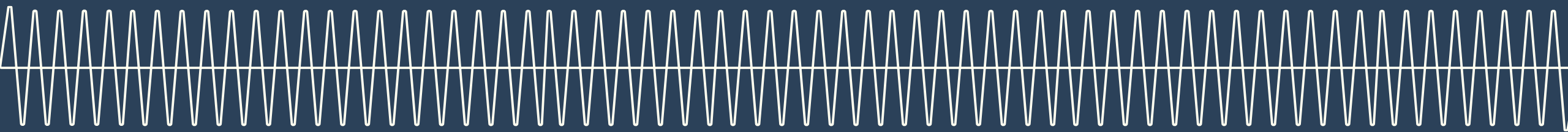
PGE Distribution System Plan Partners Monthly Workshop # 16

July 13, 2022



Waiting Room

One moment please, while we wait for people to join

Song by artist:

Miriam Makeba - Pata Pata (Live 1967)

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

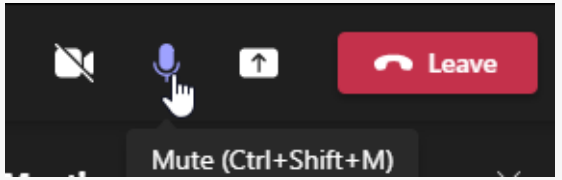
Meeting Logistics

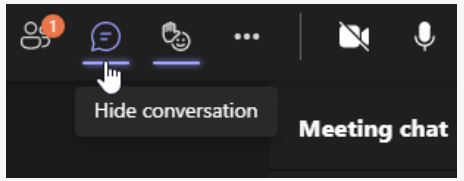
Teams Meeting

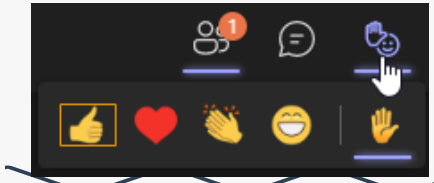
- Please click the meeting link sent to your email or [Click here to join the meeting]
  - +1 971-277-2317 (dial this number into your phone for best results)
  - PW: 885 018 032#
- Please use **Microsoft Edge** or **Google Chrome** with Teams as it will give you the best experience

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

- Distributed Generation (DG) Map has been updated
- PGE DSP Partner Meetings
  - **Wednesday, Aug 3 (9 am – 12 pm)**
- DSP Part 2 filing date
  - **Monday, Aug 15**

Agenda

9:00 – 9:15 am – Opening Remarks (15 min)

9:15 – 9:35 am – Distributed Energy Resources (DERs) **Water Heaters Update** (20 min)

9:35– 9:50am – **Transportation Electrification Plan** (15 min)

9:50 -10:30 am – **Solution Identification** (40 min)

10:30 – 10:40 am – Break (10 min)

10:40 – 11:25 am – **Non-wires Solutions** (45 min)

11:25 – 11:55 – **Large Projects and Community Engagement** (30 min)

11:55 am – 12:00 pm – Next Steps (5 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**.

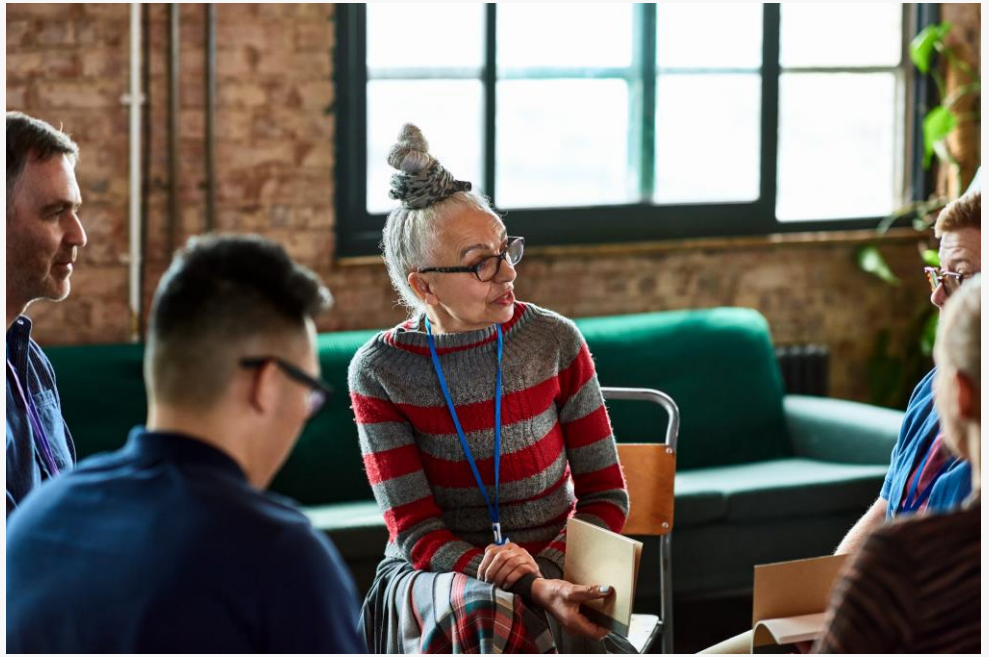
Stay Engaged

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

Distributed Energy Resources (DERs) & Water Heater Example

Binh Lu & Jessica Atwater
Product Development & Senior Product Developer
July 13, 2022





OBJECTIVE

Provide updates about the Smart Water Heating pilot design and next steps

Receive feedback on the proposed Smart Water Heating design

CONTEXT FOR SLIDE 10

- PGE has corrected an error in the proposed incentive structure for Smart Water Heating that was presented to the Distribution Supply Partners (DSP) Workshop on 7/8/22
- While the text on the slide indicated the income qualified incentives are proposed at 25% of average first costs, the chart showed values at 50% of average first costs.
- The corrected proposed income qualified incentive is 25% of average first costs is shown on the next slide.
- This correction does not impact the budget or cost effectiveness score.
- The team had been testing different incentive scenarios and missed updating the chart after making the assessment that the 25% of average first costs is more realistically feasible for the pilot.
- We apologize for the error and resulting confusion.
- Smart Water Heating will be hosting an income qualified incentive workshop this summer, please contact Jessica Atwater at jessica.atwater@pgn.com or Binh Lu at binh.lu@pgn.com to join.

Corrected proposed Incentive Structure for SMART WATER HEATING

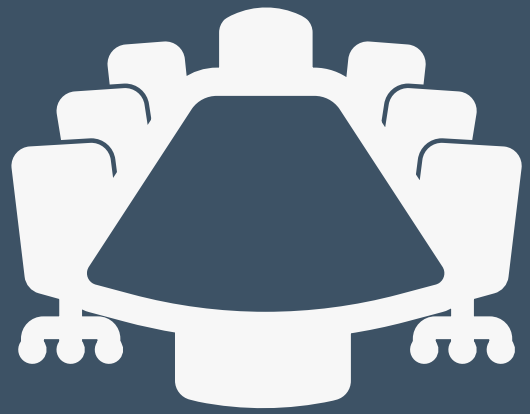
- Est. 25% of avg. first cost including installation
- Incentivizes grid connection
- Aligns to Income Qualified Bill Discount criteria
- Est. 20% of the fleet (2,243 units)
- Team planning a workshop with stakeholders, details subject to change
- Assumes 3% opt-out in financial modeling

- Est.10% of avg. first cost including installation
- Incentivizes grid connection
- Est. 80% of participants (8,972 units)
- Assumes 3% opt-out in financial modeling

- Rewards specific actions
  - Installing a UCM / submitting data
  - Participating in flex load events
- Est. up to 100% of the fleet (11,215 units)
- No rewards if not participating in events

STAKEHOLDER FEEDBACK

- Community Energy Project
- CUB
- DRAG
- DSP
- Energy Trust of Oregon
- FLASH
- Installers
- NEEA
- NWEC
- PGE's ABLE
- Renewable NW



Messaging – proactively encourage planned replacement

Equity – consider higher incentives for LI customers

Equity – design with the lens that LI customers are also market transformers

Inclusivity – Be My Eyes App, FCC info, multiple languages

Incentivized components – include the first costs of the water heater

Distinguish SWH network from other regional networks for clarity

Fast reimbursement crucial for installers to pass incentive to customers

Mitigate risk of up-front incentive – opt-out enrollment, installer network

Cold water concerns – communicate on-board prevention mechanisms

Equity – LTE increases access to those without WiFi and is reliable

Experience – consider how this relates to adjacent activities (ex. panel upgrades)

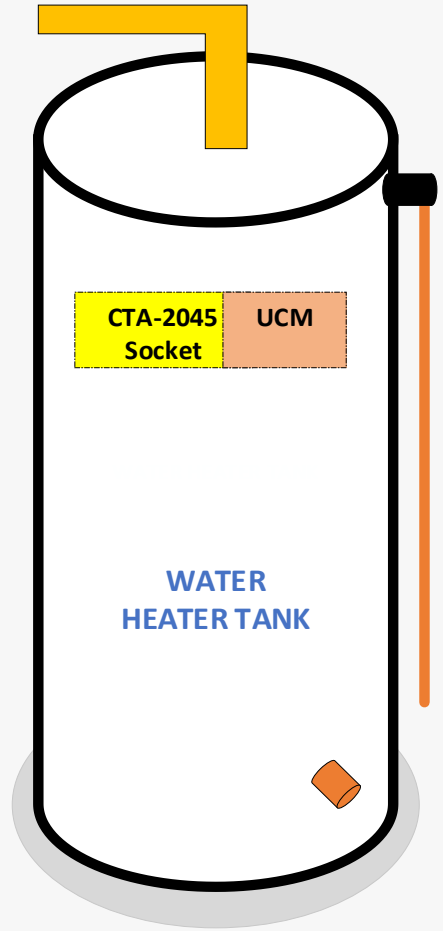
Confirmed first costs are a barrier

NEXT STEPS

- Publish the draft product proposal for Smart Water Heating in the Multi-year-Plan (MYP) draft in **early August**
- Schedule an Income Qualified Incentive Workshop **let us know if you want to join!**
- File with the MYP in **mid-August**
- File the operational tariff in **October**
- Provide updates to stakeholders
- Start shifting load!

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

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



Transportation Electrification Plan

Juliae Riva, Staff Product Specialist
Transportation Electrification

July 13, 2022

PGE is developing programs to support customers' electric transportation needs

PASSENGER EV

RESIDENTIAL

EV Driver

EV Considerer

Non-Driver

NON-RESIDENTIAL

Multifamily Property

Business

Public

FLEET

Private

Transit/School Bus

Municipal

Stakeholder & Community Engagement

Stakeholder Engagement Timeline:

- Later this summer, we will share and present a draft Transportation Electrification Plan (TEP) with stakeholders

We invite you to review this draft, attend upcoming workshops, or otherwise reach out for a conversation if interested.

More information: PortlandGeneral.com/TEP or TEP@pgn.com

Underserved Community Engagement:

- Short-term outreach via rapid needs assessment with vendor Espousal Strategies
  - ✓ Compensated focus groups with specific discussion and survey questions
  - ✓ Feedback gathered will inform the final TE Plan
- Short-term outreach paired with a longer-term, deeper engagement strategy consistent with DSP community engagement approach

Solution Identification

Jennifer Galaway, Manager
Distribution Planning Engineering

July 13, 2022

Objectives

- Refresher on **“Ranking Matrix”** and **Grid Needs**
- **Provide an example** of Solution Identification
- **Present prioritized list of Solutions**
- **Next Steps**

Ranking Matrix

Five levels of prioritization

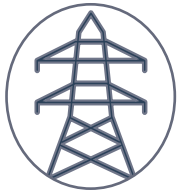
Considers loading &

- Asset health
- Safety
- Customers

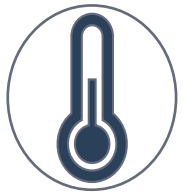
Multipliers for prioritizing at each Level

Ranking Matrix

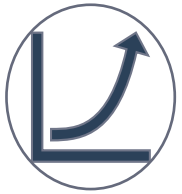
Level 5: Safety and customer commitment



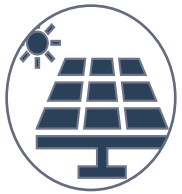
Level 4: Impacts to other facilities



Level 3: Heavy loading, telemetry & substation risk



Level 2: Feeder risk, load growth & redundancy



Level 1: System utilization & DG readiness

Prioritized List of Grid Needs

Identified grid needs in 2021

41

Prioritized grid needs

12

Distribution Planning Engineers conducting studies on the prioritized grid needs for 2023 capital cycle

