



DRAFT AGENDA

**EXECUTIVE EXCHANGE ON COORDINATED
CROSS BORDER TRANSMISSION OF
ELECTRICITY – AN EXAMINATION OF THE
EUROPEAN UNION**

September 22 – 26, 2008

Brussels, Belgium

**Conducted by the
U.S. ENERGY ASSOCIATION
Under the
SOUTH ASIA REGIONAL INITIATIVE FOR ENERGY (SARI/ENERGY)
Funded by the
U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT**

DRAFT AGENDA FOR EXECUTIVE EXCHANGE

GOAL: Cross border exchange of electricity in the European Union is coordinated through a network of transmission system operators (TSOs) in continental Europe, providing a reliable market base by efficient and secure electric "power highways". The European Union system is perhaps the world's leading interconnection of local, national and regional grids. For functioning wholesale electricity markets covering wide geographical regions beyond national borders, the idea of electricity market implementation is that the larger an electricity market is, the more competitive it shall be. A precondition, therefore, is that the market place is not negatively constrained by bottlenecks and other shortcomings of the physical grid infrastructure. In practice, however, wholesale electricity markets face a variety of challenges due to lack of sufficient cross-border transmission capacities. Moreover, the basic economic instruments to overcome bottleneck situations (congestion-based auctions, merchant transmission investments) often do not result in investments to overcome these problems in practice. Furthermore, beyond technical and economical aspects the public acceptance for extending the grid infrastructure is often difficult to obtain. This executive exchange will focus on the European Union's efforts to overcome these challenges and by assessing the European Union case, South Asian energy executives will gain a better understanding of the roles of individual TSOs and sub-regional electricity markets and their transition to forming a regional electricity market.

OBJECTIVES:

- To learn commonly agreed standards for system operation
- To learn procedures to monitor the compliance of standards in order to ensure that the TSO community keeps credible in its commitment to reliable operation of the interconnected system
- To learn mechanisms for synchronous interconnection
- To learn techniques for maintaining security and reliability of an interconnected system
- To analyze the methods used by the European coordination centre
- To analyze the technical feasibility and the related legal/regulatory boundary conditions of interconnections

DELEGATES

Bangladesh

Mr. Mohammed Abul Kashem Mahmud
Deputy Director
System Planning
Bangladesh Power Development Board
Email: sys.pdb@gmail.com

Mr. Md. Ruhul Amin
Director (Technical)
Power Grid Company of Bangladesh (PGCB)
Email: dir-tech@pgcb.org.bd

India

Mr. Rajesh K Mediratta
Vice President, Business Development
Indian Energy Exchange Limited
Email: rajesh.mediratta@iexindia.com

Mr. Harish Saran
Vice President
PTC India Limited
Email: harishsaran@ptcindia.com

Nepal

Mr. Anup Kumar Upadhyay
Joint-Secretary
Ministry of Water Resources
Email: anupupdhy@yahoo.com

Mr. Sher Singh Bhat
Director of System Operations Department
Nepal Electricity Authority
Email: ldc@mos.com.np; sneeti@wlink.com.np

Pakistan

Mr. Zarar Aslam
Additional Secretary
Ministry of Water and Power
Email: addsecretary@mowp.gov.pk

Mr. Shan H. Zaidi
General Manager
National Transmission and Dispatch Company Ltd
(NTDC)
Email: gmservices@ntdc.com.pk

Sri Lanka

Mr. M.M.C. Ferdinando
Secretary,
Ministry of Power and Energy
E Mail: secrepen@sltnet.lk

Mr. T.M. Herath
Additional Secretary (Technical)
Ministry of Power and Energy
E Mail: agmprojects@ceb.lk

U.S. Agency for International Development

Srinivasan "Padu" Padmanaban
Director of SARI/Energy
USAID – India
Email: spadmanaban@usaid.gov

SUNDAY, SEPTEMBER 21, 2008

Delegates arrive into Brussels

Lodging:

The Sheraton Brussels Hotel
1210, Place Rogier, 3 Brussels - Belgium
Tel +32 (0)2 224 30 29
Fax +32 (0)2 224 30 01

DAY 1: MONDAY, SEPTEMBER 22, 2008

10:30 am Meeting with UCTE Secretariat – Brussels, Belgium

Contact: Mrs. Thanh-Thanh Lethi, Assistant to UCTE Secretary General (thanh-thanh.lethi@ucte.org)
Location: Bld Saint-Michel, 15, 1040 Brussels

The Union for the Co-ordination of Transmission of Electricity (UCTE) coordinates the interests of transmission system operators in 24 European countries. Their common objective is to guarantee the security of operation of the interconnected power system. 50 years of joint activities laid the basis for a leading position in the world, which the UCTE holds in the quality of synchronous operation of interconnected power systems. Through the networks of the UCTE 500 million people are supplied with electric energy and annual electricity consumption totals approx. 2500 TWh. Close co-operation of member companies is imperative to make the best possible use of benefits offered by interconnected operation.

