MRG
McDOWELL RACKNER GIBSON PC
419 SW 11th Ave, Suite 400 | Portland, OR 97205

ALISHA TILL
Direct (503) 290-3628
alisha@mrg-law.com

August 24, 2020

VIA ELECTRONIC FILING

Attention: Filing Center
Public Utility Commission of Oregon
201 High Street SE, Suite 100
P.O. Box 1088
Salem, Oregon 97308-1088

Re: Docket UM 2032 – Investigation into the Treatment of Network Upgrade Costs for Qualifying Facilities

Attention Filing Center:

Attached for filing in the above-captioned docket is the Joint Utilities' Direct Testimony (Joint Utilities/100-200).

Please contact this office with any questions.

Sincerely,

Alisha Till

Alisha Till
Paralegal

Attachment

BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

DOCKET NO. UM 2032

Joint Utilities' Direct Testimony

Joint Utilities: PacifiCorp d/b/a Pacific Power, Portland General Electric Company, and Idaho Power Company

JOINT UTILITIES EXHIBIT 100

Joint Testimony of Richard A. Vail, Kris Bremer, Shaun Foster, Sean Larson, and Jared Ellsworth

August 24, 2020

Table of Contents

Q. Please state your names, business addresses, and present positions.

A. My name is Richard A. Vail. My business address is 825 NE Multnomah, Suite 1600, Portland, Oregon 97232. My present position is Vice President of Transmission at PacifiCorp d/b/a Pacific Power (PacifiCorp). I am responsible for the transmission system planning, customer generator interconnection requests and transmission service requests, regional transmission initiatives, asset management, capital budgeting for transmission, and administration of the Company's Open Access Transmission Tariff ("OATT").

My name is Kris Bremer. My business address is 825 NE Multnomah, Suite 1600, Portland, Oregon 97232. My present position is Director of Generation Interconnection and Transmission Project Management at PacifiCorp. I am responsible for customer generator interconnection requests and delivery of transmission capital projects.

My name is Shaun Foster. My business address is 121 SW Salmon Street, 3 World Trade Center, Mailstop 0409, Portland, OR 97204. My current position at Portland General Electric Company (PGE) is Senior Transmission and Market Services Analyst.

My name is Sean Larson. My business address is 121 SW Salmon Street, 3 World Trade Center, Mailstop 0503, Portland, OR 97204. My current position at PGE is Senior Transmission Planning Engineer.

My name is Jared Ellsworth. My business address is 1221 West Idaho Street, Boise, Idaho 83702. I am employed by Idaho Power Company (Idaho Power) as the Transmission, Distribution & Resource Planning Director for the Planning, Engineering and Construction Department.

I. QUALIFICATIONS

Q. Mr. Vail, please describe your educational background and professional experience.

A. I have a Bachelor of Science Degree with Honors in Electrical Engineering with a focus in electric power systems from Portland State University. I have been Vice President of Transmission for PacifiCorp since December 2012. Prior to my current position in Transmission, I was director of asset management since 2007. Prior to that position I had management responsibility for a number of organizations in the Company's asset management group including capital planning, maintenance policy, maintenance planning, and investment planning since joining the company in 2001.

Q. Mr. Bremer, please describe your educational background and professional experience.

A. I have a Bachelor of Science in Business Administration from Warner Pacific College. I have had management responsibility of customer generator interconnection requests since 2014. I have been employed by PacifiCorp since 2004.

Q. Mr. Foster, please describe your educational background and professional experience.

A. I joined PGE in 2007, working first as a Customer Service Representative before becoming an Interconnections Coordinator in the Customer Generation Interconnection Group in 2009. In 2016, I joined PGE's Transmission and Reliability Services Group, where I work as a Senior Transmission and Market Services Analyst. I am responsible for ensuring compliance with PGE's OATT as it pertains to interconnection requests, transmission service requests, local and regional transmission planning, coordination with other regional transmission providers, and other analysis. I have also served as PGE's representative on the Energy Trust of Oregon's Renewable Energy Advisory Council. I continue to represent

PGE on the Western Electricity Coordinating Council (WECC) Reliability Assessment Committee, as well as on NorthernGrid's Enrolled Party and States Committee and Member Committee, which I co-chair.

Q. Mr. Larson, please describe your educational background and professional experience.

A. I received a Bachelor of Science in Electrical Engineering from Portland State University. I then worked for PacifiCorp for two years as an Associate Engineer responsible for Overhead Distribution Standards. I joined PGE in 2011, and worked first as an Underground Distribution Standards Engineer, before becoming a Transmission and Distribution Planning Engineer in 2013. As a Transmission and Distribution Planning Engineer, I have studied Large Generator Interconnection Requests, transmission service requests, and total transfer capability, and I have implemented transmission, substation, and distribution projects for PGE's customers.

Q. Mr. Ellsworth, please describe your educational background and professional experience.

A. In 2004, I was hired as a Distribution Planning engineer in Idaho Power's Delivery Planning department. In 2007, I moved into the System Planning department, where my principal responsibilities included planning for bulk high-voltage transmission and substation projects, generation interconnection projects, and NERC reliability compliance standards. I transitioned into the Transmission Policy & Development group with a similar role, and in 2013, I spent a year cross-training with Idaho Power's Load Serving Operations group. In 2014, I was promoted to Engineering Leader of the Transmission Policy & Development department and assumed leadership of the System Planning group in 2018.

In early 2020, I was promoted into my current role as the Transmission, Distribution and Resource Planning Director. I am currently responsible for the planning of Idaho Power's wires and resources to continue to provide customers with cost-effective and reliable electrical service.

II. PURPOSE AND SUMMARY OF TESTIMONY

Q. Please describe the issues list adopted by the Administrative Law Judge (ALJ).

A. On May 22, 2020, the ALJ adopted the following issue list in this docket:

1. Who should be required to pay for Network Upgrades necessary to interconnect the QF to the host utility?

2. Should on-system QFs be required to interconnect to the host utility with Network Resource Interconnection (NRIS) or should QFs have the option to interconnect with Energy Resource Interconnection Service (ERIS) or an interconnection service similar to ERIS?

Q. What is the purpose of your testimony?

A. Our testimony describes the generation interconnection landscape in Oregon and defines Network Upgrades, the subject of this docket. We describe: (1) how transmission providers process requests for interconnection service differently under Oregon generator interconnection policies (with a foundation in the Public Utility Regulatory Policies Act of 1978 (PURPA) and state law) than under Federal Energy Regulatory Commission (FERC) interconnection policies driven by the Federal Power Act (FPA); (2) the difference between ERIS and NRIS; and (3) how a Qualifying Facility's (QF) siting choice drives the costs of Network Upgrades associated with both types of interconnection service. We also explain why NRIS is the only appropriate interconnection service type for Qualifying Facilities directly interconnecting with the purchasing utility under PURPA, and how allocating costs of both ER- and NR-driven Network Upgrades to QFs is necessary to maintain customer indifference to the purchase of QF power.

Q. Are there other witnesses providing testimony in this docket?

A. Yes. Mr. Michael G. Wilding, Mr. Robert MacFarlane, and Ms. Alison Williams (Joint Utilities' Regulatory Witnesses) will provide testimony explaining why the Commission's current QF interconnection policies are consistent with both PURPA's customer indifference standard and the Public Utility Commission of Oregon's (Commission) duty to oversee retail rates.

Q. Please summarize your testimony.

A. The primary issue raised in this docket is who should pay for Network Upgrades necessitated by a QF's interconnection. Interconnection-driven Network Upgrades are upgrades on the utility's transmission system at or beyond the QF's point of interconnection. They can be subdivided into two types: non-deliverability-related Network Upgrades associated primarily with ERIS and deliverability-related Network Upgrades associated primarily with NRIS.

The extent of Network Upgrades triggered by both NRIS and ERIS—and the associated costs—are driven by a QF's siting choice. The Commission's current policies, which allocate the costs of QF-driven Network Upgrades to the QFs that cause them, are consistent with PURPA's customer indifference standard. Moreover, these policies are critical to ensure the economically efficient development of QFs.

With respect to the question of whether QFs should be permitted to obtain ERIS rather than NRIS, PURPA's unique operational mandates—its must-take requirement, which includes a prohibition on the curtailment of QF power (outside of emergency conditions), and its mandate that 100 percent of a QF's output be delivered to load on firm transmission—mean that NRIS is the only appropriate interconnection service type for QFs. Absent some additional action by the Commission, allowing a QF to obtain ERIS would remove the financial incentive for the economically efficient development of QF power and would shift costs to retail customers.[1] The Commission's current QF policies are not only consistent with cost-causation and customer-indifference policies, they are also critical for ensuring the economically efficient development of QF generation in Oregon.

III. OVERVIEW OF OREGON QF INTERCONNECTION LANDSCAPE AND THE SCOPE OF THIS DOCKET

Q. What is the purpose of this section of your testimony?

A. This section provides a brief overview of the Commission's current interconnection rules and defines the terminology applicable to a discussion of generator interconnection policy. The Commission's interconnection landscape is somewhat complicated, and interconnection terminology is often inconsistently used. This section is intended to clarify the terminology used throughout this testimony and to provide context for the discussion of QF Network Upgrade costs that follows.

