



# Distribution System Planning Public Workshop #10 July 21, 2022



# Workshop #10 Information

## Teams Meeting Information

Microsoft Teams meeting

**Join on your computer or mobile app**

[Click here to join the meeting](#)

**Or join by entering a meeting ID**

Meeting ID: 266 587 098 400

Passcode: 4buUji

**Or call in (audio only)**

[+1 563-275-5003,,211492079#](#) United States, Davenport

Phone Conference ID: 211 492 079#

[Find a local number](#)

Please add the following to the Teams Chat when you log on to the meeting:

- Your Name
- Your Organization and Title/Role

- 
- Please use **Microsoft Edge** or **Google Chrome** with Teams for best experience
  - Please **place your phone on “Mute”** when not speaking
  - If you call in using your phone in addition to joining via the online link, please make sure to **mute your computer audio**
  - Please **do not use the “Hold”** function on your phone
  
  - Please use the chat function in TEAMS to provide any questions or comments during this presentation. We will do our best to address those as they come up, if we are unable to get to them, we will follow-up directly or at an upcoming workshop.



# Today's Agenda

---

1. Introductions and Review Agenda (10 minutes)
2. Forecasting Updates (60 minutes)
3. Review Grid Need – Klamath (10 minutes)

## **Break (10 minutes)**

4. Review Potential Solutions Wires/Non-wires (60 minutes)
5. Update on Community Engagement (20 minutes)
  - State Level Engagement
  - Local Engagement
  - Large Projects
6. Review DSP Part 2 Schedule and Upcoming Topics (5 minutes)



## 2) Forecasting Updates



# DSP Part 2 – Initial Requirements

## Load Growth, DER Adoption and EV Adoption

Today we will cover:

- 5.1 a) distribution load growth forecasting
  - i) forecasting method and tools used to develop the forecast
  - ii) forecasting time horizon
  - iii) data sources used to inform the forecast
  - iv) locational granularity of the load forecast
- **5.1 b) Forecast of DER adoption and EV adoption by substation**
  - i) high/medium/low scenarios for both DER adoption and EV adoption
  - ii) description of methodologies for developing the DER forecast, EV forecast, high/medium/low scenarios, and geographical allocation
  - iii) methodology for geographical allocation (to the substation)
  - iv) data used
- **5.1. c) Results of forecasting load growth, DER adoption and EV adoption**



# DERs in the Context of DSP

**What is a DER?** - The Federal Energy Regulatory Commission defines a DER as

*“A source or sink of power that is located on the distribution system, any subsystem thereof, or behind a customer meter. These resources may include, but are not limited to, electric storage resources, distributed generation, thermal storage, and electric vehicles and their supply equipment.”*

In part 1 of the DSP, we looked at historical levels of adoption for the following DERs.

1. Electric vehicles
2. Net metering, small-scale generation
3. Energy Efficiency
4. Demand Response

In part 2, we are examining forecast scenarios to estimate potential future level adoption of DERs.

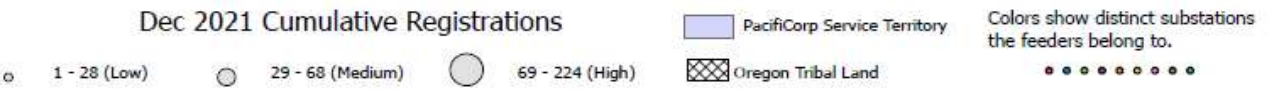
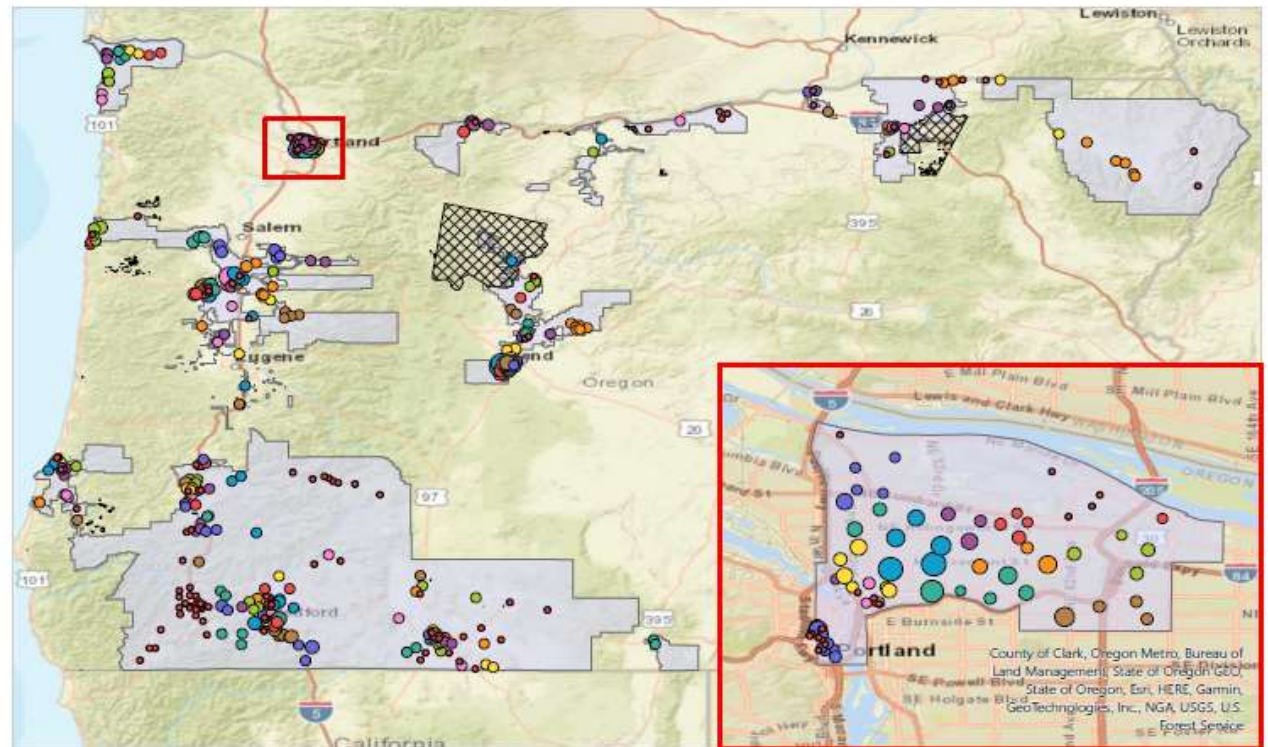
# Electric Vehicle (EV) Adoption Forecasts

# EV Registrations Analysis

## Introduction



**Critical Question:**  
How will EV registrations grow and change over time?







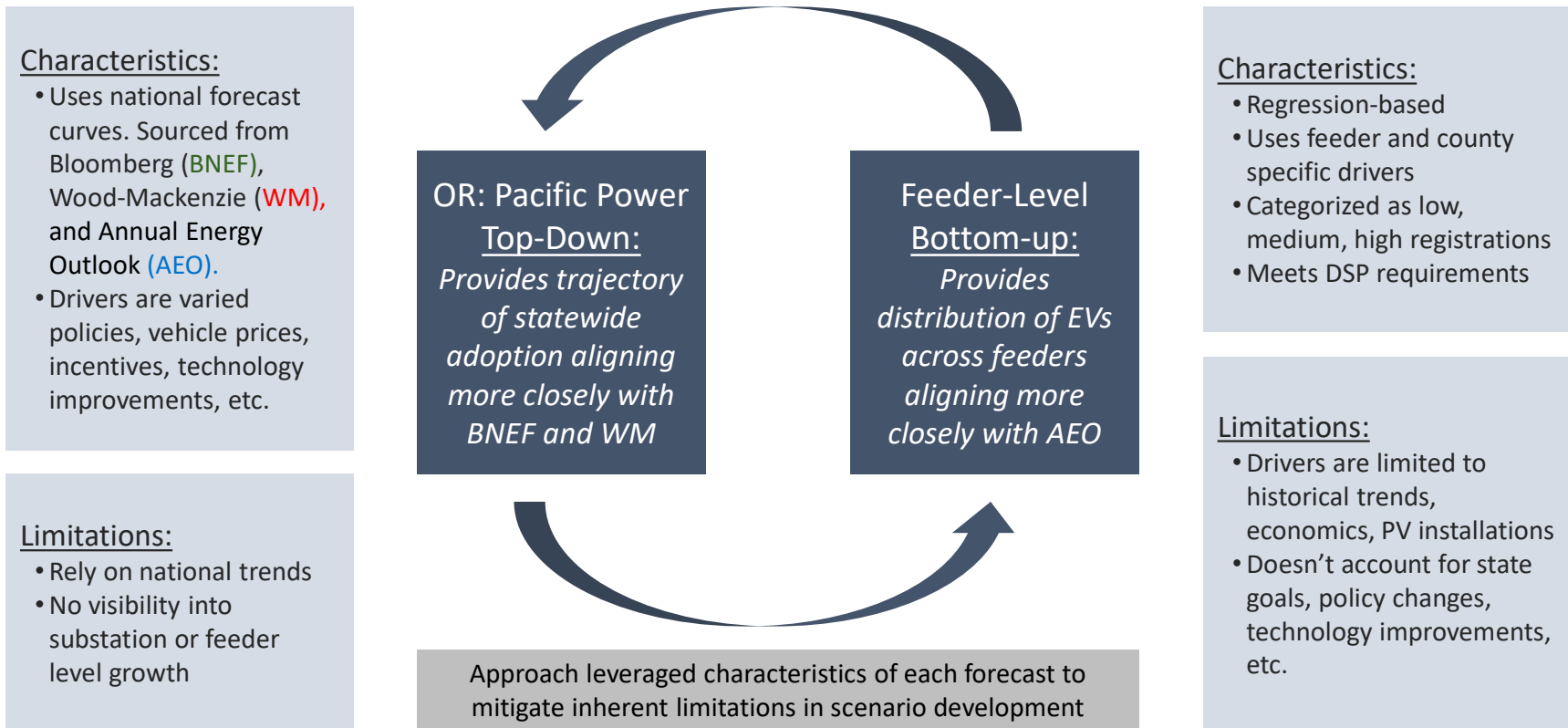
# EV Registrations Analysis

Key Objective: Create a low, medium, and high **feeder- and substation-level** electric vehicle (EV) growth forecast for the Pacific Power Oregon service territory that is robust with clear and defensible logic.

