Moving Away from Russian Fuels: The Czech Experience

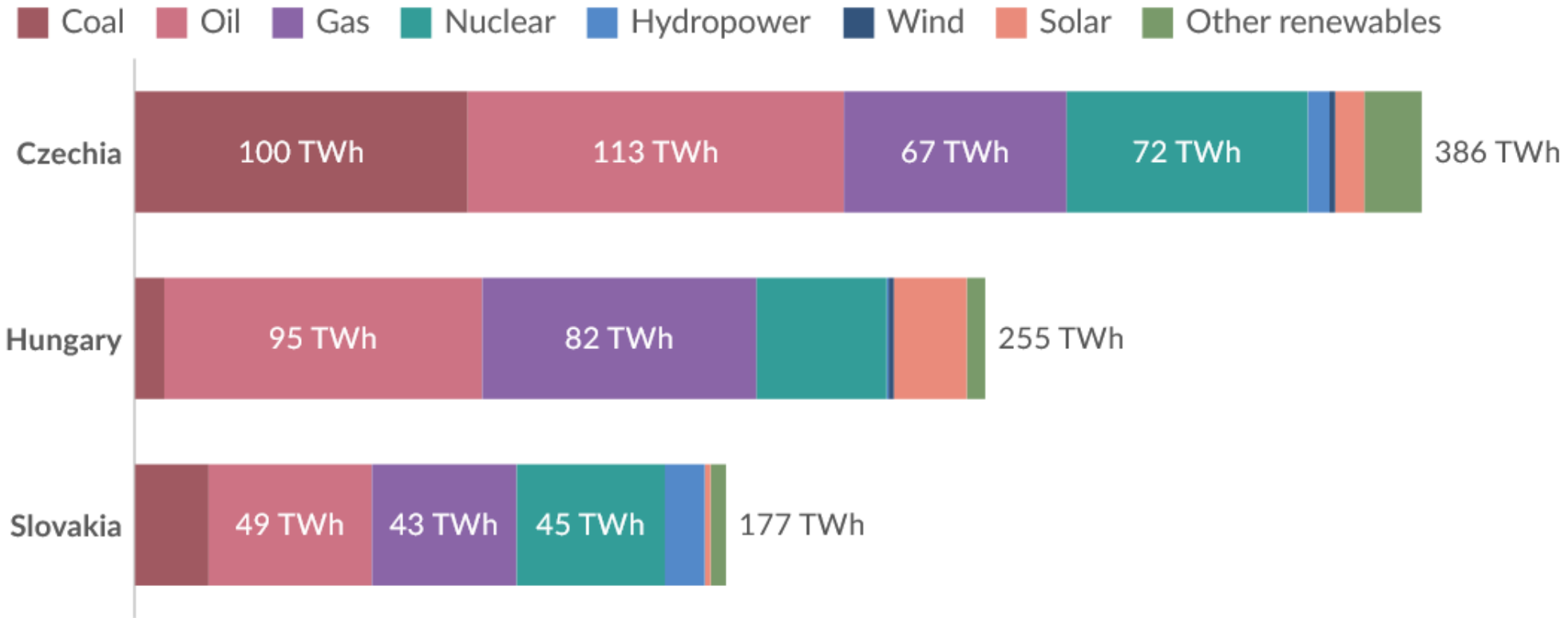
Oldřich Sklenář

Primary energy consumption by source, 2024

Primary energy is based on the substitution method and measured in terawatt-hours.

