Beyond Gas Beyond 2020: Regional Energy Security in the 2020-2030 period

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Are V4 countries beyond gas?

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- The *Beyond Gas Beyond 2020* research project has been conducted between June 2018 and October 2018.
- The project partners:
  - REKK (Hungary)
  - SFPA (Slovakia)
  - AMO (the Czech Republic) and
  - Institute Jagiellonski (Poland)
- Research steps: Semi-structured interviews with the main stakeholders, Mid-term workshop in Budapest, Final Study

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 independent1= totally dependent

2. Pricing is converged to German pricing

We are still not „beyond gas”

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 outweight increased need of flexibility in power production
- Gas infrastructure project DELAYS
    - All beyond 2020: BRUA first phase, PL LNG extension, Balticonnector, CZ-SK extension, Krk LNG, HU-SI, …

Gas conclusions

- Gas will remain important part of the fuel mix
- No single ABSOLUTE PRIORITY project of the V4 exists – but UNIFIED AGINST 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.

Energy security challenges related to electricity

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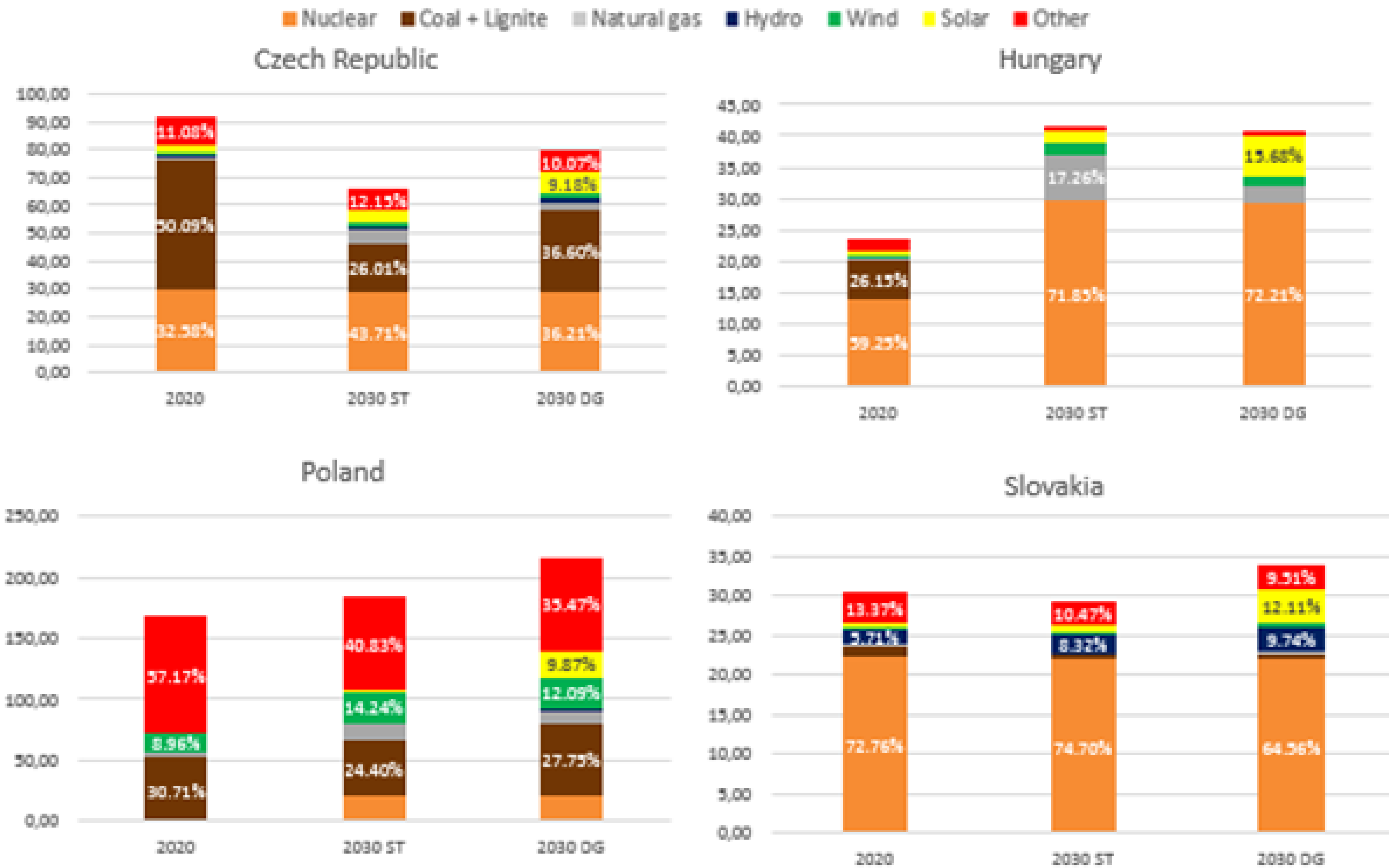
Main challenge: **EU decarbonisation policy**

