



FUTUREPOWERFLOW FOR GRID MANAGEMENT

Tailor-made platform for grid operators

With the new IT platform FuturePowerFlow, emsys grid services GmbH offers grid operators an intelligent solution to successfully meet the requirements of grid management (Redispatch 2.0) and an increasingly decentralized energy system. The digital all-in-one solution in transparent API design processes large amounts of data, such as grid data, flexibilities, generation and load forecasts, and calculates the utilization and potential overload of assets in the grid. This enables grid operators to schedule actions in a cost-efficient way to avoid forecasted grid bottlenecks.

Modular software for high flexibility

The specially developed redispatch system is based on a complex microservice architecture that uses flexibly deployable modules depending on requirements, connecting a wide variety of market players on a common platform. The system thus combines a high degree of functionality, flexibility and security. The software is provided as Software-as-a-Service and operated for you, so that you do not need your own infrastructure. If required, it is also available on-premise. FuturePowerFlow can be used by grid operators of all voltage levels for their respective processes.

Functional scope of FuturePowerFlow

FuturePowerFlow comprehensively covers the new Redispatch 2.0 processes. This includes grid state analysis and the detection of grid congestion. Taking into account forecast data as well as the changes in the grid topology and dimensioning of redispatch measures. With our comprehensive technology you can also implement communication and data exchange processes with other grid operators and the responsible parties (especially plant operators). The FuturePowerFlow platform fulfils the requirements of Connect+.

FuturePowerFlow for handling all grid management (Redispatch 2.0) processes

Overview of modules and functionalities

Data management/data exchange

- Master data, variable data, planning data, power plant operating schedules
- Grid topology
- Exchange processes

Forecasts

- Forecasts for individual production units
- Grid based forecasts
- Vertical grid load forecasts at grid nodes
- Creation of meta-forecasts
- Estimation of RES feed-in
- Ampacity predictions of overhead power lines

Grid analysis

- Load flow calculation
- Congestion calculation through failure variant calculation
- Consideration of clustering and cascading failure relationships

Grid congestion management

- Determination of flexibility potentials
- Grid topological optimization to eliminate bottlenecks
- Use of flex data objects
- Powerful optimizer
- Creation of request clusters for upstream grid operators

Activation/process handling

- Communication with relevant grid and plant operators
- Initiation or direct execution of activations
- Standardized interfaces to existing control rooms
- Real-time control of assets through proven software (Virtual Power Plant)

Accounting

- Calculation of lost energy
- Two accounting models: based on the planned and realized power or on the forecasted and possible production
- Crediting
- Manual invoicing

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Comprehensive know-how for the energy transition

The partner companies energy & meteo systems, emsys VPP and emsys grid services offer pioneering services and IT products worldwide for efficiently integrating renewable energies and other distributed energy resources. Their joint portfolio ranges from precise power forecasts and comprehensive consulting services to the provision of Virtual Power Plants as control centers for decentralized energy plants and customized software platform for grid management.

Three companies, one goal: 100 % renewable energies!