



EURELECTRIC - CIS EPC Joint Report: Key differences in electricity trade market rules and obstacles to trade between the EU and Russia/Belarus

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Joint EURELECTRIC – CIS EPC Task Force On Cross Border Trade

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INTRODUCTION

The foundation for broadening cooperation and deepening integration processes in the area of electric power industry between EC and CIS was laid under the Roadmap titled “Towards Compatible Electricity Markets in the EU and CIS Member Countries,” developed and approved by EURELECTRIC and CIS EPC on November 25, 2005.

On November 13, 2007 in Rome, the CIS-EPC and EURELECTRIC Presidents, A. Chubais and R. Miranda, agreed to establish a joint Task Force on the common cross-border electricity trading principles. The wish to continue the work of the TF was confirmed at the 10th EURELECTRIC-CIS EPC Presidents’ meeting on March 19, 2009.

The Joint Task Force is composed of the representatives of energy companies (power suppliers), electricity industry management bodies and infrastructural entities representing the electric power sector of the countries participating in the Task Force, namely: Belarus, Estonia, Finland, Latvia, Lithuania, Russia and other stakeholders.

The goal of the Task Force was to develop proposals for organizing and improving efficiency of the cross-border electricity trade in the region. The Task Force focused on the following areas of work:

1. Analysis of the existing policies and practices of cross-border trade in the region
2. Identification of key differences in electricity trade market rules and obstacles to trade in the region
3. Development of policy options/measures necessary to increase compatibility of market rules between two systems and improve the efficiency of cross-border trade

This report represents the 1st part of the joint EURELECTRIC –CIS EPC publication on electricity cross-border trade and outlines the key conclusions of the work of the Task Force during the period of 2010-2012 focusing on the key differences between the electricity trade market rules and obstacles to trade.

In 2013, the joint Task Force will focus its efforts on formulating concrete proposals for adapting current market rules and regulations in view of developing a market based link between the EU and Russia/Belarus systems and identifying the potential to improve competition and overall efficiency of the electricity trade in the region.

KEY DIFFERENCES IN ELECTRICITY TRADE MARKET RULES AND OBSTACLES TO TRADE BETWEEN THE EU AND RUSSIA/BELARUS

Based on the fact that within the CIS it is the electricity market of the Russian Federation that has the most significant potential for electricity trade with the EU and bearing in mind the particularities of this market in terms of electricity export and import the CIS part of this report mainly focuses on the rules of the Russian electricity and capacity market.

1. Functions of the grid operators and power exchanges

The functions of the Transmission System Operator (TSO) and a Power Exchange (PEX) in the EU and the System Operator (SO), the Federal Grid Company (FSK) and the Administrator of the Trading System (ATS) and the Centre of Financial Settlements (CFS) in Russia differ.

EU: The TSOs are responsible for the maintenance and long term development of the grid as well as the short term management of internal and cross-border electricity flows (providing access, electricity transport and congestion management). They also have the duty to maintain the stability of the grid (energy balance in a control area), calculate the transmission capacity of internal and cross-border interconnections and allocate it to the market. In the EU, power plant dispatch functions are to a significant extent exercised by the generators themselves – only in rare emergency cases and under strictly defined conditions would TSOs intervene in generation dispatch. The PEX are responsible for collecting and matching bids (price discovery), billing, clearing, developing traded products. Market participants trading Over-the-Counter have to clear deals through special commercial platforms or fully assume counterparty risk.

RUSSIA: The FSK is responsible for providing electricity transmission services, grid availability, load flow metering and participates (alongside SO) in the interaction with the foreign TSOs, who are parties to parallel operation agreements.

SO is responsible for controlling power system operation, maintaining the power balance in the synchronous zone, calculating the transmission capacity of interconnectors, managing internal and cross-border electricity flows. According to Russian electricity market rules SO conducts unit commitment procedures for the day-ahead market and the balancing market based on generators' bids.

Flow managements in the power systems of Russia, the Baltic states and Belarus are dealt with by the relevant SOs on the basis of the BRELL cooperation agreements.

ATS is responsible for registering both exchange-traded and over-the-counter bilateral contracts, conducting trade on the day ahead market (determining the equilibrium price), collecting metering data and determining the final claims and liabilities of wholesale market participants (except claims and liabilities under bilateral contracts).

Execution of payments through the unified clearing system and billing are carried out by a specialized organization – CFS.

The functions carried out by grid organizations across the CIS and EU areas may vary from one another. These differences should thus be taken into account when defining the market rules relating to cross-border trade.

