

Cegelec selects Mitra Innovations to assemble electronic control frames for the French nuclear power plants

When it comes to skills, competence and cooperation while assembling highly reliable electronics, Cegelec selects Mitra Innovations to work together with.

The RIC system (instrumentation interne du coeur) represents equipment that performs neutron flux measurements deep inside the core of the reactor to monitor the power distributions and that provides data for the incore-excore calibration. While the RIC system includes two main subsystems: a remote control cabinet set and electromechanical devices closed in the reactor vessel, - the Cegelec project concerns the renewal of the remote control equipment. Because safety is the number one critical factor at the place of use of this equipment, the RICs must comply to most strict requirements. The parts, the devices, the cables, the assembly – everything must be of the highest quality, sustainable, reliable, neat and precise. In such an environment, there is no room for errors.

Close cooperation

Right from the very beginning of the project, Mitra Innovations was involved in the development of the serial head of the RIC cabinet. This serial head called 'plateforme' was required to qualify the new design and to validate interfaces with the electromechanical devices. At present, it is used by Electricité de France (EDF) in Grenoble as training equipment for EDF site operators and technicians.



Participation in equipment design played a key role when Cegelec had to make a choice for a partner to entrust the cabinet assembly. Obviously there were more factors which influenced this choice. Mitra Innovations was a party which had all required elements in house: the expertise, the capable employees with experience, all necessary tools, materials and space, and, last but not least, is located closely to Cegelec. The capacity of technical teams allowed to involve a flexible amount of employees working on the cabinets, depending on the stage of the project and the urgency. And above this Mitra Innovations could make an offer with an excellent price/quality ratio.

'We work very closely together and experience a lot of support from Mitra's employees. We can make use of many facilities on the site and we come here as to our own workplace,' tells Alain Depaep, Technical Engineer Cegelec.

To the benefit of the end user

Among the challenges shared with Mitra Innovations was the requirement of the end user – EDF – to assemble all the equipment in such a way that it could fit into the existing cabinets. To accomplish this, everything needed to be very well inventoried, planned, assembled in temporary customised cabinets, tested (several times) and taken apart to be packed and transported to the nuclear plants. Old equipment is being removed from the existing cabinets and the new material is installed and connected to the existing field cables and interfaces.

Mitra Innovations contributes by the following:

- Participates in prototype design and development
- Purchases components
- Designs and manufactures custom mechanical pieces
- Pre-assembles and tests the 'draft'
- Assembles the cabinets, integrates Cegelec's equipment, cables everything
- Runs complete point-to-point test and delivers detailed test reports
- Provides the opportunity to burn in the system for one week
- Offers time and infrastructure to Cegelec to do all additional tests
- Provides warehouse and workshop for all Cegelec material and equipment
- Takes apart, packs and expedites the equipment to the end customer

As one can imagine, such procedure demands very precise planning and detailed step-by-step work, but also methodical documentation of all the phases to be able to pass the equipment to an 'outside' team.

Successful roll-out

The three first RIC set of cabinets are already in operation to the entire satisfaction of EDF with the way the project is rolled out. Mitra Innovations and Cegelec will continue their cooperation to deliver new control equipment for 34 nuclear power plants in France up to 2020.

We thank Gianni Mazzeo, RIC Project Coordinator, and Alain Depaep, I&C technician, both from Cegelec Nuclear Department, for the information they provided.



About Cegelec

Cegelec (www.cegelec.be) is a member of the Vinci Energies group. The group employs 25,000 people and is present in some 30 countries through a network of 200 agencies and over 1,200 offices. Cegelec has been active in Belgium for almost 50 years.

