# Waiting Room

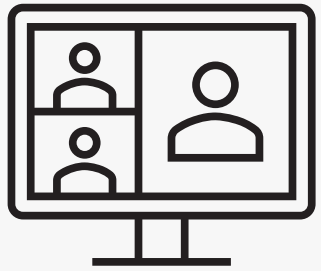
One moment please, while we wait for people to join

Song by artist:

Louis Armstrong - What A Wonderful World

Please use the QR code to check-in:
Name and Organization

# Meeting Logistics

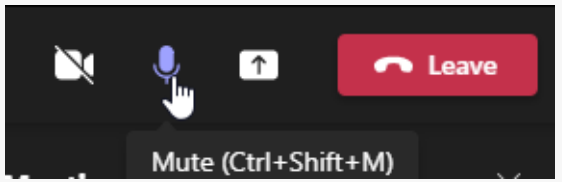


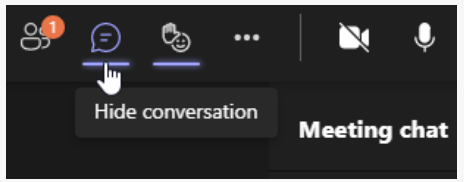
## Teams Meeting

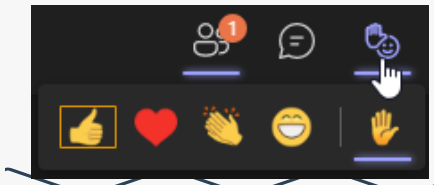
- Please click the meeting link sent to your email or [Click here to join the meeting]
  - +1 971-277-2317  (dial this number into your phone for best results)
  - PW: 885 018 032#
- Please use **Microsoft Edge** or **Google Chrome** with Teams as it will give you the best experience

## 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



# Quick Updates!

**Please visit us at www.portlandgeneral.com/dsp**

**You can email us at: DSP@pgn.com**

**Online Feedback Form**

**DSP Mailing list: Sign-up form / Opt-out form**

## Important dates in 2022:

- OPUC procedural dates
  - **Thursday, March 3rd** - A Staff Memo on IOUs DSP Part 1 will be posted on IOUs dockets as well as on Regular Public Meeting 3/8/22 Agenda
  - **Tuesday, March 8th** –DSP Part 1 filings will be addressed as a Regular Agenda item during Public Meeting
- OPUC DSP-Part 2 Technical Working Group dates
  - **Thursdays Mar 10, Mar 31, April 21, May 19, June 16 (1-4 pm)**
- DSP Part 2 filing date
  - **Monday, Aug 15**

# Agenda

9:30 – 9:40 am – **Opening Remarks** (10 min)

9:40 – 9:50 am – **Community Engagement** (10 min)

9:50 – 10:10 am – Distributed Energy Resources (DERs) & **Water Heater Example** (20 min)

10:10 – 10:30 am **– Solar Innovation** & Community Partnership (20 min)

10:30 – 10:35 am – **Break** (5 min)

10:35 -11:50 am – **Distribution Planning Evolution and Non-wires Solutions** (75 min)

11:50 am -12:30 pm – **Lunch Break** (40 min)

12:30 – 2:00 pm – **Guest Speaker: Discussion on Cost Effectiveness** (90 min)

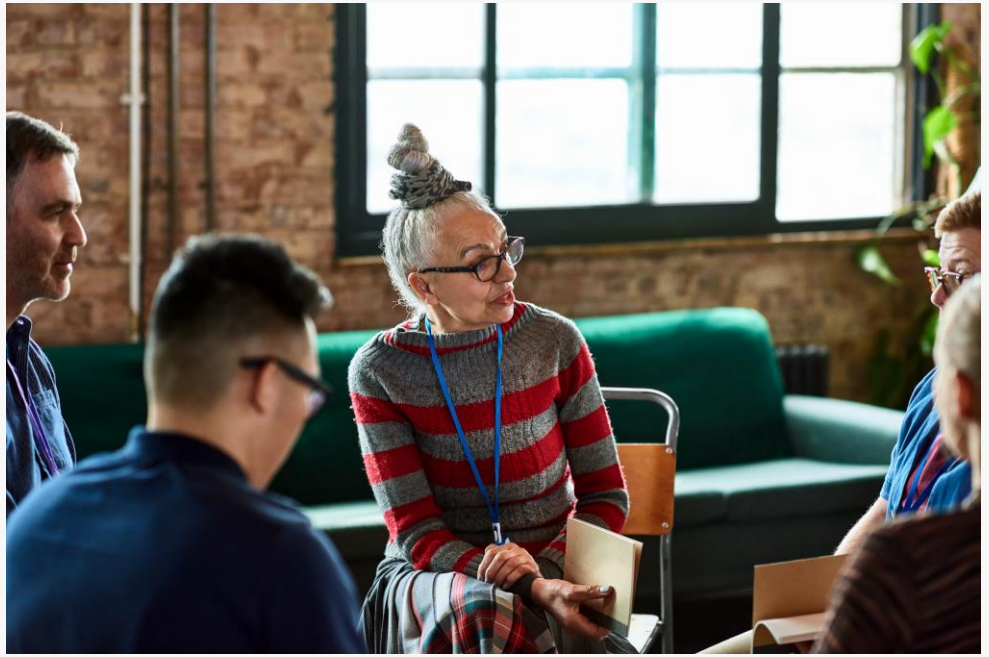
# Operating Agreements

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

# Community Engagement

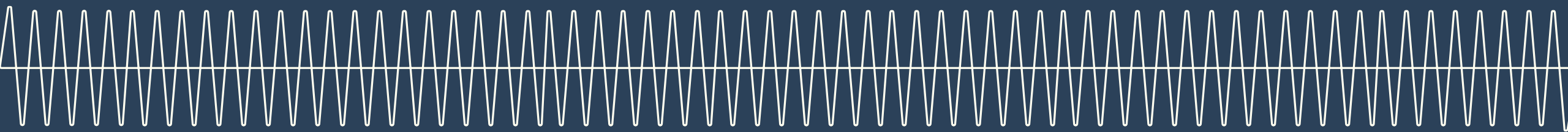
**Jenn Latu**, Diversity Equity & Inclusion,
Principal Diversity Consultant

