



WORKGROUP OPERATIONS AND SECURITY

Requirements for generators relevant to system security

Secure system operation is only possible by close cooperation of generating units with the TSOs, because the system behaviour especially in disturbed operating conditions largely depends on the response of generating units to deviations from nominal values of voltage and frequency. It is therefore of crucial importance that generating units are obliged by the TSOs to meet technical requirements relevant to system security. Moreover appropriate dynamic behaviour of generating units, protection levels and control facilities are necessary in normal operating conditions and in a range of disturbed operating conditions in case of perturbations to the system or during system restoration in order to preserve or to re-establish system security and equipment integrity.

To ensure system security within the interconnected UCTE system and to provide a common security level, UCTE developed a technical paper "Definition of a set of requirements to generating units".

The minimum requirements as included in this paper set up a common framework for grid connection agreements between TSOs and power plants. The implementation of the requirements by generating units and the respective impact on secure system operation will be observed and analysed continuously by UCTE and experiences derived therefrom will result in a further development of this set of requirements.

Follow-ups on IC recommendations

During 2008, different work streams for follow-up of the recommendations coming from the IC were completed. The individual results and experiences following major disturbances gave progress and improvement for the operation and security of the UCTE system. If feasible, they were already integrated into the running UCTE standardisation procedures and the new revisions of different policies of the UCTE "Operation Handbook". Further investigations concerning "coordination between TSOs" have been carried out together with the WG System Strategy.

Update and revision of the policies of the UCTE "Operation Handbook"

From 2002 on and with the support of all stakeholders, UCTE developed a fully fledged security package around the UCTE "Operation Handbook". This handbook sets technical and organizational standards that constitute a common reference for all TSOs in UCTE for a secure and reliable operation of the transmission system.

Building on the return of experiences following major disturbances in the system as well as adapting to the changing TSO operational conditions UCTE launched a revision for all Policies of the Handbook. As part of UCTE standardisation procedures related to the operation and reliability of the system, in 2008 UCTE had successfully revised the UCTE "Operation Handbook" Policies 1, 2 and 3. Since the revisions for the policies have been consolidated, UCTE performed a public consultation on Policies 1, 2 and 3 at the UCTE Website.

UCTE - History I

Foundation and initial tasks

The UCLPTE (Union for the Co-ordination of Electricity (Production and) Transmission) was established in 1951 at the instigation of the Organization for European Economic Co-operation by the then vertically integrated electricity companies of Austria, Belgium, France, Germany, Italy, the Netherlands and Switzerland.

Its original role was to contribute to the development of economic activity through the improved exploitation of energy resources associated with the interconnection of electricity systems. Fuel economy was the central focus of joint work undertaken during the first phase of reconstruction, which was still marked by the effects of the war which had recently ended. UCPTTE's main objective was the optimum operation of electric power plants. For example, a surplus of production in countries whose generation was mainly based upon hydro power might be used to balance a shortfall in production beyond the borders of those countries, thereby allowing savings in coal consumption. Preventing a loss of surplus production was one of the first major successes of UCPTTE.

One of the essential technical requirements for interconnected operation in Western Europe at that time was the introduction of the primary and secondary control needed to ensure the frequency quality required and comply with the scheduled energy exchanges. Primary control allows for frequency stabilization in the event of an imbalance between production and demand by mutual assistance of all interconnected partners. Secondary control ensures that such an imbalance is in the end compensated by the party causing it.

By setting common operational rules and by organizing the international co-operation between the electricity system operators, the UCPTTE has assumed an increasing responsibility in the secure operation of the European interconnected electric system. These operational rules serve to guarantee security of supply and allow for safe operation of the synchronously interconnected UCTE system.

Finalization of the Policy 8 “Operational Training”

In the year 2008, UCTE community has finished the first release of the UCTE “Operation Handbook” with the publication of the Policy 8 “Operational Training”. By this, the full set of eight policies for operation was now completed successfully. The new Policy was also integrated under the “Multilateral Agreement” and application of its standards became mandatory for all TSOs in the UCTE community.

Policy 8 defines a standard framework for training in order to provide reasonable assurance that the transmission system operators within UCTE have and hold up the knowledge and skills to operate the power system in a safe and reliable manner. It provides a common framework for training of operating and supervisory personnel which enables building personnel competency in normal and insecure system conditions. Policy 8 gives a special focus to inter-TSO trainings to ensure that coordinated actions will be performed with a due quality by means of visits, workshops, on shift cross periods or bilateral/multilateral common training sessions on Dispatcher Training Simulator (DTS).

UCTE Frequency Quality Investigation

The last few years the UCTE grid is experiencing increasing frequency variations at hour boundaries. The frequency of the UCTE system can be seen as a global quality criterion for real-time power and energy balances, system disturbances and operation of control power depending on operation of generation units, daily and seasonal availability of power resources, typical daily and seasonal changes in the demand and real-time behaviour of third parties and grid customers. In 2008, a team of technical experts ended the investigation on the experienced changes in the quality of the frequency in the UCTE synchronous area. The main identified cause is a mismatch between fast and slow generation, leading to short term unbalances in the system. The existing requirements for generators cannot prevent from the experienced changes in the quality of the frequency.