



UCTE LIFE

EDITORIAL

UCTE releases detailed Interim Report on the disturbances of 4 November - sequence of events, root causes and critical factors identified

The events in the evening of 4 November 2006 are the most severe disturbance in the history of UCTE as far as the number of involved TSOs (Transmission System Operators) and the amplitude of the registered frequency deviation are concerned. However, the decentralized responsibilities of UCTE member TSOs demonstrated their efficiency avoiding a blackout on the entire European continent. UCTE is committed to assure that the incident is closely investigated with a view to improving security standards. Therefore, an investigation committee was set up immediately after the incident.

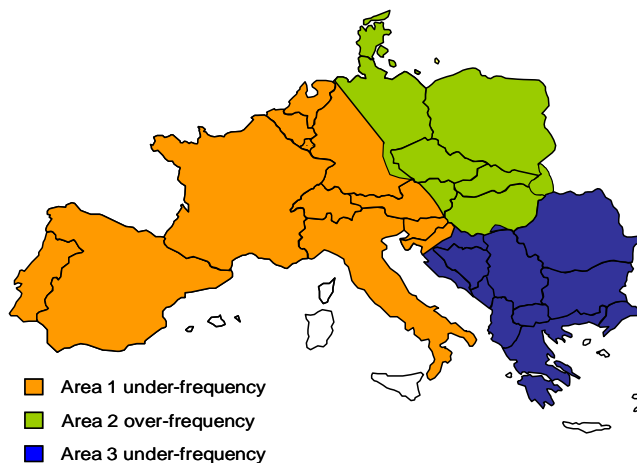
On 4 November 2006, the triggering event started at around 22:10 hrs. A number of high-voltage lines in Northern Germany tripped off due to the correct reaction of automatic protection devices after an increase of load over a very short period of time. Consequently, the UCTE grid - covering 23 countries across Europe - was divided into three areas (West, Northeast and Southeast). This resulted in significant power imbalances in each area. The power imbalance in the Western area induced a severe frequency drop that caused an interruption of supply for more than 15 million European households.

In both under-frequency areas (West and Southeast), sufficient generation reserves and load shedding enabled normal frequency to be rapidly restored. In the over-frequency area (Northeast), the lack of control over generation units contributed to a deterioration of system conditions in this area (long lasting over-frequency with severe overload on transmission lines).

Generally, the uncoordinated operation of generation units (mainly wind and combined-heat-and-power connected to distribution grids during the disturbance) complicated the process of reestablishing normal system conditions.

However, the decentralized spread of responsibilities among TSOs demonstrated the efficiency of this approach: appropriate measures were taken against a further deterioration of the situation and a blackout on the entire European continent was thus avoided. The full reconnection of the power grids was completed within 38 minutes after the separation into three islands. The situation in all European countries was back to normal after less than 2 hours.

In its function for co-ordination, UCTE carries out an investigation on the November 04 incident in order to assure an efficient and secure operation of the interconnected electric "power high-ways" in the future.



The Interim Report (see <http://www.ucte.org>) has identified so far two root causes and five critical factors.

- Root causes:
- Non-fulfilment of the N-1 Criterion
 - Inappropriate inter-TSO co-ordination during this event

- Critical factors:
- Generator-related issues; TSO access to real-time information on generation
 - Range of action available to dispatchers for handling grid congestions
 - TSO/DSO (Distribution System Operators) co-ordination in the context of defence and restoration plans
 - Co-ordination of resynchronization procedures during the event
 - Enhancement of training of dispatchers

The Investigation Committee will provide in the Final Report a more comprehensive analysis of the sequence of events and recommendations for further improvement of procedures at UCTE and individual TSO level as well as of specific UCTE security standards.

MEMBER NEWS

UCTE AGENDA

UCTE Steering Committees

January 18, 2007 in Switzerland
March 22, 2007 in Hungary
June 21, 2007 in Poland

Assembly

May 10, 2007 in Germany

Common WG meetings

September 7, 2007 in Bosnia-Herzegovina

E.ON Netz



E.ON Netz gave the go-ahead for a new monitoring system for high-voltage overhead lines