# Where Are We?

| | |
|---|---|
| **Community Workshops** | **Dates and times:** March 15, April 5, April 26 – Tuesdays from 9-12 pm |
| | **Topics to discuss:** Equity Data, Community Needs, NWS Pilot Projects |
| | **Audience**: Community Based Organizations (CBOs) |
| **CBO Engagement** | CEP submitted Energy Trust of Oregon (ETO) Working Together Grant |
| | Started discovery phase on Non-wires Solutions (NWS) process document translation to non-technical |
| | NWS non-technical materials will be shared in Community Workshops |
| **Hiring** | Finishing interviews on two Community Engagement & Diversity Equity and Inclusion (DEI) roles |

# Moving Toward a Future Distribution Planning Process

*Part Two*



# Distributed Energy Resources (DERs) & Water Heater Example

**Binh Lu**, Product Development, Senior Product Developer

# Objective

- Provide an overview of water heaters within the DER space
- Provide a high-level overview of the pilot design process
- Understand who else we should be collaborating with

# DER Definition and Context

Per **Order 20-485**, distributed energy resources (DERs) include the following resources that are connected to the electric distribution grid:

Distributed generation resources

Distributed energy storage

Demand response

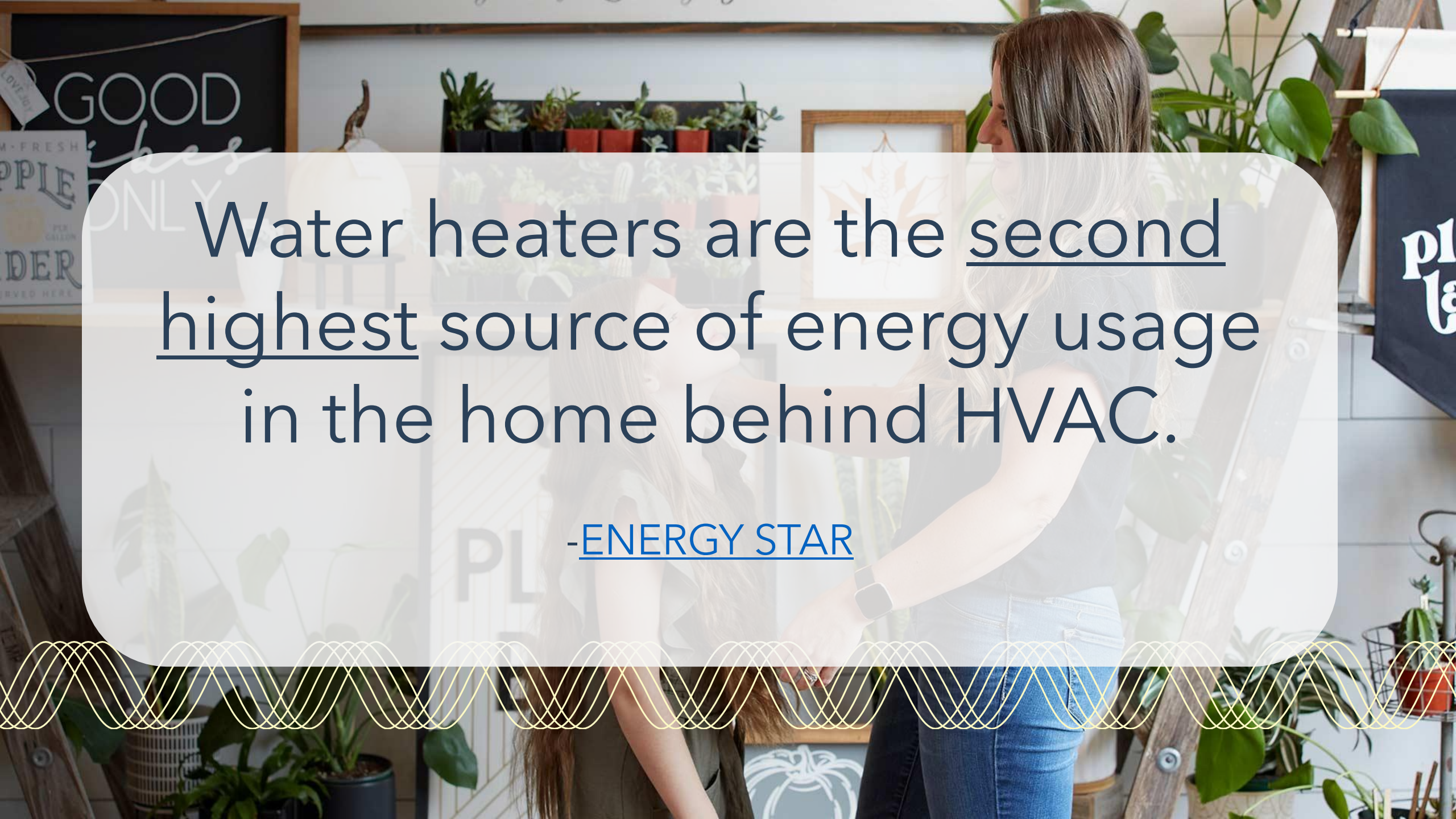
Energy efficiency

Electric vehicles

***PGE is motivated to understand the resource potential for DERs and how these can help achieve our goal of a decarbonized grid that meets our customers needs.***

# Modeled DER Technology Overview

- **Solar and Storage**
  - Solar PV
  - Battery Energy Storage
  - Single-site microgrid
  - Campus microgrid
- **Smart Water Heating**
  - ERWH retrofit switch
  - ERWH smart controls
  - Smart ERWH
  - HPWH smart controls
- **Smart HVAC**
  - Res smart tstat controls
  - Res line voltage tstat
  - Res DHP controls
- **C&I DR**
  - Commercial smart tstat
  - Irrigation load control
  - Large C&I tariff
  - Cold thermal storage
- **Non-firm DR**
  - Peak Time Rebates (PTR)
  - Time of Use (TOU) rates
  - EV-TOU
- **Electric Vehicles**
  - Light-Duty Vehicles
  - Medium-Duty Vehicles
  - Heavy-Duty Vehicles
- **Basic EVSE**
  - Res L2
  - Non-res L2
  - Non-res DCQC
- **Smart Charging**
  - Res Smart EVSE
  - Non-res Smart EVSE




Water heaters are the second highest source of energy usage in the home behind HVAC.