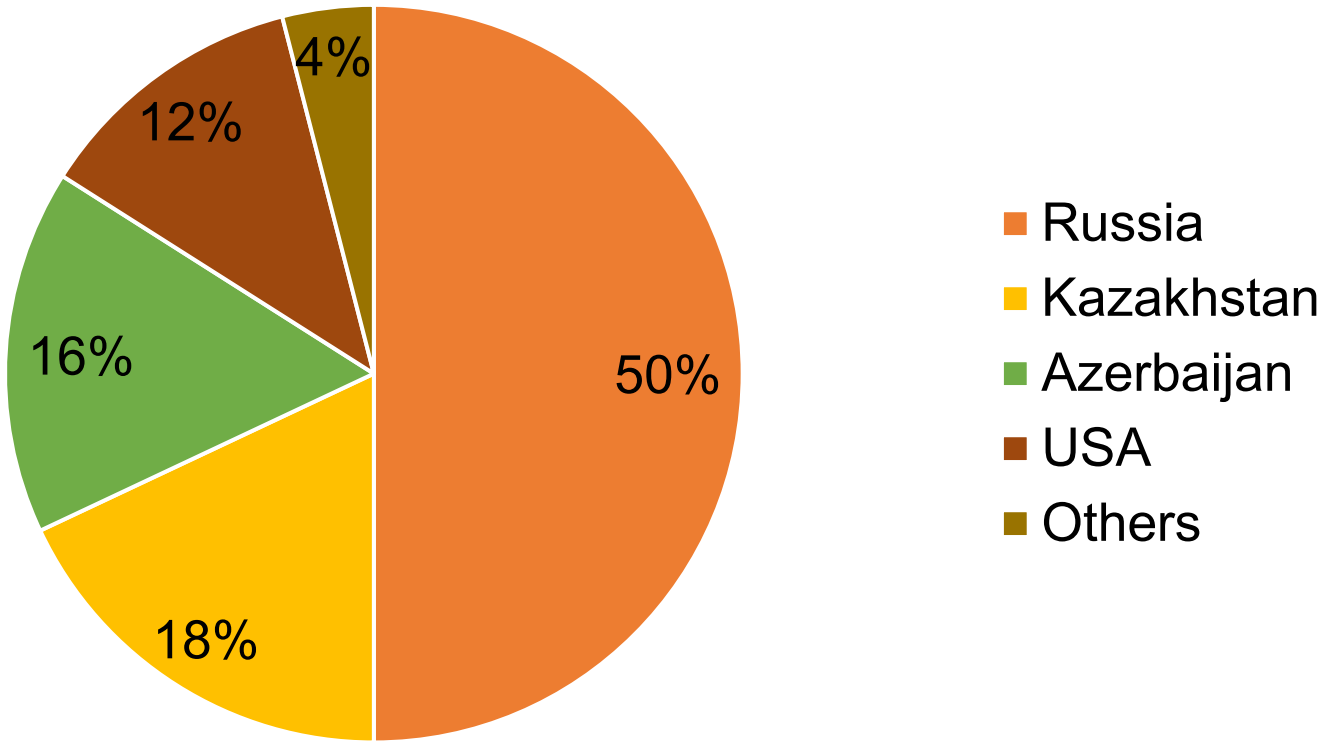
Our World in Data

Table | Chart | Edit | Settings

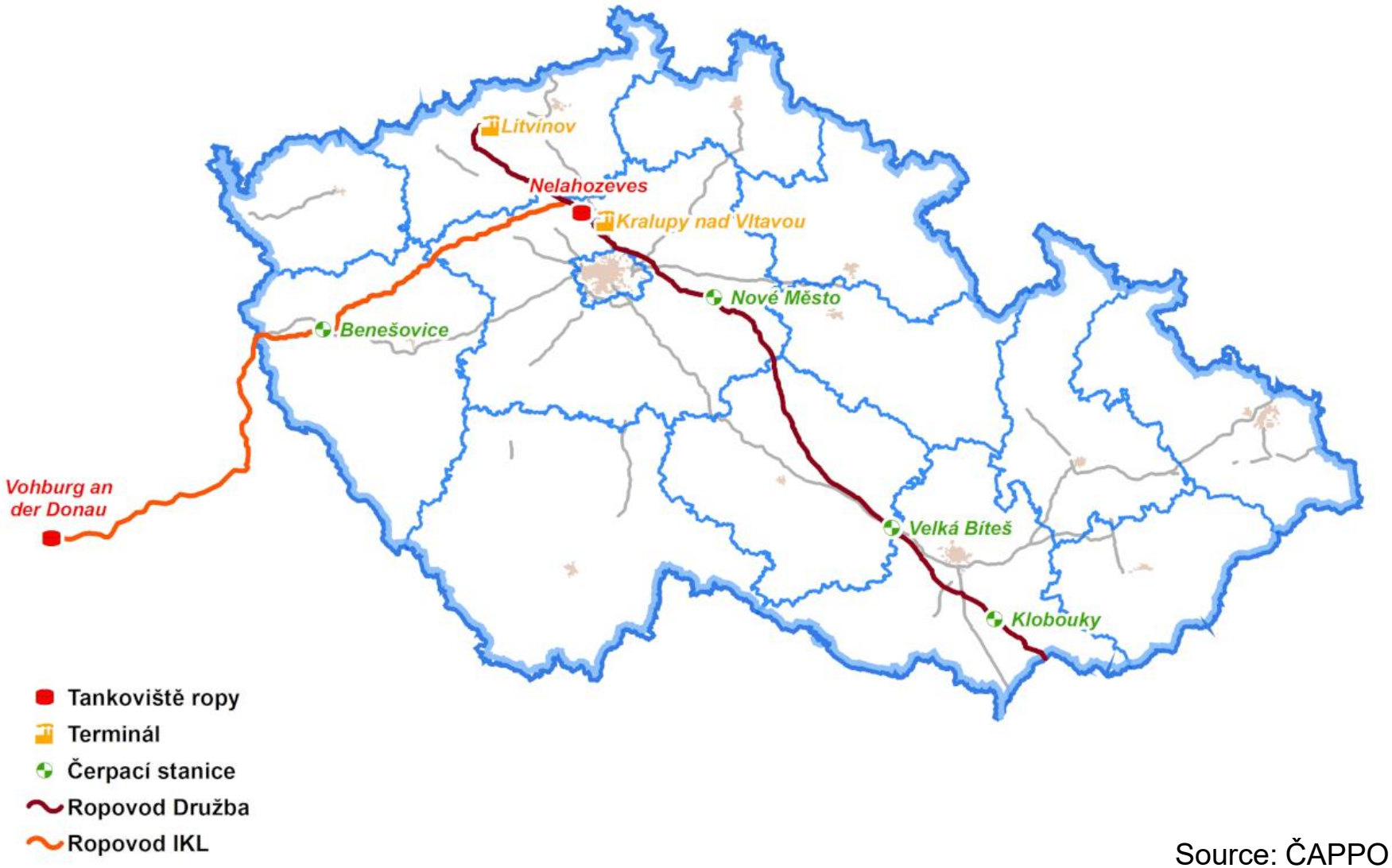


Data source: Energy Institute - Statistical Review of World Energy (2025) – Learn more about this data

Origin of imported oil in 2021



Ropovodní systém v České republice



Source: ČAPPO

Diversification of oil supplies

Timeline:

2022: political decision
2023: contracts + start of work
2024: major technological modifications
2025: full cut-off from Russian oil

Main implementer: MERO ČR
Partner: consortium operating the TAL oil pipeline
Political responsibility: Government of the Czech Republic (Ministry of Industry and Trade + Ministry of Finance as owner of MERO)

Financing:

Total costs: approx. CZK 1.5 billion

Fully covered by MERO ČR's own resources without direct impact on the state budget

Diversification of oil supplies

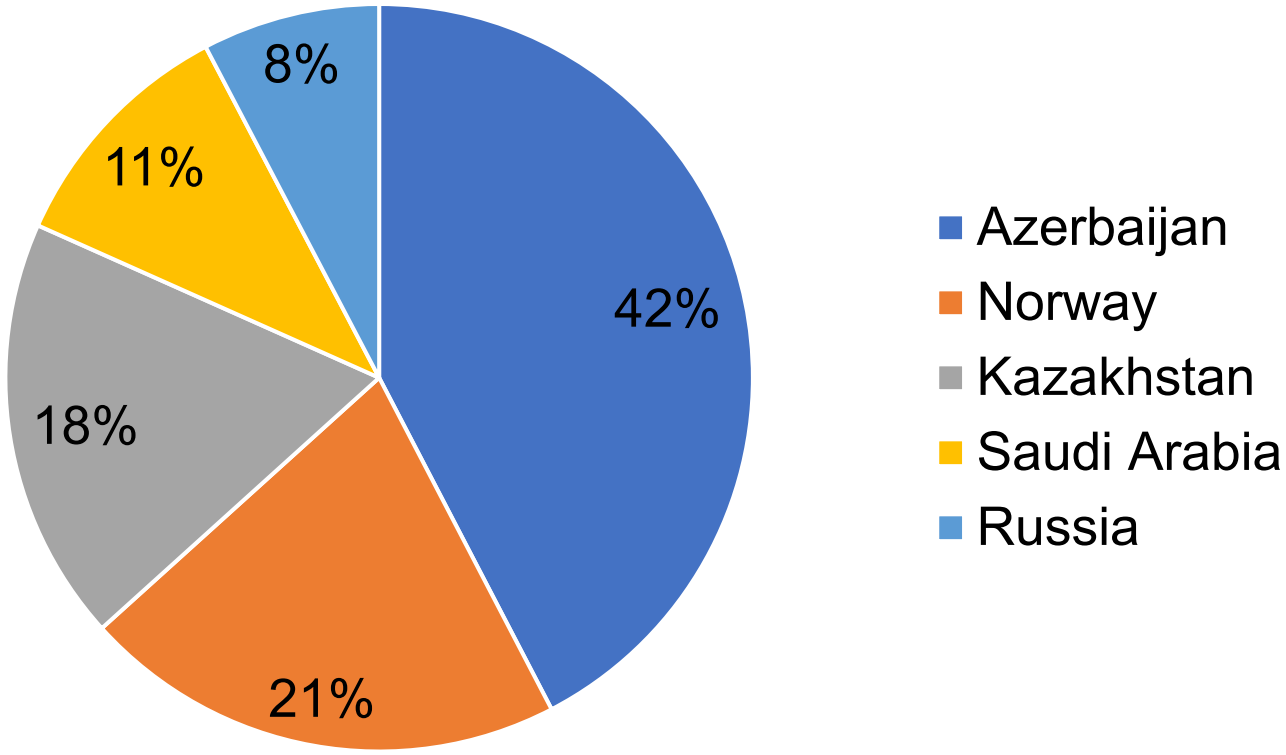
Technical implementation:

- installation of new pumps, motors, flow meters
- modernization of control system (SCADA)
- reinforcement of pipelines and connections in the Czech Republic (Nelahozeves)
- minor modifications in several countries (Italy, Austria, Germany)

The processing of non-Russian crude oil was solved by a combination of:

- blending different types of crude oil
- operational optimization
- use of existing conversion units

