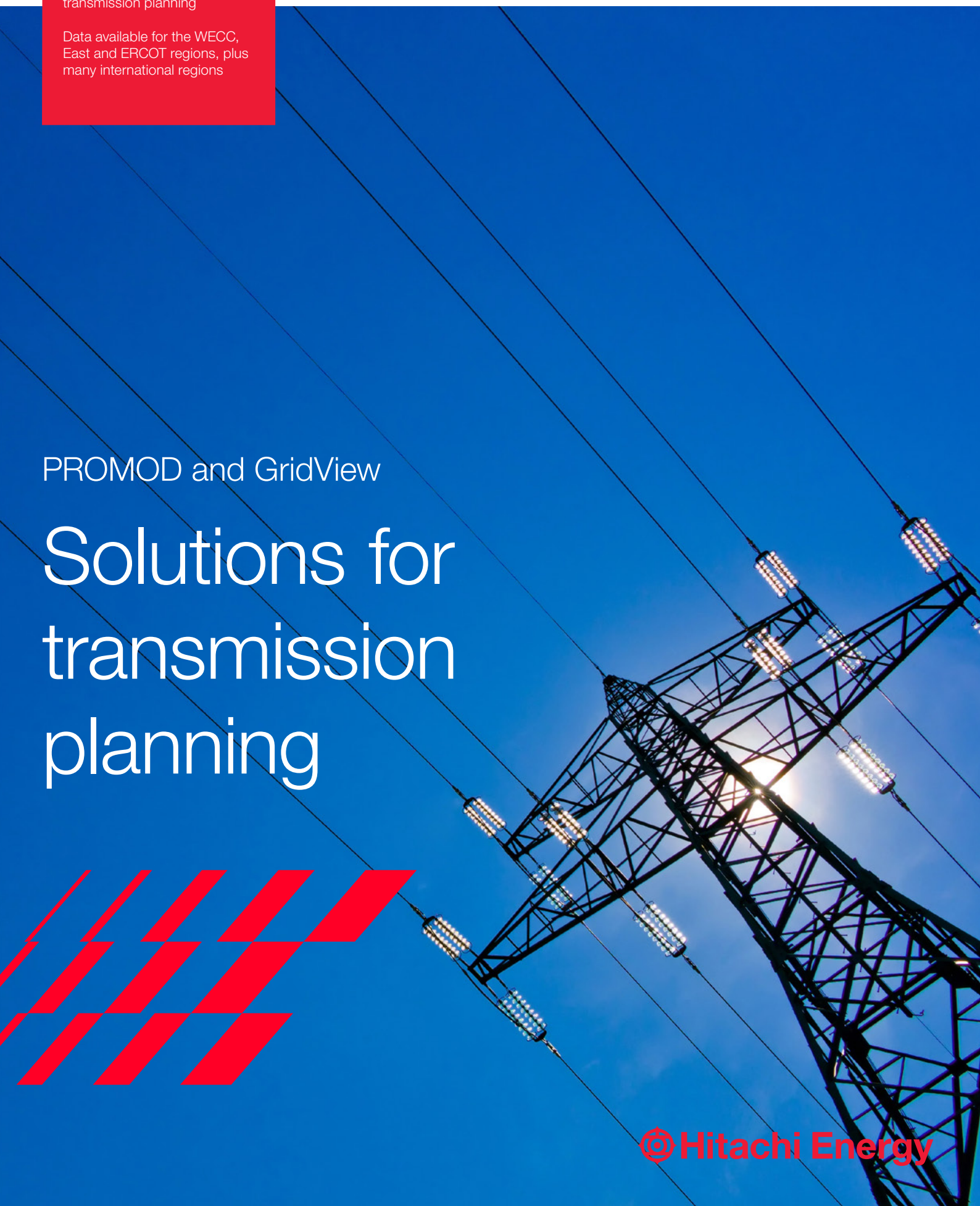
HITACHI
Inspire the Next

Trusted by six of the seven RTOs / ISOs in the United States for long-term transmission planning

Data available for the WECC, East and ERCOT regions, plus many international regions

PROMOD and GridView

Solutions for transmission planning



Hitachi Energy

Are you ready for the new challenges of planning for a vastly more complex transmission grid of the future?