A. OVERVIEW OF OREGON'S LARGE QF INTERCONNECTION POLICIES

Q. Please describe the scope of Oregon's large QF interconnection policies.

A. Oregon's large QF interconnection policies apply to QFs larger than 20 megawatts (MW) interconnecting with a utility's transmission or distribution system. These policies are

[1] *See, e.g., In the Matter of Pub. Util. Comm'n of Oregon Staff Investigation Relating to Elec. Util. Purchases from Qualifying Facilities*, Docket UM 1149, Order No. 05-584 at 1 (May 13, 2005) ("This Commission's goal has been to encourage the economically efficient development of these qualifying facilities (QFs), while protecting ratepayers by ensuring that utilities pay rates equal to that which they would have incurred in lieu of purchasing QF power.").

based on FERC's Large Generator Interconnection Procedures (LGIP) and Large Generator Interconnection Agreements (LGIA), though the Commission has modified them to conform with PURPA requirements and Oregon law.[2] These conformed documents govern large QF interconnections and are referred to as the Oregon QF-LGIP and QF-LGIA.

Q. Doesn't FERC ordinarily have jurisdiction over a generator's interconnection with a utility's transmission system?

A While FERC ordinarily has jurisdiction over a generator's interconnection with a utility's transmission system, we understand that PURPA gives state authorities jurisdiction over such interconnections so long as the QF is selling all of its output to the directly interconnected utility.[3]

Q. How does the QF-LGIP define "Network Upgrades," the subject of this docket?

A. The QF-LGIP defines Network Upgrades as,

> [T]he additions, modifications, and upgrades to the Transmission Provider's Transmission System required at or beyond the point at which the Interconnection Facilities connect to the Transmission Provider's Transmission System to accommodate the interconnection of the Large Generating Facility to the Transmission Provider's Transmission System.[4]

This definition and others in the QF-LGIP are based on the definitions in FERC's pro forma LGIP.

Q. The Commission and parties have used the term "deliverability-driven" Network

---

[2] *In re Pub. Util. Comm'n of Oregon Investigation into Interconnection of PURPA Qualifying Facilities with Nameplate Capacity Larger than 20 Megawatts to a Pub. Utility's Transmission or Distribution System,* Docket UM 1401, Order No. 10-132 (Apr. 7, 2010).
[3] 18 C.F.R. § 292.303; 18 C.F.R. § 292.306; *Standardization of Generator Interconnection Agreements and Procedures*, 104 FERC ¶ 61,103, at PP813-814 (July 24, 2003) (Order No. 2003).
[4] *See* Order No. 10-132, Appendix A ("QF-LGIP") at 11.

Upgrades.[5] What are deliverability-driven Network Upgrades?

A. The term "deliverability-driven Network Upgrades" is not a term used in the QF-LGIP, but is a descriptive term intended to identify a specific type of Network Upgrade. Network Upgrades can be divided into two general categories: First, there are Network Upgrades that are primarily needed to safely and reliably physically interconnect the generating resource to the utility's transmission system. These are identified in an ERIS study. Second, there are Network Upgrades beyond those identified an ERIS study that are needed to ensure the aggregate of generation in the area where the generator proposes to interconnect can be reliably delivered to the aggregate of load on the transmission provider's system during peak load conditions. These have been described as "deliverability-driven" Network Upgrades, or NR Network Upgrades. Later in our testimony, we will describe the differences between ERIS and NRIS and explain why it is important to conduct a NR interconnection study to identify the deliverability-driven Network Upgrades caused by a QF's interconnection.

Q. Under the Commission's current policies, who is required to pay for the Network Upgrades necessary to interconnect a QF to the host utility?

A. Under the QF-LGIA, a QF is required to pay for all Network Upgrades necessary to interconnect the QF to the host utility, unless the QF can demonstrate that its Network Upgrades provide "quantifiable system-wide benefits."[6] If the QF makes such a demonstration, it is relieved of its responsibility to pay for Network Upgrades in the amount

[5] *See, e.g.*, *In the Matter of Pub. Util. Comm'n of Oregon, Community Solar Program Implementation*, Docket UM 1930, Order No. 20-122, Appendix A at 13.
[6] Order No. 10-132 at 3.

of the demonstrated benefit.[7]

Q. How does the QF-LGIP define "Interconnection Facilities"?

A. Interconnection Facilities are facilities and equipment located between the QF generator and the point of interconnection with a utility's transmission system. The QF-LGIP's definitions mirror the definitions in FERC's LGIP.[8]

Q. How does the QF-LGIP define "Distribution Upgrades"?

A. Distribution Upgrades refer to upgrades to a utility's *distribution* system at or beyond the point of interconnection.[9] Again, this definition mirrors the definition in FERC's LGIP.

Q. Who is required to pay for Interconnection Facilities and Distribution Upgrades under the QF-LGIA?

A. QFs are required to pay for any Interconnection Facilities or Distribution Upgrades necessary to interconnect the QF to the host utility.

B. OVERVIEW OF OREGON'S SMALL GENERATOR INTERCONNECTION POLICIES

Q. Please describe the scope of the Commission's small generator interconnection rules.

A. The Commission's small generator interconnection rules, which are contained in OAR Chapter 860 Division 82, apply to interconnecting generators with a nameplate capacity of 10 MW or less.

Q. Do the Commission's small generator interconnection rules apply only to QFs?

A. No. Our understanding is that the Commission's small generator interconnection rules

[7] Order No. 10-132 at 3.
[8] The QF-LGIP defines both "Interconnection Customer's Interconnection Facilities" and "Transmission Provider's Interconnection Facilities." A Transmission Provider's Interconnection Facilities connect to the Interconnection Customer's Interconnection Facilities at the "Point of Change of Ownership." QF-LGIP at 13. The costs of both types of Interconnection Facilities are assigned to the interconnecting generator.
[9] QF-LGIP at 6.

apply to any small generator interconnecting with a utility's system, so long as the interconnection is not FERC-jurisdictional.[10]

Q. As a practical matter, what does this mean?

A. A generator interconnecting with a utility's *distribution* system is generally processed under state rules and policies, whether it is a QF or not. A generator interconnecting with a utility's *transmission* system, however, is processed under the Commission's rules only if it is a QF selling all of its output directly to the interconnecting utility. Thus, the Commission's small generator interconnection rules apply to all generators up to 10 MW interconnecting with the utility's distribution system, and to all QFs up to 10 MW interconnecting with the utility's transmission system.

Q. How do the small generator interconnection rules define "Interconnection Facilities" and "System Upgrades?"[11]

A. "Interconnection Facilities" are the facilities and equipment required by a public utility to accommodate the interconnection of a small generator facility to the public utility's transmission or distribution system and used exclusively for that interconnection.[12] "System Upgrades" are additions or modifications to a public utility's transmission or distribution system or to an affected system required to accommodate the interconnection of a small generator facility.[13] System Upgrades can include interconnection-driven upgrades to a utility's transmission system, its distribution system, or both.

[10] *See* OAR 860-082-0005(1).
[11] The Commission's small generator interconnection rules do not capitalize these terms; however, because they are defined terms, and because similar terms in the QF-LGIP are capitalized, these terms have been capitalized throughout this testimony for consistency.
[12] OAR 860-082-0015(16).
[13] OAR 860-082-0015(34).

Q. How does a transmission provider study a small interconnecting generator?

A. The transmission provider performs small generator interconnection studies to identify System Upgrades and Interconnection Facilities needed for generator interconnection, as well as their costs. Depending (primarily) on the size of the generator, the studies are classified as Tier 1, Tier 2, Tier 3, or Tier 4, per the small generator interconnection rules.

Q. Under the Commission's small generator interconnection rules, who is required to pay for the various facilities and upgrades necessary to interconnect the generating resource to the utility's system?

A. Small generators, including QFs, are required to pay for all interconnection costs caused by their interconnection, both up to and beyond the point of interconnection. This means that small QFs pay for the cost of Interconnection Facilities and System Upgrades.[14]

Q. Are the Commission's small generator interconnection rules at issue in this docket?

A. As a general matter, we do not believe so. Our understanding is that the Commission's small generator interconnection rules will be addressed in a separate docket, Docket UM 2111, where all interested generators (QF and non-QF) will have an opportunity to participate.

Q. What interconnection rules apply to QFs with a nameplate capacity between 10 and 20 MW?

A. At the moment, the Commission has not adopted generally applicable rules or policies that apply to QFs with a nameplate capacity between 10 and 20 MW. However, as part of PacifiCorp's recently approved interconnection queue reform docket, the Commission directed PacifiCorp to apply the small generator interconnection framework to all QFs that

[14] OAR 860-082-0035.

are 20 MW or less.[15]

Q. Given the fragmented rules and policies applicable to generators of various sizes, what do you understand to be the scope of this docket?

A. As we understand it, this docket is intended to address the cost allocation of Network Upgrades, as defined in the QF-LGIP—that is, upgrades to the transmission provider's *transmission* system (as opposed to its distribution system) necessitated by a QF's interconnection with the utility's *transmission* system or *distribution* system.

The term "Network Upgrades" is found in the QF-LGIP, but is not used in the Commission's small generator interconnection rules. That said, the *functional equivalent* of "Network Upgrades," as they are defined in the QF-LGIP, can sometimes arise with respect to small generator interconnections. The Joint Utilities recognize that any policy decision made with respect to "Network Upgrades," as defined in the QF-LGIP, might logically flow through to other interconnection-driven upgrades that are the functional equivalent of Network Upgrades. The types of interconnection-driven upgrades within the Commission's various interconnection rules and policies that are either "Network Upgrades" or their functional equivalent are as follows:

- When a large QF interconnects with the utility's system and that interconnection triggers Network Upgrades under the QF-LGIP. These Network Upgrades are defined by the Commission as "Network Upgrades" and are clearly within the scope of this docket.
- When a small QF interconnects with the utility's *transmission* system (as opposed

[15] *In re PacifiCorp, dba Pacific Power, Application for an Order Approving Queue Reform Proposal*, Docket UM 2108, Order No. 20-268, Appendix A at 19 (Aug. 19, 2020).

to its distribution system), and that interconnection triggers upgrades at or beyond the point of interconnection.[16] Under the Commission's small generator interconnection rules, these upgrades are generally referred to as "system upgrades";[17] however, they are conceptually the same as Network Upgrades, and their ultimate policy treatment is presumably within the scope of this docket.

