

Grid Modernization Distribution System Planning Staff Update

- I. Actions to Date
 - I. Phase 1 – Grid Modernization
 - II. Phase 2 – Distribution System Planning
- II. Current Status of Docket and General Takeaways from Comments
- III. Reasons to Continue
- IV. Proposed Procedural Process
- V. Solicitation of Input

Grid Modernization - Phased Approach

Date	Step
March 2015	Launch of Grid Modernization Investigation
Sept.-Nov. 2015	Workshops and Comments Periods on Minnesota's distributions systems, national efforts, and recommended next steps
March 2016	Staff Report on Grid Modernization and Next Steps
April 2016	Commission Support to Initiate Distribution System Planning
August 2016	Department of Energy sponsored ICF Report on Distribution System Planning in Minnesota
April 2017	Commission Issued Questionnaire to Utility and Stakeholders
September 2017	Final Responses from Stakeholders
	<i>Next Steps....</i>

Grid Modernization - March 2015 Launch Takeaways

(Condensed)

- The electric distribution grid is at a **time of significant change**;
- Changing **customer demands, new technologies, and evolving public policy** will drive increased deployment of new grid technologies and DER;
- **Development of tomorrow's grid is already underway**, and investments are being made today that will influence the capabilities of the future grid;
- **Updates to distribution planning process will be needed...**

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Guiding Principles from March 2016 Staff Report

- Maintain and enhance the safety, security, reliability, and resilience of the electricity grid, at fair and reasonable costs, consistent with the state's energy policies;
- Enable greater customer engagement, empowerment, and options for energy services;
- Move toward the creation of efficient, cost-effective, accessible grid platforms for new products, new services, and opportunities for adoption of new distributed technologies;
- Ensure optimized utilization of electricity grid assets and resources to minimize total system costs;
- Facilitate comprehensive, coordinated, transparent, integrated distribution system planning.

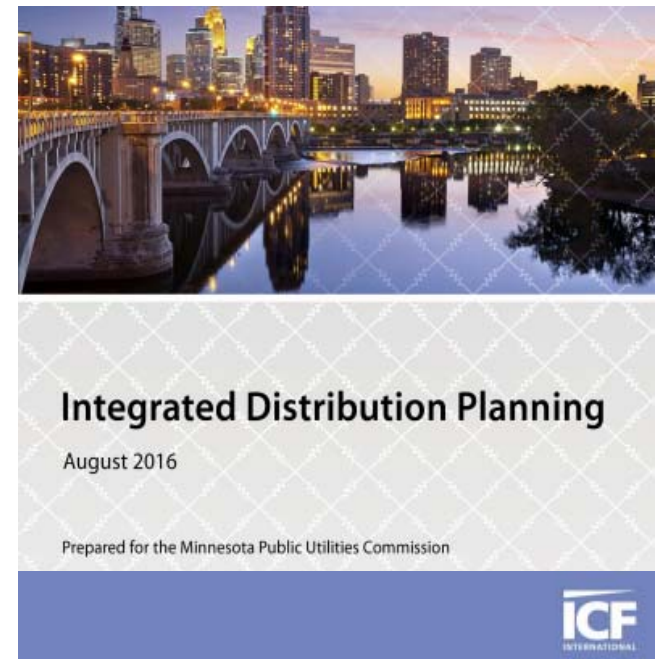
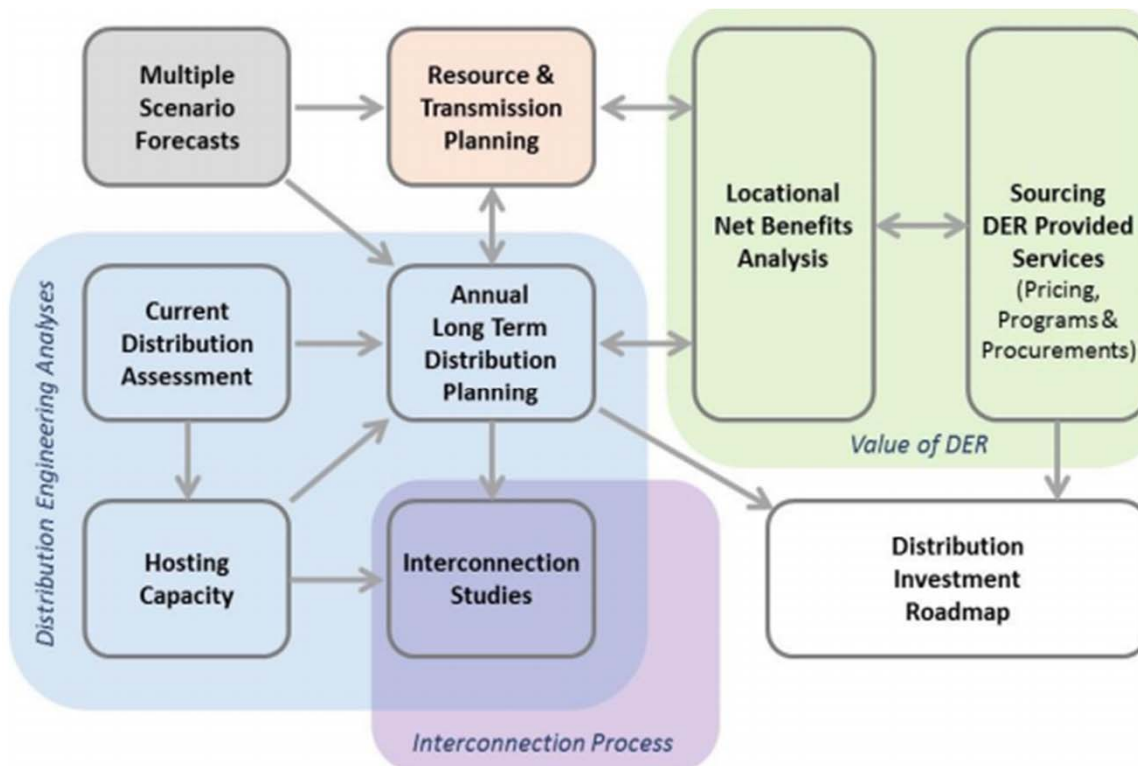
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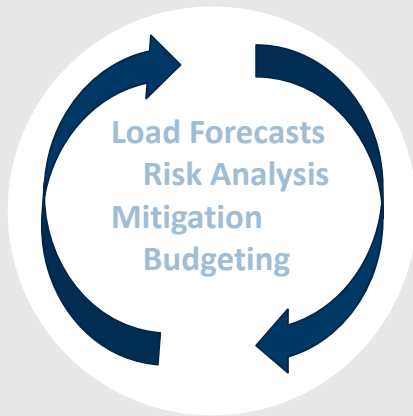
ICF/DOE MN DSP Report Recommendation



