UM 2005 Distribution System Planning

Data Transparency Workshop Notes and Next Steps

July 16, 2021

On May 7, 2021, Staff hosted a Data Transparency Workshop as a continuation of stakeholder engagement relating to Distribution System Planning (UM 2005). This document includes notes from the workshop, followed by proposed next steps. **Staff proposes requests for stakeholders in the next steps section.**

Workshop Notes

The Workshop was facilitated by Matthew Tisdale, Executive Director of Gridworks, and other Gridworks staff. Gridworks is a non-profit that convenes, educates, and empowers stakeholders who work to decarbonize the economy. In 2020, Gridworks served as consultant to the Commission for the UM 2005 docket.

Participants included (list is not exhaustive):

- Idaho Power:
  - Alison Williams
  - Jim Burdick
  - Marc Patterson
  - Kelly Noe
  - Chris Cockrell
- SBUA: Diane Henkels
- Renewable NW: Micha Ramsey
- TeMix: Stephen McDonald
- OSSIA: Angela Crowley-Koch
- NWEC: Fred Heutte
- PGE:
  - Angela Long
  - Nihit Shah
  - Derrick Harris
  - Joe Boyles
  - Bachir Salpagarov
  - Tony Grentz
  - Joe Boyles
  - Misty Gao
  - Shadia Duery
  - Stefan Brown
  - Jake Wise
  - Jason Salmi-Klotz
- Energy Trust:
  - Spencer Moersfelder
  - Jeni Hall
  - Gina Sarawati
- CUB: Sudeshna Pal
- PacificPower:
  - Erik Anderson
  - Teri Ikeda
  - Wyatt Pierce
  - Jonathan Connelly
  - Heide Caswell
  - Brett Alsup
- Oregon DOJ: Natascha Smith
- NWNatural: Rebecca Brown
- IMT: Jake Duncan
- Oregon DOE: Jason Sierman

The Workshop was based around Figure 2 in the paper *Data and the Electricity Grid,* which was circulated in advance.[1] In preparation for the Workshop Participants were asked to become familiar with Figure 2, and to prepare to discuss the following questions:

1. What would you add to Figure 2 to make it comprehensive and reflective of Oregon in 2021?
2. What inaccuracies need correcting for Oregon in 2021?

Workshop objectives included:

> *Begin establishing shared definitions of distribution system planning data, and a shared understanding of the contexts of availability, accessibility, and usability.*
>
> *Begin to update Figure 2 collaboratively with the ultimate goal of assembling a current and complete table for Oregon, and an initial list of data types or challenges that need further exploration.*

Staff began the Workshop by presenting updates to made Figure 2. The existing content in Figure 2 originated in *Data and the Electricity Grid*, which was written for a different jurisdiction, several years ago. Staff's updates focused on data types for which the Commission is a source, and also reflect requirements of the DSP Guidelines.[2] This updated Figure 2, referred to as *Figure 2 + DSP Guidelines* moving forward, is included below. Staff's updates included the following:

- Data types 1, 6, 8, 9, 11, 13, 14, 16, 17, 19, and 20.
- The updates present current information in the various columns for the data types **from the perspective of the PUC only**. Another stakeholder (a solar developer or a utility, for example) may have additional or different information to add to the columns for these data types.
- Some data types include both information about the status quo, as well as information about the DSP Guidelines (which are future oriented, as the first filings will be in October 2021). When this is the case, information is labeled clearly ("SQ" and "DSP Guidelines") and information about the DSP Guidelines is in green font.

Staff did **not** update data types 2, 3, 4, 5, 7, 10, 12, 15, 18, and 21, as these data types originate from sources other than the Commission. Content for these data types is unchanged from the existing content. The rows of these data types are grey.

Participants were then asked to offer responses to the question of *What would you add to Figure 2 to make it comprehensive and reflective of Oregon in 2021?* Discussion topics included:

- In considering frequency and accuracy it can be equally valuable to conduct a forecast as well as a "backcast."