- Finally, when a small QF interconnects with a utility's *distribution* system, and that interconnection triggers upgrades at or beyond the point of interconnection on both a utility's *distribution* system and its *transmission* system. Only the latter—that is, upgrades to the utility's *transmission* system triggered by a QF interconnection with the distribution system—are the functional equivalent of "Network Upgrades" and thus at issue, from a policy perspective, in this docket.

Q. Are upgrades to a utility's *distribution system* within the scope of this docket?

A. No, it is our understanding that they are not.

Q. How would you summarize the Commission's overall policies related to generator interconnection?

A. Under the Commission's generator interconnection policies, all costs driven by a generator's interconnection—whether those costs are associated with Interconnection Facilities, Distribution Upgrades, System Upgrades, or Network Upgrades—are uniformly

---

[16] Under the Commission's small generator interconnection rules, any small generator interconnecting with the utility's system at the *transmission* level must use the Tier 4 interconnection process. *See* OAR 860-082-0045, 0050, 0055 (excluding from Tiers 1-3 any generator interconnecting with a utility's transmission line); OAR 860-082-0060 (noting that Tier 4 allows interconnections to a utility's transmission line).

[17] All upgrades associated with a small generator interconnection that are not "interconnection facilities" are referred to in the small generator interconnection rules as "system upgrades." The subset of "system upgrades" described here are directly analogous to "Network Upgrades" defined in the QF-LGIP.

assigned to the generator that caused them. This is true for QFs and non-QFs. There is only one exception: if a large QF can demonstrate that some part of the Network Upgrades caused by its interconnection provides "quantifiable system-wide benefits," a portion of the QF's Network Upgrades may be assigned to retail customers in the amount of the demonstrated benefit.

IV. ISSUE I: COST ALLOCATION FOR NETWORK UPGRADES

A. THE QF INTERCONNECTION PROCESS: IDENTIFICATION OF NETWORK UPGRADES NECESSARY FOR INTERCONNECTION

Q. This docket is about interconnection-driven Network Upgrades caused by a QF's request for interconnection service. What is interconnection service?

A. Interconnection service is the service provided by a transmission provider associated with interconnecting an interconnection customer's generating facility to the transmission provider's system and enabling it to receive electric energy and capacity from the generating facility at the point of interconnection.[18]

Q. How is interconnection service different from transmission service?

A. Interconnection service simply allows a generator to connect its generating facility to the transmission provider's system so that the generator is eligible to deliver the generating facility's output.[19] As we will explain, there are different types of interconnection service that provide different levels of delivery eligibility, and the proper choice of interconnection service depends on the intended operational characteristics of the generator. Interconnection service in and of itself does not convey transmission service.

Transmission service, on the other hand, provides for the actual delivery of the

[18] *See* QF-LGIP at 9.
[19] *Id.*

generator's power. There are various types of transmission service, as well, that can vary based on the intended use of the generation.

Q. A generator arranges for its own interconnection service. Who arranges for transmission service?

A. Again, it depends on the nature of the transaction. In the non-PURPA context, generators often arrange for both their own interconnection and transmission service. In other instances, a generator arranges for interconnection service and a buyer arranges for transmission service, and the costs associated with the services are addressed in the agreement between the parties. PURPA mandates a very specific arrangement: Under PURPA, a directly interconnected QF arranges for its interconnection with the utility's system; the utility is then required by PURPA to make transmission service arrangements to deliver the power from the QF's point of delivery to the utility's load using firm transmission service.[20]

Q. Please explain how Network Upgrades are triggered by a generator's request for interconnection service.

A. When any generator seeks to interconnect with a utility's transmission or distribution system, the transmission provider cannot grant that interconnection service until it first evaluates the interconnecting generator's impact on the utility's system (and other Affected Systems) to determine what physical facilities and upgrades are necessary to permit the generator to safely and reliably interconnect with the larger grid and to allow the generator to operate as intended. Upgrades at or beyond the point of interconnection on the utility's transmission system are referred to as Network Upgrades, as discussed above.

[20] *See, e.g.*, *Pioneer Wind Park I, LLC*, 145 FERC ¶ 61,215 at n. 73 (Dec. 16, 2013).

Q. What types of Network Upgrades might be necessitated by a QF's interconnection?

A. New interconnecting generators might require any number of new facilities or upgrades to existing facilities before a request for interconnection service can be granted. This can include, for example, the reconductoring of an existing line or the installation of a new line, breakers, switches, or even substations. As part of the interconnection process, the transmission provider will conduct interconnection studies to identify the facilities and upgrades—including Network Upgrades— necessary to grant the type of interconnection service requested by the generator.

FERC has developed two types of generator interconnection service: ERIS and NRIS. The scope of a transmission provider's interconnection studies, and thus the scope of the Network Upgrades potentially identified in those studies, depends on the type of interconnection service requested by the generator.

Q. Please describe the different types of interconnection service.

A. ERIS is a basic interconnection service, which allows the interconnection customer to connect its generator to the transmission provider's transmission system and be eligible to deliver the generating facility's electric output using the existing firm or non-firm capacity of the transmission system on an as-available basis.[21] An ER interconnection study identifies only those facilities and upgrades—including Network Upgrades—necessary to safely and reliably interconnect the generating resource to the system. We will refer to these types of Network Upgrades as ER Network Upgrades. ER studies are not intended to identify Network Upgrades that may be required to ensure the deliverability of the generator's output.

[21] *See* Order No. 2003, Appendix C at 4 (*pro forma* LGIP) ("Energy Resource Interconnection Service").

NRIS is a more comprehensive interconnection service intended to make an interconnecting generator eligible to deliver its output to load on a *firm* basis.[22] An NR interconnection study starts with the same analysis as an ER study, but also includes a deliverability analysis that identifies the facilities and upgrades—including Network Upgrades—necessary to allow the aggregate of generation in the area where the interconnecting generator sited its project to be reliably delivered to the aggregate of load during peak conditions.[23] We will refer to the incremental additional Network Upgrades identified in an NR study as NR, or "deliverability-driven," Network Upgrades. NRIS ensures that the interconnecting generator and other generators in the area can be operated simultaneously at peak load, and that any output produced above peak load requirements can be transmitted to another part of the system. Essentially, it ensures the interconnecting generator's power can flow during peak load conditions rather than being bottled up. Securing NRIS thus operates as a prerequisite to allowing a generator to qualify for firm network transmission service.

Q. What is "firm network transmission service"?

A. Firm network transmission service (or firm network service) is a type of firm transmission service used by utilities to integrate, economically dispatch, and regulate current and planned resources to serve load. Firm network transmission service ensures that power can be delivered where it is needed to reliably serve retail customers. We describe the firm transmission service required for QF power delivery in more detail in Section V of our

[22] *See, e.g.*, Order No. 2003 at P768, P784 ("[T] he study for Network Resource Interconnection Service identifies the Network Upgrades that are needed to allow the Generating Facility to contribute to meeting the overall capacity needs of the Control Area or planning region whereas the study for Energy Resource Interconnection Service does not.").

[23] Order No. 2003, Appendix C at 16 (*pro forma* LGIP) (3.2.2.2).

testimony, in which we address Issue 2.

Q. The term "deliverability analysis" sounds like a transmission term, rather than an interconnection term. Is it?

A. No. The presence of a deliverability analysis in an NR interconnection study simply reflects the fact that the principal purpose of NRIS is to allow a new generator's power to be capable of delivery to the purchasing utility's load using firm network service on the transmission provider's transmission system.[24] Importantly, NRIS does not ensure physical delivery to specific loads or locations, and it does not provide delivery service rights to specific loads or locations.[25] Rather, under FERC's pro forma OATT, transmission service requests must be submitted and studied separately from interconnection service requests, and additional facilities or upgrades (beyond those identified in the interconnection studies and agreements) could be required for transmission service to be granted.

Q. What type of interconnection service must an Oregon QF obtain?

A. The Commission's QF-LGIP requires a QF to obtain NRIS. A QF's interconnection studies will therefore identify both ER and NR Network Upgrades triggered by the QF's interconnection.

Q. Is it appropriate to require a QF to obtain NRIS?

A. Yes. As we will explain in the second part of our testimony, NRIS is the appropriate

[24] *See Standardization of Generator Interconnection Agreements and Procedures*, 109 FERC ¶ 61,287, P69 (Dec. 20, 2004) (Order No. 2003-B) ("The name [Network Resource Interconnection Service] is suitable given that the principal purpose of the service is to allow the Generating Facility to qualify for designation as a Network Resource by a Network Customer.").

[25] *See, e.g.,* QF-LGIP at 16, Section 3.2.1.2 ("Network Resource Interconnection Service in and of itself does not convey any right to deliver electricity to any specific customer or point of delivery.").

interconnection service for a QF. FERC has held that a purchasing utility must deliver a QF's power on firm transmission without curtailment (except in emergency conditions), meaning that a QF's interconnection can trigger the need for deliverability-related (NR) Network Upgrades needed to effectuate that firm delivery.

