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GAS PHASE-OUT STRATEGY FOR SOUTHEAST EUROPE: Implications for Regional Energy and Climate Security

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The Pillars of the Energy and Climate Security Risk Index

Energy and Climate Security Risk Index

Geopolitics

- Security of World Oil Reserves
- Security of World Oil Production
- Security of World Natural Gas Reserves
- Security of World Natural Gas Production
- Security of World Coal Reserves
- Security of World Coal Production
- Security of Petroleum Imports
- Security of Natural Gas Imports
- Crude Oil Price Volatility

Affordability

- Oil & Natural Gas Import Expenditures
- Oil & Natural Gas Import Expenditures per GDP
- Energy Expenditures per GDP
- Energy Expenditures per Capita
- Retail Electricity Prices - HH
- Crude Oil Prices
- Energy Expenditure Volatility
- Science & Engineering Degrees

Reliability

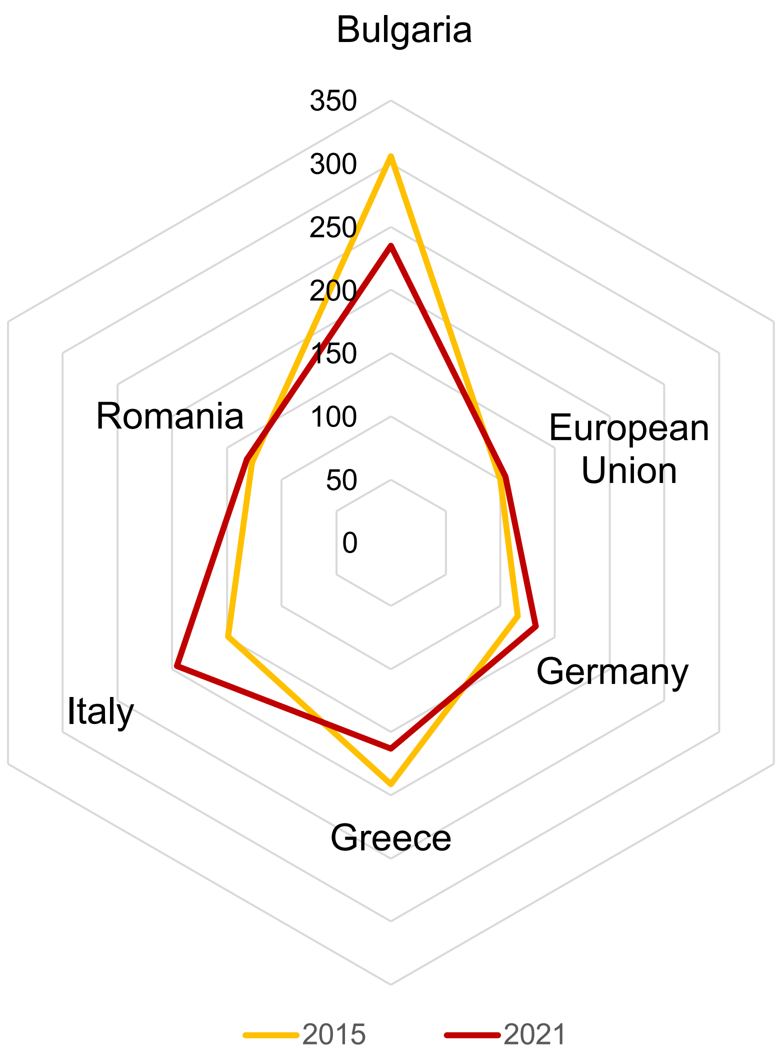
- World Oil Refinery Utilization
- Petroleum Stock Levels
- Energy Consumption per Capita
- Household Energy Efficiency
- Commercial Energy Efficiency
- Industrial Energy Efficiency
- Electricity Capacity Diversity
- Electricity Capacity Margins
- Electricity Transmission Line Mileage
- Transmission and Distribution Losses
- Transportation Energy Use per Capita
- Transportation Energy Use per $ GDP

Sustainability

- Energy Intensity
- Fossil Energy Intensity
- Transportation Non-Petroleum Fuels
- Energy-Related CO_2 Emissions
- Energy-Related CO_2 Emissions per Capita
- Energy-Related CO_2 Emissions Intensity
- Electricity Non-CO_2 Generation Share
- Land Cover
- Waste per Capita
- Waste Recovery

Source: *CSD.*

Security of Natural Gas imports [index points]



Source: CSD

How did we get here?

