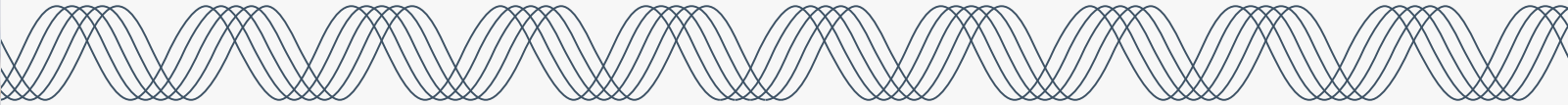




Learning Lab Series

Learning Lab # 7 - July 27, 2023



Meeting Logistics



Audio



Microphone



Chat box



Video



Raise Hand



Closed Caption

Operating Agreements



Establishing norms with our communities is foundational to building trust

To create a **safe space**, we established **common agreements** such as **respect, honoring diversity of thought**, and **inclusivity**

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

**Stay
Engaged**

**Be Willing To
Experience
Discomfort**

**Speak Your
Truth**

**Expect and
Accept Non-
closure**

**Share the
Airtime**



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

Meeting Objectives

Learn about Flexible Load and its intersection with customers and markets

Host a conversation about Community-Based Renewable Energy Projects

Share timelines and next steps

Agenda

10:00 - 10:05 Welcome, Introductions, Meeting Logistics

10:05 - 10:20 Flexible Load Multi-Year Plan Update

10:20 - 10:40 Flexible Load Customer Journeys

10:40 - 11:10 NEEA Proposal for Flex Load Market Transformation

11:10 - 11:15 *Break*

11:15 - 11:55 Acquisition/Purchase of Community-Based Renewable Energy Projects

11:55 - 12:00 Closing Remarks & Next Steps

Flex Load Multi-Year Plan Update

Kati Harper, PGE

Learning Lab | July 27, 2023



Objectives

What is the Flex Load Multi-Year Plan (MYP)

(Learning Lab 6/15/23 | Flex Load 101 [video](#), [ppt](#))

Why do we file an update on two-year basis

Inform stakeholders on update to the 2023 MYP filing

Flexible Load Multi-Year Plan

Purpose

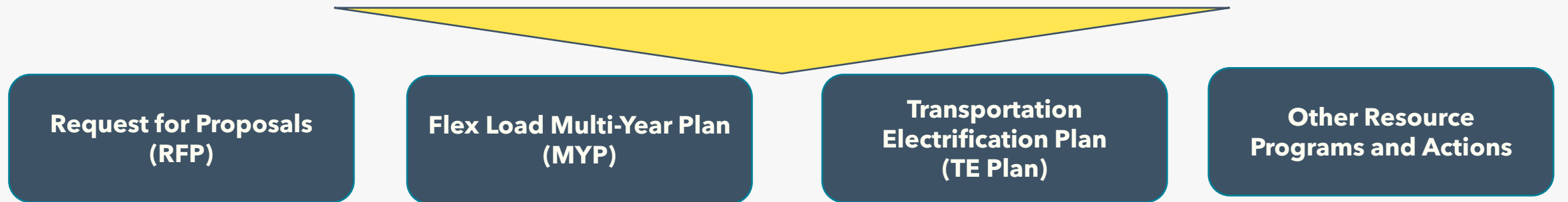
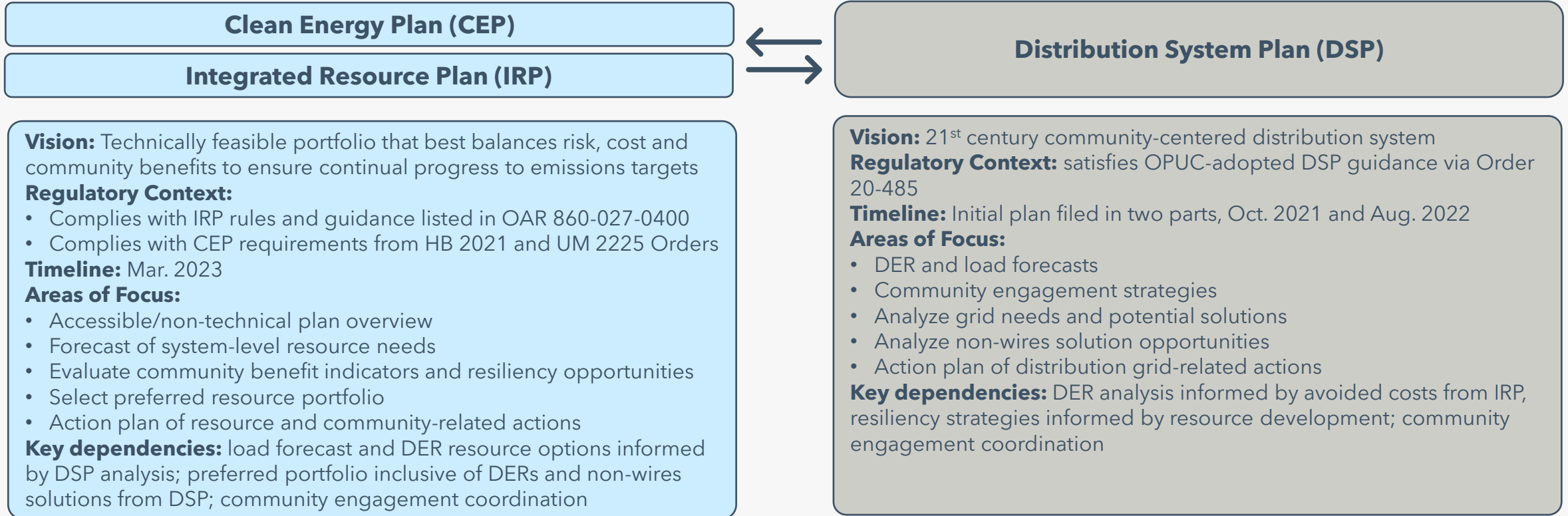
1. Provide comprehensive view of Flex Load activities in **context** of regional work, stakeholder engagement, and PGE's decarbonization strategy
2. Regular **reporting** of activities annual MW acquisition, and associated budget forecasts
3. Demonstrate pilot-to-program **progress**, resource development, and proposed changes to practices
4. Propose and seek **approval** for new pilots
5. **Inform** regarding new demonstrations with potential to move to pilot