Origin of imported oil 2025

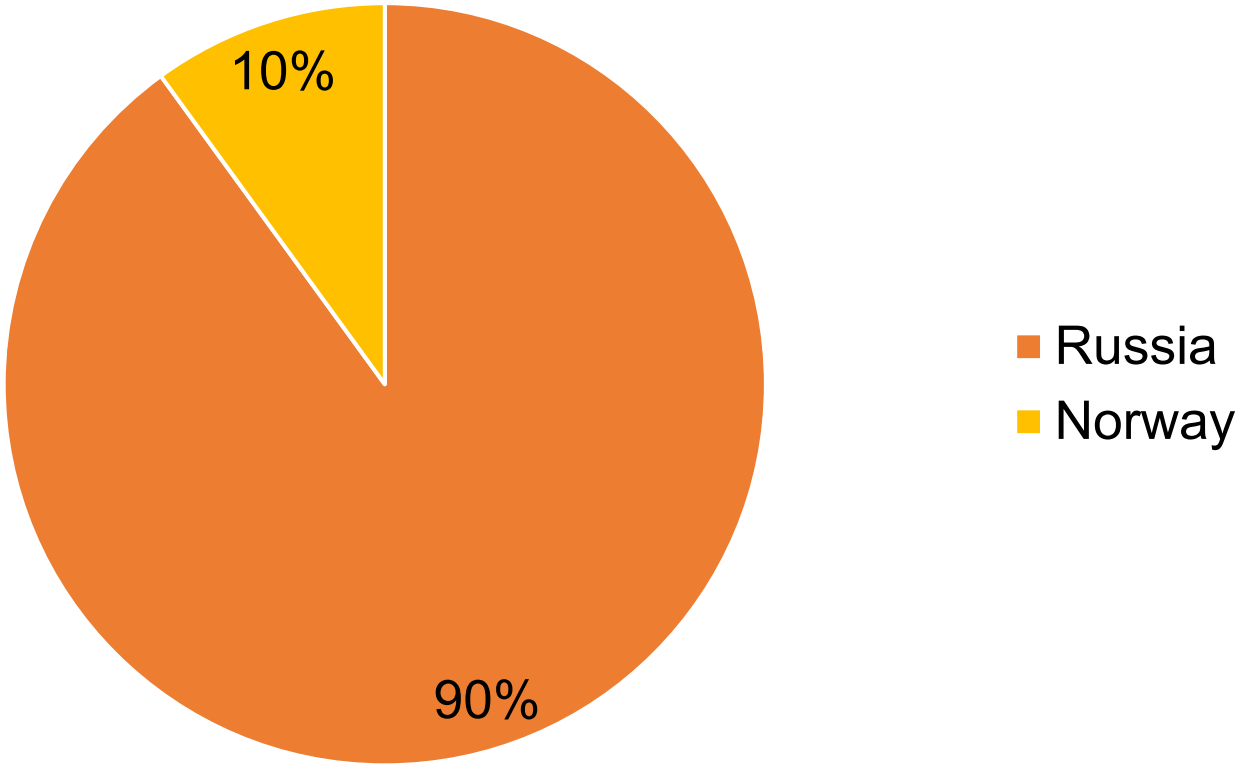


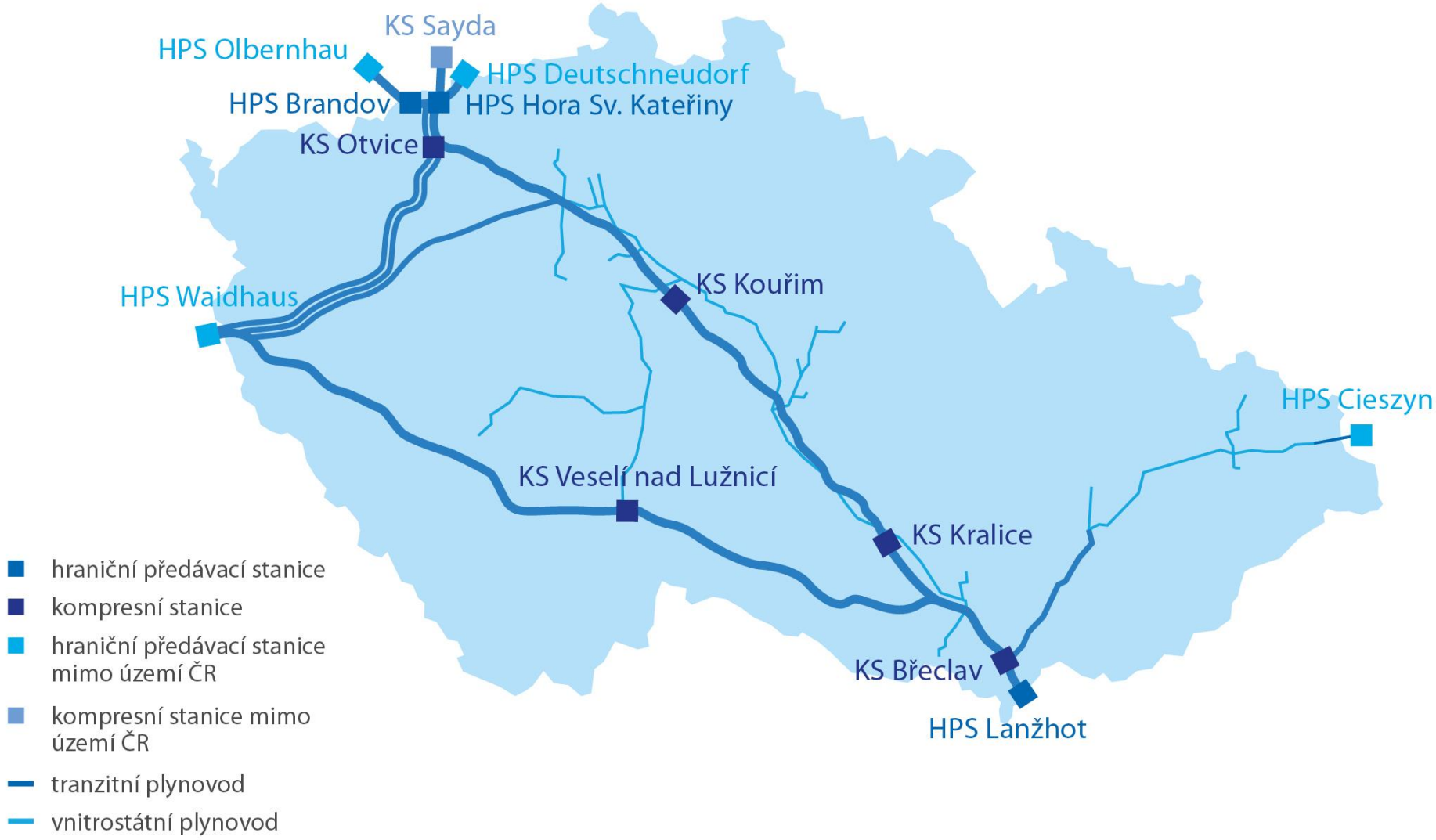
Diversification of oil supplies

Main impacts:

- higher entry price - loss of the "Russian discount"
- slightly worse product mix (relatively less diesel → worse alignment with demand)
- need for greater emphasis on operation optimization
- lower geopolitical and supply risk

Origin of imported natural gas 2021





Source: Net4Gas

Diversification of gas supplies

Unlike oil, gas was more about urgent crisis management than gradual optimization. The state mainly dealt with infrastructure and access to capacities