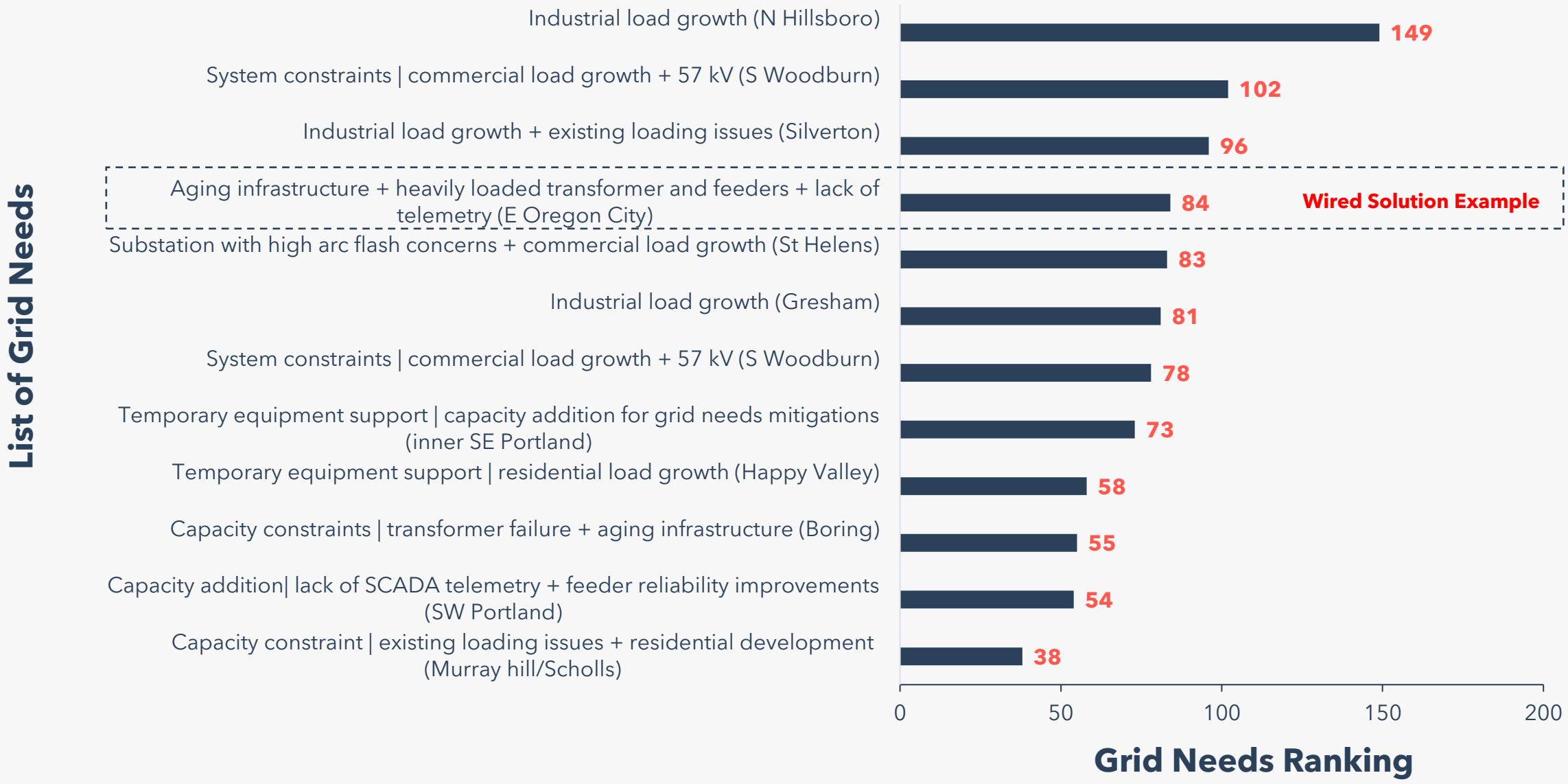
Prioritized List of Grid Needs

Ranking	Grid Need	Type of Need/Constraint	Size of Need/Constraint	Timing/Duration of Need/Constraint	Score Level					Total
					1	2	3	4	5	
1	Industrial load growth (**N Hillsboro**)	Overload, Load Growth	From 91 MVA in 2024 to 270 MVA in 2030 serving multiple large data centers	24/7 due to the nature of data center operations	75	40	18	14	2	**149**
2	System constraints | commercial load growth + 57 kV (**S Woodburn**)	Overload (Distribution and Sub-Transmission), Voltage Issues (Sub-Transmission), DER Readiness, Load Growth	7 MVA on the distribution system	Approx. 5-11 PM, Summer for distribution. Summer and Winter for Sub-Transmission	0	80	9	12	1	**102**
3	Industrial load growth + existing loading issues (**Silverton**)	Overload, Load Growth	8 MVA starting in 2023/2024	Afternoon through late evening, Summer	75	0	9	12	0	**96**
4	Aging infrastructure + heavily loaded transformer and feeders + lack of telemetry (**E Oregon City**)	Overload, Aging Infrastructure, Lack of SCADA Telemetry	10 MVA	Summer and Winter, evenings for overload; 24/7 for aging infrastructure, lack of telemetry	0	20	36	26	2	**84**
5	Substation with high arc flash concerns + commercial load growth (**St Helens**)	Aging Infrastructure, Safety, Lack of Facilities to serve new load	7 MVA	24/7	75	0	0	8	0	**83**
6	Industrial load growth (**Gresham**)	Overload, Load Growth	6 MVA starting in 2023/2024	24/7 due to nature of load being served	75	0	0	6	0	**81**

Prioritized List of Grid Needs

Ranking	Grid Need	Type of Need/Constraint	Size of Need/ Constraint	Timing/Duration of Need/Constraint	Score Level					Total
					1	2	3	4	5	
7	System constraints | commercial load growth + 57 kV (**S Woodburn**)	Overload (Sub-Transmission), Voltage Issues (Sub-Transmission), DG Readiness	Sub-Transmission System Issue	Summer and Winter for Sub-Transmission	0	60	3	14	1	**78**
8	Temporary equipment support | capacity addition for grid needs mitigations (**inner SE Portland**)	Temporary Equipment, Aging Infrastructure, Non-Standard Equipment, Dependency for other Projects	Transformer and feeder capacity needed to support adjacent substation rebuilds	24/7	0	60	3	10	0	**73**
9	Temporary equipment support | residential load growth (**Happy Valley**)	Overload, Load Growth	2 MVA, increasing to 14 MVA by 2025	Summer, approx. 2-9 PM	0	20	18	20	0	**58**
10	Capacity constraints | transformer failure + aging infrastructure (**Boring**)	Overload, Aging Infrastructure	2 MVA, increasing to 5 MVA by 2025	24/7; Summer overload, approx. 2-7 pm	0	20	18	16	1	**55**
11	Capacity addition| lack of SCADA telemetry + feeder reliability improvements (**SW Portland**)	Aging Infrastructure, non-standard equipment, capacity to support other rebuilds, lack of SCADA telemetry	33 MVA to support adjacent substation substation rebuilds	24/7; Summer overload, approx. 2-7 pm	0	40	9	4	1	**54**
12	Capacity constraint | existing loading issues + residential development (**Murrayhill/Scholls**)	Overload, Load Growth	2 MVA, increasing to 13 MVA by 2027	Currently Summer late afternoons to early evenings; more prevalent as load increases	0	0	18	20	0	**38**

2021 Ranked Grid Needs



Current State Analysis

Examine the **severity of the grid needs** and **identify additional issues** using software simulation (CYME)

Step One: "Normalize" loads to a once-every-three-years peak-loading conditions

Step Two: Run CYME study for the grid needs under peak load of normal conditions (N-0)

Step Three: If issues are identified under normal conditions, investigate how to make corrections where needed

Step Four: Run a contingency-analysis (N-1)* at the grid needs

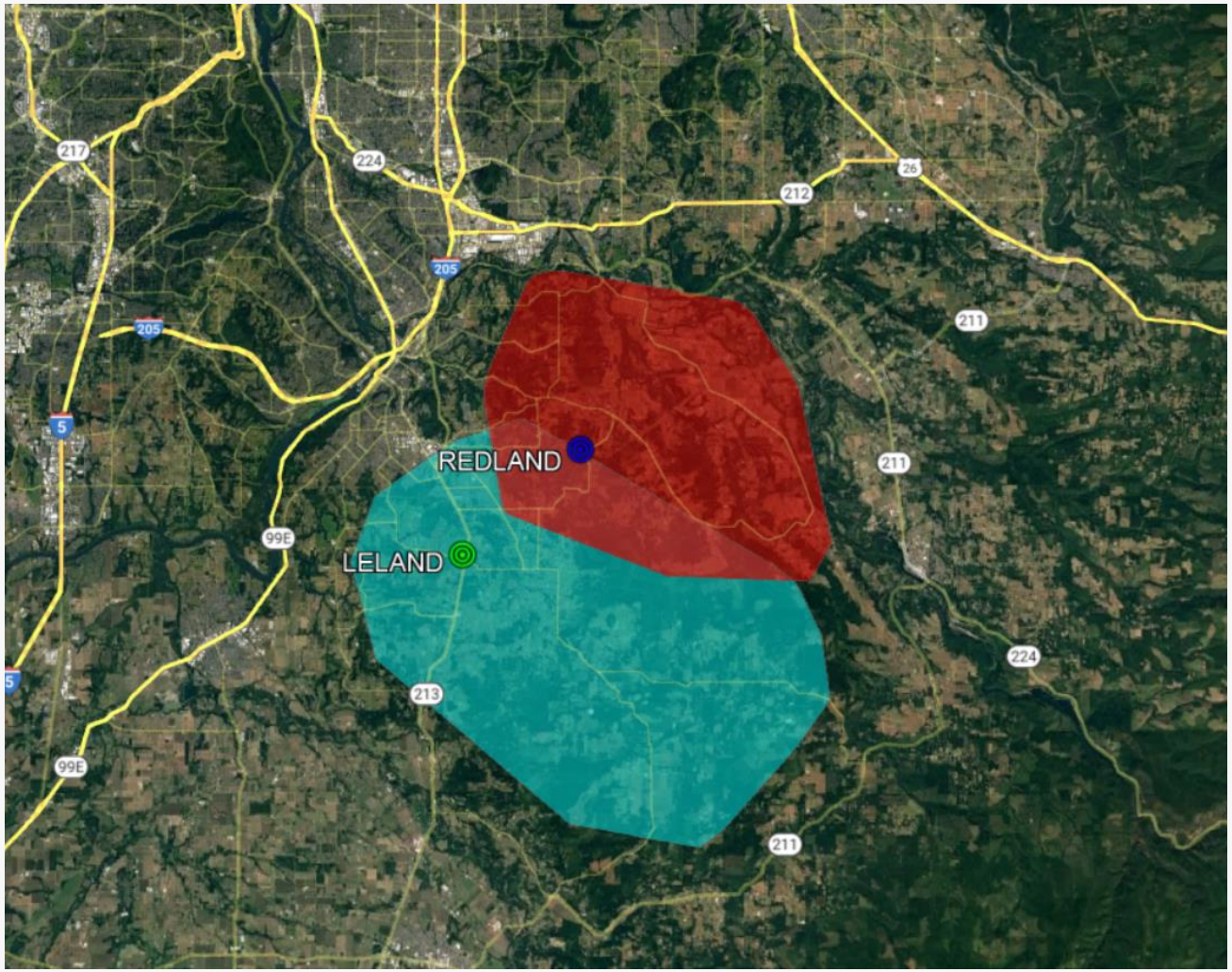
*N-1 take each feeder & transformer out of service in the model, one at a time, and determining if the load can be picked up on other feeders and transformers without causing overloads or voltage issues

Example Solution Identification

Leland Substation &
Redland Substation grid needs:

- Heavily loaded equipment
- Aging infrastructure (Redland)
- Lack of SCADA telemetry (Redland)

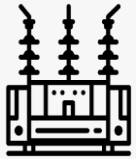
4th-Highest ranked grid need



This project was previously identified and deferred due to Covid-related budget cuts

Last analysis was done 4 years ago, thus a refreshed analysis is performed

Solution Identification Example


Substation


Transformer


Feeder


Reconductor

- Redland substation
- Leland BR1 substation transformer
- Leland-Carus feeder
- Leland-Beavercreek feeder
- Redland-Redland 13 feeder

Aging infrastructure & lack of SCADA (telemetry)

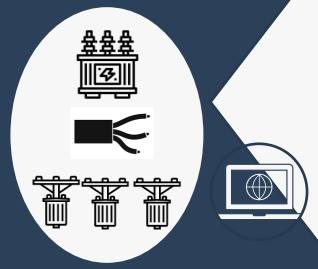
Exceeding Planning Criteria

When multiple grid needs are adjacent to each other they are combined into ONE Grid Need to develop a SOLUTION

Solution/Option Analysis

Step One: Start with the most basic option

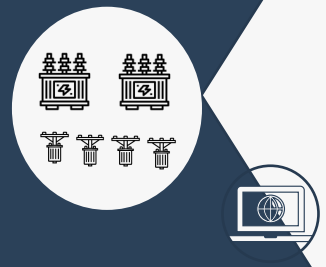
Rebuild Redland Substation to create capacity to offload Leland-Substation



Step Two:

Define Option 1: Replace aging transformer and add a third feeder

Analyze Option 1: Determine if it meets needs before proceeding to Option 2 (more extensive)



Step Three:

Define Option 2: Option 1 + Installing a second transformer + a fourth feeder

Analyze Option 2: Determine if it meets needs


Substation

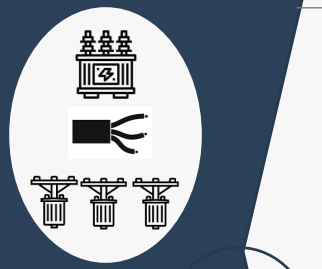

Transformer


Feeder


Reconductor

Solution/Option 1 Results

Substation | Transformer | Feeder | Reconductor



Step Two: Define and analyze Option 1 to determine if it meets our needs before proceeding to Option 2 (more extensive)

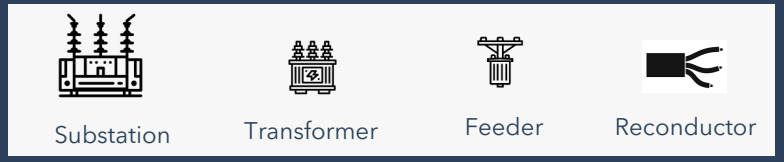
Define Option 1:

Analyze Option 1:

- Reconductor Redland-Redland-13 feeder => Alleviates thermal capacity issue
- Install a third feeder from the substation to split Redland-Henrici and offload part of Leland-Beavercreek (and Leland BR1 substation transformer) => Alleviates thermal capacity issue
- Replace aging 22.4 MVA Redland WR1 transformer with 28 MVA standard => **N-1* redundancy is not achieved** (Currently Redland requires a mobile substation to be sent to the site during transformer contingency to restore all customers)

* **N-1 contingency analysis**

Solution/Option 2 Results



Step Three: Define and analyze Option 1 to determine if it meets our needs

Define Option 2: 

Option 1

Analyze Option 2: Replace aging transformer, install second transformer and two new feeders

- Install a third feeder from the substation to split Redland-Henrici and offload part of Leland-Beavercreek (and Leland BR1 substation transformer) => Alleviates thermal capacity issue
- Install a fourth feeder (two new feeders) from the substation to split Redland-Redland 13 and increase its capacity => Alleviates thermal capacity issue (Reconductor => Not required)
- Replace aging 22.4 MVA Redland WR1 transformer with 28 MVA standard and install second 28MVA transformer to establish N-1 substation transformer redundancy at Redland => **N-1* achieved**

* **N-1 contingency analysis**

Prioritized List of Solutions

Solutions are ranked using same matrix as the Grid Needs at the project level

Rankings between grid needs & solutions did not change for 2023 capital cycle. This will not always be the case.