Scope:

- Focused on light duty vehicles
- Excludes fleets
- Analyzes cumulative number of registrations
- Based at the feeder-level and aggregated to substation- and state-level
- Includes both a top-down and bottom-up approach
- Conducted by our third-party vendor, Applied Energy Group

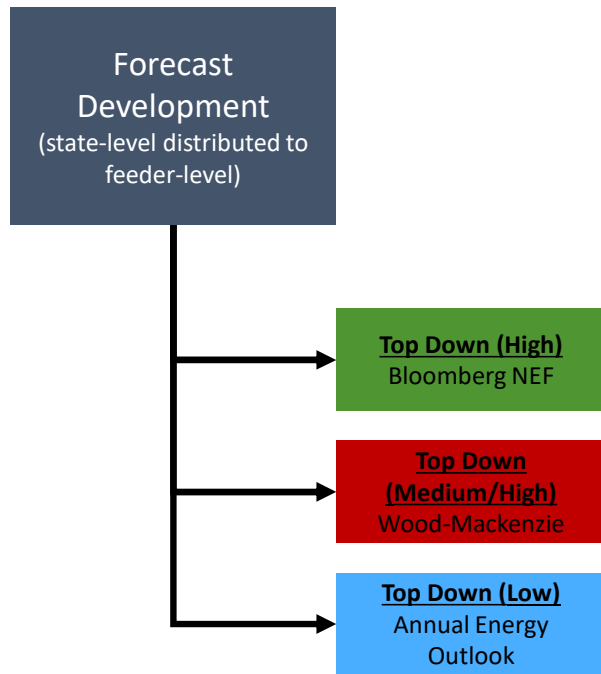
# EV Registrations Analysis Methodology Overview



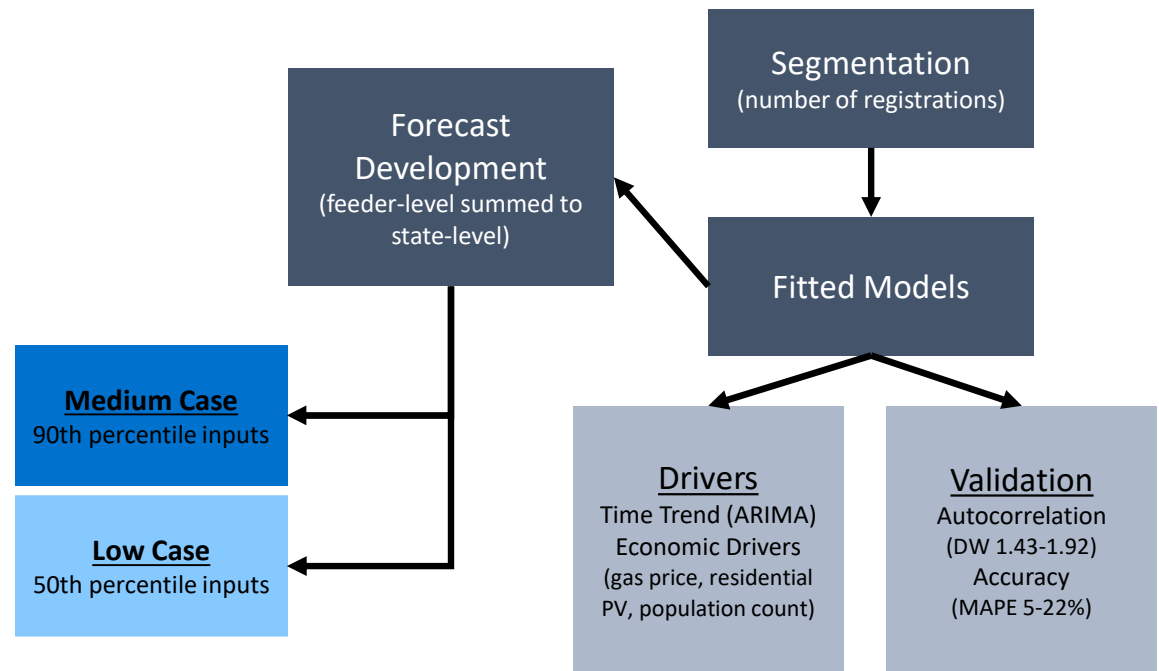
# EV Registrations Analysis

## Scenario Development

### OR Pacific Power: Top-Down



### Feeder-Level: Bottom-Up



# EV Registrations Analysis

## Preliminary Results: 5-yr Forecast



# EV Registrations Analysis

## Preliminary Results: 10-yr Forecast



# EV Registrations Analysis

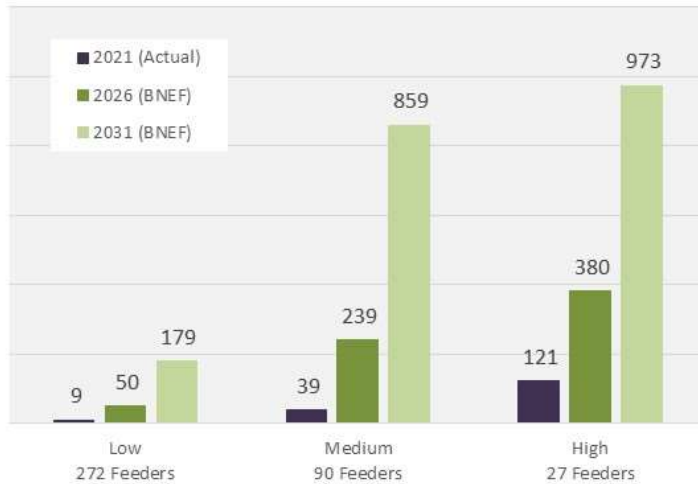
## Preliminary Results: 20-yr Forecast



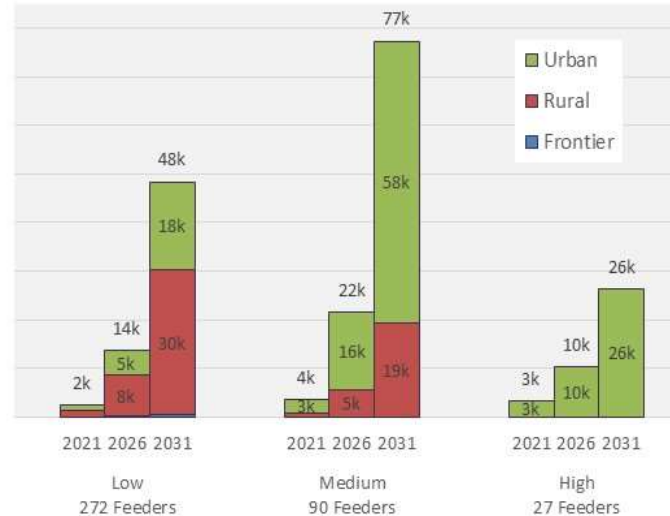
# EV Registrations Analysis

## Preliminary Results

Average Registrations



Cumulative Registrations



- Over time, the distribution of feeders does not change dramatically.
- The forecast predicts that registrations on feeders will grow at a relatively steady pace consistent with historical trends.

- Lower levels of registrations are primarily concentrated in feeders in frontier/rural areas.
- High registration feeders are nearly all in urban areas.

### By 2031 (BNEF)

- Top 5 Feeders (highest registrations) are in the Multnomah, Linn, and Hood River Counties. Four are urban; one is rural.
- 10% of EV registrations are in 2.5% of feeders.
- 20% of EV registrations are in 5.7% of feeders



# Distributed Energy Resource (DER) Adoption Forecasts





WHEN TRUST MATTERS

# PacifiCorp Private Generation Resource Assessment

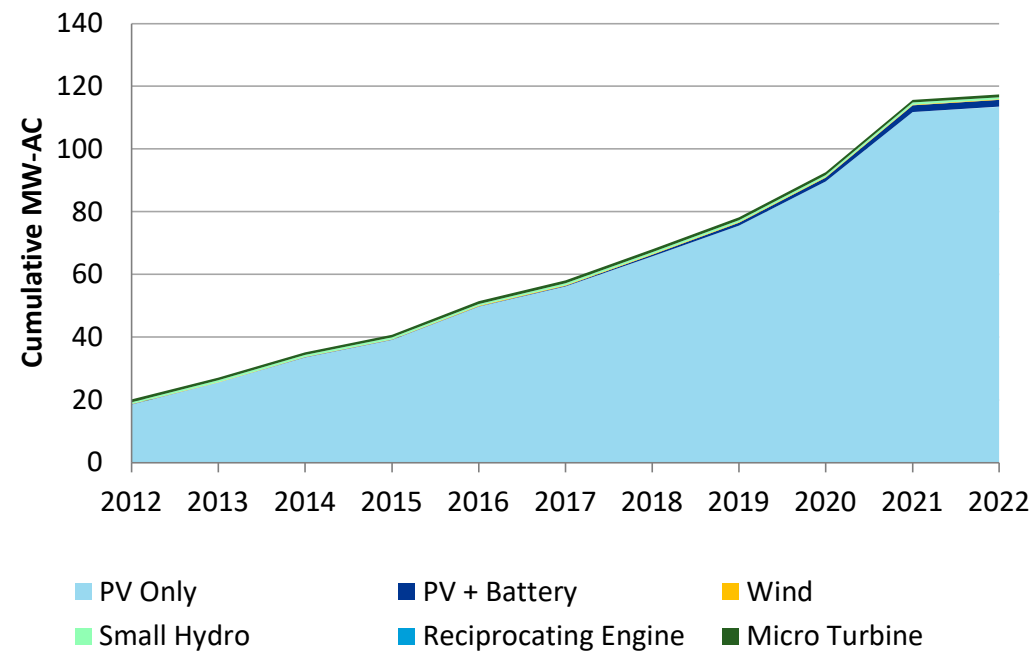
Pacific Power Oregon Distribution System Plan – DER Adoption Forecast

July 21, 2022

# Introduction and Background

- DNV prepared the Long-Term Private Generation Resource Assessment for Pacific Power's Oregon Distributed Energy Resource (DER) adoption forecast at the substation level.
- This study evaluated the expected adoption of behind-the-meter DERs including photovoltaic solar, photovoltaic solar coupled with battery storage, small scale wind, small scale hydro, reciprocating engines, and microturbines for a 20-year forecast horizon.
- DNV has provided projections for 3 cases by substation: base (medium), high, and low adoption.
- The private generation projections will be used in support of Pacific Power's 2023 Oregon Distribution System Plan.