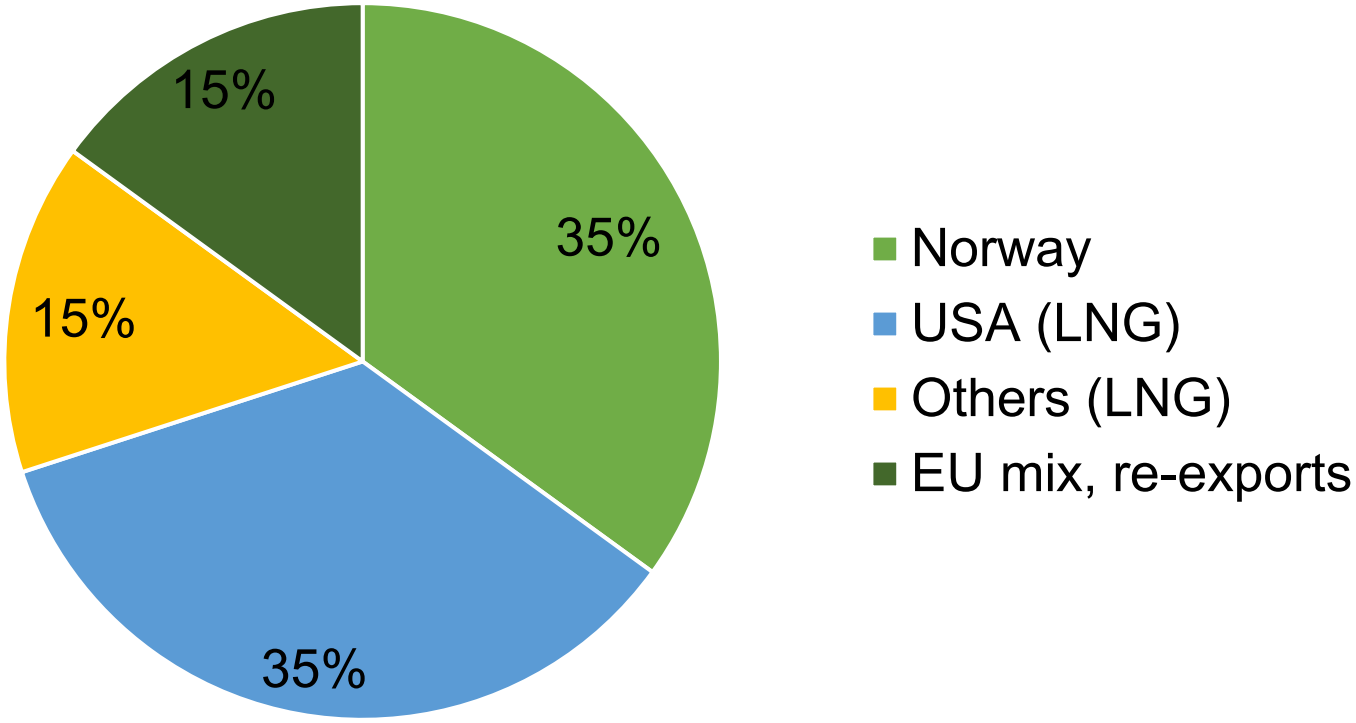
Technical implementation:

- Use of existing gas pipelines in reverse mode (use of the existing network)
- The Czech Republic leased capacity in the LNG terminal in Eemshaven, the Netherlands - LNG became the main new source of gas

Costs:

Terminal lease (Eemshaven): units of billions of CZK per year, 5-year contract, launched in September 2022. At the same time, gas transport routes from the Netherlands to the Czech Republic were also contracted. Primarily paid by ČEZ, reflected in gas prices

Origin of imported natural gas 2025



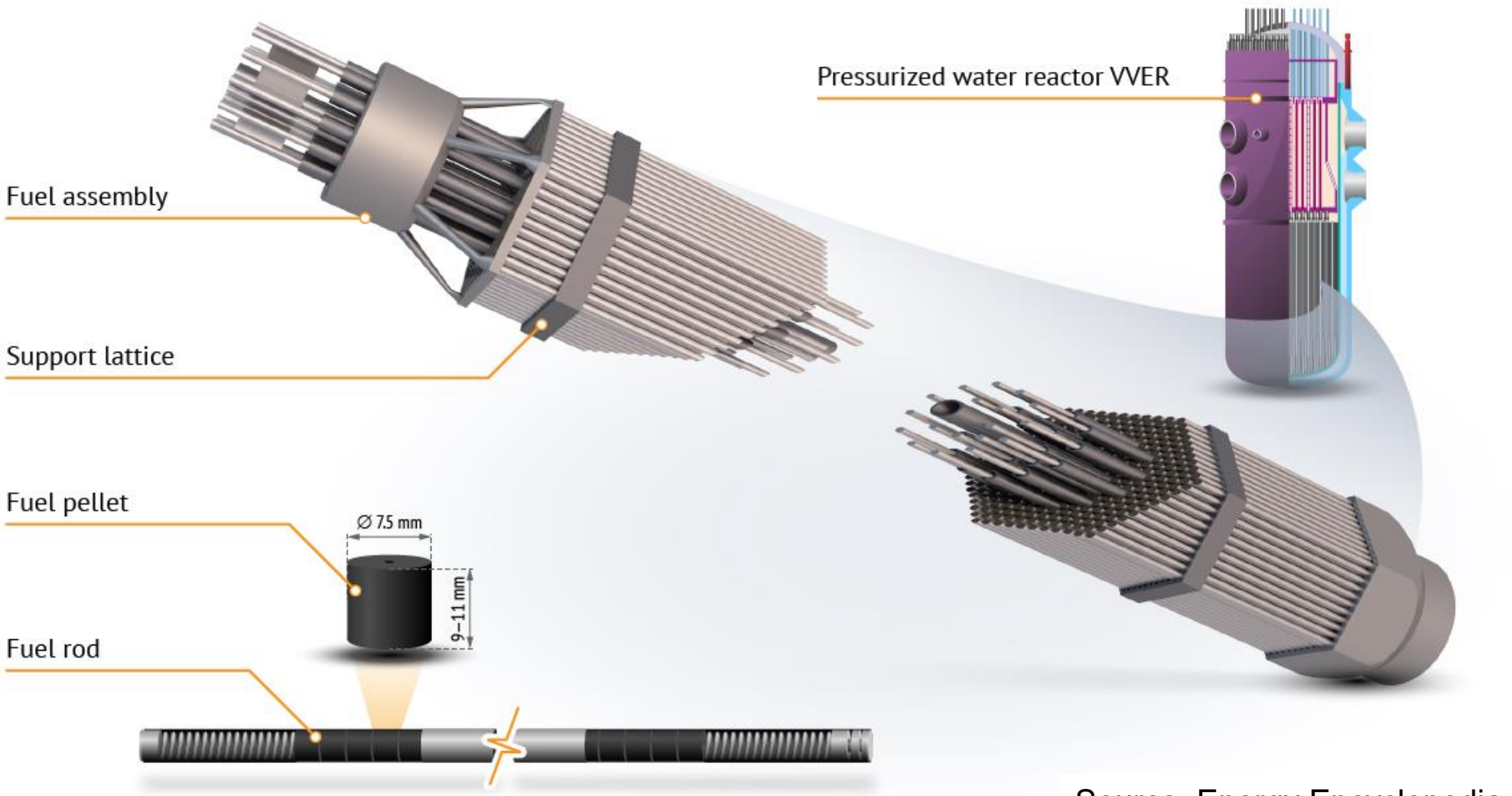
Diversification of gas supplies

Main impacts:

- Higher and more volatile gas prices (significant growth 2022-2023)
- Diversified supply portfolio - removal of dependence on Gazprom
- Increased importance of Germany as a transit country
- Increased dependence on European infrastructure and coordination
- Shift to a more market-oriented supply model

