



**GAS FLOWS IN THE V4
FIT FOR 55?**

Peter Kotek
Senior research associate
REKK

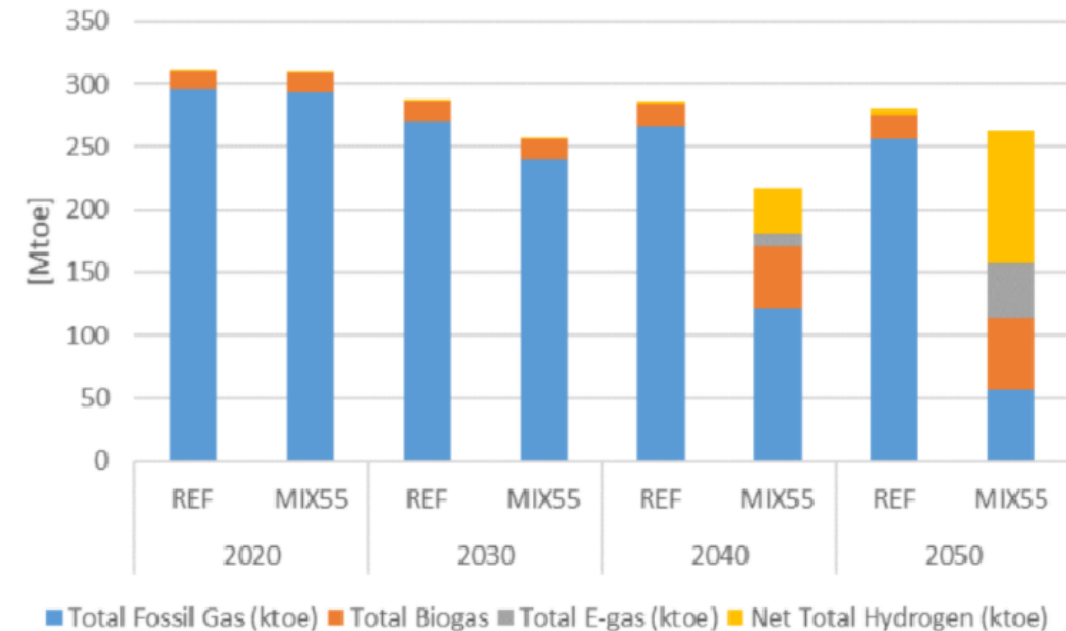
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Main drivers in 2020/2021 gas year

- Decarbonisation agenda
- Russian pipeline diversification strategy to bypass Ukraine
 - TS2 and Balkan Stream
 - NS2
- European pipeline agenda
- COVID and COVID recovery
 - Asian LNG demand
 - Recovering EU industry
- How does this affect the V4
 - TSO
 - Consumers

Decarbonisation agenda: Fit for 55 and natural gas

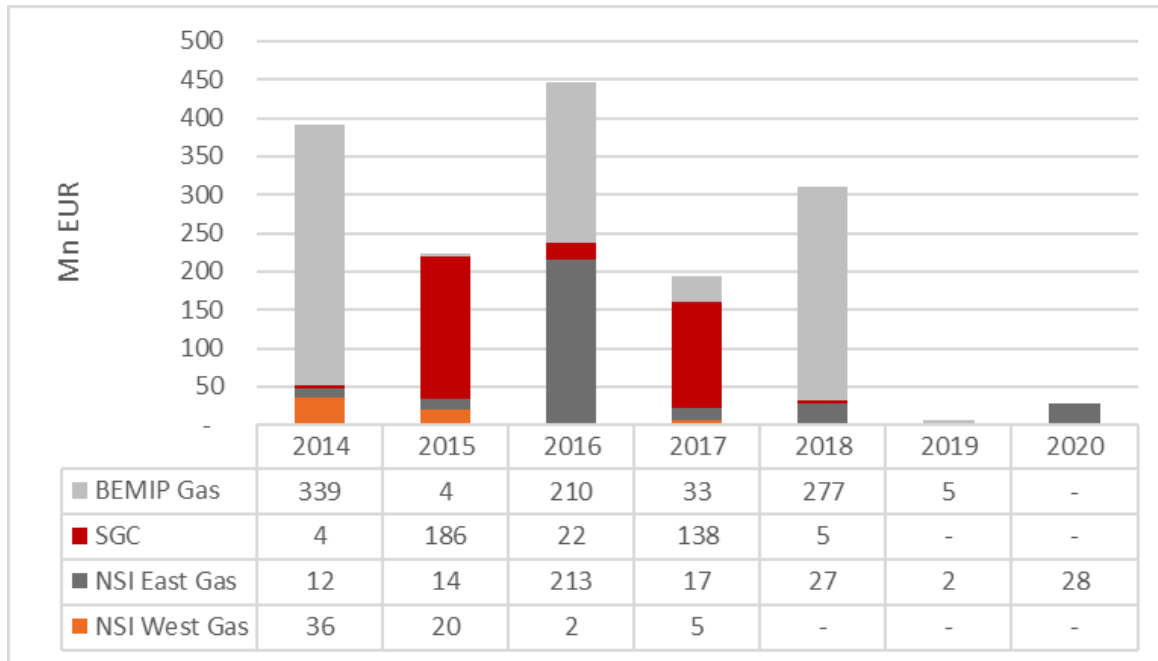
- Gas – is the security of supply problem solved?
- For the Decarbonization path is gas part of the solution or part of the problem?
- The package:
 - Does not favor building more infrastructure (gas PCIs are not financed)
 - Acknowledges that DECARBONIZED gas is needed, but envisage that natural gas is drastically decreased
 - Hydrogen is preferred – but is the gas network fit for transmitting hydrogen?