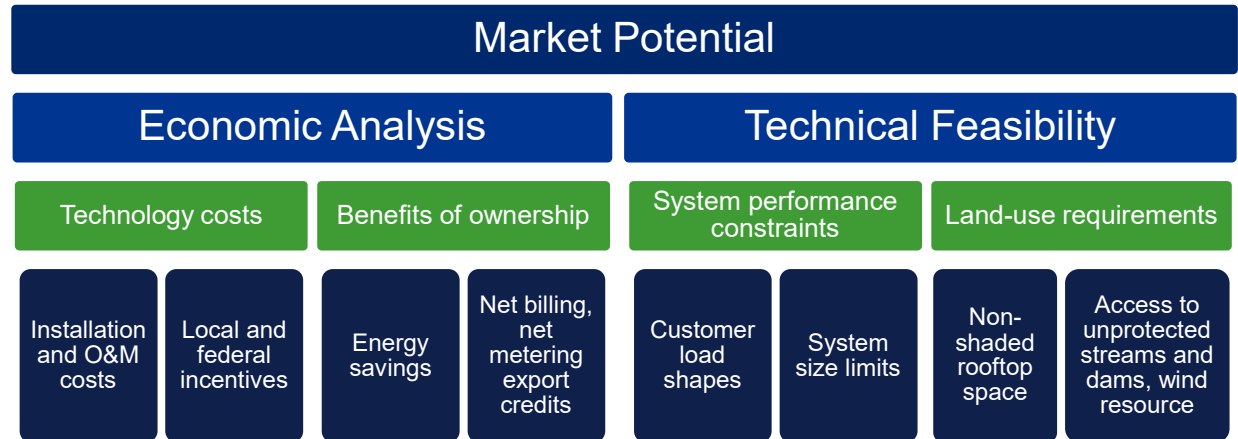
Oregon (PP) Historic\* Cumulative Installed PG Capacity by Technology



\*Pacific Power Oregon interconnection data as of February 2022

# Private Generation Forecast Overview

- DNV determined market potential in Pacific Power's Oregon service territory for each technology by sector



- Examples of key assumptions:

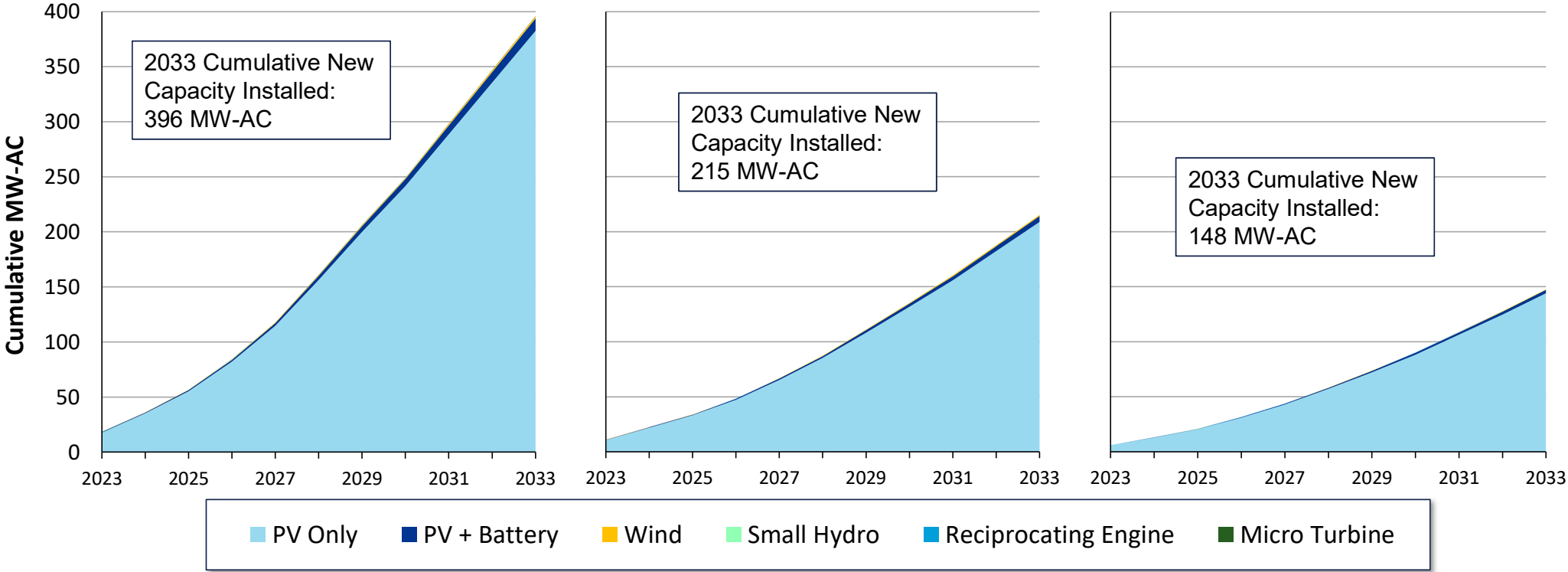
- Adoption model utilized Bass diffusion curves
  - Adoption trend over time is characterized by three parameters: **innovation** coefficient, **imitation** coefficient, and ultimate **market potential**
  - We tied ultimate market potential to payback; market interventions shift the diffusion curve
  - Innovation and imitation are calibrated to current penetration for each technology and sector

# Preliminary – Private Generation Forecast by Technology, Pacific Power Oregon

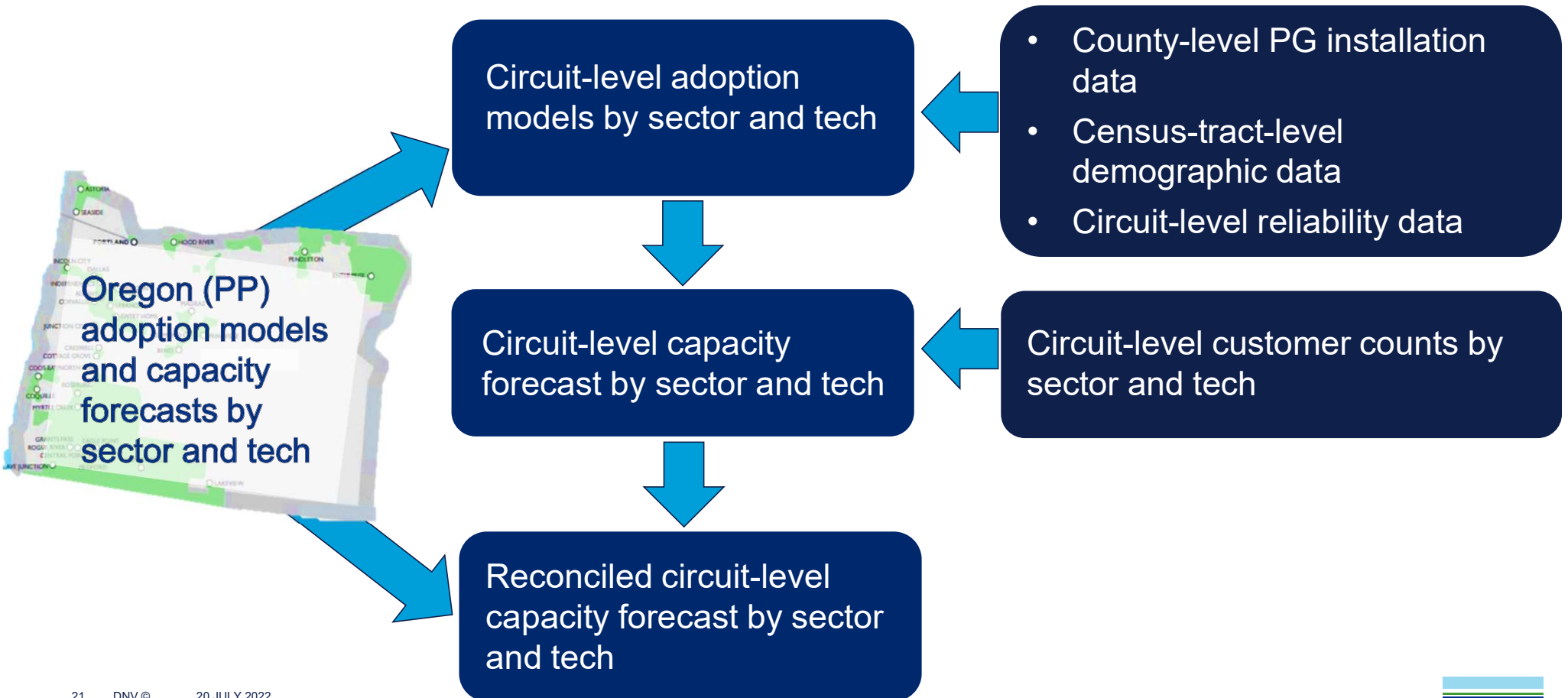
**High Case**

**Base Case**

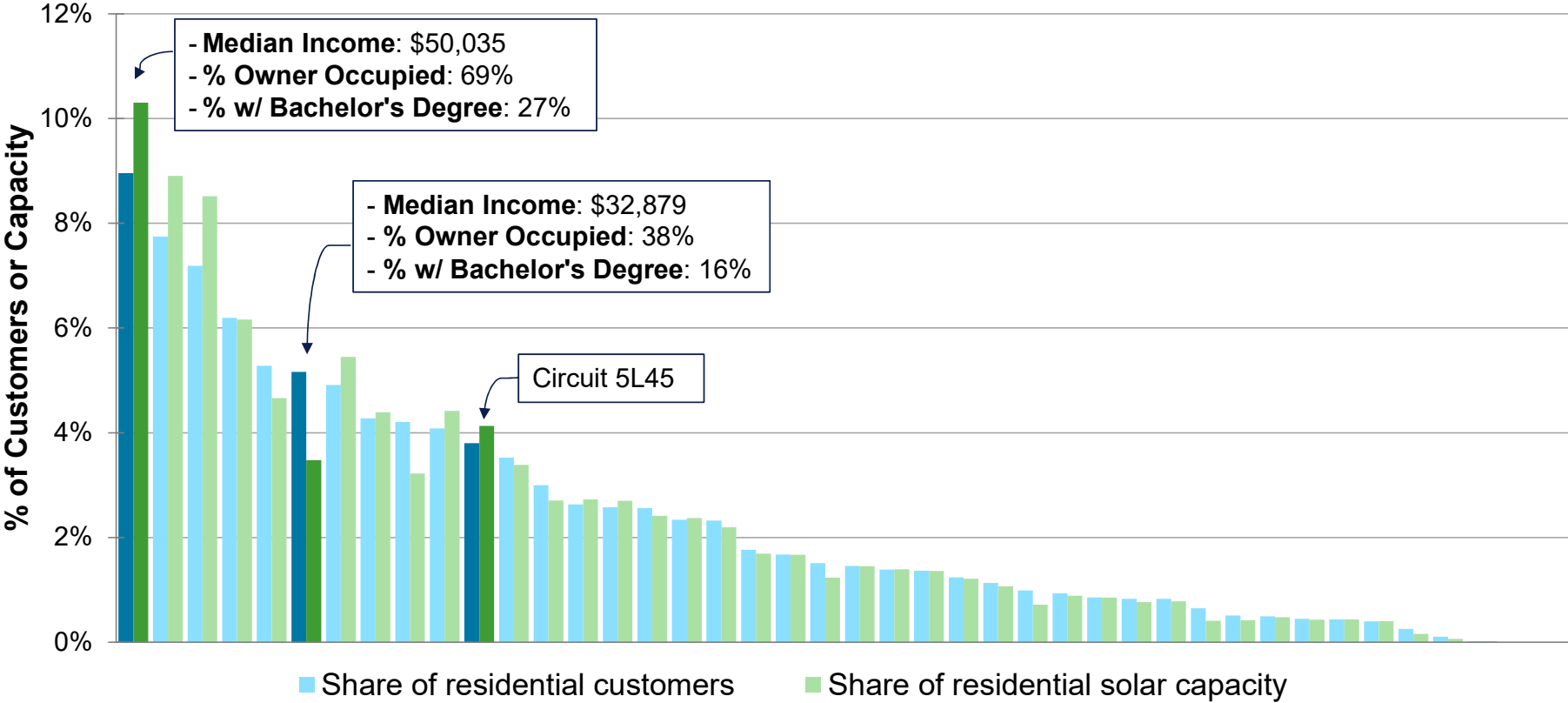
**Low Case**



# Distribution-Level Forecasting Methodology



# Klamath Falls Operating Area Illustration – Residential Solar



# Energy Efficiency Forecasts



## EE Forecasting for DSP

Relies on data from Energy Trust's most recently completed 2021 Conservation Potential Assessment (CPA).