Q. Are the ER and NR Network Upgrades identified in QF interconnection studies "necessitated by" a QF's interconnection?

A. Yes. ER Network Upgrades needed to safely and reliably accommodate a QF's physical interconnection with the utility's system are obviously upgrades necessitated by the QF's interconnection. As we will explain later in our testimony, given PURPA's unique operational requirements, NR Network Upgrades needed to ensure that a QF's power can be delivered to load using firm network service are also upgrades necessitated by the QF's interconnection.

B. <u>THE QF INTERCONNECTION PROCESS: COST DRIVERS FOR NETWORK UPGRADES</u>

Q. What factors affect the level of Network Upgrades that will be needed to accommodate a QF's request for interconnection service?

A. The cost of a generator's interconnection can vary dramatically depending on siting, load, existing transmission system facilities, and existing generation. In some locations on a utility's transmission system, the cost of Network Upgrades needed to interconnect a generating facility can be relatively low; in other locations, the costs of Network Upgrades needed to interconnect can be significantly higher—tens of millions of dollars or more.

The level of ER Network Upgrades needed to grant a QF's request for interconnection service depends on the state of the facilities near the location of the QF's point of interconnection and what system modifications are needed to facilitate a safe and reliable interconnection of the QF to the transmission system. In PacifiCorp's Oregon service territory, for example, interconnection studies for various 40 MW solar generating resources have identified the need for ER Network Upgrades that range from $138,000 for some generators to as high as $10,200,000 for others.

The level of NR Network Upgrades needed to grant a QF's request for interconnection service depends on the amount of existing generation, planned generation, load, existing transmission system facilities, and transmission constraint level in the area of the transmission system in which the request for interconnection service is being made. In areas with sufficient load to sink additional generation and/or no transmission constraints to load, the study results may indicate very similar, or *exactly the same*, requirements for either type of interconnection service (ER or NR). In other words, in certain areas, the Network Upgrades needed for NRIS may include very few that are incremental to those identified for ER. However, in constrained areas that cannot sink more generation, NRIS may require additional deliverability-related Network Upgrades beyond the ER Network Upgrades. In some areas of PacifiCorp's system, NR Network Upgrades for an interconnecting generator are zero; in other areas, they can be hundreds of millions of dollars.[26]

Other factors, such as project size, can play a role in driving the magnitude of interconnection costs, but the biggest factor affecting the cost of Network Upgrades is the

[26] Similarly, PGE has transmission and generation facilities that are geographically distant from PGE's retail load, and any interconnection request to these distant portions of PGE's system will likely result in significant deliverability-related Network Upgrades. For its part, Idaho Power has seen a similar range of NR Network Upgrades depending on where an interconnecting generator sites its project.

QF's siting decision.

Q. If QFs were not required to pay for the Network Upgrades necessitated by their interconnection, what impact would that have on QFs' siting decisions?

A. If the Commission were to relieve QFs of the obligation to pay for interconnection-driven Network Upgrades, QFs would have no financial incentive to site in a location where Network Upgrade costs are minimized. As a result, we would likely see more QFs seeking to site and develop projects in areas that require significant Network Upgrades to safely physically interconnect the new generator, or to deliver QF power from areas that may be significantly constrained. Removing QFs' incentives to make economical siting decisions would likely increase—perhaps dramatically—the overall cost of transmission system upgrades needed to interconnect and deliver QF power, and also would shift the cost of such upgrades from QFs to other utility customers, with significant impacts to retail customers.

Q. What if a QF were permitted to obtain ERIS instead of NRIS? What impact would that have on retail customers?

A. As we explain in more detail in Section V of our testimony, which addresses Issue 2, if a QF is not required to pay for interconnection-driven NR Network Upgrades, the need for those upgrades will not go away. The utility will still be required to build the Network Upgrades needed to ensure the QF power can be reliably delivered to retail customers. Those costs would be rolled into the utility's transmission rate base and shared by all users of the utility's transmission system through increased transmission rates.

For each of the Joint Utilities, the primary user of the transmission system is the utility's merchant or load service function,[27] whose transmission rates are paid by its customers. Over 81 percent of PacifiCorp Transmission's annual transmission revenue comes from providing load service to PacifiCorp's retail customers. Similarly, PGE Merchant is the primary customer of PGE Transmission, holding approximately 87 percent of the long-term transmission rights. For Idaho Power, retail customer load service accounted for 70 percent of long-term transmission rights in 2018. Thus, any Network Upgrade costs that are not paid by QFs would be paid primarily by the utilities' retail customers.

Q. In your view, is the Commission's QF-interconnection Network-Upgrade cost-allocation policy consistent with PURPA?

A. Joint Utilities' Regulatory Witnesses discuss this issue in more detail, but our understanding is that requiring a QF to pay for the costs of Network Upgrades necessitated by its interconnection is mandated by PURPA's customer indifference standard.

Moreover, the Commission's current policy incentivizes the economically efficient development of QFs. If Commission policy makes a QF indifferent to the cost of accommodating its project, there would be no financial incentive for economically efficient QF development. As a result, the overall level of Network Upgrade costs caused by QFs and imposed on retail customers might be expected to increase in magnitude—perhaps significantly.

[27] Idaho Power's functional separation is different than PacifiCorp's and PGE's in that Idaho Power has a transmission, merchant, and load service function. For purposes of this testimony, Idaho Power's load service function is comparable to PacifiCorp's and PGE's merchant functions.

C. TREATMENT OF NETWORK UPGRADE COSTS UNDER FERC AND PURPA

Q. Some parties have urged the Commission to adopt FERC's standard interconnection policies for QFs' interconnections. How are FERC-jurisdictional interconnections processed differently from Oregon QF interconnections?

A. We are aware of two key differences related to this docket between the processing of FERC-jurisdictional interconnections and QF interconnections. The first relates to a generating facility's choice of interconnection service. When a FERC-jurisdictional generator seeks interconnection service, that customer is entitled to select either ERIS or NRIS.

The second relates to cost-allocation for Network Upgrades. For FERC-jurisdictional interconnections, the cost of Network Upgrades (ER, NR, or both) are initially funded by the generator (often called "up-front funding"), but the generator is then paid back for the cost of Network Upgrades over time once the generator achieves commercial operation. Specifically, Section 11.4.1 of FERC's pro forma LGIA states that once a generating facility is operational, the utility will reimburse the generator for the cost of its Network Upgrades, ordinarily through receipt of transmission credits. If the generating facility fails to achieve commercial operation, the generator is not entitled to refunds for its Network Upgrades unless another generating facility is later constructed that makes use of those Network Upgrades.

Q. Why does FERC allow FERC-jurisdictional generators to recover the costs of Network Upgrades needed to interconnect their generating resources?

A. We are not legal experts, but our understanding is that FERC has adopted a presumption that Network Upgrades provide "system benefits" to other interconnection or transmission customers.

Q. Does FERC review Network Upgrades to ensure they actually provide system benefits to other interconnection or transmission customers?

A. Not to our knowledge. Our understanding is that FERC has simply adopted this presumption under the Federal Power Act.

Q. In your view, should the Commission apply FERC's generator interconnection policies to QF interconnections?

A. No. Our understanding is that the Commission previously considered and rejected the idea that FERC's non-PURPA interconnection policies should apply to QFs.

Q. Please explain.

A. In 2010, in Docket UM 1401, the Commission ordered Oregon transmission providers to create an Oregon QF LGIP and LGIA using modified versions of FERC's LGIP and LGIA for use in processing Oregon QF interconnections. Utilities were ordered to remove certain FERC-mandated provisions from the QF-LGIP and QF-LGIA, including the obligation for utilities to reimburse interconnecting QFs for their Network Upgrade costs.

Q. Specifically, what changes did the Commission order Oregon transmission providers to make to FERC's LGIA and LGIP for purposes of processing QF interconnections?

A. First, the Oregon Commission directed transmission providers to eliminate Section 11.4.1 of FERC's pro forma LGIA from the Oregon QF-LGIA. Section 11.4.1 is the provision that entitles an interconnection customer to be reimbursed for the cost of its Network Upgrades through payment of transmission credits over time. Eliminating Section 11.4.1 made QFs presumptively responsible for the cost of their Network Upgrades under the QF-LGIA.

Q. Why do you say "presumptively" responsible?

A. We understand the Commission added the following qualifier to its ruling on QF cost responsibility for Network Upgrades:

> Interconnection Customers are responsible for all costs associated with network upgrades unless they can establish quantifiable system-wide benefits, at which point the Interconnection Customer would be eligible for direct payments from the Transmission Provider in the amount of the benefit.[28]

Q. What was the Commission's rationale for rejecting FERC's interconnection cost-allocation policy?

A. The Commission's order rejecting FERC's interconnection cost-allocation policy stated as follows:

> [The] argument that FERC has long held that Network Upgrades provide system wide benefits is not persuasive to this point. None of the authorities cited [by proponents of FERC's policy] are related to facilities governed by PURPA and thus none faced the limitation of the avoided cost rate.[29]

Again, we are not legal experts, but we understand that the Commission was expressing its concern that FERC's policy is not consistent with PURPA's avoided cost framework.

Q. Under what circumstances would a particular Network Upgrade be deemed to provide a "quantifiable system-wide benefit" to retail customers?

A. This issue is addressed by the Joint Utilities' Regulatory Witnesses, but we understand this to essentially be a "but-for" test under which a QF is responsible for those upgrades that would not have been required but-for its interconnection request.

Q. What other changes did the Commission order Oregon transmission providers to make to FERC's pro forma LGIP and LGIA?

---

[28] Order No. 10-132 at 3.
[29] Order No. 10-132 at 3-4.

A. Oregon transmission providers were also directed to remove the option for an interconnecting generator (here, a QF) to elect ERIS. The removal of the ERIS option means that a QF seeking interconnection service under the QF-LGIP is required to obtain NRIS.

