Distribution System Planning
Public Workshop #6
October 25, 2021






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Workshop #6 Information

Teams Meeting Information

- Microsoft Teams meeting

  Join on your computer or mobile app
  Click here to join the meeting

  Or call in (audio only)

  +1 563-275-5003,, 221192440#   United States, Davenport
  Phone Conference ID: 221 192 440#
- **Please place your phone on "Mute" when not speaking**
- **Please do not use the "Hold" function on your phone**
- Meeting attendance and public chat will be available at the website.
- 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.

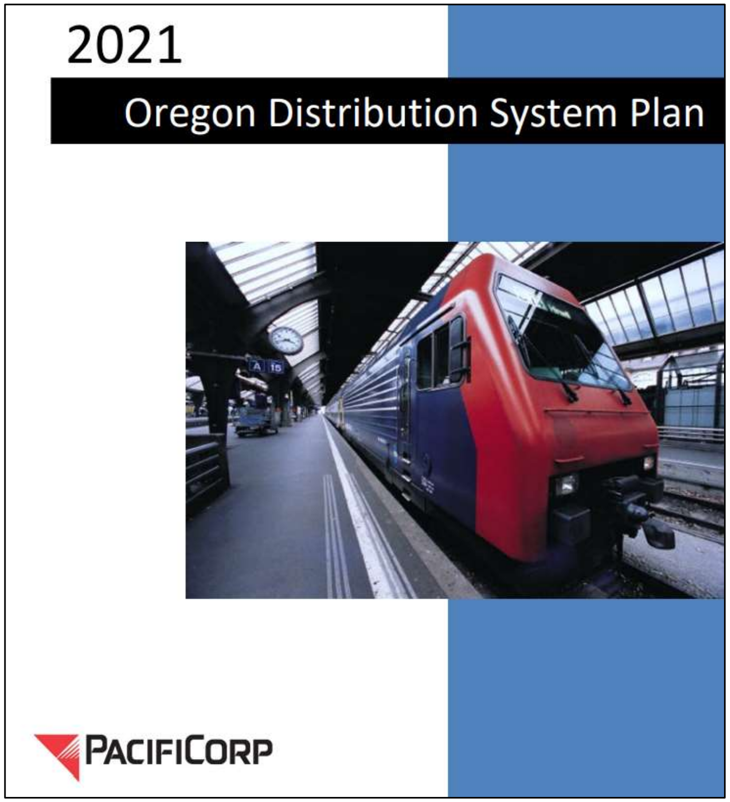
Today’s Goals

- Introductions
- Overview of DSP Part 1
- Display of Map viewer at Pacific Power DSP Map Viewer
  - Intro to using the application
- Discussion of data:
  - Energy burden and other demographic data
  - Energy incentives
  - DG readiness and capacity
  - Network performance (reliability)
  - Intended “transitional” planning areas
- Feedback
- Upcoming
  - Next meetings

Progress To Date

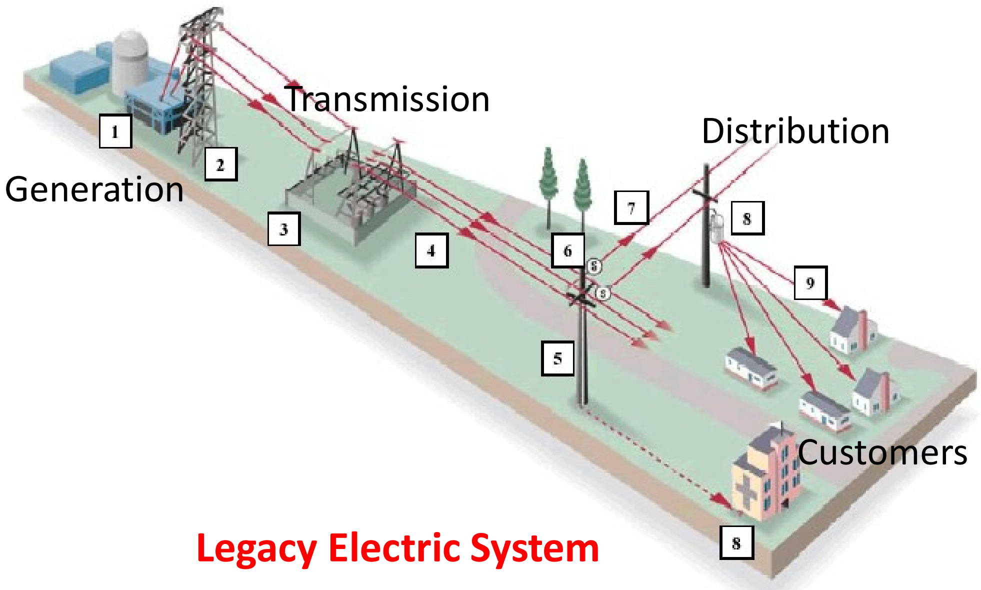
- ✓Five workshops held
- ✓GIS Viewer available for public to use
- ✓DSP Part 1 Filed
- ✓Survey Contract being advanced through procurement

PacifiCorp’s Oregon DSP Plan Part 1



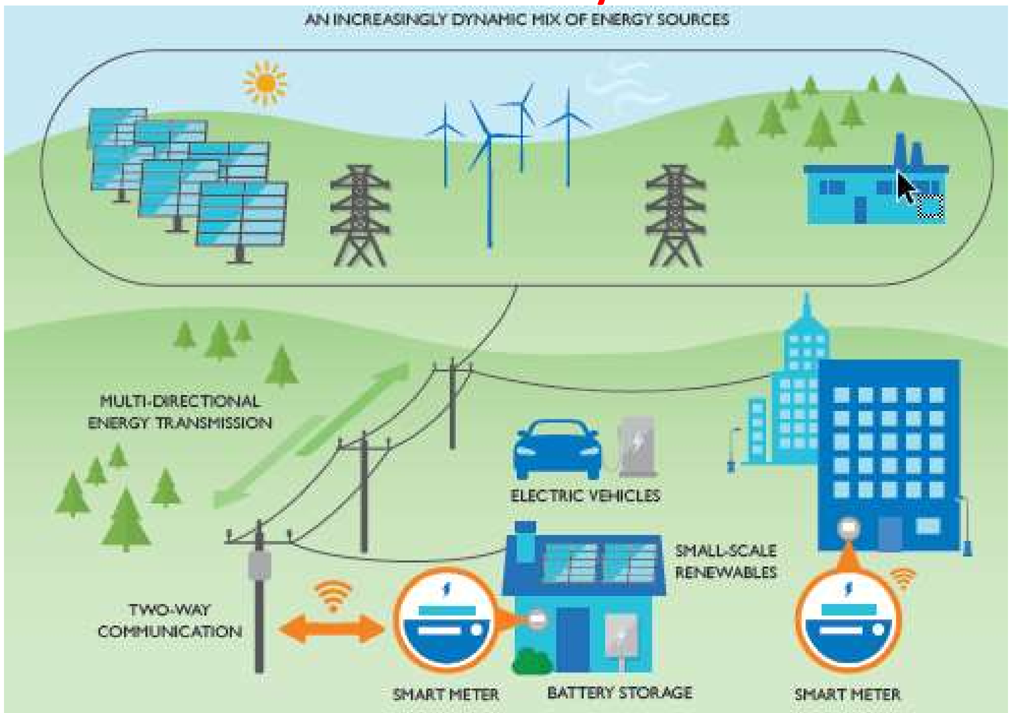
- ✓Filed October 15, 2021
- ✓Outlines
  - ✓where we are
  - ✓where we see ourselves
  - ✓how we create better conversation
  - ✓how we establish path forward and
  - ✓how we get to either of those alternates
- ✓Noteworthy parts of the document

