Enedis is a public service company that manages the electricity distribution network. It develops, operates and modernises the electrical grid and manages the associated data. Enedis carries out customer connections, 24 hour and 7/7 troubleshooting, meter readings and all technical interventions. It is independent of the energy suppliers, which are responsible for the marketing and management of the electricity contract. Enedis employs 35,000 people and serves 35 million people, that are connected by a low and medium voltage network with a length of one million, three hundred thousand kilometers.

Follow our latest news online at :

Follow us on :

Go further

Enedis website www.enedis.fr
Home > Our area expertise
Smartgrid or the intelligent network

January 2017
Enedis has chosen a three steps approach for developing Smart Grid technical solutions. Each of these solutions follows these three steps of integration and selection.

- **Research & Development (R&D)**
  - Research projects and studies, local initiatives, academic partnerships, worldwide technology watch, and innovation contests in order to conceive technical solutions that serve energy transition and network operations challenges.

- **Experiments**
  - After laboratory tests, it’s time for experiments in the field! Enedis Regional Directions play a major role by implementing and following up full-scale tests. At this stage, Enedis is evaluating the technical maturity of selected solutions, to decide whether or not they should be industrialised.

- **Industrialisation**
  - The industrialisation step consists in converting prototypes tested in the field into industrial solutions ready for use by Enedis staff. It includes, among others, costs-benefits analysis, assessment of the solutions impact on Enedis’ men and women, or relationships with manufacturers and suppliers. These activities are conducted jointly by Enedis staff at both regional and national levels and lead to a plan for the roll-out of industrialised solutions.

---

**Smart grid for the evolution of Enedis’ technical division activities**

These technical solutions are a toolbox for modernising the network. They are to be used depending on regional needs and to be rolled-out where their technical and economic value is optimal. They also constitute a pillar for smart grid offers and services to customers.

---

**Smarter network assets**

- **How is the reliability of Enedis cartography improved?**
  - Georeferencing technologies are used to map the different network assets, while mobile digital tools and the roll-out of ‘Linky’ Smart Meters help improve Enedis cartography.

- **What are the specificities of “Smart” MV/LV Secondary Substations?**
  - New substations are equipped with integrated sensors and telecommunications systems, allowing an increased observability on the network and including tele-administration functions, while respecting high cybersecurity standards.

- **An improved quality of supply**
  - Are restoration delays shortened?
    - New network operations functions, as well as new sensors and connected objects, contribute to improve fault location, isolation, and service restoration processes.
  - How does “Linky” help improve quality of supply?
    - Technical capacities of the Linky infrastructure (meters and concentrators) are being used to facilitate the monitoring of LV networks and quality of supply.

---

**A more predictive maintenance**

- **How to detect anomalies, anticipate failures, and optimise the maintenance of network assets?**
  - New monitoring systems are being deployed on HV/MV primary substations transformer to adapt maintenance programme. Onlines equipped with optical technologies facilitate the maintenance of overhead power lines and sharpen the diagnosis of anomalies or string needs.

- **How digital technologies can improve operations safety and performance?**
  - Virtual and enhanced reality help improve the safety and training of Enedis staff. Thanks to mobile digital solutions, operators have access to real-time information on the field in order to act more effectively.

---

**Improve the performance of network management activities and processes**

**Innovative grid connection solutions**

- **How to facilitate the integration of distributed renewable energy sources while managing their impact on the grid?**
  - New grid connection options can be offered to MV Producers depending on the type of network and local specificities. They can benefit from alternative grid connection solutions, with lower connection costs and delays in exchange for the modulation of their power injection in case of network constraints. Offers for MV Producers may also include a local voltage control system based on reactive power absorption.

- **How do network study tools evolve to integrate recent innovations?**
  - Study tools for MV and LV networks are modernised to take into account smart grid technical solutions. Enedis staff can use a new and simple tool for evaluating grid connections feasibility. Grid users are able to test the feasibility of the connection to the LV network of their installation (Electric vehicle supply equipment, production or consumption site).

---

**A better integration of renewable energy sources onto distribution networks**

- **How are network operations becoming more dynamic in presence of intermittent energy sources?**
  - Enedis is now able to anticipate network operations and identify potential constraints in operational planning, from the elaboration of mid-term works programme to real-time operations. This operational planning is based on forecasts and simulations tools, in coordination with MV Producers and the TSO.

- **How to efficiently manage MV voltage in presence of increased shares of DRES?**
  - A centralised voltage control system based on a state estimation may be roll-out in areas with a high penetration of DRES. This solution allows Enedis to dynamically manage voltage constraints on the MV network, as an alternative to network reinforcement.