Flexible Load Multi-Year Plan

History of Filings (UM 2141)

- 2020 Established the [Flex Load Plan](#)
- 2021 Inaugural Flex Load Multi-Year Plan (MYP) for 2022-2023
- 2023 Second Flex Load MYP for 2024-2025 (filing due)

Relationship to CEP, IRP, & DSP



Next Steps

Per request from Commission Staff, PGE will

Defer the 2023 filing date to next year by filing a motion to modify the 2021 Multi-Year Plan (MYP) Decision

Coordinate with Commission Staff on approval and authorization of 2024 so PGE may continue the necessary activity to procure Flex Load MW pursuant to IRP goals

Leverage future meetings to inform our activities, as well as to revise and adjust the current format of the MYP into a shorter more approachable filing

Questions/ Comments





Flex Load Customer Journey

Binh Lu, PGE

Learning Lab | July 27, 2023



Level Setting - Key Concepts

Flexible Load is a concept where customers modify their energy usage in response to grid needs. It provides an alternative to traditional power plants and is key to meeting PGE's decarbonization goals.

Virtual Power Plant is a power plant, consisting of Distributed Energy Resources (DERs) and Flexible Loads, orchestrated through a technology platform, to provide grid and power operations services.

A **Customer Journey** is "the series of connected experiences that customers desire and need [...], whether that be completing a desired task or traversing the end-to-end journey from prospect to customer to loyal advocate" (Gartner).

The **Customer Journey is key to developing Flexible Load because**, in contrast to traditional utility resources like power plants, **customers must acquire and participate** for the resource to be successful.

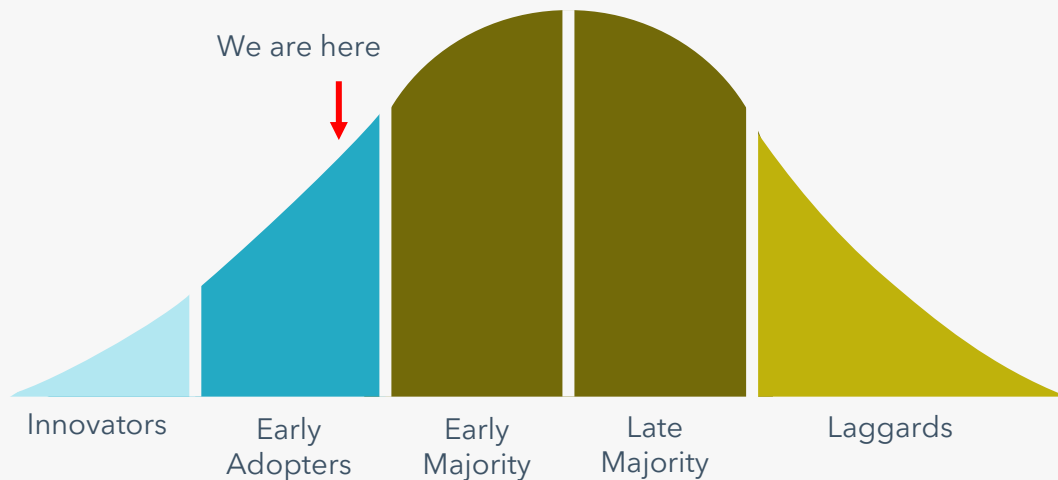
Objectives

Present our proposal to improve the Flexible Load Customer Journey

Gather input on our proposed improvements

Moving Beyond Innovators & Early Adopters

Adoption curve



Research to understand the majority's needs



2020-2022
 Explore Concepts
 High-level Research
 Stakeholder Engagement



2021-2022
 Customer Conversations
 Focus Groups in Environmental
 Justice Communities



2022-2023
 Customer-Interface Designs
 Iteration & Development

Problem Statement

How customers **learn, acquire, install**, and **enroll** grid-enabled devices is confusing and overwhelming, with various friction points that prevent them from taking part in the clean energy future.