Source: Primes

European pipeline agenda: Do we have to regret PCIs?

Yearly Allocation of CEF funds to Gas infrastructure projects 2014-2020



Golden age of gas infrastructure CEF financing (diversification) lasted until 2018.

PCI name	Country	Applicant	CEF M€	Support share %	CAPEX M€	Planned commissioning
8.5. PCI Poland-Lithuania interconnection [“GIPL”]	LT, PL	GAZ-SYSTEM S.A. / AB Amber Grid	295	60%	492	2021 (under construction)
7.1.5. Gas pipeline from Bulgaria to Austria via Romania and Hungary	RO	TRANSGAZ S.A.	179	40%	448	2022 (1 stage ready in 2019)
6.2.1. Poland – Slovakia interconnection	SK, PL	eustream, a.s. / GAZ-SYSTEM S.A.	108	40%	269	2021 (under construction)
6.5.1. LNG Regasification vessel in Krk (terminal)	HR*	LNG Hrvatska d.o.o.	101	46%	220	2021 (ready)
6.5.1. LNG Regasification vessel in Krk (evacuation pipe)	HR*	Plinacro Ltd	16	50%	33	2021 (ready)
8.3.1 Reinforcement of Nybro – Poland/Denmark Interconnection	PL, DK	GAZ-SYSTEM S.A.	215	30%	716	2023

The V4 priority projects are high on EU agenda and receive substantial support: The 915 € CEF support was 42% of the total CAPEX of 2178 million € of these projects, out of that less than half has been commissioned so far.