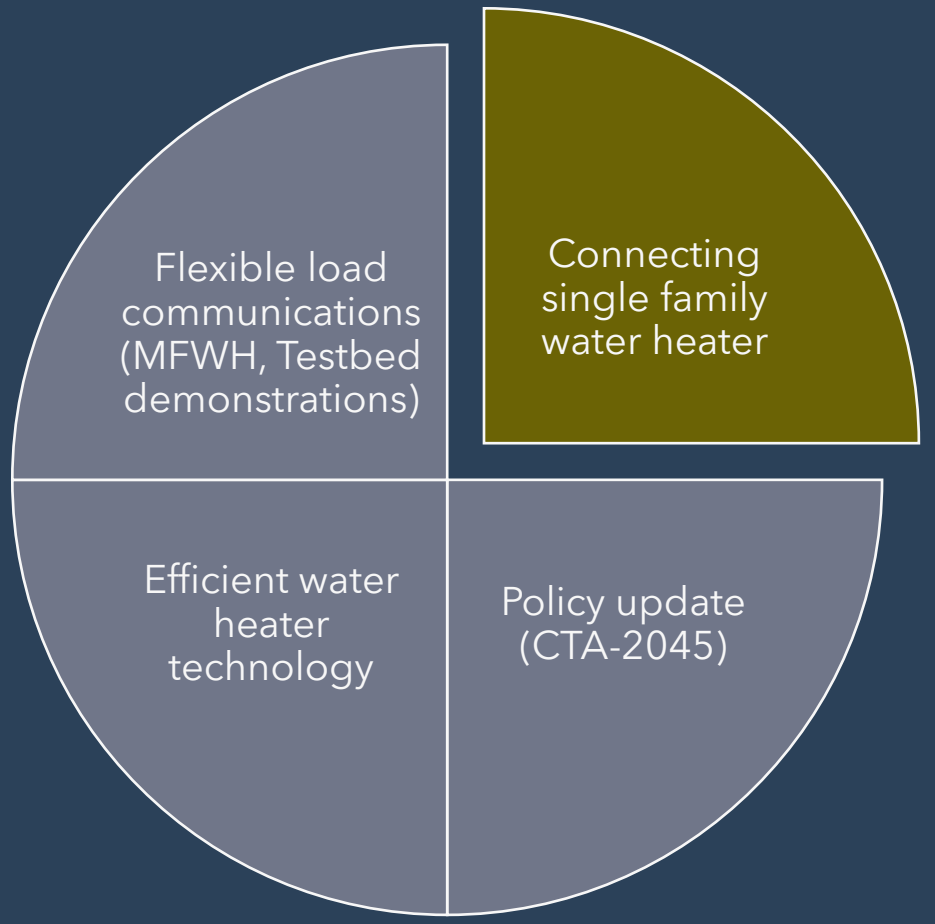
-ENERGY STAR

Grid-connected water heaters have become a reliable grid resource

**Maturing**

- Policy updates
- Water heater technology advancements
- Flexible load communication protocols

## Accessible Distributed Resources (DR) technology is coming to market



# Building a Smart Water Heating Program


**Completed Phases** | **Current Phase** | **Future Phases**

## Capturing Lessons Learned

- Regional utilities
- National utility programs
- What have others learned
- Best practices

## PGE Pilots & Demonstrations

- Schedule 3 (BPA CTA-2045 demonstration)
- Schedule 4 (Multifamily Water Heater Pilot)
- Test Bed (Communications demonstration)
- Other DR pilots

## Pilot Design

- Identify research questions
- Design pilot collaborating with regional experts
- Support Low/moderate income
- Complete customer testing
- Set pilot key performance indicators (KPIs)

## Pilot Implementation

- Answer research questions
- Measurable costs & benefits
- Evaluate execution & results
- **Answer:** Can this be a sustained offering benefiting ratepayers?

## Scale to Program

- Scale to entire service territory

# Ask: Who else should we engage with in the Smart-Water-Heater pilot project design?

Current Engagement:
CUB | ETO | NEEA | NWEC | PUC Staff

# Next Steps

**Please contact Binh Lu, binh.lu@pgn.com**

With feedback, and/or if interested in participating in design process

1

Incorporate additional stakeholders into the design process

2

Provide design update to DSP in a few months

# Solar Innovation & Community Partnership

Kathy Wagner, Product Development,
Senior Product Developer

# Aligning On a Shared Solar Vision

| Ensuring equitable decarbonization & resiliency | |
|---|---|
| Starts with co-creation of equitable solar solutions for LMI and EJ communities and other programs that support solar adoption and resiliency goals | **It's going to take ALL of us** |

PGE has done some initial thinking

We plan to explore those ideas and others as part of a co-creation process with Energy Trust of Oregon, community partners, and key stakeholders

# Rooftop Solar & Resiliency Solutions


## Co-Creation Team

- Jeni Hall, Energy Trust of Oregon
- Angela Crowley-Koch, OSSIA
- Silvia Tanner & Tim Lynch, Multnomah County Office of Sustainability
- Kathy Wagner, PGE
- Marli Klass, Jeff Bissonnette, Fred Heutte, Northwest Energy Coalition
- Jason Benefit, GM, Neil Kelly Solar

Energy Trust of Oregon

OSSIA
Oregon Solar + Storage Industries Association

Multnomah County
Office of Sustainability

PGE

NW Energy Coalition
for a clean and affordable energy future

SERVING THE NORTHWEST
SINCE 1947
Neil Kelly

# High-Level Process Overview

**Ideation**
Define customer-inspired product solutions informed by customer/market research & current offerings

**Socialization**
Share product ideas with broader stakeholder groups & target customers, refine ideas

**Finalization**
**Finalize products**, adoption goals, secure final stakeholder endorsement, submit **filing**

**Realization**
Complete **development and ensure** market **readiness (assumes filing approval)**

**Introduction**
Product roll-out, early adopter support, ecosystem feedback

Q1 – Q2 '22

Q4 ' 22

Q1 '23

File in **August 2022** Multi-Year Plan Update

# Multi-family Solar Cooperative

## Product Hypothesis:

Multi-family affordable housing developers & owners will install solar to increase property value & will pass savings on to tenants if solar is well priced

