

Charger and Program Requirements Workshop

July 12, 2022



PGE's transportation electrification portfolio remains under development and discussion and is subject to change

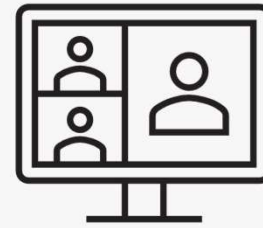
Details at portlandgeneral.com/TEP



Meeting Logistics

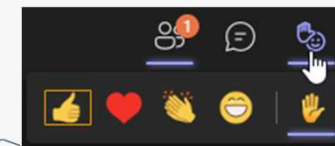
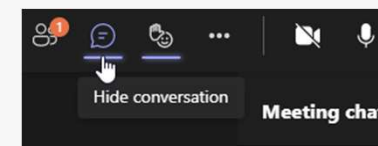
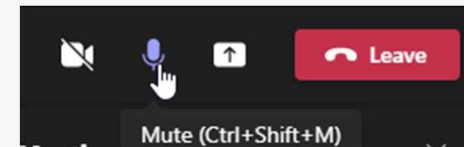
Teams Meeting

- Please click the meeting link sent to your email or [Click here to join the meeting](#)
 - +1 971-277-2317 (dial this number into your phone for best results)
 - Phone Conference ID: 383 041 413#
 - Please use **Microsoft Edge** or **Google Chrome** with Teams as it will give you the best experience



During the presentation:

- All attendees will be muted; to unmute yourself via computer, click on the microphone that appears on the screen when you move your mouse
- To unmute yourself over the phone, **press *6**
- If you call in using your phone in addition to joining via the online link, please make sure to **mute your computer audio**
- Use the chat feature to share your comments and questions.
- Raise your hand icon to let us know you have a question



Operating Agreements

Establishing norms with our communities is foundational to building trust.

To create a **safe space**, we establish **common agreements** such as **respect** and **inclusivity**.

Practice curiosity and **seek to understand different perspectives**.

Stay Engaged

Experience Discomfort

Speak your Truth
(knowing it's only part of the truth)

Expect and Accept Non-closure

Share the Airtime. Step up, Step back.



[The courageous conversations framework](#)
By Glenn Singleton and Curtis Linton

Today's discussion

- PGE is currently working through issues stakeholders raised in the June workshop, including load forecasts and balance of costs and benefits
- Our goal today is to discuss key charger standards and program requirements to inform program design decisions
- Reflects current state of our thinking; not final and not making decisions today
- Today's discussion deals with semi-technical topics but everyone is welcome - please feel free to ask questions and we will make sure they are answered

Agenda

- Utility incentivized and customer owned chargers (1:00-2:15)
- Utility owned and operated chargers (2:15-3:00)
- Remaining discussion if needed (3:00 - 3:30)



Issues for Discussion Today

Utility-Incentivized EVSE (Customer-Owned)

- Existing prequalification process
- Uptime and reliability
- Pricing for EV drivers
- Payment methods
- DCFC power ratings

Utility-Owned and Operated EVSE

- Existing procurement process
- Uptime and reliability
- Pricing for EV drivers
- Payment methods
- DCFC power ratings



Utility Incentivized & Customer Owned Chargers



**Utility Incentivized
& Customer Owned**

Existing prequalification process

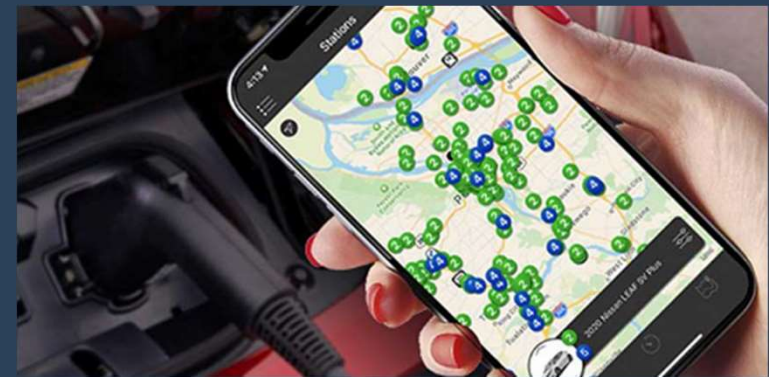
- PGE manages a prequalification process for existing programs
- Software vendors apply with comprehensive hardware/software packages for inclusion on the list; once approved, they sign a data sharing agreement
- Customers select their vendor and hardware from the qualified list