Prioritized list of solutions presented were the solutions identified in 2021 that were submitted for the 2023 capital planning cycle

Twelve total solutions prioritized for portfolio to consider

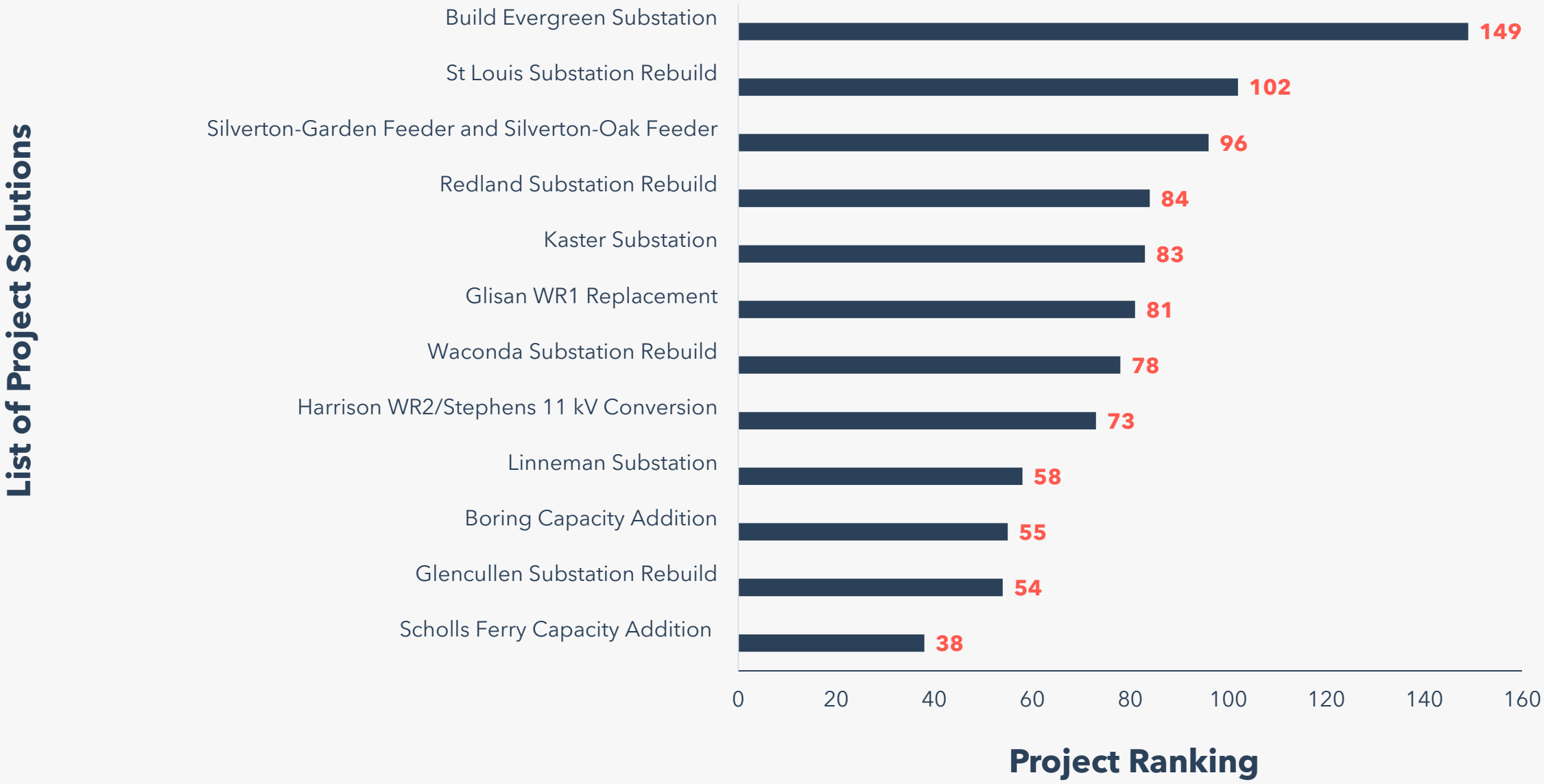
Prioritized List of Solutions

	Grid Need	Project	Ranking Total
1	Industrial load growth in North Hillsboro	Build Evergreen Substation	149
2	Commercial load growth in Woodburn area and 57 kV system constraints	St Louis Substation Rebuild	102
3	Existing loading issues and industrial load growth in Silverton	Silverton-Garden Feeder and Silverton-Oak Feeder	96
4	Aging infrastructure, heavily loaded transformer and feeders, lack of telemetry east of Oregon City	Redland Substation Rebuild	84
5	Substation with high arc flash concerns, commercial load growth in St Helens	Kaster Substation	83
6	Industrial load growth in Gresham	Glisan WR1 Replacement	81

Prioritized List of Solutions

	Grid Need	Project	Ranking Total
7	Commercial load growth south of Woodburn and 57 kV system constraints	Waconda Substation Rebuild	78
8	Capacity addition to implement other grid need mitigations, temporary equipment being utilized for support in inner SE Portland	Harrison WR2/Stephens 11 kV Conversion	73
9	Residential load growth in the Happy Valley area, temporary equipment being utilized for support	Linneman Substation	58
10	Transformer failure resulting in capacity constraints, aging infrastructure in the Boring area	Boring Capacity Addition	55
11	Capacity addition to implement other grid need mitigations in SW Portland, lack of SCADA telemetry, feeder reliability improvements	Glencullen Substation Rebuild	54
12	Existing loading issues and residential development in the Murrayhill/Scholls areas resulting in capacity constraints	Scholls Ferry Capacity Addition	38

Ranked Projects for 2023 Capital Cycle



Next Steps

- These Solutions will be presented in the DSP Part 2 report
- 2024 Grid Needs are being prioritized; a selection of these will be analyzed further to determine Solutions
- We will be evaluating the 2024 grid needs with the **Non-Wires Solution** criteria to determine if they should be considered for Non-Wires Solutions
- If applicable, the Wired Solution will be analyzed against the Non-Wires Solution
- Community Engagement process

10 Minute Break





Non-Wires Solutions

Andy Eiden, Distributed Resource Planning, Principal Strategy and Planning Analyst

July 13, 2022

PGE

Background

Final DSP Guidelines regarding non-wire solutions (NWS) pilots are intended 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."

Further, utilities should "discuss the grid need(s) addressed, various alternative solutions considered, & provide detailed accounting of the relative costs and benefits of the chosen & alternative solutions."

Lastly, in developing these, utilities should utilize the community engagement process & address:

- Community interest in clean energy planning and projects
- Community energy needs and desires
- Community barriers to clean energy needs, desires, and opportunities
- Energy burden within the community
- Community demographics
- Any carbon reductions resulting from implementing a non-wires solution rather than providing electricity from the grid's incumbent generation mix

Community Engagement Principles

Engagement

- Develop relationships and channels for communication with local communities
- Share potential NWS project information
- Work with the community to understand preferences
- Incorporate community preferences
- Survey customers after implementation of NWS to learn and improve the process
- Engage customers in an approachable, fully accessible manner
- Empower all customers to participate

Development of NWS

- Create inclusive and equitable access to opportunities across customer types, with particular attention to opportunities that reduce energy burden
- Create procedural inclusion for new stakeholders who are traditionally not represented
- Promote collaboration between utilities and community-based organizations (CBOs) to broaden perspectives and representation in planning processes and outcomes

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

Community Workshops: Lessons Learned & **Future Engagement**

Workshop Delivery & Participants

Workshop Delivery

- Relevant and tangible examples
- Translation of technical information
- Outcome oriented
- Facilitation strategies:
  - ✓Best virtual platforms
  - ✓Multi-Speaker
  - ✓Mural Board

Role of Stakeholders in DSP

- Increase diversity of representation
- Inform community needs and equity lens
- Understand PGE project decision-making
- Difference of stakeholder interest in DSP topics by group:
  - ✓**Advocates** - DSP connection with other legislation/regulations
  - ✓**CBO's** - DSP connection with community
  - ✓**Customers** - DSP impact on lives/bills and choices
- Funding mechanisms are necessary to support CBO input/participation

Workshops Themes

FEEDBACK	TRUST	CUSTOMER EMPOWERMENT	RESILIENT COMMUNITIES
Transparency	✓		
Outcomes/Results	✓		✓
Education & Outreach	✓	✓	✓
New Tech/Services		✓	✓
Financial Support		✓	✓
Stakeholder Representation	✓	✓	✓
Benefit Allocation	✓	✓	✓

Community Needs & Equity Variables

Community Needs

- Reduce energy burden
- Safety during emergencies
  - ✓Protect from smoke during wildfires
  - ✓Manage temperatures during power outrages
  - ✓Maintain power for critical medical equipment customers
- No community left behind with poorly maintained system

Equity Variables

- Energy burden
- Housing type
- Race
- Household without internet
- Household with disabilities
- Rent vs Own

Recap of the Last Meeting

NWS Candidate Overview

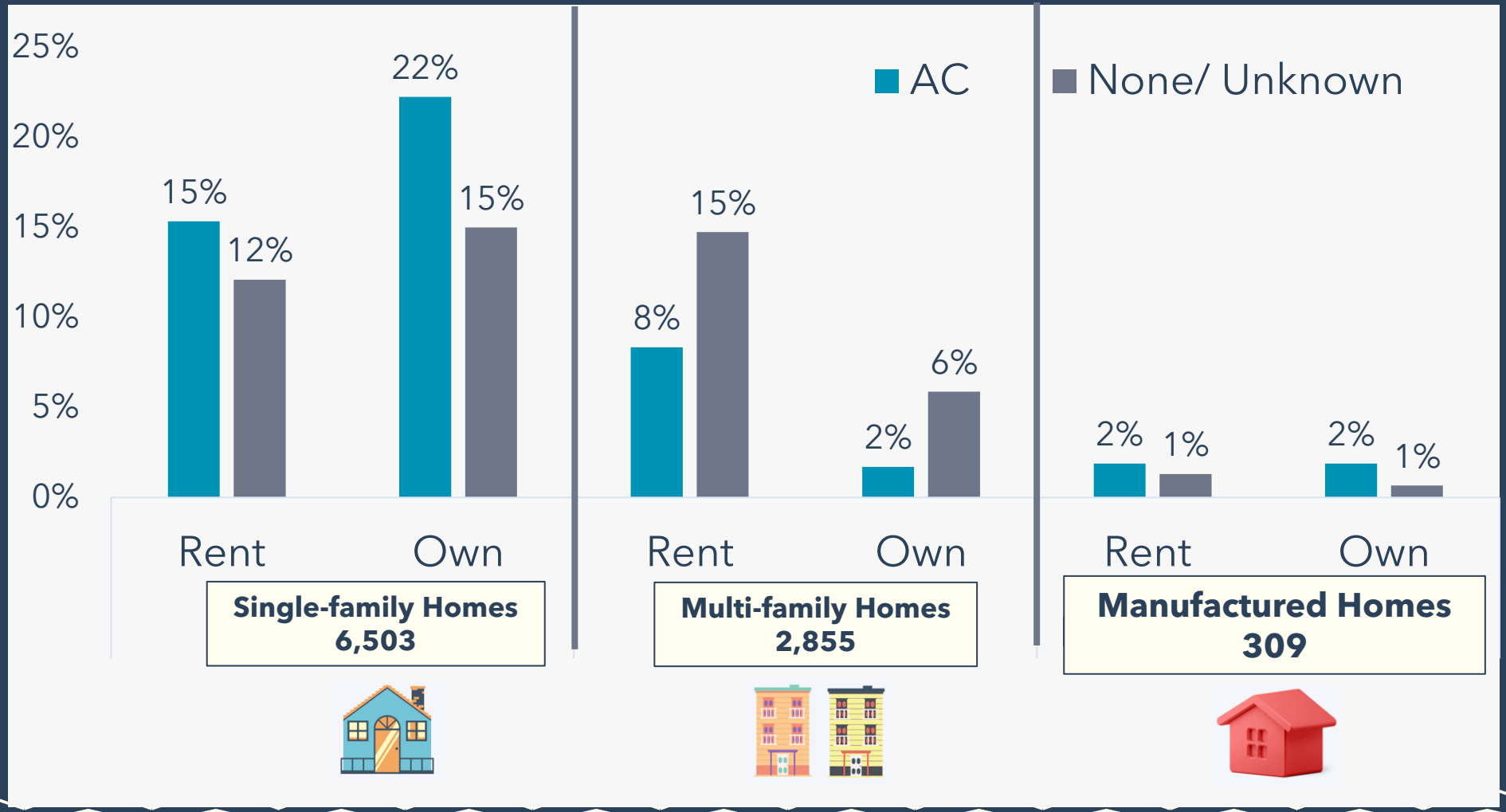
Potential NWS Candidates

Substation	Substation location	Target area	Expected issue
Ruby Substation	831 SE 202nd Ave, Portland, 97233	Ruby-Junction and Ruby-Carline feeders	Heavily loaded feeder
Dayton Substation	**12970 SE Amity Dayton Hwy, Dayton, 97114**	**Dayton-East feeder and Dayton substation transformer**	**Heavily loaded feeder and transformer**
West Union Substation	21430 NW West Union Rd., Hillsboro, 97124	West Union-West Union 13, Oak Hills-Somerset, and West Union-Cornelius Pass feeders	Heavily loaded feeder and under voltage issues
Eastport Substation	**4405 SE 80th Ave, Portland, 97206**	**Eastport-Plaza and Eastport substation transformer**	**Heavily loaded feeder and transformer**
Clackamas	17104 SE Evelyn St, Clackamas, 97015	Clackamas-Tolbert feeder	Heavily loaded feeder

