



Low Carbon Ukraine

Policy advice on low-carbon policies for Ukraine

Supported by:



Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

based on a decision of the German Bundestag

Russian-Ukrainian Electricity Trade

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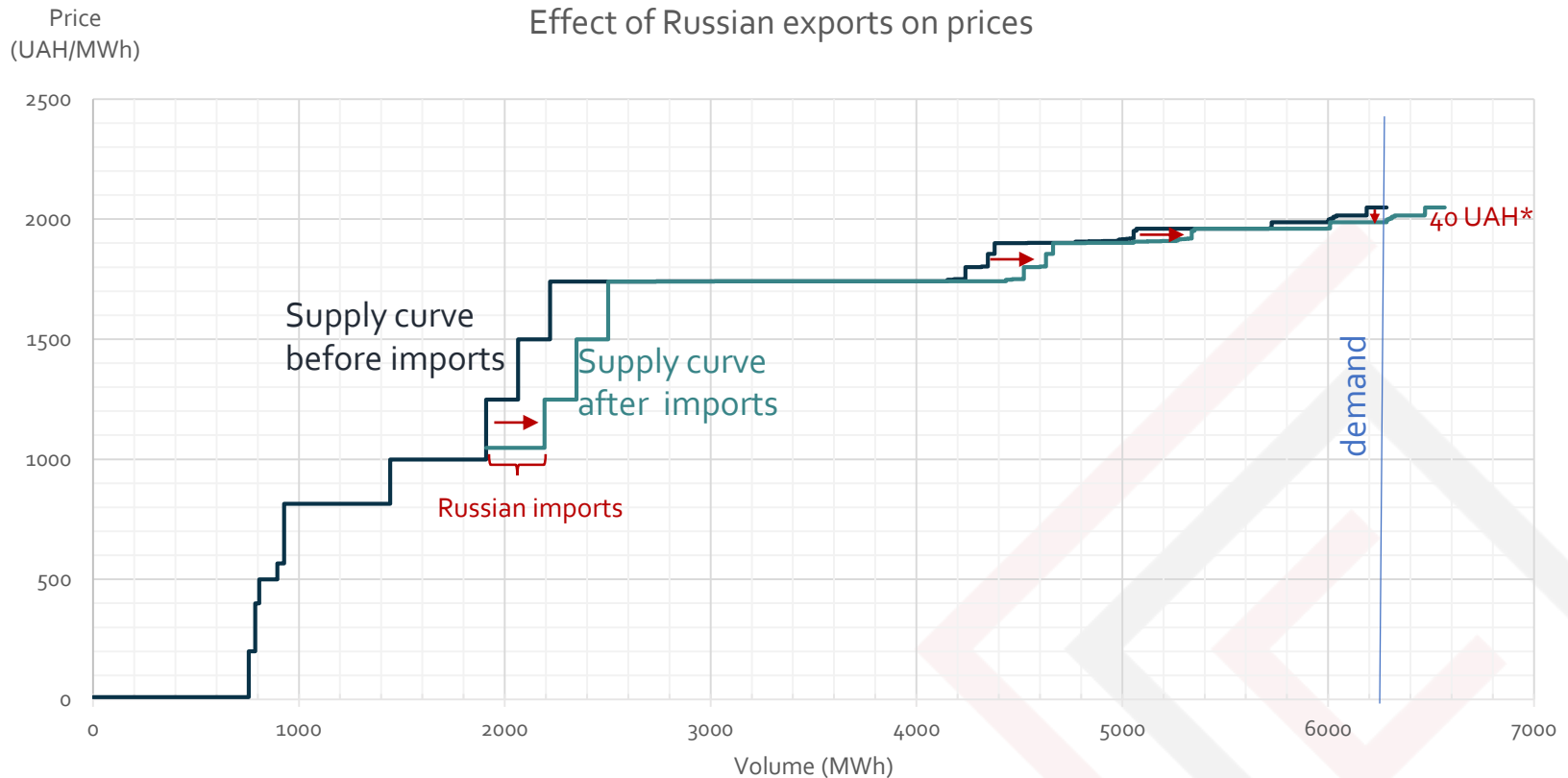
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Effects of enabling electricity imports from Russia and Belarus

- ⊕ **Lower coal consumption** in Ukraine -> allowing higher coal stocks in Ukraine and hence increasing supply security
- ⊕ **Reduced emissions**, as typically Ukrainian coal plants are replaced by gas-fired units
- ⊕ **Increased Competition** in the electricity market -> allowing electricity supply from Russia contests the market power in the highly concentrated Ukrainian market -> can lower electricity prices disproportionately
- ⊕ Possible **revenues** for the Ukrainian **state** -> introducing import quotas allows the state to participate in the excess revenues from importing “cheaper” electricity from Russia
- ⊖ Loss of **revenues** for Ukrainian **generators** -> Lower prices and volumes reduce cash-flow – which could in principle be invested.
- ⊖ Increasing dependency on Russia.