On 18th September 2006 E.ON Netz started a field test for its innovative monitoring system for high-voltage overhead lines in the North of Germany. Dietrich Austermann, Minister for Economic Affairs in Schleswig-Holstein (German Federal State) and Martin Fuchs, Chief Executive Officer of E.ON Netz pressed the button to start the new technique. "We are the first to implement this complex monitoring system into the running grid operation," said Mr. Fuchs. Using the monitoring system, the transmission capability of overhead lines can be increased by up to 50 percent depending on the ambient temperature and wind speed. The new system is an important benefit for the operators of wind power plants in Schleswig-Holstein. To put it more precisely: There will be less interferences in the generation of wind power as a result of to lacking transmission capability. The monitoring system cannot replace grid expansion completely: Since wind farms in Schleswig-Holstein produce far more wind power than the grid can convey, E.ON Netz is currently working on three wind power related 110 kV line projects in Schleswig-Holstein. "However, without the monitoring system, even more lines were to be built", Fuchs added.



E.ON Netz sticks to the following principle: Grid optimization before grid reinforcing before grid expansion. E.ON Netz has been doing research on innovative technologies to increase the transmission capability of overhead lines for years. The monitoring system is not state-of-the-art yet. With the field test in Nordfriesland it is the first time that data of the monitoring of overhead lines is actively used in network control. E.ON Netz spent about four million Euro for the new system.

Terna



TERNAs achievements one year after the integration of dispatching and transmission activities

Acquisition of Edison Rete and AEM Trasmissione, listing of TERNAs Participações S.A., the fully owned subsidiary of TERNAs in Brazil, starting of the work for the realisation of the new interconnection between Italy and Sardinia (SA.PE.I), the launch of the project for technical assistance in Albania. These are some of the results achieved by TERNAs two months after the first anniversary of the company integrating the TSO's functions as grid operator.

The acquisition of other parts of the national transmission networks represents one of the main objectives of TERNAs Strategic Plan for 2006-2010 in order to strengthen the reliability and security of the Italian electricity system. On 16 October 2006, TERNAs was awarded the competition for the acquisition of the grids of Edison (2,763 km) and AEM Milano (1,095 km). Due to the deal of an overall value of 420 million Euro, TERNAs has increased up to 98% the percentage of its share in the ownership of the national high-voltage and extra high-voltage transmission network.

New investments in the development of the network represent another important measure to enhance the security of the national electricity system. At the beginning of October, TERNAs started the work for the realisation of the new submarine cable between Sardinia and Italy (SA.PE.I) which represents one of the main TERNAs investments: two submarine cables of 420 km in length, for a capacity of 500 MW each. The cables will be realised by Prysmian Cable and Systems and the stations for conversion by ABB.

The figures related to the SA.PE.I project are very important for understanding its dimension: 600 million Euro of investments, two submarine cables laid at a depth of 1600 meters in the sea. The length of the interconnection (420 km) makes it the second longest cable in the world after the NordNed project to connect the Netherlands and Norway. The first cable is expected to be completed till 2008 and the second till 2009. As far as TERNAs growth abroad is concerned, TERNAs is looking also for international business opportunities in the transmission sector worldwide. TERNAs mission to create value for shareholders includes the consideration of investment opportunities outside the domestic business. This may guarantee the company to rely on its core technical and management competencies and skills in order to raise returns on invested capital while targeting limited risk profile in stable environments. On November 2006, TERNAs has listed 34% of the total share capital of TERNAs Participações S.A., a wholly-owned subsidiary of TERNAs in Brazil, on the São Paul Brazilian Stock Exchange.

Recently, TERNAs was awarded the contract for providing technical assistance and management training to the Albanian integrated electricity companies KESH (Korporata Elektroenergetike Shqiptare) and to the newly established transmission operator OST. TERNAs must provide KESH with assistance in some important steps in the transition towards the market, including the completion of the unbundling process of the activities in the electricity supply chain (production, transmission and distribution), both at technical level and in management, economic and financial terms. The tender entirely financed by the Italian Development Cooperation forms part of the programme of cooperation between the Italian and Albanian governments.

MEMBER NEWS

swissgrid

swissgrid
Transmission System Operator

Operational launch of national transmission system operator swissgrid

swissgrid will commence activities as Switzerland's national grid operator on 15 December 2006, assuming operational management and responsibility for the Swiss high-voltage grid. swissgrid employs approximately 130 highly qualified employees at its head office in Laufenburg.