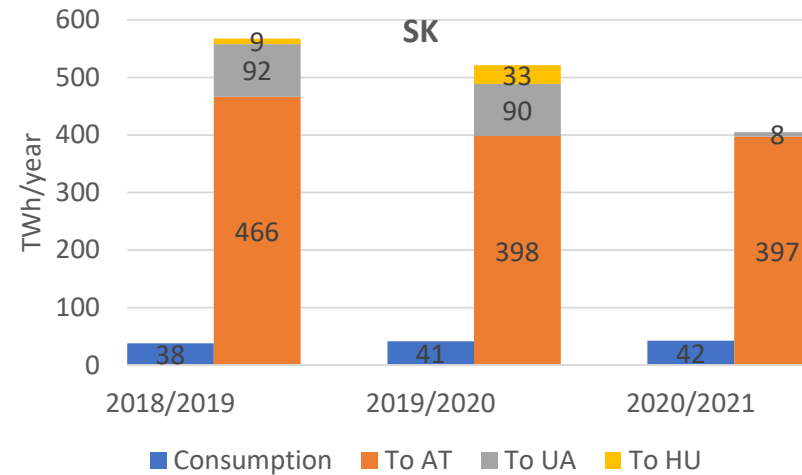
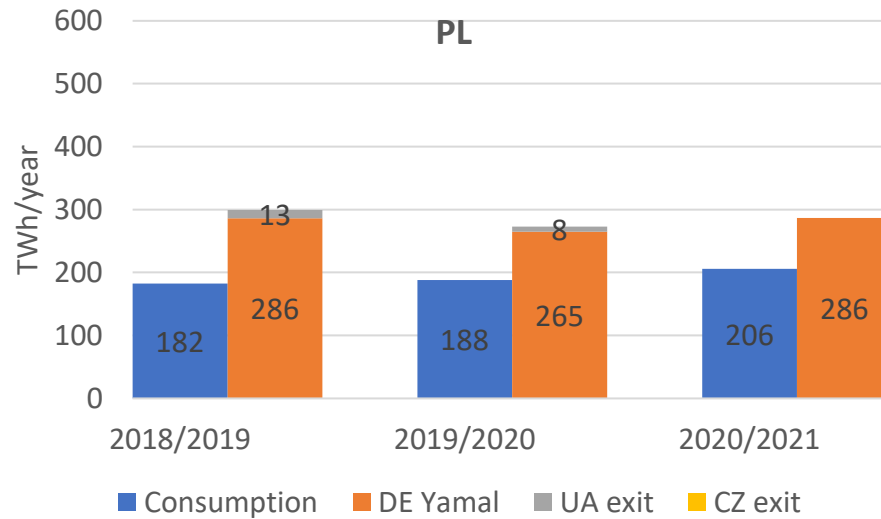
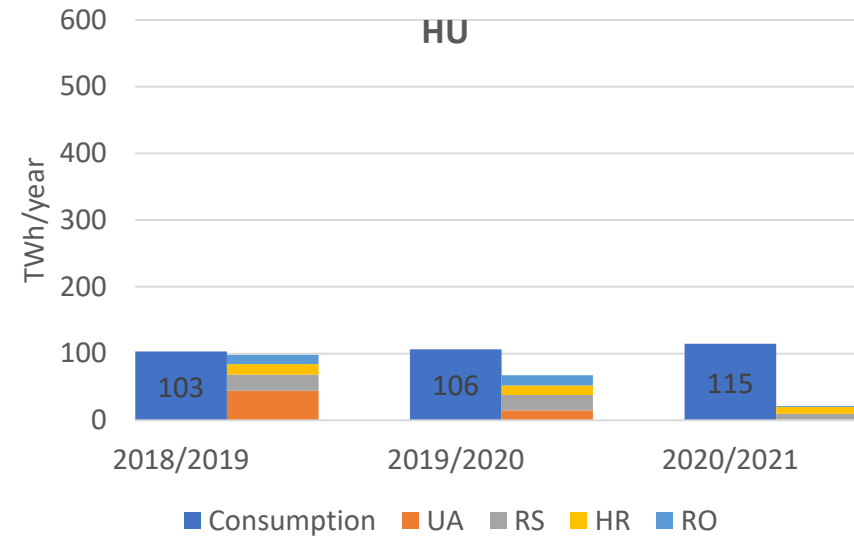
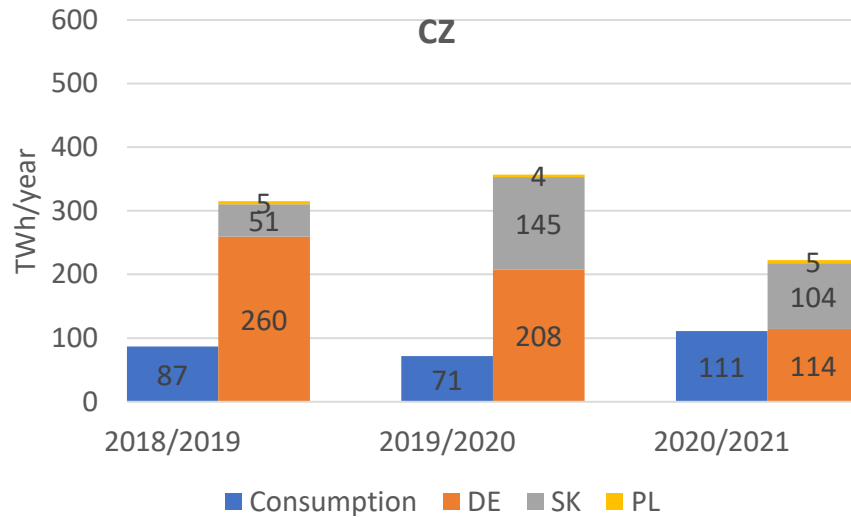
Are we building stranded assets?

- Most of the planned projects in the TYNDP are to be commissioned by 2022, later plans need to be reassessed.
- The submitted natural gas infrastructure projects of the V4 are planned to be commissioned with a total CAPEX of '4900 m€, out of which '3.8 billion in the upcoming 3,5 years (until 2025).
- Projects connecting to new sources (LNG, Baltic Pipe, Azeri gas, maybe Romanian offshore) help to diversify sourcing.
- This is inevitable when the import dependency of the EU has grown to 80% in 2020.
- With the change in (Russian) flow directions we see geopolitics high on the agenda again. No overarching agreement between Russia and the EU on the change of routes.
- Russian pressure on DE to speed up North Stream 2 licencing by reduction of RU flows via UA and Yamal

TABLE 2. COST OF TRANSMISSION, STORAGE AND LNG PROJECTS
 Source: ENTSOG TYNDP 2020 Annex A projects table