Currently, there is a **lack of**

1) **funding**,

2) **information**, &

3) **assistance** to overcome **barriers to access**

PGE can bridge these gaps with **additional solar incentives** for low-income affordable housing providers

**For average multifamily property**:

- installation cost = $xx
- immediate on-bill savings passed to tenants = $xx
- projected payback period = xxx

**3-4 sites selected** to serve up to

**300 households**

# Single Family Solar

## Product Hypothesis:

**Low- and middle-income (LMI) customers** will adopt solar if PGE can **reduce their upfront costs** and provide **immediate on-bill savings**

| | | |
|---|---|---|
| **LMI customers** potentially face a **financing gap not met by rebates or incentives** that prohibit solar adoption | **PGE could eliminate the need for out-of-pocket investment** by providing straight-forward on-bill financing<br>**For average home**:<br>➢ installation cost = $xx<br>➢ immediate on-bill savings = $xx<br>➢ projected payback period = xxx | Bill savings from solar installation and **potential bill credits** from export generation **could offset** the subsidy payment **and lower the customer's monthly bill** |

**DISCLAIMER: Discussion purposes only and any offering is subject to Commission Staff review and approval and therefore subject to change**

# Whole Home Energy Bundle

## Product Hypothesis:

**Rooftop solar customers** will adopt multiple resiliency/energy products simultaneously if financial barriers are mitigated or eliminated

**Bundling home energy solutions** simplifies the customers' buying experience and maximizes environmental and savings benefits

Upfront capital and bundling **increases likelihood of installation of home energy system** customer's sustainability and resiliency goals

**For average home**:

- installation cost = $xx
- immediate on-bill savings = $xx
- projected payback period = xxx

Bundle = $$ savings & GHG reductions

1) Solar + **Smart Inverter + Battery/Pilot**

2) Solar + EV Charger**/Pilot** + **Battery/Pilot**

3) Solar + Heat Pump WH**/Pilot +** EV **Charger/Pilot**

# Next Steps

Please send your feedback to Kathy Wagner
**Kathy.wagner@pgn.com**

**Collaborative Development**

- We'd like your continued partnership and input on moving forward
- Please **send** any SF/MF solar ideas you may have **to Kathy to** inform the co-creation team ideation

**Ideation Team**

- In addition to the folks who have already volunteered to participate, we'd like to identify 1-2 solar installers and representatives outside of Multnomah County to join the team
- Please contact Kathy if you have someone to nominate

**Process & Communication**

- We'll share learnings, evolving concepts, etc., at future DSP meetings
- This is a new process – so please share feedback so we can continue to improve and refine

# 5 Minute Break





# Distribution Planning Evolution and Non-wires Solutions

**Nihit Shah**, Distributed Resource Planning,
Senior Analyst

# Section Objectives

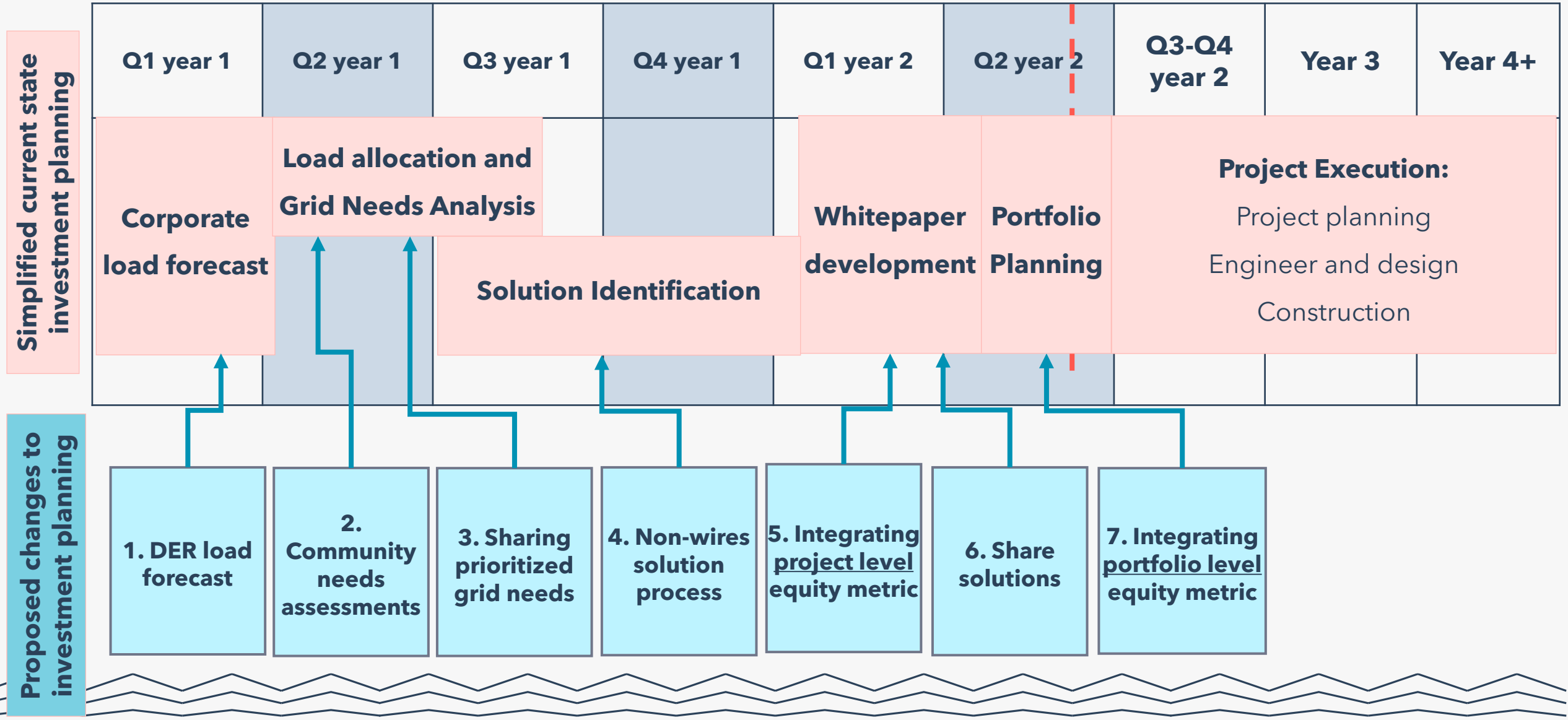
Share current planning timeline and future state expectation

