



MetrixIDR™ Retail

Real-time Forecasting Solution

MANY NEEDS – ONE SOLUTION

To meet the challenging business requirements of today's energy markets, Itron's MetrixIDR Retail forecasts hourly or sub-hourly profiles for a list of delivery points or for a portfolio of customers, where the portfolio can be changed on a daily basis. For mass markets, MetrixIDR uses profile models that represent customer segments, and these forecasts are then scaled to represent the customers in that segment. For the largest customers or delivery points, MetrixIDR supports the use of individual models and forecasts for each customer.

For profiled customers, MetrixIDR can be configured to model the profiling method employed in a particular market region. For individual customers or delivery points, the system provides a set of templates that are assigned based on diagnostic statistics and the visual properties of the load. This allows simple models to be used for calendar-driven loads, while more complex models are used for loads driven by weather, price, or other factors.

Typical retail forecasting applications include:

- » Portfolio forecasting for load-profiled customers
- » Individual customer forecasting for interval metered customers
- » Short-term forecasting for energy scheduling
- » Long-term or life-of-contract forecasting for planning
- » Market price forecasting by zone or by node

Typical delivery point forecasting applications include:

- » Direct serve customer loads
- » Wholesale electric loads
- » Substation loads
- » Gas deliveries by city gate
- » Short-term transmission system loads for system balancing
- » Long-term transmission system loads for system planning solution

THE SOLUTION FOR ALL YOUR NEEDS

MetrixIDR Retail forecasts retail loads with profile models, individual customer models, or both. It can also be configured to forecast wholesale loads for individual delivery points or groups of delivery points. The system can be scheduled to update as needed during the day and is designed for the following high-level forecasting tasks.

> Forecast Data Gathering and Storage

Imports load, generation, weather, calendar and exogenous forecast driver data and stores these data for data analysis, model estimation, forecast generation, and performance evaluation.

> Forecast Model Development and Maintenance

Enables data analysis, model variable construction, model specification, model estimation, and model evaluation.

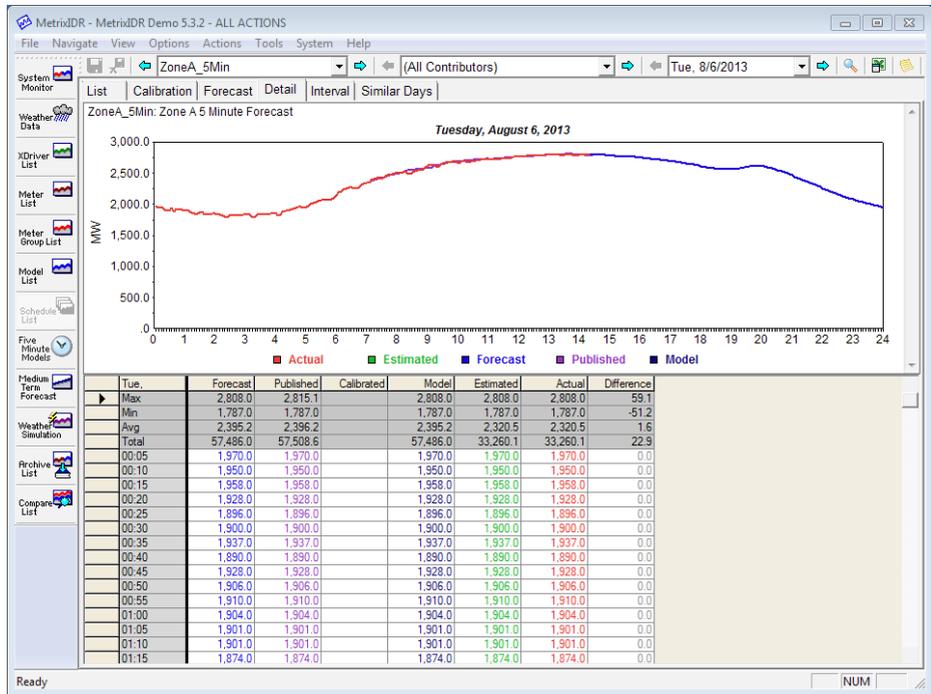
> Forecast Generation

Supports automatic computation of load and generation forecasts that define the forecast problem.

> Forecast Monitoring, Editing and Publishing

Provides real-time monitoring, editing, and publishing of the load and generation forecasts that are produced by the system.

In many organizations, these distinct tasks are handled by different analysts and even different groups within an organization. The skills required to build and maintain forecast models are not necessarily the same skills required to monitor the real-time forecasts and make appropriate operating decisions. To Itron, this means that a software tool designed to make building accurate forecast models easy is not necessarily the right tool for forecast monitoring and problem configuration. As a result, MetrixIDR is composed of four software components. These components communicate with each other through a common application database. The components are described below.



MetrixIDR Retail

> MetrixIDR Client

Allows the forecast administrator to configure the forecasting system and model properties, review and analyze data, assign model templates and estimate models, review weather and load forecasts, and monitor overall forecast and system performance. MetrixIDR is a two-tier client application that uses Oracle or SQL Server as the application database. MetrixIDR Client handles the tasks of forecast problem configuration, data gathering and storage, and forecast generation.

> MetrixIDR Server

Can be deployed on one or more application servers. MetrixIDR Server provides the following services to the MetrixIDR and Forecast Monitor Clients: authorization and authentication, forecast processing, forecast publishing, and monitor catalog services. In addition, MetrixIDR Server contains a task scheduler and batch processor

which enables the automation of tasks including meter and weather data import, forecast generation and forecast export/publishing. MetrixIDR Server includes a configuration applet which allows an administrator to manage and load balance application servers, services and scheduled tasks. Support for automatic server failover is provided when MetrixIDR Server is deployed on multiple application servers.