- 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)

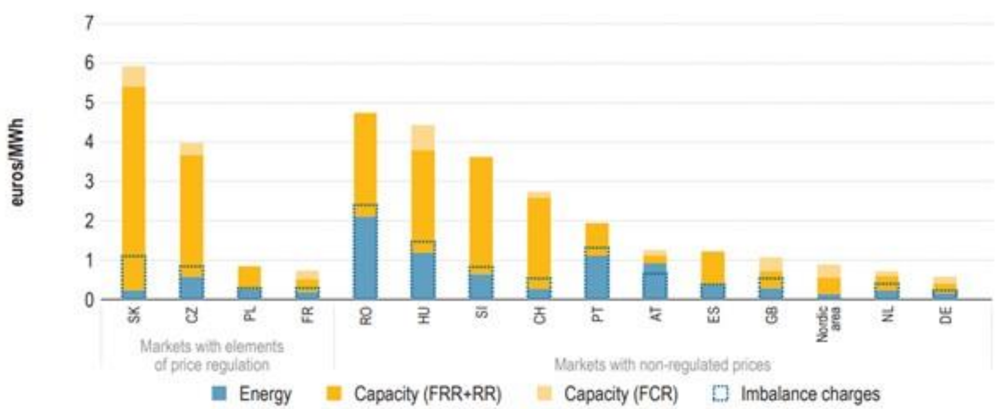
Generation mix forecasts for 2020 and 2030

