

# Central Market Data Hub

## Siemens Market Transaction Management Solution for Data Hub Initiatives

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Regulators in several regional electricity markets have found central data hubs to be a cost-effective way to handle interval and monthly metering data in support of distributors and retail suppliers.

Siemens Market Transaction Management (MTM) solution acts as a system-of-record for metering data for the data hub markets. The solution includes the EnergyIP platform and the Market Transaction Management application.

The MTM application is built on the proven, scalable, and multitenant EnergyIP Platform. This solution is ideal for data hub initiatives around the globe. Siemens MTM solution includes core components of EnergyIP meter data transactions and big data options. It handles routing of data among the participating subscribers. It also performs calculations for larger market settlement for the central data hub.

**What are the Data Hub Initiatives?** Utility markets across the globe are adopting centralized data management models. For instance, Siemens has provided a meter data management solution to one of the first data hub deployments in Ontario, Canada. Similarly, the European market is moving quickly to adopt this model.

This model is gaining traction in unbundled markets where there are multiple players, including Transmission System Owners (TSOs), Distribution System Owners (DSOs), suppliers, and third party retailers. These market entities, along with regulatory regimes, can decide to have meter data flow to a central entity that handles data clearing function. For instance, in Nordic countries TSOs are emerging to be the central data hub custodians. Denmark and Norway have already decided on this model; while Finland, Hungary, and Sweden are soon to follow.

### Data Hub Solution will benefit the Utility Market

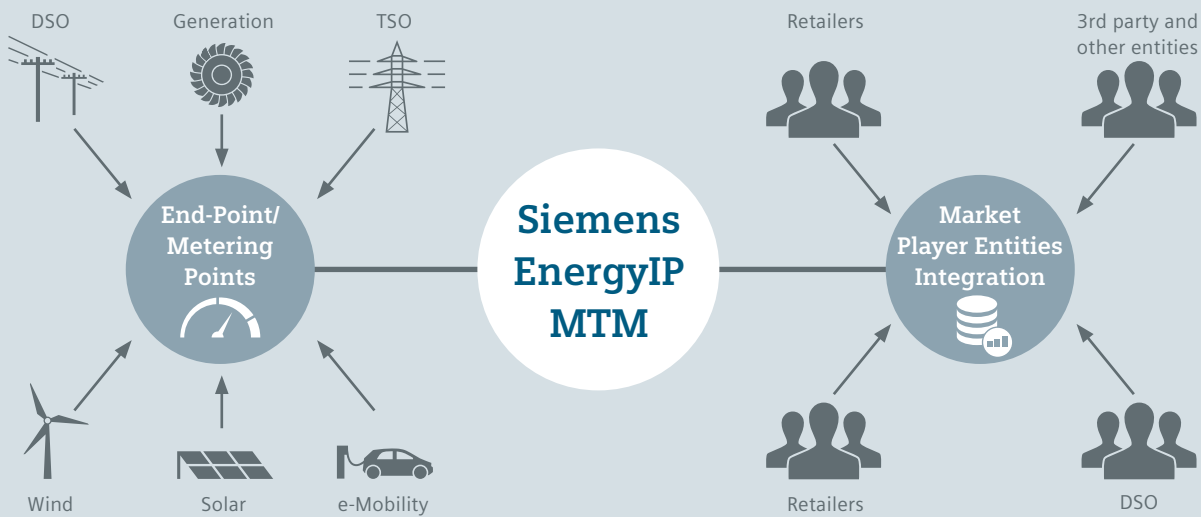
- 1. Single integration point for market entities** – provides a single pane-of-glass for settlement-ready data for all participants.
- 2. Energy measurement with market parties** – have accurate data related to billing and energy consumption at your fingertips. Suppliers, DSOs, and customers have access to same data.
- 3. Record supplier-consumer relationships** – single source-of-truth for customer related data. Supplier is able to get timely data about consumers. Consumer has access to the

same data. The process ensures easy and fast switching of suppliers.

- 4. Settlements, energy balance, and authorization** – data hub makes it easier for market partners to adapt to existing and new services. The data hub acts as a system-of-record and source-of-truth. There is Flexibility to introduce new smart grid services.
- 5. Common market processes** – enforces one market model that helps adapt to regulatory changes and market inflection points.

### Siemens MTM Solution Provides Benefits to the Data Hub Initiatives Data hub entities can:

- Receive and validate advanced metering data. They can perform these functions on traditional meters. The MTM solution with EnergyIP platform manages Updates and estimations according to market rules, while maintaining a versioned and auditable data store of all data.
- Create estimated period volumes to support business events such as move-in/move-out and change of supplier.
- Exchange data with multiple market participants, including distributors, retail suppliers, 3rd parties, and wholesale market operators.



DSO: Distribution System Operators TSO: Transmission System Operators MTM: Market Transaction Management

- Aggregate and calculate interval and profiled metering point data for large market settlements.
- Calculate and allocate grid losses and unaccounted energy.
- Aggregate data for other uses such as billing and dynamic pricing.

### Siemens MTM Solution Steps Up to the Task in a New and Challenging Market

Data hub functions are quite new, and market development is nascent. This means there are many challenges in making the transition from decentralized to centralized operations. In most cases, market participants have to switch from existing systems to the new live environment in real-time. Siemens is uniquely positioned to handle this tremendous upgrade.

#### Siemens EnergyIP platform provides:

1. Vertical scalability, proven to 50 million metering end points.
2. Horizontal scalability, allowing the addition of new application functionality – or implementation of new regulatory requirements – as electricity markets evolve over time.
3. Multitenancy, protecting the data and privacy of each participating utility via organization- and user-specific login capability, including options for complete data Segmentation by organization or support for a shared master data model.
4. Modular architecture, allowing integration via flexible interface adapters to adapt market exchange formats and multiple, different technologies.
5. Cost-effective Total Cost of Ownership, achieved through a systems approach, best-of-breed Technolo-

gies, integrated product roadmap, partner ecosystem, and robust software maintenance plan.

#### Siemens MTM features along with EnergyIP platform

1. **Data aggregation** – Interval and non-interval meter data aggregation for export to participants and for use in settlement of market transactions. The MTM application data services support the following market roles:
  - 1) Grid Area Owner,
  - 2) Energy Supplier,
  - 3) Balance Responsible Party,
  - 4) Generation Type (Entry Points) & Consumption Type (Exit Points). Results are maintained in the data hub data-base with update management, versioning, and auditing as individual meter records.
2. **Supplier/retailer switching support** – Siemens solution tracks customer switching between retailers/suppliers. It keeps a record of the time and date of the changes to the data hub. The data hub is always ready to deliver updated aggregations and other application results that accurately reflect the switching events.
3. **Accurate data delivery** – The EnergyIP meter data management features ensure reliable receipt, processing, storage, and distribution of measured data. A missing read and reminder service helps meter data responsible parties to improve their service levels. Validation and estimation services guarantee that high quality data is available for market exports, reporting, and energy balance processing.
4. **An adaptive data model** – The smart grid data model includes

technical metering points to support metering concepts for distributed generation, flexible validations, and virtual metering points. The Monitoring and Reporting Framework provides graphical reports and a dashboard for efficient system operations and querying. A report designer can be leveraged to provide additional insights into operational and business-level trends and allow the user to drill into problem spots.

5. **Comprehensive interface adapters** – APIs are available to integrate with multiple data sources and support different data delivery requirements using both real-time and batch techniques. Specific adapters are available, if needed, to translate proprietary, technology-specific data into open, generic XML-based formats.

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