

Risk Management Solutions for Market Participants

Strategic and Operational Planning for Today's Electricity Markets



Software & Information Systems



PRYM[®] combines a structured Monte Carlo approach with a multivariate correlation framework and a price-based commitment and dispatch of power generation units.

PRYM[®] lets you develop strategic plans to maximize the risk adjusted return on assets, buy/sell your existing and future assets, schedule generation outages, and monitor your positions frequently.

A portfolio in PRYM[®] includes:

- generation units
- wholesale power contracts
- fuel supply contracts
- retail load contracts
- energy derivatives
- weather derivatives
- emissions
- transmission contracts

PARTICIPATING IN TODAY'S ELECTRICITY MARKETS

Participating in transmission-constrained electricity markets requires a detailed comprehension of energy market instruments and the physical aspects of grid operations. To maintain their competitive edge faced with this complex problem, market participants need to address the following challenges:

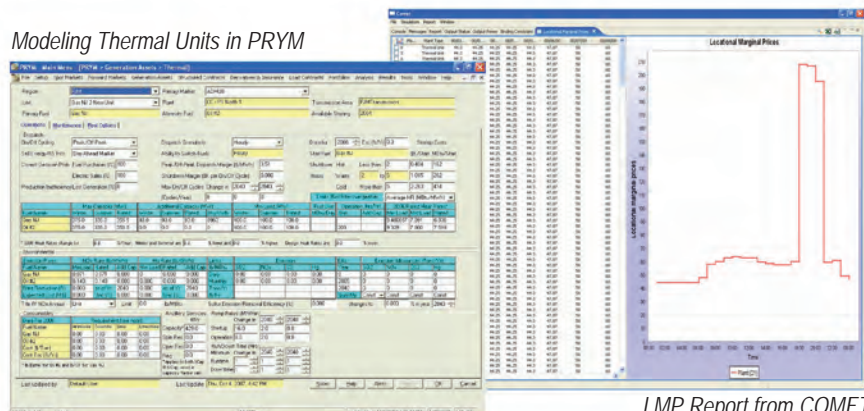
- Procure software capable of simulating market systems.
- Maintain a set of data consistent with the assumptions used by the market systems.
- Develop intelligence on competitors' bidding strategies.

Nexant's risk management solution is a suite of software applications with companion consulting expertise and data services that fulfills the needs of market participants in today's electricity markets.

Three categories of market participants will benefit from Nexant's risk management solutions.

- **Generation Asset Owners.** To increase shareholder value, the power plant operator must not only maximize profit by taking advantage of the supply/demand conditions, but must also demonstrate civil responsibility such as reducing emission and complying with market rules. This requires a sound strategic plan for asset portfolio risk management.
- **Load Serving Entities.** Utilities must manage exposure to wholesale price volatility and load uncertainty while managing their operation to minimize consumer electricity rates. Thus, utilities must develop integrated resources plans using a portfolio risk management approach with sustainable hedging strategies.
- **Energy Traders.** Applying capital from investors and shareholders in the pursuit of profit in electricity markets, traders will need specialized portfolio risk management across all financial instruments taking into account the constraints of power systems operation.

Modeling Thermal Units in PRYM



RISK MANAGEMENT SOLUTIONS

Nexant's risk management software suite provides an integrated view of both financial and physical operations at different levels of granularity, and different time frames of decision-making.

Strategic Portfolio Planning

For medium-to-long-term planning, PRYM® computes accurate positions – price exposure, generation output, fuel consumption, and gross margin – to build a strategic portfolio of physical and financial contracts in both spot and forward markets.

PRYM's database is frequently updated with the latest forecast to provide guidance to generation operators and traders.

PRYM's results define the strategic goals for operating the portfolio. Execution is then guided using further analysis targeting a shorter time frame and with increasing details of the power system model.

