

Distribution System Planning & Use of The Grid

Advancing Transparency & Collaboration
Ensuring Reliability & Affordability

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EXECUTIVE SUMMARY

The distribution grid is evolving from a one-directional delivery channel for electricity to a resilient platform that allows for not only the optimal planning, dispatch and valuation for distributed resources but also the facilitation of a wide variety of customer engagements. This modern distribution system requires upgraded infrastructure, new planning methods and revised operating and maintenance procedures. Allowing the utility to serve as the platform operator facilitates and incents greater participation by distributed resources and customers, while ensuring electric service remains reliable and affordable. Evolving the tools and practices applied to identifying and addressing distribution system needs is an integral step utilities should take to achieve this ‘utility as platform’ end state that will advance the interests of customers, third parties and communities.

The capabilities of distributed energy resources (“DERs”) have expanded and their costs have declined over the past several years. While the increased penetration of DERs increases grid complexity, the role these assets can and should play as grid solutions has significant potential. As these new technologies evolve and mature, and utilities gain experience and confidence in the application of DERs to meet grid needs, non-wire alternatives (“NWAs”) that present reliable, cost-effective means for addressing grid needs should receive consideration in the planning process. To this end, a variety of stakeholders are engaging in dialogues regarding how to further modernize utility distribution system planning (“DSP”) to make these processes more transparent and the resulting NWAs more collaborative.

Due to the nascency of the DSP issue, this paper addresses process advancement only as a vehicle for identifying and developing cost-effective and reliable solutions to system capacity and reliability needs. Ultimately, however, a more transparent and collaborative DSP process could further aid stakeholders and utilities in identifying economic and equitable means to increase locational hosting capacity, improve interconnection ease and aid in DER locational and temporal valuation.

The utility, as a public service company and as the distribution system operator, can and should be making investments in the grid to maintain and advance reliability, affordability and equity of access. Many utilities are working to evolve grid planning and establish new regulatory and business models as they seek to engage stakeholders to facilitate the integration of a rapidly growing number and range of decentralized resources that may both drive and serve system needs. However, the resulting planning process must be streamlined, predictable and rational so it does not compromise the integrity of the grid. Thus far, no “one-size-fits-all” solution to DSP reform has presented itself. Nonetheless, foundational policy parameters have emerged.

Authority for Planning

As the regulated entity charged with serving all reliably and affordably, the utility must maintain its ability and authority to plan for the needs of the distribution grid. It is also important, however, that the utility planning process allow for transparency, credibility,

and for the evaluation of all options to determine which can best serve grid needs while cost-effectively addressing public policy objectives.

Compensation Mechanisms

If appropriate regulatory constructs are not created, NWAs could present a sub-optimal solution and/or a threat to utility financial health. Direct utility ownership of NWA assets must be available if that approach is the most cost-effective or necessary to ensure grid reliability. Alternatively, if third party ownership is more cost-effective and would not impair reliability, mechanisms must allow the utility to treat a contract for access to a third party asset as it would one it directly holds.

Risk Mitigation to Protect Grid Reliability

There is reliability risk inherent in reliance for grid needs on parties not subject to regulation and on programs or assets that depend on voluntary action, third party maintenance, or uncontrollable factors such as weather. Some of these risks can be ameliorated by having a common technical understanding of the criteria that will be used for selecting NWA solutions. NWA selection criteria can include:

- Ability to meet system needs;
- Level of complexity;
- Cost-effectiveness (may include avoided cost and/or value of service);
- Alignment of timing of system need and NWA availability; and,
- Synergistic ability to address multiple needs.

In addition, contracted DERs will likely need to be subject to utility operational control and to performance assurances. These requirements can be addressed through regulatory, contractual, operational, or infrastructure means.

Regulatory Review

To the extent there is need for a regulatory process to review utility planning criteria and decisions, that process should be defined in advance, streamlined, transparent, and under the jurisdiction of the state utility commission. As these regulatory processes evolve, stakeholders -- including regulators -- should work together to establish appropriately streamlined mechanisms for evaluating and selecting these resource alternatives. In its role as the DSP process regulator, a commission can either review a utility's system plan to determine if it was developed under the agreed upon process and criteria or choose to approve the utility plan and limit any subsequent review of utility decisions thereunder to a determination of prudent implementation.

In sum, optimal DSP process characteristics include the following:

- Timelines are clear and consistently applied;
- Planning criteria are agreed upon and conform with the technical requirements utilities face in grid operation;
- Stakeholders are afforded visibility and opportunity for input based on clear criteria;
- The utility is given an opportunity to incorporate, as appropriate, stakeholder input;

- Compensation and risk mitigation mechanisms remove financial and system reliability concerns that may drive a utility to discount third party solutions;
- Regulation of the process, if needed, is by the same agency that regulates utility rates; and,
- Plans thus prepared can be relied on by the utility to make long-term capital investments.

DSP process reform should be seen as subject to evolution. Implemented properly, DSP reform presents a critical opportunity for utilities and stakeholders to develop plans that allow for alignment with public policy goals; ensure the identification of best possible, least cost solutions to grid needs; facilitate discussion of proposed investments and mutual understanding of value derived from those investments; and, engender greater stakeholder trust in the ultimate outcome.