- **High case** = technical achievable potential provided to the 2021 IRP. Approximately 85% of all available potential.
- **Base case** = cost-effective CPA potential selected in the 2021 IRP
- **Low case** = 85% of cost-effective potential.

EE potential at the IRP level is characterized by load which is segmented to customer type to inform opportunities. There are currently 27 segments used to characterize efficiency potential.

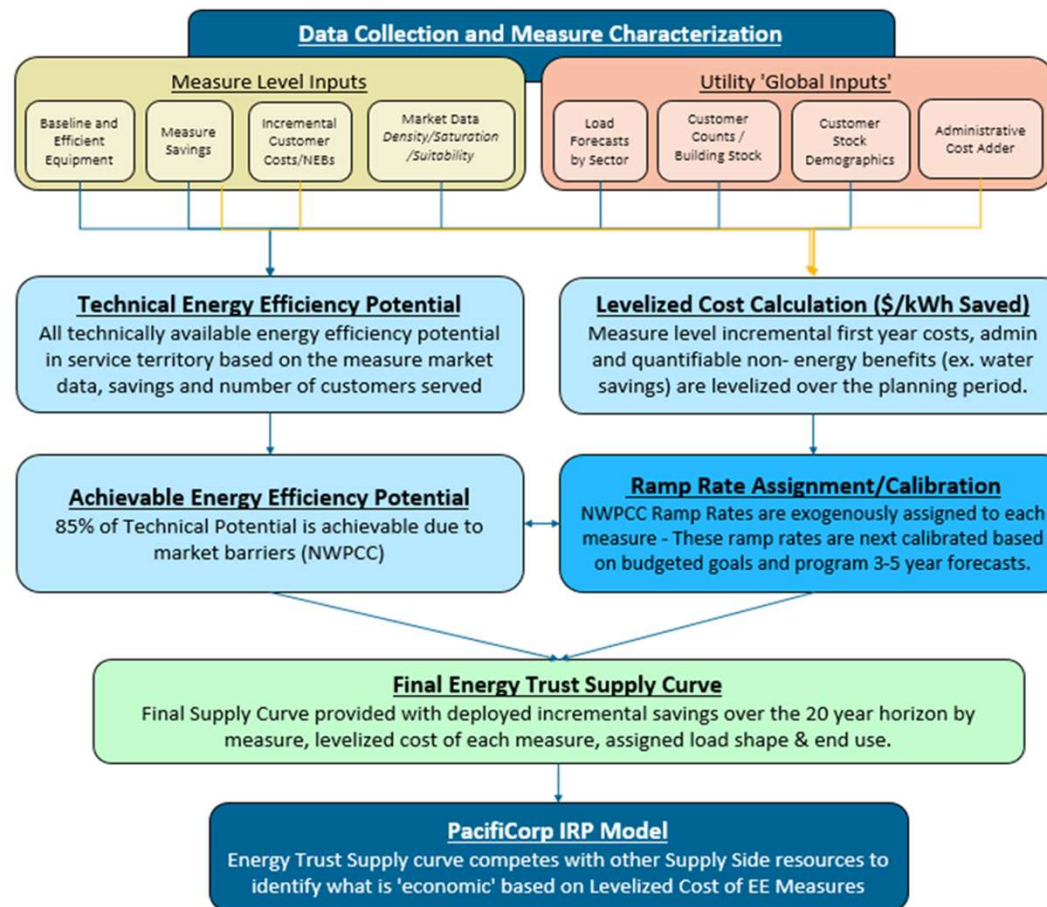
- For example, restaurant loads partially inform kitchen ventilation energy efficiency opportunities.

EE is further informed by fuel saturations, which are often reflective of statewide averages.

- For example, % electric water heating in single family homes partially informs opportunities for future savings for measures like heat pump water heaters.



# Conservation Potential Assessment Methodology – Energy Trust of Oregon



# EE Forecast Disaggregation

Recipe for disaggregating EE forecast results to the substation/circuit level.

- Take energy efficiency results from the IRP and split selections to a measure level.
- With energy efficiency results by measure, allocate the savings to customer segment.
- Map PacifiCorp customer data to CPA segments using SIC code mapping.
  - Relies on the same mapping methodology as Energy Trust.
- Calculate the percent of feeder or substation load by CPA segment.
- Allocate segment savings to proportional loads on a given feeder or substation.
- For example, our Klamath Falls pilot area has a community college which represents 2% of all college segment loads in Oregon. Colleges also represent 9% of savings potential from economizers. So, we would expect that 0.18% of statewide savings from economizers to occur on the Klamath Falls circuit.





# Demand Response Forecasts

Relies on 2021 IRP and current RFP contract expectations to inform future resources.

Some demand resources are not yet established but are expected to be in the market by 2023 (year 1 of the DSP forecast).

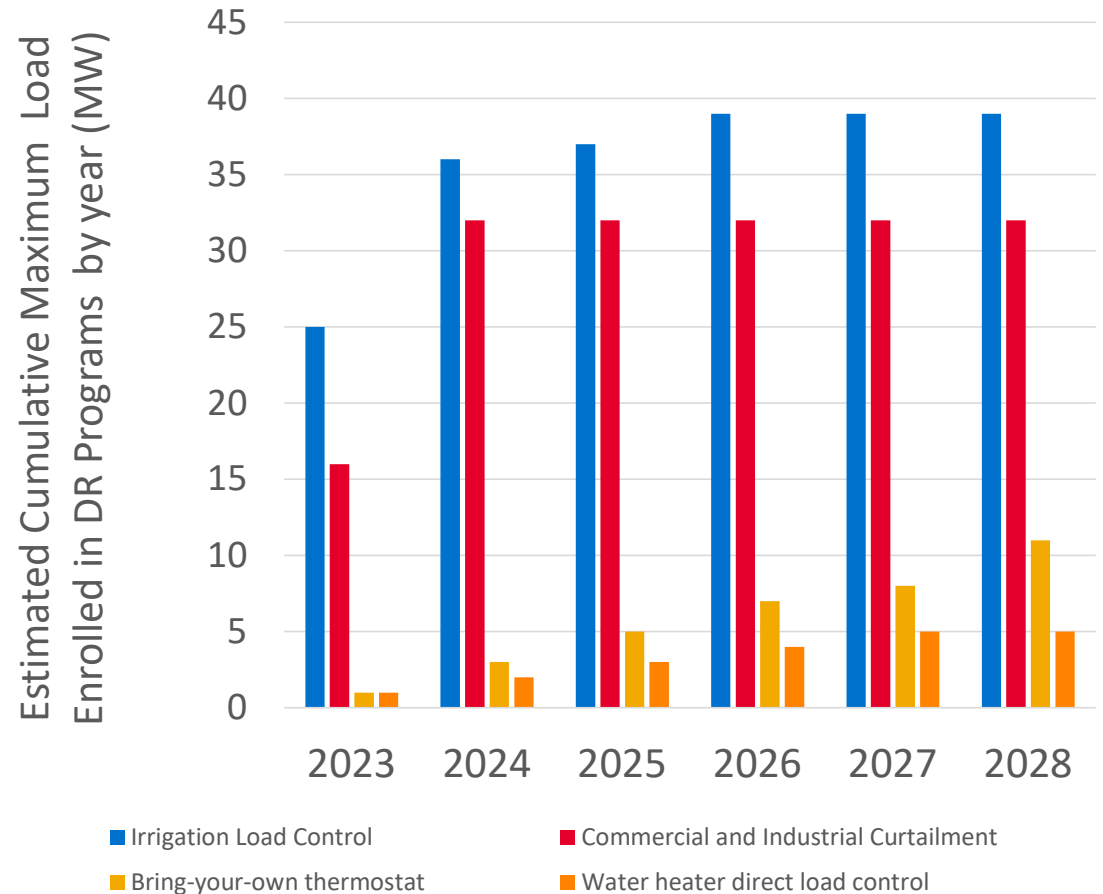
**Residential** – Relative proportion of residential sites on a given substation or feeder.

**C&I Curtailment** – Relative proportion of C&I customers on eligible rate schedules for a given substation or feeder.

**Irrigation** – Relative proportion of summer demand from irrigation customers for a given substation or feeder.

High case and low case reflect values of 30% above and below the base case. Adjustments are based on generalized performance thresholds for delivered capacity.

## Demand Response Forecast



# Demand Response

## Future Considerations



- As programs mature, we'll have an opportunity to better understand customer adoption and disaggregation techniques.
- Demand response resources, once scaled, will likely show up in SCADA data used to project future loads.
  - Future examination of localized areas will require careful consideration of incremental demand response relative to current local resources.
- Demand response is currently dispatched based on system need. Once programs are established and integrated into a distributed energy resource management systems (DERMS) they can be utilized for localized dispatch.