NWS Eastport-Plaza: Customers

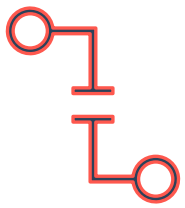
Building type	Total number of homes by building type	Renters	Percent of Low-Income customers	Yearly energy assistance (approx.)
Manufactured Homes 	309	70%	42%	$24K
Multi-Family Homes 	2,855	75%	31%	$186K
Single-Family Homes 	6,503	42%	38%	$209K
Total	***9,667***	***53%***	***33%***	***$418K***

NWS Eastport-Plaza: A/C Adoption (Residential Sector)



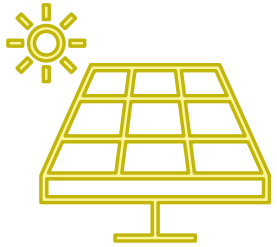
Potential Grid Solutions

Wired Solutions



Upgrading assets such as transformers

Solar



Distributed solar PV systems

Energy Efficiency

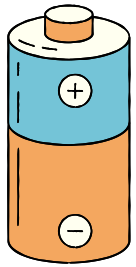
Range of energy efficiency technologies such as weatherization, HVAC, water heater

Thermostats

Thermostats and other HVAC controls

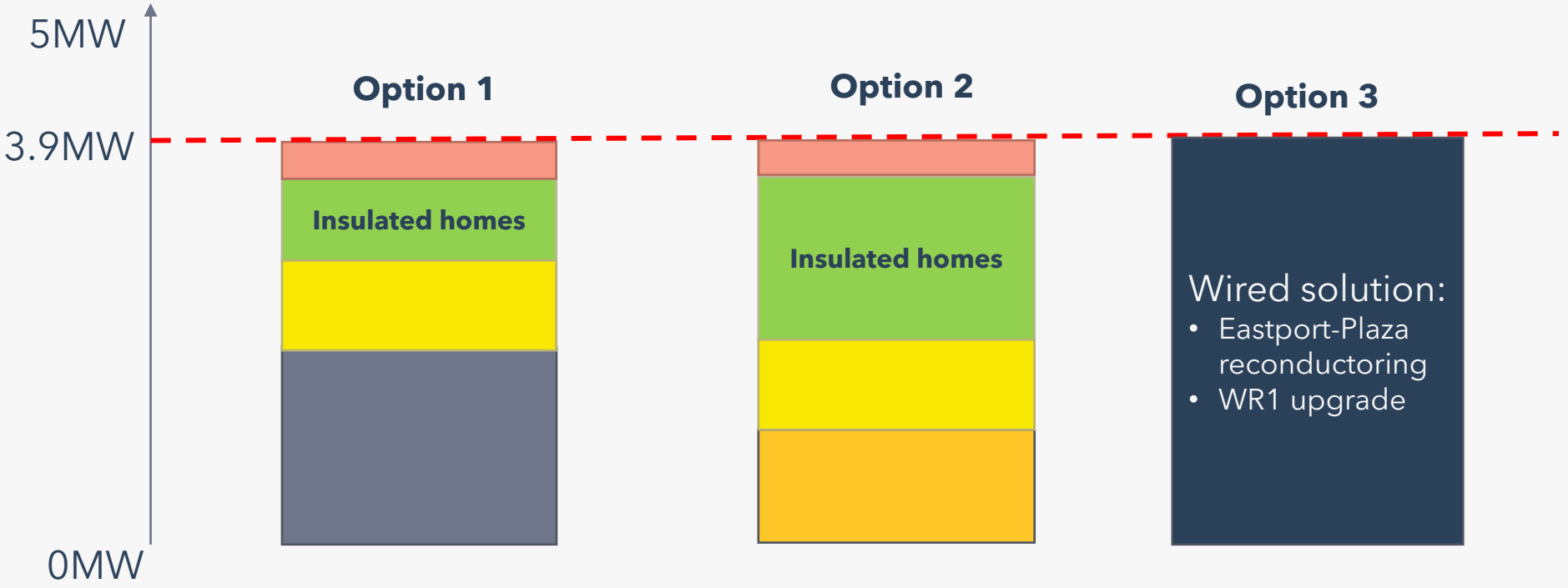
Battery - Customer

Battery - Utility



Front of and behind the meter battery energy storage system

Illustrative Example Only



DER Solutions

Thermostats	$
Energy Efficiency	$$
Battery - Utility	$$$
Solar	$$$
Battery - Customer	$$

Wired Solutions

	$$

Outcomes	Option 1 Utility scale battery	Option 2 High DER option	Option 3 Wired solution
Short-term rate impact	Higher ($$$)	Highest ($$$$)	Lowest ($)
Long-term rate impact	Lower ($$)	Lowest ($)	Higher ($$$)
Community impacts	Short-duration outage resilience	Some customers see reduced outages	More resilient to short-term extreme weather Applicable to all customers
Customer participation	Low-average	Aggressive	None

Developing the NWS Options DER Forecast

NWS Forecast Considerations

PGE uses the AdopDER model to forecast DER growth, including distributed solar & storage, EVs & demand response / flexible loads

In Part II, presenting a **disaggregated view of this system-wide DER potential by substation**

However, NWS forecasts may differ depending on the influence of different factors:

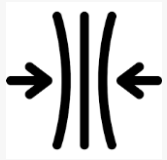
- Higher T&D avoided costs (e.g., additional "locational value")
- More distributed technology options to leverage given locational value
- Influence of targeted marketing and program outreach
- Ability to draw on more local partnerships and network channels

In our filing, we plan to submit a concept proposal for a reasonable NWS mix that meets the identified grid needs – but one that is subject to further refinement if approved

NWS portfolio development strategy

For each pilot concept, we developed two NWS options to compare against the traditional wired solution:

1. **Reliability focused:** Relatively low DER penetration and a higher reliance on front-of-the-meter storage to address the identified grid need. These tend to be higher cost but also have elements of higher reliability given the known timelines and performance characteristics of these type of resources.

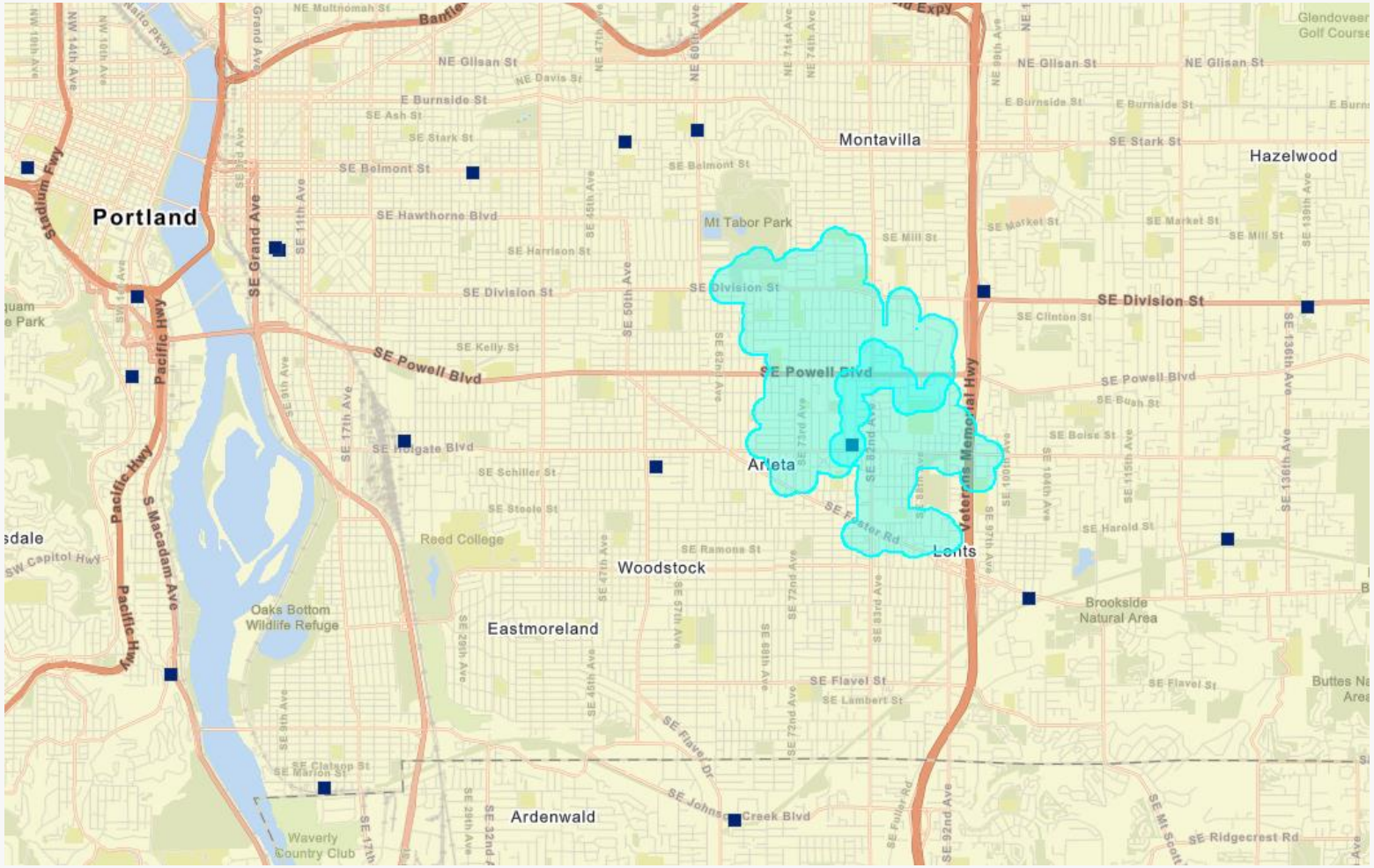


2. **Customer resiliency focused:** These portfolios sought to maximize the amount of realistic achievable customer-sited DER adoption, including distributed solar and storage, demand response / flex loads, and energy efficiency. While the size of the need still likely requires some level of firm resource procurement (such as front-of-the-meter storage), the size of this need is greatly reduced by the increase in customer-sited DERs.

Draft NWS Pilot Concept Detailed Results Eastport Option 2 (High DER)

Eastport NWS Geographic area

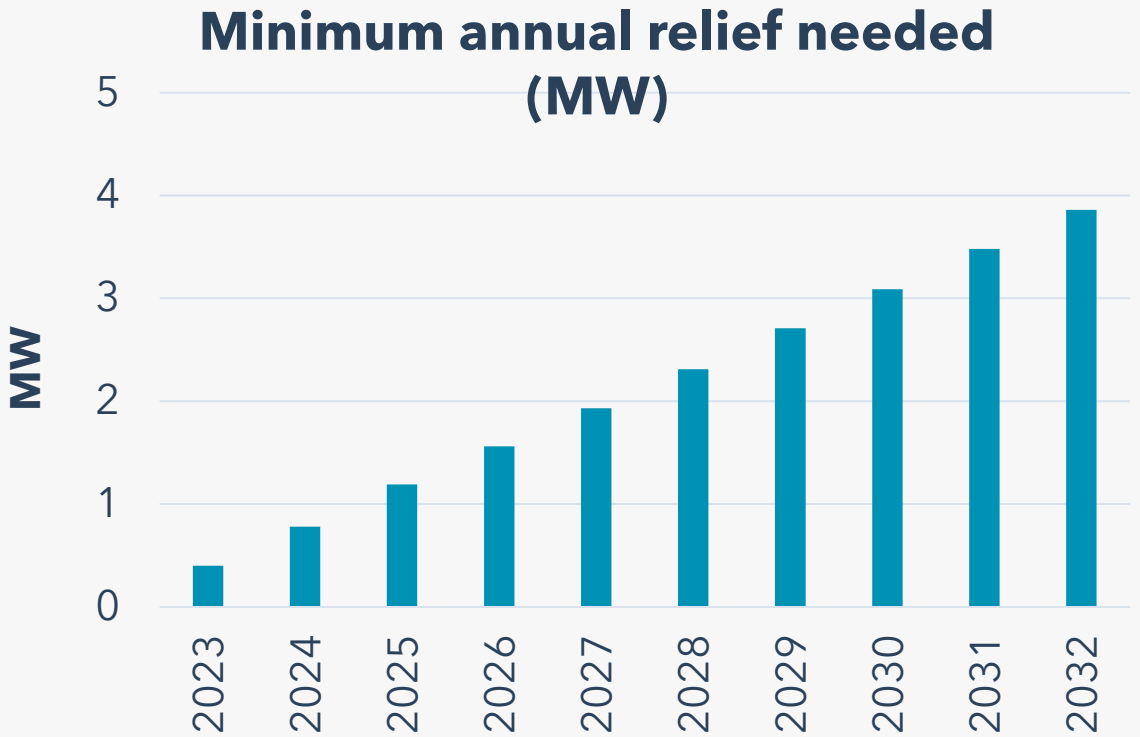
- Eastport Plaza area near SE Powell Blvd and I-205
- N-0 condition* covers two feeders highlighted to the right
- N-1** brings in additional 3 feeders, including sites east of I-205
- Good mix of building types, public purpose entities (schools, public agencies, etc.)
- Overlaps with efforts around 82nd Ave transit planning and economic development activity



