Direct information exchanges with other nuclear power plants.

Direct information exchanges with other nuclear power plants, especially other VVER plants, has contributed for getting lessons learned. Since the beginning of the plant operation, the information exchanges have been an important way of sharing OE. This has been accomplished through twinning and personnel exchange with other plants.

The following examples have been implemented through the direct information exchange:
- Regular annual workshops/seminars for more than 15 years on common topics (maintenance, operations, quality control, etc.) between VVER plants (total 20 nuclear power plants around the world)
- Common database for VVER steam generator (SG) chemistry regimes and tube damages based on operation and monitoring data (Dukovany, Bohunice, Mochovce, Temelin, Paks and the plant).
- Experts and maintenance workers twinning during outages (Paks and the plant)
- Modification of the SG feedwater distribution pipe (several Russian nuclear power plants, Paks, Rovno and the plant)
- Modification of the SG primary collector sealing and cover (Dukovany and the plant)
- Testing of the pressurizer pilot-valves (Paks and the plant)
- Common repair programme for the primary loop shut-down valves (Paks and the plant)
- Endoscope- inspection system of the turbines and related training (Paks, Kola and the plant)
- Exchange of turbine repair technology (Paks, Kola, Novo-Voronezh, Dukovany and the plant)

These activities have contributed to improving the level of nuclear safety of the plant.
Operating Experience Feedback with operators from conventional plants.

All conventional and nuclear power plants of Electrabel are part of a network that shares information and experience related to equipments, organization, etc. The events that are addressed can be related to technical issues, human performance, health & safety and the environment. Operating Experience (OE) from all entities comes from various sources, including the Maintenance Competence Center, working in both conventional and nuclear generation.

The ensuing internal OE is formalized and made available to all sites in a common language (English). A point of contact is given on each report for additional information. Each plant analyses this OE and assesses the possibilities of incorporating it into its own organization. This specific way of experience feedback was implemented two years ago with about 15 reports per year. Out of them, 50 percent were used for analysis at the plant.

As an example, the plant received OE from the Maintenance Competence Centre (MCC) of Electrabel on the wrong operation of a high voltage circuit breaker. The MCC's recommendation was to open and close these circuit breakers using the pushbutton switch in test position after the disconnection of the low voltage but before removing the circuit-breaker from its compartment. This OE was used for analysis in Tihange NPP and led to the modification of the Operator's Handbook.

With this type of feedback from the conventional plants, the plant is able to improve its performance, especially in conventional areas like electrical systems, turbine generators and cooling towers. This could in turn help to improve nuclear safety as some of these systems or components may be involved in giving supply to nuclear safety systems.
A structured process of identification, evaluation and implementation of lessons learned and good practices from external events have resulted in important safety improvements.

The plant OE department regularly screens and analyzes external OE from INPO, WANO and US NRC with the aim of identifying any relevant lessons learned and good practices to improve the plant performance. During 2011-1012, several SOERs were reviewed and a number of lessons learned and good practices were identified, documented, and shared as follows:

- A structured evaluation is carried out by the plant departments;
- A responsible person is assigned to lead the action;
- Every key aspect is individually evaluated and documented using WANO evaluation methodology “How-To”;
- Results of evaluation and proposed corrective actions are approved by the Plant Operating Review Committee;
- OE department verifies the implementation of corrective actions.

This structured process of identification, evaluation and implementation of lessons learned and good practices from external events has resulted in 115 new corrective actions being placed to improve the plant performance and practices during normal operation as well as outages. To date, 92 of these corrective measures have been implemented.

The following major safety improvements were implemented:
- The Unit transformers were modified to include an online gas monitoring system of the cooling oil to allow early identification of any degradation to the winding insulation and to prevent transformer failure when in service.
- The plant operating procedures (OA-0829; OA-0845; OA-0853; OA-0854) related to loss of offsite power and station blackout systems were improved to include coordination with a grid operator in order to minimise the risk of Loss of Off-site Power.
- A contract has been placed with a grid operator to ensure that the plant is informed in a timely manner of any grid disturbance, or any planned maintenance works in electrical substations. The grid operator will ensure that preferred power supply will be available to the plant during the maintenance activities and testing of the plant emergency power supply systems.
- The plant procedures, controls and practices related to foreign material exclusion (FME) were significantly improved. The plant purchased new FME accessories and the maintenance personnel were trained to use them properly.