Virtual Workshop Report-Out: Aggregated DER Integrated Distribution System Planning (IDSP)

May 2024

Context

On Wednesday, May 1, 2024, NARUC and NASEO hosted the third workshop of the 2023-24 DER Integration and Compensation Initiative, covering how IDSP can support aggregated DERs. This report-out offers a brief account of the workshop and provides readers with access to relevant resources.

Workshop Objectives

The workshop sought to achieve the following objectives:

- Build an inventory of needs and questions that states have on IDSP practices to support their aggregated DER goals and objectives. These will be used to inform future work on IDSP.
- Learn about new resources and opportunities for support from DOE and the national labs on IDSP.
- Surface examples of how IDSP processes are showing up in participants' jurisdictions today.

Three speakers supported this session:

- **Mr. Joseph Paladino**, Senior Advisor at U.S. Department of Energy's Office of Electricity
- **Ms. Lisa Schwartz**, Senior Policy Researcher and Strategic Advisor for the Energy Markets and Policy Department at Berkeley Lab.
- **Mr. Guillermo Pereira**, Policy Researcher at Berkeley Lab.

Overview of IDSP: Mr. Joseph Paladino

Mr. Paladino provided a high-level overview of IDSP, including how it can be a tool to effectively manage systems with high DER adoption.

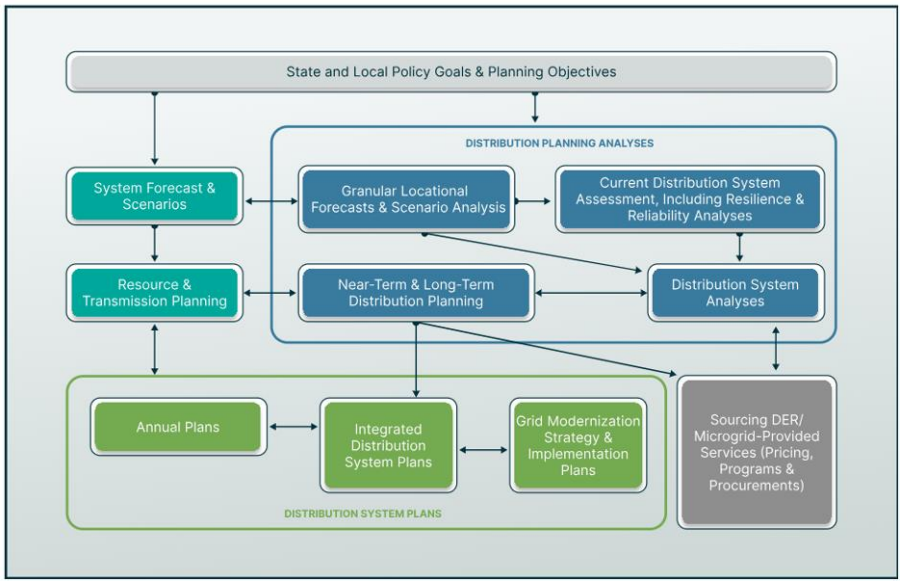
What is IDSP: IDSP is an objectives-based decision framework that utilities, policy makers and regulators can leverage to make decisions that enable long-term grid investment strategies that address policy goals and priorities, community needs, and evolution at the grid edge.

IDSP and DERs:
As the penetration of DERs continues at pace, grid planning and operations are becoming more complicated. Unplanned and unmanaged, DERs present challenges to utilities, and in geographies with organized markets, to ISOs/RTOs. Challenges include forecasting, suitable grid equipment sizing, grid service requirements, and meeting state policy goals in a coordinated fashion.

However, if well planned, DERs can be optimized to help meet grid needs and state policy goals.

IDSP involves multiple coordinated processes to inform grid planning and operations (Figure 1). IDSP begins with state and local policy goals and planning objectives and load and DER forecasting, considers climate and other risks in scenarios, and links to resource and transmission planning and grid modernization strategy.

Figure 1. IDSP Process Map



Source: Berkeley Lab

IDSP process steps are interrelated and work together across goals and objectives, analyses, solution sourcing, and eventual distribution system plans.

Question posed to Mr. Paladino: **What are examples of IDSP in practice today?**

Mr. Paladino noted that several jurisdictions have implemented IDSP. He recommended looking at some of the leaders in the space, including National Grid, Southern California Edison, Joint Utilities of NY, as an example of utility coordination, and HECO, that is implementing integrated grid planning across generation, transmission and distribution in Hawaii.[1]

Berkely Lab IDSP Tools & Resources (Ms. Lisa Schwartz & Mr. Guillermo Pereira)

Ms. Schwartz and Mr. Pereira presented three notable tools and resources that are, or will soon be, available for PUCs and state energy officials interested in learning more and/or applying best practices for IDSP in their states.