Industry challenges

The ongoing changes in the electrical industry around the country have brought fundamental challenges to the way the industry conducts its business and to the way the physical transmission systems are utilized. The increasing volumes of energy transactions over longer distances are stressing the transmission systems in ways not anticipated by system planners in the past. New transmission projects must be planned and constructed to meet the growing needs of the grid.

The winners in the new paradigm will be those who can efficiently manage risks such as generator-forced outages, transmission line outages, congestion, fuel prices and load forecasts.

Power marketers also play in the long-term, day–ahead and real-time markets, and need to predict what the price will be under likely scenarios. With billions of dollars at stake, they need to assess the exposed risks that can change with every fluctuation in generation dispatch, transmission outage or load change.

Solution

Hitachi Energy's transmission planning solutions, PROMOD® and GridView®, are used by six of the seven RTOs/ISOs across the United States to address long-term transmission planning. The software can simulate the operation of an electric power system under constrained transmission, study the operational and planning issues facing energy industry stakeholders, and simulate the system on a zonal or nodal basis.

Hitachi Energy's solutions are recognized in the industry for their flexibility and breadth of technical capability, incorporating extensive details in generating unit operating characteristics and constraints, transmission constraints, generation analysis, unit commitment/operating conditions, market system operations, and forecasted energy prices. For decades, energy utilities have been using PROMOD and GridView for a variety of applications that include locational marginal price (LMP) forecasting, environmental analysis, asset valuations (generation and transmission), transmission congestion analysis, and purchased power agreement evaluations.

Benefits

Our solutions provide valuable information on the dynamics of the marketplace by determining the effects of transmission congestion, fuel costs, generator availability, and load growth on energy prices. The software performs security constrained unit commitment and economic dispatch, recognizing both generation and transmission impacts at the nodal and zonal level.

PROMOD and GridView forecast hourly energy prices, unit generation, revenues and fuel consumption, transmission power flows and congestion, and loss prices.

Hitachi Energy's software is built on robust data structures. This includes the ability to enter time-based data changes at the sub-hourly granular level and detailed generation and transmission data inputs.

Transmission planning use cases

Optimal location of transmission circuits
Model proposed transmission circuits and examine several output variables to determine where to construct new circuits to receive maximum benefits to stakeholders

Optimal MW rating of project
Upon locating the most favorable interconnection points for transmission circuits, adjust the MW rating, resistance, and reactance of the transmission facility to determine the optimal amount of transfer capacity.

Congestion impacts on grid
Determine impacts on existing individual transmission circuits, flowgates and contingencies caused by the planned project. Impacts could be added congestion or relief of existing congestion.

Impacts to your local system
Determine if planned and proposed projects will be a benefit or detriment to your local system.

Environmental impacts
Determine environmental impacts of new transmission circuits.

Zonal or nodal analysis
Forecast results on a zonal or nodal basis.

Production cost savings
Examine the reduction in production costs as a result of new transmission facilities.

Data access

- Data can be licensed for the WECC, East and ERCOT regions as well as many international regions.
- Access the WECC Anchor Data Set as well as other ISO specific data for economic transmission analysis studies.

Reliability studies
Export a one-hour snapshot into a power flow software for evaluation of voltage and stability studies, which provides consistency between reliability and economic evaluations meeting FERC 1000 requirements.

Output data

Transmission line flows
Line Flow Reports will display hourly flows on individual transmission circuits, flowgates, and contingencies used to determine impacts to the transmission grid as a result of generator additions.

Transmission congestion values

- Model will output the binding constraint congestion component to provide insights on how the constraint is affecting the bus LMP congestion component.
- Model will produce the sensitivity or shadow price of the constraint, which shows the change in production cost when relaxing the limit.
- Model can provide the overall congestion cost of the constraint, which provides information on what binding constraints has the highest cost impact on the system.

Forecasted Locational Marginal Prices (LMP)
Reports on sub-hourly, hourly, weekly, or monthly zonal and nodal locational marginal prices for individual buses, hubs, and zones. Additionally, our solutions can decompose the LMP into the marginal loss component and congestion component. High LMPs act as a signal for transmission congestion or lack of generation. Low LMPs act as a signal for trapped low-cost generation or a need for additional transmission capacity.

Production costs
Examine the production cost before and after the transmission project to determine the overall and area level financial benefits.

The transmission grid of the future is evolving today – plan ahead with PROMOD and GridView.

Hitachi Energy
marketing-update@hitachienergy.com
hitachienergy.com

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