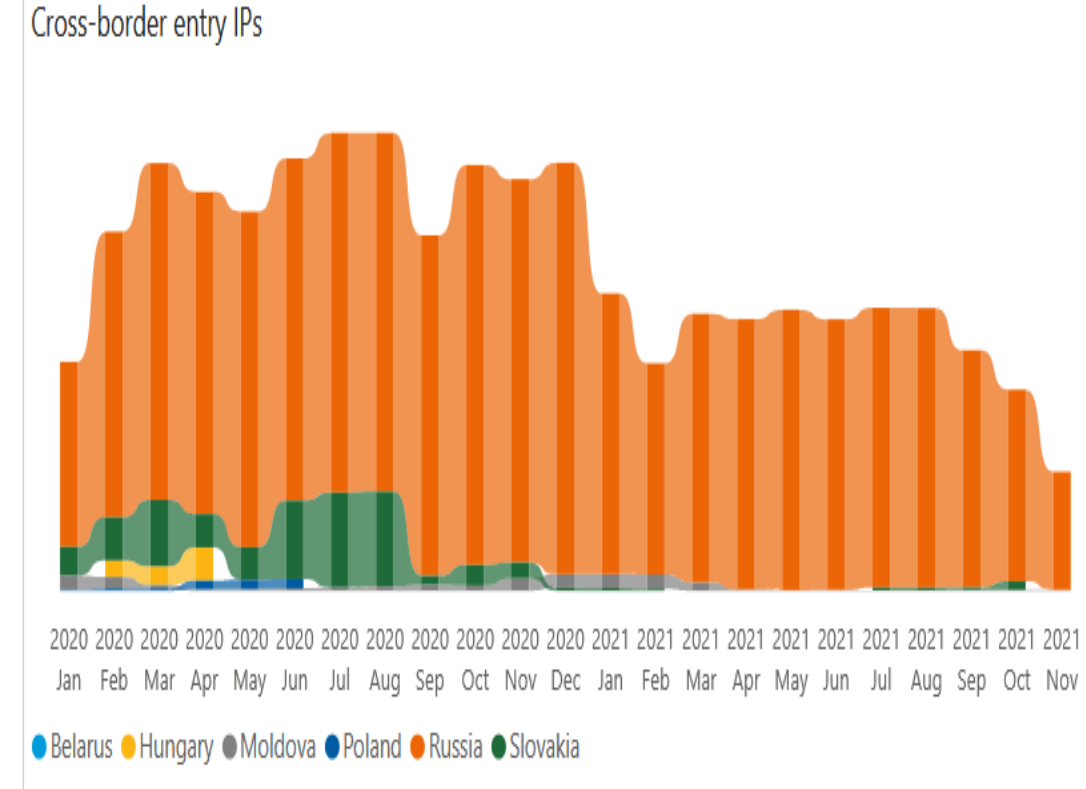
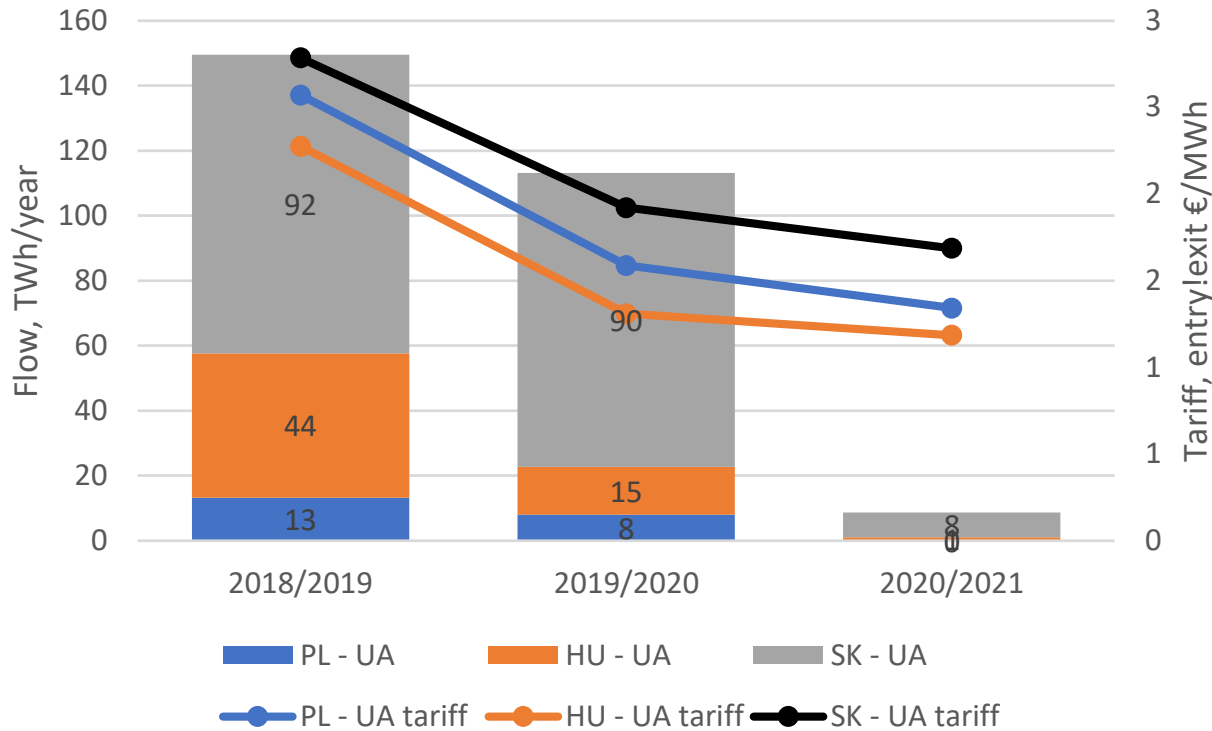
Inv. cost	All projects			FID		
	Cost (2020-2025), M€	Cost (2025-2030), M€	Total, M€	Cost (2020-2025), M€	Cost (2025-2030), M€	Total, M€
CZ	277	0	277	0	0	0
HU	828	0	828	0	0	0
PL	2284	1020	3304	1244	0	1244
SK	477	0	477	143	0	143
Total	3866	1020	4886	1387	0	1387

