

# Beyond Gas Beyond 2020: New Vision on Regional Energy Security in the 2020-2030 period

---

László Szabó, Director  
UK CEE Nuclear Summit

30.10.2018.



# Gas dominated the energy security agenda in the last decade

Main issue in the V4 region: dependency on a single source of gas

## 1. Energy security issues are well addressed

- ▶ Reverse flows, SK-HU, PL LNG, strategic storage

	BG	CZ	DE	HU	PL	RO	SI	SK
2010	0,97	-0,50	-0,17	0,53	0,64	0,05	-1,30	-0,83
2011	0,91	-0,70	-0,39	0,50	0,62	0,08	-2,88	-0,64
2012	0,98	-3,10	-0,15	0,47	0,62	0,06	-3,77	-1,34
2013	0,90	-4,84	-0,17	0,45	0,61	-0,02	-3,99	-2,82
2014	0,94	-5,80	-0,49	0,40	0,56	-0,12	-4,50	-7,29
2015	0,86	-5,88	-0,42	-0,02	0,58	-0,15	-4,60	-5,84
2016	0,86	-5,67	-0,32	-0,01	0,61	-0,14	-4,50	-6,87
2017	0,87	-4,13	-0,24	0,02	0,35	-0,01	-3,96	-5,73

- E-index to measure Russian market power

$$E_{i,t} = \frac{C_{i,t} - P_{i,t} - I_{max_{i,t}}}{C_{i,t}}$$

0 = totally independent 1 = totally dependent

## 2. Pricing is converged to German pricing

## Post-2020 period:

- ▶ Huge uncertainties, due to major infrastructure plans related supply route changes
  - NS2, Turkstream1-2 impact on prices and security
- ▶ And role of gas
  - Demand slight increase, rather stagnating energy efficiency in residential outweigh increased need of flexibility in power production
- ▶ Gas infrastructure project DELAYS
  - All beyond 2020: BRUA first phase, PL LNG extension, Baltconnector, CZ-SK extension, Krk LNG, HU-SI, ...

- Gas will remain important part of the fuel mix
- No single ABSOLUTE PRIORITY project of the V4 exists – but UNIFIED AGAINST Russian projects bypassing Ukraine

Classification	Project
Absolute priority	no such project
Regional interest	Polish LNG
Regional support	Baltic Pipe, Polish-Slovak interconnector, Croatian LNG, Stork II,
National rather than regional projects	BRUA 1st Phase and Eastring
Divisive project	BACI
Against V4 interest	Nord Stream. South Stream

Beyond gas workshop 14 Sept 2018 in Budapest: Participants by country had to agree to assign a score in teams.