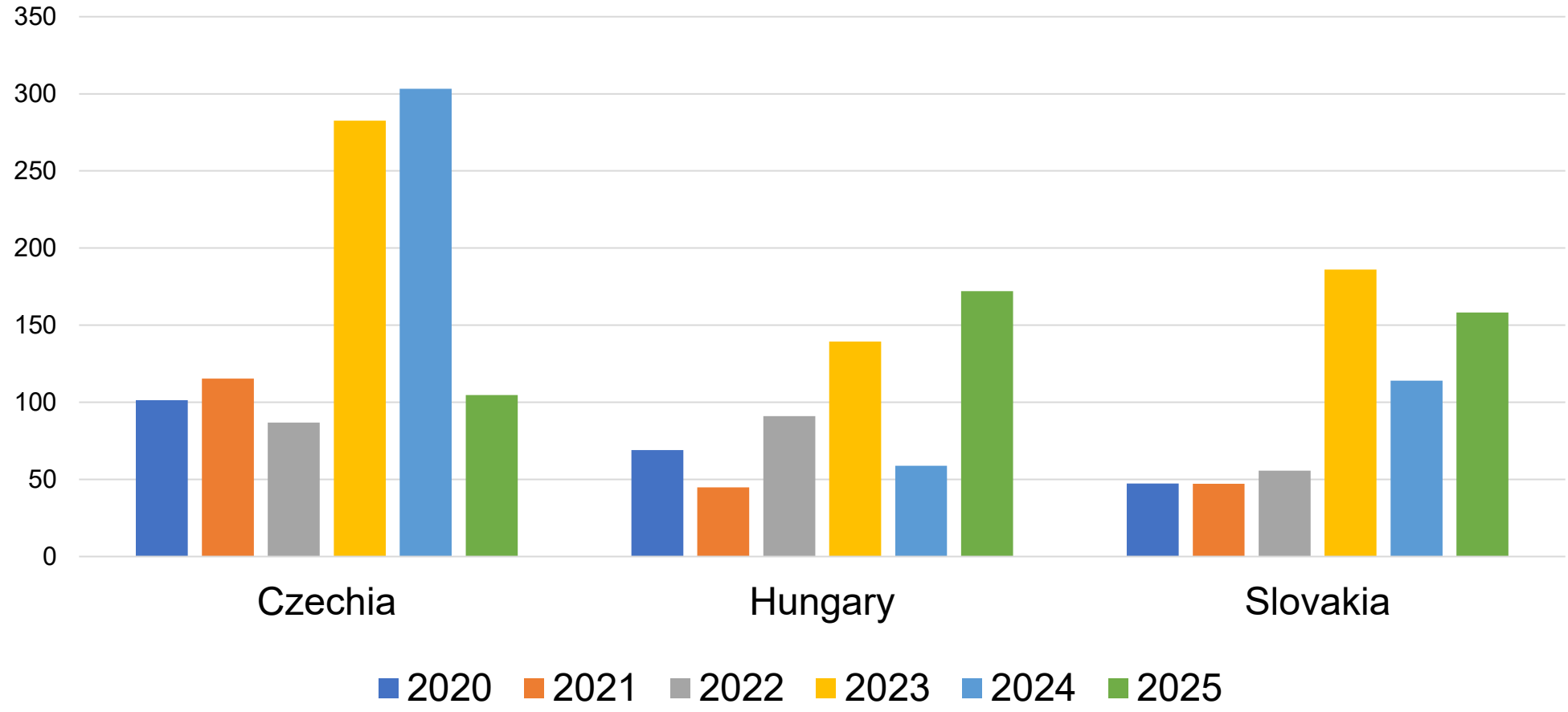
Diversification of nuclear fuel supplies

VVER 1000 vs. VVER 440

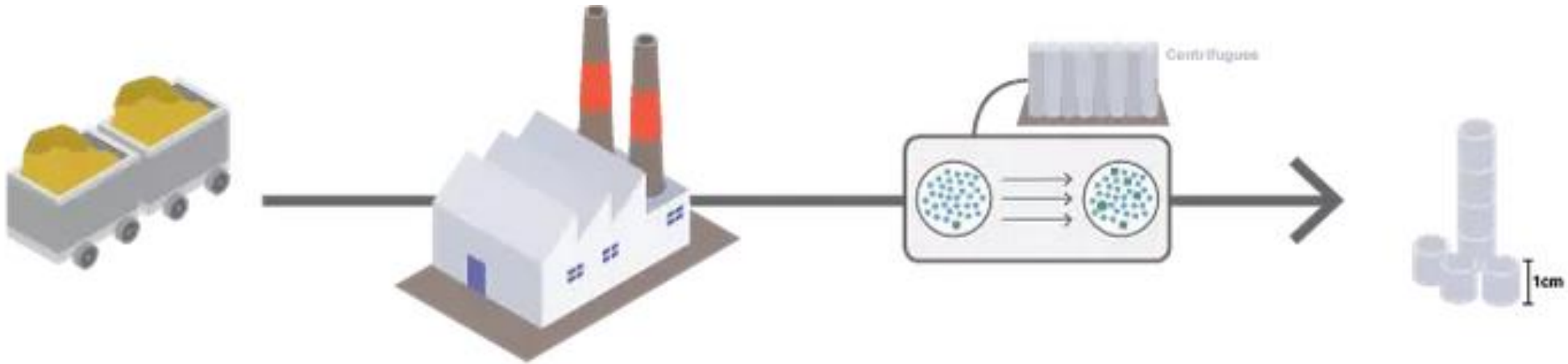


Source: Energy Encyclopedia

Import of Russian nuclear fuel



Source:
Access2Markets



Mining and milling: uranium ore is mined, crushed and treated to separate it from other elements, a yellow powder of uranium oxide is produced.

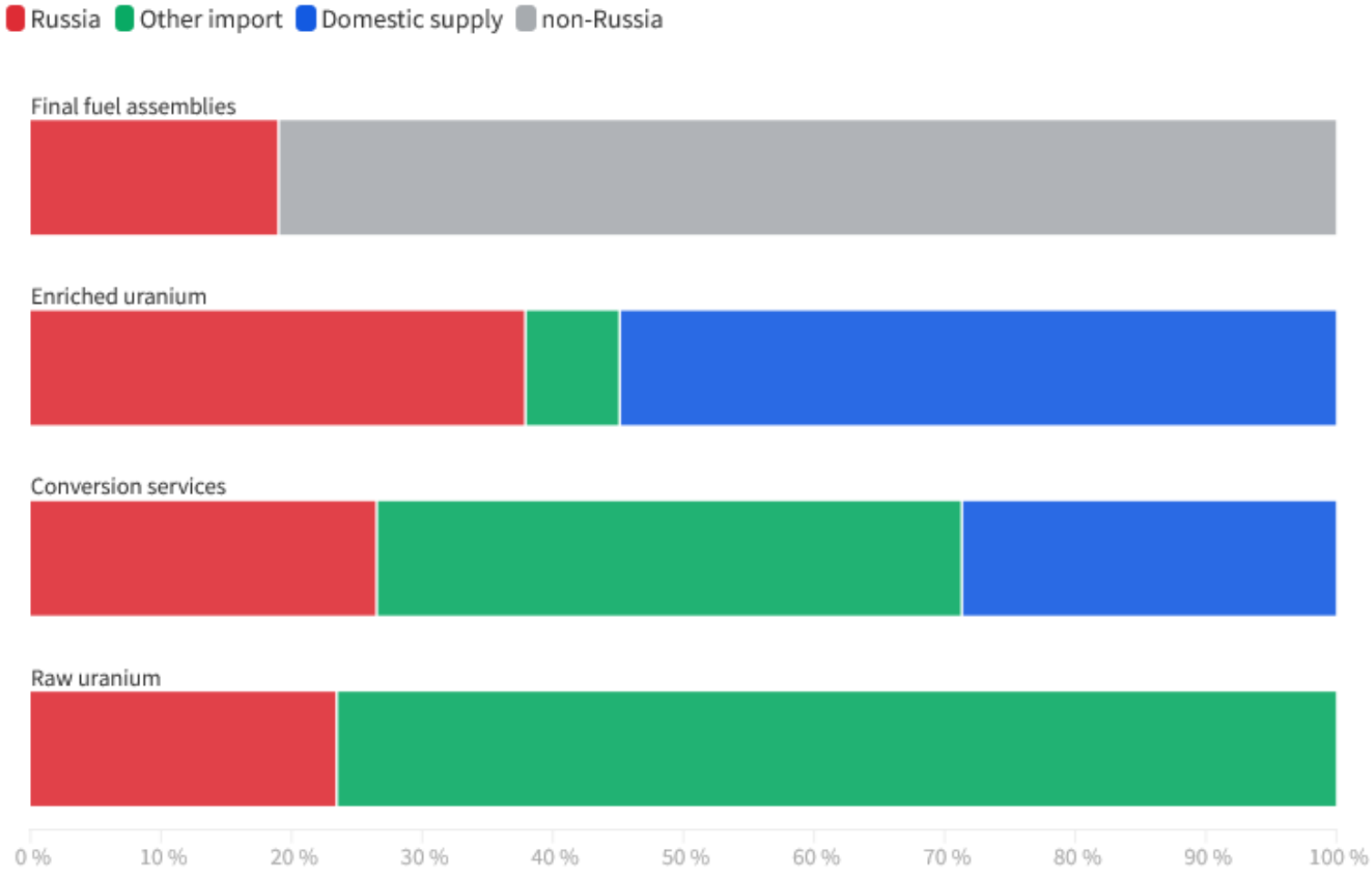
Conversion: the so-called "yellow cake" is converted into a gaseous form (uranium hexaflouride) ready for enrichment.

