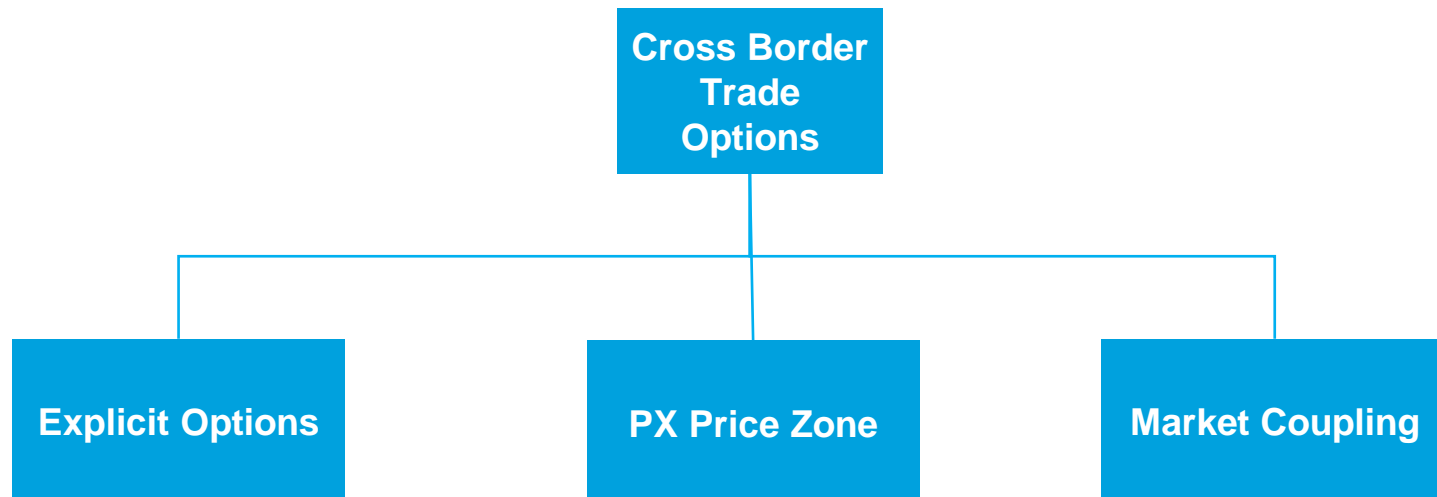


PX Price Zone Establishment Possibility at Turkey-Georgia Border



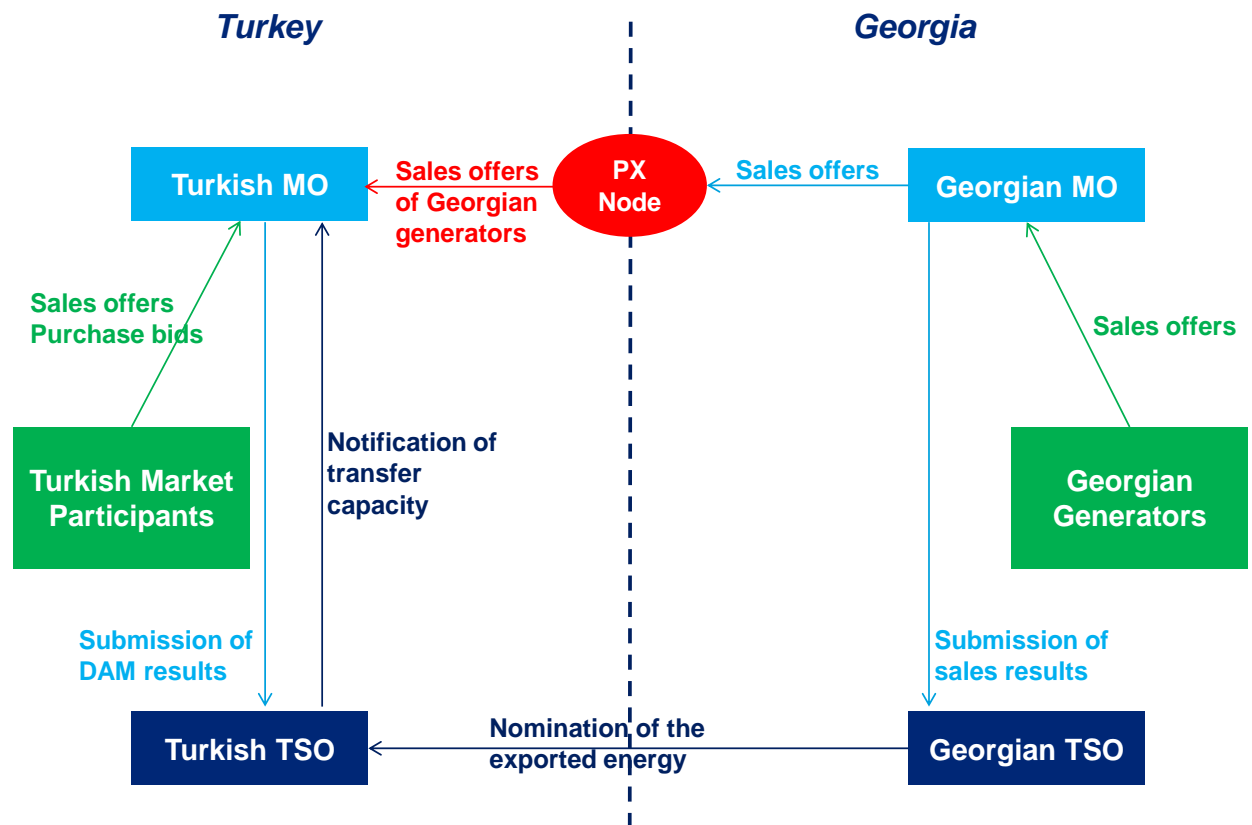
The Borçka-Akhaltsikhe line is the first back to back DC interconnection of Turkey

- According to the needs of the new interconnection line, Turkey should adopt new and more practical rules and provisions regarding capacity allocation in cross border trade through asynchronous connections that are similar to synchronous connection capacity allocation.
- These adaptations include modifications to the CBETA to remove the exporting country constraint to allow simultaneous exports and imports at any time of the month. Trade permission rules, such as allowing automatic renewal of the license without an application and not paying a license amendment fee each year for long term contracts in Turkish side, might be redesigned in order to simplify and speed-up the procedures. This would enhance trade between Turkey and Georgia so that utilization of the line is maximized.