- Europe's excessive reliance on Russian natural gas has been a key risk to the region's energy and climate security.
- Southeast Europe is particularly vulnerable to energy and climate security risks due to its historically greater dependence on Russian gas and the persisting energy poverty crisis in the region.
- While some countries in Southeast Europe reduced their dependence on Russian gas, Italy and Germany went the other way.
- Ahead of the war in Ukraine, Bulgaria and Italy were among the most vulnerable EU member states in terms of security of natural gas imports.

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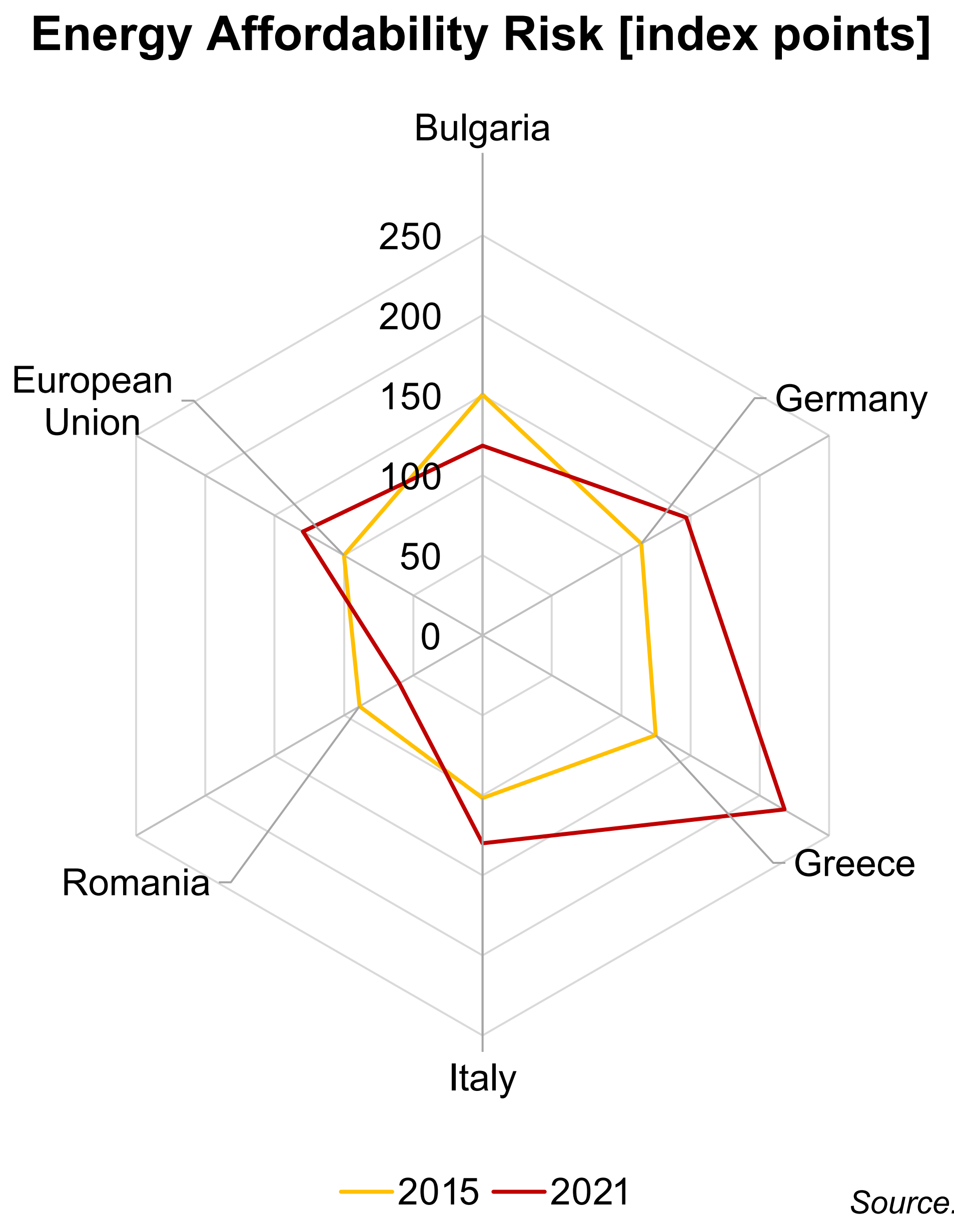