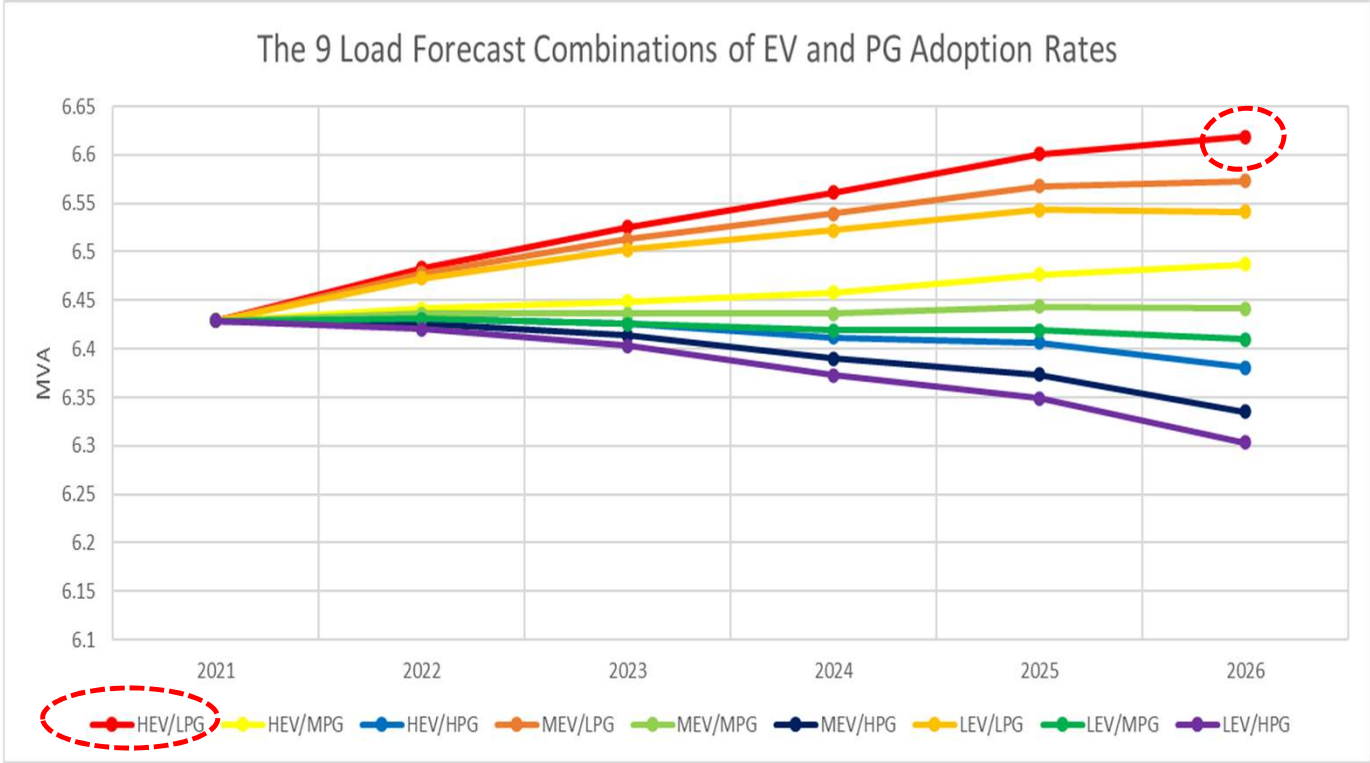
# Study Area Load Forecast

# Circuit Level Load Forecast Methodology

- To develop the Crystal Springs circuit load forecast, the following data were used:
  - Field Engineering study load forecast (SCADA-based data)
  - PG adoption rate (DNV analysis)
    - Applied to existing PG adoption on circuit by technology type
    - Incremental generation deducted from base circuit load forecast
  - EV adoption rate (AEG analysis)
    - Identified existing EV located on circuit, applied EV adoption rate
    - Converted circuit load using EV adoption rates and slow- or fast-charging assumptions
    - Added incremental load to base circuit load forecast
  - This was done for each PG adoption rate and EV adoption rate – resulting in 9 variations of circuit level load forecasts

# Study Area Forecasts with EV/PG (Klamath – Crystal Springs circuit)

- Different adoption rates result in different load forecast options
- For planning and Grid Needs Assessment the highest load is selected
- Energy efficiency is embedded in the underlying Distribution forecast
- *DSP Forecast Uses High EV and Low PG adoption rates*

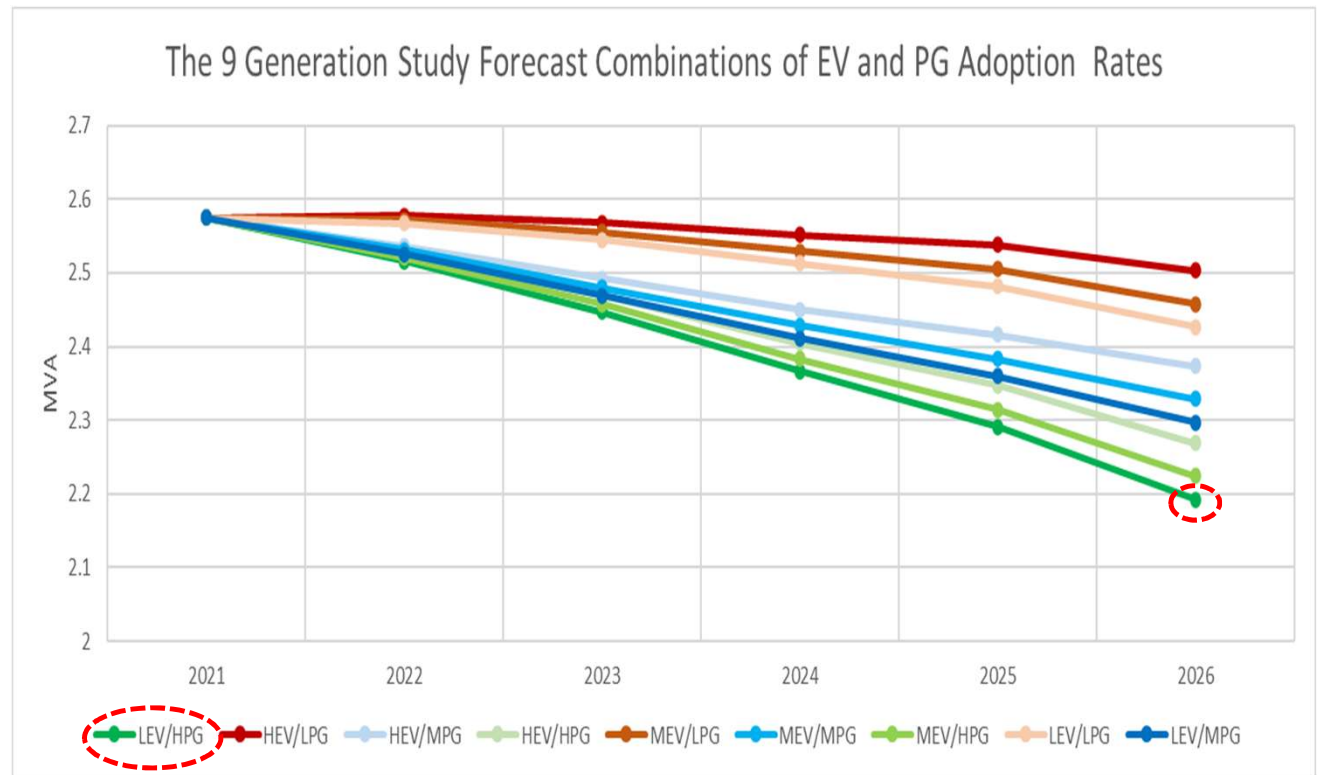




# Generation Study Forecast

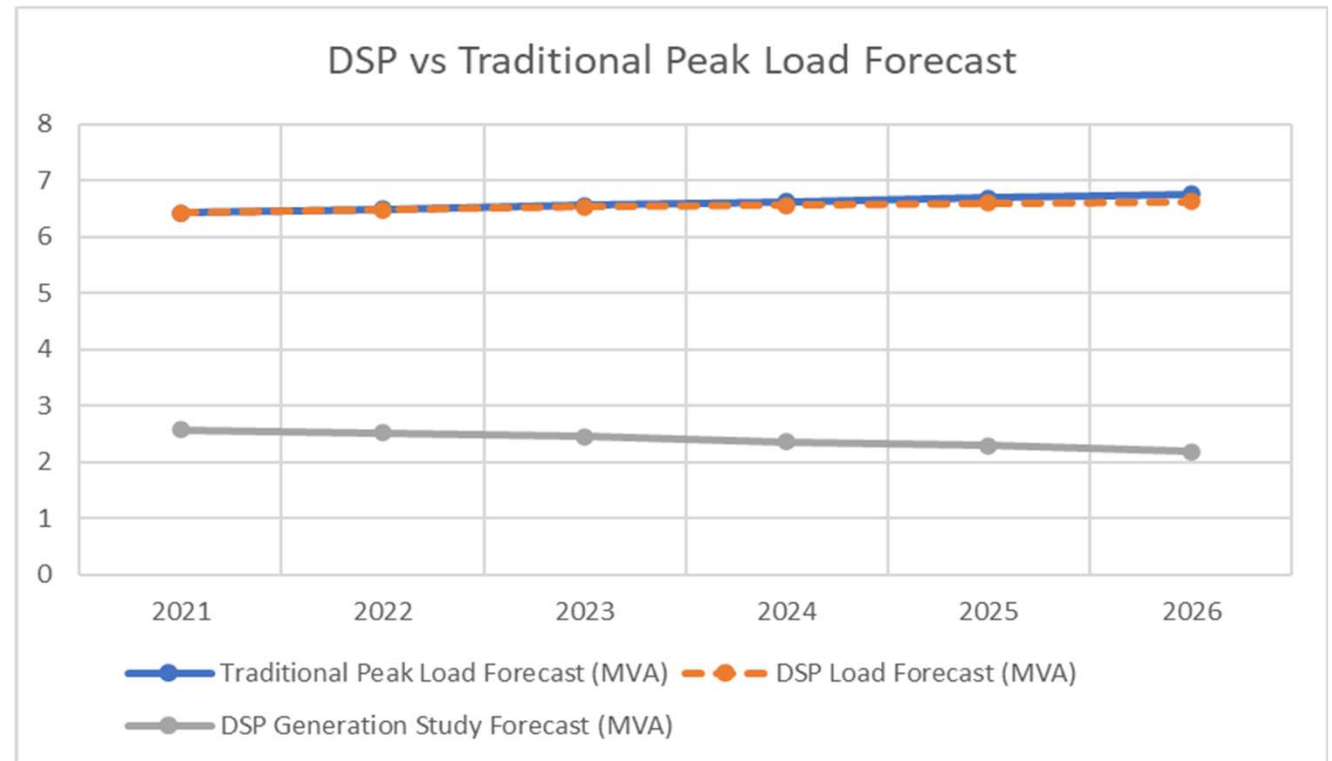
(Required for Analysis of NWS – Distributed Generation)

- NWS analysis involving distribution generation requires a generation study; The study attempts to identify when reverse power flow is most likely.
- This is not the same as yearly minimum load or an interconnection study.
- Uses similar process to circuit level load forecast methodology, modified to identify low load and high generation period.
- For planning and grid needs assessment the lowest load with low EV and high PG adoption rates is selected.