Trading through PX Price Zone (1/4)

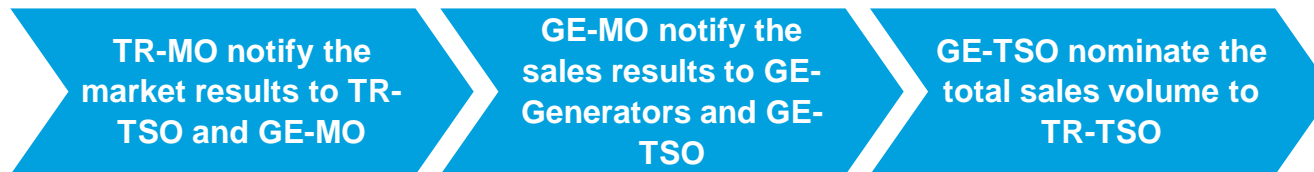
- A virtual node (like a different price zone) may be defined in order to let the Georgian HPP's sell energy to Turkish power market.
- In this mechanism, the Turkish market operator (EPIAS) can define Georgian zone as a virtual node; a single point where the sales offers are injected into Turkish price zone.
- Software infrastructure of MFSC is eligible to define Georgian PX Node as a separate price zone however the legal framework does not allow participation of foreigners into the market.
- Possible legal arrangements can be done to allow Georgians into the market; on the other hand, Turkish MO can not take the counterparty risk of the Georgian participants.
- Turkish MO should ensure financial security of the market and itself. Therefore, instead of aggregating the sales offers of Georgian generators in the PX node, MO to MO agreement might be an alternative.



