

Where do we go from here?

SSG WI PWG **Transmission Economic Assessment and Model Improvement Conference**

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CEC/PIER Transmission System Planning Capabilities/Needs R&D Project

The California Energy Commission (CEC) Public Interest Energy Research (PIER) Energy Systems Integration team is developing a program to address transmission planning R&D needs

CERTS has provided support to PIER planning efforts by

- Reviewing current California and regional transmission planning activities;
- Assessing emerging needs; and
- Identifying options for future public interest R&D to improve planning tools, techniques, methods

This presentation is based on the final CERTS report to CEC; *it does not necessarily represent the policies or plans of CEC*

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Observations on Transmission Planning

Transmission planning cannot be treated separately from resource planning

Traditional transmission planning methods (and reliability criteria) were not designed originally to address market issues and non-wires alternatives

Moreover, these approaches, alone, do not encompass the range of issues that now need to be addressed more explicitly in transmission planning (time horizon, resource adequacy policies, integration with corridor planning)

In particular, issues/trade-offs associated with treatment of uncertainty/risk and model fidelity/granularity have not been systematically addressed

However, new methods and tool development, per se, are not as important as addressing institutional problems (system vs. PTO; CA vs. region; time horizon; reliability vs. commerce) associated with regional resource planning, which have arisen through transmission planning

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Potential Transmission Planning R&D Topics

Support and extend the Transmission Economic Assessment

Methodology (TEAM) under development by the California ISO

Market simulation and market-power analysis

Transport vs. direct current (DC) vs. alternating current (AC) power-flow analysis

Uncertainty analysis and techniques – strategic value assessment

Economic modeling and evaluation of seams

Harmonize transmission planning methods/approaches

Multi-scale models

Formal integration of bus-level load forecasting with system-level load forecasting

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Potential Transmission Planning R&D Topics

Expand the scope and focus of transmission planning

Longer-term scenario analysis

Generation technology choice and location

Demand-side alternatives to transmission

Integration of natural gas pipeline and electricity transmission planning

Macro-economic studies

Support regional transmission-planning activities

Common regional databases and information exchange

Enhance transmission-corridor assessment and planning

Transmission-corridor planning/assessment tools

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Potential Transmission Planning R&D Topics

Address leading technical issues in transmission planning

Probabilistic vs. deterministic reliability criteria

Voltage/reactive reserve modeling

Load modeling

Deliverability

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For More Information

Eto, J., B. Lesieutre, and S. Widergren. *CEC PIER/ESI Transmission Planning R&D Scoping Report*. LBNL-55487. August, 2004

KEMA Consulting. *Analysis and Selection of Analytical Tools to Assess National-Interest Transmission Bottlenecks Final Report*
KEMA-ECC & Macro Corporation. March 2003

Download from <http://certs.lbl.gov>

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