# Comparison of DSP vs Traditional Peak Load Forecast

- For the load study, high EV and low PG adoption rate trend line was used
- The DSP load forecast was 2% less than the traditional peak load forecast by year 5
- For the Generation study, Low EV and high PG adoption rate trend line was used
- PG growth predictions outweighed EV and standard load growth





# 3) Grid Need – Klamath Falls



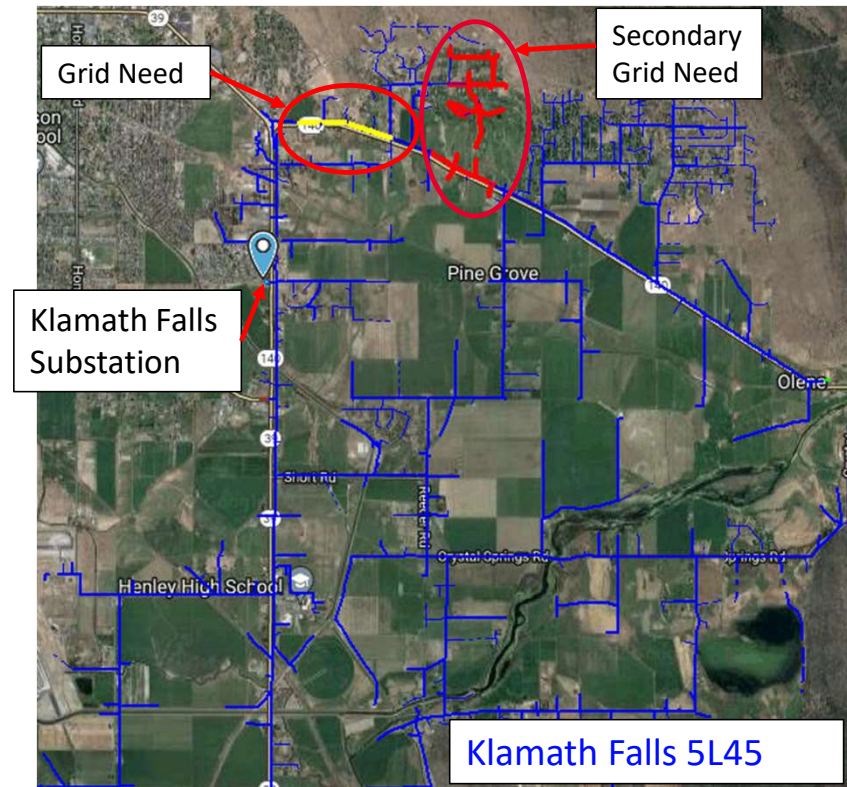
# Grid Need – Klamath Falls

## Circuit Details:

- Circuit 5L45 served from Klamath Falls substation
- Circuit operates at 12.47 kV
- Peak loading occurs during summer
- Daytime minimum loading occurs during the spring
- Overall Customer makeup:
  - 1,499 Total number of customers
    - 1,196 Residential
    - 155 Irrigation
    - 145 Commercial
    - 3 Industrial

## Grid Needs:

- Study identified an overcapacity issue causing conductor overload
- Also causes low voltage downstream

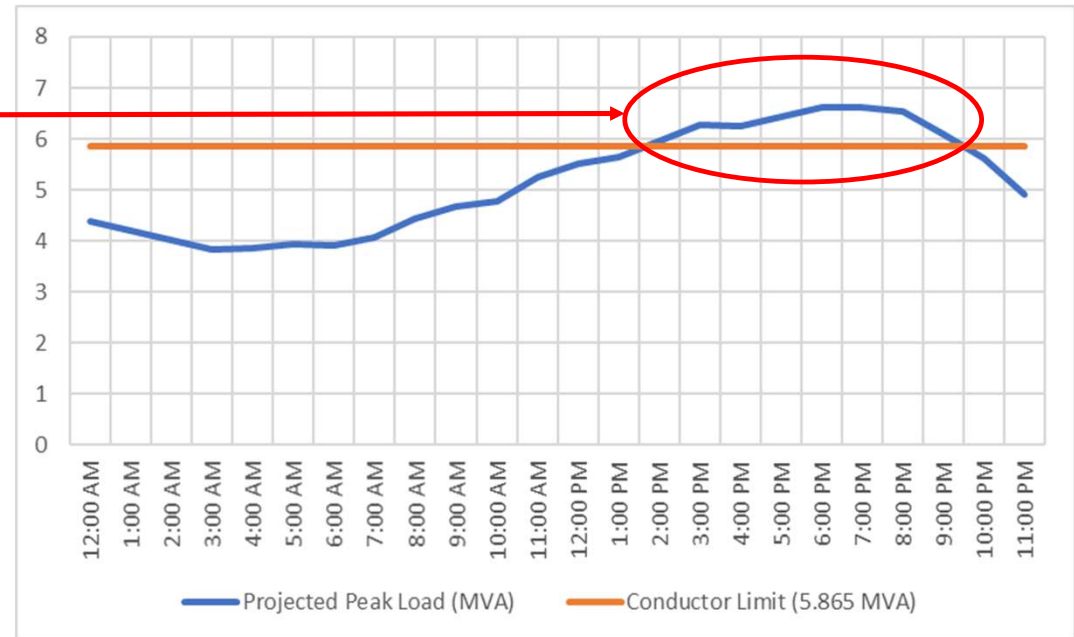


# Grid Need – Klamath Falls

## Grid Need:

- Approximately 750 kW over existing conductor limit
- Occurs ~20 – 50 hours total per year in Summer ~ June through August
- Number of customers downstream of issue:
  - 511 Total customers (37% Summer kWh)
    - 461 Residential (24%)
    - 33 Irrigation (13%)
    - 17 Commercial (1%)
    - 0 Industrial (0%)

Based on the Grid Need and characteristics of circuit, there are several solutions available. All have different effects in terms of complexity, performance, and reliability.





# Break – 10 Minutes





# 4) Review Potential Solutions



# DSP Part 2 – Initial Requirements

## Solution Identification



Today we will cover:

- 5.3 a) process to identify range of possible solutions to address priority grid needs
- 5.3 b) for identified grid need, provide summary & description of
  - Data used for distribution investment decisions
    - Proposed and alternative solutions considered
    - Detailed accounting of relative costs and benefits of chosen and alternative solutions
    - Feeder level details
    - DER forecasts
    - EV adoption rates
- 5.3 c) For larger projects engage with impacted communities early in solution identification, facilitate discussion of proposed investments
- 5.3 d) evaluate 2 NWS pilot concept proposals

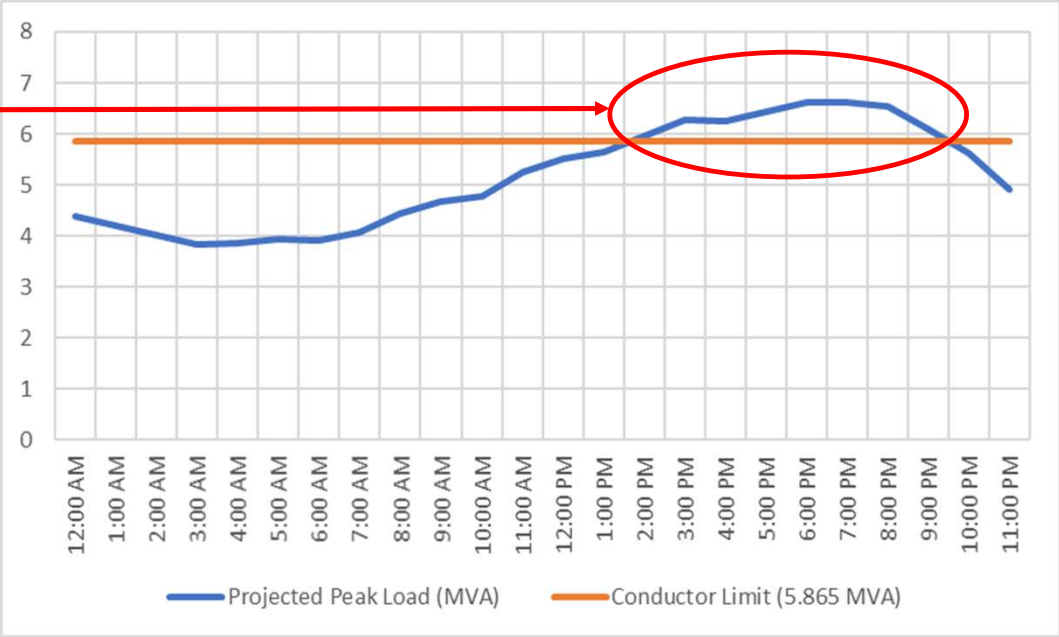


# Grid Need – Klamath Falls

### Grid Need:

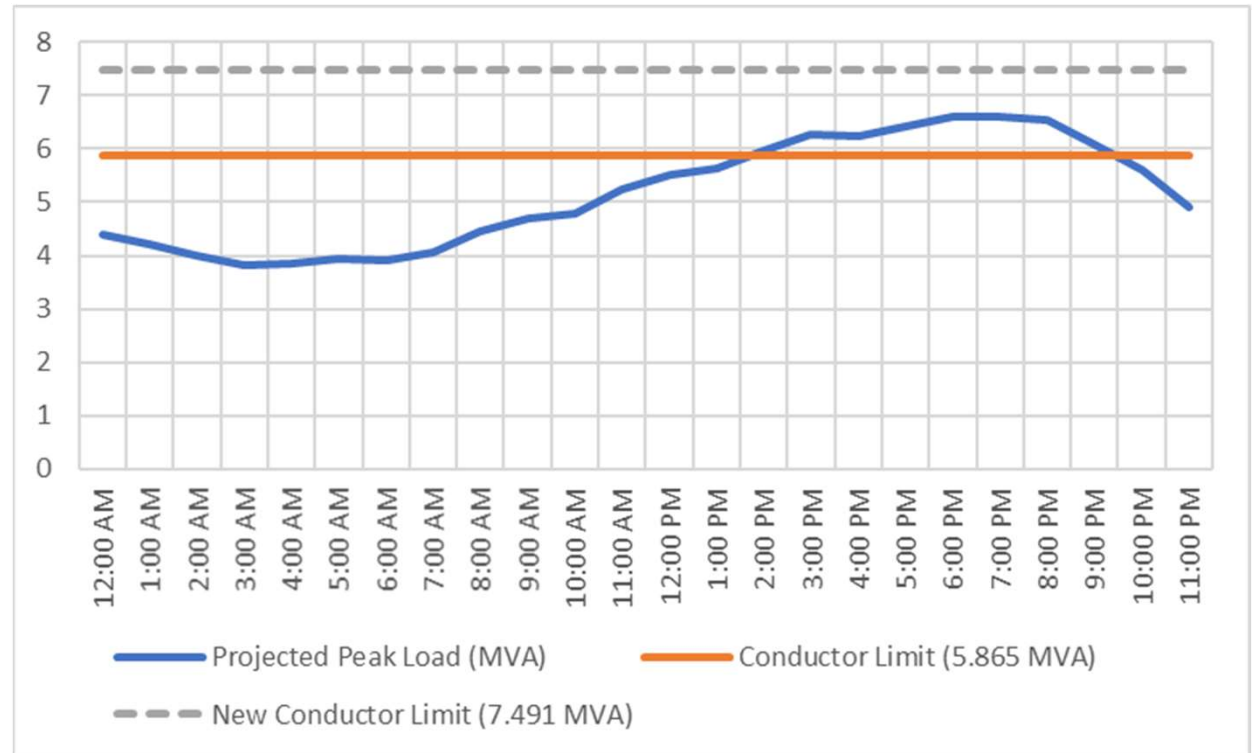
- Approximately 750 kW over existing conductor limit
- Occurs ~20 – 50 hours total per year in Summer ~ June through August
- Number of customers downstream of issue:
  - 511 Total customers (37% Summer kWh)
    - 461 Residential (24%)
    - 33 Irrigation (13%)
    - 17 Commercial (1%)
    - 0 Industrial (0%)

Based on the Grid Need and characteristics of circuit, there are several solutions available. All have different effects in terms of complexity, performance, and reliability.