* N-0 normal conditions
** N-1 contingency analysis

NWS Candidate: Eastport

Parameter		Value
Grid Need	**Type**	Overload (**over heating**)
	Magnitude	**0.380 MW** per year (60-90 homes) or **3.9 MW by 2032** (600-900 homes)
	Time & duration	Summer weekdays (M-F) growing from **5-6PM to 1-7PM**



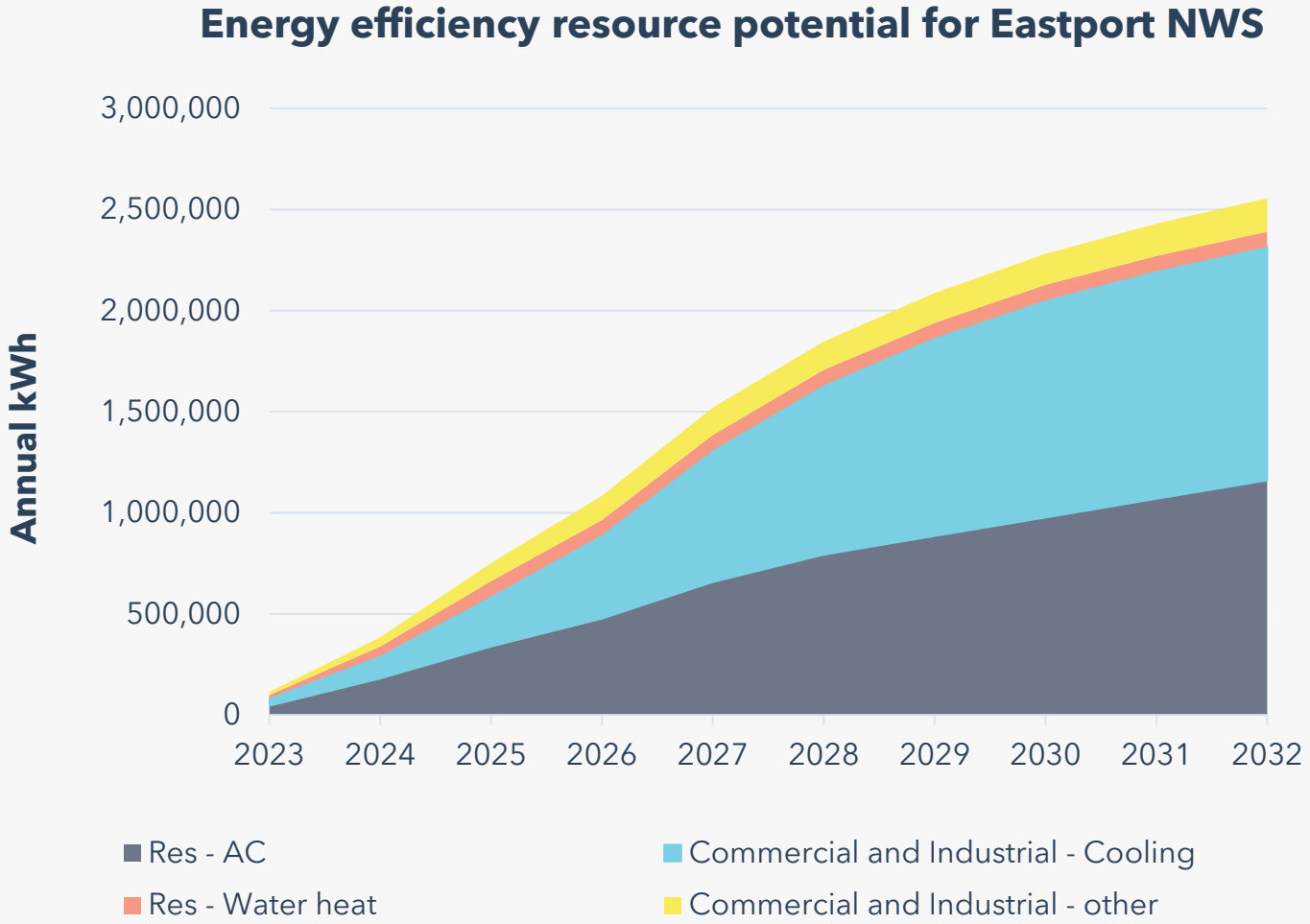
NWS Results – Energy Efficiency

Reviewed Energy Trust's typical project types & evaluated them for their ability to contribute savings during the time period required (generally summer, 12pm to 7pm)

No assumptions on any specific delivery mechanism for the pilot concept for EE

Expect to use the **locational focus** to drive collaboration between entities to accomplish the goals, such as:

- Energy Trust
- CBOs
- PGE
- Oregon Department of Energy
- Local municipal government partners

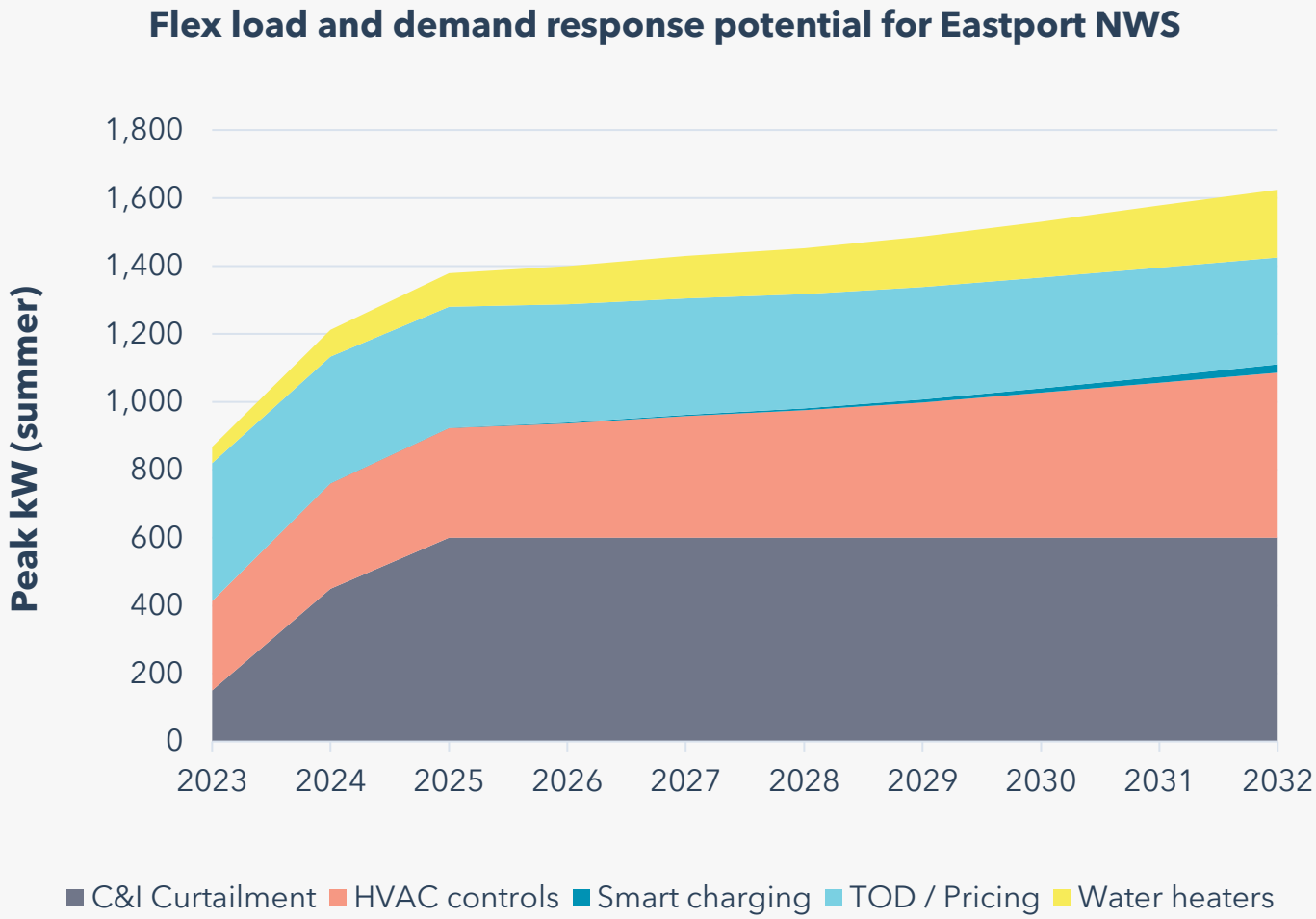


NWS Results – Flexible Loads

Leveraged the disaggregated DER adoption results from AdopDER for flex-loads / demand-response as well as solar + storage

Assumed that achievable potential for the NWS can be quantified as the difference between the reference case adoption and 120% of the high adoption scenario

We increased the high case adoption in order to reflect the higher locational value and potential for increased targeted marketing and incentives

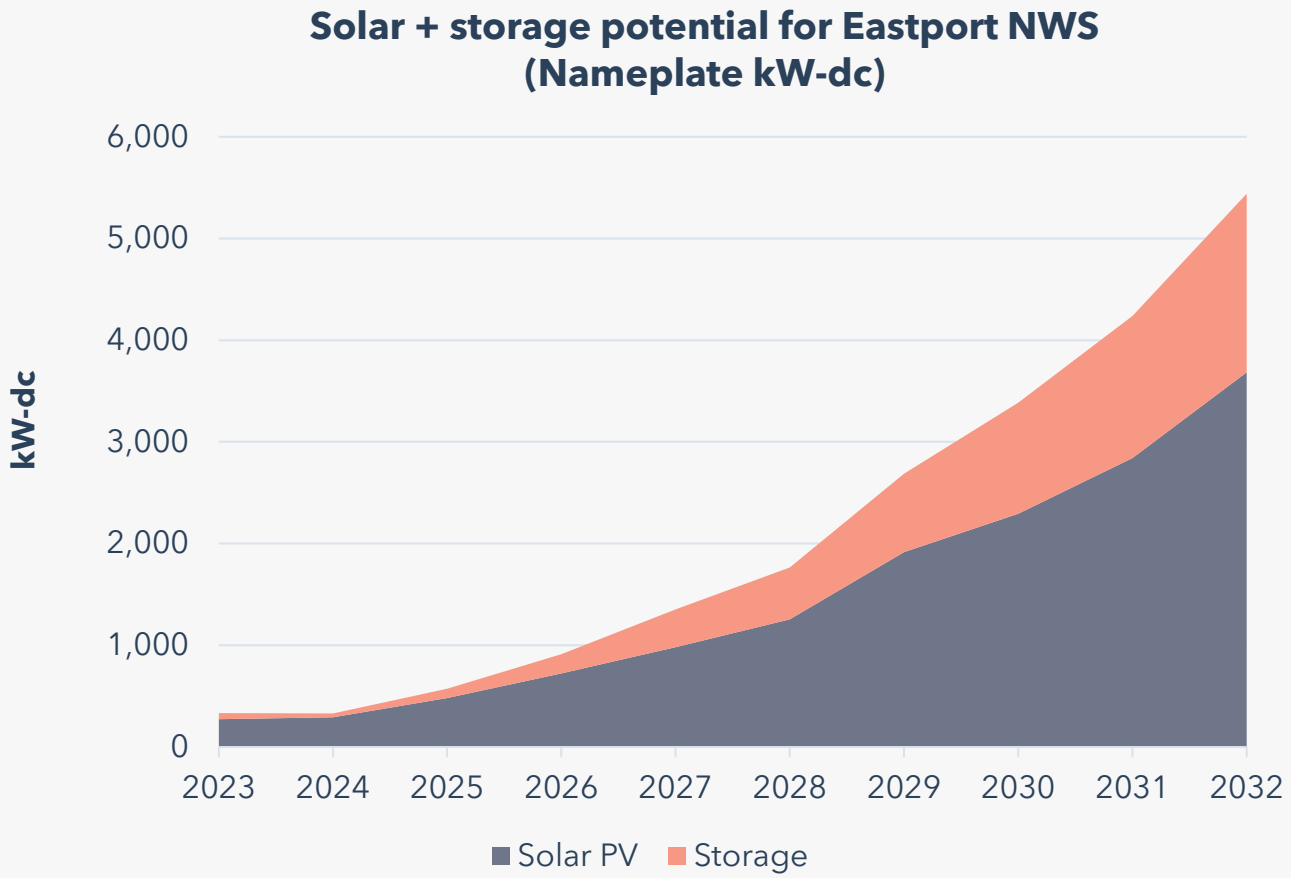


NWS Results – Solar + storage

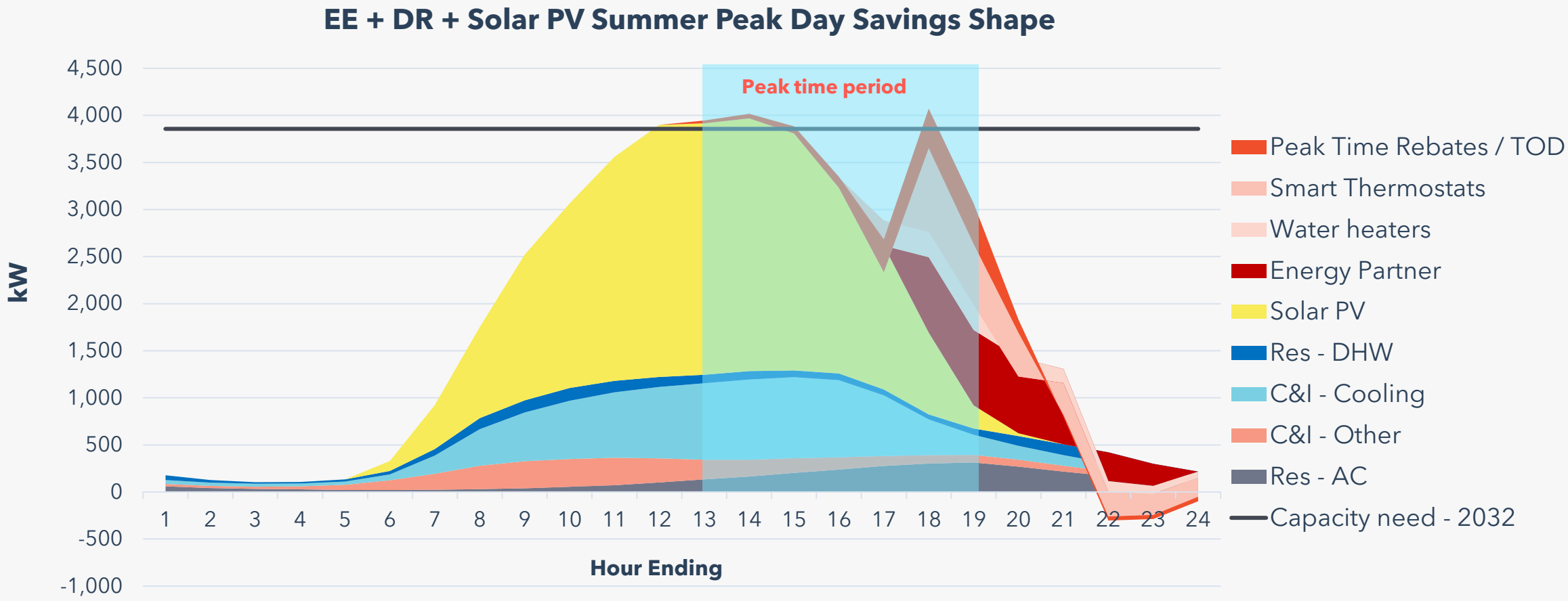
We see significant potential for incremental solar adoption to offset the need, but must be shaped with combination of EE, flex load, storage