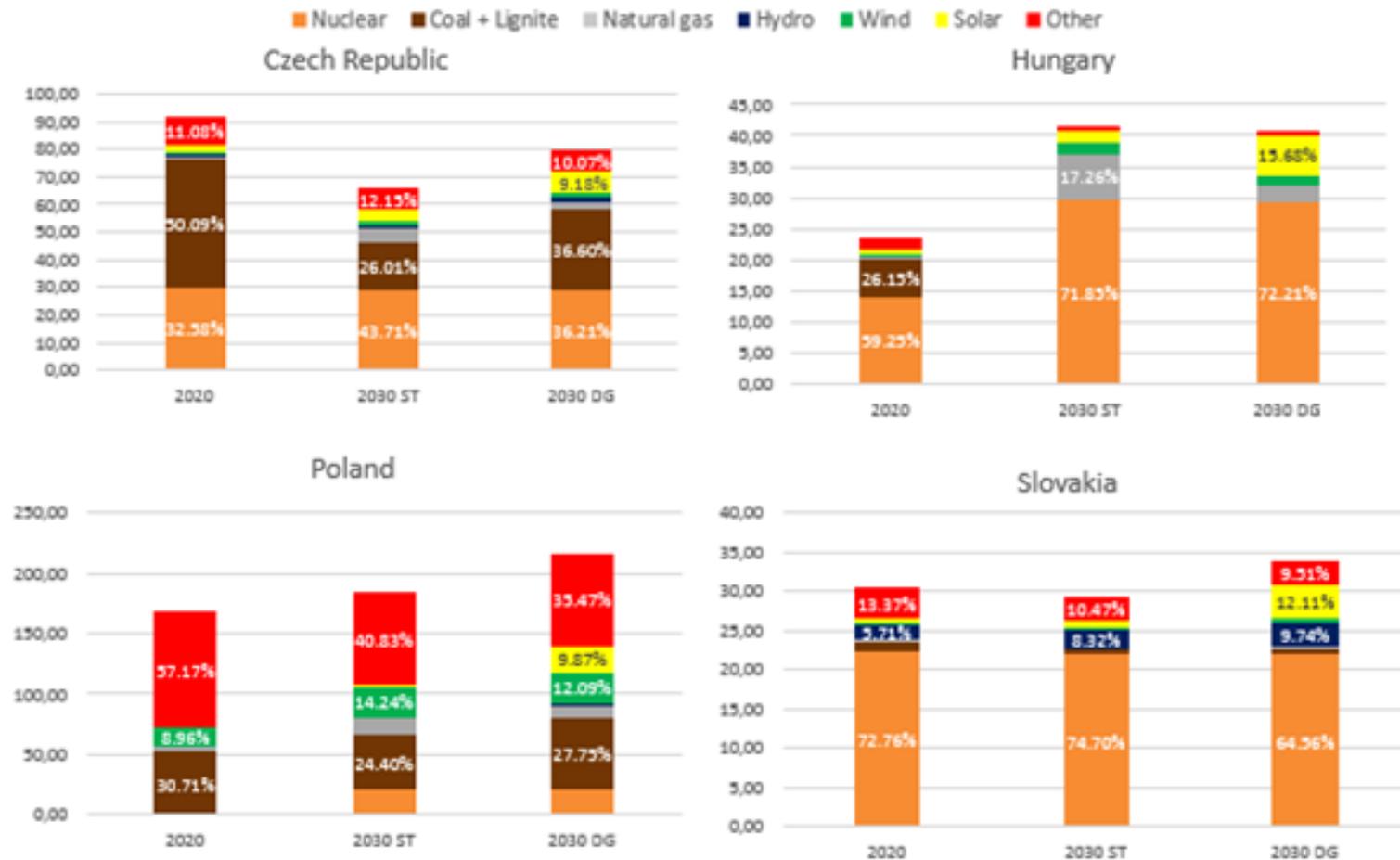
## Main challenge: **EU decarbonisation policy**

- The binding **renewable energy target** for the EU for 2030 is 32%, which means a significant transformation of the sector. Indicative targets for V4 are between 23% and 24.1% for 2030
- **Coal phase-out:** This is driven by the ETS reforms and industrial emission regulation (LCPD and the new Industrial Emission Directive)

# Generation mix forecasts for 2020 and 2030

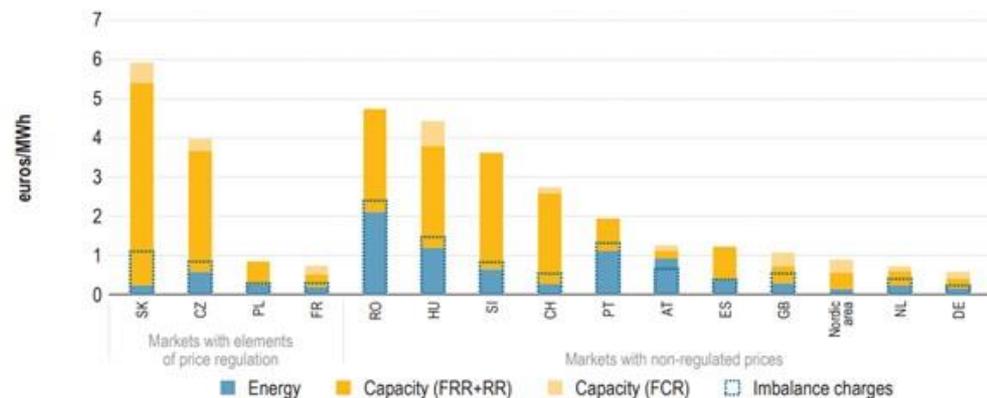
## and 2030

We use the TYNDP (2018) scenarios for 2020 and 2030 to have comparable forecasts for the future of electricity production.