# Traditional Wires Solution

- Reconductor 3,520 feet of wire
- Phase balancing at a single transformer
- Estimated time to complete: 1 year
- Estimated cost: \$225k\*

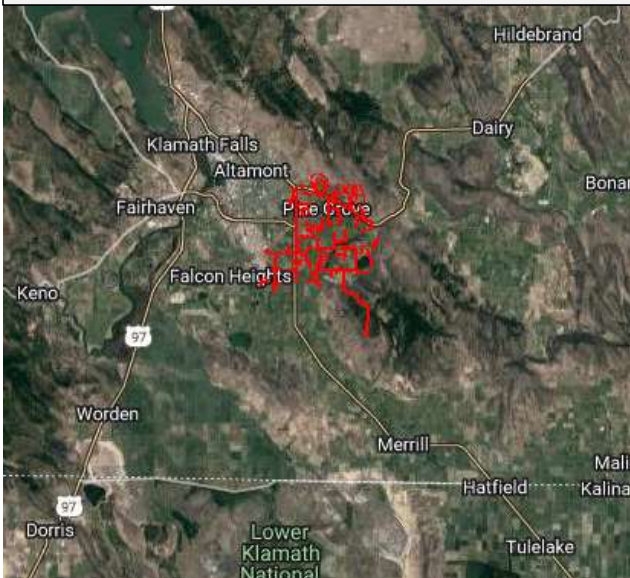


\* Based on a Jan 2022 planning study/evaluation

# Potential NWS Options

## Klamath Falls – Crystal Springs – 5L45

- Projected peak summer load drives overload on conductor
- Phase imbalance
- Low voltages on circuit



## Non-Wires Solutions concepts Pacific Power considered for evaluation for the Klamath Falls Grid Need example included:

- Solar
- ***Solar + Battery Storage (Evaluation #1)***
- Load Control, Curtailment, Demand Response
- ***Targeted Energy Efficiency (Evaluation #2)***
- Other Renewables

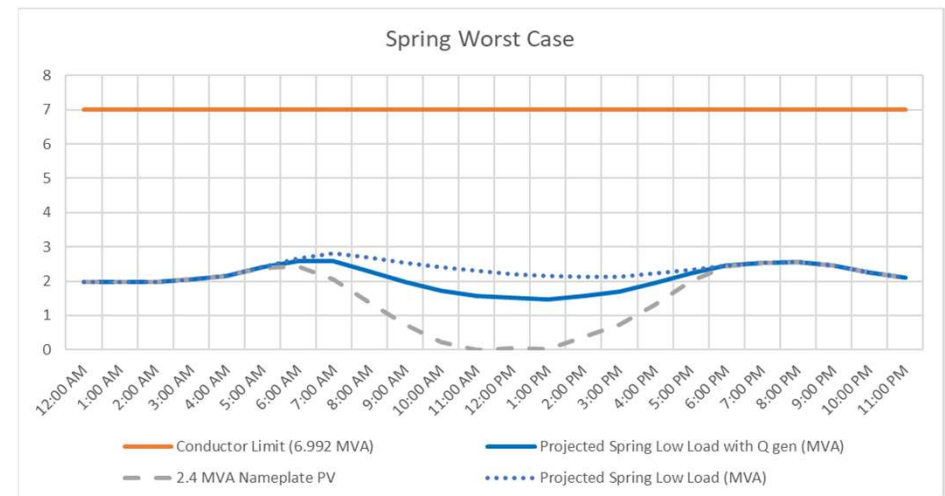
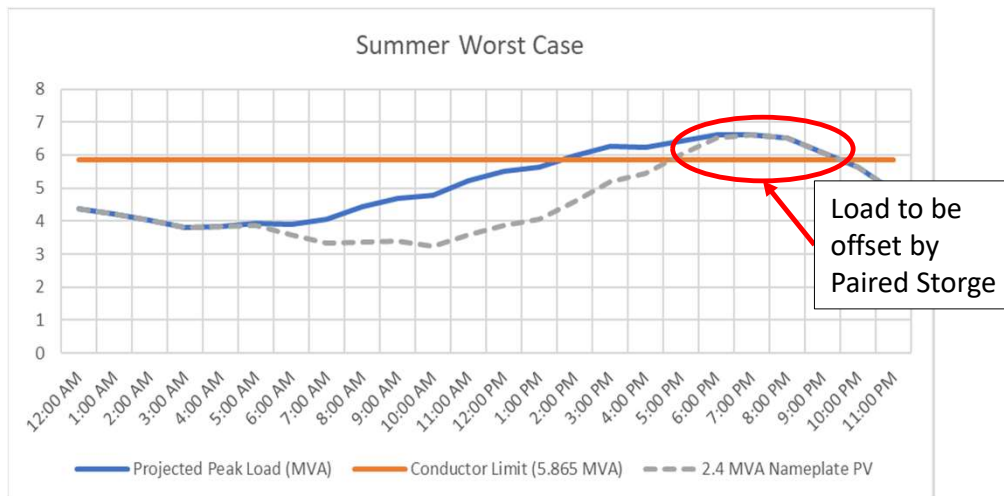


# NWS Pilot Concept #1

## Solar + Storage

# NWS Concept: Solar + Storage Residential

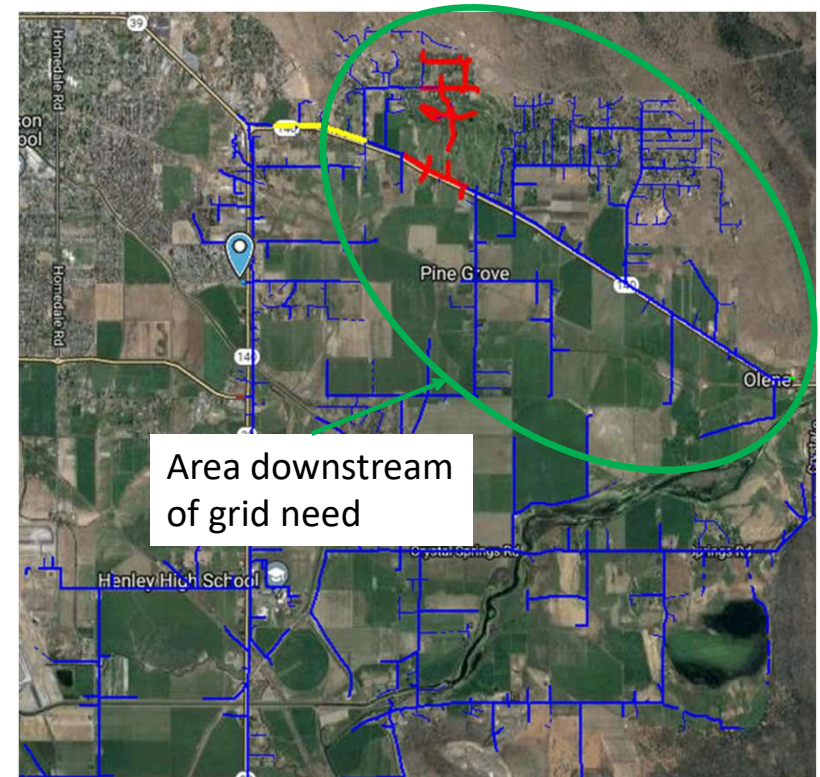
- 2.4 MW (unity power factor) PV limit before reverse power flow
- Est 2.44 MWh needed for peak load with this amount of PV
- Many possible combinations, but 2.4 MW of PV and 2.44 MWh of storage was chosen for this study
  - (limits included number of customers downstream and number of customers with existing PV)
- Using Storage to address a grid need requires and an arrangement with the battery manufacture and an automated battery control system



# Preliminary Per Unit Assumptions Residential

- NWS Concept: Residential roof top solar + storage option
  - Ideal placement is downstream of need
  - 90% of customers in grid need area are residential
  - Based on Company's Utah Residential Wattsmart Battery Program
- Assumptions for per unit size and cost
  - 10 kW PV & 10 kWh battery (with 20% buffer)
  - 240 customers PV + Storage
  - 50 - 70\* customers add storage to existing PV
  - \$4.5k - \$7k per kW\* PV + storage base cost
  - \$1.8k - \$3K per kW\* Storage
  - \$25/kW yearly maintenance for PV + Storage\*
  - \$11/kW yearly maintenance for Storage\*

\* Based on NREL and DNV Studies



# Research on Incentives & Rebates Residential



\$400 per kW initial and \$15 per kW every year after  
(like Wattsmart Battery Program in Utah)

low or moderate-income  
homeowners

homeowners not considered low or moderate income who are also eligible for an electric utility incentive

\$1.80 per watt (DC) of installed capacity, up to 60% of the net cost or \$5,000, whichever is less (with utility incentives subtracted from total cost).

\$0.20 per watt (DC) of installed capacity, up to 40% of the net cost or \$5,000, whichever is less.

26% of system cost for systems placed in service after 12/31/2019 and before 01/01/2023

22% of system cost for systems placed in service after 12/31/2022 and before 01/01/2024

## Estimated Total Cost Comparison Summary Residential

- 2.4 MW of PV and 2.44 MWh of Storage needed
- 290 – 310 residential customer participants

	Customer Cost	+ Utility/ETO Incentives
Per customer (PV + Storage)	\$50k - \$75k	\$45k - \$70k
Per customer (Just Storage)	\$20k - \$35k	\$14k - \$26k
Combined Total Customers	\$14M - \$20M	\$12M - \$18M

Estimated 5-Year Utility costs: \$1.55M - 1.68M

Traditional Wire solution cost estimate: \$225k

Net Costs evaluation is still in development and will likely be based off Utah Wattsmart Battery program



# NWS Concept: Solar + Storage Irrigation

Examining an alternate concept:

*What would it take to meet the grid need with Irrigation solar + storage?*

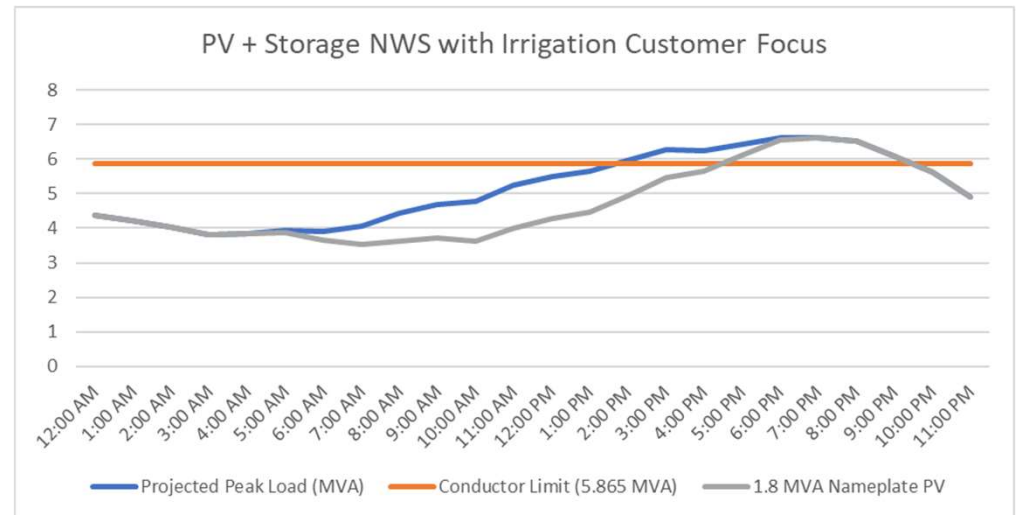
Preliminary analysis with Irrigation Unit Assumptions:

- Average 60kW PV and 90 kWh storage for each unit\*
- Approximate installed cost \$175K-\$350k (excluding rebates or incentives)\*

Reconfigure Approach to Grid Need:

- Total 1.8 MVA PV and 2.6 MWh Storage to meet the need
- Estimated 25 - 30 participants needed

\*DNV and NREL commercial estimates for sizing and cost



PacifiCorp and FCA to continue exploring alternative solar + storage concept that would apply to irrigation customers and/or irrigation district patrons

# NWS Pilot Concept #2

## Energy Efficiency

# History of Targeted Load Management Pilots

Pacific Power and Energy Trust previously conducted two targeted load management (TLM) pilots to learn about how we can deliver targeted peak reductions in specific areas on the distribution system.

