

Dispersed Generation Interconnection Study

Context and Process

**Mike Bull,
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DG Interconnection Study

Overview

- **Broad Policy Context**
- **Required Transmission Studies**
 - RES Transmission Study
 - DG Interconnection Study
 - Legislative requirements
 - Study process & schedule
- **Your input**

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Broad Policy Context

Administration's Energy Policy



"We cannot, as a strategic plan for the future, just . . . experience the cost crisis, the environmental impacts, and the supply questions that flow from just embracing the status quo. *We need a different and better energy future.*"

--from November 29, 2005 address to University of Minnesota's IREE Renewable Energy Symposium



Broad Policy Context

Renewable Energy Vision



To have 25% of all the energy we use come from renewable resources by 2025

- Early endorser of the national 25x'25 initiative
- Led MGA to endorse national initiative
- State strategic goal



Broad Policy Context

Why 25x'25?

To reduce the environmental and climate impacts of our energy choices

To further unhinge our state's economy from unstable fuel supplies

To benefit and stabilize Minnesota's rural economies

To provide alternatives to Minnesota consumers



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Broad Policy Context Record of Accomplishment

- **Quadrupled the number of E85 stations (>300)**
- **Implemented the nation's first biodiesel mandate**
- **Proposed & enacted 20% ethanol legislation**
- **Established the nation's most aggressive community wind goal (800 MW by 2010)**
- **Proposed & enacted nation-leading mercury emissions reduction legislation**



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Broad Policy Context

Next Generation Energy Initiative



Announced on Dec.12, 2006 at
the Midwest Ag-Energy Summit

Four components

- Energy Efficiency
- Climate Change
- NextGen Biofuels & Bioenergy
- Renewable electricity

- The 2007 legislature passed each and every component of the Governor's NextGen Energy Initiative

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NextGen Energy Initiative

Demand Efficiency

- **Transition from conservation spending program to energy savings program**
- **Set aggressive energy savings goals**
 - **Double current electricity savings & increase natural gas savings by 50%**
- **1000 Energy Star buildings by 2010**

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NextGen Energy Initiative

Climate Change

- **Require new fossil fuel generation to offset its greenhouse gas emissions**
- **Center for Climate Strategies**
- **Work with Midwestern Governors to develop a regional approach**

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NextGen Energy Initiative

NextGen BioEnergy

- **\$100 million over 10 years to convert biomass to biofuels & bio-gas**
 - **Agricultural residues, wood, perennial grasses, other feedstock**
- **E85 Everywhere grants**
 - **Goal of 1800 E85 retail pumps**



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NextGen Energy Initiative

Renewable Electricity

- **25% by 2025 for most utilities**
 - 7% by 2010; 12% by 2012; 17% by 2016
- **30% by 2020 for Xcel Energy**
 - 25% wind energy by 2020
- **Protections for Minnesota ratepayers**
- **Encourages local ownership of energy production**

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Req'd Transmission Studies

Overview

- **RES Transmission Study**
 - Lead by MN Utilities
 - Due November 1, 2007

- **DG Interconnection Study**
 - Lead by MN Dept. of Commerce
 - Due June 15, 2008



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Req'd Transmission Studies

Overview

Studies are interlocked:

- **DG Study must incorporate RES Transmission Study results**
- **MN Utilities and MISO will do analytical work for both studies**
- **A DOC-appointed Technical Review Committee (TRC) will review methods and results for both studies**

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Req'd Transmission Studies

Technical Review Committee

- **TRC members:**

- Individuals with experience & expertise in electric transmission system engineering, renewable energy generation technology, & dispersed generation

- **TRC duties:**

- Oversee technical analyses & make recommendations regarding proposed methods & assumptions
- Review drafts and make recommendations for improvement