Q. Why did the Commission remove a QF's option to elect ERIS?

A. We cannot speak to the Commission's rationale for this change, but we understand that it was proposed by the Joint Utilities on the ground that NRIS is the only interconnection service consistent with the utility's obligation to take a QF's power and deliver it on firm transmission service. PGE noted that "Network Resource Interconnection Service will ensure that the QF is integrated in a manner comparable to that in which the Transmission Provider integrates its generating facilities to serve native load customers."[30] In addition, the Joint Utilities explained in that docket that:

> If a QF interconnection request were to be processed as a request for ERIS, the purchasing utility might be put in the position of subsequently having to pay for transmission upgrades needed to get the QF's output to load, but that utility would not be allowed to reduce the price it is obligated to pay for the QF power, in order to reflect this additional cost it incurred (see OPUC Order No. 07-360 at p. 26-27), and the purchasing utility would, therefore, end up paying more than its avoided cost for the QF output in violation of PURPA (16 U.S.C. § 824a-3(b)&(d); 18 C.F.R. § 292.304). Given that the purchasing utility is required to take all of the energy generated by a PURPA project, it is appropriate and necessary that the PURPA project ensure, as part of its interconnection request, that such transmission facilities/capacity is available for the delivery of its output. Unfortunately, that goal cannot be achieved through an ERIS request. Therefore, requests for interconnections by PURPA projects should always be regarded as NRIS requests.[31]

[30] Docket UM 1401, Portland General Electric's Draft Interconnection Procedures & Agreement for Qualifying Facilities at 6 (March 9, 2009).
[31] Docket UM 1401, Joint Response of Portland General Electric Company, PacifiCorp and Idaho Power Company to Bench Request at 2-3 (Dec. 29. 2009).

Q. Do you agree that QFs should be required to take NRIS?

A. Yes. In Section V of our testimony, which addresses Issue 2, we explain in detail why NRIS is the only appropriate interconnection service for a QF.

Q. You referred to FERC's generator interconnection policies as FERC's "non-PURPA" generator interconnection policies. Does FERC have a PURPA-specific interconnection policy?

A. Again, we are not lawyers, but our understanding is that FERC's standard generation interconnection policies do not apply to QFs. We understand that FERC has promulgated a regulation specific to QF interconnections. That regulation states as follows:

> (a) Obligation to pay. Each qualifying facility shall be obligated to pay any interconnection costs which the State regulatory authority (with respect to any electric utility over which it has ratemaking authority) or nonregulated electric utility may assess against the qualifying facility on a nondiscriminatory basis with respect to other customers with similar load characteristics.
>
> (b) Reimbursement of interconnection costs. Each State regulatory authority (with respect to any electric utility over which it has ratemaking authority) and nonregulated utility shall determine the manner for payments of interconnection costs, which may include reimbursement over a reasonable period of time.[32]

Q. Does this regulation's section on "reimbursement of interconnection costs" refer to the same kind of reimbursement mechanism used in FERC's standard generator interconnection policies? That is, does it presume generators will upfront fund the cost of their interconnection-driven Network Upgrades and the utility will later reimburse them?

A. No. FERC's PURPA-specific interconnection regulations contemplate a framework

[32] 18 C.F.R. § 292.306.

whereby *the QF would reimburse the utility* (and by extension retail customers) for the costs of interconnection-driven Network Upgrades, not the other way around.[33]

Q. How does PURPA define the scope of interconnection costs subject to state jurisdiction?

A. We understand that FERC's regulations define "interconnection costs" subject to state authority as follows:

> [T]he reasonable costs of connection, switching, metering, transmission, distribution, safety provisions and administrative costs incurred by the electric utility directly related to the installation and maintenance of the physical facilities necessary to permit interconnected operations with a qualifying facility, to the extent such costs are in excess of the corresponding costs which the electric utility would have incurred if it had not engaged in interconnected operations, but instead generated an equivalent amount of electric energy itself or purchased an equivalent amount of electric energy or capacity from other sources. Interconnection costs do not include any costs included in the calculation of avoided costs.[34]

Q. Is PURPA's definition of "interconnection costs" broad enough to encompass the allocation of Network Upgrades, the subject of this docket?

A. Yes. PURPA's definition of interconnection costs is very broad, and it includes all types of facilities or upgrades that may be necessary for a QF's interconnection, including Network Upgrades.

---

[33] 18 C.F.R. § 292.306(b) describes the reimbursement mechanism for Network Upgrades as running from the QF to the utility (to the extent the utility pays for the costs upfront), not the other way around, as in the case of a FERC-jurisdictional interconnection agreement where the generator pays its interconnection costs upfront, subject to later reimbursement by the utility. *See, e.g., Small Power Production and Cogeneration Facilities; Regulations Implementing Section 210 of the Pub. Util. Regulatory Policies Act of 1978,* Order No. 69, 45 Fed.Reg. 12,214, 12,230 (Feb. 25, 1980) (responding to comments seeking clarification on "the manner in which electric utilities would be reimbursed" by explaining that it is best left to the states to decide whether a QF should pay for its interconnection in an upfront lump sum or amortized over some period of time).

[34] 18 C.F.R. § 292.101(b)(7).

V. ISSUE 2: NRIS IS THE ONLY APPROPRIATE INTERCONNECTION SERVICE FOR QFS

Q. Why should a directly-interconnected QF be required to interconnect to the host utility with NRIS?

A. There are several reasons why a directly interconnected QF should be required to interconnect with NRIS. First, NRIS is the appropriate interconnection service for QFs given FERC's articulation of the requirements for the delivery of a QF's output under PURPA. Second, allowing a QF to obtain ERIS, rather than NRIS, would shift costs caused by the QF to retail customers in violation of PURPA's customer indifference principle. Third, there are differences between QFs and FERC-jurisdictional interconnection customers that bear on the question of why FERC-jurisdictional interconnection customers should get a choice between ERIS and NRIS, while QFs should not. Finally, there is no straightforward regulatory alternative to requiring NRIS that will ensure customers remain unharmed by a QF's interconnection in all instances.

Q. You stated that NRIS is the appropriate interconnection service for QFs. Please explain in more detail the purpose of NRIS and why it should be required for QFs.

A. FERC's different interconnection service types—ER and NR—were designed to provide interconnection service to different kinds of interconnection customers. As explained previously, ERIS is intended to make a generator "eligible to deliver the generating facility's output using the existing firm *or non-firm* capacity of the transmission system on an as-available basis,"[35] meaning, the generator's interconnection evaluation will turn a blind eye to whether potential deliverability issues exist in the area of the generator's

[35] Order No. 2003, Appendix C at 4 (*pro forma* LGIP) ("Energy Resource Interconnection Service").

chosen interconnection site. The availability of transmission capacity—or the lack thereof—may not be critical to some generators for any number of reasons, whether operational, financial, or contractual.[36]

NRIS, on the other hand, is an interconnection service that allows the generating facility to be integrated with the transmission provider's system "in a manner comparable to that in which the Transmission Provider integrates its generating facilities to serve native load customers."[37] A utility integrates its own generation resources to serve retail customers using firm network transmission service, a type of firm transmission service that is specifically designed to allow the utility to integrate, economically dispatch, and regulate its current and planned resources to serve load. Thus, NRIS was intended for generating facilities like QFs, which are intended for retail load service, and NRIS studies are tailored to this purpose.

Q. Why does a QF need to be eligible for firm network transmission service?

A. Aside from the practical fact that QFs are used to serve retail load, which counsels for obtaining firm network transmission service to manage delivery to that load, FERC has made clear that a QF's output must be delivered using firm transmission service, and that QF output cannot be curtailed except in system emergencies.

A. FIRM TRANSMISSION AND INTERCONNECTION SERVICE MUST BE USED TO DELIVER QF POWER

Q. What do you understand about what FERC has said about transmission arrangements for QF power?

[36] *See, e.g.,* Order No. 2003 at P767.
[37] Order No. 2003, Appendix C at 9 (*pro forma* LGIP) ("Network Resource Interconnection Service").

A. In 2013, FERC issued an order in *Pioneer Wind Park I, L.L.C.,* ("*Pioneer*"), that we understand clarified that PURPA requires a utility to deliver QF power on firm transmission, no matter where a QF sites it project.[38] As we will discuss below, this affects the obligations of two different customers of each utility's transmission provider: (1) the utility's merchant or load-service function, as the transmission customer who must obtain firm transmission service to deliver the directly-interconnected QF's power to load; and (2) the QF, as the interconnection customer who must obtain a level of interconnection service that was designed with the principal purpose of enabling that firm transmission service, i.e., NRIS.

Q. What do you know about the facts of the *Pioneer* case?

A. We understand the case involved a QF, Pioneer Wind Park I, L.L.C, (Pioneer), siting its project in a constrained area of PacifiCorp's Wyoming system. PacifiCorp's merchant function proposed to address this issue with a power purchase agreement (PPA) provision that stated that Pioneer would be curtailed ahead of other existing generators to the extent necessary to remain within PacifiCorp's merchant function's existing transmission rights until additional transfer capability was created through construction of additional transmission. Another way to describe it would be that PacifiCorp's merchant function proposed to use a "last-in, first-cut" approach when there was not enough firm transmission to deliver all of the existing generators plus the new QF.

Q. Did FERC agree with this approach?

A. No. While we are not lawyers, we understand that FERC found the PPA provision violated PURPA by proposing to curtail the QF as if it were a non-firm transmission service

[38] *Pioneer Wind Park I, LLC,* 145 FERC ¶ 61,215 (2013).

customer. FERC made it clear that, even under transmission-constrained circumstances, a utility's merchant or load-service function must make firm transmission service arrangements for QF power and only curtail the QF power if there are system emergency conditions.