[1] https://edocs.puc.state.or.us/efdocs/HAH/um2005hah15506.pdf.
[2] Please reference Order No. 20-485 at the following link for the DSP Guidelines (Guidelines) as adopted in December 2020: https://apps.puc.state.or.us/orders/2020ords/20-485.pdf.

- Some but not all data have a temporal aspect, and the temporal aspect can be intermittent. Not all data are equally analyzable. Caution is necessary to avoid creating a false sense of interchangeability or comparability amongst data types.
- In addition to the data types in Figure 2, there is interest in additional demographic information such as: Census data, Health Disparity Index data, American Community Survey data, and energy burden data, amongst others. Recent utility filings in Washington State were noted as useful examples of this.
- It was noted that, to the extent feasible, making data transferable (or portable) alleviates some burden on a utility to create a tool to serve numerous ends; instead communities/stakeholders can use the data themselves.
- Format of data can dictate sensitivities to that data. For example, information about sensitive facilities (those in the PGE Distributed Standby Generation program were an offered example) may have restrictions when presented on a map, but not have restrictions when presented as tabular data.
- Data sensitivity is an important issue to take up and get correct.

In addition to these issues *Figure 2 + DSP Guidelines* was modified in real-time during the Workshop to reflect these issues, and additional input. The resulting version of Figure 2, referred to as *Figure 2 + Workshop Markup* moving forward, is included below. Staff welcomes any corrections to the "raw notes" in *Figure 2 + Workshop Markup*.

Participants were asked to help identify high priority data types to discuss further through a brief survey. Hosting capacity analysis was the most selected data type, followed by locational net benefits, and distributed generation adoption forecasts (overall survey results are included below).

The Workshop shifted to a ranging discussion of hosting capacity analysis including following points:

- Hosting capacity is a product of some of the more foundational data types in other rows (e.g., circuit capacity) and uncertainty about inputs to hosting capacity analysis can leads to margins of error that will be unsatisfactory.
- Hosting capacity analysis is valuable for utility customers and the solar industry as it informs customers of potential additional project costs.
- The temporal aspect of hosting capacity analysis may be critical.
- Understanding more about how customers and other users may utilize hosting capacity analysis would be helpful in identifying, establishing, and addressing the necessary foundational data types noted earlier.
- The Technical Work Group may be a good follow up venue to further discuss hosting capacity analysis.

The hosting capacity analysis discussion ran nearly to the end of the Workshop. In the time that remained, Matthew wrapped up by noting that the survey results presented additional topics for discussion, and that the hosting capacity analysis discussion may continue in the Technical Work Group.

It was also noted that gaining clear and broadly understood definitions of the terminology used in the Workshop would be valuable.

Participants were asked to answer a poll question before logging off: *On a scale of 1 to 5, with 1 being **not** very well and 5 being **very** well, did this meeting accomplish its objectives?* Results follow:

1 (not very well) – 4%
2 – 22%
3 – 35%
4 – 35%
5 (very well) – 4%

Participants' Survey Results: High Priority Data Types to Discuss Further

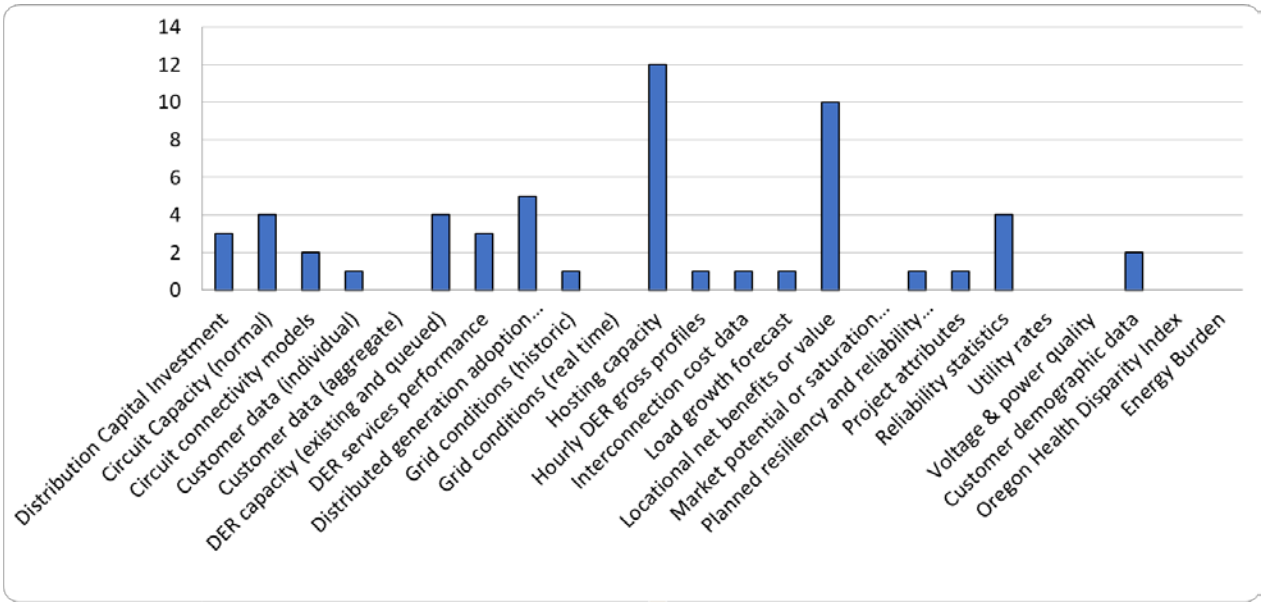

Figure 2 + DSP Guidelines

ID#	Data type	Source: Utility	Source: DER Provider	Source: PUC	Frequency/Accuracy	Available?	Public Access	Machine Readable	Purpose for Data: System Planning	Purpose for Data: Regulatory Compliance	Purpose for Data: Commercial Use	Purpose for Data: Grid Operations	Purpose for Data: Market Efficiency
1	Distribution Capital Investment	x		**X** **SQ** **New Construction Budgets** **IPC - Docket No. RE 35** **PAC - Docket No. RE 43** **PGE - Docket No. RE 18** **DSP Guidelines** **Baseline with 5 year spending history, near-term (2-4 year) action plan, and long-term (5-10 year) plan**	**SQ** **Annual filing; projects g.t. $1M** **DSP Guidelines** **Approx. biennial planning process**	**SQ** **Available** **DSP Guidelines** **Available - Oct. 2021, Aug. 2022**	**SQ** **Accessible** **DSP Guidelines** **Accessible**		**X**	**X**			
2	Circuit Capacity (normal)	x			Annual 15 minute or hourly interval	Available	Limited/In Progress	Available	x	x		x	x
3	Circuit connectivity models	x			Real-time on circuit configuration; connectivity of customers and DER is not automated and accuracy varies by utility	Limited/In Progress	Limited/In Progress	Not Available	x			x	
4	Customer data (individual)	x			Monthly billing. 15 minute interval for C&I, hourly for residential is commonly available to customers and their designees	Available	Not Available	Available	x	x	x	x	x
5	Customer data (aggregate)	x			As requested, typically using 15/15 method	Available	Limited/In Progress	Available	x	x	x	x	x
6	DER capacity (existing and queued)	x	x	**X** **SQ** **OASIS data, Small generator interconnection reports, Net Metering reports** **DSP Guidelines** **Baseline with feeder level info. on number and capacity of DERs**	**SQ** **Annual filings** **DSP Guidelines** **Approx. biennial planning process**	**SQ** **Available** **DSP Guidelines** **Available - Oct. 2021, Aug. 2022**	**SQ** **Accessible** **DSP Guidelines** **Accessible**		x		x	x	x
7	DER services performance	x	x		This data is not yet available, but expected to become available as DER grid services are provided	Limited/In Progress	Not Available	Not Available	x	x	x	x	x
8	Distributed generation adoption forecasts	x	x	**X** **SQ** **IRP process includes system level foreast of distributed generation** **DSP Guidelines** **Forecast of DER adoption by substation, including H/M/L scenarios**	**SQ** **Approx. biennial planning process** **DSP Guidelines** **Approx. biennial planning process**	**SQ** **Available** **DSP Guidelines** **Available - Oct. 2021, Aug. 2022**	**SQ** **Accessible** **DSP Guidelines** **Accessible**	**Not Available**	x	x		x	x

