



# Organization of cross-border trade in EU market design

***Correct price formation as the key prerequisite for efficient use  
of the EU transmission grid***

Konrad Purchała, Director, Energy Market Development

---

Bratislava, 2 December 2016

Polskie Sieci Elektroenergetyczne S.A.



# Wholesale and real-time prices: Key tools for efficient use of the system

- Wholesale prices is the main means to coordinate the behavior of generators (consumers), affecting market efficiency and system security
  - real-time prices are in turn the key driver for pricing in all other market timeframes
  - real-time prices not reflecting true cost of energy delivery will adversely affect both technical and economic operation of the market/system
- Given the above, real-time prices they shall properly reflect:
  - the costs of energy delivery (efficiency dimension)
  - the system security conditions (security dimension)

in order to ensure

- coherency between market participants behavior
- secure and costs effective use of the grid
- full remuneration of value provided by generation capacity to the system

**Get the prices right, so that they provide correct incentives for all grid users, leading efficient use of resources (transmission assets, generation, demand flexibility) while respecting system security**

- **Correct wholesale and real-time Energy pricing is the main driver for efficient use of the grid**
  
- **However, price formation on EU electricity market is distorted**
  - Generous subsidies for RES exercise downward pressure on wholesale prices and discourage from investments in conventional generation
  - Absence of Flow-Based Allocation and consequently insufficient coordination of cross-border capacity calculation and allocation leads to inefficient use of the EU transmission grid
  - Wholesale prices in EU countries are determined based on „artificial” capacities (significant share of the cross-border trade is in fact technically infeasible), giving incorrect signals to generation dispatch (use of the primary energy) and mid-to-long-term generation investments (security of supply)
  - Lack of fair and coordinated scheme for remedial measures costs sharing leads to inefficient (unfair and with incorrect incentives) allocation of the related costs

# Necessary improvements in the EU Electricity Market Design

## ■ Flow-Based allocation as means to improve coordination of capacity calculation and allocation

- some TSOs do not offer transfer capacities if this can lead to redispatch actions, while others do that triggering congestions also at third borders,
- above happens also even in when such congestions are already forecasted regardless if necessary redispatch capabilities are available or not,
- obvious solution is to have proper coordination in the relevant region (Flow Based Allocation with well-defined bidding zones).

## ■ Regions for coordination of capacity calculation - CCRs

- CCRs shall be determined in a way to reflect physics of interconnected power system operation,
- Incorrect definition of CCR will lead to inefficiencies in system operation (the needed coordination will not be achieved).

## ■ Improved price signals to effectively steer dispatch decisions

- In interconnected power system, prices are the only means for coordinated control
- Correct prices with sufficient locational resolution are able to send right signals for all grid users to behave in line with power system needs (expressed by prices)
- Market time unit should be sufficiently short, recognizing the increasing dynamics for the intermittent RES generation and volatile demand patterns

## ■ Market should be able to reveal embedded system flexibility

- Demand response and local DER resources is a sleeping giant – smart grid as enabler
- The key is to make all incentives compatible, avoiding „free-riding” approach

## ■ Complement the energy market with security-related commodity

- Liberalized energy market is a multi-commodity market
- Capacity market is a market-based means to correctly remunerate the service rendered by stable generation for the overall security of supply

- **Cost sharing of costly remedial actions taken to relieve congestion caused by unscheduled flows is key to provide correct incentives for TSOs:**
  - some call for sharing key reflecting fully the origins of unscheduled flows (causation principle), while others would like to stick at least partially to the requester principle,
  - solving this issue opens up tremendous possibilities for regional TSC wide optimization of remedial actions and thus solving another open issue of different priorities in application of various remedial actions (under the below precondition),
- **Differentiation between cross border relevant vs non cross border relevant remedial actions (respectively congestions behind):**
  - necessary to ensure that the above causation principle is properly applied,
  - if not done possibilities to export its own congestions to other TSOs exist,
  - not necessary only when ROC (ISO) model to operate regional system is applied.



Thank you for your attention

Polskie Sieci Elektroenergetyczne S.A.