Russian pipeline agenda: Transit flows via Ukraine fall with an impact on V4



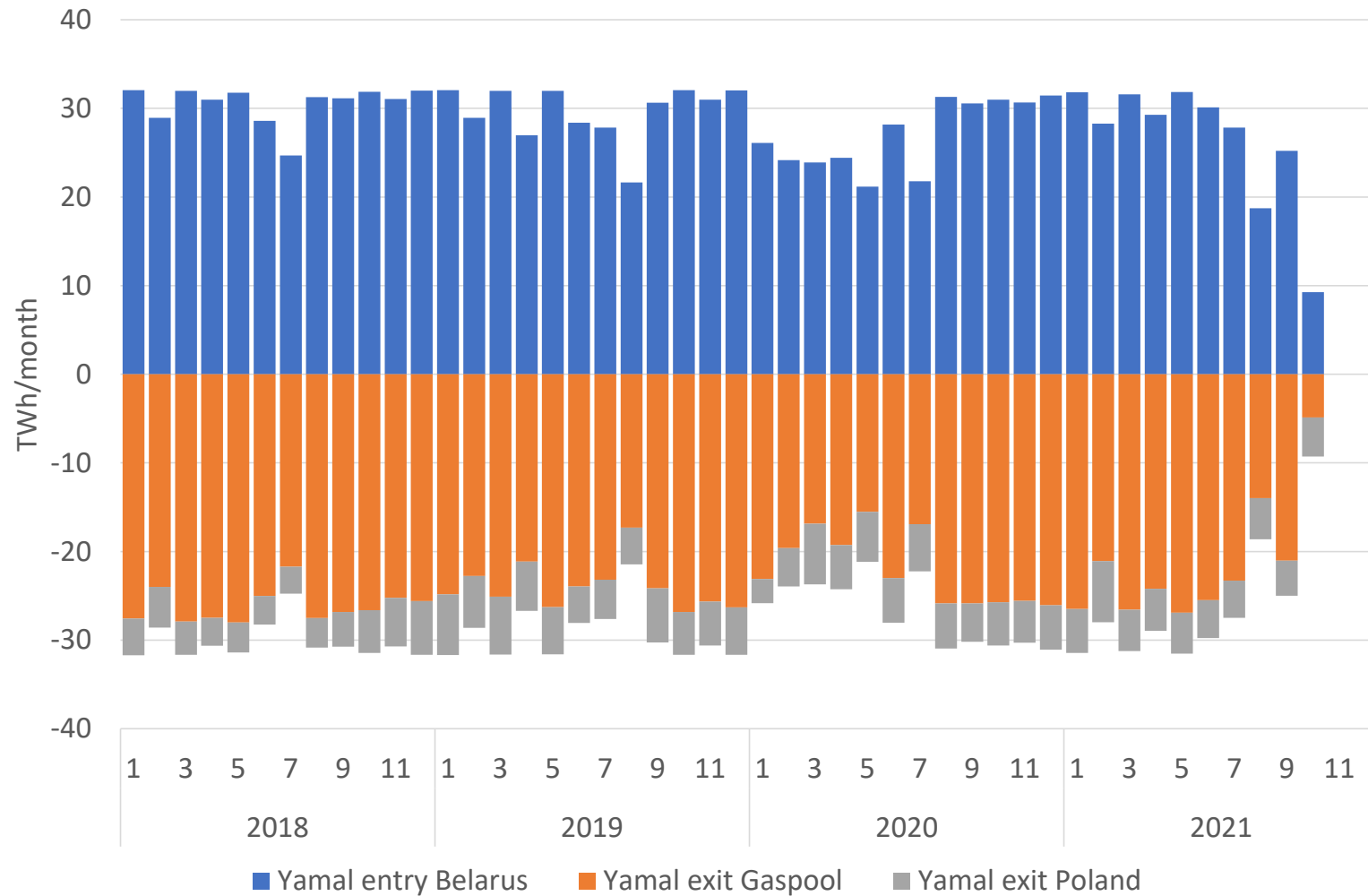
Diminishing flows: TS2 and Balkan Stream commissioning and UA bypass caused losses in transit in CZ and HU
 For 2020/2021 gas year, PL and SK flows to the west remained, BUT with NS2 commissioning in the future these will be limited

V4 lost its role in the physical supply to UA?