ID#	Data type	Source: Utility	Source: DER Provider	Source: PUC	Frequency/Accuracy	Available?	Public Access	Machine Readable	Purpose for Data: System Planning	Regulatory Compliance	Commercial Use	Grid Operations	Market Efficiency
9	Grid conditions (historic)	x		**X** **SQ** **Partially through reliability reports (see item 19) and OASIS data** **DSP Guidelines** **Baseline with summary of distribution system assets, discussion of monitoring and control capabilities, discussion of any advanced control and communication systems, 5 year spending history**	**DSP Guidelines** **Approx. biennial planning process**	**DSP Guidelines** **Available - Oct. 2021, Aug. 2022**	**DSP Guidelines** **Accessible**						
10	Grid conditions (real time)	x			Real time at substation level, not yet available consistently at more granular levels in distribution	Limited/In Progress	Not Available	Not Available	x	x	x	x	x
11	Hosting capacity	x		**DSP Guidelines** **Utilities to develop options analysis (cost, timeline estimates, etc.) for three options to meet future HCA needs**	**DSP Guidelines** **Approx. biennial planning process**	**DSP Guidelines** **Available - Oct. 2021, Aug. 2022**	**DSP Guidelines** **Accessible**		**X**	**X**	**X**		**X**
12	Hourly DER gross profiles	x	x		As recorded by DER providers, utilities do not consistently have this information	Available	Not Available	Limited/In Progress	x		x	x	
13	Interconnection cost data	x		**X** **Small generator interconnection reports** **IPC - Docket No. RE 62** **PAC - Docket No. RE 66** **PGE - Docket No. RE 67** **Upgrade costs - OASIS data (for non net-metering projects)**	**Annual reporting process**	**Available**	**Accessible**	**Not Available**	**X**	**X**	**X**		**X**
14	Load growth forecast	x		**X** **SQ** **IRP process includes system load growth foreast** **DSP Guidelines** **Discussion of current system load growth forecasting including method and tools, time horizon, data sources, locational granularity**	**SQ** **Approx. biennial planning process** **DSP Guidelines** **Approx. biennial planning process**	**SQ** **Available** **DSP Guidelines** **Available - Oct. 2021, Aug. 2022**	**SQ** **Accessible** **DSP Guidelines** **Accessible**	**Not Available**	**X**	**X**			
15	Locational net benefits or value	x			Utility developed values available to PUC	Available	Limited/In Progress	Limited/In Progress	x	x	x	x	x

ID#	Data type	Source: Utility	Source: DER Provider	Source: PUC	Frequency/Accuracy	Available?	Public Access	Machine Readable	Purpose for Data: System Planning	Regulatory Compliance	Commercial Use	Grid Operations	Market Efficiency
16	Market potential or saturation studies	x		**X** **IRP process includes conservation potential assessment**	**Approx. biennial planning process**	**Available**	**Accessible**	**Not Available**	**X**				**X**
17	Planned resiliency and reliability projects	x		**X** **SQ** **Resiliency/reliability projects may be included in Smart Grid Reports and/or New Construction Budgets** **DSP Guidelines** **Reliability/resiliency related investments identified through forecasting/needs ID/solution ID process**	**SQ** **Smart Grid Reports (biennial), New Construction Budgets (annual)** **DSP Guidelines** **Approx. biennial planning process**	**SQ** **Available** **DSP Guidelines** **Available - Oct. 2021, Aug. 2022**	**SQ** **Accessible** **DSP Guidelines** **Accessible**	**Not Available**	x			x	
18	Project attributes	x	x		Annual planning process	Available	Available	Available	x			x	
19	Reliability statistics	x		**X** **Annual Reliability Reports** **IPC - Docket No. RE 90** **PAC - Docket No. RE 171** **PGE - Docket No. RE 113**	**Annual reporting process**	**Available**	**Accessible**	**Not Available**	**X**	**X**			
20	Utility rates	x		**X** **General rate cases**	**General ratemaking**	**Available**	**Accessible**	**Not Available**		**X**			**X**
21	Voltage & power quality	x				Available	Available	Limited/In Progress	x	x		x	x

