



RUSSIAN GAS PHASEOUT IN THE DANUBE REGION 2025

Modelling the REPowerEU Roadmap

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*CESEC High Level Group
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*Based on the study financed
by Danube Region Strategy
Energy Priority Area*

Study questions

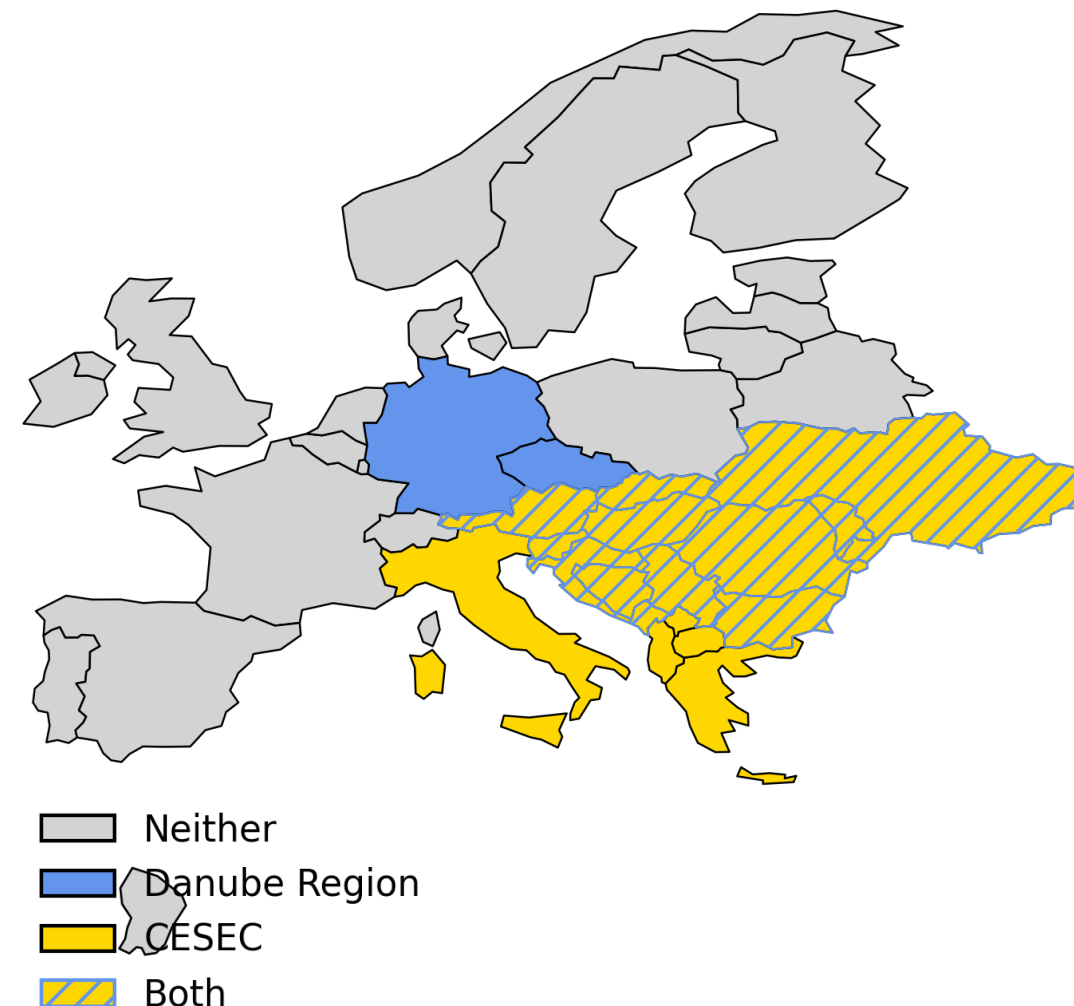
- Does the Russian pipeline ban of the RePowerEU cause security of supply issues in the 2025-2027 time period?
- How would the missing Russian volumes be replaced on the current infrastructure?
- What would be the price effect of such a policy in the Danube Region?

https://rekk.hu/downloads/projects/REKK_REPOWER_modelling_2025.pdf



CESEC and Danube Region coverage

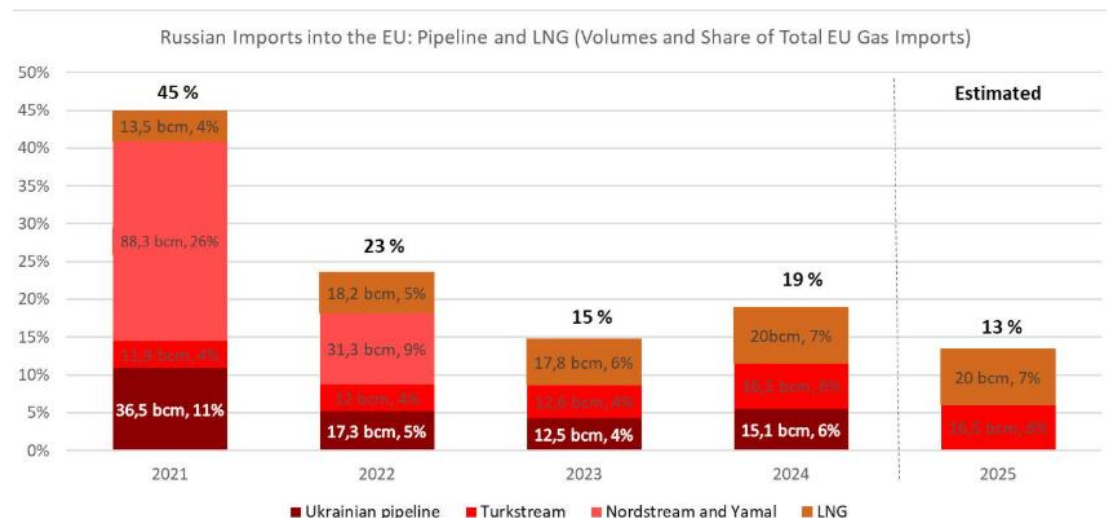
	CESEC region	Danube region
Albania	AL	
Austria	AT	AT
Bosnia and Herzegovina	BA	BA
Bulgaria	BG	BG
Croatia	HR	HR
Czech Republic		CZ
Germany		DE
Greece	GR	
Hungary	HU	HU
Italy	IT	
Kosovo	KO	
Moldova	MD	MD
Montenegro	ME	ME
North Macedonia	MK	
Romania	RO	RO
Serbia	RS	RS
Slovakia	SK	SK
Slovenia	SI	SI
Ukraine	UA	UA
TOTAL	17 countries	14 countries



Aggregate results are presented for EU27 and CESEC region. Study shows country-level results for DR.

Background – the REPowerEU Roadmap

Roadmap towards ending Russian energy imports:



In 2024, the EU still imported **52 bcm of Russian gas** (32 bcm via pipeline and 20 bcm via liquified natural gas (LNG) or around 19% of total EU gas imports

2/3 is long term contracted, 1/3 is spot trade

EU gas demand decreased by 18% between 2022 and 2025.

Commission foresees 70 bcm further demand reduction to 2027 – *our modelling assumed stagnating demand*

EU27 LNG REGAS capacity +70 bcm/yr (2022-24)

Supply will increase to 2028:

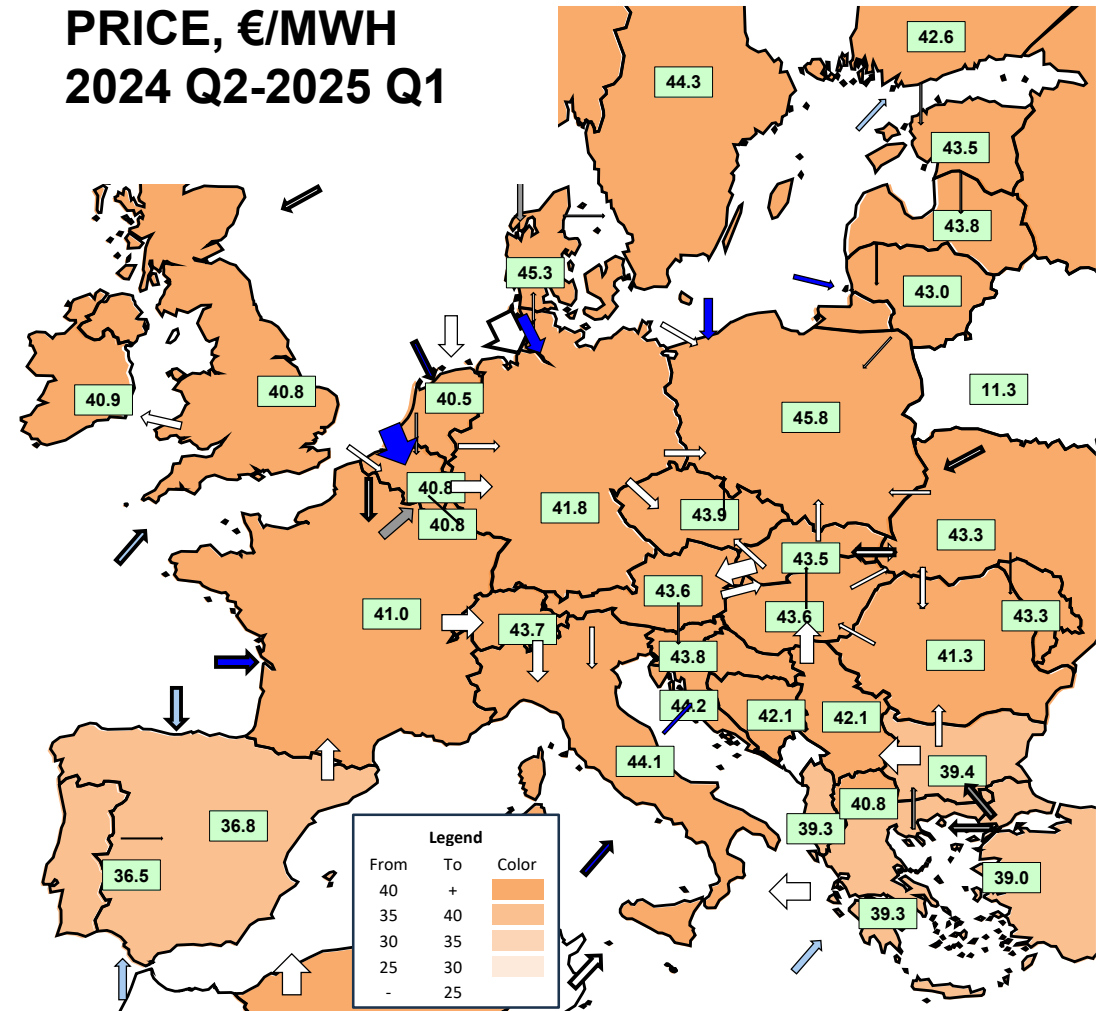
+ 8-10 bcm/ yr in CEE: Neptun Deep
+ 300 bcm/yr LNG global supply enters