Q. In other words, the delivery obligations associated with a QF's output are the type of delivery obligations for which NRIS was designed?

A. Yes.

Q. If a QF is permitted to obtain ERIS, how will that shift costs to retail customers?

A. If a QF has sited its project in an area where there is sufficient transmission capacity to deliver the QF's output to retail load, there may be little to no difference between the level of Network Upgrades that would be identified in an ER interconnection study and the incremental additional Network Upgrades that would otherwise have been identified in an NR interconnection study. In such instances, cost shifting would not be an issue.

If, on the other hand, a QF has sited its project in an area where there is little or no load available to sink additional generation,[39] or in an area where there are transmission constraints, ER interconnection studies would not identify the deliverability-driven Network Upgrades needed to allow the directly-interconnected QF's output to be delivered to load using firm transmission on the transmission provider's transmission system. Turning a blind eye to deliverability issues in the interconnection process, however, does not magically render the QF's power capable of firm delivery to load without the need for upgrades. It simply makes the deliverability issues caused by the QF's siting choice invisible until they are later identified in the utility's transmission service studies.

[39] For example, PacifiCorp's load pockets or PGE's Central Oregon transmission system.

Q. Please explain.

A. Separate from the interconnection process, the utility's merchant or load-service function will request firm transmission service from the transmission provider to allow the utility's merchant or load-service function to deliver the QF's output to retail load. In connection with that transmission service request, the transmission provider will conduct *transmission service studies* under the OATT to determine whether there is sufficient transmission capacity to grant the request. If the QF has sited its project in an area where deliverability issues prevent the QF's output from being delivered to load, those deliverability issues will *not* have been identified or addressed in the QF's interconnection studies or in its interconnection service agreement if the QF has been permitted to obtain ERIS. Instead, they will be identified in the utility's transmission service studies, at which point the utility and its retail customers will become responsible for resolving them.

Q. If the upgrades needed to enable firm delivery of QF power are identified in the utility's transmission service agreement rather than a QF's interconnection agreement, won't they simply be passed on to all transmission customers consistent with FERC policy?

A. Yes. Any transmission-driven Network Upgrades needed to accommodate a utility's request for firm transmission service would be rolled into the utility's transmission rate base and allocated to all transmission customers on the transmission provider's system. But we would reiterate two observations about this point: First, because the utility's merchant or load-service function is the primary user of the transmission system, these costs would primarily be borne by the utility's retail customers. Second, these costs would be caused by the QF and the QF's siting choice, and their pass-through to customers would be inconsistent with PURPA's customer indifference mandate.[40]

Q. The directly interconnected utility has an obligation under PURPA to make transmission arrangements from the point of delivery to retail load. Why isn't this the cost responsibility of the utility?

A. Again, shifting the costs caused by a QF's interconnection from the QF to the utility would violate PURPA's customer indifference principle and undermine the Commission's policy of encouraging the "economically efficient" development of QFs. Moreover, the assertion that Network Upgrade costs caused by the QF's interconnection can simply be shifted to utility customers through the transmission service request study process is unfounded. The Commission recently issued a decision making clear that a QF cannot unilaterally choose to inject its power at a constrained point on the utility's system in a manner that creates *transmission* driven costs for the utility and its customers. In the *Blue Marmot* case,[41] the Commission held that an off-system QF delivering its power from another utility's transmission system to a point of delivery on the purchasing utility's system cannot unilaterally choose to deliver its output to a constrained point of delivery where the utility will need to either upgrade its system or modify its use of its transmission system to accommodate the QF power. In this case, we are talking about *directly interconnected* QFs

[40] In instances where a QF sites in a PacifiCorp load pocket where there is insufficient load available to sink additional generation, the Commission has adopted a tool that can in some instances help mitigate QF-created deliverability costs by requiring a QF to purchase a firm, point-to-point transmission wheel on a third-party's system to move certain of its generation to load. *See In the Matter of Pub. Util. Comm'n of Oregon, Staff Investigation into Qualifying Facility Contracting and Pricing*, Docket UM 1610, Order No. 20-064 (March 3, 2020). This load-pocket-specific tool does not work in all circumstances, however, and post-interconnection tools that may be created to solve for deliverability issues are cumbersome, complex, and often ineffective. Thus, such tools provide no clear substitute for requiring a QF to obtain NRIS as a policy matter.

[41] *Blue Marmot V LLC v. Portland General Electric Co.*, Docket UM 1829, Order No. 19-322 (Sept. 30, 2019).

who are responsible for the costs of their *direct interconnection*. But if a directly interconnected QF were to site a project in a constrained area and force a utility to address the resulting transmission constraints on the *transmission* side, those transmission-driven Network Upgrades would be analogous to those at issue in *Blue Marmot.*

Q. FERC-jurisdictional generators (including utilities) are allowed to choose between ER and NR interconnection. Why should QFs be denied that choice?

A. FERC's policies for FERC-jurisdictional generators are governed by the FPA and do not face the limitation of customer indifference and the avoided cost rate. In contrast, the appropriate policies for QFs turn on the requirements imposed by PURPA and state regulatory policy, not the FPA, as the Joint Utilities' Regulatory Witnesses discuss.

Even aside from that foundational issue, there are some practical differences between FERC-jurisdictional generators and QFs that may also bear on this issue. First, as has already been discussed, FERC-jurisdictional generators do not necessarily operate like QFs. FERC-jurisdictional generators may need firm delivery, or they may not; they may be used for load service, or they may not; they may be economically curtailable, or they may not. This operational and financial flexibility does not exist for QF power, because of the nature of the obligations QFs place on utilities. Consequently, the studies associated with ERIS may be appropriately scoped for some FERC-jurisdictional generators.

Second, FERC-jurisdictional generators are often *both* the interconnection customer *and* the transmission customer with respect to the generator's output. Thus, if a FERC-jurisdictional generator intends to deliver its output on firm transmission, it can address the deliverability issues associated with the generator's location in one of two ways: by seeking NRIS, whereby deliverability issues are examined in the interconnection process; or by seeking ERIS and then examining deliverability issues in the transmission service study process. This unity of identity does not exist for directly interconnected QFs, where the QF makes its interconnection arrangements but passes the burden of making transmission arrangements onto the utility and its customers.

Q. Does this conclude your testimony?

A. Yes.

BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

DOCKET NO. UM 2032

Joint Utilities' Direct Testimony

Joint Utilities: PacifiCorp d/b/a Pacific Power, Portland General Electric Company, and Idaho Power Company

JOINT UTILITIES EXHIBIT 200

Joint Testimony of Michael G. Wilding, Robert Macfarlane, and Alison Williams

August 24, 2020

Table of Contents

Q. Please state your name, business address, and present position.

A. My name is Michael G. Wilding. My business address is 825 NE Multnomah Street, Suite 2000, Portland, Oregon 97232. My title is Director, Net Power Costs and Regulatory Policy at PacifiCorp d/b/a Pacific Power (PacifiCorp).

My name is Robert Macfarlane. My business address is 121 SW Salmon Street, 1 World Trade Center, Mailstop 1WTC0306, Portland, OR 97204. My title is Manager, Pricing and Tariffs at Portland General Electric Company (PGE).

My name is Alison Williams. My business address is 1221 West Idaho Street, Boise, Idaho. I am employed by Idaho Power Company (Idaho Power) as the Regulatory Policy and Strategy Advisor in the Regulatory Affairs Department.

I. QUALIFICATIONS

Q. Mr. Wilding, briefly describe your education and business experience.

A. I received a Master of Accounting from Weber State University and a Bachelor of Science degree in accounting from Utah State University and am a Certified Public Accountant licensed in the state of Utah. During my tenure at PacifiCorp, I have worked on various regulatory projects including general rate cases, the multi-state protocol, and net power cost filings. I have been employed by PacifiCorp since 2014.

Q. Have you testified in previous regulatory proceedings?

A. Yes. I have filed testimony in proceedings before the Public Utility Commission of Oregon (Commission), and the public utility commissions in California, Idaho, Utah, Washington, and Wyoming.

Q. Mr. Macfarlane, please describe your education and business experience.

A. I received a Bachelor of Arts degree in business from Portland State University with a focus in Finance. From 2004 to 2008, I was a consultant with Bates Private Capital in Lake Oswego, Oregon, where I developed, prepared, and reviewed financial analyses used in securities litigation. I joined PGE in 2008 and worked as an analyst and regulatory consultant in the Rates and Regulatory Affairs Department. In January 2018, I became Interim Manager, Pricing and Tariffs, and in September 2019, I assumed my current position as Manager, Pricing and Tariffs. My duties at PGE have included pricing, revenue requirement, and regulatory issues. I have been responsible for Public Utility Regulatory Policies Act of 1978 pricing and policy matters since 2010.

Q. Have you testified in previous regulatory proceedings?

A. Yes. I have filed testimony in numerous proceedings before the Commission, including UE 262, UE 283, UE 294, UE 319, UE 335, UM 1566, UM 1610, UM 1708, UM 1719, UM 1854, and UM 1931.

Q. Ms. Williams, please describe your education and business experience.

A. In June 2003, I received a Bachelor of Arts in Political Science at the University of California at Davis. In May 2009, I earned a Master of Public Policy degree with a concentration in energy and natural resource economics from the American University's School of Public Affairs in Washington, DC. In addition, I have attended the electric ratemaking courses The Basics: Practical Regulatory Training for the Electric Industry, offered through New Mexico State University's Center for Public Utilities, and the Edison Electric Institute's Electric Rates Advanced Course, hosted by the University of Wisconsin-Madison's Wisconsin Public Utility Institute.