Laufenburg, 17 November 2006 "The operational launch of swissgrid is a milestone in the evolution of the Swiss electricity industry. It will help secure the electricity supply in Switzerland and its neighbouring countries and take us one step closer to the European market," explains Hans-Peter Aebi, CEO of swissgrid ag. The Swiss grid company operates and manages the entire, high-voltage network covering some 6,700 kilometres, ensuring secure and reliable power supply to millions of homes and businesses. It will take over all the duties previously performed by grid coordinator ETRANS, and will now have much more far-reaching powers and responsibilities.

Secure power supply In its capacity as transmission grid operator, swissgrid is responsible for the secure, reliable and cost-effective operation of the Swiss high-voltage grid. In order to maintain the balance between power consumption and power generation, swissgrid has the authority to issue instructions governing grid circuits, frequency regulation and power control. These powers are essential for smooth grid operation and will therefore make a vital contribution to ensuring a secure power supply in Switzerland.

Electricity hub at the heart of Europe Due to its central location and flexible production options, Switzerland - and therefore swissgrid - plays a key role when it comes to cross-border transmission capacities in Europe. swissgrid will take the action required to avoid and eliminate congestion in the electricity transmission grid. The foundation of swissgrid is a unique phenomenon across Europe. The seven Swiss grid companies (Atel, BKW, CKW, EGL, EOS, EWZ and NOK) voluntarily set up the national grid company even before this became necessary under legislation, helping to position the Swiss electricity industry as the power hub of Europe. In addition to this, swissgrid will in future be the point of contact for all questions relating to grid management and operation, and it will also be responsible for representing Switzerland's interests in the context of both national and international transmission systems.

Transmission system operator swissgrid is a public limited company under Swiss law. It is comparable in size and in its functional and organizational structure to foreign transmission system operators (TSOs). In line with swissgrid's slogan "moving power", it plays a leading role in the development, automation and application of early warning and monitoring systems for high-voltage networks in Europe, using a range of innovative instruments. Swissgrid employs approximately 130 employees from 11 different nations at its head office in Laufenburg. The new company's Board of Directors comprises the shareholders Atel, BKW, CKW, EGL, EOS, EWZ and NOK, as well as the cantons and two neutral board members.

Moving power swissgrid is the national transmission system operator. In its capacity as transmission grid operator, it ensures the secure, reliable and cost-effective operation of the Swiss high-voltage grid. Headquartered in Laufenburg, swissgrid employs approximately 130 highly qualified employees. As a member of the Union for the Co-ordination of Transmission of Electricity (UCTE) and the European Transmission System Operators (ETSO), it is also responsible for grid monitoring and grid usage with regard to European electricity exchange. swissgrid is wholly owned by the seven Swiss grid companies Atel, BKW, CKW, EGL, EOS, EWZ and NOK.

RTE



Gestioneur
du Réseau de Transport d'Électricité

Belpex Day-Ahead Market and market coupling with APX and Powernext

The regulators of the electricity markets in Belgium, France and the Netherlands have approved the rules and the mechanism to implement market coupling between the three countries.

The market coupling between the three markets together with the launch of the Belpex Day-Ahead Market is starting on 21 November 2006, after the publication of the amended Dutch Grid Code. The market coupling is replacing the explicit daily allocation of capacities on the interconnections on the Belgian - French and the Belgian - Dutch borders.

The market coupling of APX, Belpex and Powernext creates a single electricity market in the three countries with a single price, only differing when there is insufficient interconnection capacity available on the Belgian - French or the Belgian - Dutch border. The three Exchanges APX, Belpex and Powernext thereby provide a better quality of price formation and a greater liquidity in the coupled markets. The electricity transmission system operators, RTE, Elia and TenneT are improving the capacity allocation by allowing the simultaneous allocation of capacity and energy by means of the coupling of the Exchanges' day-ahead markets. The transmission system operators remain responsible for the allocation of the interconnection capacity and guarantee the cross-border transactions. As from the start of market coupling, the three transmission system operators are no longer organising explicit auctions of daily cross-border capacity at the Belgian borders, except in the unlikely event of the unavailability of market coupling. All daily cross-border transfers are realised through market coupling. Market coupling does not entail additional membership requirements or procedures. The three power Exchanges continue to exist as legally separate markets.