METHODOLOGY AND ASSUMPTIONS

European Gas Market Model – major characteristics

- EU (26) + Energy Community CPs (7) + UK + CH + TR +BY + AM = 38 countries are modelled (CY, ME and KO* not included as no gas market is there)
- Trade is based on long term contracts and spot trade within the modelled and with exogenous countries and global LNG market (NO, RU, LNG)
- LNG market representation is linked to Asian LNG prices (indicated by JKM marker)
- Physical constraints are interconnection capacities (transmission tariffs are also included)
- Trade constraints: TOP obligations with flexibility
- Domestic production and storage facilities are included
- Main output:
 - Competitive prices by countries; price modelled for each 12 months (in boxes)
 - Natural gas flows and congestions on interconnectors (arrows)

WHOLESALE GAS PRICE, €/MWH 2024 Q2-2025 Q1



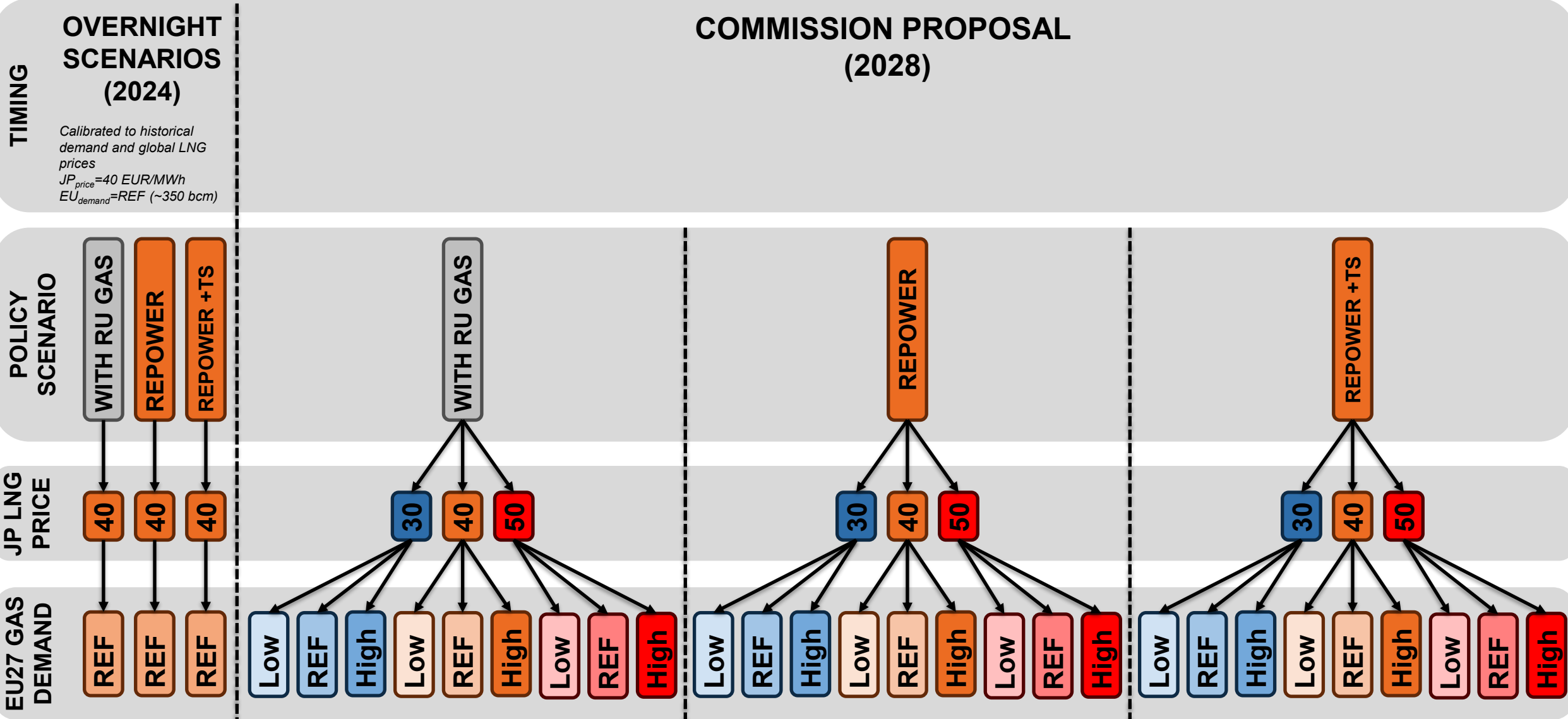
Detailed description of EGMM:

[Péter Kotek, Adrienn Selei, Borbála Takácsné Tóth, Balázs Felsmann \(2023\): What can the EU do to address the high natural gas prices?, Energy Policy, Volume 173:113312, ISSN 0301-4215, Annex 3](#)

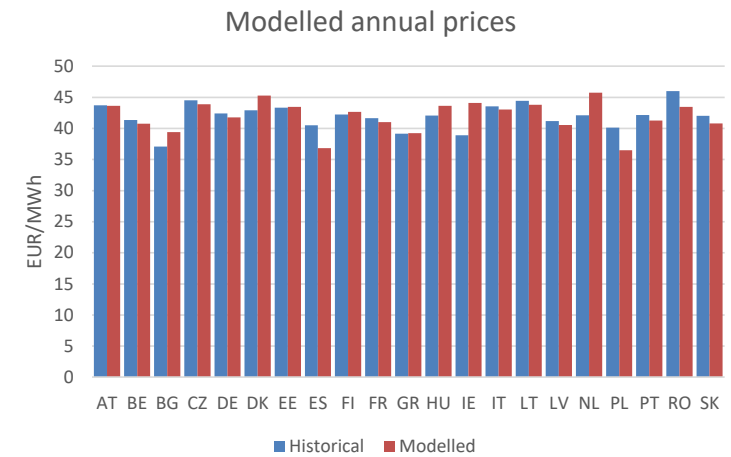
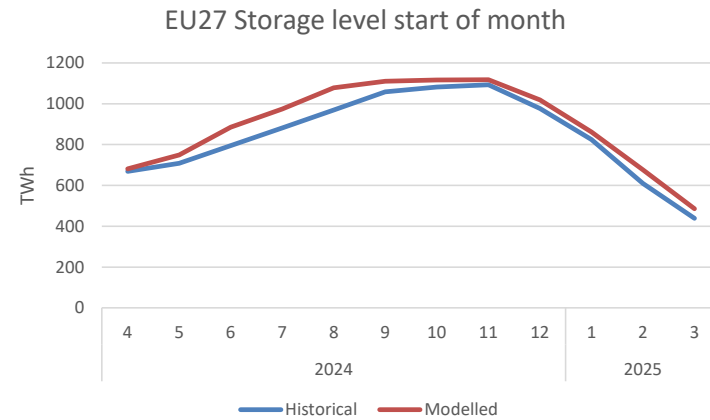
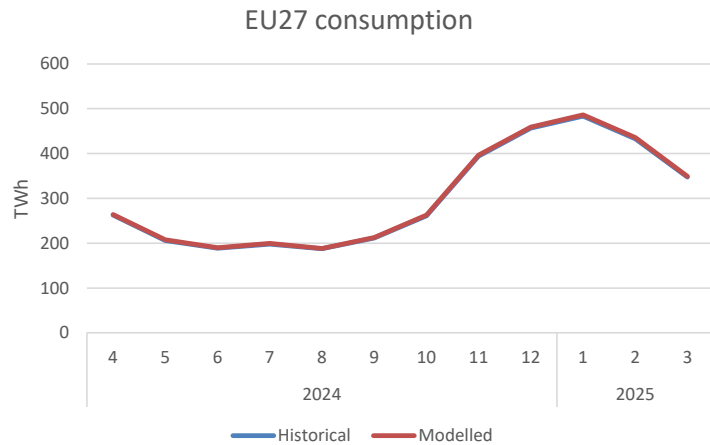
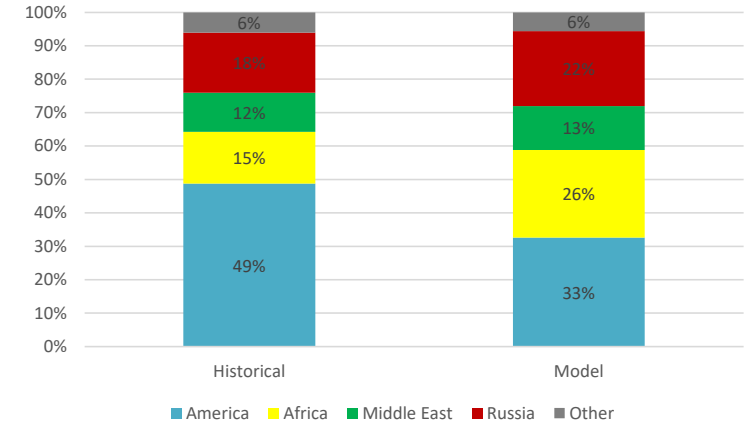
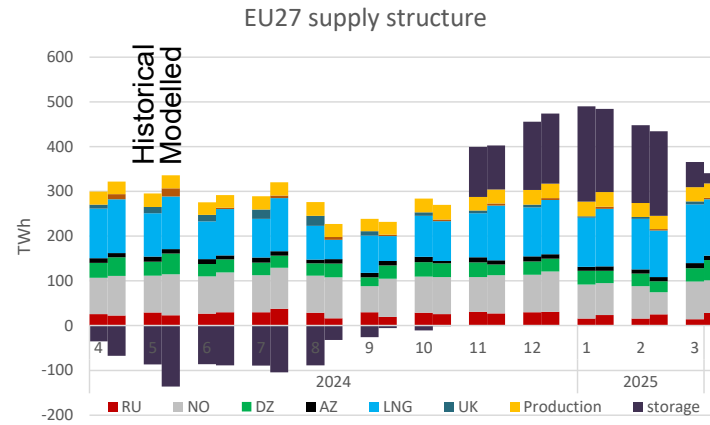
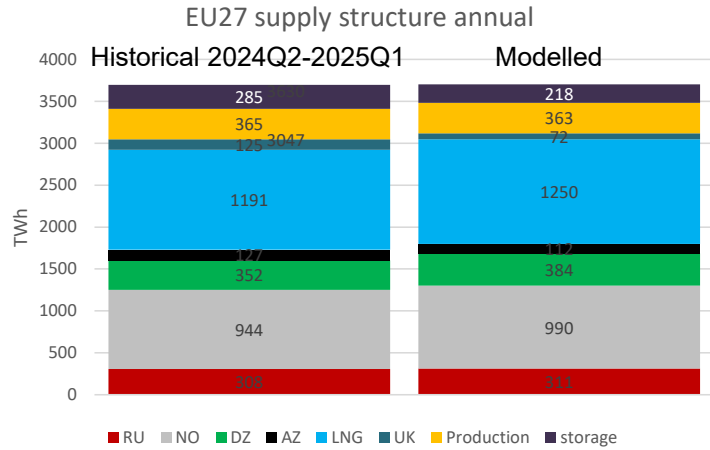
Assumptions and inputs