Empower Customers to Enable Flex Load

Stakeholders recommend

- Clear info that is “relevant to me” so customers can make informed purchasing decisions
- Provide various options / price levels and tips to save money
- Ways to get information fast to save time
- Integrated solutions to optimize across products and services

Design Principles

for the Flex Load Customer Journey



Educational / Broadly Used

- Clear & straightforward communications
- Communications tailored to deliver outcomes for different types of customers and housing
- Transparent options & upfront expectations
- Simple & accessible customer journey
- Communicate in their preferred language



Efficient / Empowered

- Customer journey that is easy to navigate
- Cost info to eliminate guess work and allow customers to budget for purchases
- Info about financing options from a community partner
- Holistic solution



Capabilities from within the Community

- Connect customers with local installers
- Incorporate incentives or rebates upfront, where available
- Local credit union to qualify customers for financing

Solution

Provide tailored information to meet the customer's needs.

Customer Education & Empowerment

Residential EV Charging + Panel Upgrades Example



Customer Education & Empowerment

Residential EV Charging + Panel Upgrades Example

UPFRONT EXPECTATIONS

How it works

- 1 Tell us about your home
- 2 Program enrollment & instant rebates
- 3 Contractor gets you a quote



Sample, not real video

Information will be provided in both English and Spanish
(Future state: expand into other languages)

Short videos will be provided for customers that are auditory or visual learners
(Closed captions and subtitles will be used)

Customer Education & Empowerment

Residential EV Charging + Panel Upgrades Example

MY NEEDS

Choose your service

Let's get you started...



I need to get a charger and installation services.

I need a charger



I already have a qualifying charger, but I need installation services.

I have a charger

Information will be tailored depending on the type of service the customer needs

Customer Education & Empowerment

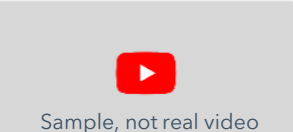
Residential EV Charging + Panel Upgrades Example

RELEVANT TO ME

Determine a relevant solution

Where is your main electrical breaker panel located? [Learn more](#)

Check out the video for tips on how to locate your panel.



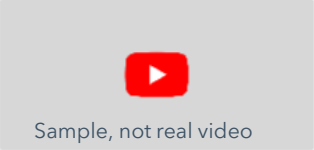
Sample, not real video

Attached garage Basement

Inside the home (Closet, hallway, etc.) Outside the home (Ex. Driveway)

Please select the distance from your panel to where you would like the charger installed in your garage. [Learn more](#)

Chargers installed within 5ft of the panel are typically the least costly. If that's not possible, mounting the conduit from the panel to the charger on the surface of the wall helps keep costs down. Consider where you park, and if you can get an extended length charging cable to help keep installation costs low. Check out the video and tool tips for more info on how to choose an installation location




Sample, not real video

I'd prefer for the installer to make a recommendation


Product Recommendations

These chargers qualify for PGE's Smart Charging Program.



Product Name
Sold by {name_of_seller}
\$0,000.000

Select



Product Name
Sold by {name_of_seller}
\$0,000.000

Select

Only ask required questions to get to the most relevant solution (Similar to what an installer would ask)

Provide educational videos/content to support more complex or technical decision points

If customers are not sure or comfortable, give them options to talk to an installer

Customer Education & Empowerment

Residential EV Charging + Panel Upgrades

Help customers determine which program/rebates they qualify for

Auto-qualify Income Qualified Bill Discount (IQBD) customers for low-income eligible rebates. Enroll them in IQBD if not already enrolled

Multiple opportunities to understand program enrollment and associated rebates

PROGRAM ENROLLMENT

Demystifying program enrollment

Would you like to check if you meet the income eligibility criteria?

If you do meet the criteria, the rebate applied to your charger would be up to \$1,000 and if you need a panel upgrade that rebate would be up to \$5,000.

Click [here](#) for more details.

Yes Maybe later

Household Size: 2 | Gross Annual Household Income: \$80,000

I confirm this is my gross annual income.

[Learn about gross annual income](#)

PGE EV Smart Charging Program

When you receive a rebate on your EV charger, you're automatically enrolled in the PGE EV Smart Charging Program. It's easy to earn rewards while doing good for the environment and helping us build a more efficient and resilient grid. So, how does it work?

Your charger will automatically shift its charging schedule away from peak times when energy use is high and renewable resources are more scarce. We call these Smart Charging Events.

During these events, your charger will pause your vehicle charging. It will start again once the event is over. You can opt out of any event via your charging app.

When you participate, you can earn a \$25 credit on your bill at the end of a Smart Charging season (October to March and April to September).

You'll be randomly assigned to one of two groups, which have different Smart Charging Event hours.

Do you have WiFi in the area where you want the charger installed, and are you willing to connect your charger to WiFi? [Learn more](#)

Yes No

Congratulations!

You're eligible for X rebate!