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

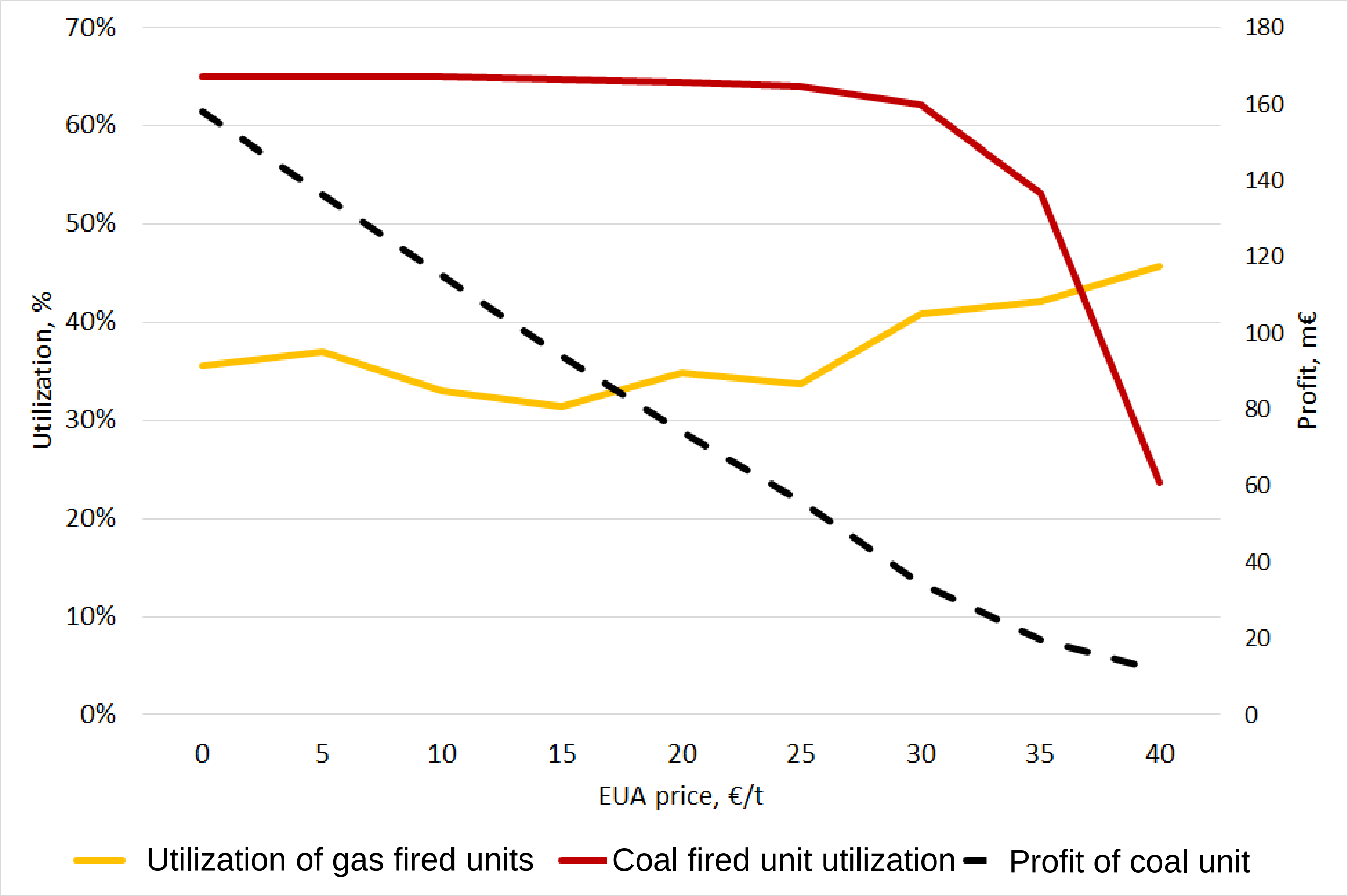


Answers of the V4 energy policies

- 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%.

Room for regional cooperation

- 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!

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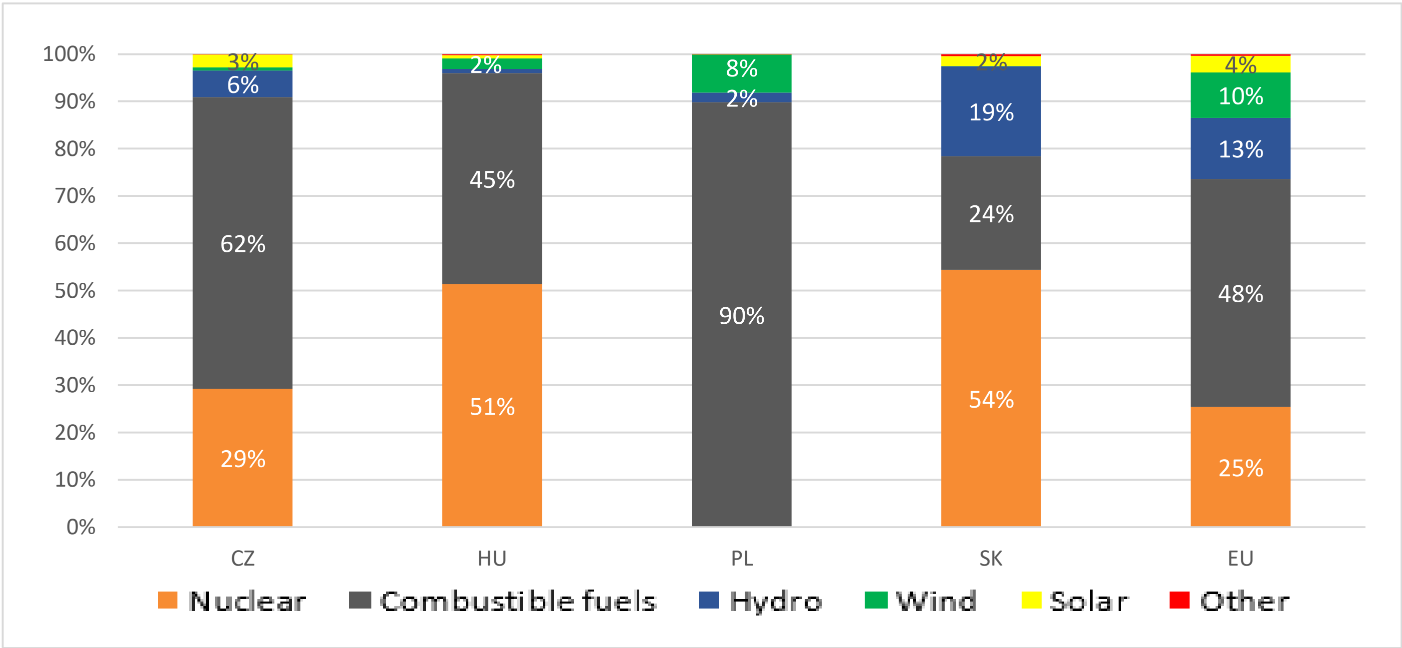
Current electricity fuel mix

- The level of gas consumed in the region is expected to remain stable[1]:
  - 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[2]



Sources: 1: ENTSO-E TYNDP, 2018, 2: Eurostat, 2016