[1] *Distribution Planning Overview*, National Grid, 2022, https://eta-publications.lbl.gov/sites/default/files/national_grid_distribution_planning_overview_20220513.pdf
Decision 18-02-004, "Order Instituting Rulemaking Regarding Policies, Procedures and Rules for Development of Distribution Resources Plans Pursuant to Public Utilities Code Section 769", California Public Utilities Commission, 2018, https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M209/K858/209858586.PDF
Joint utilities in NY include: Central Hudson Gas and Electric Corporation, Con Edison, New York State Electric & Gas Corporation, National Grid, Orange and Rockland Utilities, and Rochester Gas and Electric Corporation. https://jointutilitiesofny.org/utility-specific-pages/system-data/dsips
Department of Public Services Staff Whitepaper: Guidance for 2018 DSIP Updates, New York Department of Public Service, 2018, http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7b3548DA1A-828E-4255-A6AF-908117A4DF1E%7d
Docket No. 2016-0087, "Order No. 34281, Dismissing Application Without Prejudice and Providing Guidance for Developing a Grid Modernization Strategy", Public Utilities Commission of the State of Hawaii, 2017, https://www.hawaiianelectric.com/Documents/about_us/investing_in_the_future/dkt_2016_0087_20170104_order_34281.pdf

1. Interactive Integrated Distribution Plan (IDP) Framework – learn more here

This web-based tool provides a shared understanding of holistic and robust planning for local power grids. It focuses on 17 key planning topics. Each section defines the topic and its importance, addresses key questions, outlines key roles and responsibilities, lists best practices and current practices for states and utilities, identifies tools and information flows, and includes an annotated resource list.

2. State Distribution Planning Requirements: data visualization, online catalog, & report – learn more here

This tool summarizes legislative and regulatory requirements for electric utilities to file distribution system plans in 19 states and DC – each reviewed and validated by PUCs. The forthcoming report will include state requirements and utility approaches as well as best practices for state distribution planning requirements.

3. IDSP Technical Assistance for States - learn more here

Berkeley Lab, in partnership with Pacific Northwest National Laboratory and National Renewable Energy Laboratory, offers technical assistance on a wide range of electricity topics for PUCs and state energy offices (SEOs), including:

- ***Help desk** – A few hours of technical assistance work with a rapid response time;*
- ***Expert match** – Up to 80 hours of more detailed and analytical support, with a rapid response time; and*
- ***In-depth** support – More-in depth support over a longer time period, requiring a more detailed application.*

Key IDSP needs surfaced by PUCs and SEOs during breakout discussions

The breakout discussions focused on understanding IDSP priorities for PUCs and SEOs. The discussions explored issues rated to pre-defined IDSP sub-topics, and why these were important for policymakers.

This workshop considered 6 pre-defined IDSP sub-topics:
1. Translating community and state goals and policies into IDSP guidance.
2. Aligning distribution planning and other planning efforts.
3. Strategies for forecasting load and DER adoption.
4. Assessing reliability and resilience of the distribution system.
5. Sourcing solutions to meet customer and grid needs (pricing, programs, procurement).
6. Using distribution planning to inform grid modernization and prioritization of investment.

Workshop participants expressed the most interest in sub-topics 1 and 2.

Needs surfaced for sub-topic 1: Translating community and state goals and policies into IDSP guidance

- **Clarifying the case for IDSP.** SEOs and PUCs recognize that providing a clear case for IDSP — and training — can support buy-in from utilities and make moving towards an integrated planning process smoother and more effective. Participants elevated a need for defining why utilities should undertake IDSP, specifically clarifying the consequences for *not* doing IDSP — such as implications of increasing penetration levels of DERs and EVs — and providing more options or "flavours" of IDSP for utilities of different scales and with different distribution system priorities.
- **Clarifying the incentives for utilities to move towards distribution planning practices that are aligned with state goals.** Participants surfaced a need for clear regulatory and policy incentives that enable and encourage utilities to align distribution planning with state goals.
- **Communicating the value of IDSP to state-level decision-makers, including legislators**. Some regulators and SEOs are interested in better communicating the value of IDSP to policymakers to advance legislative guidance and mandates to enable IDSP. This top-down guidance could provide value in jurisdictions where IDSP is in earlier stages or where there is less role clarity.
- **Prioritizing which near-term actions can support IDSP given different contexts.** State regulators and SEOs recognize that utilities are balancing many requirements and navigating complexity, often with quite limited resources. Breaking down IDSP adoption into more manageable pieces and identifying near-term actions that reduce redundancy across various requirements, set clear priorities, and maximize value would support advancing IDSP practices.

Needs surfaced for sub-topic 2: Aligning distribution planning and other planning efforts

- **Greater visibility into the existing distribution system architecture and functional requirements**. Regulators expressed interest in increasing both their visibility and visibility of utilities/grid operators into distribution system assets. This is necessary for better understanding the current system infrastructure as well as identifying constraints to inform strategic improvements.
- **Options for evolving and adapting existing requirements for Integrated Resource Planning (IRP) to include integrated distribution planning practices**. It is challenging to "stress test" the utility's IRP and distribution planning processes without having access to key information that the utility uses. There's also a need to align more affordable and scalable utility investments across IRP and distribution planning processes to meet customer demands — load, less carbon-intensive resources, distributed generation, energy storage and EVs.

Additional needs surfaced during these breakouts included:

- **Transportation electrification** – Some participants seek information on how state transportation electrification programs translate into utility planning. This includes information that would assist the integration of new technologies and support clearer role definitions between parties involved.
- **Grid modernization** – Some participants want to connect existing regulatory processes for grid modernization planning and distribution planning so that practices are coordinated and comprehensive.
- **Increased collaboration** – Some participants seek best practices for how regulators, utilities, and interested third parties can better collaborate and communicate on IDSP and pilot programs to break down walls and reduce time needed for planning processes.
- **Alignment of distribution planning with transmission planning**
- **Better understanding of technologies**

Resources

- **State Technical Assistance Program: https://emp.lbl.gov/projects/state-TA-program**
- **Berkeley Lab's integrated distribution system planning website: https://emp.lbl.gov/projects/integrated-distribution-system-planning**
- **DOE Distribution grid transformation website: https://www.energy.gov/distribution-grid**