## **Learnings from those efforts included:**

1. Achieving incremental savings in the first year is challenging unless significant lead time is provided to program implementers to design an implementation strategy. Energy savings and cost targets specific to each program, help set expectations for program implementers to gauge success.
2. The constraint on each feeder line may be different, so a menu of options is needed to streamline the process of implementing future TLM efforts.
3. Load reduction beyond baseline (business as usual) levels are most likely to occur with the larger base of residential customers who can choose from a larger menu of smaller investments. Load reduction beyond baseline for commercial and industrial customers requires targeted outreach and with longer lead times to achieve, due to lengthy capital project budgeting and planning processes for C&I customers.

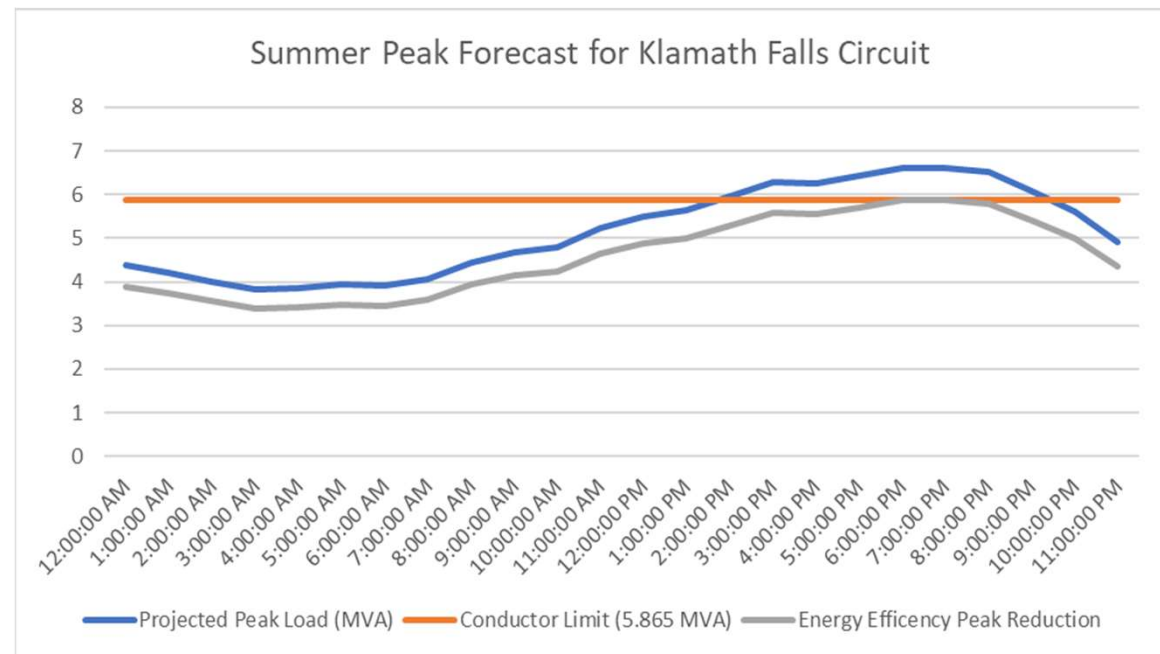
# Energy Efficiency Pilot Planning

Annual energy efficiency savings (kWh) can reduce load during peak periods (kW) helping address over capacity issues on the pilot area circuit.

The projected peak already has some level of historical energy efficiency embedded into it.

## Critical Question:

How much incremental annual energy savings might it take to achieve 750 kW of peak reduction over 5 years?



# Energy Efficiency Pilot Planning

First, let's start by examining what is needed from a load reduction perspective to meet the grid need assuming an average measure mix.

Total MWhs of Annual Load	Total Need (MWs)	Total Savings Needed (MWh)	Total % Load Reduction Needed	Total annual % Load Reduction Needed (5 yr)
26,430	0.75	4,525	17%	3%

Based on national reporting from ACEEE's utility scorecard, a 3% annual reduction is an upper limit for achievability, but within the realm of feasibility.

However, some measures contribute more to summer peaks than others, for example an efficient cooling measure saves during summer hours relative to exterior lighting even if the total annual savings are the same. What if we targeted savings from only cooling measures?

Total MWhs of Annual Load	Total Need (MWs)	Total Savings Needed (MWh)	Total % Load Reduction Needed	Total annual % Load Reduction Needed (5 yr)
26,430	0.75	1,389	5%	1%

**Note:** Savings are presumed to last longer than 5 years based on weighted average measure life assumptions used in Energy Trust planning and budgets.

# Energy Efficiency Pilot Planning

Initial draft cost estimates are based on assumed incremental measure costs for efficiency adoption. Using estimates from the CPA and other planning studies; administrative costs and incentives are estimated as a proportion of incremental costs. Accelerated acquisition assumes enhanced marketing and incentives based on pilot experience.

Case	Total Customer Incremental Costs	Total Program Costs (incentives + admin)	Total MWh Savings	Total kW Savings	UCT Levelized Cost \$/kWh
Business as usual	\$550,000	\$440,000	1,290	215	\$0.042
Accelerated acquisition (typical measure mix)	\$1,930,000	\$1,850,000	4,525	750	\$0.050
Accelerated acquisition (targeted measure mix*)	\$645,386	\$930,000	3,652	750	\$0.031

\*Assumes half of all savings come from cooling-based measures

All pathways appear to be cost-effective when examined from a net cost perspective. The challenge would be whether these aggressive targets are feasible. Overall, though, energy efficiency represents a relatively low cost, low risk, resource that can help compliment other non-wire solutions. Future planning work will further assess the feasibility of targets, program strategies, and cost expectations for the Crystal Springs area.



# 5) Update on Community Engagement at the State and Local Level



# DSP State Level Engagement Update

- DSP Part 1 – PacifiCorp proposed Community Input Group (CIG) for DSP input, especially focused on equity matters and engagement with stakeholders not traditionally represented in utility planning
- After filing Part 1, PacifiCorp
  - Conducted Distribution Planning Survey (Feb/Mar 2022)
  - Drafted framework for CIG, including initial expectations, composition, compensation, etc. (April 2022)
- Ongoing UM 2225 – Clean Energy Plan
  - April 2022 – Workshops on Community Engagement and Community Benefits Impact Advisory Group (CBIAG)
  - April 21, 2022 – PacifiCorp filed initial Community Engagement Strategy
  - May-July 2022 – Listening sessions/workshops held by OPUC; Comments received from stakeholders
  - August 4, 2022 – OPUC deadline for Updated CEP Community Engagement Strategy
- PacifiCorp plans to combine the equity elements of the CIG and CBIAG and have one equity advisory group for Oregon, the CBIAG.
- DSP Engagement Moving Forward – the DSP Team anticipates:
  - Utilizing the CBIAG for input related to equity issues (e.g., definition of Community Benefit Indicators, equity metrics for screening, suggested data sources, etc.)
  - Continuing DSP workshops to facilitate broader input on DSP-specific topics, updates and progress on distribution system planning activities
  - Incorporating local level community engagement in the on-going DSP study process



# Local DSP Engagement Example

## Klamath Falls

Klamath Falls is one of the Transitional Study areas where PacifiCorp focused new planning activities in support of Distribution System Planning - UM 2005.

DSP team sought engagement from local stakeholders to review specific options for Non-Wires Solutions and to solicit input on several topics covered in the DSP Survey.

- Held a meeting on July 7<sup>th</sup> with Local Stakeholders and invited representatives from: Community Action Organization, Chamber of Commerce, Water Users Association, Agricultural Representatives, Education and Municipal Planning/Management:
  - Shared an Overview of Distribution System Planning (DSP)
  - Engaged with Klamath Falls stakeholders:
    - Received input on the DSP process
    - Reviewed identified grid need and discuss potential solutions - including Non-Wires Solutions (NWS)  
***Group selected Energy Efficiency as second NWS to evaluate***
    - Shared perspectives on community energy and stakeholder engagement

PacifiCorp intends to incorporate local engagement into the on-going Scheduled DSP Study Process

# Large Project Community Engagement

## Background

- Community engagement/communications varies from project to project.
- Permit requirements are a key driver of communication scope and cadence, however...
- Large project communication strategy has evolved beyond permitting requirements since 2020.



## Kennedy Substation (Portland, 2020)

- Substation located in NE Portland neighborhood was identified for expansion.
- Permitting did not require community engagement.
- Neighbors and local stakeholders expressed concerns over lack of notice/communication, among other issues.
- Pacific Power course corrected, provided spaces to listen and committed to improving community engagement on large projects.

# Large Projects Community Engagement

*continued*

## Current Process

- Project managers engage regional business managers and corporate comms early in planning process.
- Develop appropriate community engagement strategies based on permit requirements and/or potential community impact.
- Process is iterative, nimble, ever-evolving and incorporates community feedback.



[This Photo](#) is licensed under [CC BY-SA-NC](#).

Questions?





# 6) Part 2 Schedule and Topics





## Part 2 - Schedule and Topics

- **Schedule**

- Distribution System Plan Report - Part 2 to be filed on August 15, 2022
- OPUC DSP Workgroup Meetings:
  - Expect opportunity to present highlights of Part 2 DSP Filing to Staff - early Sept
  - Continue discussion of Hosting Capacity Analysis – Staff Led Discussion - TBD
- There are no additional Stakeholder Workshops scheduled at this time



# Additional Information

- DSP Email / Distribution List Contact Information
  - [DSP@pacificcorp.com](mailto:DSP@pacificcorp.com)
- DSP Presentations
  - [Pacific Power Oregon DSP Website](#) (Now includes Spanish Language version)
- Additional Resources
  - [Pacific Power's DSP Part 1 Report](#)
  - [DSP Pilot Project Suggestion Form](#)
  - [Pacific Power's 2019 Oregon Smart Grid Report](#)
  - [Pacific Power's Oregon Transportation Electrification Plan](#)
  - [PacifiCorp's Integrated Resource Plan](#)



# Thank You!