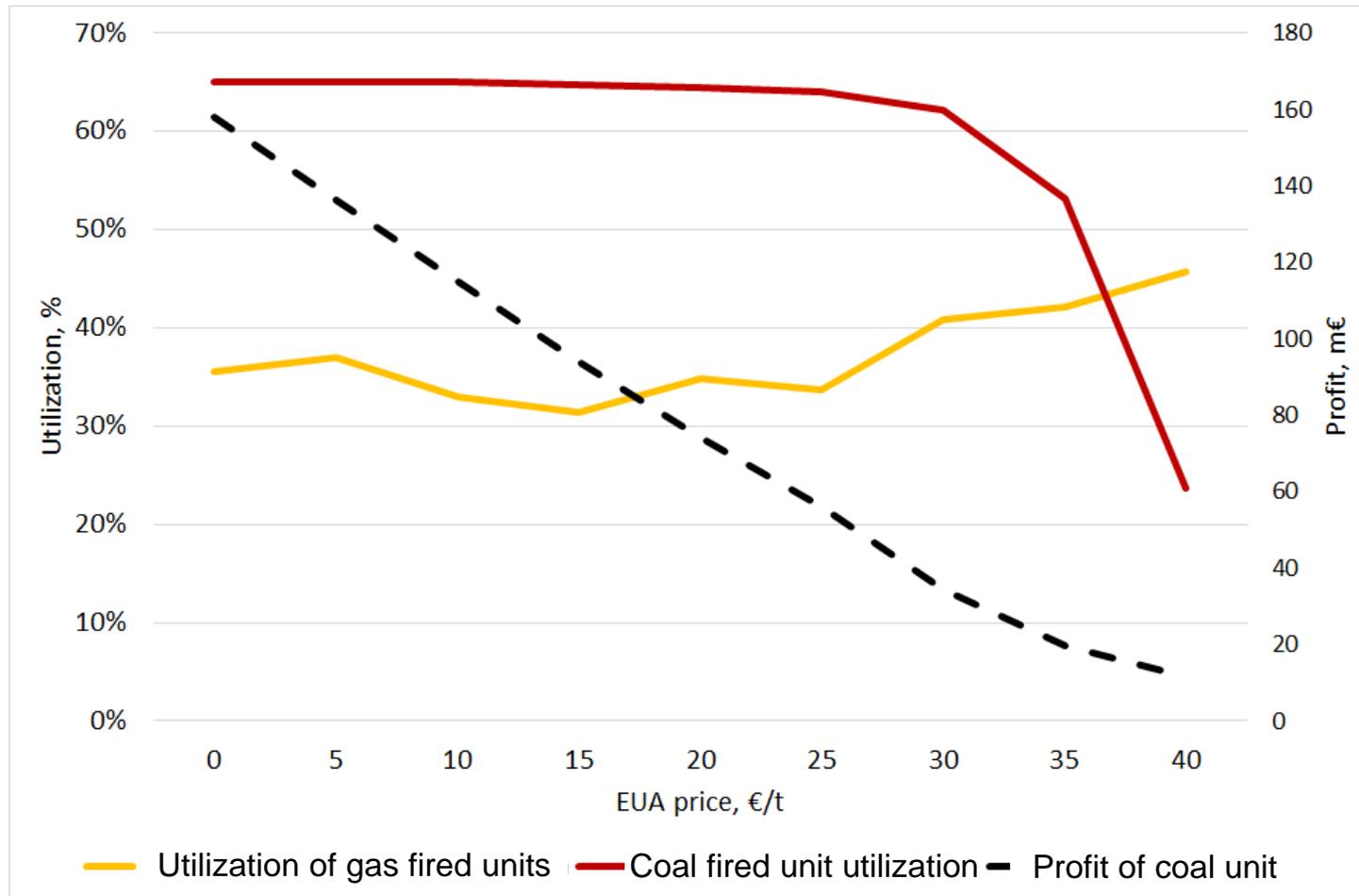


# Answers of the V4 energy policies

- The **increasing share of nuclear in the region** is the consequence of current V4 Energy Strategies.
- As the RES shares will increase in most of the V4 and European countries, it has to **coexist with the increasing capacity shares of nuclear plants**.
  - **RES requires flexible generation**
  - **Future of wholesale prices?**
- **High balancing costs:** In the V4 countries the electricity sector participants already face significant additional costs in their balancing markets.