		Source				Forecast	Backcast				Purpose for Data					
ID#	Data type	Utility	DER Provider	PUC	Energy Trust of Oregon	Frequency/Accuracy	Frequency/Accuracy	Cost	Benefit	Beneficiary	Available?	Public Access	Machine Readable	GIS/Shape File (format?)	System Planning	Regulatory Compliance	Commercial Use	Grid Operations	Market Efficiency	Local Govt. Policy and Program Development
				X SQ New Constructio IPC - Docket No. PAC - Docket No. RE 43 PGE - Docket No. RE 18 DSP Guidelines Baseline with 5 year spending history, near-term (2-4 year) action plan, and long-term (5-10 year) plan		SQ Annual filing; projects g.t. $1M DSP Guidelines Approx. biennial planning process				SQ Available DSP Guideli Available - O 2021, Aug. 2022	Accessible			X	X			
1	Distribution Capital Investment	x																		
1a	DCI Backcast																			
2	Circuit Capacity (normal)	x				Annual 15 minute or hourly interval					Available	Limited/In Progress	Available		x	x		x	x	
3	Circuit connectivity models	x				Real-time on circuit configuration; connectivity of customers and DER is not automated and accuracy varies by utility					Limited/In Progress	Limited/In Progress	Not Available		x			x		
4	Customer data (individual)	x				Monthly billing. 15 minute interval for C&I, hourly for residential is commonly available to customers and their designees					Available	Not Available	Available		x	x	x	x	x	
5	Customer data (aggregate)	x				As requested, typically using 15/15 method					Available	Limited/In Progress	Available		x	x	x	x	x	
				X SQ OASIS data, Small generator interconnection reports, Net Metering reports DSP Guidelines Baseline with feeder level info. on number and capacity of DERs			SQ Annual filings DSP Guidelines Approx. biennial planning process				SQ Available DSP Guidelines Available - Oct. 2021, Aug. 2022	SQ Accessible DSP Guidelines Accessible							
6	DER capacity (existing and queued)	x	x												x		x	x	x	
7	DER services performance	x	x			This data is not yet available, but expected to become available as DER grid services are provided					Limited/In Progress	Not Available	Not Available		x	x	x	x	x	
				X SQ IRP process includes system level foreast of distributed generation DSP Guidelines Forecast of DER adoption by substation, including H/M/L scenarios			SQ Approx. biennial planning process DSP Guidelines Approx. biennial planning process				SQ Available DSP Guidelines Available - Oct. 2021, Aug. 2022	SQ Accessible DSP Guidelines Accessible	Not Available						
8	Distributed generation adoption forecasts	x	x												x	x		x	x	
				hrough reliability reports 19) and OASIS data DSP Guidelines Baseline with summary of distribution system assets, discussion of monitoring and control capabilities, discussion of any advanced control and communication systems, 5 year spending history			DSP Guidelines Approx. biennial planning process				DSP Guidelines Available - Oct. 2021, Aug. 2022	DSP Guidelines Accessible							
9	Grid conditions (historic)	x																		
10	Grid conditions (real time)	x				Real time at substation level, not yet available consistently at more granular levels in distribution					Limited/In Progress	Not Available	Not Available		x			x	x	
				DSP Guidelines Utilities to develop options analysis (cost, timeline estimates, etc.) for three options to meet future HCA needs			DSP Guidelines Approx. biennial planning process				DSP Guidelines Available - Oct. 2021, Aug. 2022	DSP Guidelines Accessible			X	X	X		X	
11	Hosting capacity																			

ETO identified as another potential source of data.