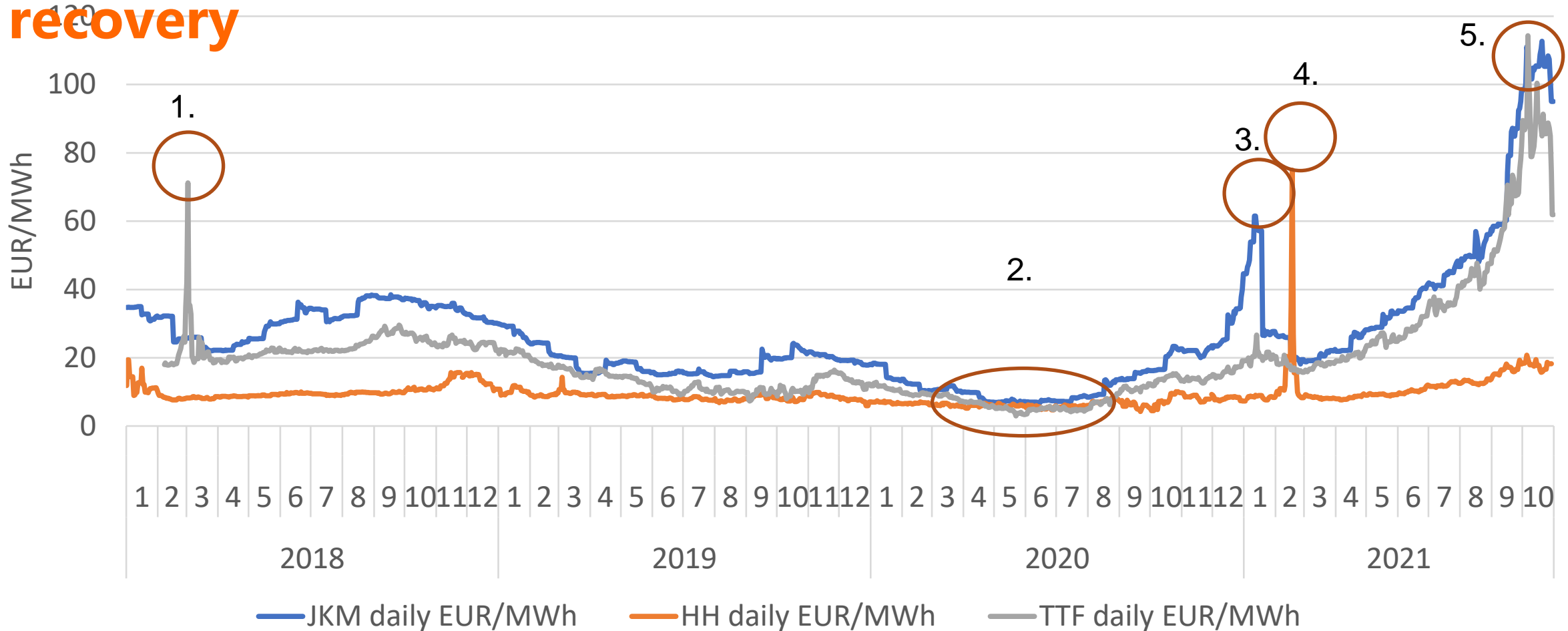
- In 2018/2019 and 2019/2020 gas years, UA market was supplied from the V4 direction (mostly SK)
- Introduction of a virtual point btwn UA and HU resulted in netting of physical flows