Input data	Unit	Source of data	Further assumptions	
1. Demand	TWh/year	Eurostat, Jodigas, National trends (ENTSOG TYNPD 2024)	Stagnating demand for non-EU countries	
2. Production	TWh/year, max GWh/day		RO offshore production comes online from 2027	
3. Pipeline capacity	GWh/day	ENTSOG capacity map, TYNDP 2024	Storage obligation in EU27 applies	
4. Storage capacity	GWh/day , TWh/year			Additional +580 TWh/yr LNG regas capacity in EU27 to 2028
5. LNG capacity (regasification)	GWh/day			Additional + 300 bcm/yr global LNG liquefaction capacity to 2028
6. LNG capacity (liquefaction)	GWh/day	Global Energy Monitor Global Gas Infrastructure Tracker 2024	Does not change between modelling years	
7. LNG transport cost	EUR/MWh	Distance-based calculation (day rate, canal fee, fuel cost)	Does not change between modelling years	
8. Tariffs (LNG regas, storage, pipeline entry and exit)	€/MWh	REKK calculation based on TSO published tariffs as of 2024	Does not change between modelling years	
9. LTC (ACQ, price, route, expiry)	TWh/year, flexibility, €/MWh	Eurostat, Gazprom, company annual reports, OIES, country statistics, REKK data collection	-	

Modelled scenarios



Calibrating the model for 2024-2025



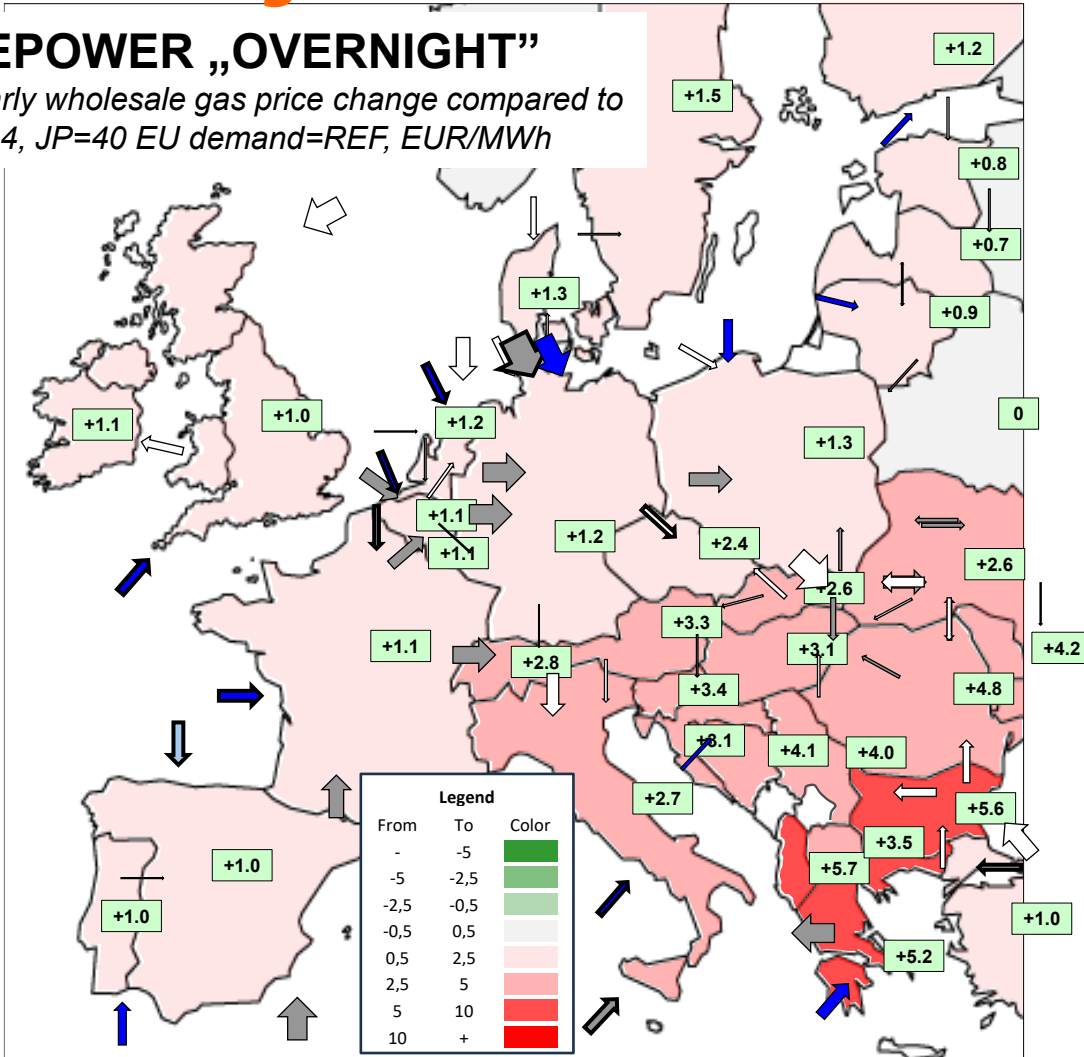
- Model recreates the 2024Q2-2025 Q1 historical flow, prices and supply structure in Europe

MODELLING RUSSIAN GAS BAN EFFECTS „OVERNIGHT“

Overnight effects: what if REPowerEU is enforced right now?

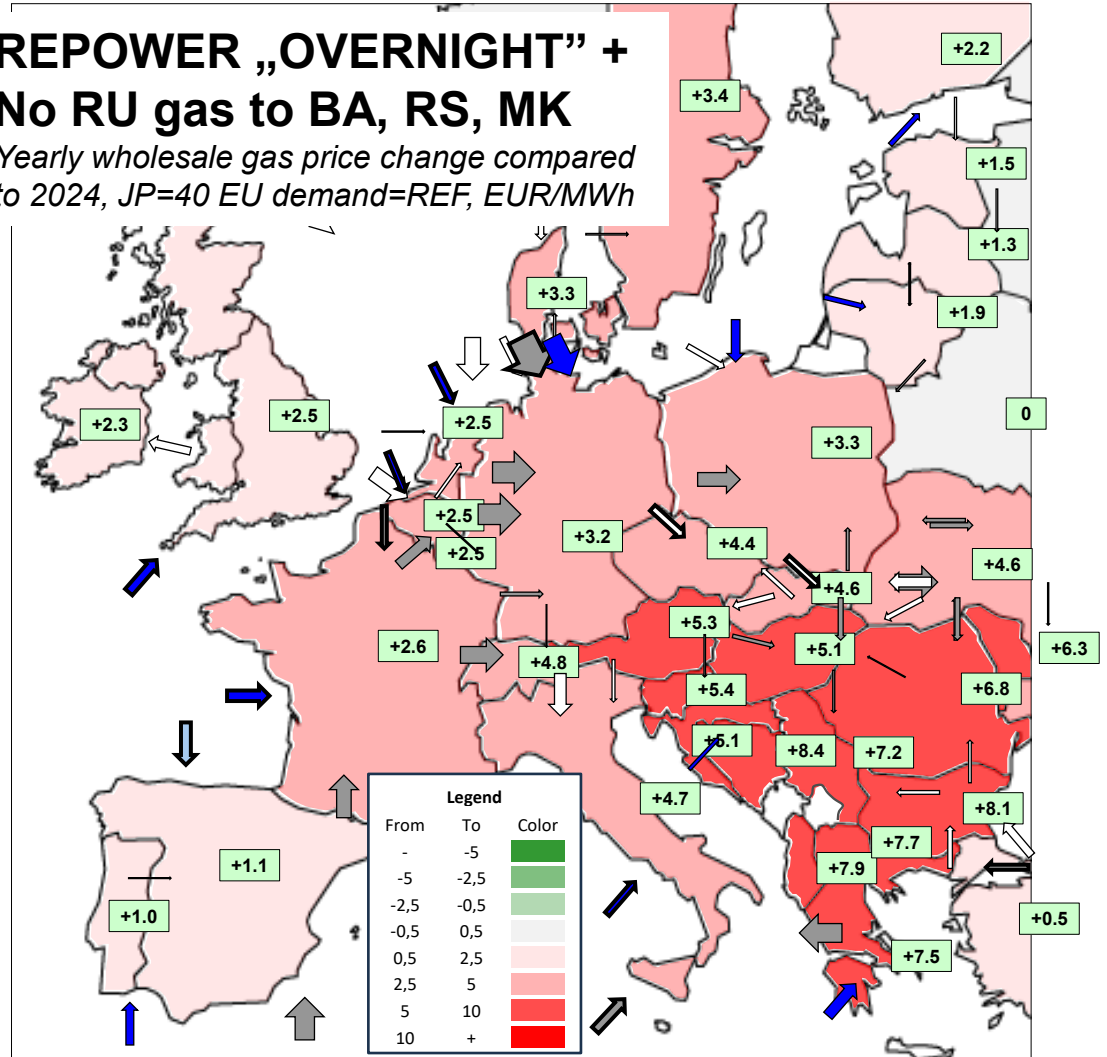
REPOWER „OVERNIGHT”