Increased supply in the electricity market reduces prices



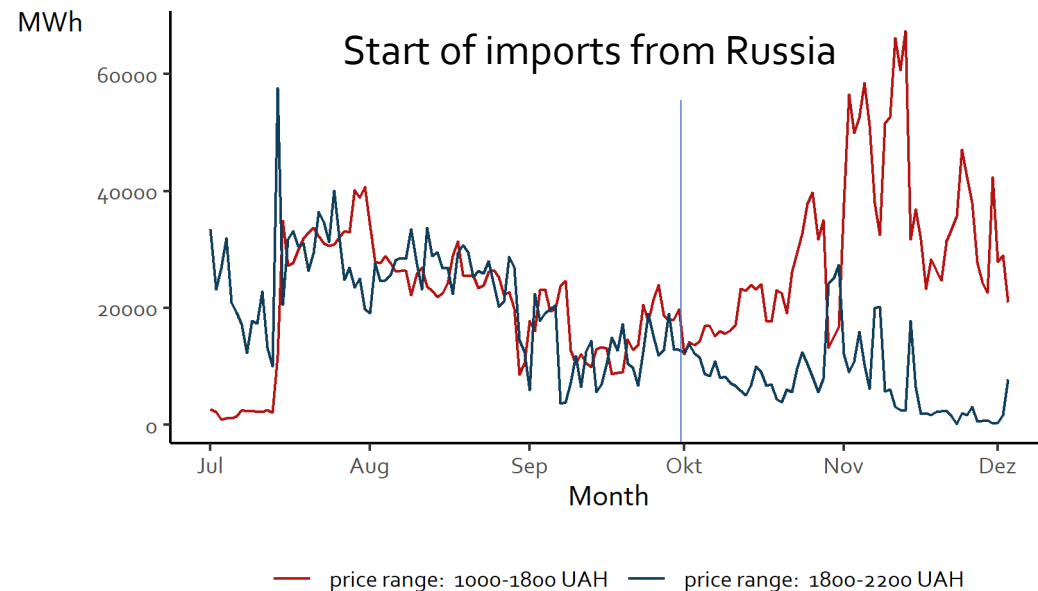
Source: own calculations, oree.com.ua, ENTSO-E

* By importing 283 MWh from Russia, the electricity price could be lowered by 40 UAH/MWh

Why does competition reduce prices?

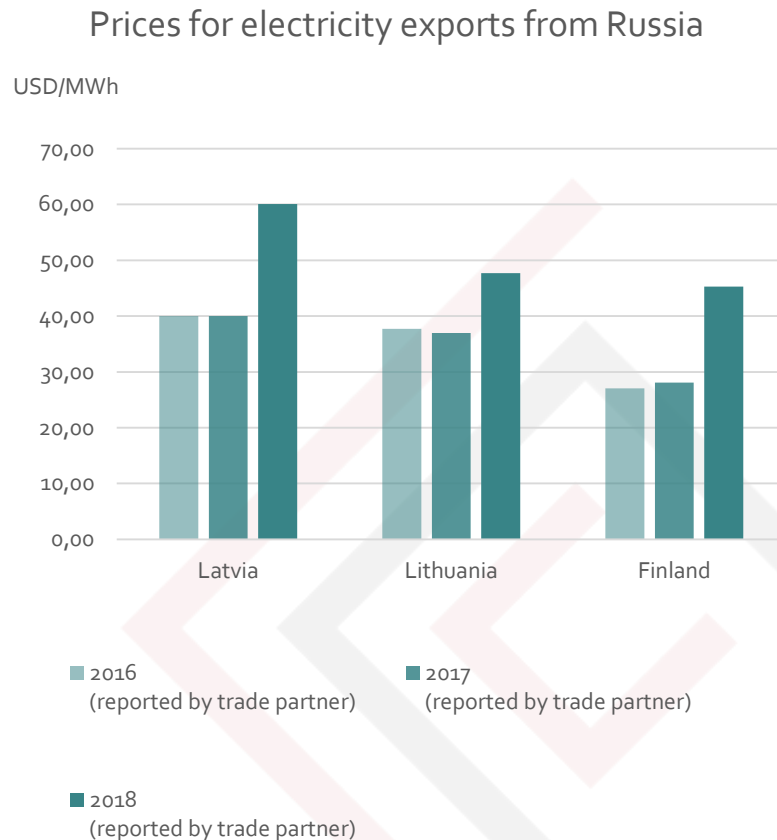
- Before imports from Russia:
 - Similar volumes of electricity are traded in medium and high price category
- After imports from Russia started:
 - Volumes diverge
 - Larger volumes are traded at medium prices
 - Less volumes are traded at high prices