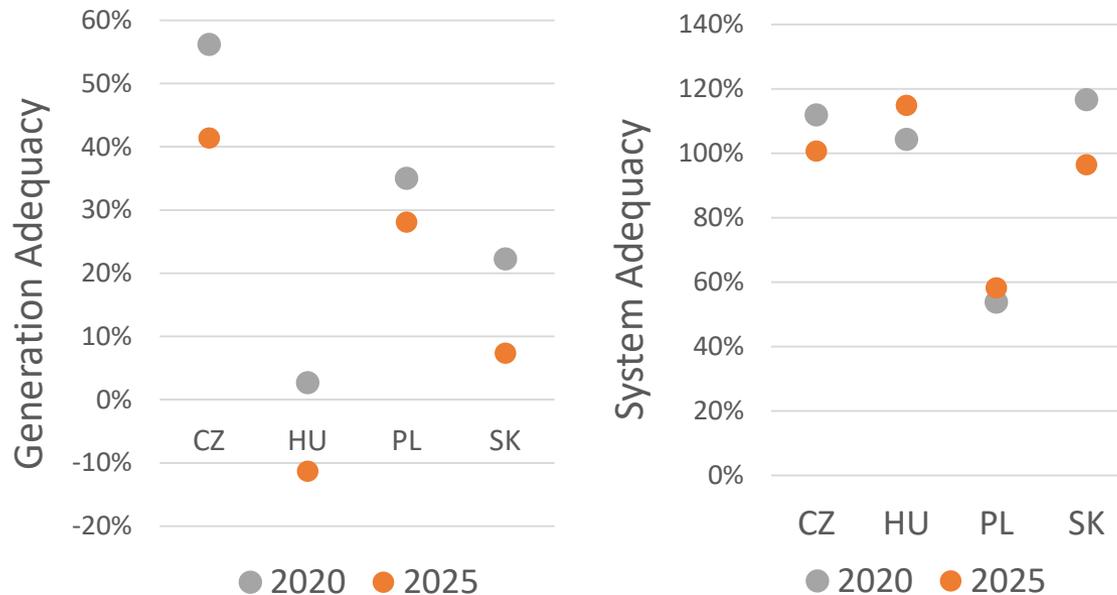
# Reaction of coal generators to high carbon prices



Profit = (Wholesale price – variable costs)\* yearly operation hours -> profit should cover the fix costs

# Generation and system adequacy in 2020 and 2025

*Generation and system adequacy of the V4 countries, 2020 & 2025*



Source: REKK calculation

- The generation adequacy values in 2020 are positive for all countries, for Hungary it's only 3%.
- In 2020 all V4 countries but Poland will have a system adequacy indicator higher than 54%.

- The answer to growing flexibility needs could be the **further integration of electricity systems:**
  - Regional integration of **balancing markets**
  - **Opening up RES-support** schemes for cross-border
  - The future of **capacity markets**: National vs. Regional vs EU wide
  - New interconnectors – e.g. SK-HU