Option 2 (High DER) case for Eastport we assume 1 MW of Community Solar, using the low-income carveout

- In discussion with Energy Trust, Community Energy Project, and Bonneville Environmental Foundation
- Hope to see the nexus of local partners work to develop projects in this area reflecting higher locational value



Putting it all together

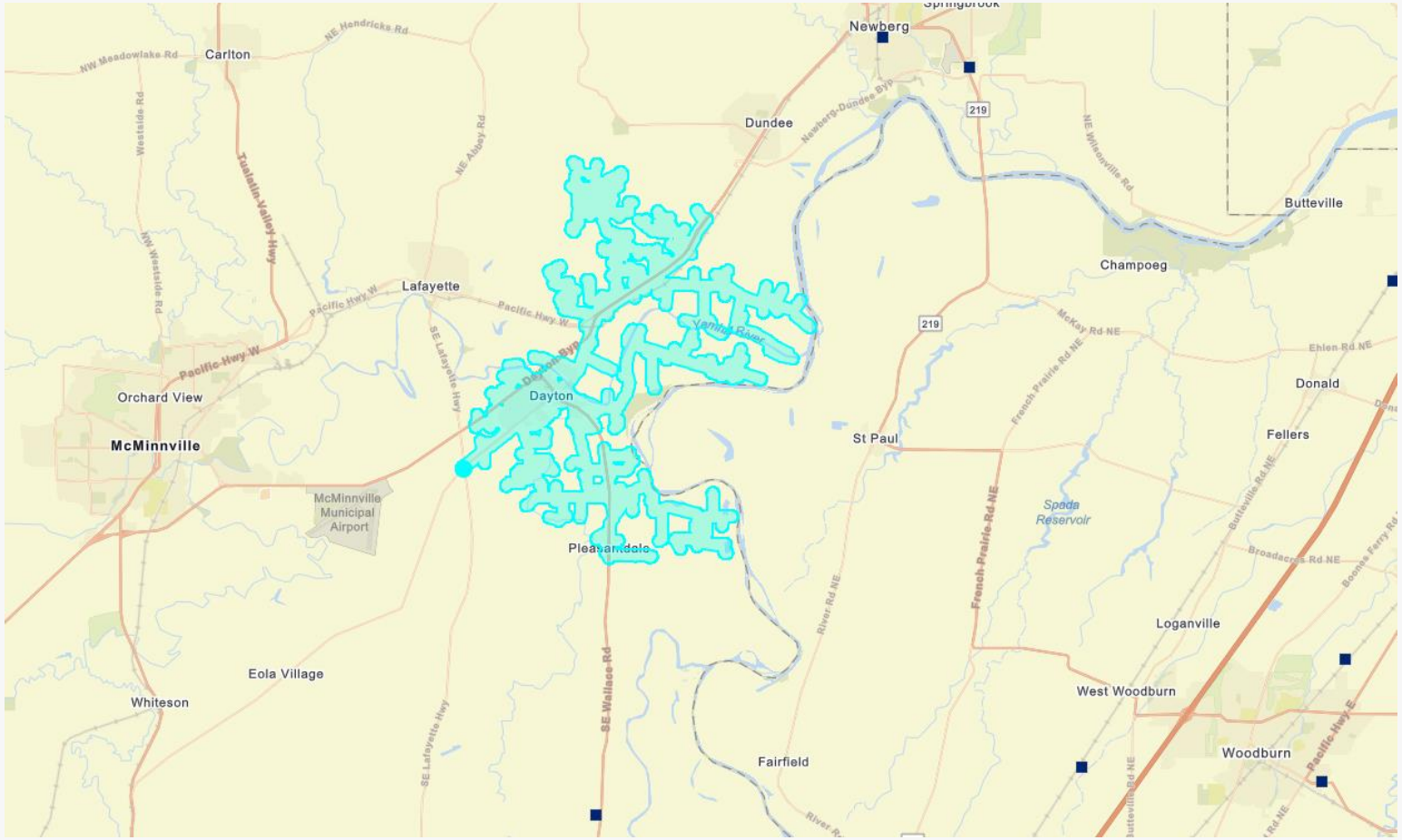


Summary of Eastport NWS Solution

NWS element	Wired solution	Option 1 Customer Resilience Focused	Option 2 Customer Bill-Relief Focused
Total cost	$2,100,000	TBD	TBD
EE potential	N/A	4,000,000 kWh/yr	5,500,000 kWh/yr
DR / Flex potential	N/A	1.6 MW	2.2 MW
Solar potential	N/A	2.1 MW (nameplate)	4.7 MW (nameplate)
Distributed customer storage	N/A	1.2 MW / 2.4 MWh (2-hr)	1.8 MW / 3.6 MWh (2-hr)
Utility-scale storage	N/A	1.5 MW / 6 MWh (3-hr)	250 kW / 500 kWh (4-hr)

Dayton NWS Geographic Area

- Dayton NWS project located out near Newberg
- More rural than Eastport
- Potential for irrigation projects (both energy efficiency and direct load control)
- Wine country! Presents potential for emerging technology to serve that sector



Summary of Dayton NWS Solution

NWS element	Wired solution	Option 1 Customer Resilience Focused	Option 2 Customer Bill-Relief Focused
Total Upfront Capital cost	$3,302,526	$3,670,000	$2,252,000 *
EE potential	N/A	N/A	1,734,480 kWh/yr
DR / Flex potential	N/A	N/A	1.5 MW
Solar potential	N/A	N/A	380 kW nameplate
Distributed customer storage	N/A	N/A	1.2 MW / 2.4 MWh (2-hr)
Utility-scale storage	N/A	2 MW / 12 MWh (6-hr)	1.5 MW / 6 MWh (4-hr)

NWS Ongoing Considerations & Next Steps

Next Steps

Finalize costs & benefits analysis for the NWS options

Important considerations:

- Incorporating stacked benefits for DERs (e.g., bulk system value + locational use case)
- Share of upfront versus ongoing costs, and whether capital or O&M
- Who pays? Detailing the relative share of customer costs and utility / program costs
- Accounting for potential community benefits like jobs impacts, increased resiliency, etc.

Finalize report write-up

Continue refining approach through engagement channels





Current & Future Engagement

Joe Boyles, Distributed Resource Planning, Project Manager

July 13, 2022

Objectives

Share the current state activities and tools

Gain insight on the point in the process that makes the most sense to engage

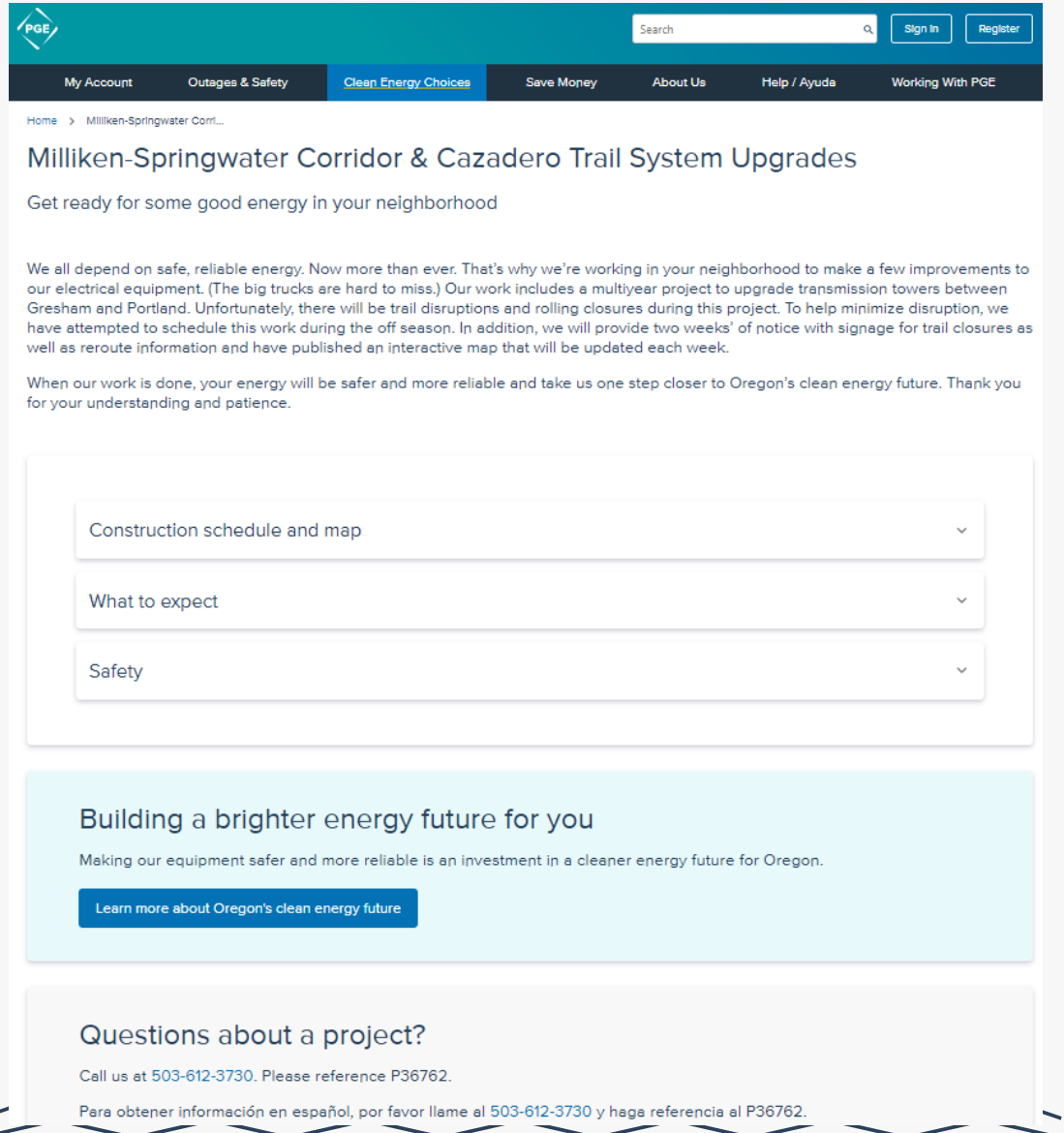
Discuss next steps

Current state process

Communications timelines and deliverables are as diverse and as complicated as our projects

Our Standard Project outreach process is as follows:

- Project manager brings to our attention the need for outreach based upon permit requirements and their assessment of impacts to those in the surrounding area.
- An outreach distribution area along or within proximity of the work location is identified. This might be a transmission or distribution line corridor, substation or any other project required to support PGE's transmission and distribution infrastructure.
- At least two weeks prior to the project's construction start date, a customer letter (or mailer) is sent to those within the distribution area. This mailer includes a weblink to pge.com as well as a phone number and email address for any questions, concerns and/or feedback.