Based on your responses, you meet the income eligibility criteria. You are eligible for up to \$1000 for the charger and up to \$5,000 if you need a panel upgrade, if you enroll in the Smart Charging program.

Customer Education & Empowerment

Residential EV Charging + Panel Upgrades

Educate on installation cost considerations

Installation cost information vetted by local installers

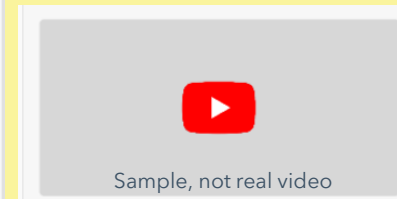
Give customers confidence when talking to an installer

AFFORDABILITY GUIDANCE

Promoting the most affordable installations

Please select the distance from your panel to where you would like the charger installed in your garage. [Learn more](#)

Chargers installed within 5ft of the panel are typically the least costly. If that's not possible, mounting the conduit from the panel to the charger on the surface of the wall helps keep costs down. Consider where you park, and if you can get an extended length charging cable to help keep installation costs low. Check out the video and tool tips for more info on how to choose an installation location



Customer Education & Empowerment

Residential EV Charging + Panel Upgrades

Options on how program enrollment/rebates can change upfront costs

Provide price ranges for standard installations

Education regarding applicable tax credits

(Customers will be advised to speak to their personal tax accountant for their specific taxes)

COST ESTIMATION

Costs are estimated before talking to an installer

Products to be installed

{Product_name} \$750.00

Est. installation cost

Labor, permits, materials, admin fee \$1,400 - \$1,500

Approximate cost before rebates \$2,150.00 - \$2,250.00

Numbers are for visualization purposes only.

Rebates

Level 2 EV Rebate **-\$1,000.00**

Programs

Smart Charging Program **Enrolled**

[See details and enrollment options](#)

Approximate cost **\$1,150.00 - \$1,250.00**

Tax credit

[Learn more](#)

TBD

TBD


Customer Education & Empowerment

Residential EV Charging + Panel Upgrades

UPFRONT EXPECTATIONS MY NEEDS RELEVANT TO ME PROGRAM ENROLLMENT AFFORDABILITY GUIDANCE COST ESTIMATION

How it works

- 1 Tell us about your home
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Choose your service

Let's get you started...

I need to get a charger and installation services.

I need a charger

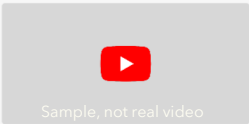
I already have a qualifying charger, but I need installation services.

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Determine a relevant solution

Where is your main electrical breaker panel located? [Learn more](#)

Check out the video for tips on how to locate your panel.



Sample, not real video

Attached garage Basement

Inside the home (Closet, hallway, etc.) Outside the home (Ex. Driveway)

? Other

Not sure Other

Demystifying program enrollment

Do you have WiFi in the area where you want the charger installed, and are you willing to connect your charger to WiFi? [Learn more](#)

Yes No

Congratulations!

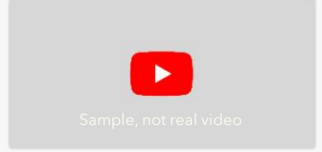
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Sample, not real video

Costs are estimated before talking to an installer

Products to be installed	
{Product_name}	\$750.00
Est. installation cost	
Labor, permits, materials, admin fee	\$0.00
Approximate cost before rebates	\$2,150.00 - \$2,250.00
Rebates	
Level 2 EV Rebate	-\$1,000.00
Programs	
Smart Charging Program	Enrolled
See details and enrollment options	
Approximate cost	\$1,150.00 - \$1,250.00
Tax credit	
Learn more	
TBD	TBD

Next Steps

Finish testing and design the educational components

Release of the educational components for EV charging + panel upgrade by end of year

- Release in English and Spanish
-

Next meeting:

- Addressing upfront cost barriers



Questions/ Comments



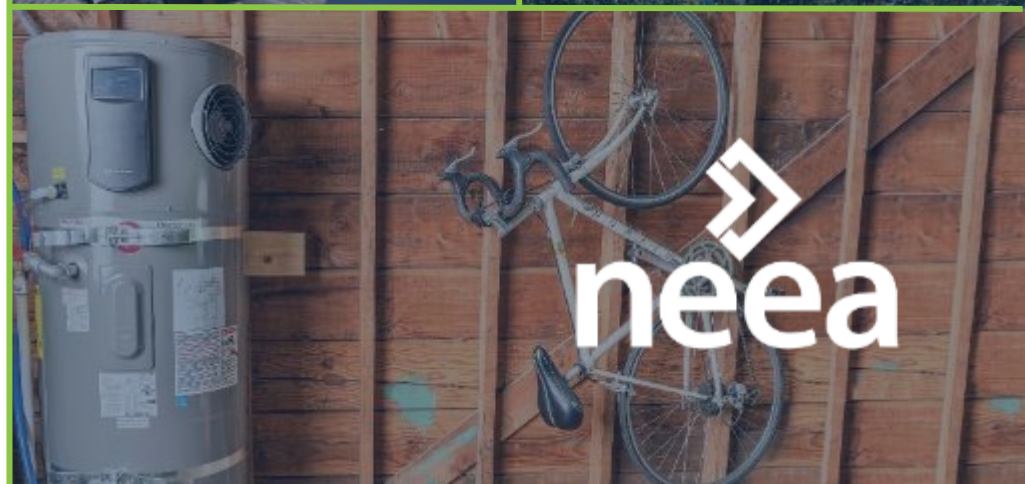


Market Transformation for End-Use Load Flexibility

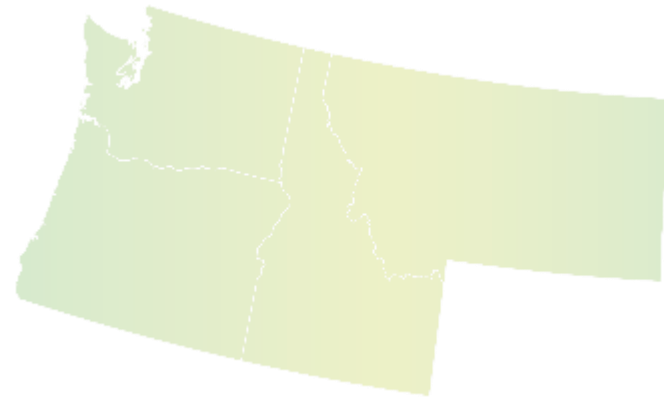
Jeff Harris

Chief Transformation Officer

July 27, 2023



The Alliance





Today's Objectives

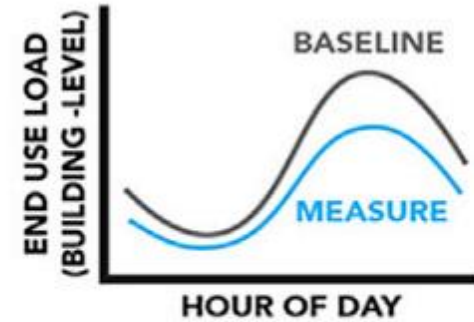
- Describe intersection between end-use energy efficiency, load flexibility and NEEA's regional role
- Provide overview of Kickstart Projects
- Discuss timing and next steps

Why Are We Here?