Reminder Visual: Electric Utility...current & future

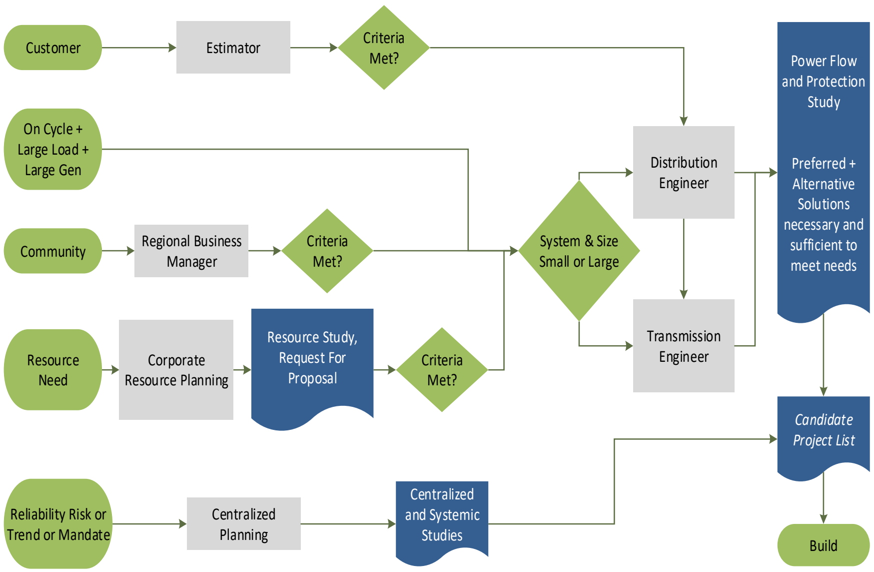


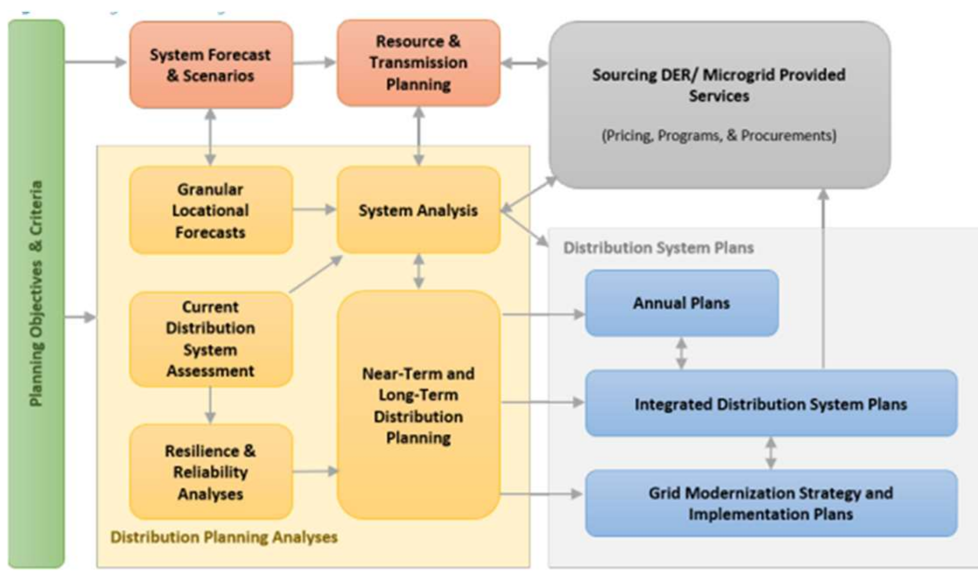
Legacy Electric System

Future Electric System



Electric System Planning: Current & Future

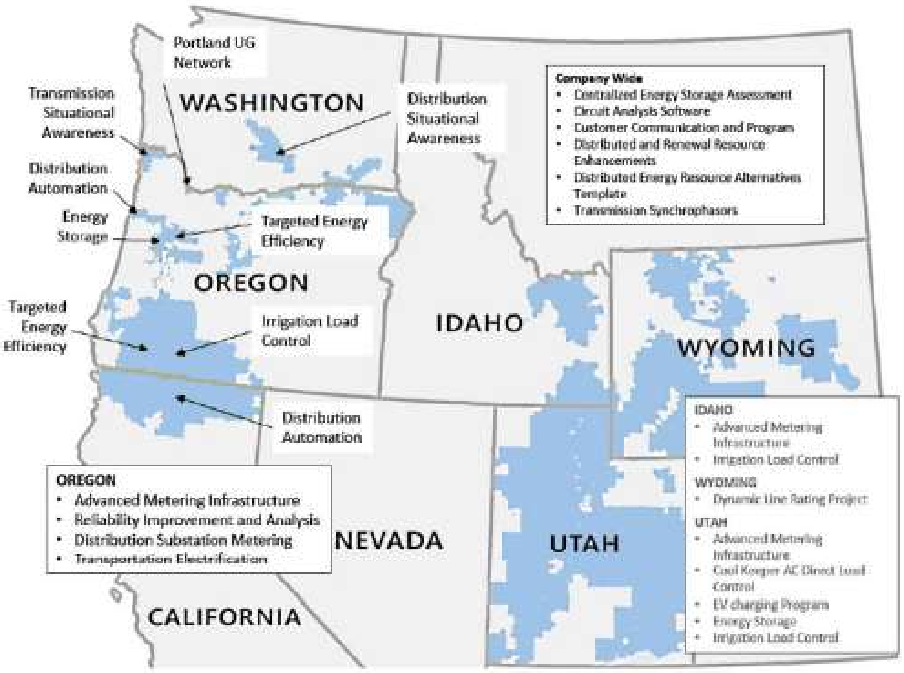


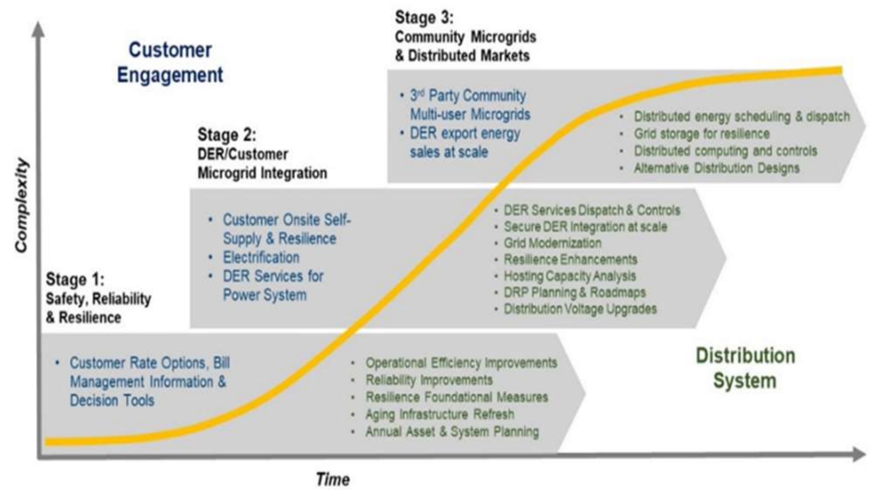


Legacy Planning Cycle

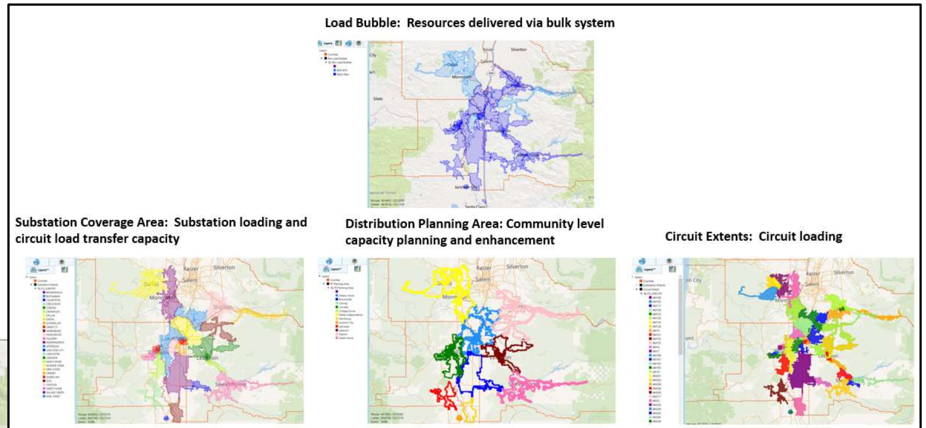
Future Planning Cycle

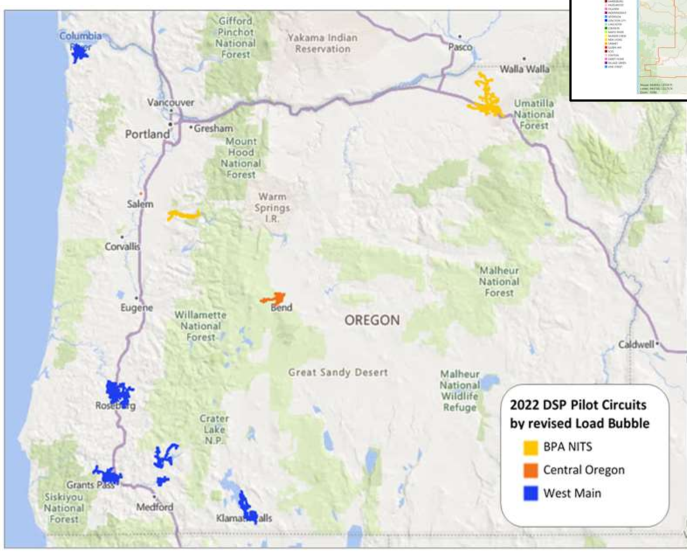
Content from our SmartGrid report and how it ties to future vision for community engagement options





2022 Transitional Plan integrating DSP with IRP

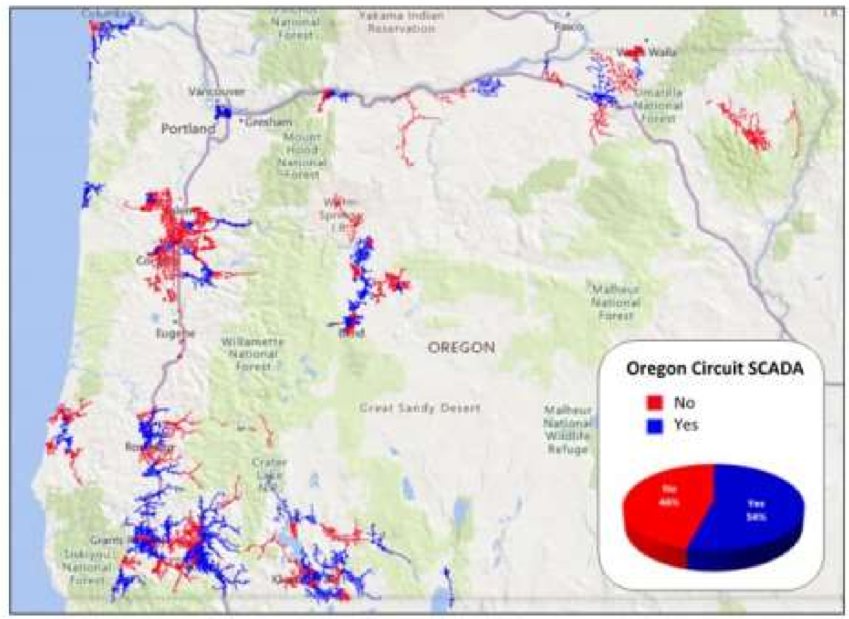




