



Generating almost 6,000 GWh of electricity a year, the power plant currently serves approximately 20% of Slovakia's energy needs

Mochovce Nuclear Power Plant



Introduction

Nuclear energy is a growth industry in Eastern Europe. Nuclear power is the use of sustained nuclear fission to generate heat and electricity. Since 2005, nuclear power has provided 6.3% of the world's energy and 15% of the world's electricity.

Nuclear power plants convert the energy released from the nucleus of an atom via nuclear fission that takes place in a nuclear reactor. The heat from the reactor core is used to generate steam which drives a steam turbine connected to a generator which produces electricity.

European countries are building up generation capacity, to increase energy security and reduce carbon emissions. Projects include refurbishing older plants as well as constructing new ones.

The Mochovce Nuclear Power Plant is located in Slovakia, between Nitra and Levice, on the site of the former village of Mochovce.

The power plant operates four up-rated 470 MW (originally 440MW) Soviet VVER 440/213 reactors, with two further reactors of the same type under construction. Owner of the plant is Slovenské elektrárne, a nationally-owned company with a majority financial interest held by Enel, an Italian utility company.

The Challenge

By default, the method of management and control technology VTKS (high-pressure compressors), NTKS (low-pressure compressors) and SZCH (station cooling units) is built on the basis of compact measurement and control devices that allow only local control.

This system also did not allow automatically generated permanent record of operating conditions of VTKS, NTKS and SZCH that would allow control of the device and also the automatic remote control. The device was at the level of 80 year old technology and was obsolete.

Reconstruction of the control system took great care to:

- Enable automatic remote control of technology VTKS, NTKS and SZCH.
- Increase support staff awareness of the condition and operational reliability of the equipment, thereby increasing the level of security as per JEMO 12.
- Minimize the possibility of human error during operation VTKS, NTKS and SZCH.
- Avoid potential losses in production by blocks 1 and 2, eventually high pressure air system failures.

The Solution

The new control system is based on 16 PLC Simatic S7 and Pulse SCADA/HMI visualization system.



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