Load Flexibility + Energy Efficiency =

A powerful tool to support Northwest grid needs

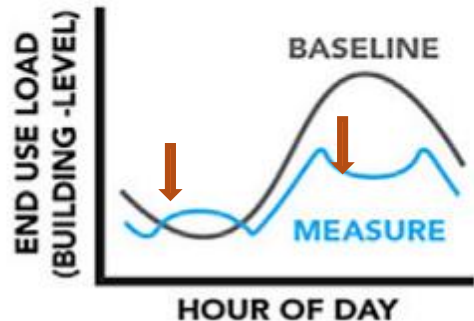
Energy efficiency



Demand flexibility

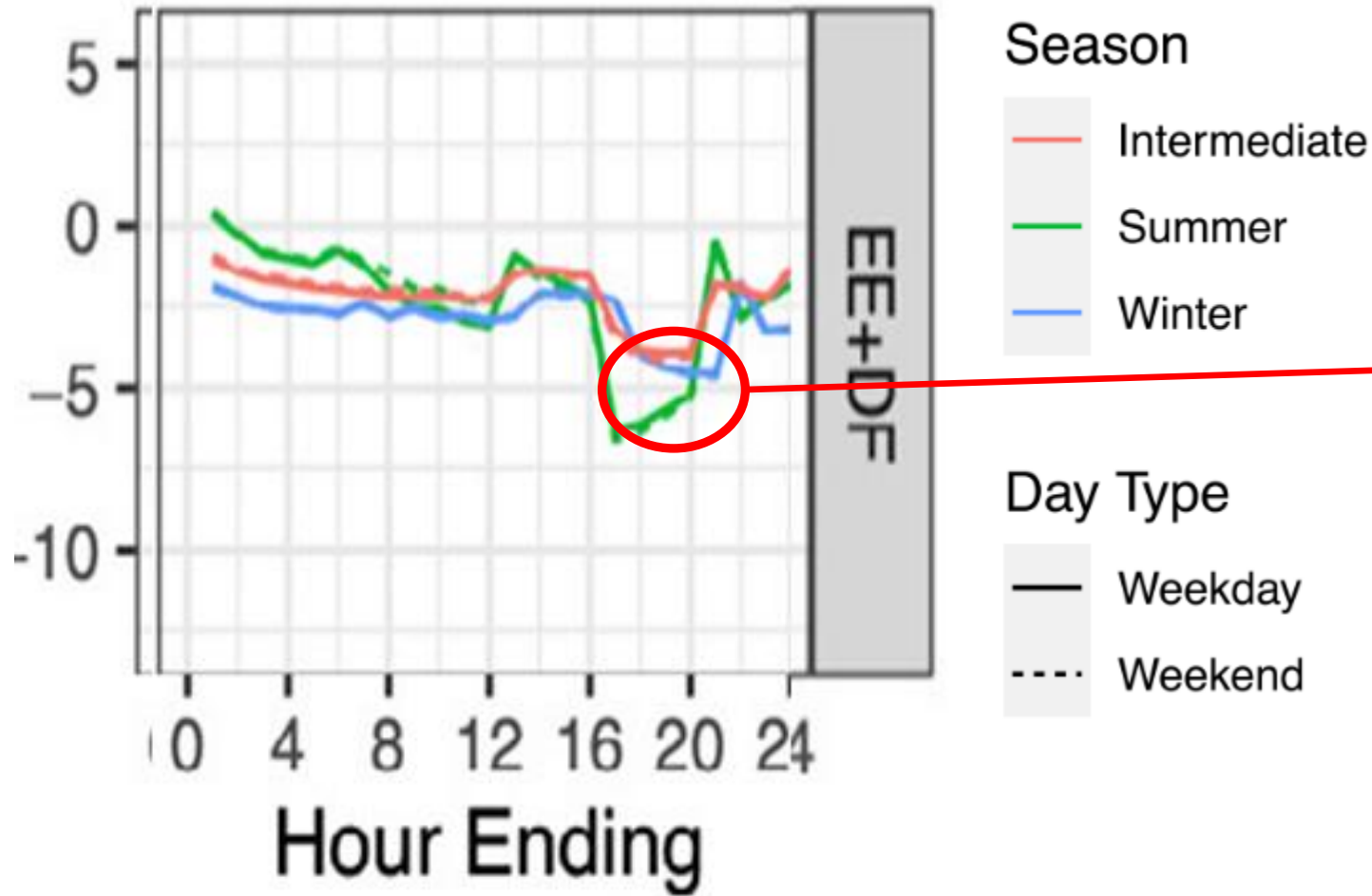


Efficiency + flexibility



Source: Langevin et al., US building energy efficiency and flexibility as an electric grid resource, Joule (2021), <https://doi.org/10.1016/j.joule.2021.06.002>

Load Flexibility + EE Technical Potential



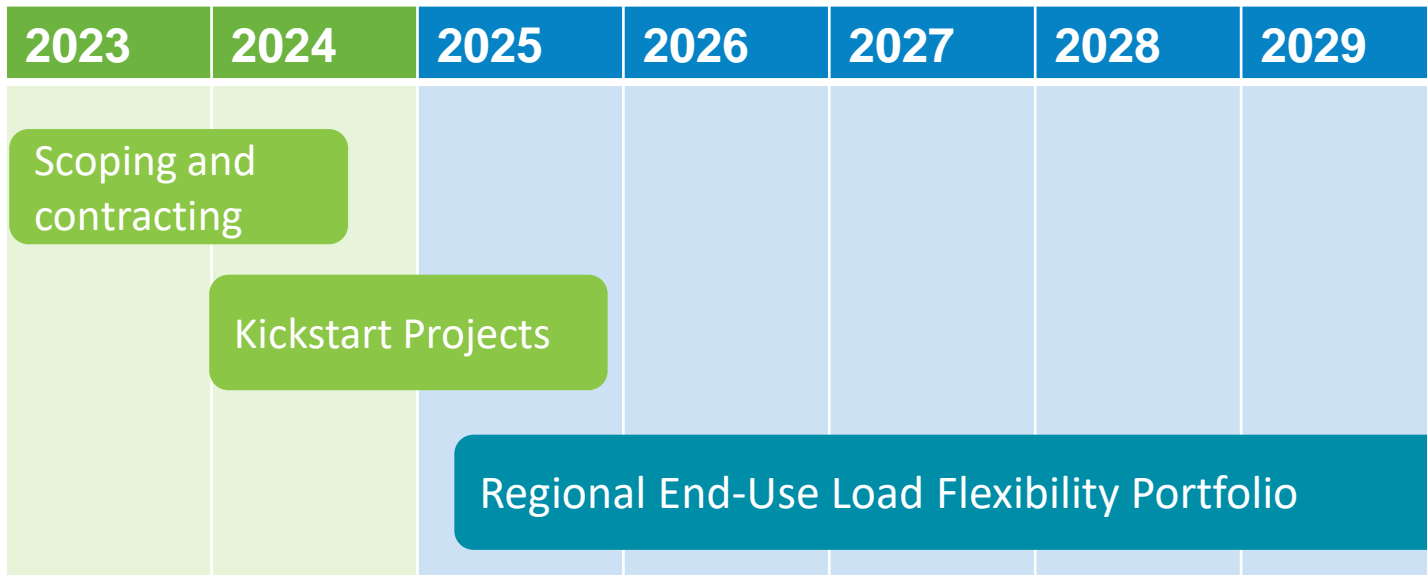
~5GW of Winter Peak Load Reduction in Residential

Why Market Transformation?