BELPEX

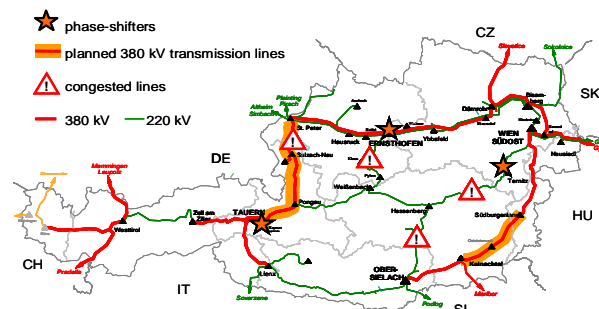
MEMBER NEWS

Verbund APG



Phase-shifting transformers in the APG grid

Three phase-shifting transformers (220/220 kV, 600 MVA, +/-35°) were successfully put into operation by the end of November 2006 to help to handle the severe congestion in the APG grid until the commissioning of the planned 380 kV lines. The major part of the Austrian high-voltage grid was constructed in the 1950s and 1960s at the 110 and 220 kV voltage levels. From 1975 onwards, the further extension was carried out with high-capacity 380 kV lines. However, all North-South line connections were constructed and are still being operated at 220 kV and have an insufficient transmission capacity. This fact and a production surplus in the North and a deficit in the South of the country have led to severe congestions on the mentioned lines since the full market liberalization in 2001. In addition, starting from 2003, further capacity in the form of wind power amounting to approx. 1000 MW has been added in the Northeast of Austria, while at the same time coal-fired power stations in the South were shut down. Over the past years, extensive counter-measures in terms of redispatching and special network switching were taken to reduce the congestions. For the permanent improvement of these structural congestions it is planned to put new 380 kV lines (Südburgenland - Kainachtal, St. Peter - Tauern) into operation. As the commissioning of these lines is delayed due to environmental and legal protests, additional congestion management measures will have to be taken. In this context it was decided to install three phase-shifting transformers in the Tauern, Ernstshofen and Ternitz substations. This measure allows for an optimization of load flows and thus higher utilization of the existing three 220 kV lines. In addition, it also serves to protect the weak North-South lines in case of an outage of a line or system. Thus, an increase of the internal North-South capacity ((n-1)limit) by 200 MW (from 1200 MW to 1400 MW) is possible. The operation of the three phase-shifting transformers in combination with redispatching is a measure that helps to handle the North-South-bottlenecks in the short term. In the long term, the bottlenecks can only be avoided effectively by the above mentioned new 380 kV lines.



TenneT



Dutch Unbundling Act adopted

On 14 November 2006, the Senate of the Dutch Parliament adopted the "Unbundling Act". However, as a political compromise this Act was adopted with an unexpected proviso: the forced ownership unbundling of the Netherlands' energy companies will be postponed for an indefinite period of time. The intent of the Act was to require the currently integrated energy companies to separate themselves into two distinct companies within two and a half years to assure that they would operate either as a "commercial" energy company, i.e. involved in the sale, supply or production of energy, or as a "network" company, i.e. a company which operates a gas and/or electricity network.

However, the Senate has stipulated that this unbundling only needs to be realized:

- if an EC Directive will be implemented to prescribe such unbundling, or
- when the integrated energy companies impede the independent energy network management.

Examples presented were: engaging in commercial activities and/or companies abroad, disruption of the market, lack of transparency of financial positions and failure to provide nondiscriminatory access to the networks.

Other articles regarding the improvement of the independence of network management were adopted. For instance, the Act prohibits the network manager from granting security for the financing of activities of group companies. Furthermore, the Act extends the national grid with the transfer of management from January 2008 of all 110/150 kV grids to the state-owned TSO, TenneT, which already manages the 220/380 kV systems.

Network Privatisation Prohibition Presently, the shares of the four integrated Dutch energy companies are held by local governments. Integrated privatisation of these companies is made impossible according to the new law. The Minister of Economic Affairs must give his consent to any transfer of ownership of a network company or a network. Transfer of legal title to a network is prohibited, except to a government-owned entity. Additional legislation is needed for conditions under which in the future (minority) privatisation of networks will be allowed. However, it became clear in the political debate that neither Government nor Parliament have any intention of drafting such legislation at this stage. The consensus is that energy networks should remain publicly owned. Anyway, the Act does not provide any restrictions to privatisation of energy companies without networks. Existing Electricity Law (1998) already allows privatisation of generation and supply activities: for instance, almost 40% - approx. 7000 MW - of the Dutch power plants are owned by international companies like Electrabel and E.ON.

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