Trading through PX Price Zone (2/4)



- Georgian MO will take the financial risk of all Georgian generators. Therefore a collateral mechanism has to be designed in Georgian side
- Georgian generators shall submit their offers to Georgian MO daily, on an hourly basis.
- Georgian MO should present the bidding platform to the participants or Turkish infrastructure might be used within the scope of the MO – MO Trading Agreement.
- Georgian MO shall submit aggregated sales offers of Georgian generators to Turkish MO, within the specified time intervals stated in Turkish regulations (especially Balancing and Settlement Regulation).
- All of the offers shall be submitted into the market management software of Turkey.
- Turkish MO shall operate the market software and determine the DAM results considering two different price zones.



- Turkish MO shall notify the market results to the Turkish TSO and to the Georgian MO.
- Georgian MO shall notify the sales results of Georgian generators to themselves and to the Georgian TSO.
- Georgian TSO shall nominate the total sales results to Turkish TSO
- They shall work cooperatively on enhancing the interconnection line security.

Trading through PX Price Zone (3/4)

Advantages and Disadvantages of the Mechanism

Advantages:

- This is an efficient way of utilizing the interconnection line capacity
- This mechanism can be applied without having a DAM in Georgia
- This mechanism can be applied by using MFSC (EPIAS when its starts operation) software systems within the terms of MO-MO trading agreement
- Exporters avoid the unclear decision of whether transmission capacity should be purchased first and then the energy should be sold second, or vica versa

Disadvantages:

- Establishment of an MO in Georgia is required (or determination of a responsible central body)
- Some legislative arrangements should be done in Georgia (submission principles, collateral mechanism, daily planning etc.)

Trading through PX Price Zone (4/4)

Steps that should be completed for this mechanism to become operational

Establishment of a Georgian MO (or determination of a responsible central body)

Preparation of MO-MO trading agreement that covers the details of the mechanism and responsibilities of the both parties

Definition of operational procedures for Georgian generators (submission of offers, daily planning and scheduling, collateral liabilities, payments etc.)