Enrichment: uranium hexaflouride is enriched to reach the necessary uranium concentration for a nuclear fission reaction.

Fuel fabrication: solid enriched uranium hexaflouride is converted and heated to form fuel pellets, rods and assemblies. The nuclear fuel is now ready to be loaded into a reactor core for electricity generation.

Source: Bruegel

Figure 4: EU supply across the uranium fuel cycle, 2023

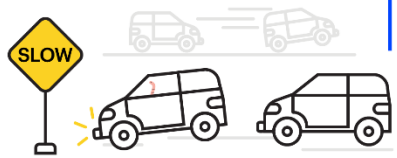


Production vs. Consumption

A 10-Point Plan to Cut Oil Use

iea.org

1 Reduce speed limits on highways by at least 10 km/h



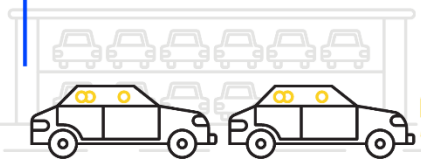
2 Work from home up to three days a week where possible

3 Car-free Sundays in large cities

4 Make public transport cheaper; incentivise micro-mobility, walking and cycling

5 Alternate private car use in large cities

6 Urge car sharing and practices that decrease fuel use



7 Promote efficient use of freight trucks and goods delivery

8 Prefer high-speed and night trains to planes where possible

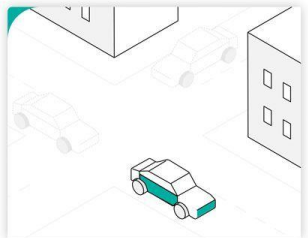
9 Avoid business travel when alternatives exist

10 Hasten adoption of electric and more efficient vehicles

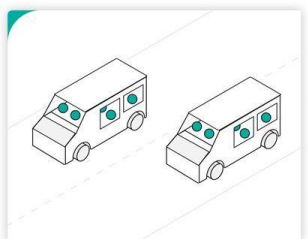
Sheltering from oil shocks

10 measures to reduce impacts on households and businesses

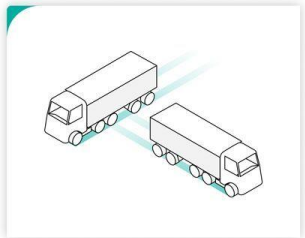
Road transport fuels
Air transport fuels
Cooking fuels
Oil use in industry