A suggested new column from Idaho Power.

Idaho Power's suggested new C-B columns.

Should there be a separate column for confidential/sensitive data? Where we can share the idea (e.g., interconnection capacity) without the customer specific data (e.g., customer usage).

Broad concept: data is interchangeable/ transferable.

Idaho Power staff:
What are you trying to do with it? Specific Studies?
What decisions are you attempting to make? What narratives you are attempting to create?
What are you trying to understand from the data?

Representative of the City of Portland suggested adding this column.

A suggested new row.

For example, location of reclosers, sectionalizing.

Outage location data. Where were the spots that got hit hardest by weather events (e.g., ice storm outages)?

Outage location data

Frequency: TBD based on PUC decision following October utility filing.

Accuracy: Hosting Capacity is a product of some of the more foundational data (e.g., circuit capacity) in other rows. Uncertainty about inputs leads to margins of error that will be unsatisfactory.

The Technical Working Group may be a good follow up venue; Staff willing to convene a discussion on how Requirement 4.2b can be achieved.

Idaho Power staff: Inviting more guidance and information from future users on what they will accomplish with the data.

This will help the Company develop Options Analysis and pursue implementation.

Who/how will Idaho's questions be addressed?

		Source				Forecast	Backcast								Purpose for Data					
ID#	Data type	Utility	DER Provider	PUC	Energy Trust of Oregon	Frequency/Accuracy	Frequency/Accuracy	Cost	Benefit	Beneficiary	Available?	Public Access	Machine Readable	GIS/Shape File (format?)	System Planning	Regulatory Compliance	Commercial Use	Grid Operations	Market Efficiency	Local Govt. Policy and Program Development
12	Hourly DER gross profiles	x	x			As recorded by DER providers, utilities do not consistently have this information					Available	Not Available	Limited/In Progress		x		x	x		
13	Interconnection cost data	x		**X** **Small generator interconnection reports** **IPC - Docket No. RE 62** **PAC - Docket No. RE 66** **PGE - Docket No. RE 67** **Upgrade costs - OASIS data (for non net-metering projects)**		**Annual reporting process**					**Available**	**Accessible**	**Not Available**		**X**	**X**	**X**		**X**	
14	Load growth forecast	x		**X** **SQ** **IRP process includes system load growth foreast** **elines** **n of current system load** **recasting including method** **time horizon, data sources, granularity**		**SQ** **Approx. biennial planning process** **DSP Guidelines** **Approx. biennial planning process**					**SQ** **Available** **DSP Guidelines** **Available - Oct. 2021, Aug. 2022**	**SQ** **Accessible** **DSP Guidelines** **Accessible**	**Not Available**		**X**	**X**				
15	Locational net benefits or value	x				Utility developed values available to PUC					Available	Limited/In Progress	Limited/In Progress		x	x	x	x	x	
16	Market potential or saturation studies			**ss includes conservation assessment**		**Approx. biennial planning process**					**Available**	**Accessible**	**Not Available**		**X**				**X**	
17	Planned resiliency and reliability projects	x		**Resiliency/reliability projects may be included in Smart Grid Reports and/or New Construction Budgets** **DSP Guidelines** **Reliability/resiliency related investments identified through forecasting/needs ID/solution ID process**		**SQ** **Smart Grid Reports (biennial), New Construction Budgets (annual)** **DSP Guidelines** **Approx. biennial planning process**					**SQ** **Available** **DSP Guidelines** **Available - Oct. 2021, Aug. 2022**	**SQ** **Accessible** **DSP Guidelines** **Accessible**	**Not Available**		x			x		
18	Project attributes	x	x			Annual planning process					Available	Available	Available		x			x		
19	Reliability statistics	x		**X** **Annual Reliability Reports** **IPC - Docket No. RE 90** **PAC - Docket No. RE 171** **PGE - Docket No. RE 113 + maj outage reports**		**porting process**					**Available**	**Accessible**	**Not Available**		**X**	**X**				
20	Utility rates	x		**X** **General rate cases**		**temaking**					**Available**	**Accessible**	**Not Available**			**X**			**X**	
21	Voltage & power quality	x									Available	Available	Limited/In Progress		x	x		x	x	
22	Demographic Data about Customers which reveals character of distribution system																			
23	Oregon Health Disparity Index																			
24	Energy Burden																			