- **Scale:** Millions of devices, 1000's of buildings sold/built yearly
- **Cost:** Low incremental cost for embedded capability at time of manufacture/construction/installation
- **Standard Protocols:** Uniform communication and control enables mass aggregation and autonomous response
- **EE-value Proposition:** Dual purpose capability enables EE energy savings and features of consumer value proposition; don't have to sell load flex to consumer separately
- **Leverage:** Aggregated Northwest market/consumer demand focuses influence on high-level decision makers at manufacturing, design + construction, and policy

Planned Approach

Timeline:



NEEA's Role:

- Convene the region
- Identify emerging technologies and solutions
- Leverage existing market relationships
- Conduct market research and collect data

A close-up photograph of a red pushpin with a black stem, pinned to a map. The map shows various geographical features and text, but it is out of focus. The pushpin is the central focus of the image, positioned in the lower-left quadrant. The background is a soft, blurred mix of colors, suggesting an outdoor setting with a map on a table.

Kickstart Project 1: End-use Load Flexibility Workgroup and Portfolio Development

- **Opportunity:** Leverage NEEA's regional role and Market Transformation expertise to engage and align partners around load flexibility opportunities.
- **Key activities:** Information-sharing, regional collaboration.
- **Desired outcome:** Shared regional learnings/ best-practices, long-term load flexibility portfolio.



Kickstart Project 2: Flexible Demand Solutions

- **Opportunity:** 1.75 million electric water heaters in the Northwest = 500 MW RESOURCE. (EXAMPLE – space heating also included in this project)
- **Key activities:** Lab and field testing, manufacturer/ partner engagement, and targeted intervention strategies.
- **Desired outcome:** Strategies for driving rapid regional adoption of electric space and water heating products with embedded controls.



Kickstart Project 3: Product Prioritization and Initial Consumer Insights Research

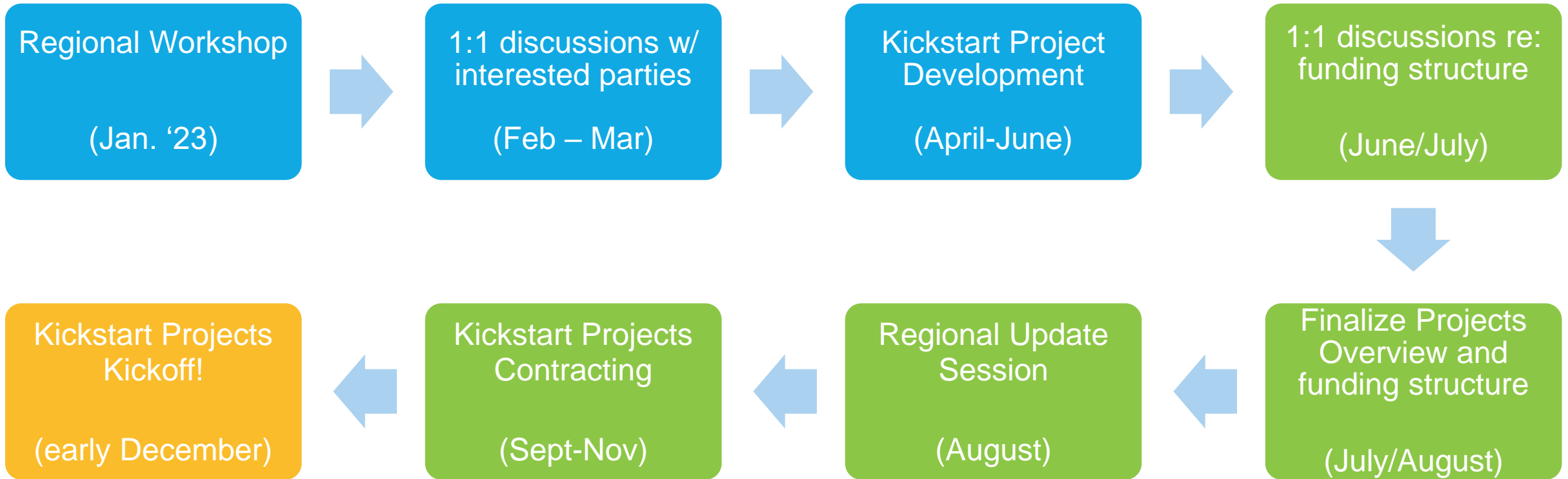
- **Opportunity:** Synthesize and enhance lessons learned, findings and best practices with a Northwest lens.
- **Key activities:** Secondary research, regulatory landscape assessment, consumer insights.
- **Desired outcome:** Identify and prioritize products/programs for immediate use and future investment in end-use flexible load Market Transformation opportunities.



Kickstart Project 4: Electric School Buses (Vehicle to Grid)

- **Opportunity:** Leverage current interest and funding for electric school busses.
- **Key activities:** Identify market barriers and opportunities, design and implement a pilot program in a school district in the region.
- **Desired Outcome:** Demonstrate electric fleet vehicles as a flexible load that can also provide energy storage, emissions and maintenance cost reductions

Timeline and Next Steps





Questions?

» Thank you!