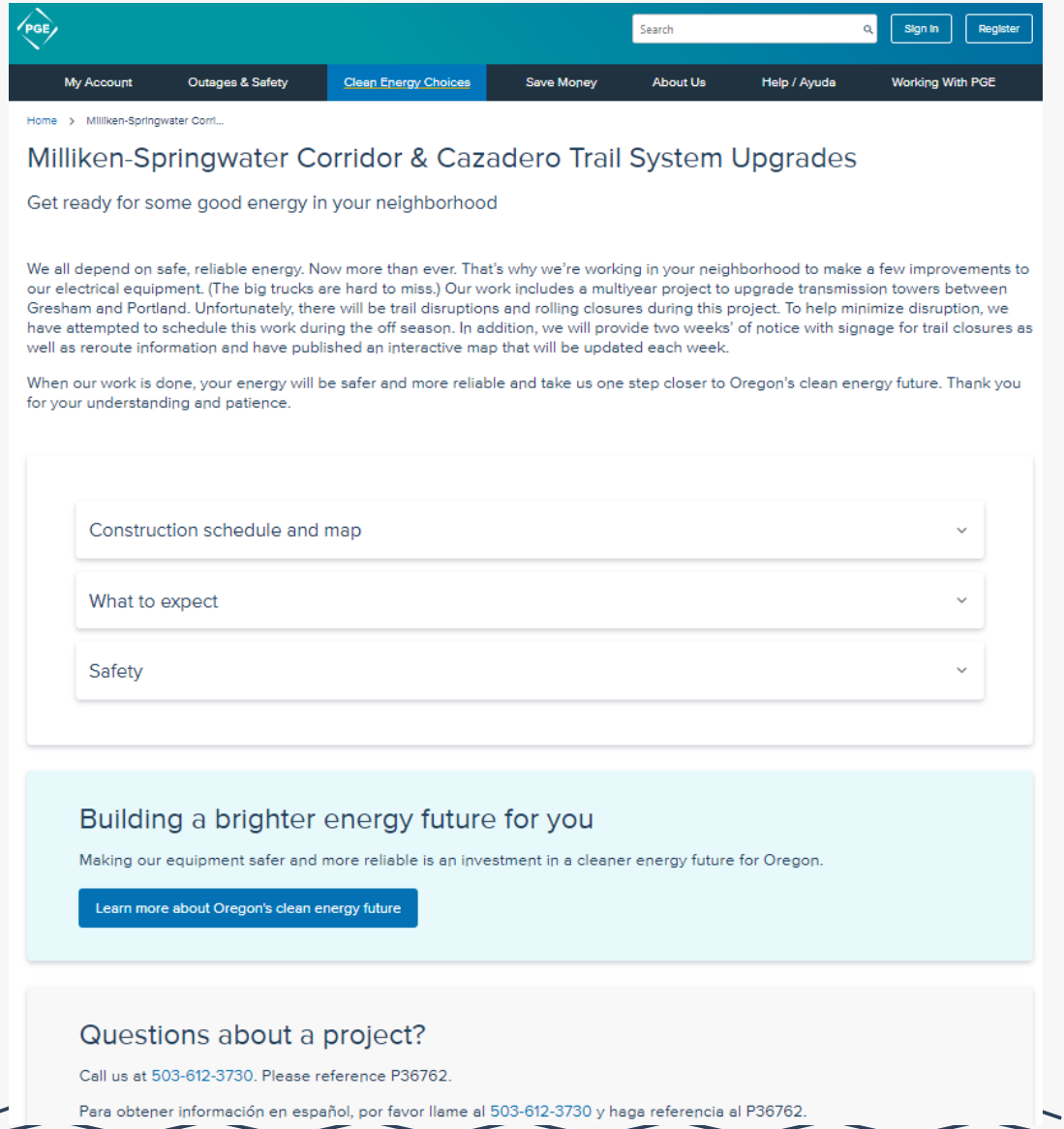
Current state process

Communications timelines and deliverables are as diverse and as complicated as our projects

Our Standard Project outreach process is as follows (continues):

- If an outage is planned, customers will receive a notice via a doorhanger with the anticipated date and time of the outage. If necessary or helpful, additional signage is created along the corridor or near the project site providing useful information.

- This may include a QR code with a link specific to the project, a project area map, construction and/or closure dates and times as well as messaging that warns individuals of risks for their and our crews' safety.

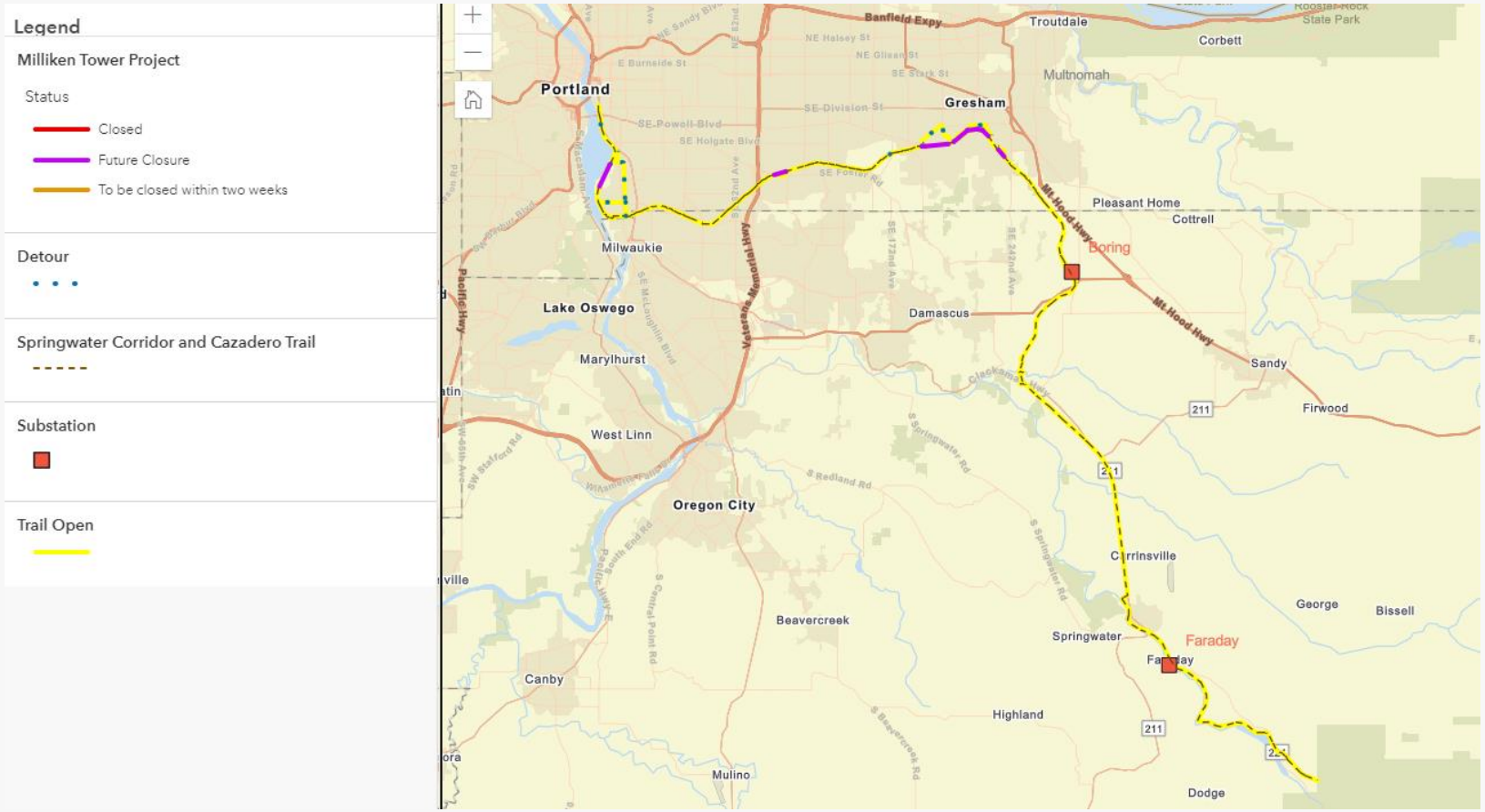


Milliken-Springwater Corridor & Cazadero Trail System Upgrades

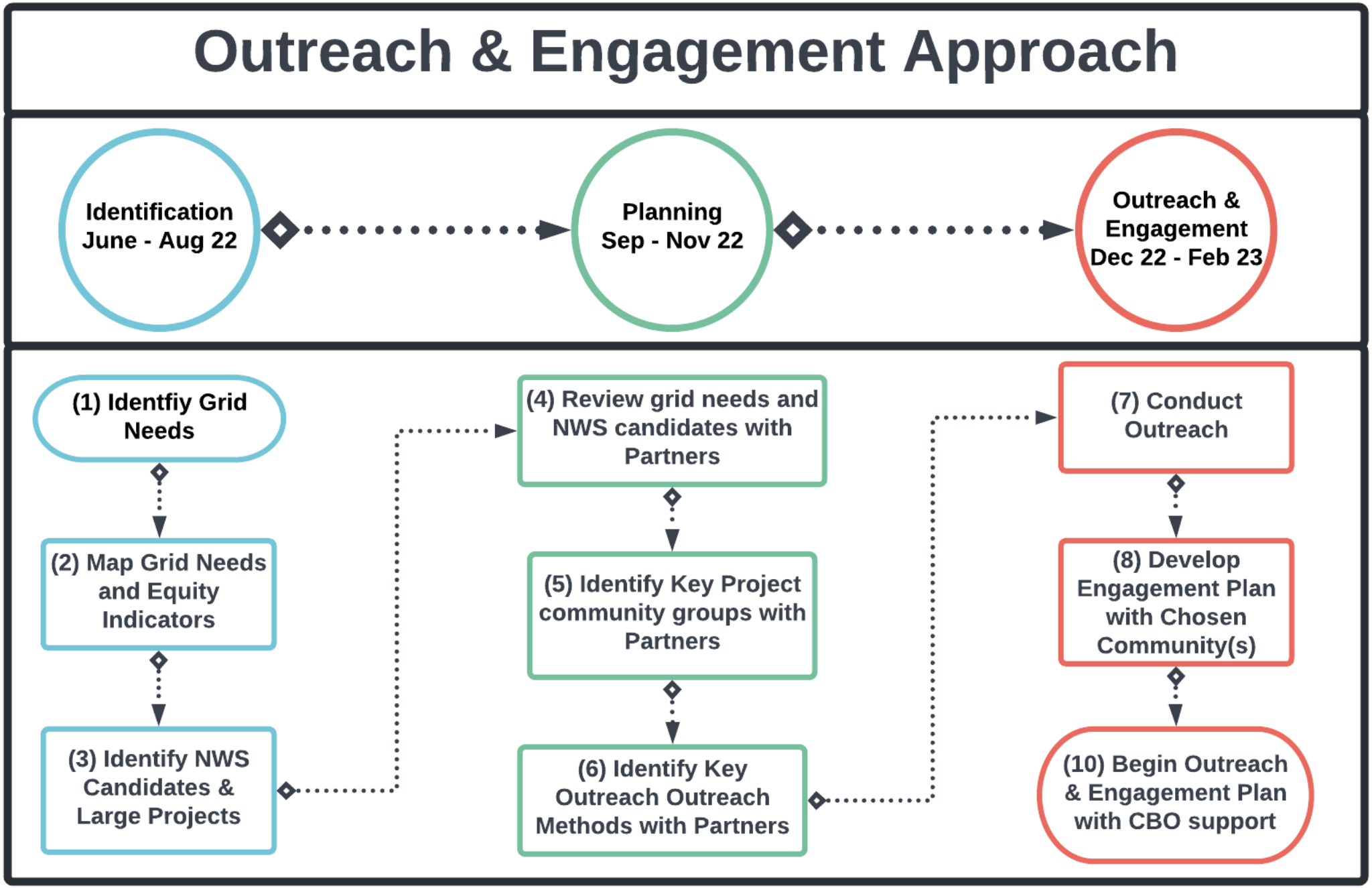
Interactive Map

Springwater Corridor Trail Closure Map

- Regardless of dates shown, the trail will be open every Sunday.
- You can zoom in to see trail closure dates and click on each location for more details.
- We will update the map every Wednesday morning, looking ahead three-weeks at a time.
- Due to permits and scheduling, things can change.
- So please check back here for the latest updates or see the updated signs posted throughout the trail.



Outreach & Engagement Approach



Desired Outcomes

(1) Community Acknowledgment & Participation in NWS & Large Projects

(2) Increased CBO capacity for Engagement Partnerships in Future Planning Cycles

(3) Continual Process of Documenting Lessons Learned, & Growing from our Actions + Feedback.

Assumptions

(1) DSP Team can find orgs to Partner with.

(2) DSP Team can find a reliable method of funding partners

Survey Overview

- Online survey
  - ✓ 7 questions
  - ✓ 7 Responses
- Conducted follow-up interviews

Qualitative Results

Area of Opportunities

- Compensation
- Duration of meetings
- Advanced notice of meeting times
- A regular schedule / meeting cadence is helpful (every three weeks)
- Clarity on how participation effects internal PGE actions and policies

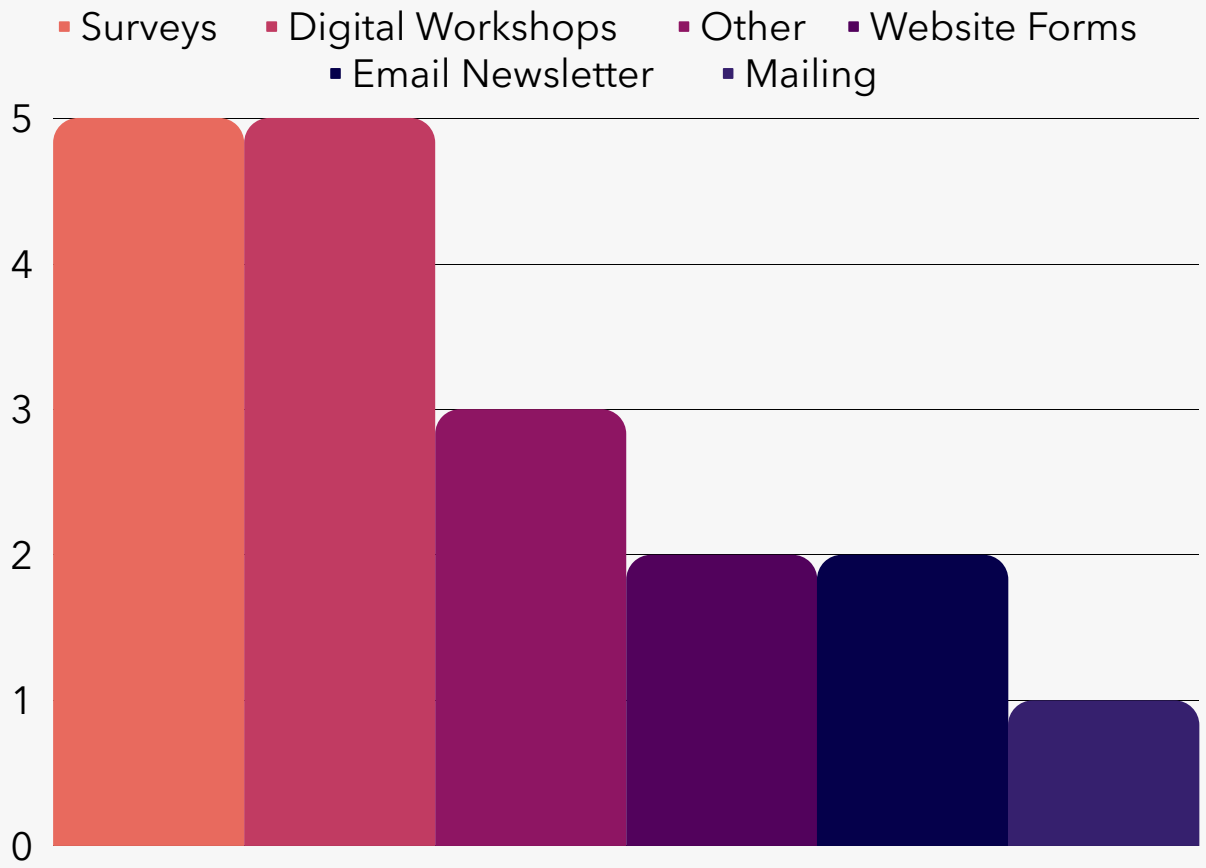
Areas of Appreciation

- Accessible facilitation & format
- Real word examples
- Progression & level setting of topics
- NWS & DER stacking
- Need a broader array of people in workshops