I joined Idaho Power in December 2019. As the Regulatory Policy and Strategy Advisor, my primary responsibilities include providing regulatory support and strategic guidance to business units on a variety of topics, including integrated resource planning, distribution system planning, large customer pricing, green offerings, and energy and utility policy and legislation. Prior to joining Idaho Power, I served as the Senior Director of State Energy and Regulatory Policy at the Edison Electric Institute (EEI), the trade association for the nation's investor-owned electric utilities. Prior to EEI, I was the Vice President of the energy practice at Garten Rothkopf consulting, where I provided strategic and economic consulting to electric utilities and companies in energy-intensive industries. Additionally, I served as analyst at the U.S. Department of Energy, conducting energy system modeling to advise on Department policy and budget decisions.

II. PURPOSE AND SUMMARY OF TESTIMONY

Q. What is the purpose of your testimony?

A. Our testimony explains that the interconnection costs associated with a Qualifying Facility (QF) directly interconnecting with a utility's system in connection with a mandatory purchase obligation imposed by PURPA should be governed by the standards established by PURPA and state regulatory policy, and thus should be allocated to QFs. This includes the cost of Network Upgrades caused by the QF's interconnection, which are simply another component of interconnection costs. Current Commission policy is consistent with PURPA, state regulatory policy, and Oregon law.

Q. Are there other witnesses providing testimony in this docket?

A. Yes. Richard A. Vail, Kris Bremer, Shaun Foster, Sean Larson, and Jared Ellsworth (Joint Utilities' Transmission Witnesses) provide testimony explaining the Oregon interconnection landscape, the Commission's current cost-allocation policies for Network Upgrades, and the reason Network Resource Interconnection Service (NRIS) is the appropriate interconnection service for QFs.

Q. Please summarize your testimony.

A. As explained by the Joint Utilities' Transmission Witnesses, the Commission's current generator interconnection policies allocate to interconnecting generators the costs caused by their interconnection, including the costs of Network Upgrades.[1] The Commission's current policies are consistent with PURPA's requirement that a utility's retail customers should be indifferent to whether a utility purchases power from a QF or from some other source. Customer indifference requires a QF to pay for the interconnection costs caused by its interconnection, including Network Upgrades, to ensure retail customers pay no more than the avoided cost for QF power.

Even if PURPA did not impose on this Commission the obligation to ensure customers are held indifferent to the purchase of QF power, sound state regulatory policy and the discharge of the Commission's statutory duties would themselves require the allocation of interconnection-driven Network Upgrades to the interconnecting generators that cause them. The Commission has consistently allocated interconnection costs to interconnecting generators under Oregon state regulatory principles, and the Commission should apply the same rationale to QFs. Moreover, the Commission's current generator interconnection policies provide a critical financial incentive for QFs and other generators to site their projects in economically efficient locations, and thus are a critical element of customer protection. Finally, allocating QFs' interconnection-driven Network Upgrade costs to QFs, rather than utility customers, is consistent with the Commission's statutory

[1] As Joint Utilities' Transmission Witnesses explain, the Commission's QF Large Generator Interconnection Procedures (QF-LGIP) defines Network Upgrades as upgrades at or beyond the point of interconnection with a transmission provider's transmission system.

duty to ensure customer rates are just and reasonable.

III. CUSTOMER INDIFFERENCE UNDER PURPA

Q. Please describe the basic structure of PURPA.

A. PURPA directs the Federal Energy Regulation Commission (FERC) to promulgate regulations to promote energy purchases from cogeneration and certain small power production facilities, or QFs. States are tasked with implementing PURPA consistent with FERC's PURPA regulations. Our understanding is that states have discretion to implement various elements of PURPA consistent with state law and state regulatory policy, so long as the states exercise that discretion within boundaries established by FERC's PURPA regulations. PURPA and FERC's implementing regulations establish three major obligations for electric utilities: (1) to sell electric energy to QFs; (2) to purchase electric energy from QFs; and (3) to interconnect with QFs.[2]

Q. What is PURPA's customer indifference standard?

A. Although PURPA requires a utility to purchase QF power, a utility is not required to pay more than its avoided cost for that power; rather, PURPA requires that customers remain economically indifferent to the source of power the utility purchases by ensuring the cost to the utility associated with purchasing energy and capacity from a QF does not exceed the cost it would incur if it were purchasing from some other source. This "customer indifference" standard has been explicitly recognized by the Commission.[3]

Q. How does PURPA's customer indifference principle relate to a QF's interconnection

[2] *See* 18 C.F.R. § 292.301-314.
[3] *See, e.g.*, *Portland Gen. Elec. (PGE) vs Pacific Nw. Solar LLC,* Docket UM 1894, Order No. 18-025 at 7 (Jan 25, 2018) ("As we have stated, one critical feature of our implementation of PURPA, including (but not limited to) the terms and conditions of our regulated PURPA contracts, is the need to ensure that ratepayers remain financially indifferent to QF development.").

costs?

A. As Joint Utilities' Transmission Witnesses explain, the costs of interconnecting a QF generator can be extremely high. We understand that the Commission directs a purchasing utility to address the costs of QF interconnection as part of the generator interconnection process, rather than as an adjustment to the avoided cost rates the utility must pay for the QF's output.[4] In other words, to maintain customer indifference to the purchase of QF power, the QF is paid for energy and capacity through a QF power purchase agreement with the purchasing utility, but the QF pays for its interconnection costs separately, as part of the interconnection agreement with the utility's transmission provider. Assessing QF interconnection costs separately through the interconnection process allows for site-specific evaluation of interconnection costs and allows the transmission provider to give the QF detailed information about any cost barriers to development at that site.

As the Joint Utilities' Transmission Witnesses explain, the Commission's current policy requires QFs to interconnect with a level of interconnection service that accurately reflects their demands on the system, and to pay the costs caused by that interconnection. Under the Commission's current policy, a QF is required to pay the actual cost of its site-specific interconnection, thus ensuring that the utility's purchase of QF power is consistent with PURPA's customer indifference standard. This policy also encourages the economically efficient development of QFs.[5]

[4] *In the Matter of Pub. Util. Comm'n of Oregon Staff's Investigation Relating to Elec. Util. Purchases from Qualifying Facilities*, Docket UM 1129, Order No. 07-360 at 26-27, Appendix A at 4 (Aug. 20, 2007) ("The utility should not adjust avoided cost rates for any distribution or transmission system upgrades needed to accept QF power. Such costs should be separately charged [to the generator] as part of the interconnection process.").

[5] Order No. 18-025 at 4 ("In implementing PURPA, we have, on a number of occasions, reaffirmed our intention 'to encourage the economically efficient development' of QFs, 'while protecting ratepayers by ensuring that utilities pay rates equal to that which they would have incurred in lieu of purchasing QF

IV. PURPA AND STATE REGULATORY POLICIES SHOULD INFORM THE COMMISSION'S PURPA INTERCONNECTION POLICIES

Q. QFs have argued that FERC's standard generator interconnection cost-allocation policies promulgated pursuant to the Federal Power Act should apply to state-jurisdictional QFs in Oregon. Do you agree?

A. No. Our understanding is that the interconnection costs at issue in this docket are subject to this Commission's jurisdiction, not FERC's. The Commission must therefore exercise its authority consistent with the law underlying that authority. In this case, federal PURPA regulations and state regulatory policy, not the Federal Power Act (FPA), define the scope of the Commission's authority with respect to QF interconnection costs. Moreover, our understanding is that FERC's interconnection rules do not address the priorities or requirements of PURPA and therefore should not be adopted for QF interconnections.

Q. Are QFs and non-QF generators similarly situated?

A. No. FERC's generator interconnection policies were developed with competitive third-party generators, such as competitive independent power producers (IPP), in mind, not QFs.[6] This is appropriate, because QFs enjoy benefits that competitive independent power producers (IPP), do not. For example, a QF does not need to find a willing purchaser for its power; it can force a utility of its choosing to purchase its full output under PURPA,

---

power.'") (citing *In re Pub. Util. Comm'n of Oregon, Investigation Relating to Elec. Util. Purchases from Qualifying Facilities*, Docket UM 1129, Order No. 06-538 at 8 (Sept. 20, 2006) (citing Docket UM 1129, Order No. 05-584 at 1 (May 13, 2005) and *In the Matter of the Investigation into Elec. Util. Tariffs for Cogeneration and Small Power Production Facilities*, Docket No. R-58, Order No. 81-319 at 3 (May 6, 1981)).

[6] It is our understanding that FERC's standard generator interconnection policies, which were adopted in FERC Orders 2003 and 2006, do not apply to state-jurisdictional QFs. *See, e.g., Standardization of Small Generator Interconnection Agreements and Procedures*, 104 FERC ¶ 61,103 at P814 (pro forma LGIP) (July 24, 2003) (Order No. 2003), 111 FERC ¶ 61,220 at PP516-518 (May 12, 2005) (Order No. 2006), *order on reh'g*, Order No. 2006-A.

whether the utility needs (or wants) the power or not. No competitive IPP generator enjoys this benefit. Under PURPA, a QF can obtain the right to a state-established price for its power before a contract is executed, a benefit no competitive IPP generator enjoys. Moreover, a directly interconnected QF can site its project at any location within a utility's service territory and insist that a utility purchase its full output, something a competitive IPP generator cannot. In short, QFs and competitive IPP generators are not similarly situated.