2022 Distribution System Planning Pilot Circuits								
Revised Load Bubble	**BPA NITS**		**Central Oregon**	**West Main**				
Revised Sub Load Bubble	Pendleton	Santiam	Bend	Clatsop Astoria	Southern Oregon/California			
DSP Planning Area	Pendleton	Stayton	Bend	Astoria	Klamath Urban	Merlin	Roseburg Urban	Upper Rogue
Circuits	5W202 5W203 5W401 5W402 5W403 7W451 7W452 7W453 7W454	4M120 4M70	5D10 5D12 5D155 5D196 5D238 5D241 5D243 5D411 5D413 5D418	5A204 5A211	5L112 5L113 5L45 5L46 5L48 5L49 5L54	5R232 5R234 5R248 5R251	4U10 4U22 4U30 4U31 4U38 4U39 4U5 4U81 5U15 5U17 5U19	4R13 4R17 4R9

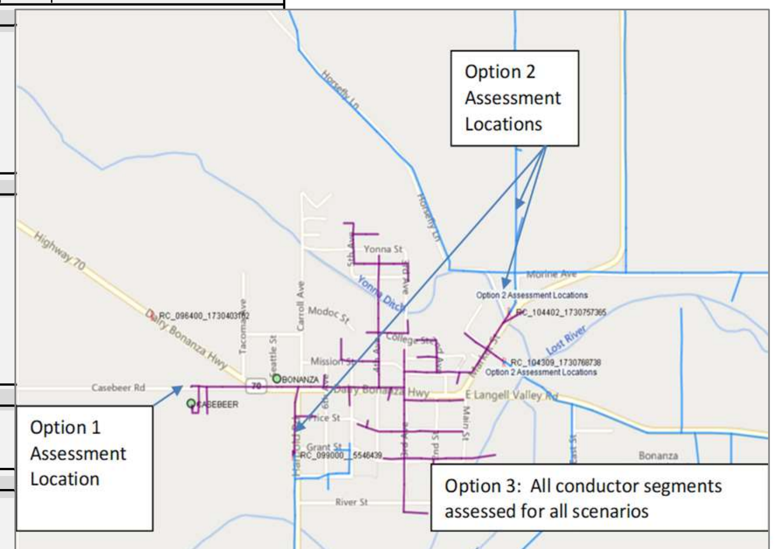
Short Term Plan & Areas of Lack of Digital Information for Circuits