Offers at the peak day-ahead market at **medium** and **high** prices



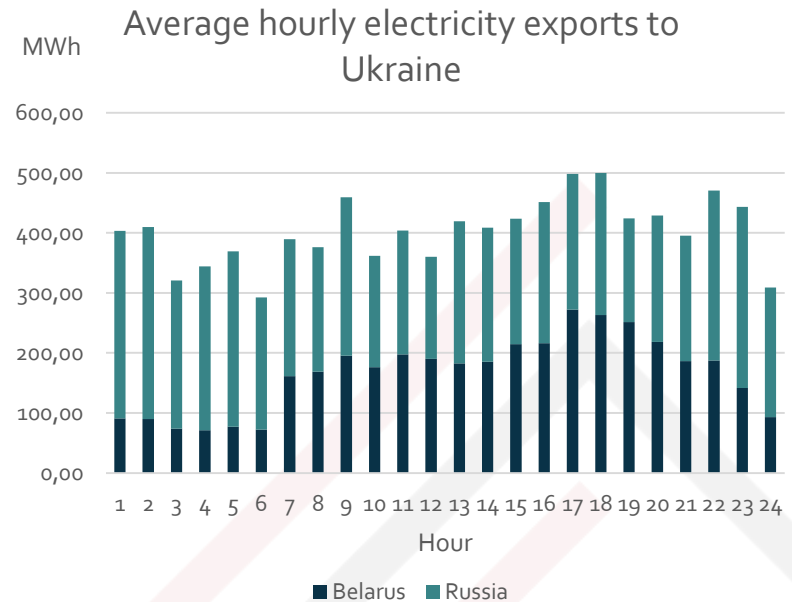
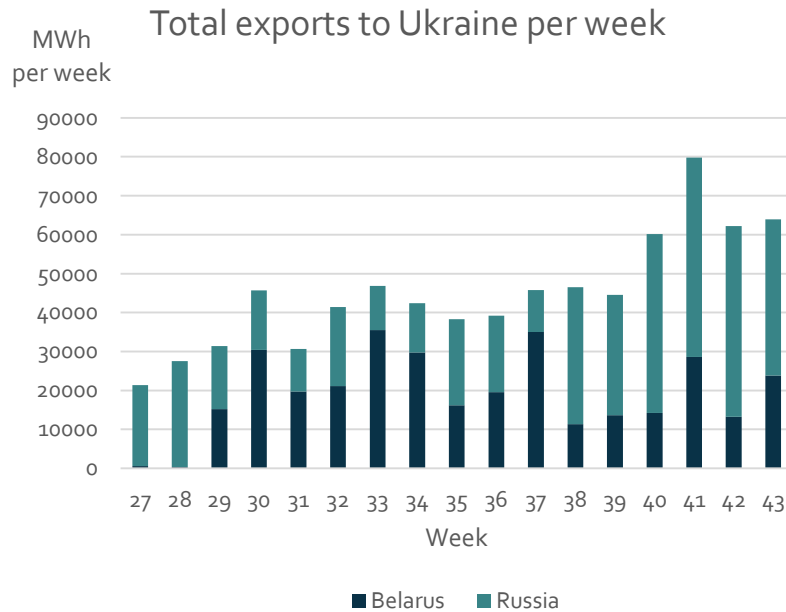
Russian export price somewhat lower than Ukrainian peak electricity price

- Average electricity wholesale prices
 - In Ukraine: 62.20 USD/MWh
 - In Russia: 19.33 USD/MWh
- Transmission costs are virtually zero (auction result of 0.0008 USD/MWh)
- But Inter RAO has an export monopoly
 - > Trade partners cannot buy at the low Russian wholesale price.
- The prices for electricity exported from Russia to other countries varied between 40 to 60 USD/MWh between 2016 and 2018
- Ukrainian market insiders say 55-56 USD/MWh is the price from Russia



Source: own calculations, UN Comtrade

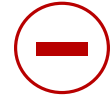
Exports to Ukraine have risen since July



Source: own calculations, ENTSO-E

- The total volume of electricity imported from Belarus and Russia has risen since July
- No clear load profile of imports (peak imports only 20% higher than off-peak imports)

Negative Effects of Russian-Ukrainian Trade



- **Reduced** revenues of domestic generators
 - This could weaken the ability of domestic producers to re-invest and modernize infrastructure which could lead to higher electricity prices in the long-run.
 - On the other hand, real competitive pressure might actually increase incentives to invest.
- Negative impact on the trade balance
 - October imports worth USD 11 mn represent only 0.8 % of Ukraine's total monthly trade balance
- Stronger **dependencies** on Russia
 - In the worst case, this could lead to black-outs, in case Russia arbitrarily decides to cut-off electricity supply.
 - It also dampens the EU's confidence of Ukraine's commitment for further integration into the European electricity system.

Maximising the benefits from electricity imports from RU

- Fix a maximum volume of imports (that can be safely replaced by existing resources when Russia chooses not to meet its supply obligation)
- Auction these volumes to interested traders
- If Russian electricity export price is 60 USD/MWh, an auction for 1000 MW of peak-capacity can bring about USD 7.2 mn per month, as traders would bid up to 80 USD/MWh [price cap] minus 60 USD/MWh = 20 USD/MWh
- Require a fixed payment (e.g. 10 USD/MWh) as otherwise InterRAO might decide to increase export price to capture the trading profit
- Make commercial conditions transparent to avoid unmonitored financial flows
- Implement “use-it-or-lose-it” to prevent “capacity hoarding”



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