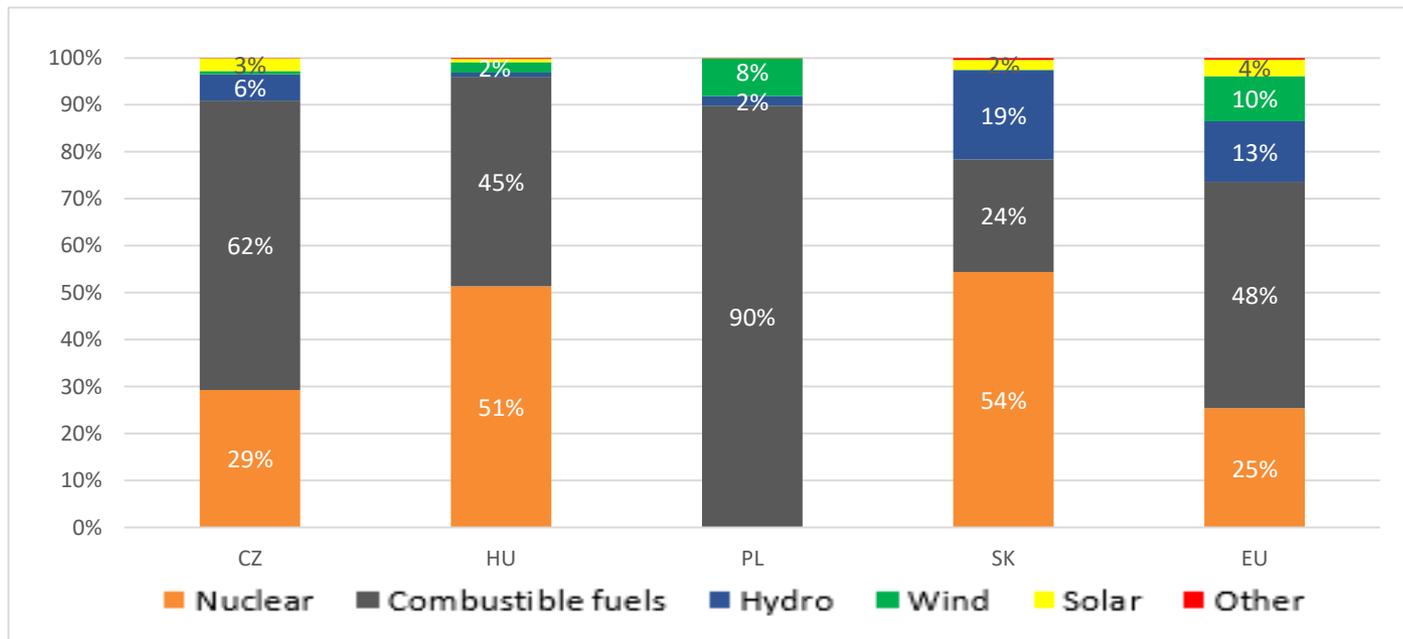
How to react to external impacts?

- The burning problems of **loop-flows, with a significant impact on the electricity markets of the CEE region.**

**Thank you for your  
attention!**

# New candidates to determine energy security between 2020 and 2030

- The level of gas consumed in the region is expected to remain stable<sup>1</sup>:
  - ▶ consumption in Poland and Czech Republic will slightly increase,
  - ▶ while in Hungary and Slovakia it will remain relatively constant
- Current electricity generation mix shows coal dominance in Poland and Czech Republic, and mixed composition with nuclear base-load in Hungary and Slovakia<sup>2</sup>



## *Gas dependency related answers*

- Poland can already access the global LNG markets via the LNG terminal. Further significant diversification projects allowing access to alternative supplies to Russian gas are the planned LNG terminal in Croatia and extension of the already existing Polish LNG regasification capacities. The **extension of LNG facilities** will ensure better connection to the global LNG market.
- While it is challenging to find gas pipelines projects which enjoys high priority support from all countries in the region, it is possible to implement **gas infrastructure related investment risk mitigation strategies** which might help to share the investment costs and expected gains among the countries. All countries except for Poland are able to supply (theoretically) the import need from alternative sources, but further gas infra investments will be on the table after 2020, too.

## *System adequacy and flexibility related answers*

- An answer to the regional system adequacy concerns which is seriously considered in all V4 countries is **the expansion of nuclear capacities**. Even Poland considers the nuclear option, in spite the fact that it has no nuclear capacity presently. Again, this option has to be viewed through the energy security perspective. The utilisation of large base load generation capacities, such as nuclear will have their questionmarks in the future in a transformed EU electricity system with high RES deployment, requiring rather flexible than base-load units.
- In addition to hard measures (e.g. building up new flexible capacities or paying capacity payments for idle fossil generators) the answer to growing flexibility needs could be the **further integration of electricity systems**.

## *Horizontal answers and answers to challenges arriving out of the region*

- Although cybersecurity is mainly dealt under national governance, sharing information and best practices would help to achieve deeper understanding of potential attack. Similarly, in case of DSO investment need, actions are not more efficient at regional level, but knowledge sharing remains useful. Overall energy security of the region could also be enhanced by energy savings and incentivising demand-side-management, so there is lower level of energy consumption to meet.
- The burning problems of **loop-flows, with a significant impact on the electricity markets of the CEE region**, increases overall volatility in the regional electricity markets, e.g. through varying available net transfer capacity (NTC) levels, and reduce trade opportunities amongst the V4 countries causing significant economic losses due to network bottlenecks in certain time periods. Although individual country solutions were applied (e.g. phase-shifters at the borders of Germany with Poland and Czech Republic), a real and sustainable solution could be the reduction of the network bottlenecks within the borders of Germany.