Yamal flows



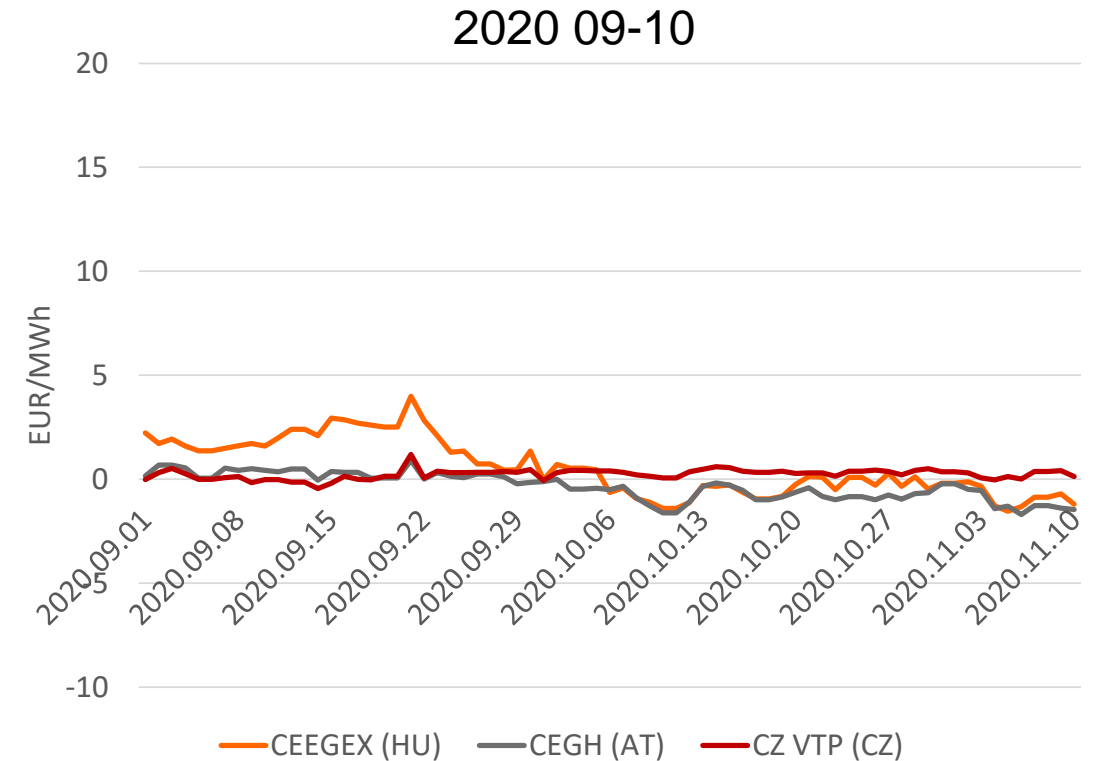
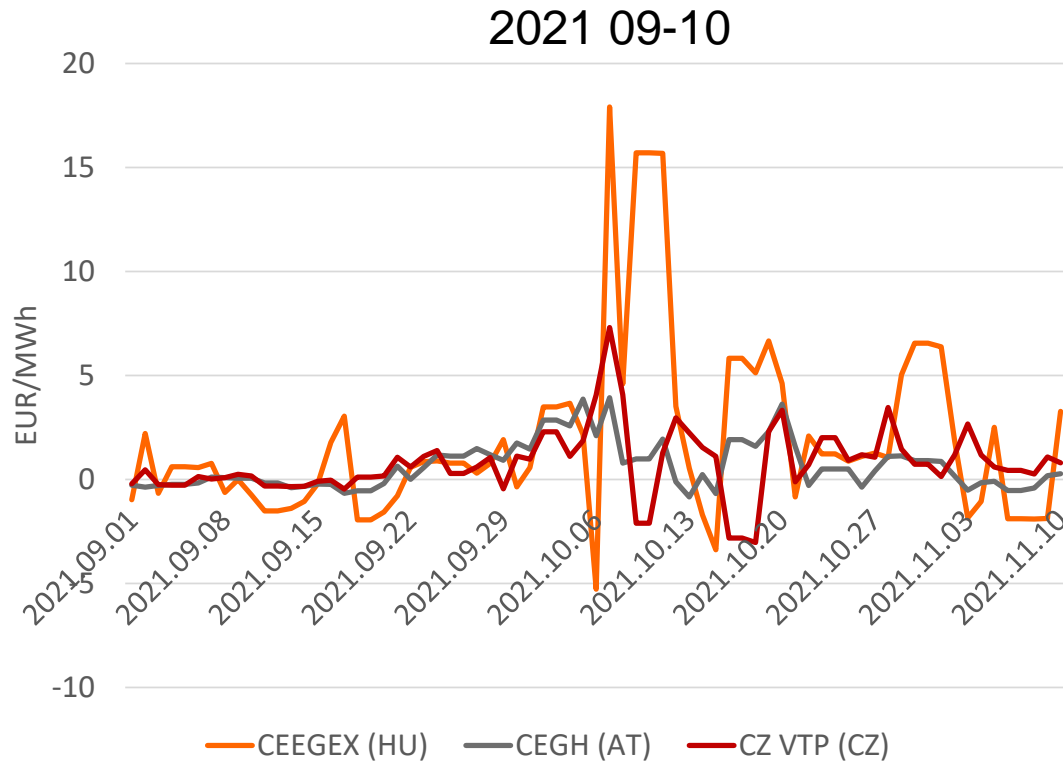
- On the long term, similar effect can be expected as via the UA transmission system (with NS2 online)
- On the short term, in the „perfect storm“ Russia can constrain EU supply and manipulate European prices by restricting flows (e.g. October-November 2021)

Perfect storm? Extreme gas price highs in post COVID recovery



1. 2018 March price hike on TTF > A European story
2. 2020 Q2 extreme low gas prices > Global phenomena due to COVID related demand drop
3. 2021 January price hike in Asia > moderate short term impact on Europe
4. 2021 February price hike on Henry Hub > A US story
5. 2021 March on steady increase of prices > Driven by Asian post Covid recovery of demand, Europe follows