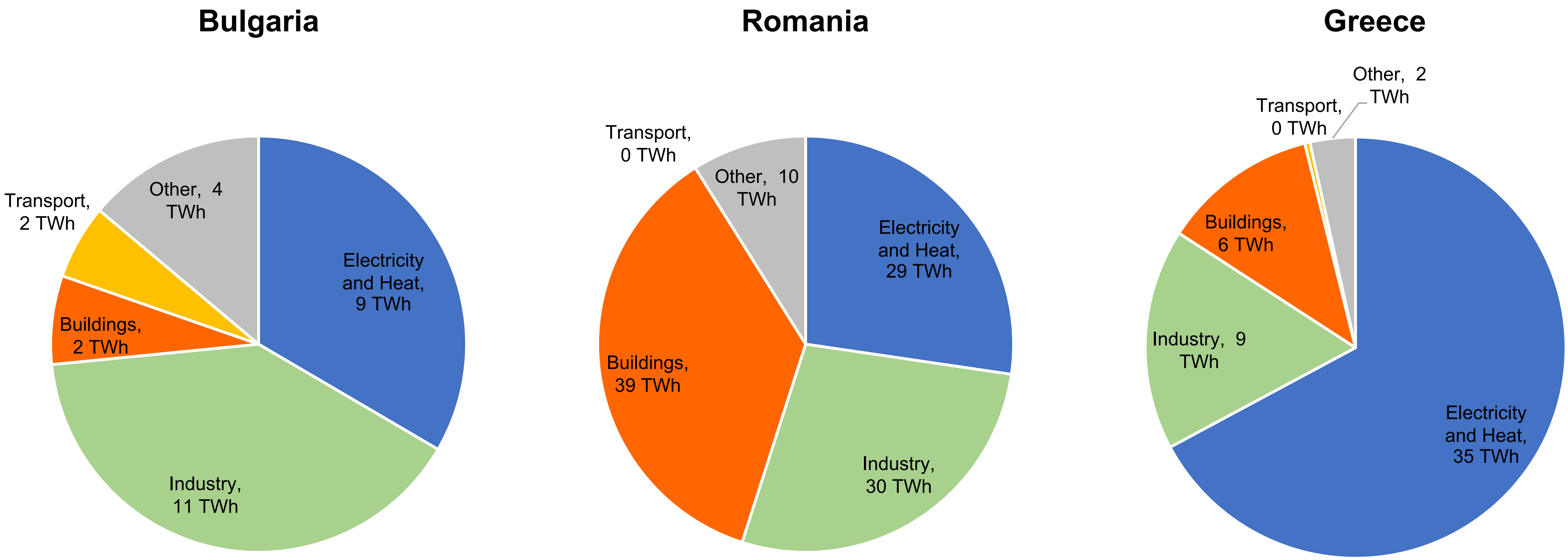
Source: CSD

How did we get here?

- The growing role of natural gas as a transition fuel in many EU member states has come together with a growing dependence on Russia and the geopolitical and affordability risks that come with this.
- Rising fossil fuel prices, reverberating through electricity prices, have been a key factor behind the energy affordability crisis.
- The delayed transition to renewable energy sources has kept Southeast Europe vulnerable to the volatility of fossil fuel prices.

National gas dependencies and phase-out challenges require a targeted strategic approach