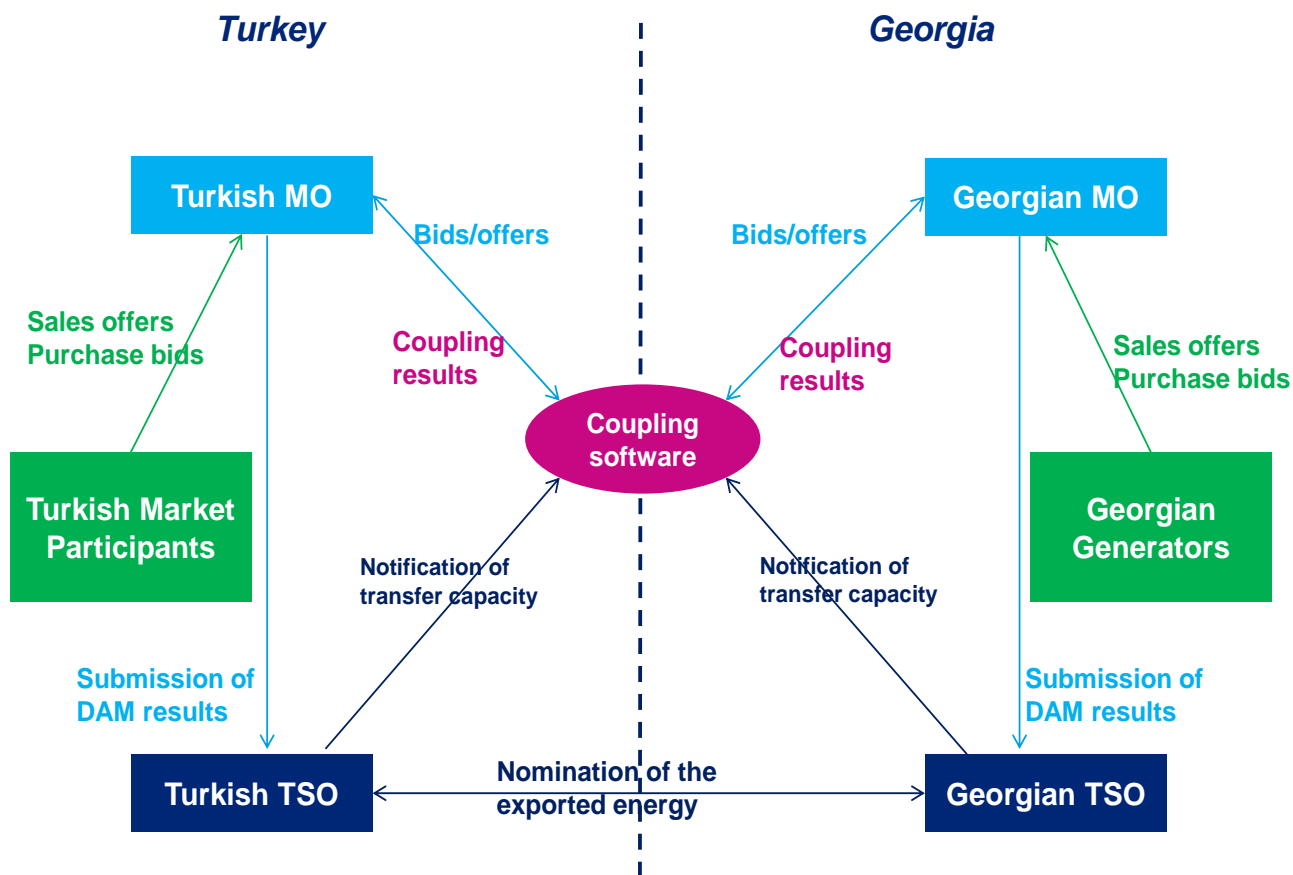
Development (or purchasing, hiring etc.) of the software that will be used for offer submission by market participants in Georgia

Enhancing the coordination between the MO and TSO in Georgia, and TSO's of both countries

Updating the necessary regulations (balancing and settlement, collaterals, daily payments etc.) corresponding to the defined operational procedures

Market Coupling and Implicit Auctions (1/2)

In the **medium term**, following the start of an operational balancing market with at least hourly settlement periods and introduction of a day-ahead market (centralized electricity spot market, where mainly “next day delivery” products in hourly resolution are traded) in Georgia, implicit auction is recommended as a possible efficient trading method in **market coupling** of two countries.



Market Coupling and Implicit Auctions (2/2)

Advantages

- Market coupling is an efficient way of utilizing the interconnection line capacity
- Market coupling does not require separate capacity allocation mechanism
- Exporters avoid the unclear decision of whether transmission capacity should be purchased first and then the energy should be sold second, or vice versa
- All participants become capable of trading and no intermediary body is required for energy trading

Disadvantages

- Establishment of an MO and operational DAM in Georgia is required
- Legislative arrangements and market procedures should be well defined in order to operate market coupling effectively

Steps that should be completed for this mechanism to become operational:

- Establishment of a Georgian MO
- Preparation of MO-MO market coupling agreement
- Definition of operational procedures for Georgian generators (DAM operations, daily planning and scheduling, collateral liabilities, payments etc.)
- Updating the necessary regulations corresponding to the defined operational procedures (balancing and settlement regulation, import-export regulation, collaterals and payments, clearing etc.)
- Development (or purchasing, hiring etc.) of the DAM and settlement software
- Development (or purchasing, hiring etc.) of the market coupling software
- Enhancing the coordination between the MO and TSO in Georgia, and TSO's of both countries

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