For more than fifty years, UCTE has co-ordinated - through a wide variety of technical rules and recommendations - the international operation of high-voltage grids that all work with one "heart beat": the 50 Hz UCTE frequency related to the nominal balance between offer and demand. UCTE commits itself to the development of the system to meet all new market requirements, but without accepting losses in terms of reliability for the existing system. UCTE operates one of the largest electric synchronous interconnections worldwide. This technical solution permits the functioning of a free electricity market in general and regional markets as well.

Discussion Topics:

- UCTE overview, organization & function
- History of multi-year development of the UCTE; going from isolated countries to integrated European system

- UCTE communication between various countries & TSOs
- Agreements to be signed between all interested parties (e.g. neighboring companies and TSO organizations)
- Legal framework to enforce UCTE standards
- Sequence of operations to be carried out prior to connection (e.g. signature of agreements, analyses, tests, etc.)
- The role of the TSO as a neutral and independent party to ensure fair competition
- TSO planning
- TSO compliance of technical and operational rules
- System security and extension
- Regulatory issues
- Challenges facing TSOs – problems with authorization procedures for new transmission infrastructures and decrease of system adequacy in several areas
- Connecting with non-UCTE areas

12:00 pm Working Lunch with UCTE & ETSO

2:00 pm Meeting with European Transmission System Operators (ETSO) – Brussels, Belgium

Contact: Mrs. Paola Testini, Assistant to ETSO Secretary General (paola.testini@etso-net.org)

Location: Bld Saint-Michel, 15, 1040 Brussels

Upon the emergence of the Internal Electricity Market (IEM) in the European Union, the leaders of the regional organizations, including the TSOI (the association of TSOs in Ireland, the UKTSOA (the United Kingdom TSO association), the NORDEL (the Nordic TSOs), and UCTE (the Union for the Co ordination of Transmission of Electricity, association of CENTREL, TSOs of the Continental countries of Western and Central Europe) recognized the need for an EU-wide harmonization of network access and conditions for usage, especially for cross-border electricity trade. In 1999, ETSO was created as an association with ATSOI, UKTSOA, NORDEL and UCTE as founding association members. However, on 29 June 2001 ETSO became an International Association with direct membership of 32 independent TSO companies from the 15 countries of the European Union plus Norway and Switzerland. Since that time, membership has enlarged to Slovenia and CENTREL countries, the Czech, Hungary, Poland and Slovakia, Estonia, Lithuania, Romania, Cyprus, Serbia, Bosnia Herzegovina, Croatia, and Bulgaria. The networks represented by ETSO supply more than 490 million people with electric energy. The consumption of electric energy amounts to approx. 3200 TWh per year. The length of HV (400 and 220 kV) lines covered by ETSO is of more than 290 000 km.

Discussion Topics:

- ETSO overview, organization & function
- Network Access and Congestion Management
- Electronic Data Interchange
- Tariffs
- Security of Supply and Adequacy of Power Systems
- Legal and Regulatory Issues
- Inter-TSO Compensation
- History of multi-year development of ETSO; going from isolated countries EU-wide harmonization of network access
- Agreements among European TSOs companies : ITC and ETSOVista
- Legal framework to enforce network codes

4:00 pm Adjourn

Evening – Group Dinner

DAY 2: TUESDAY, SEPTEMBER 23, 2008

10:00 – 12:00 Meeting with Directorate-General Energy and Transport – Brussels, Belgium

Contact & Speaker: Mr. Matti Supponen, C2 of DG Transport and Energy Unit (+32-2-29-92743, Matti.Supponen@ec.europa.eu)

Location: Rue de Mot 28 (close to Schumann roundabout)

Energy policy dates back to the beginnings of European integration, with the ECSC Treaty on coal and steel and the Euratom Treaty on the civil use of nuclear energy. However, it really took off in the 1990s with the creation of a genuine internal market for electricity and gas, the promotion of new energy sources and a more coordinated approach to security of supply. Since November 2004 Jacques Barrot, Vice-President of the European Commission, has been in charge of transport policy, and Commissioner Andris Piebalgs has been in charge of energy policy. The Directorate-General (DG) for Energy and Transport has a staff of over 1 000 in ten Directorates located in Brussels and Luxembourg. In addition to the development of Community transport and energy policies, including dealing with State aid, the DG is responsible for managing the financial support programmes for the trans-European networks, technological development and innovation, totaling on average €1 billion per annum for the period 2000-2006.