Receive feedback on PGE's proposed approach to 2023 and 2024 capital plan

# Defining current state concepts:

- **Corporate load forecast** – Service territory wide top-down forecast
- **Load allocation** – Allocating territory wide forecast across substations and transformers
- **White papers** – Outcome of the planning process with details such as:
  - The problem
  - Potential solution options
  - Recommended solution
  - Rough estimates (order of magnitude accuracy)
- **Portfolio planning** – Prioritizing PGE's capital portfolio of all projects. Distribution system planning projects are a subset of the projects in the capital portfolio.
- **Project planning** – Planning the 'steel in the ground' solution
- **Engineer and design–** Engineering and designing the 'steel in the ground' solution

# Current to future state transition (illustrative)

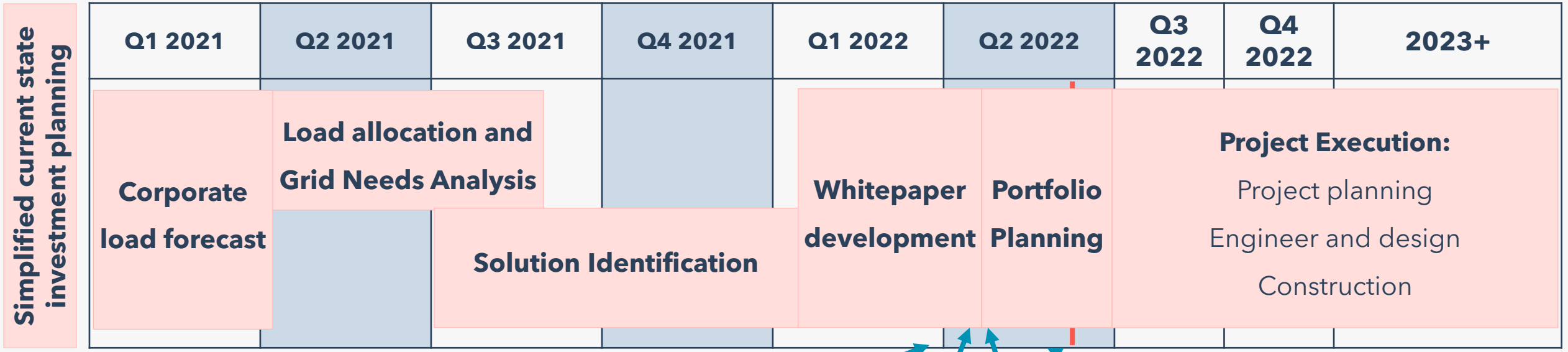


# 2022 learning objectives

DSP Guidelines 5.3.d "…The purpose of these pilots is to gain experience and insight into the evaluation of non-wire solutions to address priority issues such as the need for new capacity to serve local load growth, power quality improvements in underserved communities. These pilots will prepare utilities to achieve the goals listed in Stages 2 and 3…"

| Solution Identification | |
|---|---|
| Stage 3 | Co-develop solutions with communities and community-based organizations. |
| | Streamline and refine non-wires solutions and aggregations of non-wires solutions to defer distribution system upgrades. |
| Stage 2 | In assessing options for distribution system pilots and projects, engage community organizing experts to gain input from potentially impacted communities. |
| | Prior to filing, publicly present data used to identify distribution system investments, and understand data most useful to stakeholders. |
| | Co-develop solutions with communities and community-based organizations. |
| | Utilize non-wires solutions to defer distribution system upgrades. This includes harnessing DERs for voltage support and frequency event support. |