> MetrixND®

The statistical engine used to configure model specifications and to execute forecast calculations. MetrixND handles the task of forecast model development and maintenance. MetrixND is a flexible modeling tool, widely used by energy forecasters at leading utilities and energy providers throughout the world. As part of the system implementation, Itron creates the best models possible with your data using the most advanced modeling techniques that are available in MetrixND.

These modeling techniques include:

- Exponential Smoothing

Ideal for projecting customer growth trends that support monthly sales and peak forecasting applications.

- ARIMA

For seasoned time series professionals who want to visualize how historical data patterns extend into the future.

- Regression

The workhorse of the energy forecasting professional. No other tool lets you build multi- variate models faster.

- Neural Networks

Essential for short-term forecasting where modeling the nonlinear response between loads and weather matters the most.

> Forecast Monitor

Allows the forecast operator to view, modify, and publish, in real-time, the load and generation forecasts generated by MetrixIDR. The Forecast Monitor dashboard provides the forecast operator with key alerts and messages, making the forecaster aware of current and future events that will require action. The Forecast Monitor dashboard handles the task of forecast monitoring, editing and publishing.

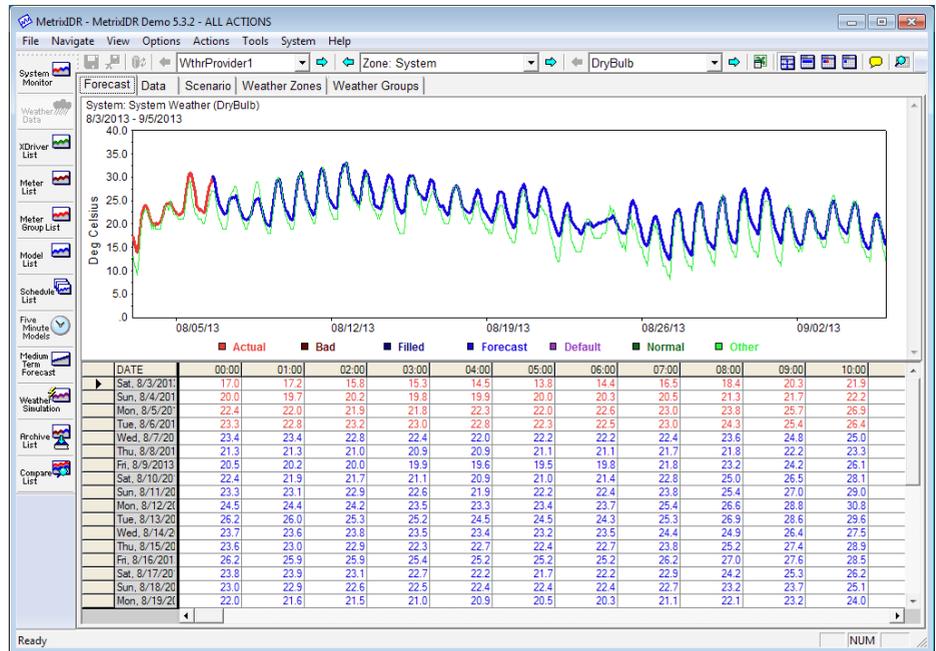
UNPARALLELED CAPABILITIES

Modeling Flexibility

MetrixIDR allows the user to manage lists of customers or delivery points. Customers may be modeled individually, or the customer loads can be aggregated into a meter group, allowing forecast models to be applied to the group as a whole. A wide range of modeling methods is available and there is no limit to the types of explanatory variables that can be used.

Built-in Scoring Algorithm

MetrixIDR includes a built-in scoring algorithm to help identify the best model type for each case. The scoring statistics quantify load variability and the importance of calendar effects, seasonal effects, daily weather sensitivity, and price sensitivity.



MetrixIDR Retail

Rapid Model Estimation

Once a method is selected, either manually or by automatic assignment, MetrixIDR populates the model with energy data from the meter or profile database tables, configures weather data for the appropriate weather zone, estimates the forecast model coefficients, and saves the estimated model for use in forecast generation.

Rapid Forecast Execution

Estimated models are used to generate forecasts on a scheduled basis or on demand. Forecast execution takes a few seconds per modeled item. If recent data are available for calibration, forecasts are adjusted based on this recent history, using the dynamic learning algorithm.

Flexible Forecast Schedules

Model forecasts for individual customers, groups of customers, or profile segments are mapped to schedules for aggregation purposes. Low-level aggregation schedules can also be used as inputs to higher level schedules. Typically one schedule will be defined for each transmission zone or control area in the portfolio.

A Knowledgeable User Community

Hundreds of utilities, ISOs, municipals, cooperatives and other energy service providers use Itron's MetrixND. Licensed users have unique access to industry experts in energy forecasting. Additional benefits include a quarterly newsletter that keeps you abreast of the latest forecasting techniques, and an annual meeting that covers the latest trends in energy forecasting and brings you together to network with industry peers.

For additional information or to view a demo, visit www.itron.com/forecasting, call 1-800-755-9585 or email forecasting@itron.com.



Itron is a global technology company. We build solutions that help utilities measure, manage and analyze energy and water. Our broad product portfolio includes electricity, gas, water and thermal energy measurement and control technology; communications systems; software; and professional services. With thousands of employees supporting nearly 8,000 utilities in more than 100 countries, Itron empowers utilities to responsibly and efficiently manage energy and water resources.

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