Alternate-day car access in big cities

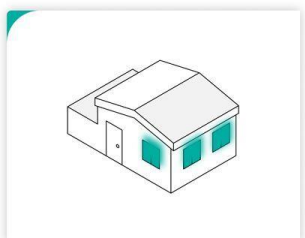


Increase car sharing

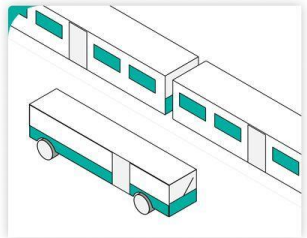


Drive commercial vehicles efficiently

Lower highway speed limits

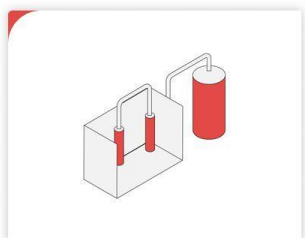


Work from home where possible



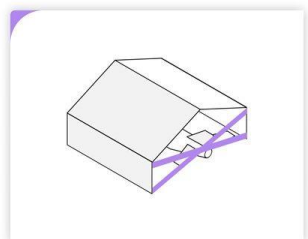
Encourage public transport use

Free up LPG from transport for cooking



Be flexible with petchem feedstocks

Switch to alternative modern cooking solutions



Avoid air travel if alternatives exist

Energy savings potential

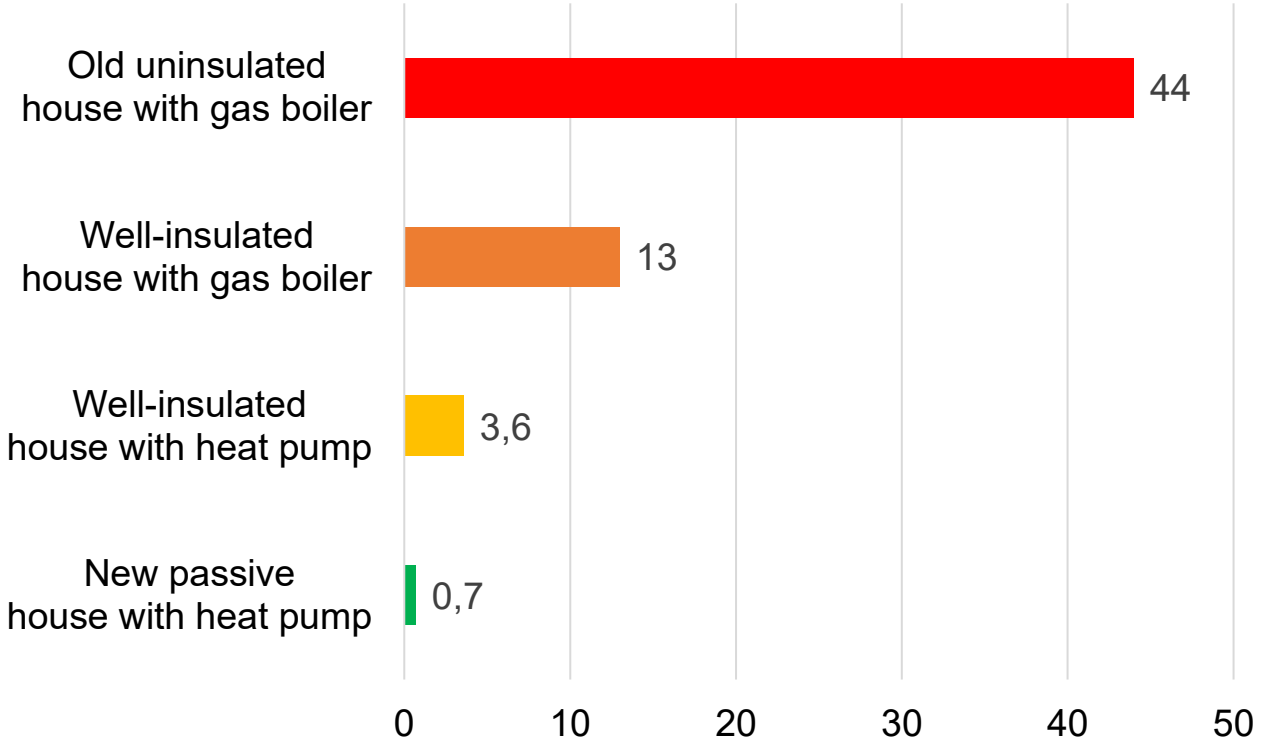
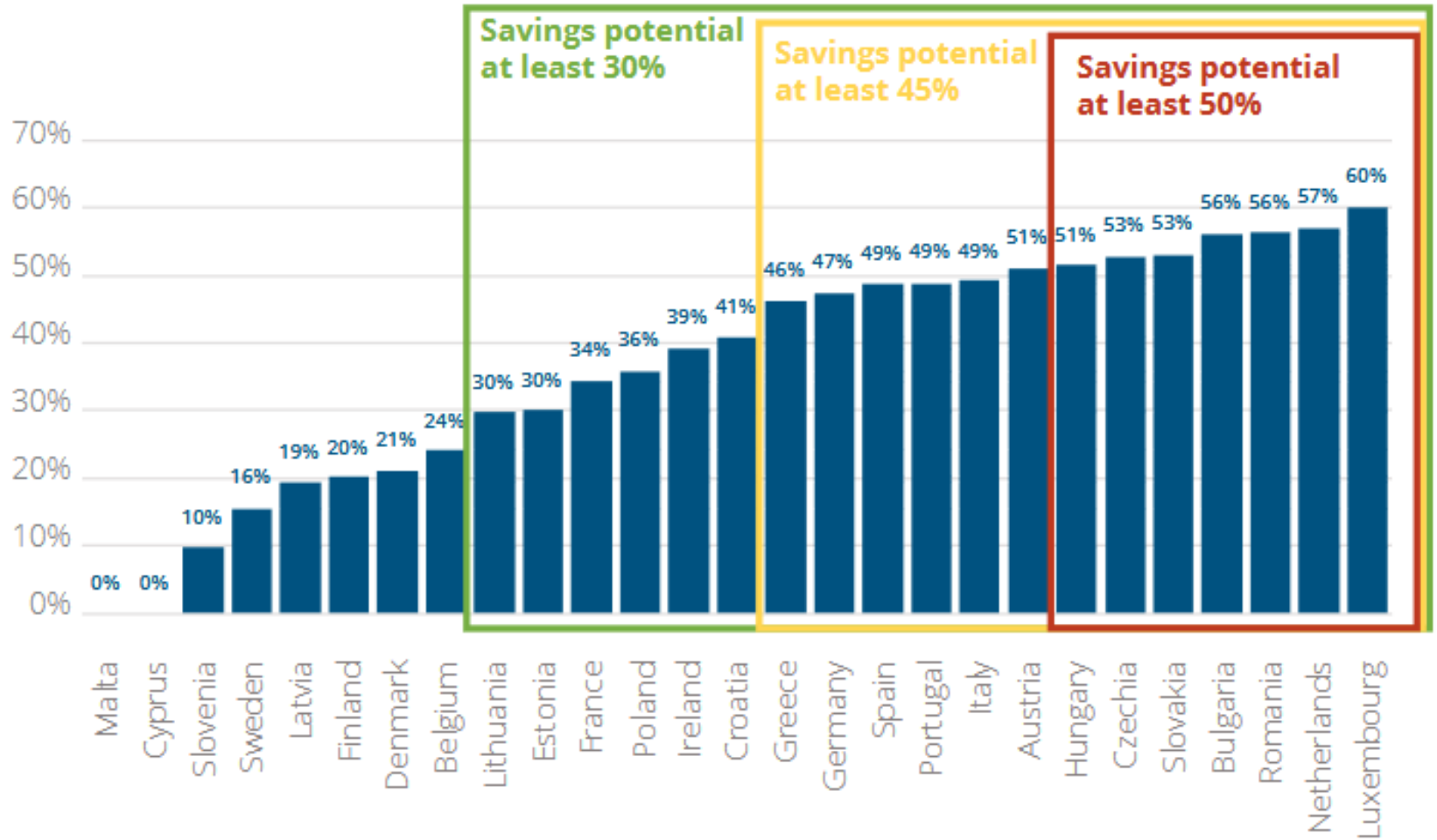


Figure 6: Gas savings potential for residential heating in EU Member States[22]