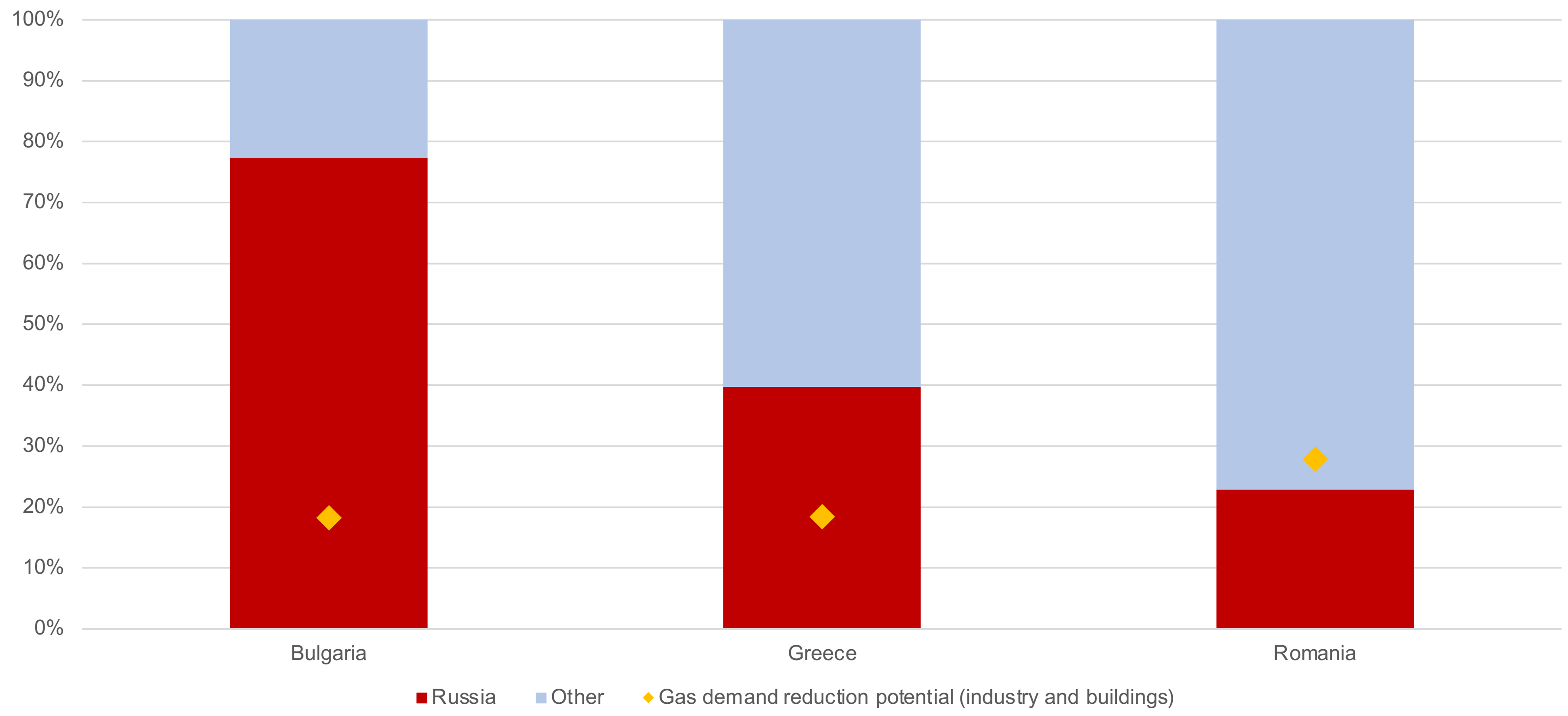
Natural Gas Demand by Main Use



Source: Eurostat data

The gas demand reduction potential from Industry and Buildings by 2030 could significantly reduce the need for new infrastructure investments for gas import diversification