# A year in transition – PGE's 2023 capital cycle*




4. Non-wires solution concept proposal and NWS community engagement

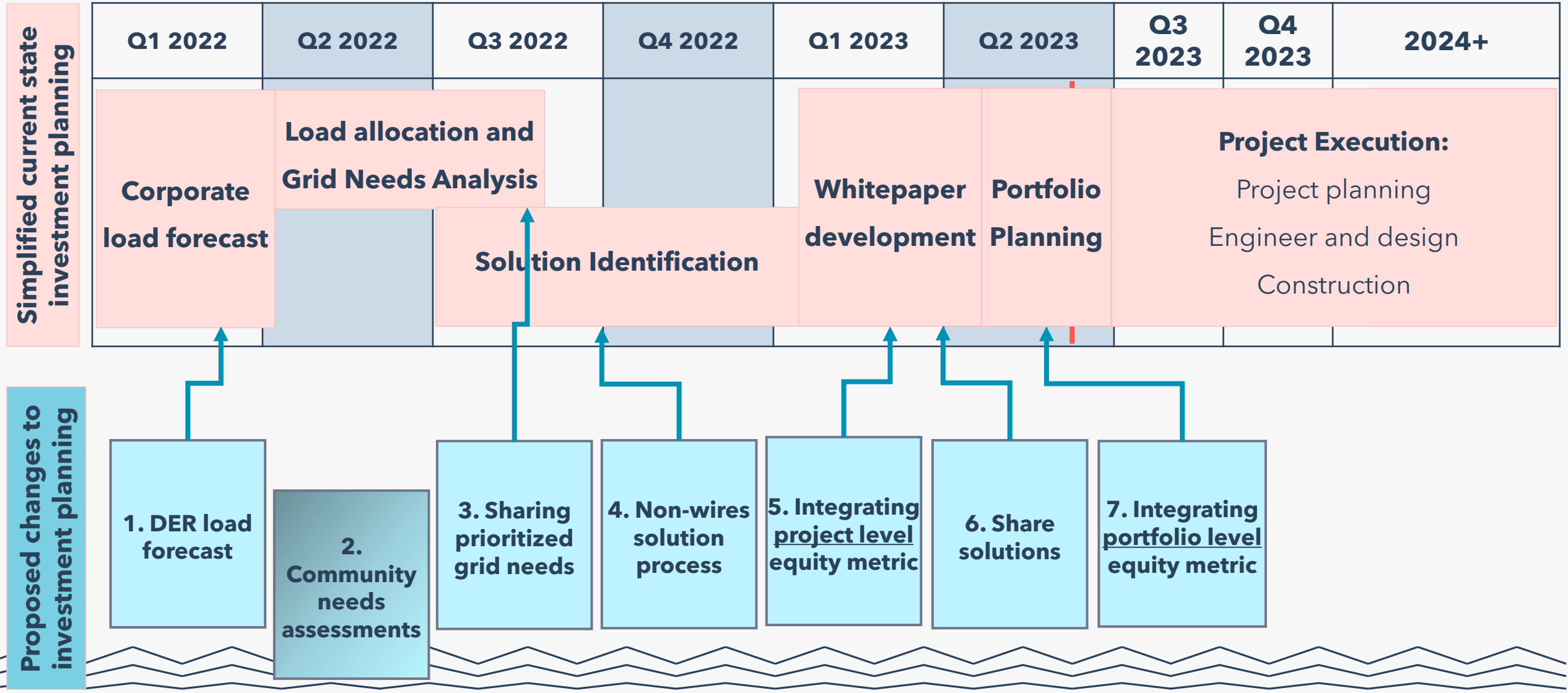
3. Sharing prioritized grid needs

5. Share solutions

6. Using EJ Data in decision making of NWS concepts

* Funds allocated to start the project

# Thinking ahead: PGE's 2024 capital cycle



# Co-developing the transition (1/2)

| Distribution planning process changes | Engagement opportunities |
| --- | --- |
| **1.** DER Forecast | • DSP partner meetings |
| **2.** Community needs assessments | • Community workshops - March 15, April 5, April 26 |
| **3.** Sharing prioritized grid needs | • DSP partner meetings + Community workshops - March 15, April 5, April 26 |

# Co-developing the transition (2/2)

| Distribution planning process changes | Engagement opportunities |
| --- | --- |
| **4.** Non-wires solution | • DSP partner meetings + Community Workshops |
| **5.** Integrating project level equity metric | • Community Workshops - March 15, April 5, April 26 |
| **6.** Share solutions w/ community | • DSP partner meetings + Community workshops - March 15, April 5, April 26 |
| **7.** Integrating portfolio level equity metric | • Community Workshops - March 15, April 5, April 26 |

# Feedback

Please review and provide feedback to DSP@pgn.com, attention to **Nihit Shah**

| Topics | DSP partner meetings |
|---|---|
| **DER forecast** | **PGE Locational Forecast Overview, Andy Eiden, 1/12/22**<br>**PGE DER Forecast Results, Andy Eiden, 5/12/21**<br>**PGE DER Study Overview, Cadeo, 3/10/21** |
| **Grid needs analysis, Solution identification, Whitepaper development** | **PGE Current Distribution Planning Process, Jennifer Galaway, 12/8/21**<br>**Distribution Planning 101, Derrick Harris, 2/10/21** |
| **Non-wires solutions** | **PGE Non-wires Solution Review, Nihit Shah, 1/12/22**<br>**PGE Non-wires Alternatives Update, Andy Eiden, 12/8/21**<br>**PGE Non-wires Alternatives Update, Andy Eiden, 4/13/21** |

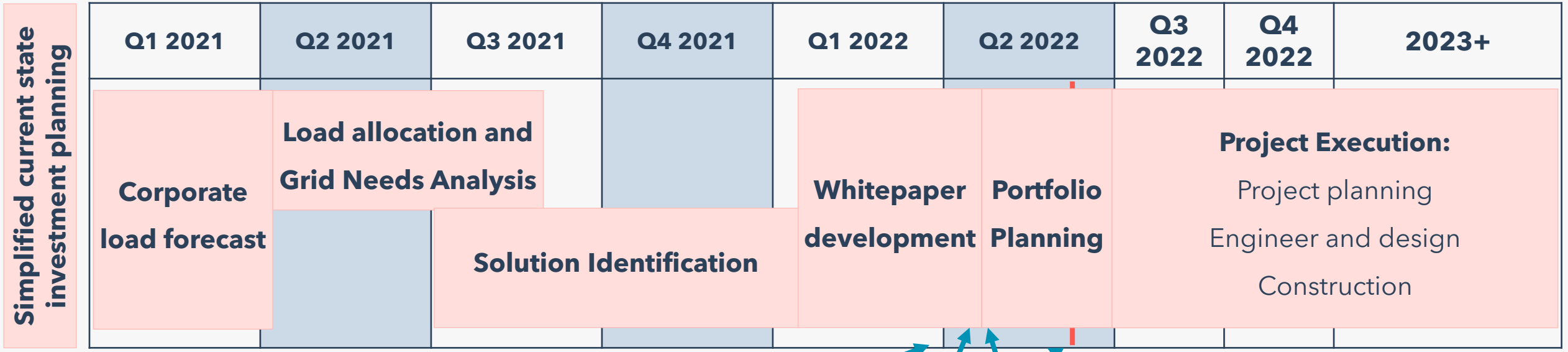
# Non-wires Solutions

# Section Objectives

EJ impacts, learning objectives and decision making

Receive feedback on PGE's proposed approach to non-wires planning within the 2023 capital plan