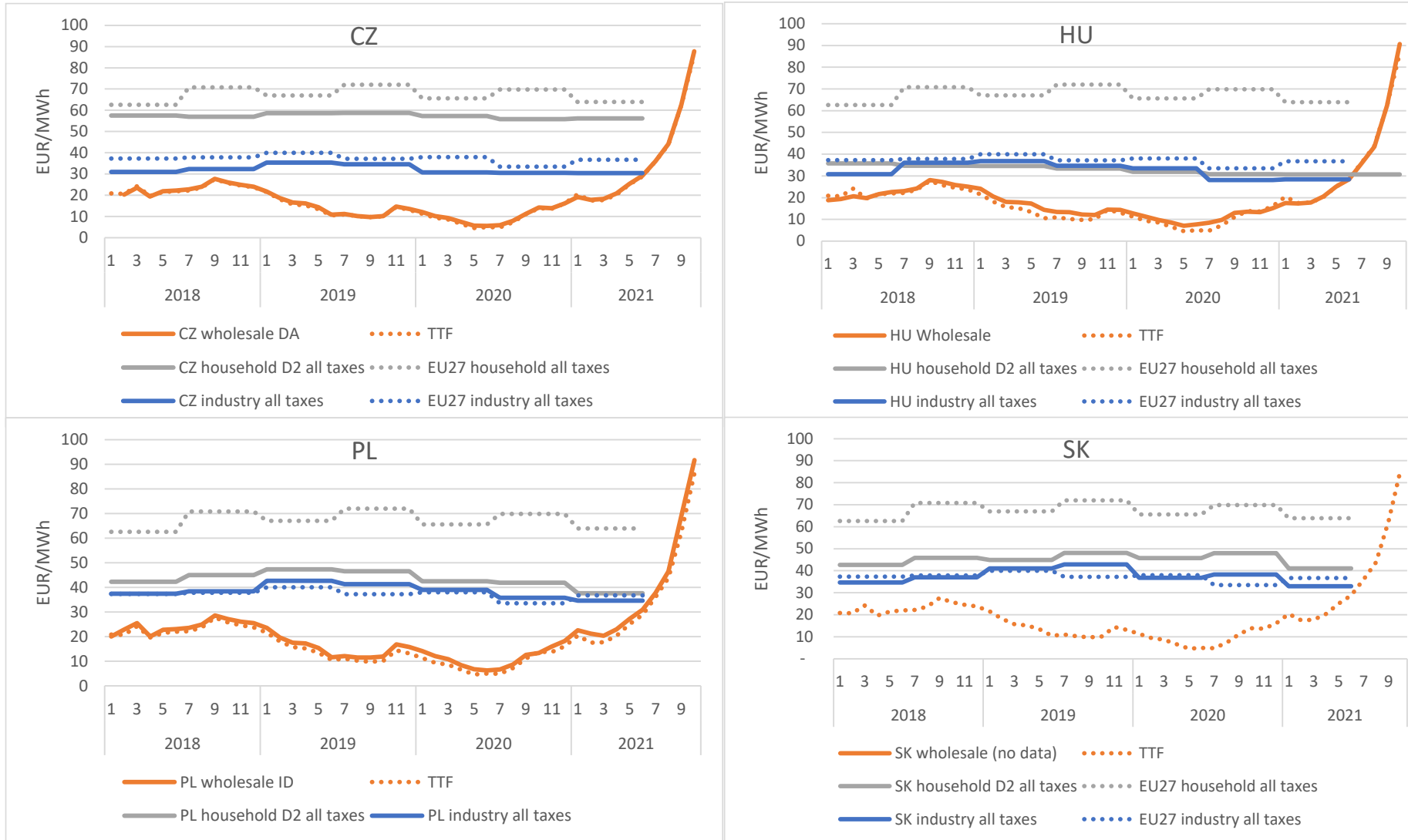
Decoupling from TTF and increasing volatility in regional exchanges?



Global market trends are visible in all European exchanges, as TTF and other platforms have high convergence

Still, in 2021 September-October regional exchanges were at a higher premium to TTF than usual

Wholesale and retail gas prices – hard winter to come?



Household sector may be sheltered in some countries if volumes have been contracted before the price hike

Industry sector may meet the effects of the high price environment earlier

On the mid term, consumers will pay the price > case for energy efficiency?

Takeaways

- In the 2020/2021 gas year, high European gas prices were mainly caused by global market developments. (COVID recovery in Asia and increased demand for decarbonisation)
- Russian constraint on deliveries to Europe further increased the European wholesale price
- V4 regional markets were paying a surplus above TTF as new flow patterns may have resulted in new congestions on the network
- Already realised infrastructure helped the diversification, trade and convergence in the region. Previously proposed European priority projects in the region should be re-assessed upon the light of new flows
- Historical transit role of the V4 will further deteriorate, transit revenues will disappear / have already disappeared
- High gas price environment helps switching away from gas and can even speed up decarbonisation

THANK YOU FOR YOUR ATTENTION

Contact: peter.kotek@rekk.hu