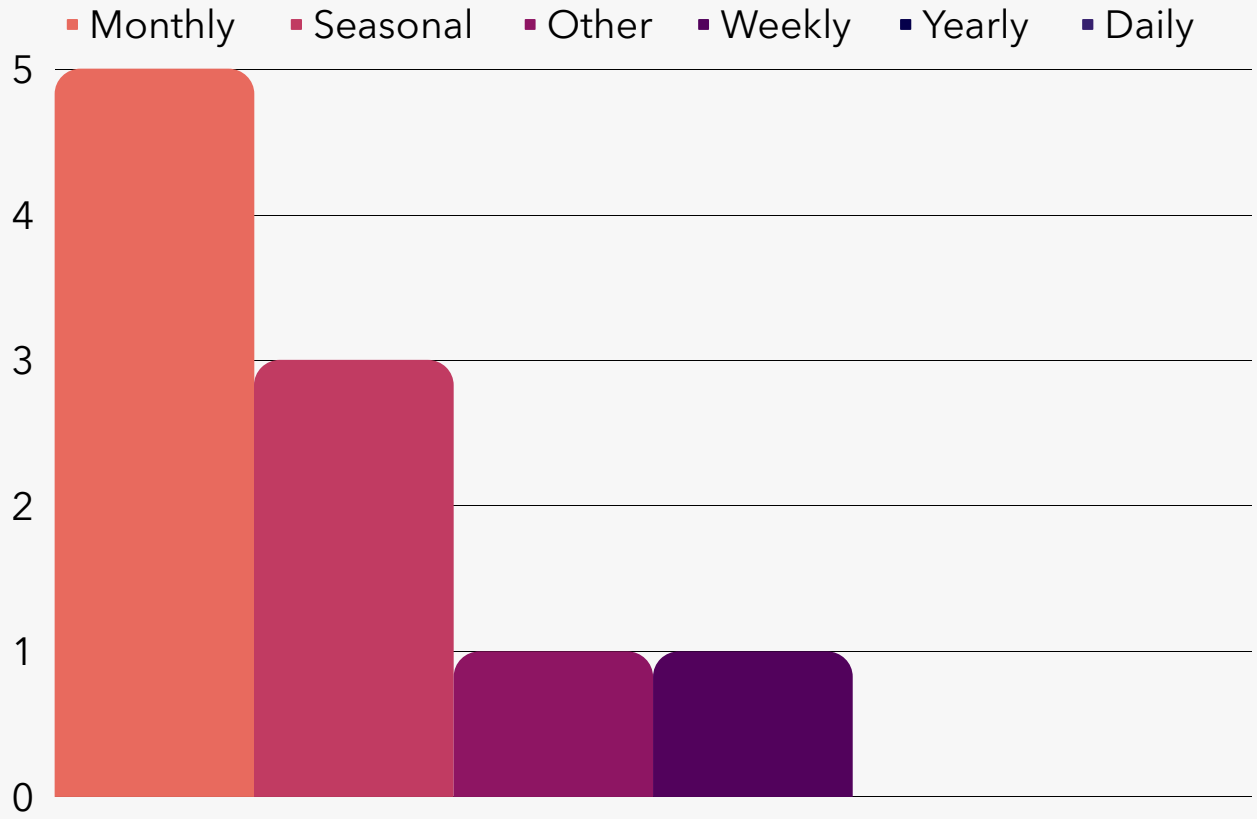
Quantitative Results

I am able to understand, at a high level, the components of a Non-wired solution.	57% Agree 43% Neither agree nor Disagree
I feel equipped to participate in future discussions that contribute to the development of Non-wires solutions.	43% Agree 57% Neither agree nor Disagree
Would you support a CBO to help translate technical processes in the future?	57% Yes 29% Maybe 14% No

Quantitative Results

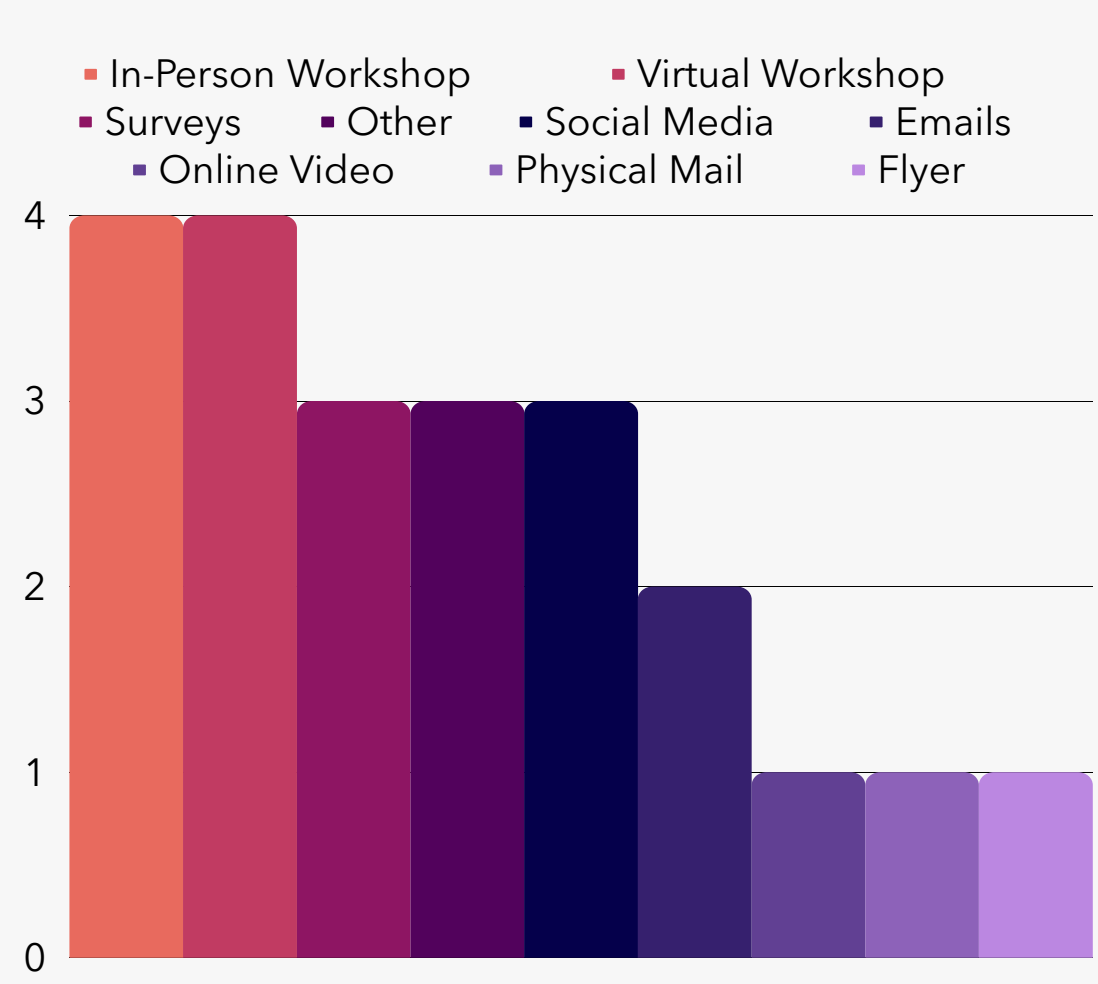


How can PGE best collect information from community to better understand community needs related to electricity and utility infrastructure?

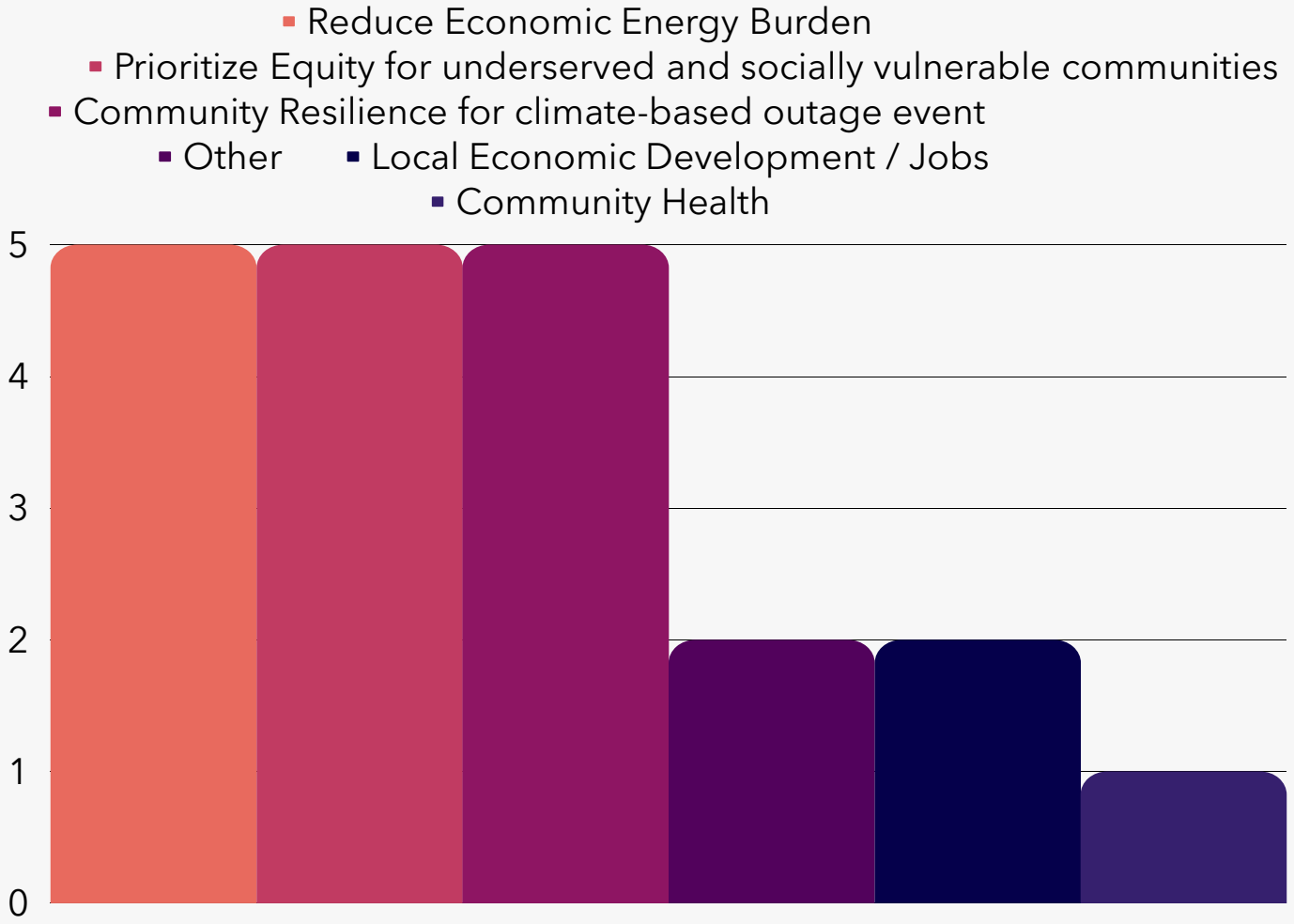


What is a good frequency for reaching out?

Quantitative Results



How should we best interact with a community to co-create a Non-wires Solution/DER-stack - at the project level? (Choose 3)



How should we prioritize these community needs? (Choose 3)

Key Takeaways

- Be data informed
- Continue with surveys and feedback
- Organize findings and share across internal PGE teams
- Report out findings externally (anonymously)
- Create a positive feedback loop

Next Steps

Recruit Partners to participate in the process

Enhance existing Neighborhood Projects site

Begin engaging with next round of investment planning – November/December

Next Steps

DRAFT Agenda for 2022

Aug 3

Presenting DSP Part 2 Report content before filing

Let's meet the future together.

You can reach us at:

DSP@PGN.com

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

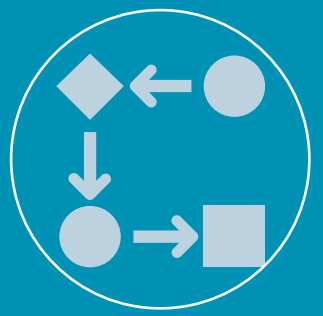
- Resilience/Outage

- 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

Identifying Grid Needs for NWS Pilots

Step 1: What is the problem?

Prioritized grid needs for capital cycle

Potential future grid needs/ lower priority grid needs

NWS pilot candidates for the DSP