

Round-table discussion «Current status and development of HVDC technologies in the Power system of Russian Federation»

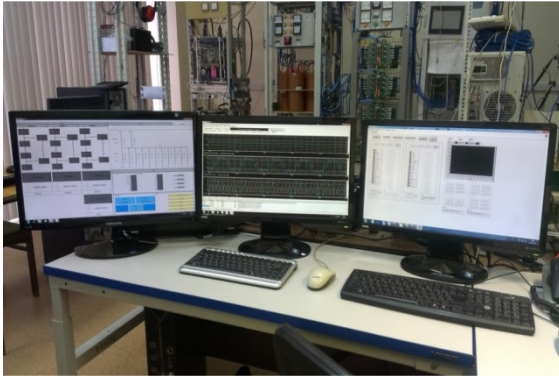


Andrey Drozdov, Technical Director

Features of adoption and operation of converter equipment in power grids

Moscow, 2015

Questions for discussion



Certification of control systems for the converter equipment for electrical networks



Technical support for converter equipment in the first phase of operation



Provision of reliability and normative life of converter equipment



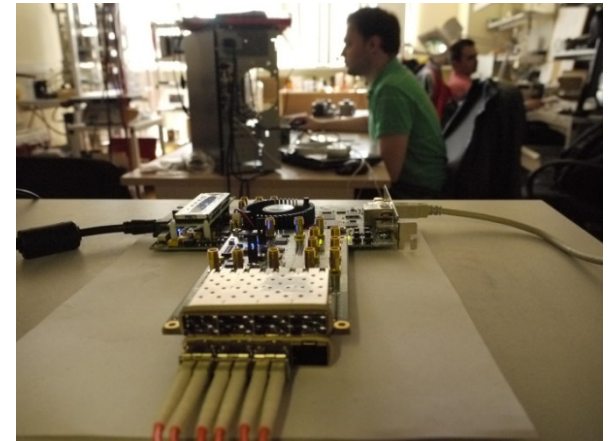
Certification



Converter units affect the operation of electrical networks. Control algorithms can be a commercial secret of suppliers.

Certification process of Converter control systems, resembling certification of ACE of generators is necessary

Testing equipment can be realized in the form of physical models or digital models of real-time



It is proposed to fix the need to provide the Federal test center with appropriate laboratory



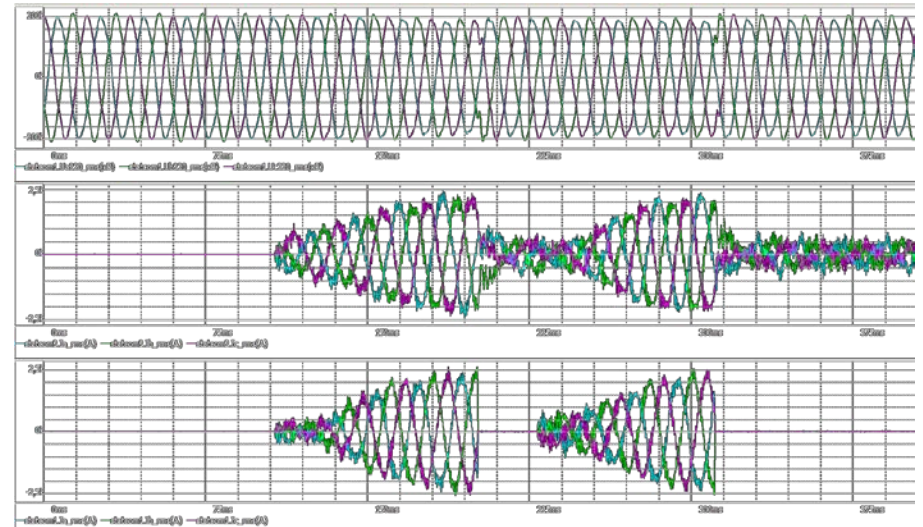
Commissioning

The complexity of converter facilities determines the need for maintenance of equipment by its developers at an early stage

- Analysis of equipment in various scheme-regime situations;
- Analysis of the equipment in emergency mode network;
- Analysis of flow failures.

The analysis is carried out:

- revision control algorithms and software;
- formation of the requirements for maintenance kit (if the equipment is being introduced for the first time);
- Revision of operational documentation



There is need of revision of the regulatory documentation for commissioning of power facilities (converter equipment)



Operation



To ensure reliable operation of the converter of the complex shall be provided availability of trained operational staff, providing quick repair by replacement of defective blocks in the spare. There must be few people specializing in the cooling system, the valve equipment and control systems

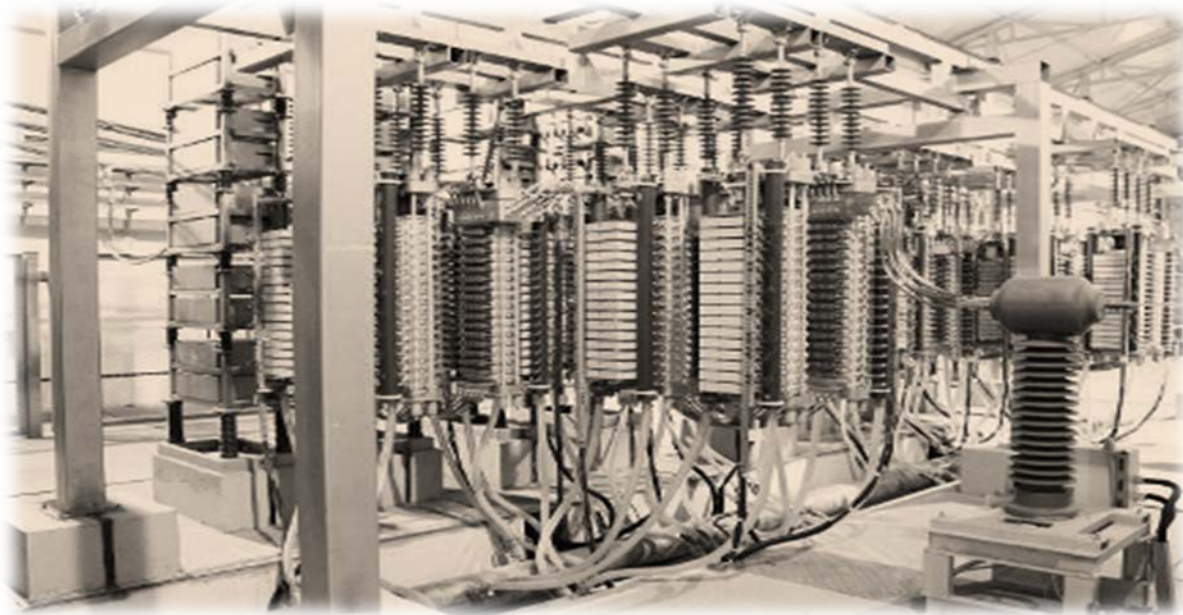
Microelectronic components of the control system become outdated and are no longer run by manufacturers. This makes it necessary to upgrade the control system approximately every 10 years



Technical support for the equipment supplier or a specialized organization in the whole period of operation of the equipment is necessary to secure the smooth operation of the converter systems necessary



**Tank you very much for your
attention**



*Andrey Drozdov
Technical Director
SPC "Saurus Energo"
A.Drozdov@saurus.ru*