Tasks	Start	Finish
File DSP Part 1		10/15/21
Stakeholder Outreach	4/2021	8/2022
Engage customers and stakeholders for feedback to DSP	4/2021	8/2022
Initiate DSP community engagement survey	1/2022	2/2022
Evaluate feedback from survey and revise communication plan as needed	3/2022	3/2022
Develop content to train internal audiences on DSP	10/2021	1/2022
Evaluate options for multi-language production of content	12/2021	1/2022
Establish method for multi-language and language-impaired DSP communications	1/2022	3/2022
Modify long term relevant to progress and feedback received	4/2021	8/2022
Evaluate Energy Equity Metrics for Stakeholders, Engineers and Regulators	11/2021	9/2022
Value & Calibrate Energy Equity Metrics	11/2021	3/2022
Review energy equity metric displays	3/2022	5/2022
Develop a dashboard of energy equity metrics	5/2022	8/2022
Capacity Planning Transition Process	10/2021	8/2022
Refine planning transition schedule	10/2021	3/2022
Review planning schedule with stakeholders	1/2022	3/2022
Modify planning schedule as necessary	1/2022	8/2022
Resource Planning Transition Process	1/2022	8/2022
Receive DSM and DG forecasts for 2023 IRP	1/2022	3/2022
Integrate DSM and DG forecasts into legacy planning areas	3/2022	3/2022
Integrate DSM and DG forecasts into transitional planning areas	3/2022	8/2022
Aggregate forecasts into load forecast load bubbles	3/2022	6/1/22
Refine implementation plan for transitional planning process	6/2022	8/2022
Pilot Projects	11/2021	8/2022
Evaluate existing area plans for GNAs for pilot	11/2021	3/2022
Evaluate transitional area plans for GNAs for pilot	1/2022	3/2022
Identify range of pilot options (Non-wires Alternatives)	4/2021	7/2022
Identify pilot locations & project types	4/2022	7/2022
Determine Pilot selection metrics	4/2022	7/2022
Conduct Public Participation to assess Pilot alternatives	4/2022	7/2022
Pilot selections	3/2022	8/2022
File DSP Part 2 Plan		8/15/22



HCA Options

HCA Assessment			
Option	**Option 1**	**Option 2**	**Option 3**
Methodology	**Stochastic/EPRI Drive**	**Stochastic/EPRI Drive**	**Iterative**
Geographic Granularity	Circuit (substation breaker)	Feeder (momentary ZOP)	Line Segment
Data Presentation	Annual Minimum Daily Load	Monthly Minimum Daily Load	Hourly Assessment
Refresh	Annual	Monthly	Monthly
Planned/Queued Generation	Details such as number. Size, description, cost of upgrades, etc.	Details such as number. Size, description, cost of upgrades, etc.	Details such as number. Size, description, cost of upgrades, etc.
Data Security	Not a concern unless circuit only serves one customer	Becomes a concern when single larger customers are discernible against available or placed capacity	Concern is exacerbated due to ability to "learn" about placed or in progress producing projects based on temporal analysis
Result Validation	Subject matter review	Requires greater equipment and automation processes for credible reviews at feeder equipment levels	Requires greater equipment and automation processes for credible reviews at line segment levels, which requires key data points be calculated for verification and can only be performed on circuits having profile data available against time series models
Implementation Concerns	None; we did it	To maintain project confidentiality many feeder segments will require redaction and result in limited value to broad use by community stakeholders	High intensity computing requirements for limited duration applicability; work produced has a very short range or use for a high cost
Barriers	Requires development of core data to support refresh of information	Requires development of business rules to ensure proper confidentiality is retained; many line devices will have estimated results due to lack of line sensor data at momentary sectionalization level	Substantial technology, data and business rule establishment is required to support level of models being produced for external consumption and business decision processes without clear integration into the DSP transparent process
System Availability	**$ 361,920**	**$ 9,437,760**	**$ 62,714,400**
Establish Load Cases Establish Maximum Values for Equipment Identify Credible Values for Each Attribute Establish Use Cases Produce Use Case Values at Each Equipment Location Place Value in Repository and Geospatially			
Existing Inventory	**$ 90,480**	**$ 100,000**	**$ 100,000**
Summarize Placed Capacity Summarize In Progress Capacity Build integration between In Progress Projects and Issues/Alternatives System Reduce In Progress Capacity for Any Stale/Mothballed Projects Total Capacity for "Worst Case" Conditions Place Project & Capacity in Repository and Geospatially			
GIS	**$35,000**	**$ 45,000**	**$ 45,000**
Produce Map Views and Data for Current Capacity and Availability and Status Reporting			
Software Licensing & Implementation			
CYME/EPRI Drive		$ 34,500	
CYME ICA			$ 34,500
Computing Resources		$ 150,000	$ 325,000
Interface Creation		$ 325,000	$ 775,000
Report Development	$ 10,000	$ 10,000	$ 20,000
Total	**$ 497,400**	**$ 10,102,260**	**$ 64,013,900**