2. Market Model (zonal model vs. nodal model)

EU: The market model is based on zonal pricing. A zonal model aggregates all nodes within a control zone and substitutes it by one equivalent node; individual cross-border lines are substituted by equivalent one link per border. The TSOs responsible for the main transmission grid inform about the transmission capacity available, and the power exchange calculates the price for electricity based on the bids of market parties.

Commercial transactions in most of Europe are currently managed based on a contract path mechanism and the generation units are dispatchable by generators based on the market pricing, and the TSOs in their turn do re-dispatching within the bidding zones based on economic incentives towards creating the necessary counter flows to ease the congested lines. Congestions between bidding zones are managed by price differences between the areas (implicit auctioning) or the price of the transmission capacity on the border. Financial contracts for price difference are used by market participants to hedge these risks. Today, they are mostly available in the Nordic market.

RUSSIA: The internal electricity market model in Russia is based on nodal pricing. The SO is responsible for the control of power system operation and unit commitment, scheduled based on their bids and included in the trading schedule, which is approved by the SO as the dispatch schedule.

The ATS is responsible for electricity price calculation. Sales and purchase transactions are carried out via commission and sales-and-purchase contracts through the CFS, which defines customer assignment to the producers. Direct contracts between producers and customers are signed through the ATS indicating only the volumes supplied under these contracts.

Equilibrium prices obtained as a result of price calculation reflect the cost of electricity with account of the value of load losses and transmission capacity constraints. This model enables the use of physical transmission capacity to the fullest extent and ensures effective power plant loading for consumers in Russia. Centralized calculation of the participants' claims and liabilities that becomes the basis for power plant load schedules is a prerequisite for the application of this model, which is only possible under single market rules.

Single wholesale market rules are also applied in the Kaliningrad Region, excluding however the procedure of competitive price bid selection, considering that there is only one supplier in this region.

Currently there are two interfaces between the Russian and the EU markets:

- a) A DC link on the Russia-Finland interface.

All technological procedures related to transmission capacity calculation and planning, including intraday planning and supply schedule control procedures, have been fully reconciled. Sequential accounting of trading results on the Russian and Finnish market has been provided for, as well as defining calculation procedures for the volumes and costs of actual deviations.

- b) Interaction between the power systems of Russia, the Baltic states and Belarus, which are in parallel operation.

The procedures for joint planning of power system operation are defined in a set of previously signed documents, of which many provisions are currently in need of updating, for instance in relation accounting for the trading results on the Russian and the Baltic markets with different gate closure times. Comprehensive congestion management procedures for the controlled interconnections have not been defined. In view of the lack of reconciled procedures normal power system operation is often provided for by the SO by cutting supplies from Russia.

The differences in market designs between the EU (zonal model) and Russia (nodal model) do not represent as such an impediment to trade. In other terms, the parties in this process are of the view that trade development between these two geographical areas is possible and should not require the prior convergence of the market structures and regulatory frameworks on both sides. However, the analysis carried out in this report also shows that an adjustment of technical rules is needed to allow fair and efficient cross-border trade.

3. Energy-only market vs. energy and generation capacity market

EU: The electricity market is an energy-only market with marginal hourly pricing (fixed costs are to be covered by the margin between energy price and SRMC).

RUSSIA: The market consists of two elements: the electricity market with marginal prices and the capacity market.

Electricity is subject to nodal pricing.

The capacity market operates based on competitive capacity selection (CCS) carried out by the SO. Wholesale market participants may bid into the CCS for a volume that does not exceed their maximum capacity, included by the Federal Tariff Service of Russia in the forecast balance for the respective regulation timeframe. Buyers have to pay for all capacity selected at the CCS in their price zone. The main features of the Russian capacity market model are: capacity selection at the CCS for 4 years ahead (starting from 2016) thereby guaranteeing the suppliers payments for capacity during the construction of new capacity; pricing within free flow zones thereby establishing localized price signals for buyers and suppliers of capacity; selection and payment for only a part of available capacity, which contributes to increased competition among capacity suppliers. The market model also involves capacity supply contracts that provide funding for investments in new generating capacity.

Across the market capacity payments account for roughly one third of the total payment. For buyers the capacity payment is calculated in proportion to their peak consumption. For suppliers the capacity payment is defined by their ability to supply all their capacity selected at the annual competitive capacity selection to the market.

As capacity market prices are much less susceptible to fluctuations than electricity prices, forecasting the total cost of electricity and capacity is a task no more challenging than electricity price forecasting.