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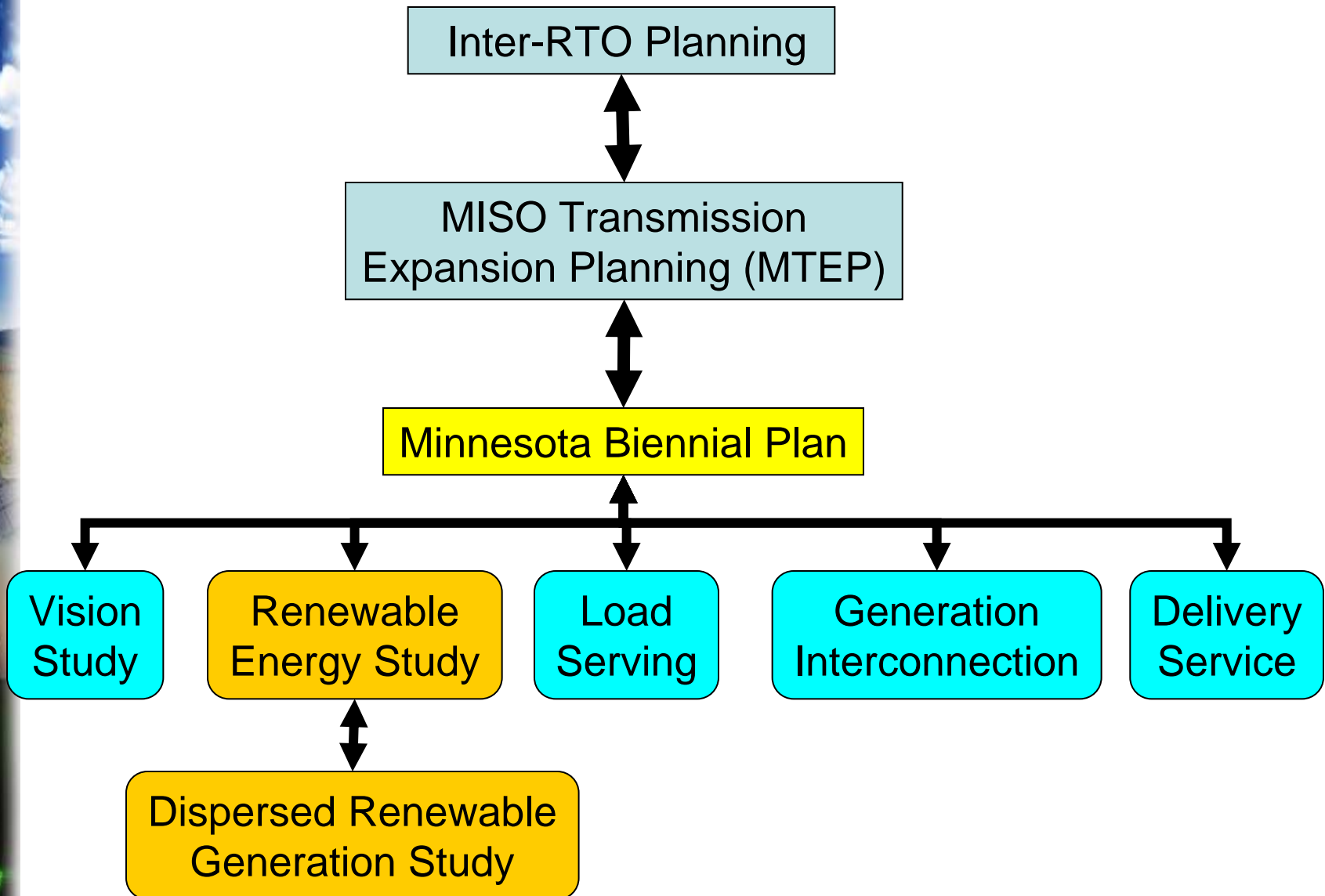


Technical Review Committee

- American Wind Energy Association
- Community-Based Energy Development
- Great River Energy
- Mid-Continent Area Power Pool
- Midwest Independent System Operator
- Minnesota Chamber of Commerce
- Minnesota Department of Commerce
- Minnesota Power
- Missouri River Energy Services
- National Renewable Energy Laboratory
- Otter Tail Power Company
- Southern Minnesota Municipal Power Agency
- Utility Wind Integration Group
- Wind on the Wires
- Windustry
- Xcel Energy



Transmission Planning Process



Req'd Transmission Studies

RES Transmission Study

- **Identify transmission upgrades necessary to meet RES milestones**
 - Optimize delivery of the RES energy to MN retail customers while maintaining system reliability
 - Incorporate & build upon other analyses
 - 2006 MN Wind Integration Study
 - Ongoing work to address geographically dispersed development patterns
 - Collaborate with MISO and integrate with other regional transmission considerations
 - Convene & regularly consult with TRC

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Req'd Transmission Studies

RES Transmission Study

- **Report to MN PUC by November 1, 2007**
 - A comprehensive conceptual plan
 - Specific transmission line proposals necessary to meet RES milestones
 - A description of how the results of these studies have been reflected in the biennial transmission reports
 - A five-year action plan with actions necessary to implement the proposals

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Req'd Transmission Studies

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“Statewide Study of Dispersed Generation Potential”

– Two phases

- **Analyze transmission impacts of 600 MW of new dispersed generation (1200 MW total), distributed in the five out-state transmission planning zones**
- **Locations studied to be based on public input, regional availability of renewable resources, current dispersed generation in the MISO queue, and access to existing transmission**
- **Study to identify specific modifications to the transmission system necessary to remedy problems caused by the installation of the dispersed generation**

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Req'd Transmission Studies

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- **Each MN electric utility req'd to participate in both phases**
- **DG = RES eligible generation projects that are between 10 to 40 MW each**
 - Includes wind, biomass, & solar

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Req'd Transmission Studies

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Schedule

- **Public meetings: 3 meetings for each phase in each transmission planning zone**
 - prior to the beginning of each phase of the study
 - after the impact analysis is completed, and
 - when a draft final report is available
- **Study Phase I:**
 - 600 MW, study year 2010
 - Report by DOC due June 2008
- **Study Phase II:**
 - 600 MW, study year 2013
 - Report by DOC due Sept. 2009

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Req'd Transmission Studies

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Community Input Needed (forms on your table)

- **Feedback on DG Study framework**
 - process, expected outcomes, schedule, etc
- **Information re: plans for dispersed renewable generation**
 - fuel & generation type (e.g. wind, biomass, solar), location, amount
- **Discussion of barriers and challenges**
 - What steps are needed to advance projects?

Written comments accepted for one week following the public meeting: DGstudy.commerce@state.mn.us

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Thank you!

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