Yearly wholesale gas price change compared to 2024, JP=40 EU demand=REF, EUR/MWh



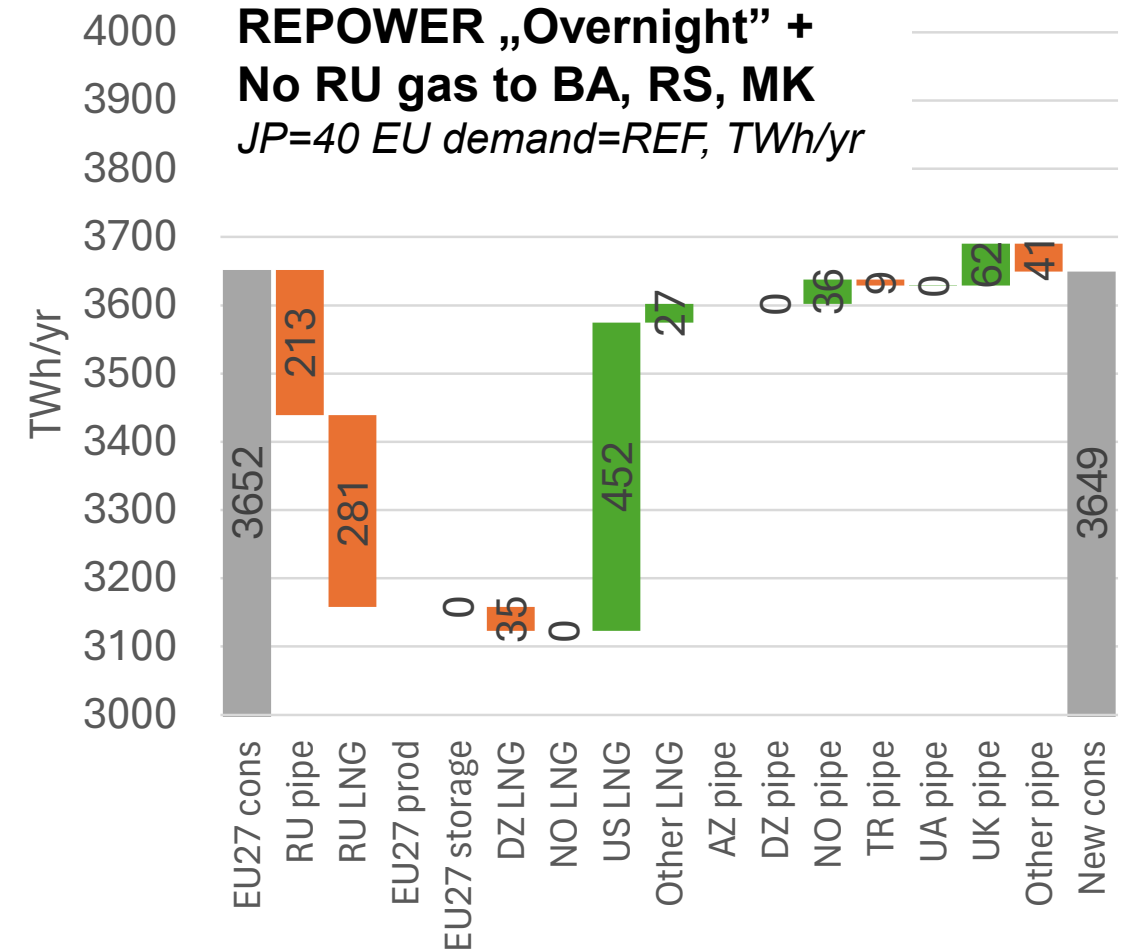
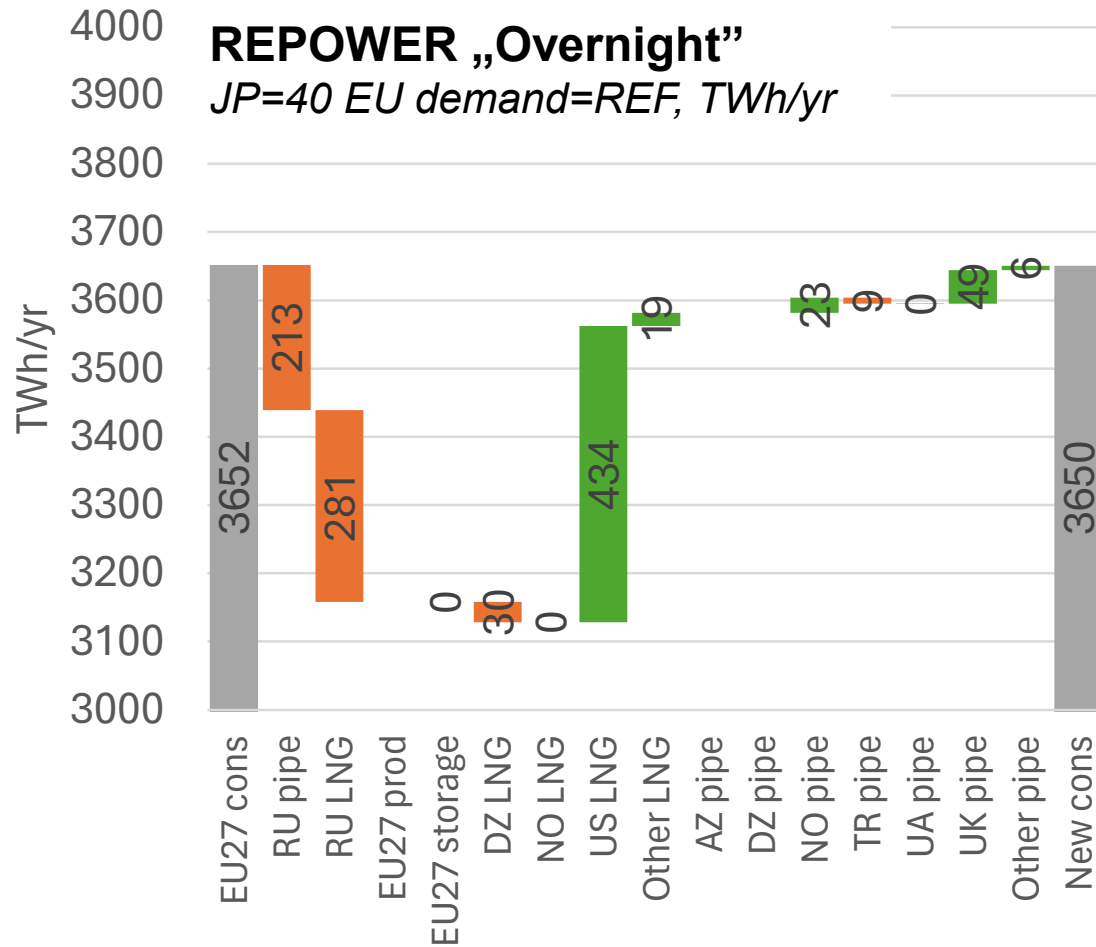
REPOWER „OVERNIGHT” + No RU gas to BA, RS, MK

Yearly wholesale gas price change compared to 2024, JP=40 EU demand=REF, EUR/MWh



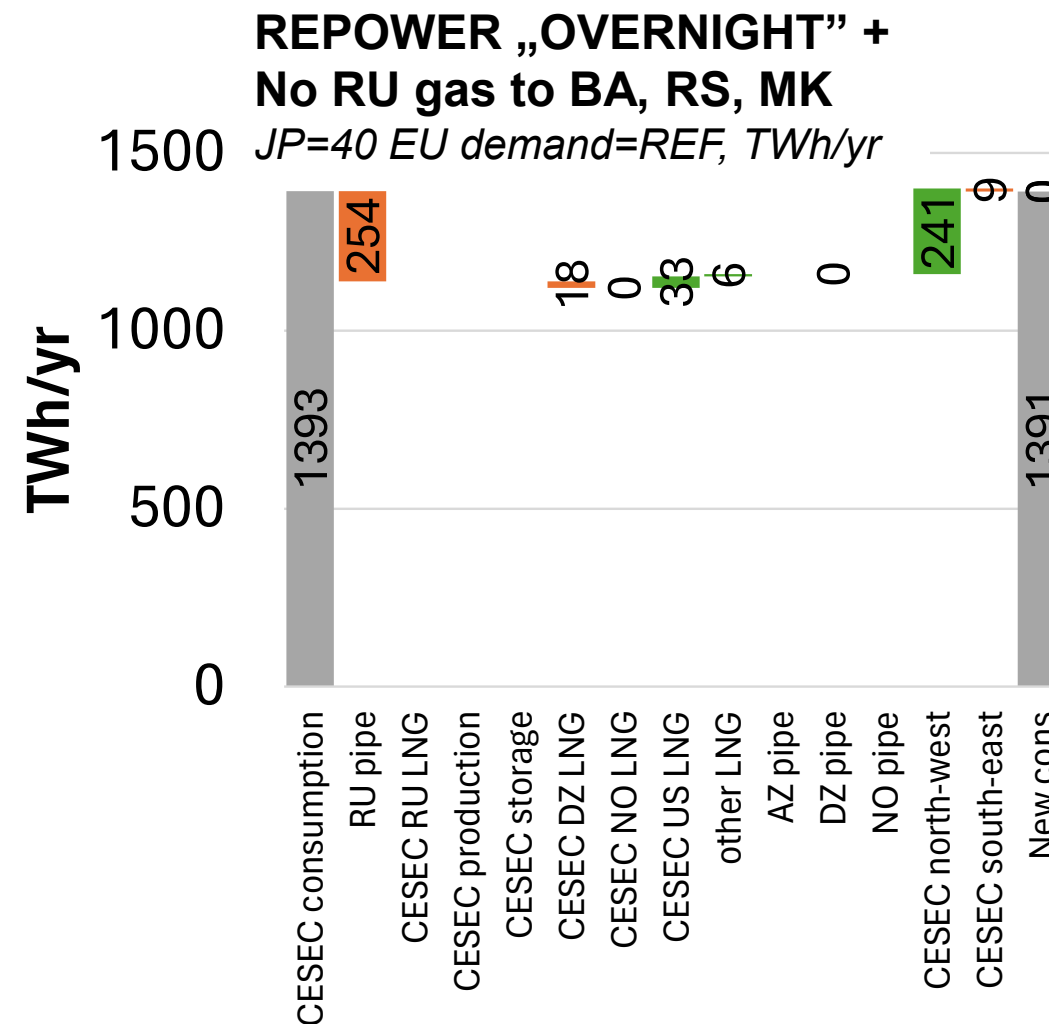
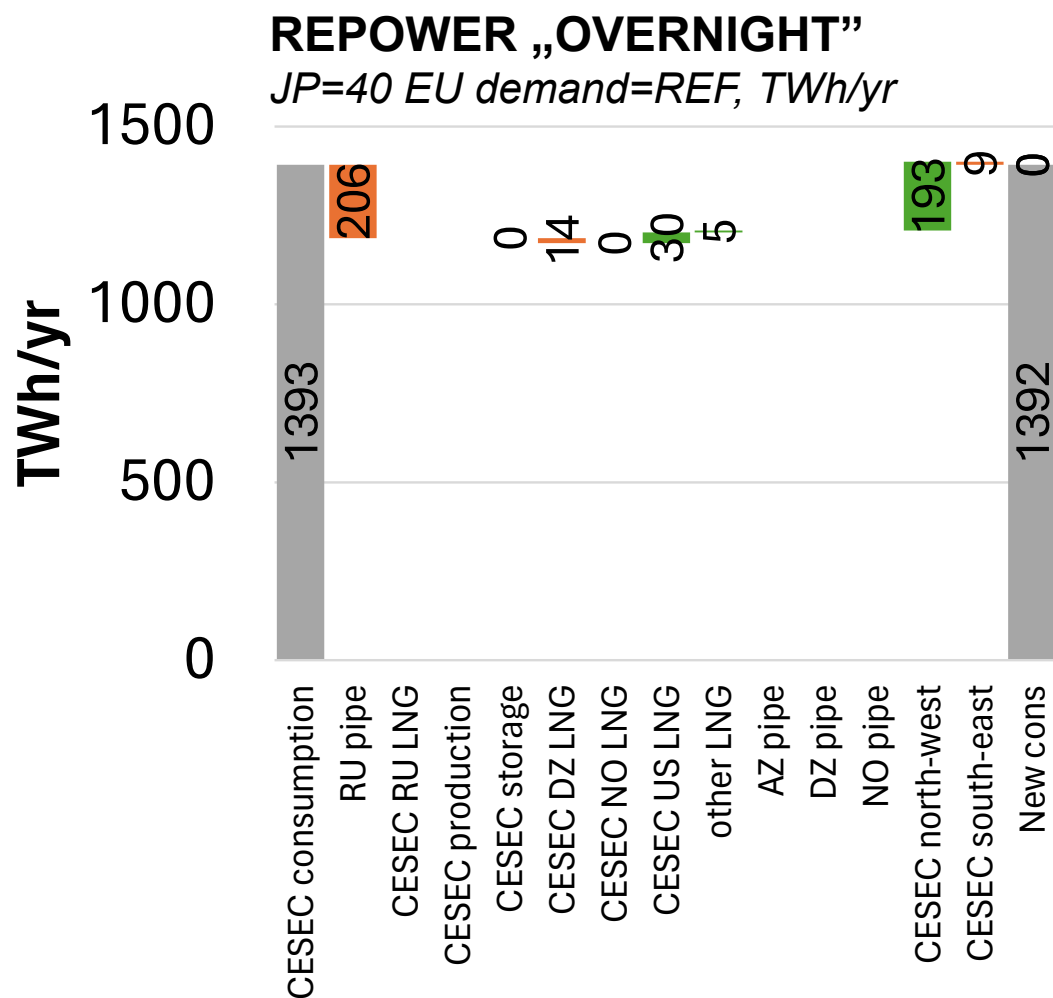
- Overnight effects are negligible (~1 €/MWh) in WE, 2-3 €/MWh in CEE and 4-5 €/MWh in the Balkans
- If Balkans countries (BA, RS, MK) are not supplied via TurkStream 2, effects are similar and slightly more severe (2-8 €/MWh)