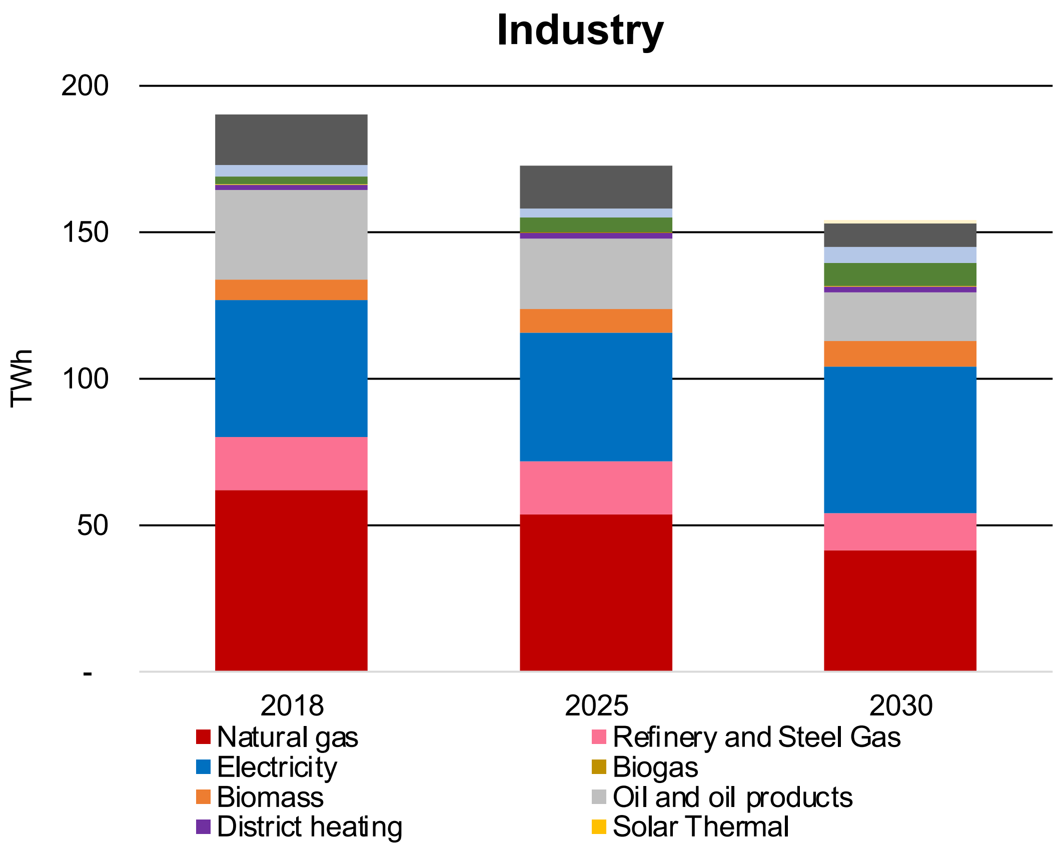
Natural Gas Import Shares by Origin (2021) and Demand Reduction Potential from Industry and Buildings by 2030

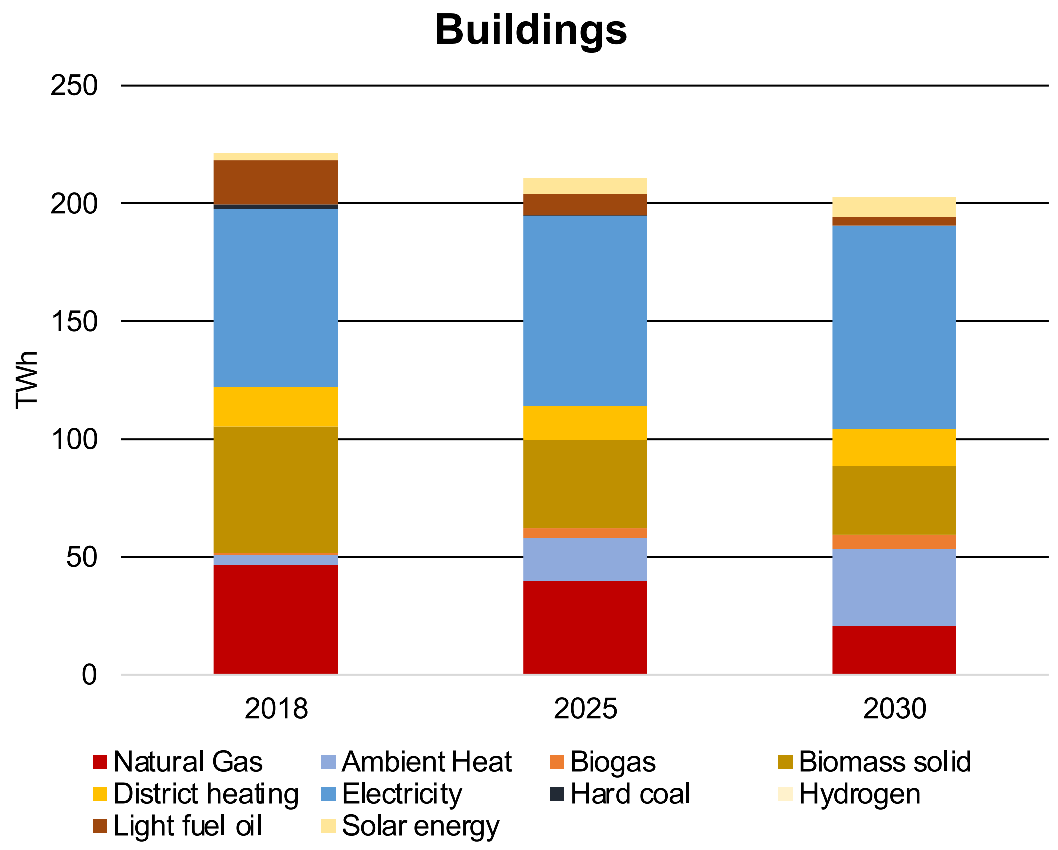


Source: CSD based on IEA (import shares), Wuppertal Institute (national demand reduction pathways modelling)