# A year in transition – PGE's 2023 capital cycle*




4. Non-wires solution concept proposal and NWS community engagement

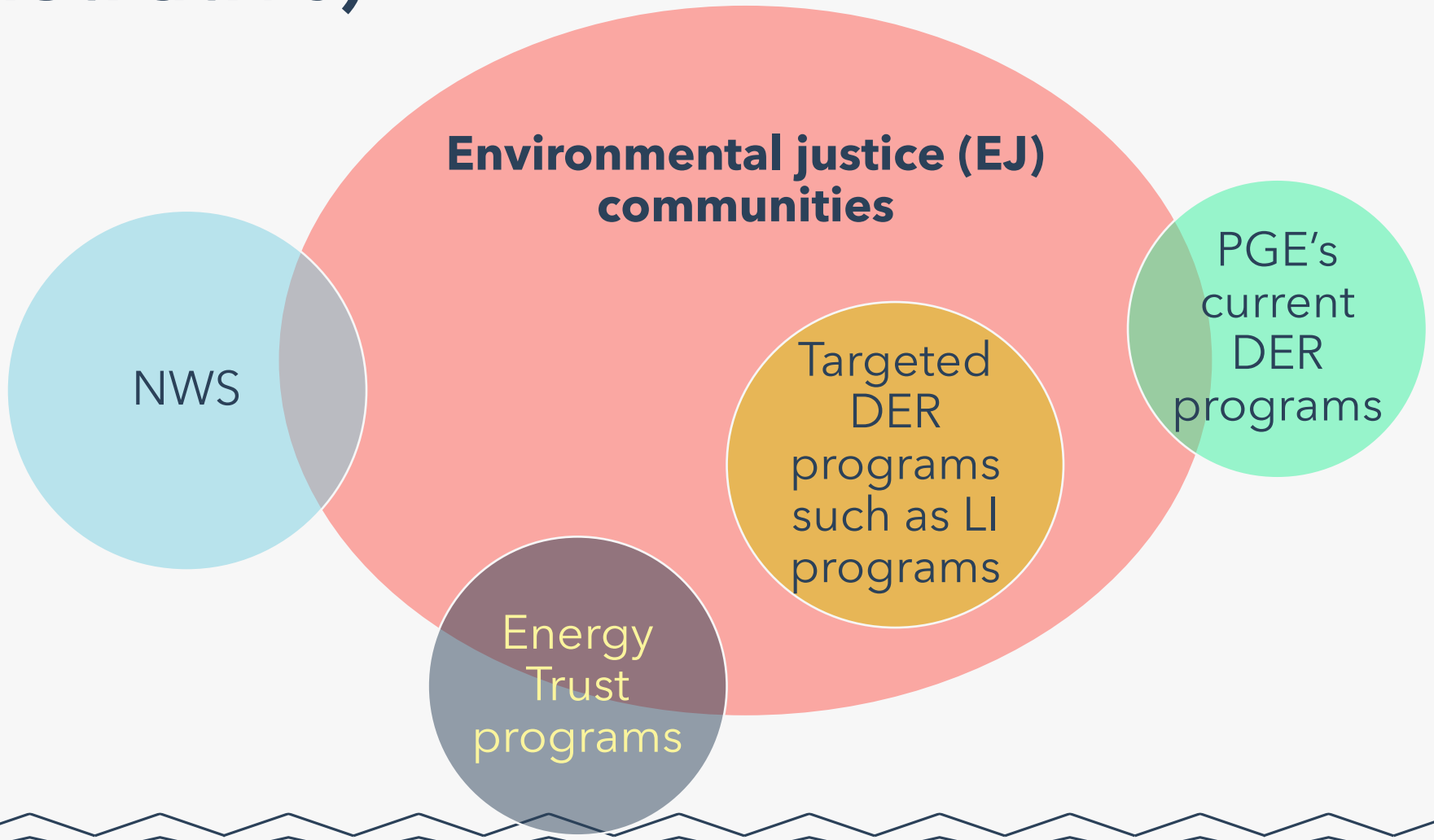
3. Sharing prioritized grid needs

5. Share solutions

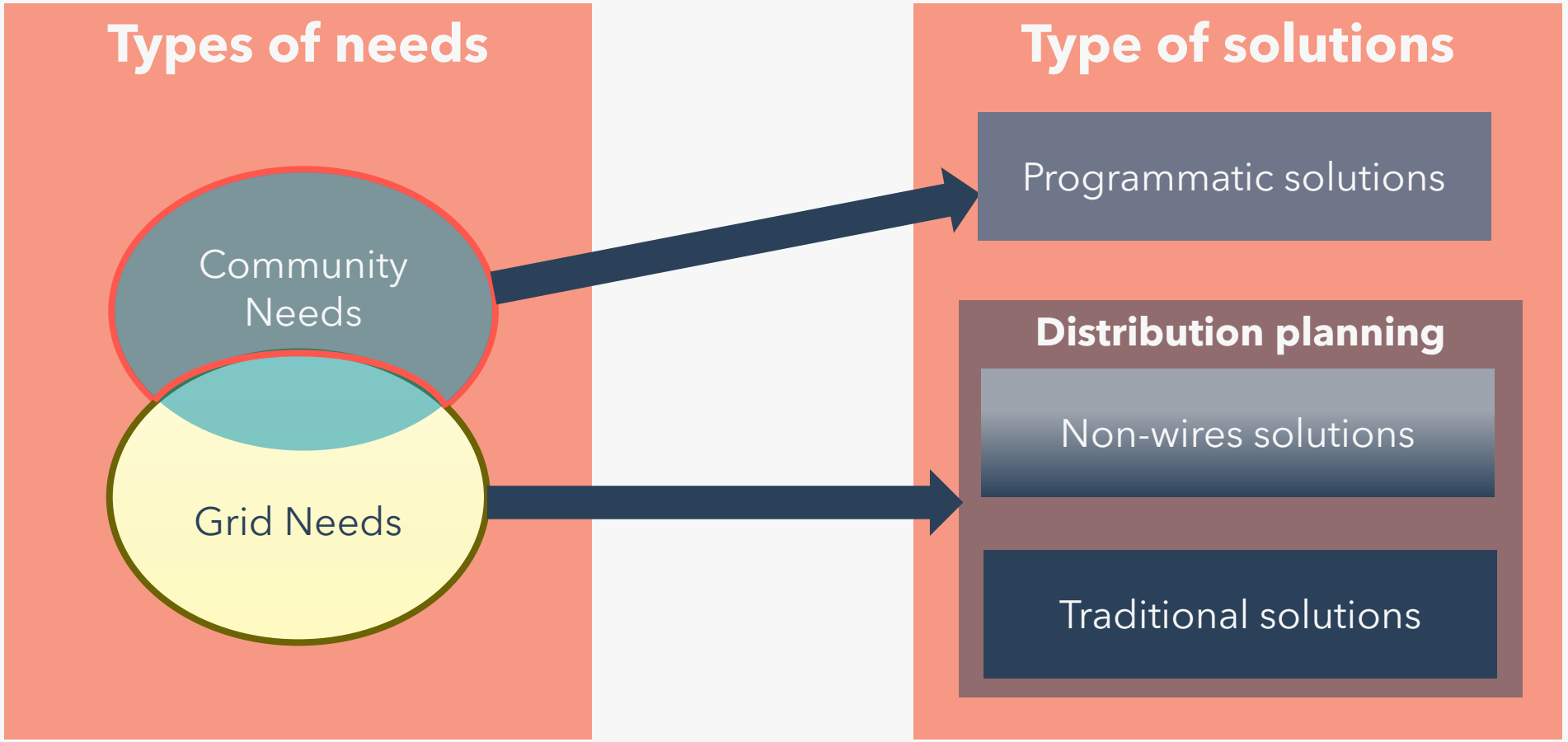
6. Using EJ Data in decision making of NWS concepts