Discussion Topics:

- Overview of the Directorate-General Energy and Transport
- Legal framework established by the EU Commission
- Recent European legislation
- Development of Trans-European Networks & Creation of an Internal Market
- Liberalization of the national and regional markets
- Past & current challenges
- Operational principles
- Current challenges
- Future plans

2:30 – 5:30 pm Meeting with Elia System Operator (Belgium System Operator) – Brussels, Belgium

Contact: Mr. Walter Aertsens (walter.aertsens@elia.be; +32 2 546 70 11)

Location: Keizerslaan 20, 1000 Brussel

Elia is Belgium's transmission system operator and is responsible for the transmission of electricity. Electricity is transmitted over the high-voltage grid from electricity generators to the distribution system operators and large industrial consumers. As system operator, Elia organises transparent, objective and non-discriminatory access to the grid. Elia owns all of Belgium's 150 to 380 kV grid infrastructure and almost 94% of its 30 to 70 kV grid infrastructure. Elia's grid forms a key connection between France, Europe's largest electricity exporter, and the markets of Northern Europe.

Elia's main activities are:

- transmission operator: maintaining and developing grid infrastructure and connecting electrical installations to the grid;
- system operator: providing smooth, objective and transparent access to the grid, supplying all services to enable the transmission of electricity, monitoring electricity flows on the grid to ensure effective operation and constantly managing the balance between electricity consumption and generation;
- market facilitator: taking initiatives to improve the operation of the electricity market.

Discussion Topics:

Overview of the Belgium Electricity Market & Elia

- Structure of the market
- Contracts
- Tariffs
- Ancillary services
- Balancing
- Nomination system
- Congestion management
- Capacity calculation and allocation

DAY 3: WEDNESDAY, SEPTEMBER 24, 2008

9:30 -12:00 noon Presentation by OPCOM on South-East Europe Regional Energy Market (SEEREM)

Speakers: Ms. Georgeta Ion, MSc., Head of Products Development in Regional Framework Support Department, opcom s.a. (georgeta.ion@opcom.ro & 40 21 3071.407) & Ms. Roxana Palade
 Location: Sheraton hotel

The South-East Europe Regional Energy Market (SEEREM) became part of the EU's wider internal energy market on 25 October 2005 by the creation of the common European Energy Community in the framework of Stability Pact for South Eastern Europe.

Under the Athens Memorandum was envisioned a South-East Europe Regional Energy Market (SEEREM) that will be liberalized in a phased manner from 2005, and—ultimately—that this will form part of the EU's internal energy market. The Memorandum was signed on November 2002 by Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Republic of Macedonia, Romania, Serbia and Montenegro, and Turkey. The states agreed to develop a regional energy market in power and gas from 2005.

Regarding inter-regional trade, the Memorandum states that the energy market in SEE will be integrated into the European Union's internal energy market. The 2003 revision of the Athens Memorandum also includes provisions relating to gas market development, and proposes the establishment of a SEEREM. Requirements for the gas sector largely mirror those for the power sector and include: setting up of an independent gas regulator; unbundling of different gas industry functions with legal separation of transmission and distribution from other industry functions; open access to networks and storage facilities; to open the gas market in a phased manner from 2005, defining eligible customers at that time to include power generators, and such that 20% of the market is liberalized. separate ownership of transmission, distribution. For countries in SEE where gas penetration is

currently less than 10%, a gas expansion plan to raise use of gas above this threshold before 2010 must be adopted and implemented.

Speaker: OPCOM – Romanian Electricity Market Operator

OPCOM plays the role of Romanian electricity market administrator, providing an organized, viable and efficient framework for the commercial transactions traded within the wholesale power market through the Day Ahead Market and the settlement process.

Discussion Topics:

- Legal context for regional electricity market development in European Union and Energy Community area
- On-going projects in Electricity Forum framework (Dry Run – CAO) and implemented projects: Integrated Inter-TSO compensation mechanism for EU and Energy Community members – as one of the most concrete achievements of the Athens Forum in establishing the SEE REM for further integration with the EU IEM
- OPCOM performances as background to actively promotion of regional electricity market in SEE
- OPCOM – MAVIR project to support set up of a new power exchange in Europe (HUPX) and eventual market coupling Hungary – Romania.

