriate to use this information for purposes of fitting under the NLDA cap, since the cap was initially established to account for other concerns with respect to the total program size, not the timing of ramping.

September 10, 2020

TO: John Crider
Public Utility Commission of Oregon

FROM: Karla Wenzel
Manager, Regulatory Policy and Strategy

PORTLAND GENERAL ELECTRIC
UE 358
PGE Response to OPUC Data Request No. 033
Dated September 2, 2020

Request:

Please provide a narrative description of how minimum load agreements are set. When does the Company generally utilize them? What is the process for getting one in place? What is the methodology for setting the amount? Please provide an example minimum load agreement.

Response:

A Minimum Load Agreement (MLA) is an optional tool used to manage risk when PGE is making a large capital grid investment, in reliance on a large nonresidential customer's expressed future electrical load requirements. More specifically, an MLA is a 5-year minimum contract between PGE and a large nonresidential customer that identifies both the customer's estimated minimum electric load projections over the term of the MLA and PGE's requirement for the customer to pay the greater of the actual demand-related charges each month or the minimum demand-related charges based on the agreed-upon projected minimum load. Typically, the customer provides a load ramp schedule for the first 5 years, which is used to inform the starting point of the negotiation of the MLA.

Depending on the size of the projected new load, it may be necessary for PGE to make system investments to serve the projected load. Significant up-front investments to serve large loads can result in a high level of risk due to: the uncertainty that the expected load will actually materialize and the low likelihood that PGE's investment can be used by another customer.

Generally, there are two options PGE has available to reduce the risk of installing excess capacity: an up-front payment subject to full or partial refund for the entire costs of the line extension as defined by our tariffs, or an MLA. The option of an MLA with specified minimum demand levels allows for revenues commensurate with the installed capacity and enables the customer to avoid upfront payment for distribution facilities.

When a customer approaches PGE, the PGE distribution engineers calculate a line extension allowance based on the customer's first-year load projections. In cases where this line extension

allowance does not cover the full cost of construction, excluding pathway costs, PGE may either request payment of the difference up front, or enter into an MLA with the customer. To be eligible for an MLA, the customer's projected load must be in excess of one average megawatt and they must have strong credit. PGE will also consider its history with the customer.

Since the customer will be required to pay the higher of actual or contracted demand, customers generally provide the lowest load projection PGE will agree to over the first five years. Load forecasts for certain customers, such as data centers, tend to be pretty firm for the first couple of years as they likely have contracted with customers, but future year projections tend to be based on input from their sales and marketing groups. Therefore, customers are incented to be conservative and provide lower load ramps. In PGE's experience, loads for these very large customers continue to grow even after the five-year MLA period, so PGE accepts year five load amounts that may be less than the capacity of the facilities. Each MLA is unique and negotiated load ramps for each MLA take into consideration cost of construction, load requested, credit history, type of facility, etc.

See UE 358_OPUC DR 033_Attach A for example of a Minimum Load Agreement.



Portland General Electric Company
121 SW Salmon Street • Portland, Oregon 97204

<Date>

<Contact name>
<Customer Name>
<Street>
<City, State, ZIP>

RE: Minimum Load Agreement between Portland General Electric and <Customer>

Dear <Contact Name>,

The purpose of this letter is to memorialize the mutual commitments, terms and conditions between Portland General Electric Company (PGE) and <Customer Name> pertaining to PGE’s installation of equipment and distribution services to serve <Project> (the Project) to be located <location> in exchange for <Customer Name>’s commitment to pay a minimum monthly demand charge for a period of sixty (60) months (Minimum Load Agreement), consistent with applicable tariffed rates for electric service to the Project.

This new load will be served by PGE at a <voltage> from <substation>. To establish service to the Project, PGE will construct <Construction Specifics>. The Project’s costs are derived from <high level of construction e.g. installation of wire, terminations and labor> and are estimated to be <\$0.00>.

By signing this Minimum Load Agreement, <Customer Name> is authorizing PGE to proceed with the Project and acknowledging its obligation to pay PGE, for a period of 60 months, no less than the minimum demand-related charges¹ outlined in the chart below, consistent with applicable tariff, in lieu of an up-front payment of the cost for the Project. Provided <Customer Name> adheres to the terms and conditions contained herein, its obligation associated with the Project costs will be satisfied.