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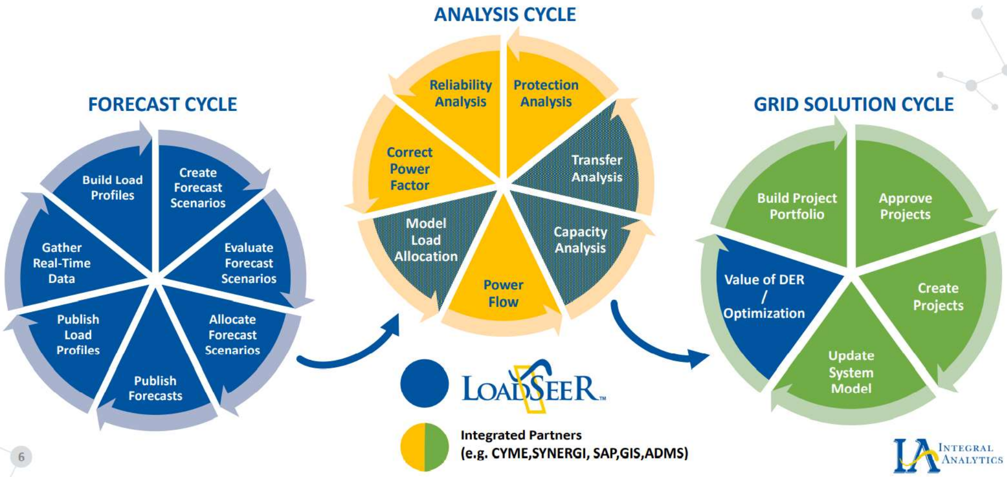
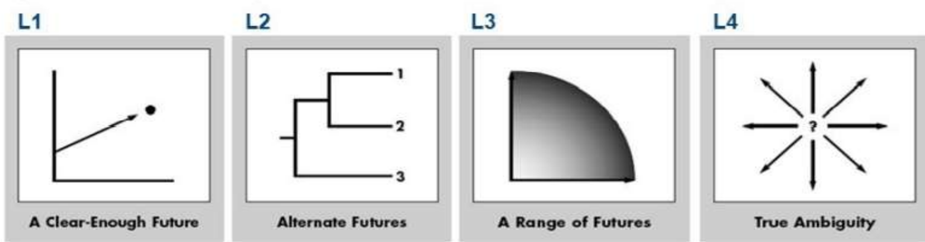
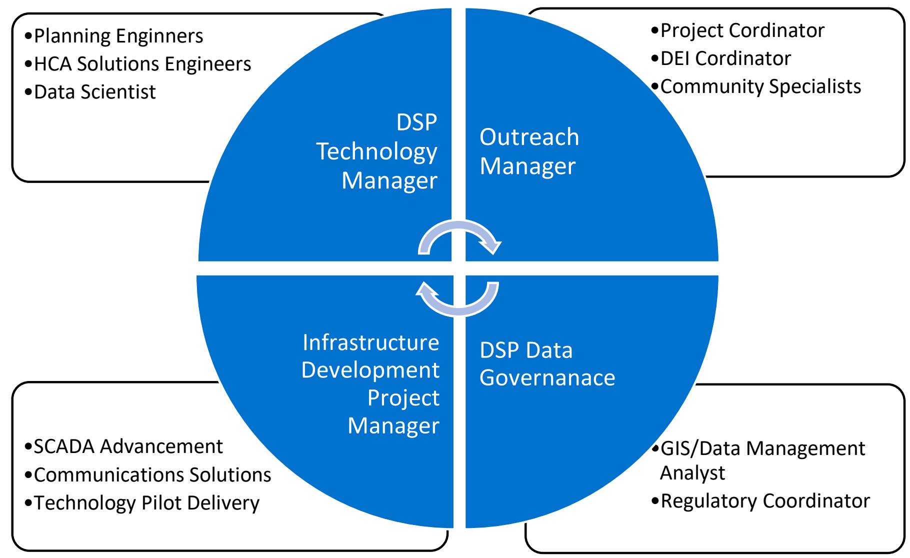
Other enablers to DSP in Oregon





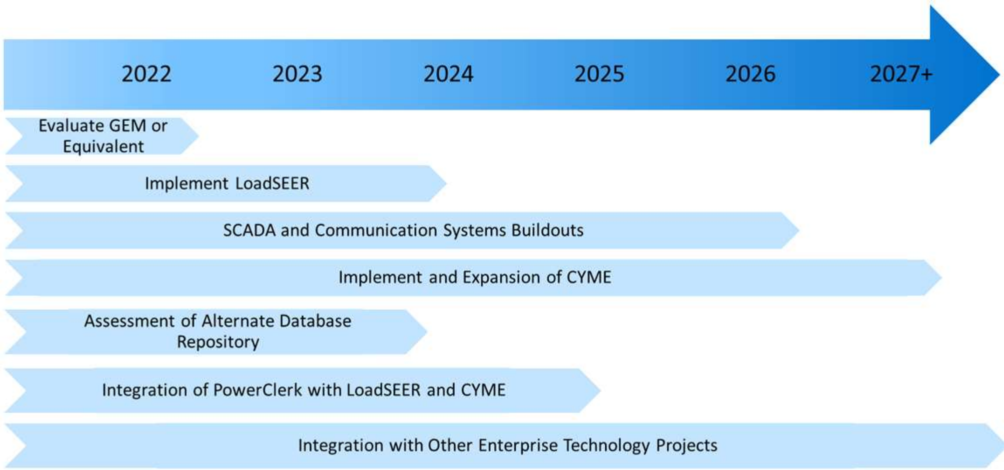
Source: Harvard Business Review



Long Term Plan	One Time Cost	Annual Cost
Total Option 1 HCA	$20,118,263	$7,615,440
Total Option 2 HCA	$29,723,123	$17,220,300
Total Option 3 HCA	$83,634,763	$12,546,840
SCADA build out (over five years of deployment) - 2026	$2,754,000	$350,000
Extensible base communication system to substations - 2026		$275,000
Leases	$250,000	
Fiber	$8,700,000	
Multiple Address System (MAS)	$775,000	
LoadSEER software license - 2022	$3,276,000	
Implement LoadSEER (if implemented system wide could result in cost reduction) - 2024	$775,000	
Implement & expand use of CYME DERie (based on HCA Option chosen) - 2027		
Expand pilots for DA/FLISR - 2031		$1,500,000
CYME plug ins (to be further assessed through Plan 2)		
AMI integration with Dynamic Data Pull		
EPRI Adapt (Advanced Distribution Assessment Planning Tools)		
Integration Capacity Analysis/DERie/EPRI Drive		
LoadSEER Implementation - 2024	$1,000,000	
Plug in implementation - 2026	$750,000	
Evaluate and Implement Greenlink Analytics (GEM) or Equivalent - 2022	$10,863	
Create alternatives assessment repository in AMPS database - 2023	$50,000	
Integrate PowerClerk with LoadSEER and CYME - 2024	$450,000	
Integration with other enterprise technology projects - 2027		
Communications Plan Implementation	$600,000	$650,000
Standup DSP communications collateral creation	$150,000	
Community Surveys (at least annual cadence, potentially twice)	$80,000	
DSP Education Materials		
DSP Education Events		
Core DSP Activities		$4,343,040
Conduct local planning meetings		
Share alternatives advocated by communities and stakeholders		
Perform legacy studies during transition period		
Perform integrative planning functions		
Communicate options and costs		
Maintain data repositories that are critical for DSP		
Advance technology in support of DSP stakeholders and participants		
Produce content for regular meetings, specific local area topics and regulatory obligations		
	$19,620,863	$7,118,040

Plan Options and Long-Range Plan

Hosting Capacity Options		
Option 1	$497,400	$497,400
Option 2	$10,102,260	$10,102,260
Option 3	$64,013,900	$5,428,800



Map Viewer



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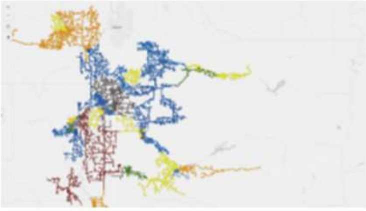
Planning principles

- Transparent and comprehensive data sets for customers, communities and stakeholders to evaluate and set priorities as we move to a clean, equitable energy future
- Robust community engagement
- Technology adoption
- Grid resilience

Distribution System Planning Report

Pacific Power submitted its **Oregon Distribution System Plan Report – Part 1** with the OPUC on October 15, 2021.

DOWNLOAD THE REPORT



Map viewer

This is a high level map showing certain information within our system including distributed generation, energy equity and incentive information, and reliability. This map will evolve over time.