There are no specific features of selling and purchasing capacity in relation to electricity export/import. The exporter of electricity has to purchase capacity on the internal market for the respective amount, currently on the same terms as buyers inside the market. The importer may earn a capacity price subject to the fulfillment of a number of conditions, however their fulfillment is currently challenging. The requirements that the importer is faced with are the same as those that generators are faced with on the internal market in order to supply capacity.

The differences between wholesale markets for one product (electricity) and two products (electricity and capacity) do not necessarily imply an obstacle to trade cross-border but they have created so-called dead zones¹ according to which the use of available cross-border capacity is reduced at times when a capacity payment is applicable on the Russian side. This is an issue that needs to be solved.

¹ A dead zone consists in a price band where no trade takes place in either direction. In the case of peak hours on the FI-RU border the dead zone can be as wide as 30 €/MWh.

4. Division between balance responsibility and trade of electricity

EU: The TSOs are responsible for cross-border capacity calculation and allocation, congestion management and cross-border balancing. Market participants have balance responsibility implying that they must economically cover for their own energy use and deliveries, while TSOs have the responsibility for physical flows. This separation of roles makes possible to arrange open access to the cross-border transmission capacities simultaneously for several traders in the same network point.

RUSSIA: The border is treated by the market model as consumption (for export) or generation (for import) points, not as a border where cross-border trade takes place. According to Russian market rules deviations attributed to a group of delivery points registered to a wholesale market participant are reconciled by that wholesale market participant. In these conditions all deviations under cross-border supplies are apportioned to the party carrying out export/import operations (Inter RAO).

As a result all cross-border electricity flows on the Russian market under normal operation are to be reconciled by the trader (not the SO). Inter RAO balances both physical and financial flows (differences between schedules and metering), as is the case for all the consumption and generation nodes inside the Russian market with consideration for the particularities of accounting for deviations attributed to parallel operation. The SO takes over the management of cross-border flows if normal operation is disturbed (including emergencies).

The combined role of exporter and balancing responsible party (currently Inter RAO) is hindering parallel access of other traders to the cross-border interconnections.

Development of more efficient cross-border electricity trade arrangements and the removal of obstacles for the access of parties to such trade require harmonization of electricity market rules in relation to balance responsibility and the development of a balance responsibility concept within the Russia-Baltic states synchronous zone.

Balancing intervals in EU and Russia are different but this is not regarded as posing a major problem to cross-border trade.

5. Network access /Network fees/Transit

EU: On cross-border interconnectors, there is a regulated Third Party Access, implying that any market participant owning electricity on one side of the border can bid for access the cross-border network and carry electricity across the border. Inside the EU, the transit of electricity between countries is arranged automatically by electricity spot markets of neighbouring countries (implicit auctioning) or by acquisition of explicit trade rights for fixed volumes at every interconnection (explicit auctioning).

The concept of transit does not exist anymore for traders, but the costs for TSOs caused by transit are cleared between the TSOs in the inter-TSO compensation mechanism. These payments - positive or negative - are part of the national transmission network tariffs. The similar ITC-fee is collected from every declared delivery across the EU border.

On some EU borders with 3rd countries (e.g. Finland) there are additional network fees for imported electricity, including costs of direct cross border connection, associated share of the main grid, widening the dead zone and thus impeding the cross-border trade.

The Baltic States allocate cross-border capacity for import from 3rd countries for free. The calculation is left to decision and judgment of TSOs and is fixed to the lowest available capacity value calculated by TSOs for every border. For the borders between the Baltic countries and Russia/Belorussia, the capacity is regulated by the existing BRELL agreement but is likely to be partly covered by the forthcoming agreement resulting from the EU-Russia-Belarus negotiations. Furthermore, import from 3rd countries to Estonia and Lithuania is allowed only through the respective import bidding areas of the local power exchanges. The importer will get the market price of the local power exchange for all sold electricity.

RUSSIA/BELARUS: Access to the cross-border interconnectors by many participants is not limited by legislation. In the situation where financial responsibility for cross-border balancing on all the Russian borders is imposed on INTERRAO, participation of other Russian players in cross-border trade will result in difficulties in distinguishing schedules and actual physical deliveries across the border. In order to ensure Third Party Access to the cross-border interconnectors, new rules with regard to, among other things, capacity allocation mechanisms and allocation of imbalances (deviations) on the Russian border between several exporters will have to be introduced. Transit through the power system of Belarus is subject to bilateral contracts for electricity transit (there is no inter-country compensation mechanism similar to the one used in the EU). These transit contracts are signed on an annual basis, transit flows are calculated on a monthly basis and the price for transit is determined contractually.

