Automsoft®
Store, enrich, analyze data

From Data Historians to the Internet of Things

Renewable Energy

RENEWABLE ENERGY UTILITIES I MAINTENANCE CONTRACTORS

Pressing concerns over the environmental impact of excessive carbon emissions, increasing government incentives for cleaner energy production and volatile oil prices are driving investments toward renewable energy projects.

Renewable energy sources:

- Wind - onshore, nearshore and offshore wind turbine farms.
- Solar - solar farms comprised of photovoltaic panels and solar thermal collectors.
- Tidal - tidal energy farms including tidal stream generators and turbines.
- Wave - onshore, nearshore and offshore wave energy convertors.
- Bio Fuels - ethanol distilleries and bio-refinery plants.

Typically, renewable energy operations are comprised of vast and often dispersed fleets of energy devices located in geographically remote or inhospitable environments making manual onsite management difficult and posing a number of challenges to operators:

- Fragile equipment and assets are highly expensive to replace.
- Harsh climatic conditions and persistent use place devices under extreme stress.
- Renewable energy sources can be intermittent and lack predictability.
- Climate conditions can vary from minute to minute so devices and processes must adapt quickly.
- Centralizing and archiving large volumes of data from remote fleets of assets is a challenge.
- Effective integration into the transmission grid requires utilities to have the right technology in place.

Wide-area process control systems together with database technology from Automsoft are providing both traditional and renewable energy utilities with a cohesive solution.

Automsoft Solutions for Renewable Energy

With over a decade providing solutions to the traditional power and utilities sector, Automsoft brings a wealth of expertise in data management to the renewable energy sector. Automsoft solutions include:

rapidVision™

rapidVision™ is an enrichment and analytics Rich Internet Application (RIA) authoring system and an advanced data visualization and process optimization technology.

rapidVision™ provides a scalable web-based response to the data management and process visualization challenges faced by renewable energy operators today. rapidVision's open architecture, robust data historian and powerful visualization tools deliver advanced management intelligence and control. rapidVision's key features include:

- Renewable energy fleet and grid data management dashboard: rapidVision™ provides remote field engineers to boardroom executives with instant web-based access to a centralized, real-time store of fleet performance and grid network status. rapidVision's intuitive dashboard interface enables users to quickly perform production, distribution and consumption data analysis, generate and share report and support decision-making.

- Dynamic chart and visualization tools: rapidVision's powerful visualization functionality transforms numeric data points into colorful visual aids and animated instrumentation control widgets simulating real-time events such as asset stress sensors, device positions and weather conditions which dynamically update when viewed in run-time. Engineers can remotely observe and monitor asset performance in order to achieve greater production, fleet control and grid transmission efficiencies.

- Calculation Engine, predictive modeling & report management: Using rapidVision's Discovery Browser operators can choose one or more remote energy fleet data sources to create feature-rich and dynamic process management dashboards and analysis reports. Users can also conduct deeper data analysis using nuaViews' Calculation Engine for powerful bespoke analysis and predictive modeling.

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Technology Highlights

>Remote fleet device management

>Smart grid integration

>ASHRE, ANSI & ISO compliant

>High-speed data compression & storage

>Application & data independent

>Web services/SOA

>OPC Compliant (HDA, DA, UA, A&E)

>Multiple data source compatibility (ODBC, OPC, OLE/DB, ADO.NET, SQLServer, Oracle & web services)

>Centralized data management & visibility

>Complex data interrogation – Calculation Engine, Excel add-in

>Extensible information model

>Alarm & event management

>Extensive visualization tools – graphics & animated instrumentation

>Integrated security, & user authentication & audit traceability

>Server & network high availability

>Comprehensive backup, caching & redundancy

>Anytime, anywhere access

About Automsoft

Automsoft is a technology pioneer. In 2001, Automsoft launched the world's fastest and highest performing data historian, completely re-thinking conventions on technology and the management of process data. Today, Automsoft's RAPID™ database technology is at the forefront in complex asset management, and provides the data backbone for managing the massive volume of data generated by sensor networks, control systems and devices across industries from smart grid to medical sensing technology. Automsoft is headquartered in the Republic of Ireland.

For more information, please visit http://www.automsoft.com.

RAPID™

Automsoft's RAPID™ technology stores, enriches and analyses time series data that empowers rich business intelligence across entire renewable energy operations.

RAPID™ wirelessly integrates with remotely installed RAPID™ systems across a renewable energy device fleet or directly with data stores embedded within device control systems or remote smart devices. In addition, inbound grid data from consumer smart meter devices via the AMI can be integrated into RAPID™ for greater demand intelligence and load balancing.

• Energy generation optimization: RAPID™ provides users with centralized access to a wealth of operational data including real-time device performance, process status and local weather conditions which may impede energy capture effectiveness. Engineers can interrogate process data archives to identify optimum performance variables, share process intelligence and achieve greater intelligence sharing and collaborative decision-making.

• Dispersed asset fleet management: Field operators must monitor both new and mature mission-critical process machinery 24/7. RAPID's management dashboard enables onsite or head office users to quickly observe sensor outputs (e.g. wind turbine arm oscillations or solar panel performance) for all remote energy devices. Operators can react to unfavorable climactic or process conditions using RAPID's event and alarm management tools, remotely schedule regular maintenance checks ensuring asset longevity and process safety.

• Centralized & open data historian: RAPID's open OPC data compatibility means it can interface with proprietary or installed rapid data stores located across a fleet of assets. RAPID™ centralizes large volumes of input and output data, time series and binary data (e.g. documents and spreadsheets).

• Secure & safe process management: RAPID™ enables utility companies to comply with required industry safety and security standards. Using the system's event and alarm management functionality engineers can monitor entire fleets via a single dashboard and ensure assets are maintained within required safety tolerances. In addition, administrators can secure data integrity through RAPID's rigorous system access, user authentication and audit traceability features.

Optional RAPID™ functional add-ons include: Audit Reporting, Server High Availability, Network High Availability, Data Replication, OPC Caching and Redundancy.

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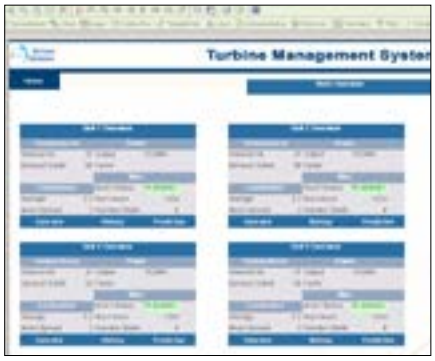
Key Statistics

> Volume range from minute (< 10 Megabytes) to massive (> 10 Petabytes)

> Ingestion rate 3 million events per second

> Read rate 4.4 million events per second



Automsoft Benefits for Renewable Energy

- Reduce renewable energy plant operating costs by optimizing production rates, minimizing waste, avoiding asset failure and downtime, reducing labor costs and increasing workflow efficiencies.
- Optimize energy generation rates by controlling fleet devices and plant assets to achieve maximum production levels.
- Achieve enterprise collaboration & reduce decision-making cycles by enabling fast, standardized access to a single store of up to date process intelligence regardless of geographic location.
- Enable faster smart grid integration using robust data aggregation, event monitoring and visualization capabilities.
- Extend fleet asset & IT system longevity with vendor-neutral application and data interfacing, asset monitoring and maintenance features.
- Ensure workforce, fleet and public safety through real-time process monitoring, alarm and event management, user authentication and audit traceability.

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