Source: BPIE

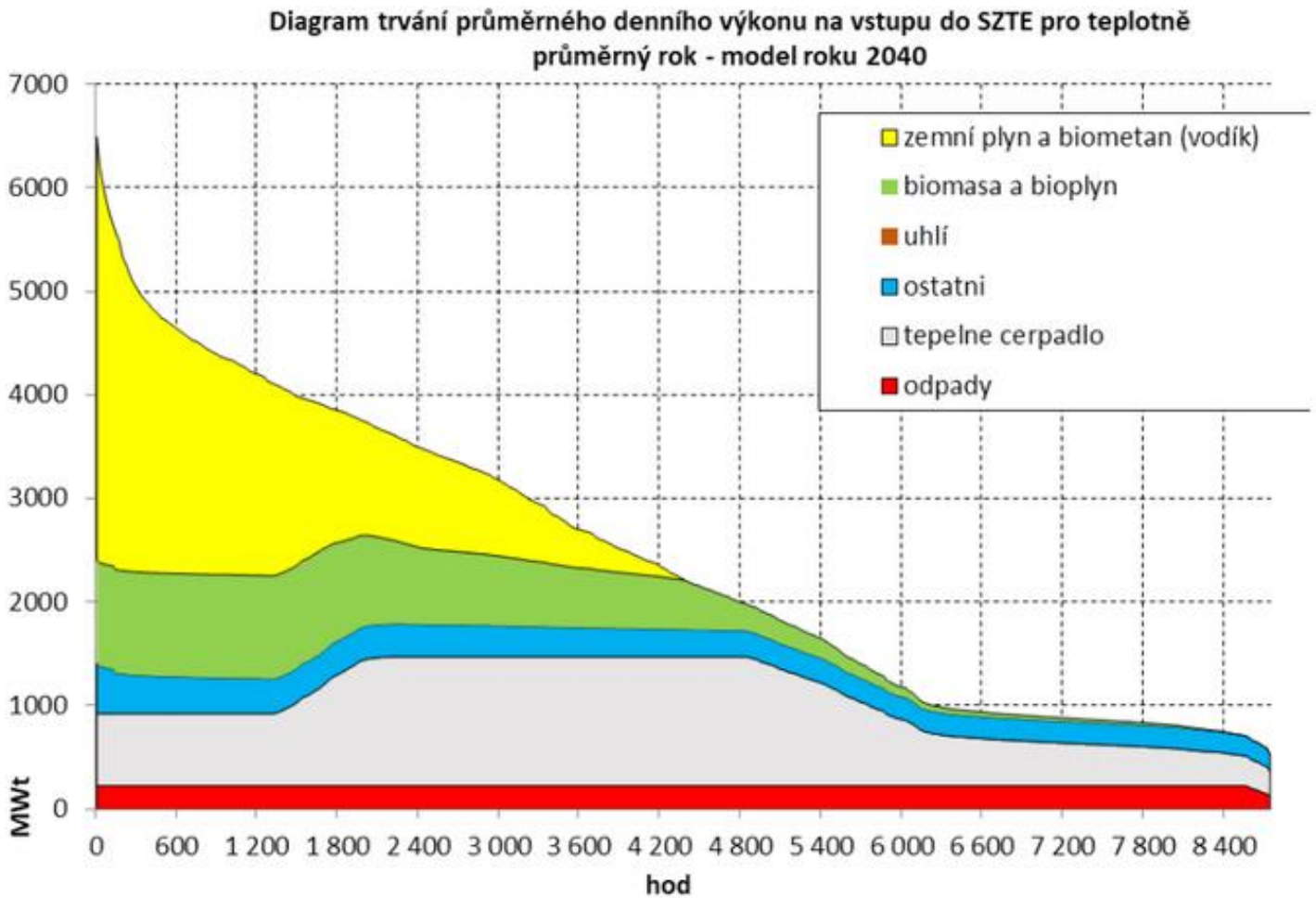


Diagram trvání průměrného denního výkonu na vstupu do SZTE pro teplotně průměrný rok - model roku 2040
7000
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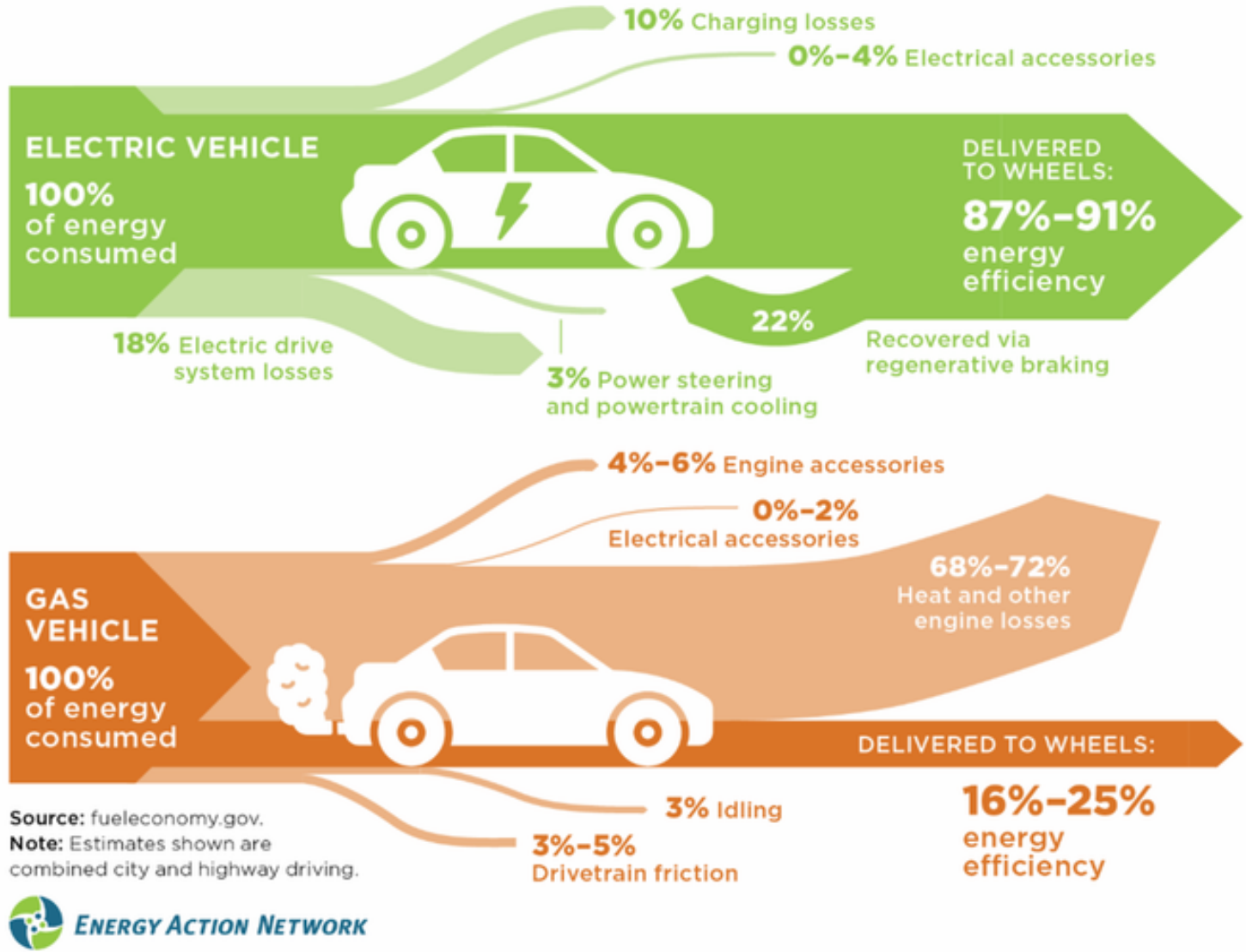
7 800
8 400
hod
zemní plyn a biometan (vodík)
biomasa a bioplyn
uhlí
ostatni
tepelne cerpadlo
odpady

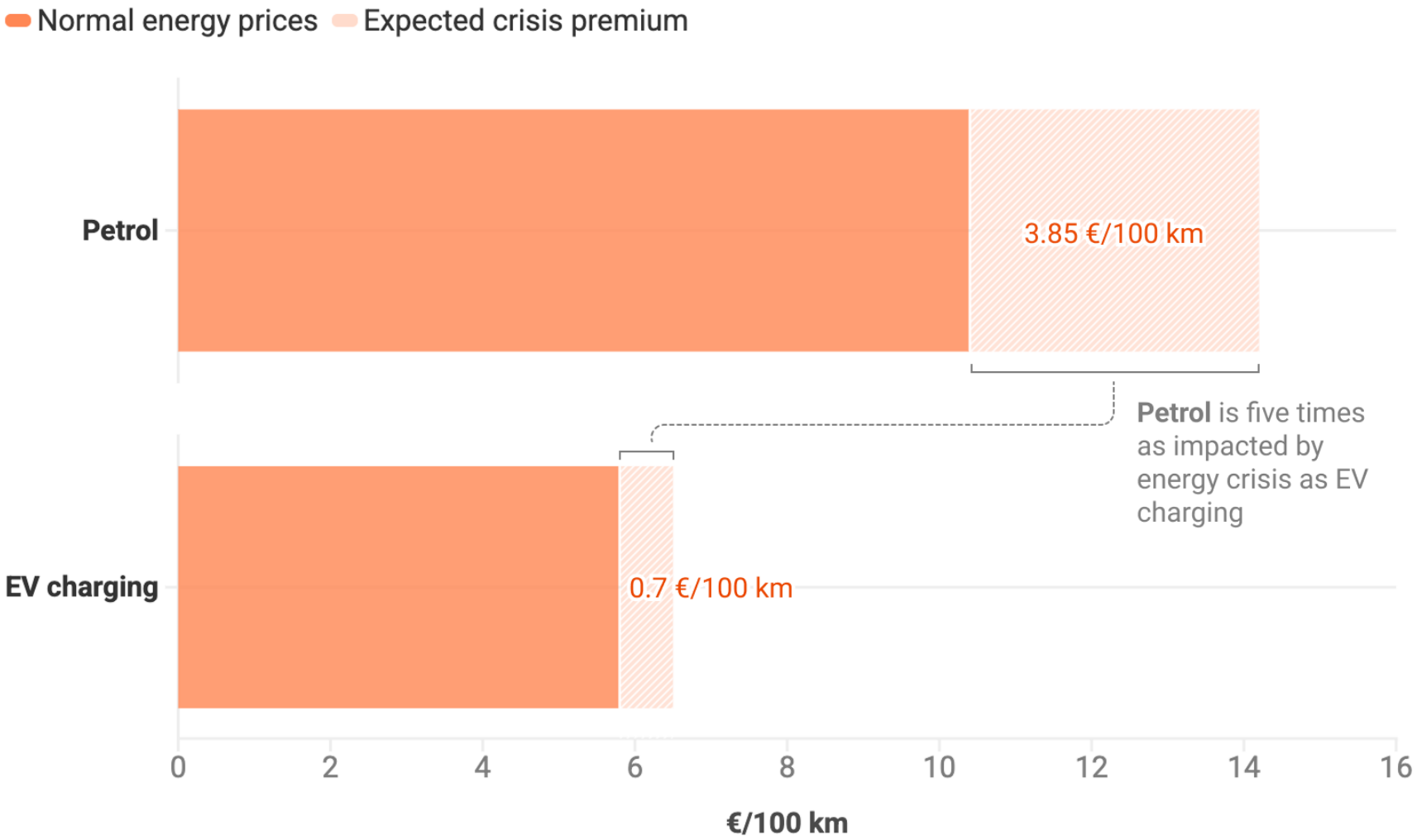
Where the energy goes: Electric vehicles vs gas vehicles



Source: fueleconomy.gov.
Note: Estimates shown are combined city and highway driving.

ENERGY ACTION NETWORK

Petrol cars five times more affected by energy crisis than EVs



Source: T&E analysis

T&E

Thank you for your attention

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