FICHTNER DIGITAL GRID – CALCULATE

The innovative solution package for smart grids

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The expansion of renewable energy sources, the growing requirements of electromobility, the aging of equipment, new possibilities afforded by digitization and the efficiency requirements imposed by regulatory authorities are the drivers behind enhancement of the existing grid structure along with development of a sustainable, cost-effective target network.

Integrated Grid Management

Ensuring the availability of reliable facility data generally presents major challenges for grid operators. Until now, data have been acquired using various systems and formats for a variety of purposes. Inconsistencies and omissions frequently arise in their technical attributes and network topology.

If this is the case, the data are inadequate for efficient, integrated and transparent grid management. Fichtner Digital Grid lays the foundation for smart grid management. It ensures a reliable data basis and enables integrated grid management, comprising target network planning as well as regulatory and asset management based on a transparent and integrated approach.
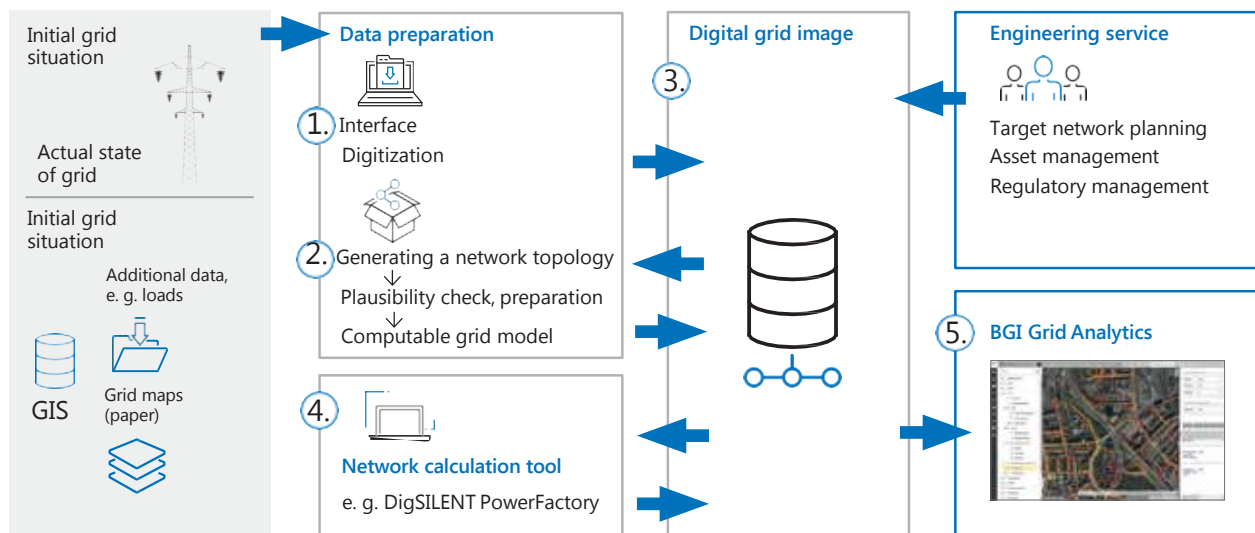
1. Smart Integration

Data from various base systems (GIS, ERP, BIS, technical databases, etc.) are integrated, while any available analog grid maps are digitized and incorporated by our experts. Data such as loads and feed-ins are supplemented by means of smart data integration. This results in an initial digital image of the grid.

2. Data Consolidation

In many cases, the available data are incomplete and therefore not yet suitable for the subsequent processes. GIS data, for example, usually contain excellent geographic information, but often do not have a reliable topology, which makes it impossible to conduct network calculations. It is at this point that we apply our smart algorithms, which combine lines and stations to form a topology. During this process, the data undergo a technical plausibility check and are assessed for topological validity. Gaps in the data are detected by our self-learning algorithms, and the data quality is enhanced. Calculate assists the engineer in plausibility checking and preparing data that automated algorithms do not provide reliable results for. This produces a consistent, complete and high-quality digital grid image as well as a computable grid model.

3. Digital Grid Image

The original state as well as any changes and supplements (e.g. data consolidation) are documented in the digital grid image and can be reported back to the source systems. The adjustments made can also be used for further update sequences, enabling a data update to be performed as needed at any time. Alternatively, it is possible to directly link the base systems via a data server.

4. Network Calculation Tool

Network calculation is performed using tried-and-tested tools such as DIgSILENT PowerFactory in near real time. Calculate hands over the required data to the network calculation tool, where the calculations are carried out. The results are then fed back into the digital grid image together with corresponding labels and are instantly visible in the geo visualization tool 'BGI Grid Analytics'. It is easy not only to perform load flow calculations without needing to have in-depth knowledge of tried-and-tested network calculation tools, but also to export a grid model for conducting in-depth analyses in the network calculation tool.

5. BGI Grid Analytics

The browser-based BGI Grid Analytics enables convenient visualization and analysis of data in geographic or schematic displays. Input data as well as supply areas, grid and assets are presented on various layers. Results from the load flow calculation can easily be visualized and analyzed. Thanks to the intuitive graphic display, weak spots in the grid are instantly noticeable and grid planning can be performed based on them.

Fichtner's Engineering Services

We offer you our consulting and engineering services either in a supporting role or as a complete business process outsourcing service. Such services include grid assessment, target network planning, action planning, protection concepts, and the development of I&C concepts for forecast-based grid control. In addition to this, we can assist you in specific issues such as the integration of e-mobility.

Fichtner Digital Grid supports distribution system operators in meeting current challenges with a unique, flexibly scalable solution package. In doing so, we focus on company-wide use with functions that are specially designed for different work processes. We offer a customized set of services and integrative software modules that can be individually adapted to the business objectives, from the provision of a reliable, equipment-oriented database to cloud-based BPO (Business Process Outsourcing).

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Fichtner IT Consulting is the IT competence center of the Fichtner Group, which has been an owner-managed company since its foundation in 1922 and has some 1,500 employees in over 60 countries. We design and implement information logistics for technical networks, plants and infrastructure. We combine our knowledge of the industry and process know-how with the latest technological expertise to deliver innovative and cost-effective solutions for your success. The gleaning, structuring, linking, preparation and presentation of information – including the spatial context – are the key to efficient and effective solutions.

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