* Funds allocated to start the project

# Overlap of EJ impact and DER adoption (illustrative)



# Evolution of needs and solutions



# Equity Lens in NWS Decision Making

**Potential decision-making process for NWS projects**

**Current decision-making process**

**Risk based benefit-cost analysis**

- Documented in UE 319, exhibit 800

+

**DER economic analysis**

- Includes:
  - Non-energy impacts
  - Locational distribution value

+

**Co-developed metric**

**Equity analysis**

- Using the co-developed equity metrics to determine equity impacts of an NWS to communities in a specific geography

Please review and provide feedback to **DSP@pgn.com**, attention to **Nihit Shah**

# Next Steps and Feedback

# 40 Minute Lunch Break

# Let's meet back at 12:30 pm

# Next Steps

# DRAFT Agenda for 2022

| March | April | May |
| --- | --- | --- |
| • DSP Updates<br>• DER Forecasting & Adoption<br>• Current & Future Grid Needs Identification Process<br>• NWS<br>• Community Engagement | • DSP Updates<br>• DER Forecasting & Adoption (Andy – 45 min update on AdopDER)<br>• NWS<br>• Community Engagement | • DSP Updates:<br>  • Community Engagement<br>  • Product Development<br>  • HCA<br>• DER Forecasting & Adoption<br>• Current & Future Grid Needs Identification Process<br>• NWS |

# Let's meet the future together.

**You can reach us at:**

**DSP@PGN.com**



# Cost Effectiveness (CE)

**Julie Michals,** Director of Valuation, E4 The Future
**Tim Woolf,** Senior Vice President, Consultant,
Synapse Energy Economics Inc

PGE

# Presentation Slides on a different slide deck

Slide-deck were sent the day before the meeting and will be posted with Workshop 12 materials on the PGE DSP website

# Appendix

# DSP Part Two Framing

**Angela Long**, Distributed Resources Planning, Manager

# DSP Part Two Requirements Summary

***Due August 15, 2022***

**Forecasting of Load Growth, EV/DER Adoption**

- Describe **current state for Load Forecast** – process, tools, data
- DER/EV:
  - Forecast methodology and geographic allocation
  - **Adoption by substation** - high/med/low scenarios
  - Forecast of load growth and adoption

**Grid Needs Analysis**

- Document process to assess grid adequacy and identify grid needs
- Discuss criteria used to assess reliability and risk – methods and modeling tools used
- **Present prioritized constraints publicly**, including prioritization criteria and timeline to resolve constraints

**Solution Identification**

- Document process for identifying the range of solutions to address grid needs
- **For each need, describe the data used to support investment decisions**
- For large projects, describe process for engaging communities and getting input
- **Propose 2 NWS pilot projects**

**Near-term Action Plan (2-4yrs)**

- Provide 2-4 yr. plan to address grid needs
- **Disclose planned spending, timeline and recovery mechanism**
- Discuss relationship between planned investments
- Discuss pilots being conducted to enhance the grid

# Goals of DSP Part Two

## Community Engagement

- Two-way flow of information

- Co-created education material

- Continued partnerships with community experts

## Metrics & Data

- Resilience metrics for customer and utility

- Socio-economics & Demographics

- Cost-benefit analysis

## DER Resource Planning

- Climate risk modeling

- Decarbonization

- NWS, Locational

- DEI/Equity

- Estimated impacts of electrification adoption

## Portfolio Analysis

- Cost-effective DER

- Environmental and social justice community

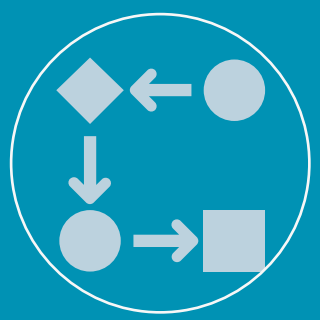
- Resilience/Outage

- High DER adoption

# High Level – Project Timeline

**Planning**: Developing the approach to address Part 2 requirements

**Oct – Dec 2021**



**Executing**: Co-creating an inclusive Distribution Planning process

**Jan – May 2022**

**Reporting**: Documenting the process changes and the plan to enact them

**Jun – Aug 2022**

Filing DSP Part 2

**Aug 15, 2022**

# Engaging Our Communities

Our objective is to foster **procedural equity and ensure diversity of voice** in the DSP planning process.

To accomplish this, we will continue to partner with Community-based Organizations (**CBOs) and other organizations that have longstanding relationships and establish trust in environmental justice communities** to:

- Co-develop solutions for NWA pilot projects
- Co-create community workshops to identify community energy needs, desires, barriers and interest in clean energy planning and projects
- Co-develop community education around key DSP practices and relevant energy related concepts