Different data sets and analytical steps need to work coherently to produce this value; no industry standard or off-the-shelf product is available; temporal value is another important layer and is dynamic; this value depends on DER development; this value also has resiliency implications that are important.

Staff noted the Commission receives major outage reports as well.

Pacific Power staff: cautionary note about how much/what historic data tells us about the future.

A suggested new row.

A suggested new row.

A suggested new row.

Proposed Next Steps

Staff proposes the following next steps to continue discussion of, and work on, data transparency and other data-related topics.

1. Establishing common definitions

As mentioned in the notes above, near the end of the Workshop, participants said that gaining clear and broadly understood definitions of the terminology used in the Workshop would be valuable. Staff has compiled the data types from Figure 2 along with terms used during the Workshop, and the list follows below.

Proposed next step #1 – Staff requests volunteers to identify definitions for these terms. Definitions may be drawn from *Data and the Electricity Grid*, the utility industry, governmental agencies, or research institutions. Once definitions are developed they'll be submitted to the DSP Technical Work Group for vetting, and later circulated amongst UM 2005 stakeholders.

2. Further work on Figure 2

As evidenced by the second objective of the Workshop (*Begin to update Figure 2 collaboratively with the ultimate goal of assembling a current and complete table for Oregon…*), the session on May 7 represented only initial efforts to compile data-transparency related information. Figure 2 represents a broad range of this information, and Staff would like to gauge interest in completing a slimmed-down version of Figure 2. This slimmed-down version, referred to as *Figure 2 + Future Progress* moving forward, would focus on a limited number of data types, specifically those most germane to the upcoming filings. See below for a proposed version of *Figure 2 + Future Progress*.

Proposed next step #2 – Staff requests volunteers to compile information in order to advance completion of *Figure 2 + Future Progress*, as well as to offer feedback and guidance in considering this exercise. Once work is complete, it will be submitted to the DSP Technical Work Group for vetting, and later circulated amongst UM 2005 stakeholders.

3. Establish a parking lot for data-related topics

A workshop participant suggested the creation of a "parking lot" to keep track of outstanding data-related topics. Staff agrees this suggestion has merit and will begin to include such a parking lot in Technical Work Group correspondence.

The first item added to the parking lot is below:

> Parking Lot Item #1 - Where and how data will be stored is an important question to discuss early so there is a way to manage, keep safe, and access data as it comes in.

Distribution system-related data terms in need of definition:

- Data granularity
- Data specificity
- Temporal accuracy
- Temporal consolidation
- Data comprehensiveness
- Distribution Capital Investment (DCI)
- DCI Backcast
- Circuit Capacity (normal)
- Circuit connectivity models
- Customer data (individual)
- Customer data (aggregate)
- DER capacity (existing and queued)
- DER services performance
- Distributed generation adoption forecasts
- Grid conditions (historic)
- Grid conditions (real time)
- Hosting capacity
- Hourly DER gross profiles
- Interconnection cost data
- Load growth forecast
- Locational net benefits or value
- Market potential or saturation studies
- Planned resiliency and reliability projects
- Project attributes
- Reliability statistics
- Utility rates
- Voltage & power quality
- Demographic Data about Customers which reveals character of distribution system
- Oregon Health Disparity Index
- Energy Burden