Operational Planning

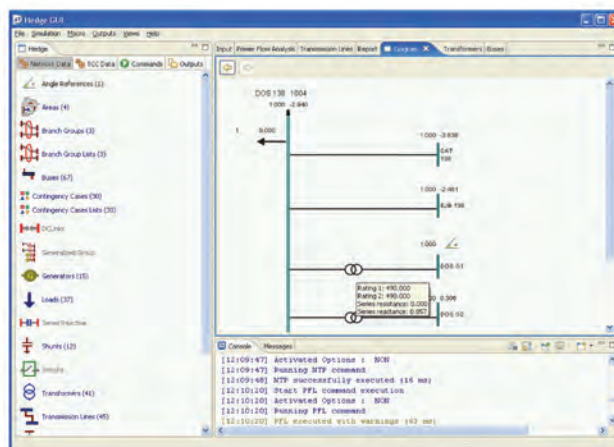
Looking at weekly or monthly operation, COMET® forecasts Locational Marginal Prices (LMP) by replicating the same calculation performed within day-ahead market systems. For next day operation, SCOPE® forecasts the hourly LMPs with greater accuracy, pointing out the upcoming grid congestion.

This analysis also provides further insights into the needs for transmission. It thus becomes the starting point for a strategy of hedging congestion risk using FTR/CRR instruments.

Hedging Congestion Risk

HEDGE® supports the bidding strategy into FTR/CRR allocation and auction markets. HEDGE is an accurate simulation of what may happen in the auction or allocation runs and shares the same calculation engine as i-HEDGE, Nexant's platform that runs FTR/CRR markets at most of the ISOs. Tools such as sensitivity analysis and probabilistic simulation of other participant bids support critical decisions in this highly competitive market.

Power System
Modeling in
HEDGE

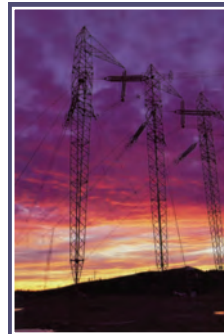
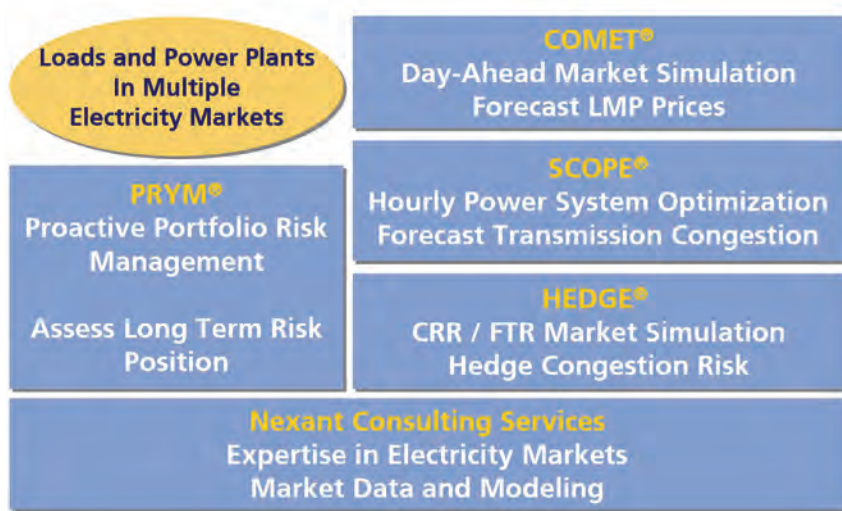


HEDGE® is a decision-support software tool to define your hedging strategy for congestion risk:

- Replicate financial transmission rights auctions
- Manage data for bidding simulation
- Present detailed binding constraints and sensitivities
- Simulate other participants bids probabilistically.

HEDGE® features include:

- Bids and offers
 - Obligation/Options
 - Multi-period
- Monte-Carlo simulation
 - Modeling of competitive bids (MW, dollar amount)
- Sources & sinks
 - Single and aggregated nodes
 - Regional hubs and zones
- Network model
 - DC and full AC
 - Breaker/node and bus/branch
 - All types of contingencies
- Constraints
 - Branch flows, interface limits
 - Nomograms and other generic constraints



ABOUT NEXANT SOFTWARE AND INFORMATION SYSTEMS

Over 150 customers use Nexant's software to focus on optimal grid operation and electricity markets.

We offer the following options to address the needs for on-going, accurate analysis of risk in electricity markets:

- Consulting services: strategic analysis, data and model maintenance, studies
- Software services – installation, model set-up, training and customer support
- Project implementation and software customization.

The Software and Information Systems business unit of Nexant offers a wide range of software products, integrated systems, and consulting services to the electric power industry. We address four principal areas: grid operation, market operation, risk management, and demand-side management.

CONTACT INFORMATION

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