Ensuring third party access to the cross-border interconnections means further liberalizing cross-border electricity trade in creating equal opportunities to market participants. In addition, there should be fair, transparent and non-discriminatory rules applicable to cross-border capacity allocation allowing electricity exports and imports across the border where this is economically relevant.

6. Hedging of price risks

EU: There are extensive hedging opportunities for cross border deliveries in liquid markets. The TSOs calculate cross-border capacity and sell it to the market in form of firm transmission rights. Allocation of cross-border capacity is done through explicit or implicit auctions. In Finland, there is a wide variety of power traded contracts – both physical and purely financial - aimed to hedge the price and volume risks of physical deliveries. The time gap between signing a supply contract and a hedging contract is around 1 hour. Gate closures between markets connected through implicit auctions are harmonised (12.00 CET).

RUSSIA: There are limited hedging opportunities for cross border deliveries. Exporters sign export delivery contracts while not disposing of officially published information about available cross border capacity as there is no market-based capacity allocation and congestion management mechanism on the border. The information made available to the current exporter is based only on analytics or statistics and does not imply any obligation on the SO to ensure firm transmission capacity. As a result, the exporter bears a volume risk.

There is a time gap of roughly 1 day (from 17.00 D (X-2) till 14.00 D (X-1) between signing an export contract and buying a hedging contract in the day-ahead market. In general an exporter has to submit a price accepting bid into the day-ahead market to ensure that the export delivery is executed. A price sensitive bid may be submitted only for those interconnections that fulfil a number of conditions (these conditions are expected to be fulfilled in the near future for the interconnection on the border with Finland). Under existing market regulations if (subject to an official agreement being signed between the SO and a European TSO) the European TSO takes part in the updating of the Russian market calculation model and exchanges information with the SO then the exporter on that border may submit price sensitive bids to the DAM. In case of deviations of export volumes, there will be a need for coordination with the foreign TSO.

On the Finnish-Russian border, price accepting bids limit the influence that an exporter has on the market situation and carry certain price risks. In these conditions, more reliable hedging possibilities are related to signing bilateral contracts (taking into account the price difference between nodes) or investments into generation near the border (to be used as a natural hedge), which disfavours short-term cross border trade. Market gate closure is not compatible with the one in the EU (12.00 CET).

The existing agreements between the Finnish TSO and the Russian SO do not provide for full re-evaluation of cross-border capacity after the DA gate closure in view of giving remaining capacity for trade in the intraday timeframe (or balancing timeframe in Russian terms). Re-evaluation is currently in limited use on the Russian-Finnish border. The solution is meaningful only in the case where both directions of cross border capacity for a certain hour are allocated to one party.

Development of more efficient cross-border electricity trade arrangements is possible through implicit auctioning subject to harmonized gate closure times. Developing trade through explicit auctioning does not require harmonization of gate closure times. To protect themselves against price difference, market participants should be able to rely upon financial hedging instruments. This issue is particularly relevant in the case of the Baltic and Russian markets where such instruments do not currently exist.

CONCLUSIONS

EU and Russia have embarked on a parallel process of establishing open and competitive electricity markets which has delivered good progress. This report demonstrates that the differences in wholesale market models have not had as an effect to prevent the development of trade relations across the EU and the Russian federation. However, to enhance social welfare across the regions, the use of cross-border interconnection should be better optimised in the interest of both electricity systems. To reduce current access barriers and improve the efficiency of cross-border trade, it is advisable that parties take coordinated actions in the following areas:

- **Compatibility of electricity markets:** the linkage between one-product market (energy market) and two-product market (energy plus capacity) should be further developed in order to remove the current 'dead zone';
- **Market access:** fair and mutual access to neighbouring grids and markets based on compatible technical rules should be determined;
- **Regional TSO cooperation:** exchange of precise and accurate calculation of actual electricity flows and overflows between TSOs is necessary to improve grid stability and ascertain firm capacity to the market;
- **Reconciling deviations of actual net electricity flows from planned flows:** in order to enable cross-border electricity trade there is a need to define clear rules for the calculation of deviations of actual cross-border flows from planned flows and the reasons for such deviations, as well as the procedure of settling these deviations;
- **Transparency:** market-related information has to be made available in a timely manner to the market participants.

Following the introduction of the abovementioned measures to improve the usage of existing cross-border interconnectors between the EU and Russia, it could also be advisable in the medium term to investigate the need for further development of the cross-border network infrastructure in the region with the involvement of all the relevant decision making bodies (e.g. FSK, ENTSO-E).

The report and the relevant background material are available on the EURELECTRIC website www.eurelectric.org.



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