		Source				Forecast	Backcast								Purpose for Data					
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1	Distribution Capital Investment	x		X SQ New Construction Budgets IPC - Docket No. RE 35 PAC - Docket No. RE 43 PGE - Docket No. RE 18 DSP Guidelines Baseline with 5 year spending history, near-term (2-4 year) action plan, and long-term (5-10 year) plan		SQ Annual filing; projects g.t. $1M DSP Guidelines Approx. biennial planning process					SQ Available DSP Guidelines Available - Oct. 2021, Aug. 2022	SQ Accessible DSP Guidelines Accessible			X	X				
6	DER capacity (existing and queued)	x	x	X SQ OASIS data, Small generator interconnection reports, Net Metering reports DSP Guidelines Baseline with feeder level info. on number and capacity of DERs		SQ Annual filings DSP Guidelines Approx. biennial planning process					SQ Available DSP Guidelines Available - Oct. 2021, Aug. 2022	SQ Accessible DSP Guidelines Accessible			x		x	x	x	
8	Distributed generation adoption forecasts	x	x	X SQ IRP process includes system level foreast of distributed generation DSP Guidelines Forecast of DER adoption by substation, including H/M/L scenarios		SQ Approx. biennial planning process DSP Guidelines Approx. biennial planning process					SQ Available DSP Guidelines Available - Oct. 2021, Aug. 2022	SQ Accessible DSP Guidelines Accessible	Not Available		x	x		x	x	
9	Grid conditions (historic)	x		X SQ Partially through reliability reports (see item 19) and OASIS data DSP Guidelines Baseline with summary of distribution system assets, discussion of monitoring and control capabilities, discussion of any advanced control and communication systems, 5 year spending history		DSP Guidelines Approx. biennial planning process					DSP Guidelines Available - Oct. 2021, Aug. 2022	DSP Guidelines Accessible								

		Source				Forecast	Backcast								Purpose for Data					
ID#	Data type	Utility	DER Provider	PUC	Energy Trust of Oregon	Frequency/Accuracy	Frequency/Accuracy	Cost	Benefit	Beneficiary	Available?	Public Access	Machine Readable	GIS/Shape File (format?)	System Planning	Regulatory Compliance	Commercial Use	Grid Operations	Market Efficiency	Local Govt. Policy and Program Development
11	Hosting capacity			**DSP Guidelines** **Utilities to develop options analysis (cost, timeline estimates, etc.) for three options to meet future HCA needs**		**DSP Guidelines** **Approx. biennial planning process**					**DSP Guidelines** **Available - Oct. 2021, Aug. 2022**	**DSP Guidelines** **Accessible**			**X**	**X**	**X**		**X**	
13	Interconnection cost data	x		**X** **Small generator interconnection reports** **IPC - Docket No. RE 62** **PAC - Docket No. RE 66** **PGE - Docket No. RE 67** **Upgrade costs - OASIS data (for non net-metering projects)**		**Annual reporting process**					**Available**	**Accessible**	**Not Available**		**X**	**X**	**X**		**X**	
14	Load growth forecast	x		**X** **SQ** **IRP process includes system load growth foreast** **DSP Guidelines** **Discussion of current system load growth forecasting, including method and tools, time horizon, data sources, locational granularity**		**SQ** **Approx. biennial planning process** **DSP Guidelines** **Approx. biennial planning process**					**SQ** **Available** **DSP Guidelines** **Available - Oct. 2021, Aug. 2022**	**SQ** **Accessible** **DSP Guidelines** **Accessible**	**Not Available**		**X**	**X**				
19	Reliability statistics	x		**X** **Annual Reliability Reports** **IPC - Docket No. RE 90** **PAC - Docket No. RE 171** **PGE - Docket No. RE 113 + major outage reports**		**Annual reporting process**					**Available**	**Accessible**	**Not Available**		**X**	**X**				
20	Utility rates	x		**X** **General rate cases**		**General ratemaking**					**Available**	**Accessible**	**Not Available**			**X**			**X**	
22	Demographic Data about Customers which reveals character of distribution system																			