SEE THE MAP

Resources

- Oregon Public Utility Commission: **DSP Guidelines**
- **Oregon Smart Grid Report**
- **Oregon Transportation Electrification Plan**
- **PacifiCorp's Integrated Resource Plan**

Data Discussion



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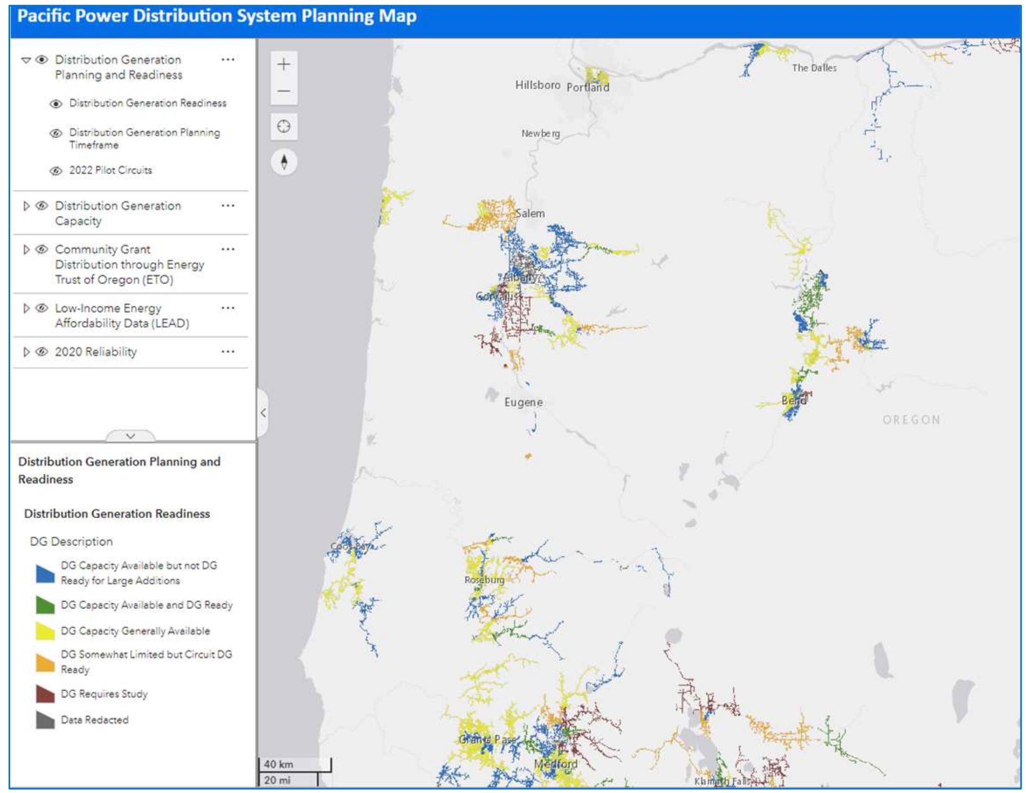
DG Planning and Readiness

DG Planning involves factors that include DG capacity and readiness

- A circuit is considered more DG ready if it has DG capacity, real-time load data is available, and appropriate protection is installed for DG

- Colors listed in the map provide guidance to the user if DG can be added or if work may be required to connect DG

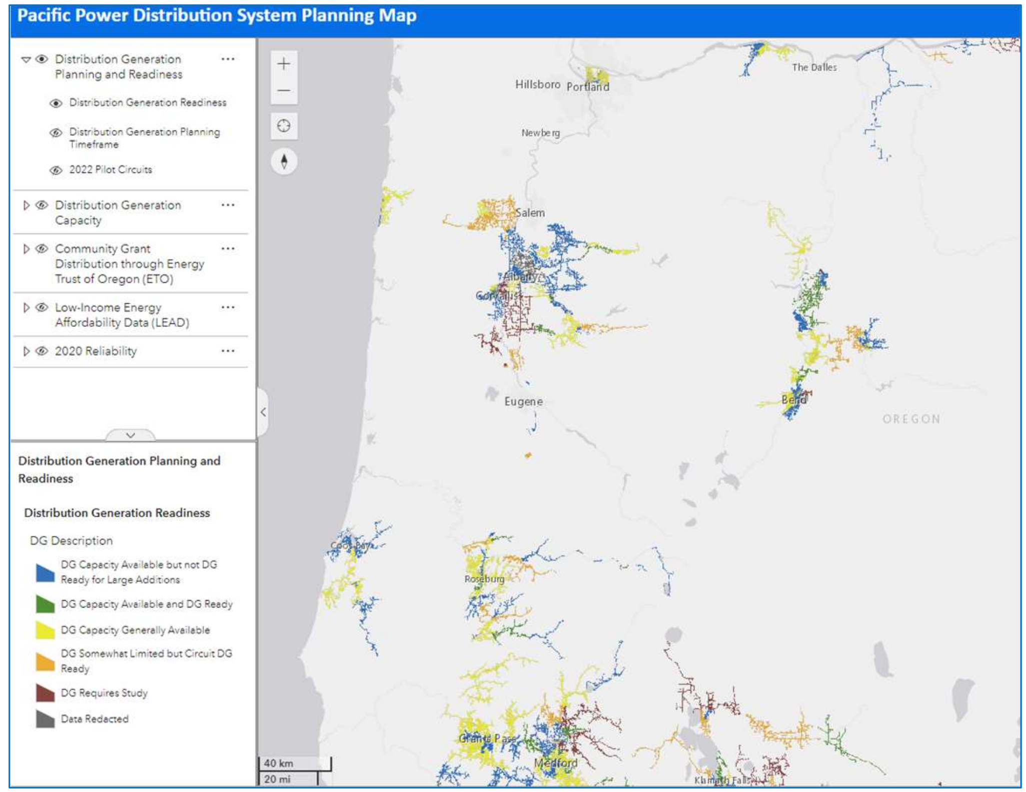


DG Planning and Readiness

DG readiness is determined at the circuit breaker level and is influenced by factors based on:

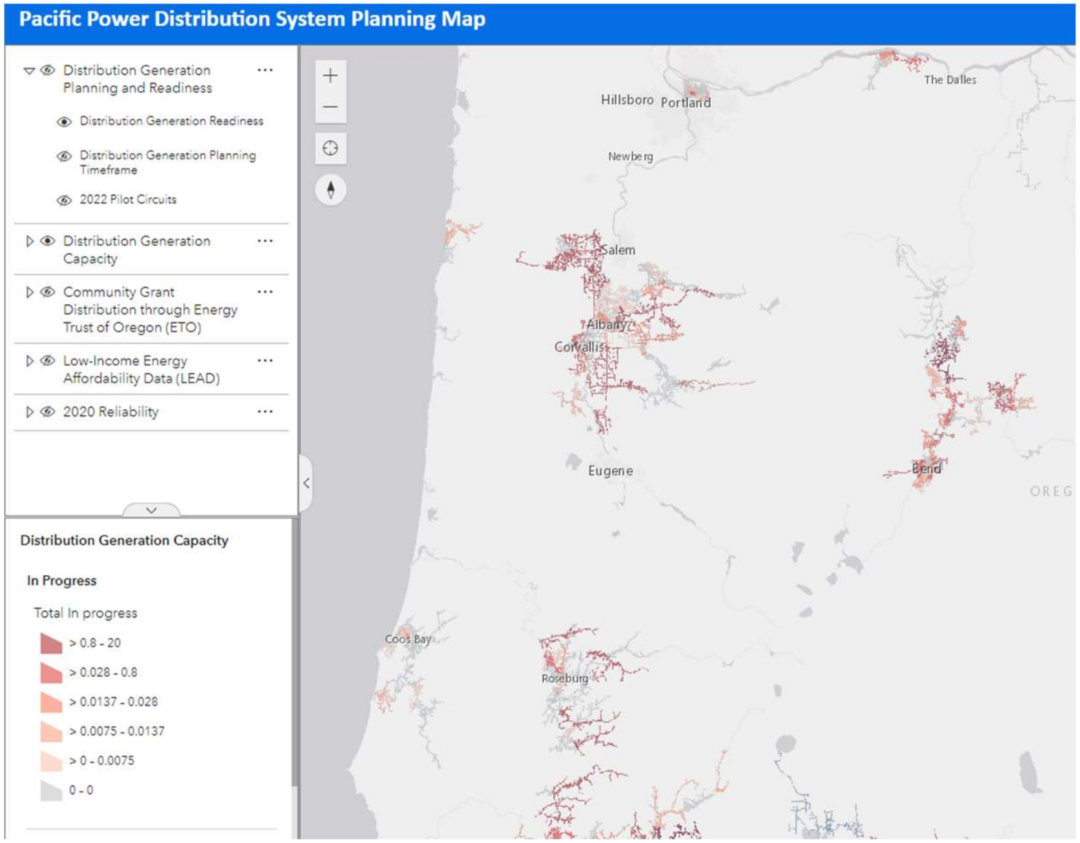
- Load data (SCADA is installed)
- Daytime minimum load capacity (positive load)
- Protection and Control (dead line check is installed)

As an example, a circuit with SCADA, has daytime minimum load capacity, and dead line check installed will have a higher rating than a circuit without any one of these items.



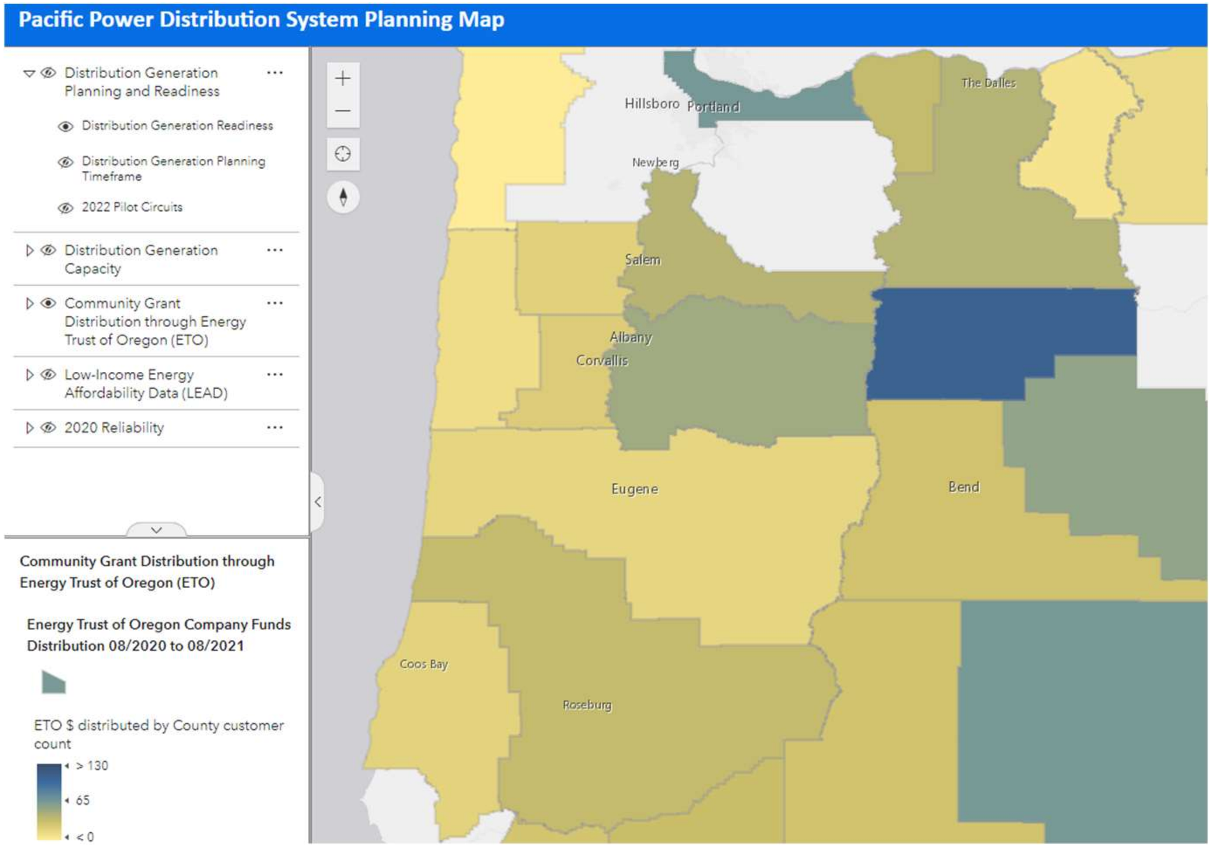
DG Capacity

- Interconnected Capacity (MW)
- In Progress Capacity (MW)
- Technology
- Net Metering vs Generator



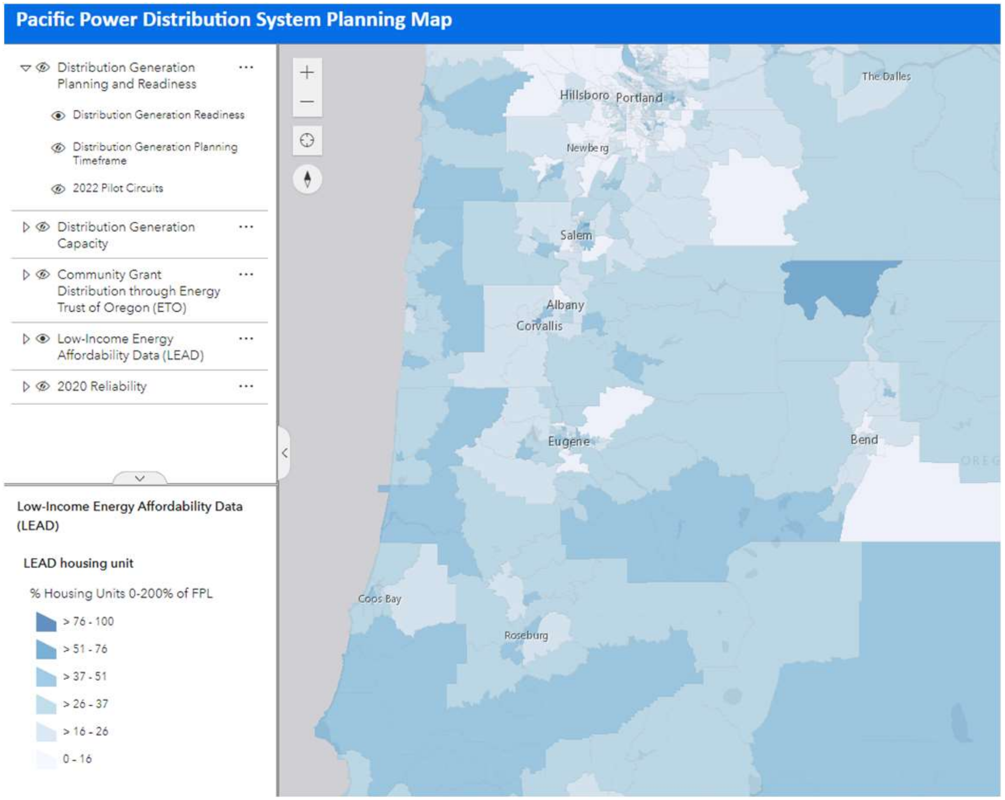
Community Grants/Incentives

- Represented by Energy Trust incentives from 8/2020 to 8/2021 on a per customer basis.
- Large projects can have outsized impact on distribution results.
- Incentives are distributed relatively well between rural and urban counties with Morrow, Jefferson and Multnomah counties being the highest and Sherman and coastal counties being the lowest.