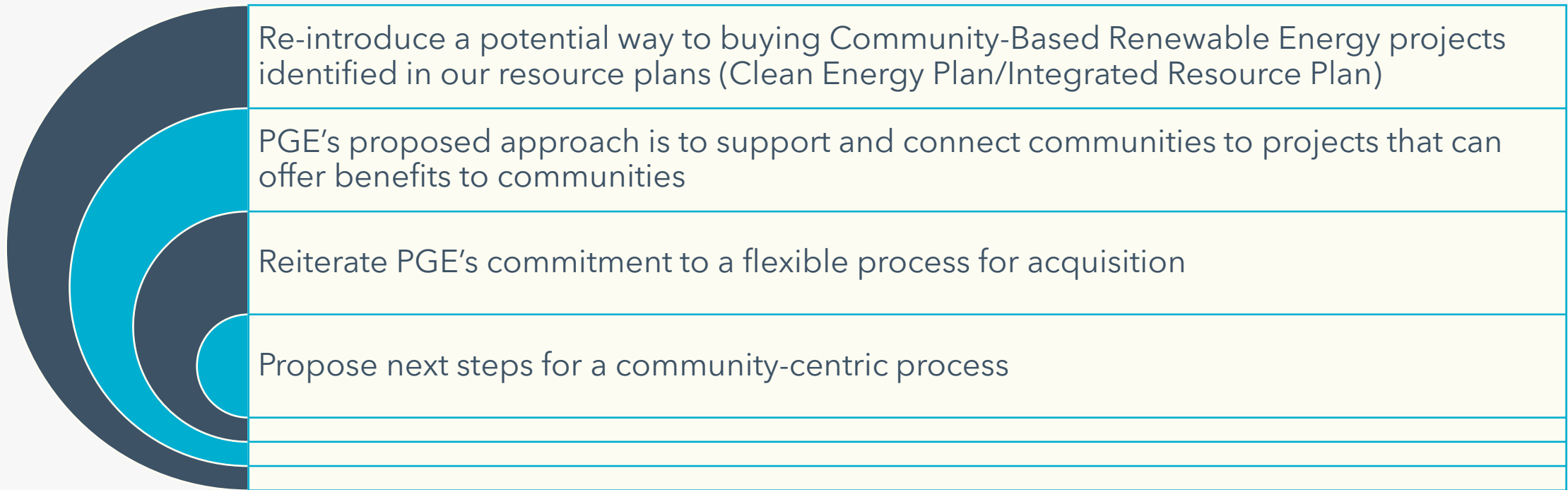
Acquisition/Purchasing of Community-Based Renewable Energy Projects

Jacob Goodspeed, PGE

Learning Lab | July 27, 2023



Objectives



Approach to Acquisition/Purchasing

Proposed approach is to



Work with communities to co-develop criteria for what constitutes a preferred project



Together with communities, identify which projects exist in the market that could meet the preferred criteria



- If projects do exist, explore acquisition/purchase
- If projects **don't exist**, seek to **better understand what barriers** are preventing preferred projects



Iterate for future acquisitions toward total CBRE target (155 MW by 2030)

Potential Timeline



If projects meet community preferences, discussion potential acquisition. And/or if barriers exist, engage with communities on potential alternative approaches to overcome barriers.

Begin co-development process

**Jul
23**

**Sep
23**

**Nov
23**

**Q1/
24**

(tentatively)
Seek projects from the market based on co-development outcome; assess initial bid results together with communities.

Project acquisition and/or follow-on acquisition process begins.

What's Next

Engage with communities on what outcomes we should seek to prioritize



Community ownership of projects?



Workforce development/job training?



Scholarships?

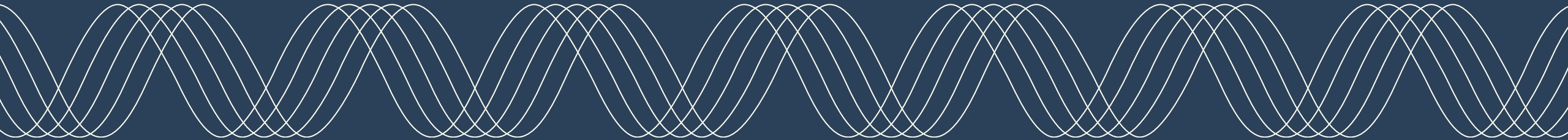


Bill reduction?



Something else?

Next Steps and Closing Remarks



Next Steps & Closing Remarks



- July 27 | 3p | IRP/CEP Staff and Stakeholder Round 1 Comments due | [LC 80](#)
- Aug 23 | 10a-12p | [Zoom](#) | CBIAG monthly meeting
- Aug 25 | Utility final TE Plan due | [UM 2033](#)
- Sep 5 | IRP/CEP PGE Reply Comments | [LC 80](#)
- Sep 7 | 10a-12p | [Zoom](#) | Learning Lab # 8



Meeting materials and recording will be posted to our Plan's Engagement webpage at [Plan's Engagement | Portland General Electric](#)



For more information or if you have questions, please email us at LearningLabs@pge.com



Please continue participating in our dockets

- TEP [Docket UM 2033](#)
- CEP/IRP [Docket LC 80](#)

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kind of energy