Change in EU27 supply structure



- On the EU27 level, missing RU volumes are replaced by US LNG

Change in CESEC supply structure



- On the EU27 level, missing RU volumes are replaced by US LNG
- CESEC region imports more gas from the North-West direction

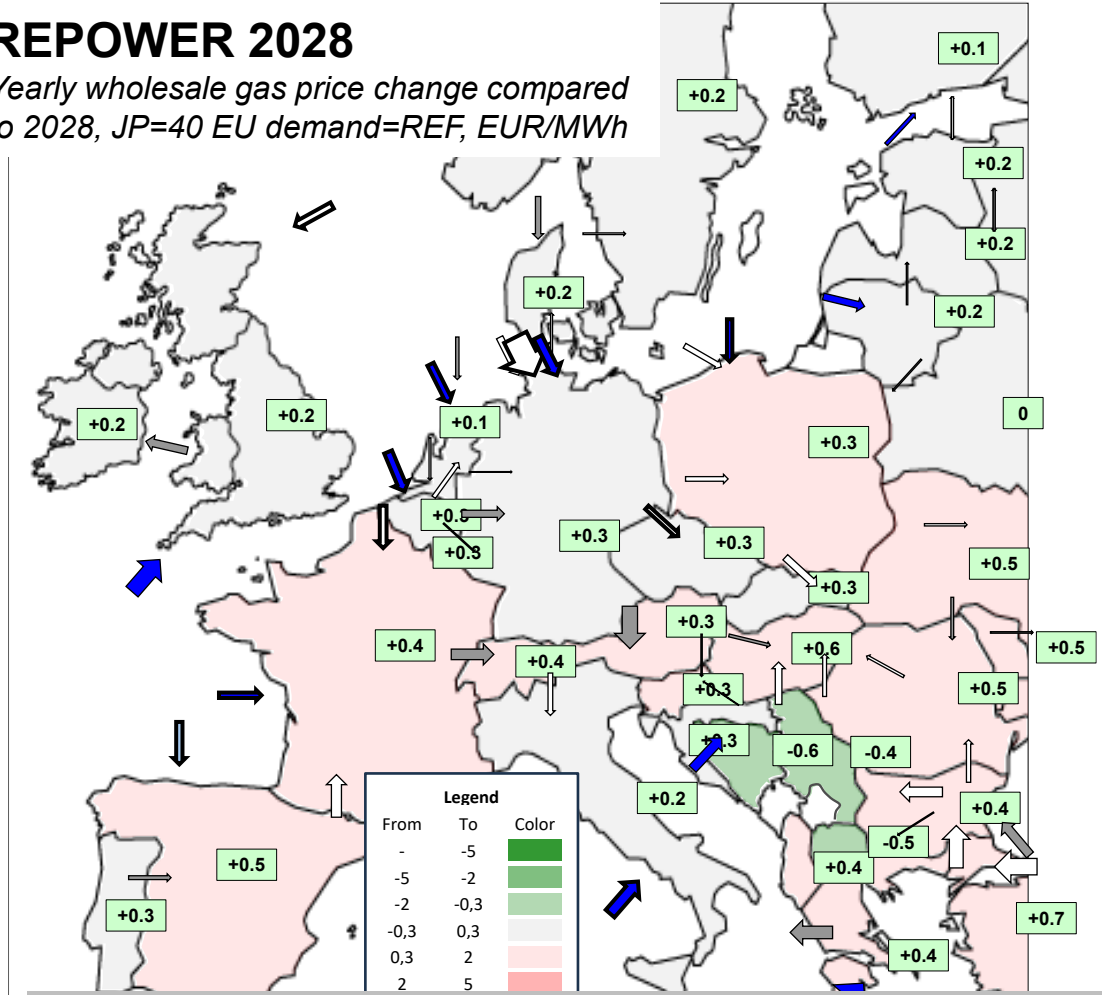
CESEC North-West border: DE, CH, CZ, PL
CESEC South-East border : TR