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Distribution System Planning Questionnaire



A. How do Minnesota utilities currently plan their distribution systems?

Establish a baseline understanding of our utility planning processes



B. What does each utilities current year plan look like and assume?

Understand the current state of plans



C. Are there ways to improve or augment the utilities' planning processes?

Provide stakeholders an opportunity to identify potential improvements in planning processes

Distribution System Planning Questionnaire - Takeaways

Comprehensive input received from many utilities and parties:

Utilities, Cooperatives, Others

- Dakota Electric
- Great River Energy
- Minnesota Power
- Minnesota Rural Electric Association
- Otter Tail Power
- Xcel Energy

Stakeholders

- Alevo
- Advanced Energy Economy
- Department of Commerce
- Citizens Utility Board
- Energy Storage Association
- Fresh Energy
- Interstate Renewable Energy Council

Distribution System Planning Questionnaire - Takeaways

Utility Similarities:

- Annual distribution system capital budgets;
- Metrics for planning;
- Low load growth and DER penetration;
- Varied system visibility even within distribution systems;
- Limited distribution engineering staff;
- Limited connection between DSP and IRP/Transmission Planning; and,
- DER treatment in forecasts (short term energy vs. long term capacity).

Distribution System Planning Questionnaire - Takeaways

Utility Differences:

- Various stages of grid modernization;
- Degrees of implemented technology and how used;
- Levels of DER-interconnection requests and DER-penetration levels;
- Distribution system spend by year (factor of 10);
- Geographic region and density;
- Occurrences of (and need for) special distribution projects or studies; and,
- Age of existing infrastructure.

Distribution System Planning Questionnaire - Takeaways

Stakeholders Summary:

- General support for distribution system planning of some kind;
- Variation in outcomes and expectations of a DSP;
- Variation on whether plans should be approved or constitute prudence;
- Stakeholder participation is important; and,
- Similar planning concepts should be applied to all utilities, but how they are applied will vary.

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Distribution System Planning – Reasons to Continue

1. Minnesota distribution system planning should be advanced to aide the Commission in:
 - **Providing a foundational understanding of utility system distribution long-term plans;**
 - **Providing context for individual utility investment requests;**
 - **Ensuring utilities are proactively planning for potential futures and incorporating non-traditional methods of planning;**
 - Ensuring a system that accommodates future reliability, efficient uses of resources, and maximizes customer benefits; and,
 - Supporting public policy goals.

Distribution System Planning – Reasons to Continue

2. Any distribution system planning process should:
 - Be informed by stakeholder input;
 - Be iterative and improve with each cycle;
 - Create realistic expectations for the utility, the Commission, and stakeholders;
 - Bridge knowledge gaps;
 - Ensure cost effective solutions by increasing visibility into investment decisions and plans;
 - Be tailored to each utility's system and allow for flexibility based on changing factors; and,
 - **NOT impede a utility in their need to plan and act on distribution system investments.**

Distribution System Planning – Proposed Procedure

3. Proposed Procedure:

- Staff will propose to the Commission through briefing papers for an agenda meeting (Agenda Meeting 1) draft distribution system planning requirements, tailored to each utility;
- At Agenda Meeting 1, the Commission could provide general input on the utility-specific requirements and take action on whether to authorize staff to issue them for comment;
- Following the comment periods, the Commission could approve (or reject) the proposed filing requirements (Agenda Meeting 2).

Distribution System Planning – Input on Procedure

Commission input on the process or procedure?

Objections or suggested refinements?