Efficiency gains and electrification offer the greatest potential for sustainable gas demand reduction

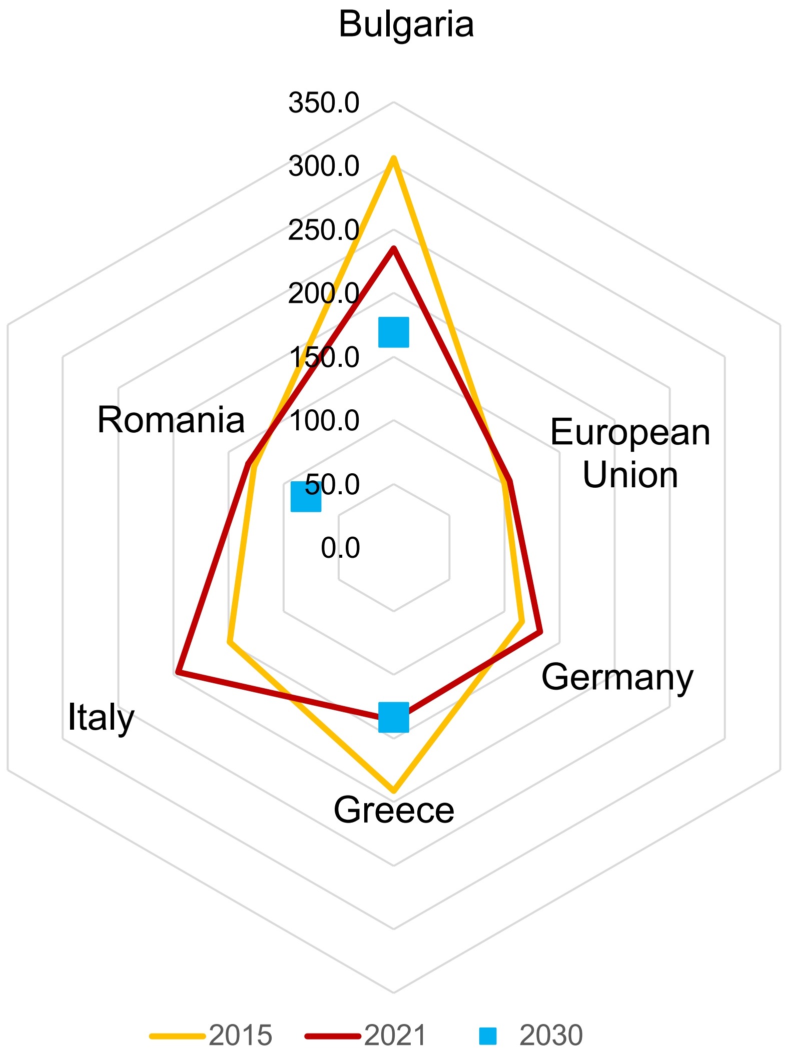
Gas phase-out trajectory for Bulgaria, Romania, and Greece for Industry and Buildings





Source: CSD based on Wuppertal Institute (national demand reduction pathways modelling)

Security of Natural Gas imports [index points]



Source: CSD

Geopolitical Risk Reduction

- Lower natural gas demand based on the estimated potential from industry and buildings alone could directly translate into lower dependence on Russian gas and lower risk for natural gas import security:
  - Bulgaria: -28%
    - Lower, more diversified imports
  - Romania: -40%
    - Lower import dependence overall
  - Greece: -1%
    - Diversification gains that could be further maximized through a smart LNG procurement strategy

What's next?

- Emergency solutions are critical for tackling extreme energy prices and Russian gas supply cuts
  - Financial protection for vulnerable consumers
  - Additional coal-fired electricity
  - Maximizing alternative gas imports and gas savings
- Long-term investments cannot be planned based on short-term emergency signals.
- Large new gas infrastructure projects risk a further gas lock-in and stranded assets.
- A sustainable improvement of Southeast Europe’s energy and climate security needs to step on
  - Empowering energy poor consumers to become prosumers as key solution to energy poverty challenges
  - Support a transformational shift in industry based on innovation and higher value-added sectors

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