MODELLING RUSSIAN GAS BAN EFFECTS ACCORDING TO ROADMAP IN 2028

REPower implemented as Commission proposal suggests by 2028

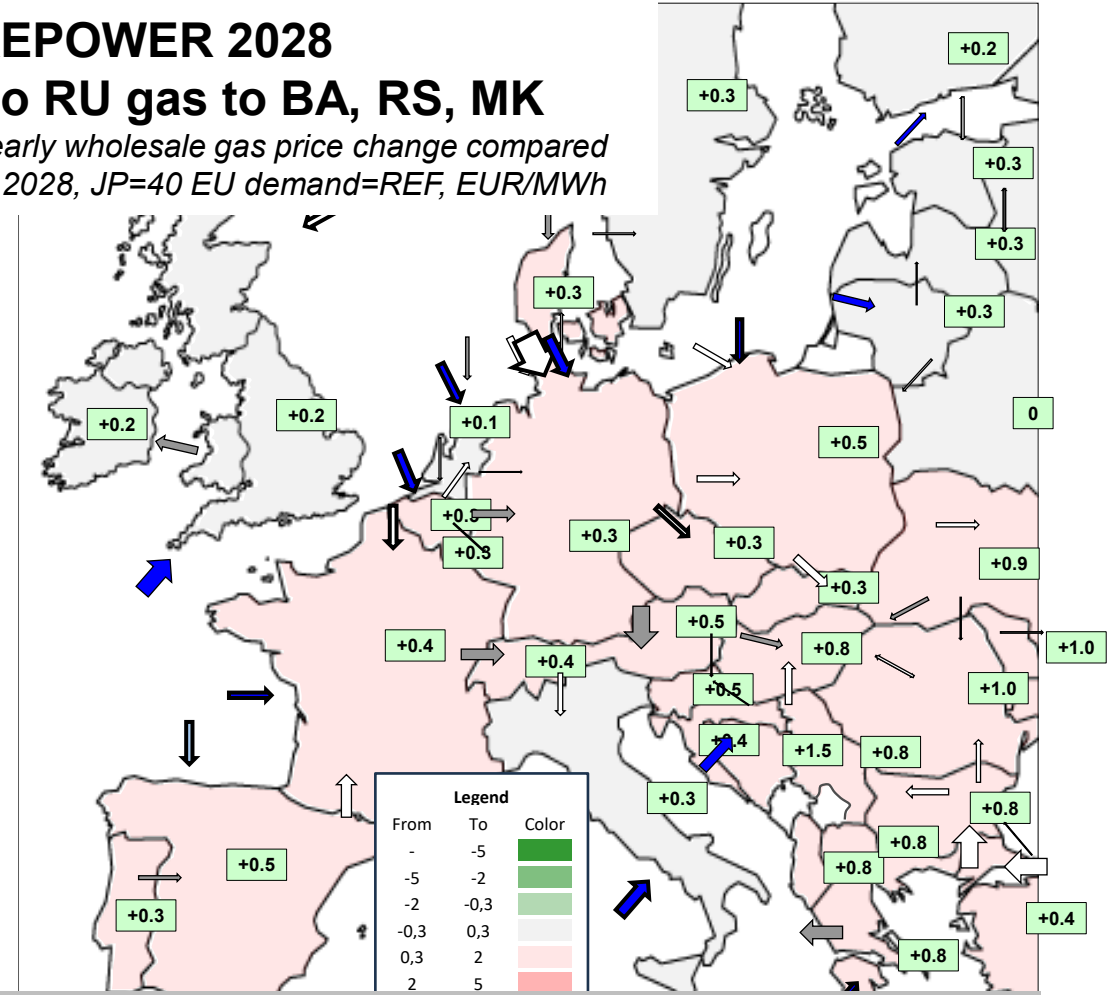
REPOWER 2028

Yearly wholesale gas price change compared to 2028, JP=40 EU demand=REF, EUR/MWh



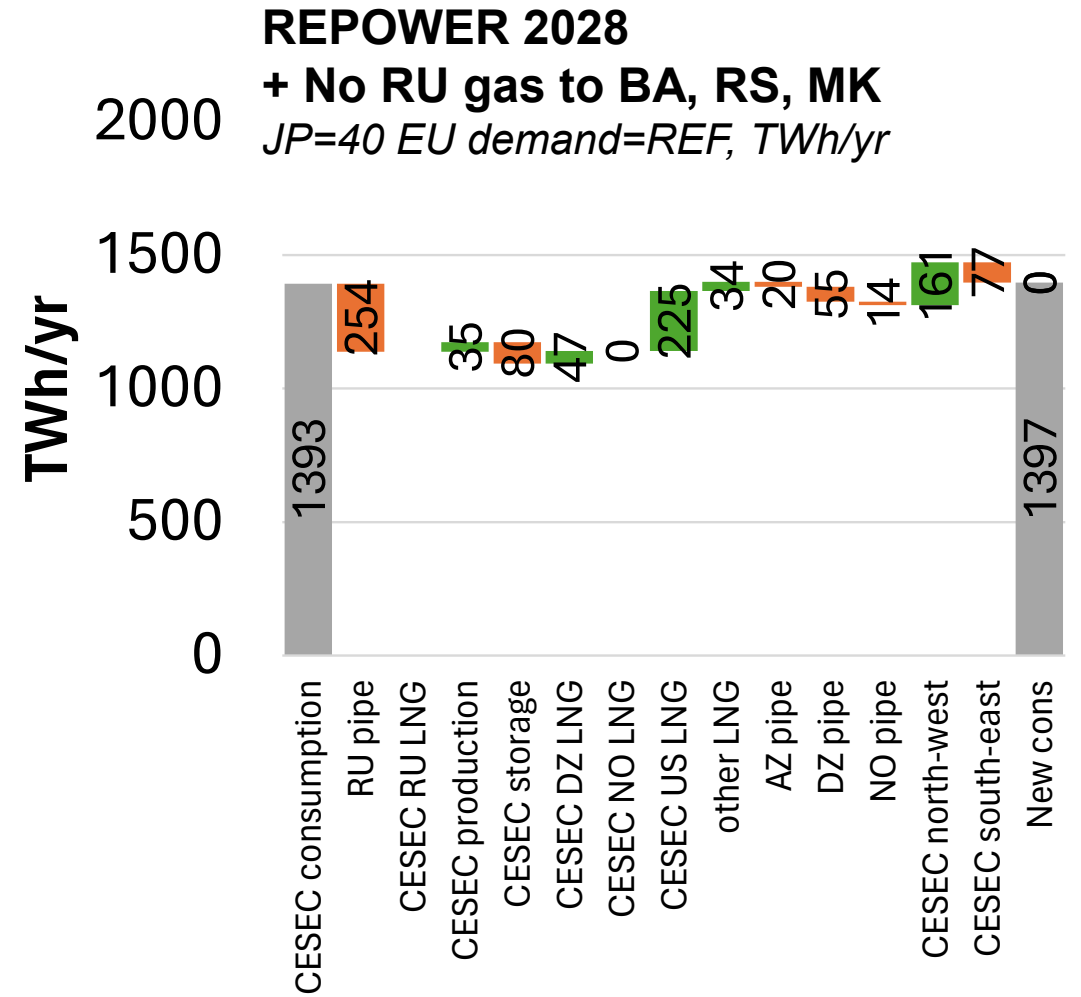
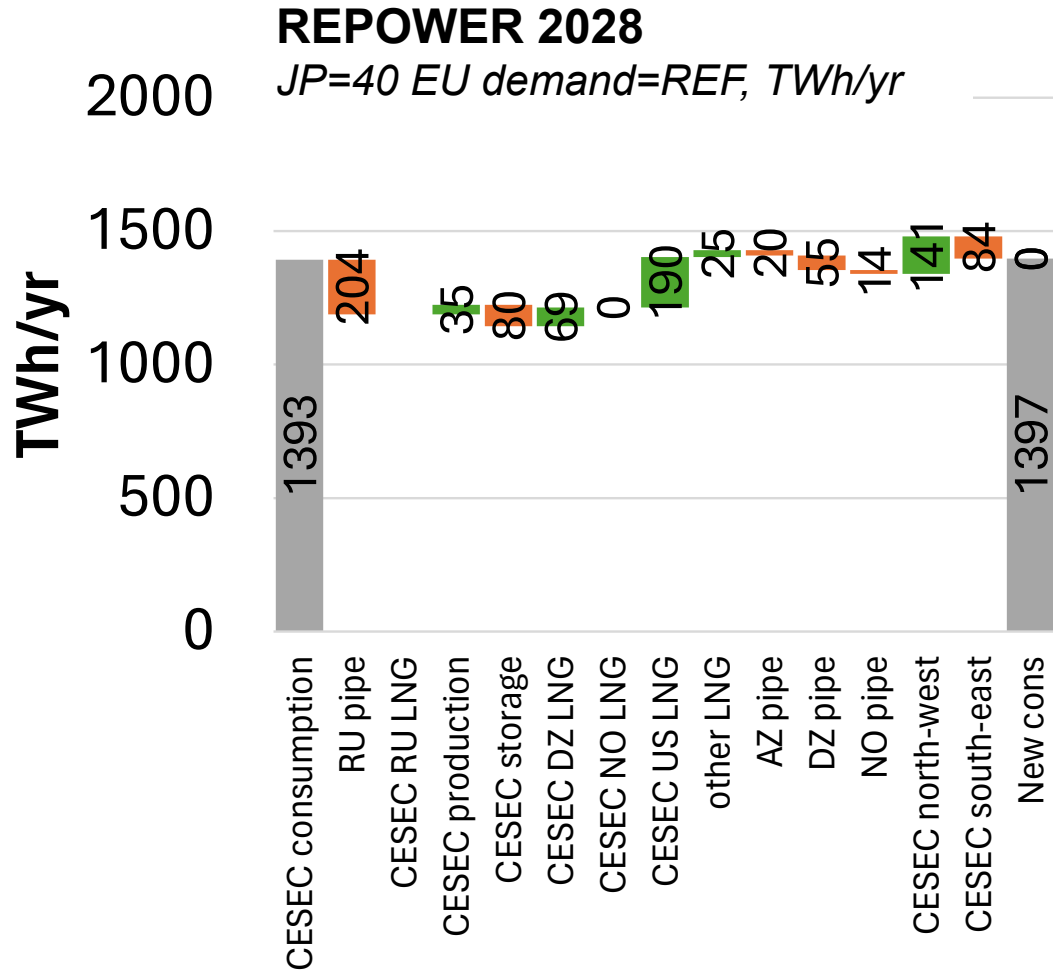
REPOWER 2028

No RU gas to BA, RS, MK
Yearly wholesale gas price change compared to 2028, JP=40 EU demand=REF, EUR/MWh



- By 2028, price effects of banning RU pipe gas and LNG are below 1 EUR/MWh
- Reason is mainly the increased alternative LNG supply, Romanian offshore production and slightly lower demand (-10 bcm for EU27 from 2024 to 2028)
- Around 5 bcm pipeline gas arrives from Turkey via Strandzha-Malkoclar 1

CESEC supply structure from 2024 to 2028

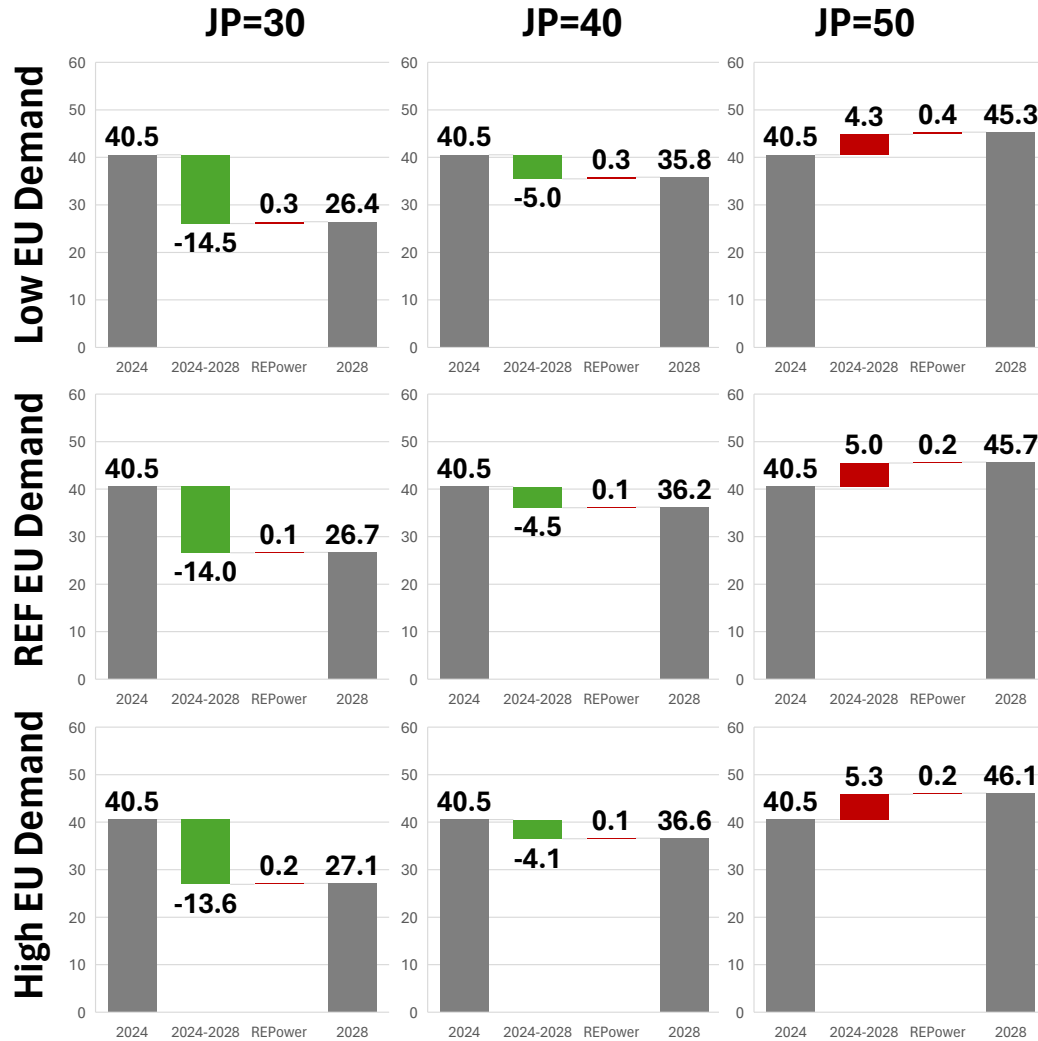


- CESEC imports more from North-West and ramps up US LNG
- No demand reduction form 2024 to 2028