12:00-1:00 Lunch

2:00 pm Overview of the Electricity Market Integration of the Central West Region – Presentation by Commission for Regulation of Electricity and Gas (La Commission de Regulation de l'Electricite et du Gaz - CREG) as a lead regulator of the Central West Electricity Regional Initiative (CW ERI) for the Regional Co-ordination Committee (RCC)

Contact: Mr. Woitrin, Director (responsible for technical matters of the market including optimal organization of the electricity transmission system of Central Western Europe of Belgium, France, the Netherlands, Luxemburg and Germany) (Dominique.woitrin@creg.be; tel ++3222897673)

Location: Rue de l'Industrie, 26-38, B 1040 - Brussels - Belgium

On 27th February 2006, the European Regulators' Group for Electricity and Gas (ERGEG) launched its Electricity Regional Initiative (ERI), aiming to identify and remove barriers hindering the growth of competitive electricity markets in seven European regions. In the framework of the ERI for the Central West region, the RCC organized in June 2006 a Mini Forum at which several market actors, stakeholders and authorities were invited and consulted regarding the topics they considered a priority for improving market integration in the region. This consultation led to a proposal for an action plan drafted by the RCC. This proposal was communicated to the TSOs and was the subject of further TSO consultation in October 2006. It resulted in the regionally harmonized action plan published at present.

Discussion Topics:

- Harmonisation and improvement of the long-term explicit auction rules, including firmness of cross-border capacity allocation
- Implementation of a day-ahead flow-based market coupling
- Implementation of cross-border intraday and balancing trade
- Establishment of a common calculation method for cross-border capacities
- Maximisation of the amount and of the utilisation of cross-border capacities
- Elaboration of a regional capacity investment plan
- Transparency

- Regional market monitoring
- Harmonisation and improvement of data exchange

4:30 pm Meeting with European Federation of Energy Traders (EFET) – Brussels, Belgium

Location: Rue de l'Arbre Bénit / Gewijdeboomstraat 46, 1050 Ixelles / Elsene (from the Regent building, take the Chaussée d'Ixelles/Elsenesteenweg, then it's the 5th street on the right)
 Contact: Carmen Oprea, *EFET EU Liaison Office* (+32 (0)2 7371102; Carmen.Oprea@efet.org)

The European Federation of Energy Traders (EFET) is designed to improve conditions for energy trading in Europe and provide an exchange for non-commercially sensitive information between organizations and members of the developing pan-European energy industry. EFET is complementary to existing industry organizations in European organizations as it is solely dedicated to energy trading issues.

EFET can be characterized by the following:

- Strict impartiality
- Internationalism (within Europe)
- Lack of commercial interest
- Transparency and equality in all communication issues
- High quality and efficiency, providing service to trading organizations

As an effective discussion partner for others EFET is a virtual organization designed to improve the conditions of energy trading in Europe and works to promote the development of a sustainable and liquid European wholesale market.

Discussion Topics:

- Overview of EFET
- Lobbying with authorities and communicating with market and grid operators and their associations
- Public relations
- Distribution of information to participating companies
- Working group meetings
- Standardization & harmonization
- Research
- EFET view on a real market in cross border transmission rights
- Transparency
- Market monitoring debate

DAY 4: THURSDAY, SEPTEMBER 25, 2008

9:00 – 10:30 am Meeting with SPE – Brussels, Belgium

Speakers: Mr. Luc Sterckx, Chief Executive Officer (Luc.Sterckx@spe.be, 32 (0)2 229 19 59) & Mr Maertens

Contact: Mr Paul Maertens, Director Corporate Affairs or Mrs Karin Claeys (karin.claeys@spe.be; kcl@spe.be; +32 (0)2 229 19 63)

Location: Regentlaan, 47, Boulevard du Régent, B 1000 – check in on 4th Floor

SPE is the second largest player in the Belgian energy market, with a turnover of approximately 2 billion euros, and belongs to the Top 30 Largest Belgian Companies. SPE produces electricity at 21

power plants in Flanders and Wallonia. SPE-Luminus has more than 1.5 million customer accounts, both householders and companies, and approximately 1,000 employees. SPE supplies individuals and companies with gas and electricity under the brand name of Luminus, the most important challenger on the Belgian market, standing out thanks to its first-class customer-oriented approach. All Luminus' consultancies, services and products are developed and supplied bearing in mind customers and their needs.