For purposes of calculating monthly charges for <Customer>’s electricity service billings during the 60-month period, <MLA Start Date> through <MLA End Date>, all demand-related charges will be billed at the greater of the measured peak demand, determined by actual meter readings, or the demand specified in the chart below (Minimum Monthly Demand).

Minimum Monthly Demand	Effective Period
#kW	<Year 1>

¹ Demand-related charges include demand, transmission and facilities capacity charges.

#kW	<Year 2>
# kW	<Year 3>
# kW	<Year 4>
# kW	<Year 5>

If <Customer Name> wishes to satisfy its payment obligations under this Agreement before <MLA End Date>, it has the option to do so by providing written notice to PGE. Upon receipt of such notice, all Project costs (which will not exceed <\$0.00> will be prorated, as of the date notice was received, against the electricity service billings paid by <Customer Name> as of that date, and then PGE will notify <Customer Name> of the remaining balance due. Upon PGE’s receipt of <Customer Name>’s payment in full of the remaining balance due, PGE will deem <Customer Name>’s obligation under this Agreement satisfied and take appropriate steps to terminate this Agreement.

If <Customer Name> fails to commence service to the Project after completion by PGE, or ceases operations and/or discontinues its use of electric service from PGE before <MLA End Date>, then <Customer Name> shall be obligated to reimburse PGE for any and all unrecovered costs incurred in connection with the Project up to the time of notification, which Project costs will not exceed <\$0.00>. All Project costs will be prorated, as of the date of notice provided by <Customer Name>, against the electricity service billings paid to date. Upon PGE’s receipt of <Customer Name>’s payment in full of the remaining balance due, PGE will deem <Customer Name>’s obligation under this Agreement satisfied and take appropriate steps to terminate this Agreement. If practicable to do so, PGE will, in the event of either <Customer Name>’s failure to commence service or its discontinuance of service, attempt to mitigate the costs that <Customer Name> will otherwise be obligated to pay. Such mitigation measures may include, but shall not be limited to, reselling or utilizing the Project equipment at other locations within PGE’s system, as determined by PGE and at PGE’s sole discretion.

<Customer Name> may assign this Agreement to a third party as long as: (a) in PGE’s reasonable judgment, such third party’s creditworthiness and its ability to perform <Customer Name>’s obligations under this Agreement are at least as good as that of <Customer Name>; (b) the third party agrees to be bound by all the terms and conditions of this Minimum Load Agreement; and (c) PGE agrees, in writing, to the assignment. PGE shall not unreasonably withhold its agreement to the assignment.

Having reviewed the foregoing, if <Customer Name> agrees with the terms and conditions contained herein, please have an authorized representative sign two originals of this Minimum Load Agreement in the space provided below, indicating <Customer Name>’s acceptance of the terms and conditions outlined in this letter, and then return one of the two originals to me. PGE will begin contracting for materials and construction related to this Project upon PGE’s receipt of the signed copy of this Minimum Load Agreement.

Thank you for your cooperation. We look forward to working together toward the success of the Project and the completion of new service.

Sincerely,

<KCM Name>

Key Customer Manager
Portland General Electric

Accepted and agreed to by
<Customer Name>

By

(Name)
Title: _____
Date: _____

Accepted and agreed to by
Portland General Electric Company

By

(Name)
Title: _____
Date: _____

Rates and Regulatory Affairs: _____ PGE Legal: _____

September 16, 2020

TO: John Crider
Public Utility Commission of Oregon

FROM: Karla Wenzel
Manager, Regulatory Policy and Strategy

PORTLAND GENERAL ELECTRIC
UE 358
PGE Response to OPUC Data Request No. 034
Dated September 2, 2020

Request:

Please provide any information the Company has regarding each customer's expected ramp to full operations at a site.

Response:

The expected load ramp for specific customers is highly confidential customer information and it will be necessary for PGE to obtain a modified protective order before providing such information to Staff. In the meantime, PGE offers the following non-confidential response:

PGE did not request expected load ramp information for a customer to be included in the New Load Direct Access (NLDA) nonbinding participation queue. It should be noted, however, that in PGE's experience, very large load customers have loads that generally continue ramping up beyond five years. Minimally, customers must ramp to at least 10MWa over 12 months withing the first 36 months of participation in the NLDA program to remain eligible, according to OAR 860-038-0730(3).