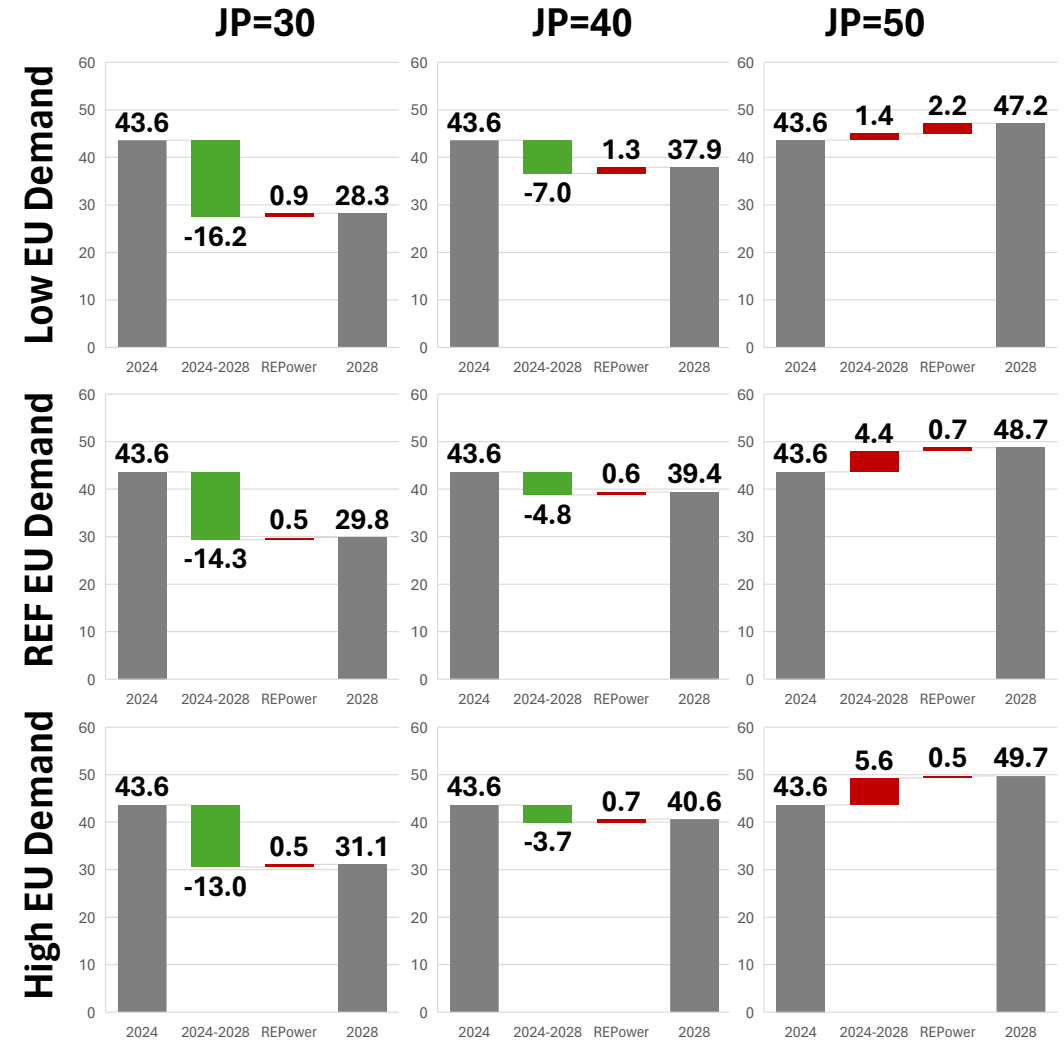
CESEC North-West border: DE, CH, CZ, PL
CESEC South-East border : TR

Decomposing the price effects of market and regulation from 2024 to 2028

NL PRICE, EUR/MWH

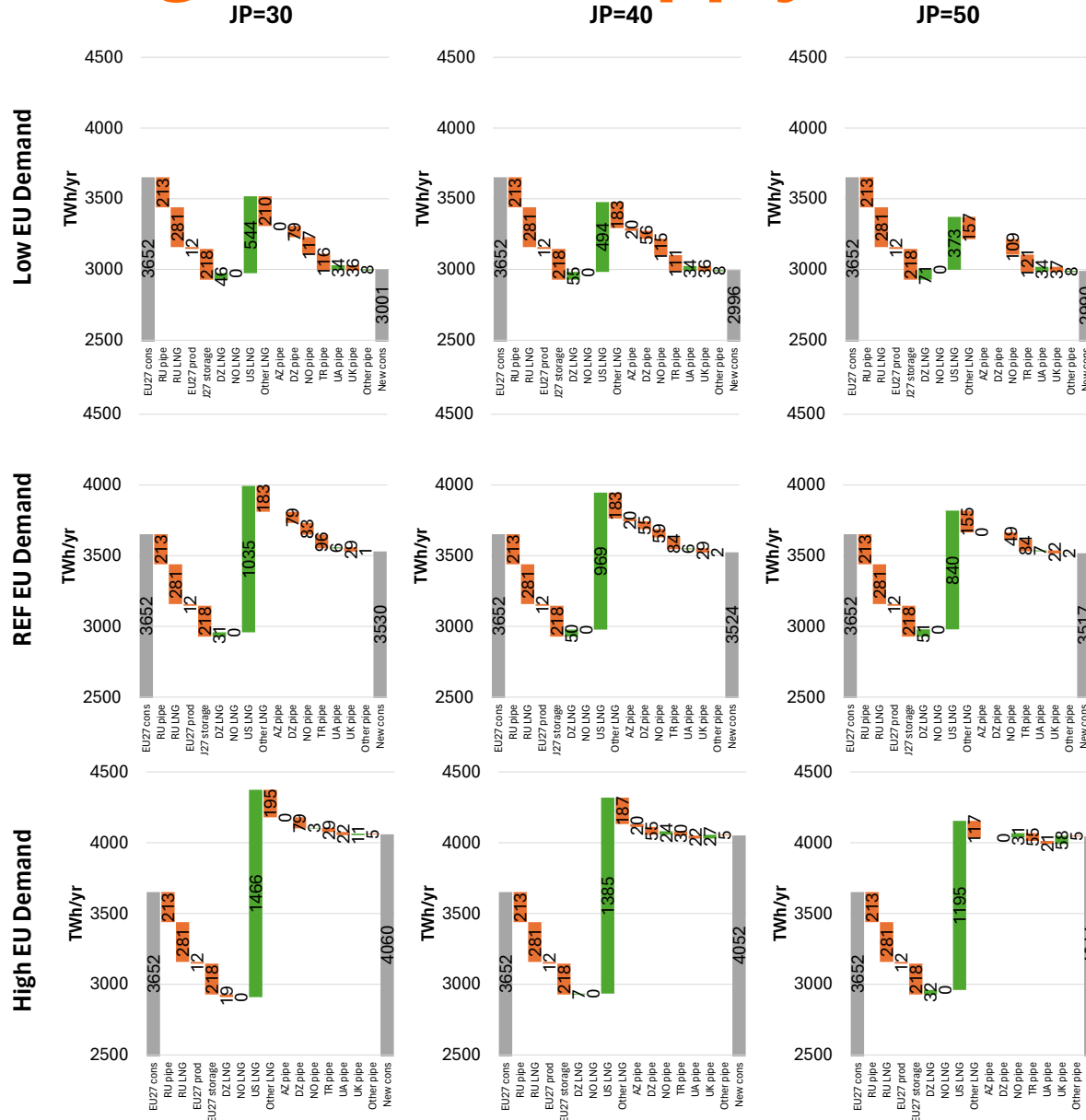


HU PRICE, EUR/MWH



- Price effects of the regulation are not significantly affected by global market or European demand conditions

Change in EU27 supply structure (2024 to 2028)



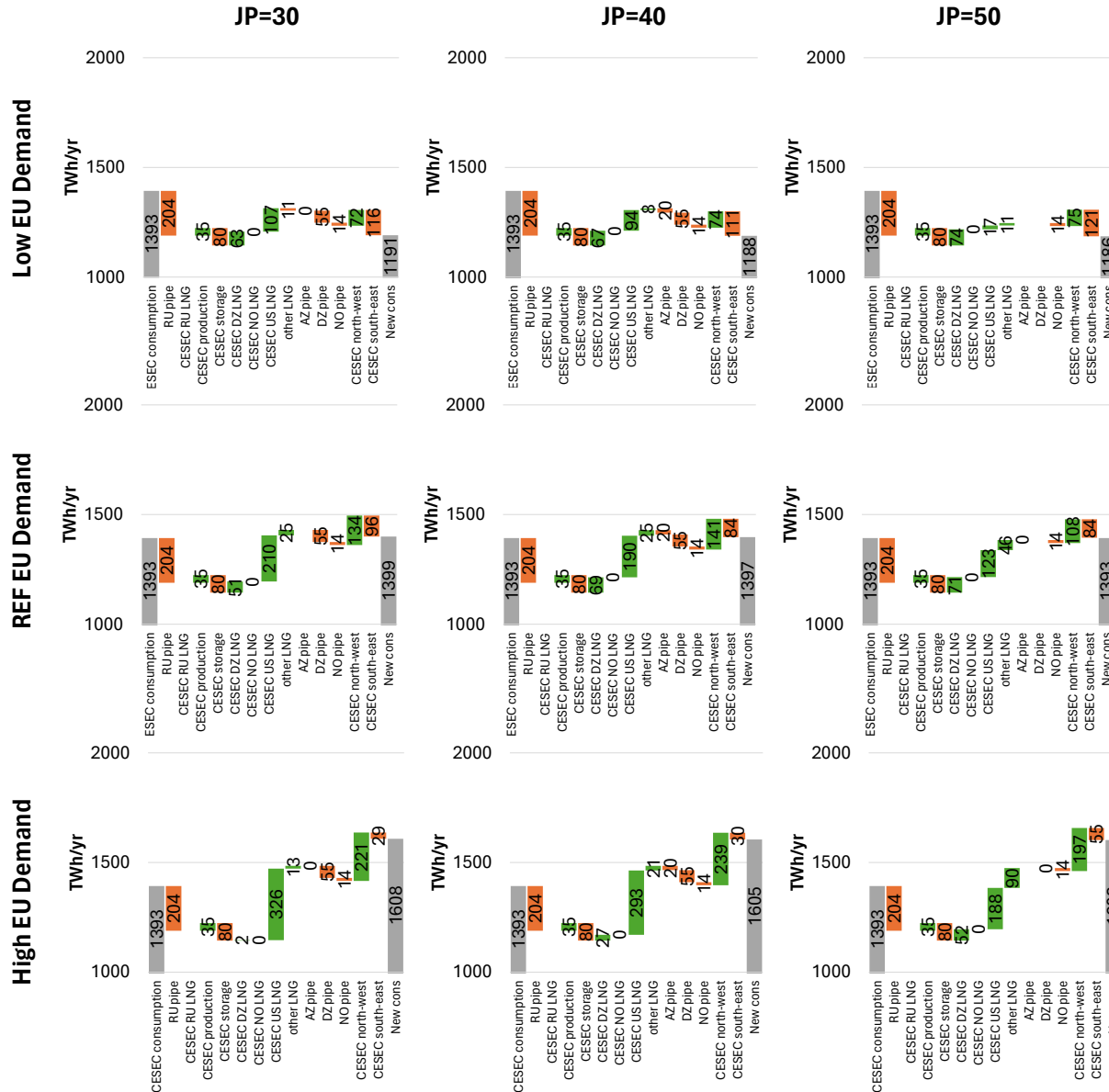
ADDITIONAL US LNG NEED

LOW EU DEMAND: 370-540 TWH/YR

REF EU DEMAND: 840-1035 TWH/YR

HIGH EU DEMAND: 1195-1466 TWH/YR

Change in CESEC supply structure (2024 to 2028)