Discussion Topics:

- Organization and governance
- Transmission issues from the perspective of the generator – system supply, demand and transmission constraints
- Operational guidelines
- Energy trading

Morning - Meeting with European University Institute – Florence School of Regulation

Contact: Ms. Ana Aguado Cornago, Adviser to the President for Communication, Public Relations and Fund Raising Affairs (+32-2-227-1131; Ana.Aguado@EUI.eu)

The Florence School of Regulation (FSR) is a joint venture of the Council of European Energy Regulators (CEER) and the European University Institute Robert Schuman Centre for Advanced Studies in association with the European Commission to create a platform for examining issues of European regulation, starting with energy sector.

Speakers: Professor Ranci & Professor Glachant

DAY 5: FRIDAY, SEPTEMBER 26, 2008

10:00 am UNION OF THE ELECTRICITY INDUSTRY – EURELECTRIC

Contact: Veronica Wade, Assistant to Secretary General (Tel: 02/515 10 02; vwade@eurelectric.org); Mrs. Anne Malory Geron head of the markets unit

Speaker: Mr Hans ten Berge, Secretary General

The Union of the Electricity Industry-EURELECTRIC is the professional association which represents the common interests of the electricity industry at pan-European level, plus its affiliates and associates on several other continents. EURELECTRIC's mission is to contribute to the development and competitiveness of the electricity industry and to promote the role of electricity in the advancement of society. As a centre of strategic expertise, EURELECTRIC identifies and represents the common interests of its Members and assists them in formulating common solutions to be implemented, and in coordinating and carrying out the necessary actions. To that end it also acts in liaison with other international associations and organizations, recognizing the specific missions and responsibilities of these organizations. Within the European Union, EURELECTRIC represents the electricity industry in public affairs, in particular in relation to the EU legislative institutions in order to promote the interests of its Members at a political level.

Discussion Topics:

- Regional TSO cooperation: achievement and prospects
- Grid operation and development: the implications of the third energy package

- Strength and merits of developing regional independent operator in the EU

Meeting with Electrabel – Brussels, Belgium (*representative Mr. Marcel Cailliau to join meeting with Eurelectric*)

Electrabel is positioned in Europe as a provider of comprehensive and tailor-made energy solutions. The generating capacity of its European facilities reaches at the moment more than 31,000 MW. Electrabel has become the largest power company in the Benelux (Belgium, Netherlands and Luxembourg). It is also one of the few companies trading on all of Europe's energy markets. Electrabel additionally has great know-how in network techniques. Electrabel is part of SUEZ, an international industrial and services group that is active in energy and the environment.

12:30 pm Lunch hosted by Eurelectric

Approximately 1:30 pm (*immediately following Eurelectric meeting*) **Meeting with Belpex (Belgium Power Exchange) – Brussels, Belgium**

Meeting immediately following Eurelectric. Located in same building as Eurelectric.

The introduction of a power exchange in Belgium is a direct response to the opening up of the European electricity markets. The 1996 and 2003 European Directives, applied into the Belgian Law have created an opportunity to launch an organized electricity market in Belgium, named Belpex.

Belpex is a short term, physical power exchange for the delivery and off-take of electricity on the Belgian hub. Belpex facilitates anonymous, cleared trading in three different market segments, namely a day-ahead market segment (DAM), a continuous day-ahead market segment (CoDAM) and a continuous intraday market segment (CIM). Belpex' day-ahead market segment is coupled with its two neighbors, APX in the Netherlands and Powernext in France.

The partners of Belpex are APX (Dutch Power Exchange), Powernext (French Power Exchange), RTE (French Transmission System Operator), TenneT (Dutch Transmission System Operator) and Elia System Operator (Belgian Transmission System Operator). Endowed with a 3 million euro equity capital, Belpex shares are owned initially by APX (10%), Elia (60%), Powernext (10%), RTE (10%) and TenneT (10%).

As Europe moves closer to realizing the EU vision of an integrated internal energy market, there is a need for solving cross-borders constraints. In order to take away these trading barriers, there is a need to further co-operation between Transmission System Operators as well as the Power Exchanges. This can be aimed by joint implementation of implicit cross-border capacity auctioning or market coupling, optimizing the use of the available transmission capacity.

Discussion Topics:

Overview of Belpex

- History
- Organization, governance and enabling policies of participants
- Responsibilities & Functions
- System supply, demand and transmission constraints
- Operational guidelines

Overview of Market Operations

- Market integration
- Joint & common markets
- Energy markets – real time, day-ahead, etc.
- Financial transmission rights
- Market settlements
- Capacity credit
- Market monitoring
- Demand response

Intraday/Spot Market

- Trading schedule
- Delivery
- How to trade
- Contract specifications

Day Ahead/Spot Market

- How to trade
- Contract specifications

Tour of Trading Floor

SATURDAY, SEPTEMBER 27, 2008