Category	Select requirements of EVSE pre-qualification
Connectivity	Cellular connection, 4G or better
Interoperability	Compliant with OCCP v1.6 or later "Core" profile, and remotely upgradeable to support future versions of OCPP
Capable of Managed Charging	Responsive to grid services modifying station power output levels
	Certified OpenADR 2.0b Virtual End Node (VEN), or the ability to provide Application Programming Interface (API) to support DR requirements, or compliant with IEEE 2030.5 (SEP 2.0)
Data Reporting	Commitment to monthly data reporting of charging session details (kWh, max kW, transaction amount, payment method, session duration, vehicle make/model, etc.) and EVSE uptime

Charger uptime and reliability

*Utility Incentivized
& Customer Owned*

- Reliable charging is essential, but EVSE continues to be challenging, maturing equipment
- PGE already requires:
 - Charger owner to **keep the charger operational** for 10 years or utility may claw back incentive; and
 - Software vendor to **report uptime** (percentage of month charger was plugged in/available).
- Questions about potential additional requirement for specific uptime percentage:
 - Appropriate enforcement mechanism if required uptime is not reached?
 - Enforced against charger owner or hardware/software vendor? Why?
 - Impact on owner experience and willingness to participate in utility program (particularly for small business)



Price to charge for EV drivers

*Utility Incentivized
& Customer Owned*

- Utility capital investment (make-ready) or charger rebate helps overcome market barriers to support EV charging deployment
- Customer remains responsible for some charger costs, installation costs, energy costs, software/data fees, charger maintenance
- Customers who own EV chargers will be able to set access to those chargers according to their business needs (within the limitations of the law), and set pricing accordingly as well



Payment methods

- No specific payment method requirements planned for workplace, multifamily, fleet
- As an owner/operator, PGE has some experience with the strengths and weaknesses of different payment methods
- For chargers intended for public use, looking to West Coast payment method requirements for guidance
 - California
 - Requires EMV chip readers *and* a mobile payment device (typically NFC - "tap to pay")
 - For public DCFC today, and for public L2 starting July 1, 2023
 - Washington
 - Draft rules require EMV chip readers *and* a mobile payment device *and* a 1-800 phone number
 - For public DCFC and public L2 starting January 1, 2024
 - PGE is interested to learn stakeholders' thoughts on these comparable requirements



DCFC power ratings

- Received many comments asking that PGE not set a requirement for the power level for DCFC
- Not planning to require minimum EVSE power level for customer-owned DCFC
- Proposed business charging rebate amount is set per kW, incentivizing installing larger chargers that will be 'future proof' as larger vehicles arrive



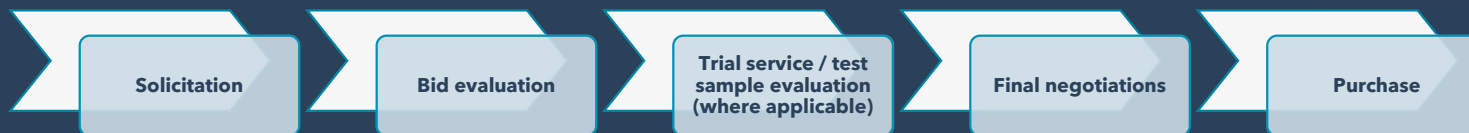
Utility Owned Chargers



EVSE Procurement

*Utility Owned and
Operated*

- For utility owned and operated chargers, PGE **already conducts a competitive bidding process** that includes quantitative scoring evaluation of technical criteria and pricing
- Includes predicted reliability score based on vendor's manufacturing and quality assurance practices
- EVSE technical requirements developed specific to each charging deployment project/program (includes many use cases such as workplace, fleet, public)
- Typical process:



Uptime and reliability

- EVSE is complex and time consuming to maintain as technology continues to mature
- PGE expects maintenance costs to decrease as technology evolves
- PGE proposes to track and report on four key metrics:
 - Conformance
 - Equipment uptime
 - First pass charge rate
 - Service tickets
- Reliability requires strong engagement between operator and vendor

*Utility Owned and
Operated*



Uptime and reliability

**Utility Owned and
Operated**

Metric	Calculation	Draft Target	Resolution & Time Step
Conformance*	N/A	100%	Assessed at receipt or commissioning
Uptime**	(hours in month - hours unavailable) / hours in month)	>98%	Per EVSE per month
First pass charge rate***	1 - (unsuccessful charges / total charges)	>93%	Per EVSE per month
Maintenance tickets	N/A	<3 tickets	Per EVSE per month

Metrics above under consideration; not finalized

*Equipment arrives in form and function expected

**Uptime exclusions could include:

1. Electrical / communications outage
2. Vandalism
3. Force majeure

***First pass charge rate not available for all equipment / network service providers

Pricing for EV drivers

- OPUC-approved tariff pricing at PGE-owned retail charging locations (Schedule 50)
- Schedule 50 is designed to prioritize:
 - Equitable pricing
 - Grid-friendly charging
 - Simplicity for users
- PGE plans to update Schedule 50 next year; open to feedback that helps ensure the tariff reflects these priorities
- In practice, subscription option approximates parity with cost of charging at home on residential rate
- PGE plans for PGE owned and maintained public charging (such as through proposed municipal charging collaboration) to be priced according to Schedule 50

RATE

EV Users requesting service under this schedule may choose between a point-of-sale option, pre-pay, or a monthly subscription. EV Users may purchase a monthly subscription. Pricing is as follows:

	Flat Fee (all hours)*	On-Peak Charging Price
Direct Current Fast Charger	\$5.00 per Session	Flat fee + \$0.19 per kWh
Level 2 Charger	\$3.00 per Session	Flat fee + \$0.19 per kWh
Monthly Membership		
Single Purchase	\$25.00 per month	\$0.19 per kWh
Multiple Purchase**	\$20.00 per month	\$0.19 per kWh

* The flat fee is also the total charge during the Off-Peak period.

** Monthly memberships may be purchased at a discounted price of \$20 per month when buying at least 50 memberships at once.

The monthly membership subscription replaces the pay per-Session flat fees, but does not include the peak-time price.

Payment under this schedule may be made through a current PGE bill if the EV User has selected the monthly membership option and is a current Customer. If an EV User has selected the per-Session option, payment will be made via credit card or other applicable payment method at the PGE charging Station.

Off-Peak – refers to all other hours outside of the On-Peak period.

On-Peak – refers to the hours of 3 PM to 8 PM on weekdays, excluding holidays.

Payment methods

**Utility Owned and
Operated**

- Payment processing presents industry-wide challenges
- Requires flexibility as not all installation types can support all payment methods; still need to pilot applications
- Continuing to track regulations in other West Coast states



DCFC power ratings

- PGE owns and operates DC fast charging equipment capable of 50 - 450 kW of output.
 - Almost all PGE-owned public charging infrastructure has 50 kW maximum output
 - Large shift in last two years towards faster infrastructure and vehicle charging rates
- DCFC power ratings evolving - federal National Electric Vehicle Infrastructure Formula Program required 150kw chargers
- Beginning with its 2023-2025 TE Plan, PGE plans to require a 150 kW minimum CCS connector on all PGE-owned public DCFC and ensure backwards compatibility for older vehicles.

*"If you plug an extended range battery pack [Ford F-150] Lightning into a 50 kW DC fast charger, it will take you **over two hours** (122 minutes) to go from 15% to 80%."*

<https://insideevs.com/news/560152/charging-ford-f150-lightning-explained/>

Questions? Comments?

-Comments continue to be welcome at TEP@PGN.com

Next Steps:

- Incorporate feedback from today's workshop
- August 4th Workshop – Key Elements of Draft Plan

Contact information

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Transportation
Transportation
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Electrification