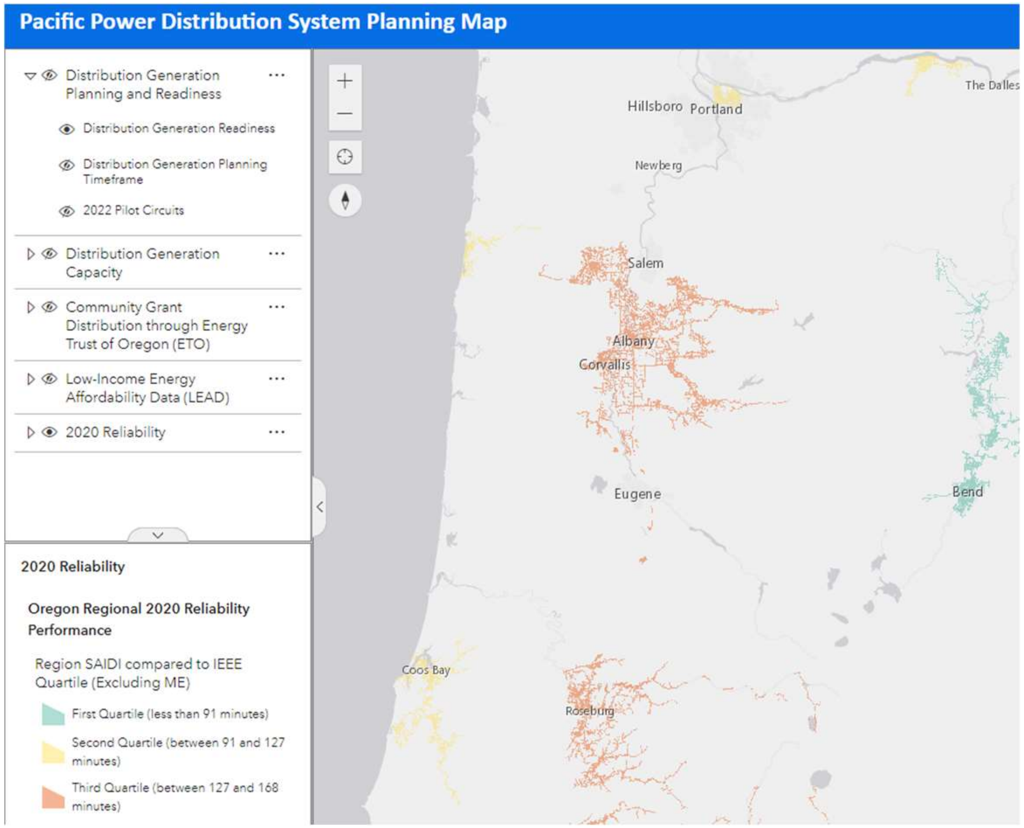
DOE LEAD Data

- Low-Income Energy Affordability Data (LEAD)
    - Energy Affordability
    - Housing Units



Reliability

- 2020 Oregon Reliability
  - SAIDI at a Regional Level
  - SAIDI at a Circuit Level
  - Compared against industry quartiles



Initial Transitional Planning Areas

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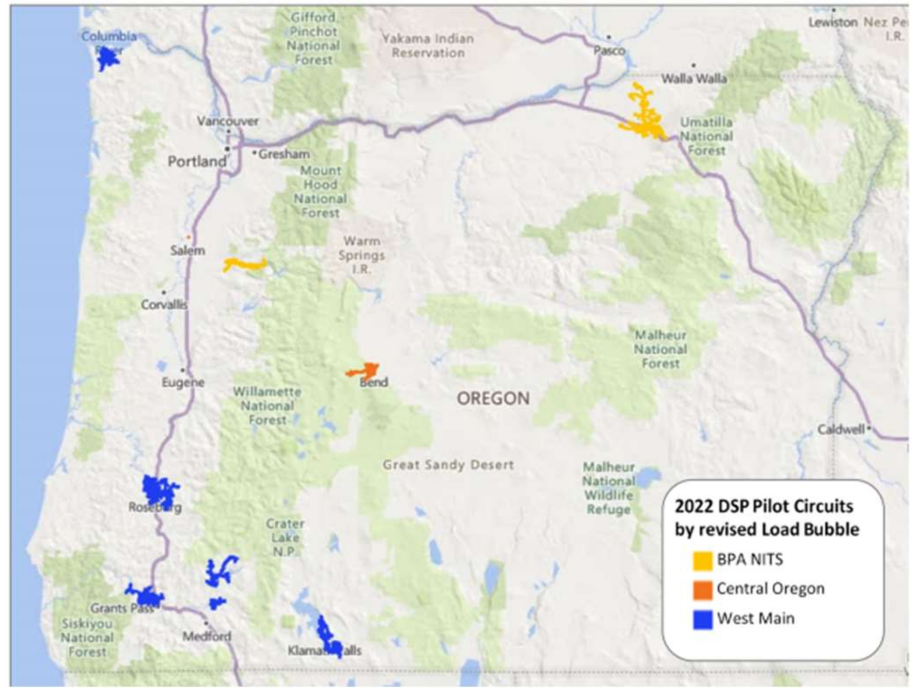

- In current plan for 2022 review
- Existence of circuit level SCADA
- Available capacity for Distributed Generation
- For additional areas or pilot technologies please provide your thoughts
- *We'll be adding a new pilot interest form within the next week*

Feedback






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Schedule and Next Steps

- Anticipated procedural dates
  - Thursday, Dec 2, 2021 – Staff workshop to receive public comment
  - Thursday, Feb 24, 2022 – Special Public Meeting: IOUs present to the Commission, Commission considers acceptance of Part 1 filings
  - Monday, Aug 15, 2022 – DSP Part 2 filing date
- Future Workshops
  - Thoughts for content in future workshops?

Additional Information

- DSP Email / Distribution List Contact Information
    - DSP@pacificorp.com
- DSP Presentations
    - Pacific Power Oregon DSP Website
- Additional Resources
    - Pacific Power’s 2019 Oregon Smart Grid Report
    - Pacific Power's Oregon Transportation Electrification Plan
    - PacifiCorp’s Integrated Resource Plan

Thank You!






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