Q. What do FERC's PURPA regulations say about QF interconnection costs?

A. As Joint Utilities' Transmission Witnesses explain, FERC has promulgated PURPA-specific interconnection regulations applicable to directly interconnected QFs. These regulations would seem to be the FERC authority relevant to the Commission's policy decisions in this docket. FERC's PURPA interconnection regulations make clear that state commissions have jurisdiction to address the interconnection costs of directly interconnected QFs, including the cost of Network Upgrades, and presume those interconnection costs will be allocated to QFs—not to retail customers.[7]

Q. You have explained that PURPA's customer indifference standard requires a QF to bear its own interconnection costs. Are there other reasons a QF should be required to bear its own interconnection costs?

A. Yes. Even without PURPA's customer indifference mandate, Oregon state regulatory policy would require QFs to pay for their own interconnection costs, including their interconnection-driven Network Upgrade costs.

[7] For example, those regulations presume that the QF will repay a *utility* for any costs of Network Upgrades, not the other way around. 18 C.F.R. § 292.306. *See also* Joint Utilities/100, Vail-Bremer-Foster-Larson-Ellsworth/27-28.

Q. Please explain.

A. Division 82 of the Commission's administrative rules reflects the Commission's state regulatory policies for interconnecting small QF and non-QF generators alike.[8] These rules were promulgated with state regulatory policy in mind and have no PURPA-specific carve outs for QF generators. These rules uniformly allocate all interconnection costs to the generator that causes them.[9]

Indeed, state regulatory policy consistently favors allocating cost responsibility based on cost-causation. This policy is especially critical for generator interconnection because, as Joint Utilities' Transmission Witnesses explain, the interconnection costs driven by an interconnecting generator depend largely on where the generator sites its project. Requiring a generator to pay for its interconnection costs thus serves two purposes: (1) it ensures that costs are allocated consistent with principles of cost-causation, and (2) it disincentivizes generators from siting projects in locations where interconnection costs are particularly expensive or inefficient.

Q. Is there a reason to treat QFs differently from state-jurisdictional generators with respect to generator interconnection costs?

A. No. As we noted, Division 82 of the Commission's administrative rules addresses all small generator interconnections subject to state jurisdiction and—appropriately—treats them

[8] OAR 860-082-0005 *et. seq.*

[9] This includes allocation of upgrades that are the functional equivalent of "Network Upgrades" to QFs. While Division 82 interconnection rules do not explicitly use the term "Network Upgrades" but instead use the term "System Upgrades," as the Joint Utilities' Transmission Witnesses explain, the Commission's Division 82 interconnection rules nevertheless allocate all interconnection-driven costs to the generator that causes them, including the functional equivalent of Network Upgrades (that is, upgrades to the utility's transmission system at or beyond the point of interconnection). The issue of whether a small QF should be required to obtain ER or NR interconnection service was not explicitly litigated in AR 521, the docket adopting the Commission's Division 82 interconnection rules.

similarly, whether the generator is a QF or not. Specifically, under Division 82, all costs caused by generator interconnections are allocated to the generator that causes them. The same policy is carried over into the Commission's QF-specific large generator interconnection policies, as reflected in the Commission's QF Large Generator Interconnection Procedures (QF-LGIP) and QF Large Generator Interconnection Agreements (QF-LGIA), with only minor differences.[10]

This uniform allocation of interconnection costs to the generator is appropriate. We are aware of no policy rationale—under either state law or PURPA—that would support allocating *QF* interconnection costs to *retail customers*, while requiring a non-QF to pay for its own interconnection costs. To the contrary, special treatment of QFs vis-à-vis other state-jurisdictional generators would not only be inconsistent with state regulatory cost-allocation policy, but also would run afoul of PURPA's customer indifference standard, as noted above.

Q. You noted that the QF-LGIP and QF-LGIA reflect the same interconnection cost-allocation policies as the Commission's small generator rules, with only minor differences. What are those differences?

A. Our understanding is that the Commission's cost-allocation policies for large QFs, like the Commission's policies for small generators, allocate interconnection costs to the generator that causes them. The Commission has nevertheless held that a large QF may be reimbursed for some portion of its Network Upgrade costs if the QF can demonstrate that the Network Upgrades caused by its interconnection provide "quantifiable system-wide

[10] *See In the Matter of Pub. Util. Comm'n of Oregon Investigation into Interconnection of PURPA Qualifying Facilities with Nameplate Capacity Larger than 20 Megawatts to a Pub. Util.'s Transmission or Distribution System,* Docket UM 1401, Order No. 10-132 (Apr. 7, 2010).

benefits."[11]

Q. What are "system benefits," as used in this context?

A. To our knowledge, the Commission has not provided explicit guidance on this term. However, because PURPA prohibits customers from paying for Network Upgrades that would make the overall cost of QF power exceed avoided cost, any state regulatory definition of "system-wide benefits" that provides for QF reimbursement must ensure that the overall cost of QF power does not exceed avoided cost, even with that reimbursement. Thus, we understand the Commission to have established essentially a "but-for" standard, consistent with PURPA's customer indifference principle. That is, the QF would be responsible for the costs associated with all system upgrades that would not have been incurred by the utility and its customers "but-for" the QF's interconnection request.

Q. Why shouldn't the Commission adopt FERC's definition of "system benefits"?

A. Our understanding is that FERC's definition of "system benefits" turns on its interpretation of the FPA, which is concerned with wholesale markets, rather than retail customers. As we explained previously, this Commission's duty in implementing state PURPA policy is to effectuate the goals of PURPA and state law, not the goals of the FPA.

Q. Are there other state regulatory principles applicable to the appropriate allocation of QF interconnection costs?

A. Yes. The Commission has a statutory obligation to ensure appropriate utility planning and investment, and to review the costs of utility service within the sphere of its regulatory authority to ensure that customer rates are just and reasonable.[12] If the Commission exempts a QF from the responsibility to pay for its interconnection-driven Network

[11] Order No. 10-132 at 3.
[12] ORS 757.210.

Upgrades, the Commission will not be discharging this duty. As we have explained, under PURPA, interconnection costs for directly interconnected QFs fall squarely within the scope of utility costs this Commission is required to scrutinize to ensure they comply with the law and that customer rates remain just and reasonable. They are the Commission's responsibility, not FERC's.

As the Joint Utilities' Transmission Witnesses explain, if QFs are simply exempted from the requirement to pay for the Network Upgrade costs caused by their interconnection, those costs will be passed through to retail customer rates. Those costs would then be deemed eligible for retail rate recovery—as they must be[13]—and ultimately passed through to customers. For multi-state utilities, like PacifiCorp and Idaho Power, a change in Oregon state policy that shifts potentially significant costs onto retail customers could also result in the situs assignment of those shifted costs, which could create a significant adverse rate impact for Oregon customers.

The interconnection-driven Network Upgrades caused by a single QF can cost tens of millions of dollars or more.[14] Given the potential significance of these costs, along with the ever-changing state of the transmission grid, the ultimate rate impact of policies exempting QFs from interconnection cost responsibility is unknown, but almost certainly significant. If the Commission were to adopt QF interconnection policies that pass QF interconnection costs—the magnitude of which turn on the QF's siting decision—through to retail customers, the Commission would not be discharging its duty to ensure customer

[13] The Commission noted in Order No. 05-584, that a utility's lack of discretion in signing PURPA QF contracts favors the likelihood of the contracts being deemed prudent. Similarly, if utilities were to be required by Commission policies to bear the costs of QF interconnection, such cost would also presumably be found prudent. Order No. 05-584 at 56.
[14] Joint Utilities/100, Vail-Bremer-Foster-Larson-Ellsworth/19.

rates remain just and reasonable (especially if the pass-through occurs sight-unseen).

Ultimately, a utility's obligations under PURPA should not be understood to upend the utility's responsibility to prudently plan for and invest in cost-effective transmission and distribution system upgrades, or the Commission's responsibility to ensure that the rates customers pay are fair, just, and reasonable. Allowing QFs to drive potentially massive amounts of Network Upgrade costs into customer rates without limitation or review is inconsistent with the Commission's statutory duties.

Q. How do you respond to allegations that the Commission's interconnection cost allocation policies create a barrier to QF development?

A. To the extent there is a barrier to generator interconnections, that barrier is the actual cost of interconnection in a given location. As Joint Utilities' Transmission Witnesses explain, the actual cost of upgrading a utility's system to accommodate a new generator interconnection can be very expensive in some geographic areas, particularly when 100 percent of that generator's output must be taken and delivered to retail load, as is the case for QFs. The actual barrier to interconnection would appear to be the cost of engineering and safety measures needed to interconnect such a generator at a particular location on the utility's system—not the utilities' actions, and not the Commission's policies. Thus, the size of that barrier turns largely on the QF's siting decision.

Fundamentally, the fact that interconnection costs can be incredibly expensive in a given location does not justify throwing out the Commission's interconnection cost-allocation policies, which are firmly grounded in PURPA and state policy. It counsels for careful siting by generators and robust retail customer protections by the Commission.

Q. But doesn't PURPA require state commissions to "encourage" QF development?

A. Our understanding is that PURPA requires state commissions to encourage QF development within the bounds of customer indifference and the avoided cost rate. The Commission's existing policies achieve these goals. Removing a QF's responsibility for its own interconnection costs would encourage QF development at the expense of customer indifference, encourage inefficient utility system investment, and undermine the goal of the economically efficient development of QFs.

Ultimately, it is illogical to suggest that the Commission should adopt policies that contravene both PURPA and state law in order to drive QF development.

Q Does this conclude your testimony?

A. Yes.