Research Infrastructure Installations

1- DIGI²TAL

The DIGI²TAL portal (Digital DIstribution Grid Intelligence InTegrAtion Laboratory) is an Intranet portal published by the MIRE department from Electricité De France Research & Development which gives access to:

- a catalogue of electrical network files that can be converted to the various formats used by EDF ;
- software developed by EDF for analyzing and planning electrical networks (PRAO, …) ;
- software from the electrotechnical and digital simulation sphere (EMTP, Eurostag, …) ;
- logistic tools to gather and share knowledge and problem reporting (Knowledge Management, Wiki, bugzilla, …).

All these resources are accessible once you are a member of one of the projects managed by the portal and you connect to it with your login information.

The final aim is to provide an external access to the portal, making it available for members from everywhere.

2- Concept Grid

The Concept Grid is a test facility working as an experimental electrical network. It includes medium-voltage and low-voltage circuits. Medium-voltage feeders are both underground and overheads, while low-voltage ones are representative of what can be found in a real distribution network. It is equipped with innovative switchgear and controlgear and it features a DC link.

On one hand, it is fed by the French transmission grid through a 63/20 kV transformer, and from various distributed resources (PV, wind power, generators, batteries…) on the other hand. Loads are both physical and simulated : office buildings (including electrical heating), small houses equipped with domestic appliances, heat pumps, electrical vehicle supply equipment, motors, lump impedances…

Indeed, one of the goals for Concept Grid is to experiment new devices before they are in use on the real network. Thus, it is possible to isolate a device from the rest of the network to test it separately, but also in relation with other components

to verify its adaptability to perturbations and to other equipment. Each configuration can be controlled in order to get exactly the requested information and to get an idea of the component abilities.

A communication network (fibre optics, IEC 61850) is available for commutation purpose between pieces of equipment and communication with the overall monitoring system. Thus, information are automatically collected to manage Concept Grid as accurately as possible, and it could be possible to check communication issues if the foreseen information is not collected.

This test facility is, in conclusion, a large-scale laboratory using diversified equipment in use in Les Renardières and putting them in relation to simulate the operation of MV and LV grid. It is a good opportunity for industrial company to experiment new devices, and to get a good idea of their characteristics on a real disturbed network: working this way, Concept Grid may be attractive for people willing to study state-of-the-art electrical and non-electrical equipment.