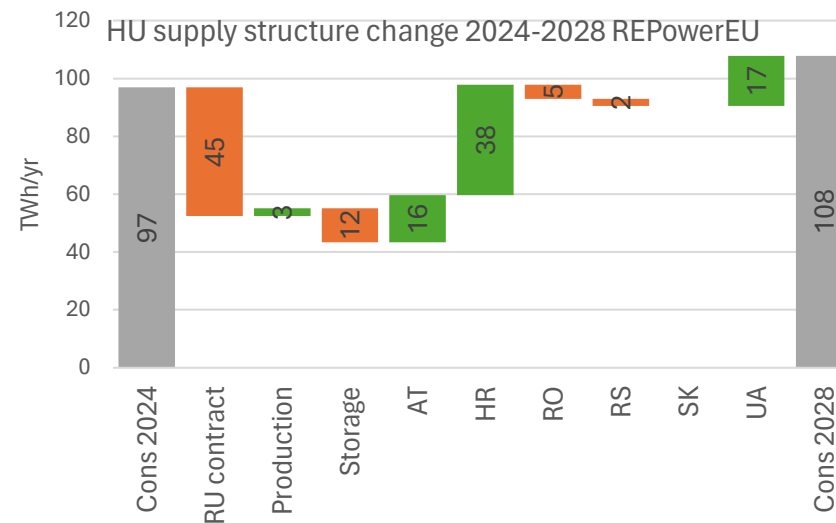
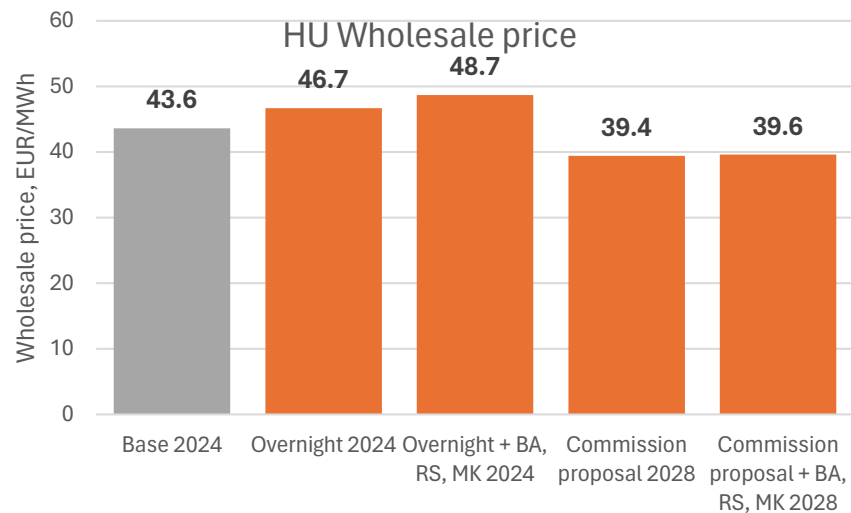


- Domestic production in the CESEC region increasing (due to Black Sea sources)
- Two main sources of supply:
 - US and other LNG to CESEC region
 - Pipeline imports from neighboring EU countries

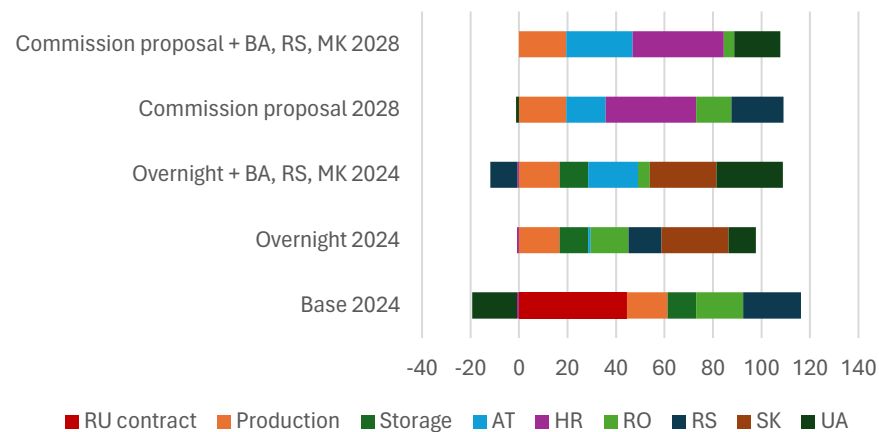
CESEC North-West border: DE, CH, CZ, PL
CESEC South-East border: TR

FURTHER INDICATORS

Country template HU



HU supply structure



Country template HU (cont.)

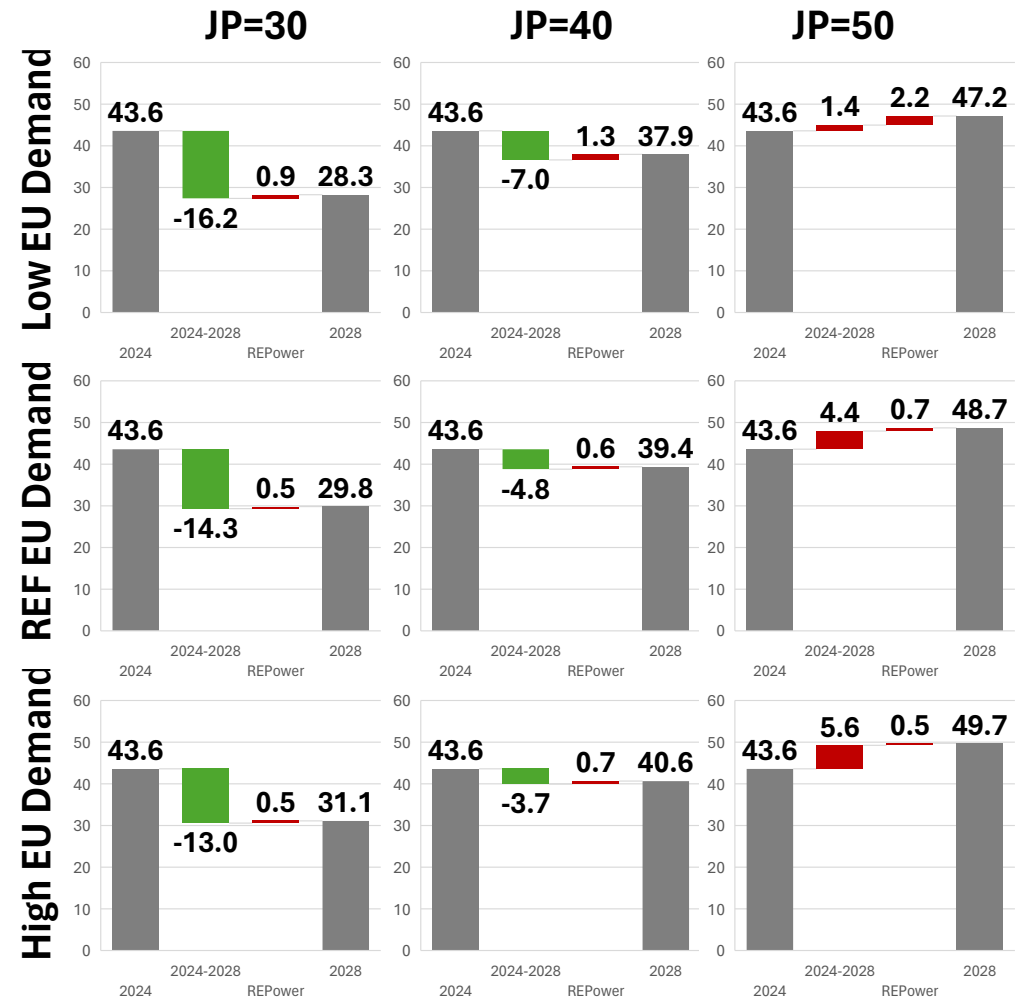
The price effect of implementing the REPowerEU Roadmap in Hungary by 2028 results in a price increase ranging from 0.5 to 2.2 EUR/MWh, depending on global market and European demand scenarios. In our central scenario, the price effect for Hungary is 0.6 EUR/MWh.

From 2024 to 2028, Hungarian gas demand grows by 11%, and the modelled wholesale price drops from 43.6 EUR/MWh to 39.4 EUR/MWh. Considering all changes in the global LNG market and European demand, this results in an overall 1% increase in the total wholesale gas procurement cost for Hungary.

The supply structure in Hungary changes substantially as Russian pipeline gas is replaced by alternative sources. The Russian contract delivered via the Serbian route disappears being replaced by spot flows via Croatia (LNG) and Austria, while exports from Hungary towards Ukraine diminish.

Furthermore, the transit of Russian gas to Slovakia via Hungary disappears resulting in lower utilisation of the transmission system and reducing TSO revenues substantially.

DECOMPOSITION OF PRICE EFFECTS IN SENSITIVITY SCENARIOS



Conclusions

Russian gas phaseout does not cause any security of supply issues, modelled EU27 and non-EU markets can be supplied with alternative sources (mainly US LNG)

Due to changing supply routes, new flow patterns emerge which may challenge some TSOs' revenue streams

„OVERNIGHT“ PRICE EFFECTS

- Implementing the regulation earlier leads to higher price impact, at most 4-5 EUR/MWh in the Balkans
 - Leaves less time for markets to adjust and
 - Supply sources are scarcer
- Russian gas phaseout of non-EU Balkans countries still supplied by Russian LTCs (BA, RS, MK) may cause a further 2 EUR price increase in the neighbouring countries

ROADMAP PRICE EFFECTS TO 2028

- Banning Russian gas as suggested by the Commission proposal does not have a major price impact in Europe: price increase below 1 EUR/MWh in 2028
- Sensitivity shows that effects of the regulation are overall identical irrespective of global market and EU demand conditions

THANK YOU FOR YOUR ATTENTION

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