

COMPARING SECURITY OF ENERGY SUPPLY AND GAS DIVERSIFICATION IN HUNGARY AND POLAND

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Outline

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Focus on Poland, with some comparisons with Hungary

- Electricity mix and approaches towards supply security
- The security of the stationary fuel supply and gas diversification
- Summary and conclusions

MANAGING ENERGY SUPPLY SECURITY AND
GAS DIVERSIFICATION IN HUNGARY

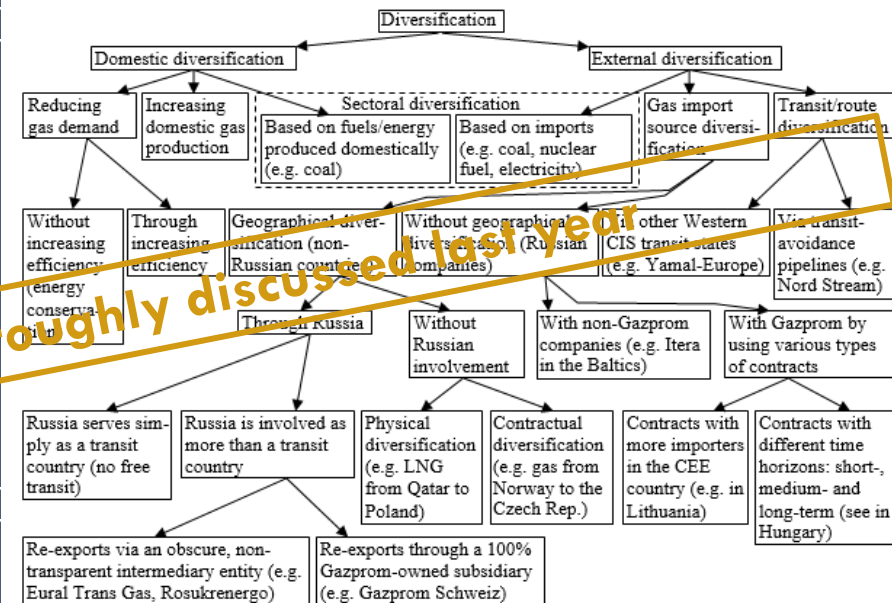
PUTTING THEORY INTO PRACTICE

WP

Table 1. Different definitions of security of supply

1. Traditionalists' survival-based definitions
– Buzan et al. (1998)
2. Dimensional classifications
– two-dimensional definitions: availability and price (cost)
– Manners (1964), IEA (1985), UNDP (2000), Yergin (2006, 2011)
– three- and multidimensional definitions
– Elkind (2010): availability, reliability, affordability and environmental sustainability
– APERC (2007): four 'A's: availability, accessibility, affordability and acceptability
– Sovacool and Mukherjee (2011): availability, affordability, technology development, sustainability and regulation
– Alhajji (2007): economic, environmental, social, foreign policy, technical and security dimensions
– Wicks (2009): physical, price and geopolitical security
– Hippel et al. (2011): environment, technology, demand-side management, social-cultural factors and international relations or military risks
3. Other definitions
– Cherp and Jewell (2011): three perspectives: sovereignty, robustness and resilience
– Stirling (2007): system properties consisting of stability, durability, resilience and robustness

Figure 1. A CEE diversification scheme for gas



Source: Weiner (2017).

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Energy/electricity mix

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Poland

- ▣ Still a coal-addicted economy
- ▣ Installed electricity generation capacity in 2016:
 - coal: 46%
 - lignite: 23%
- ▣ Electricity generation in 2016:
 - coal: 50%
 - lignite: 32%
- ▣ Up to 2050, almost a half of installed capacity must be replaced
- ▣ Shortages of power to appear inevitably
 - first serious shortage in August 2015

Hungary

- ▣ Electricity generation by the nuclear power plant and a lignite-fired power plant in 2015: 50% + 20%
- ▣ Net electricity imports as a threat
- ▣ Electricity supply should not be dependent on imports
- ▣ To achieve electricity self-sufficiency

Supply security

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Poland

- ▣ The energy policy agenda is securitized
- ▣ Political aspects
 - another distinct dimension?
 - under the dimension of availability?
 - not to mix security of supply with geopolitical arguments?
- ▣ Two main factors
 - the need to reduce external dependence
 - Russia: gas and oil imports
 - Germany: dependence on renewables technology
 - to preserve the role of coal
 - self-sufficiency and independence from foreign influence
- ▣ The most sensitive issues: gas and coal

Hungary

- ▣ Conventional three-dimensional approach
- ▣ Russian energy relations: not as a threat
- ▣ A huge nuclear deal with Russia
- ▣ The most sensitive issues: gas and nuclear

Coal

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Poland

- Hard coal
 - ▣ Restructuring started in 1990, but not yet completed
 - ▣ Domestic economic, social and political aspects
 - ~90 thousand jobs
 - high state ownership
 - strong unions
 - ▣ Problems
 - high costs of mining
 - geological factors
 - high social costs
 - quality questions compared to
 - low labour productivity
 - imported hard coal
 - ▣ Low international coal prices = financial problems
 - ▣ Heavy reliance on subsidies
 - ▣ Law and Justice: to save and defend the coal industry
 - to modernise existing power plants
 - to build new plants
 - ▣ Change in rhetoric?
- Lignite
 - ▣ The 4th producer worldwide, the 2nd in the EU
 - ▣ More private ownership
 - ▣ Lignite is cheaper, lower cost of producing energy
 - ▣ Higher CO₂ emissions

Hungary

- Only three power stations that (can) (also) burn coal
- A lignite-fired power plant is of great importance: under the control of an oligarch
- Current licenses expire in 2025
- Two reasons why maintaining coal-based energy production
 - ▣ in case of an energy crisis, coal is the only internal reserve which could be rapidly mobilized
 - ▣ to prevent losing the professional culture

Renewables

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Poland

- Poland
 - ▣ Sustainability is clearly neglected
 - ▣ Hard-line climate policy opponent because of
 - energy independency targets
 - the aim of preserving coal-based electricity
 - ▣ A fundamental restructuring of the role of renewables in the 2010s
 - before 2007: hydropower ranked 1st
 - 2007–2014: solid biofuels played the most significant role
 - co-firing of biomass: had long been profitable
 - ▣ Wind power: the most spectacular rise
 - 2011: 2nd, 2015: 1st
 - 7th largest wind power capacity in the EU
 - a new Wind Farm Act restricting wind power dev.
 - ▣ Solar energy
 - negligible, but 2015, 2016: has grown considerably

Hungary

- Political environment: a big challenge
- Does not believe that renewables will have a powerful role
- Target share of renewables in gross final energy consumption has been achieved because of a change in statistical methodology
- Wood biomass: the largest renewable source
- Wind energy: small and a de facto ban
- Hydro and solar: a marginal role

Nuclear

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Poland

- No nuclear capacity
- An abandoned nuclear power plant
- In energy policy
 - ▣ 2005 energy strategy
 - ▣ 2009 energy strategy
 - ▣ Polish Nuclear Energy Program
 - two nuclear power plants: approximately 3 GW each
 - ▣ new draft Polish energy policy
- Lithuania
- 2017: 1.2-GW nuclear power station by around 2030
- No decision has been taken on the method of funding

Hungary

- A notorious nuclear supporter
- A priority to the availability, the only real solution is Paks-2
- Debates on the affordability dimension

Gas security 1

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Poland

- Gas security
 - ▣ “dependence on Russian imports = gas security” formula
- Gas consumption
 - ▣ seventh biggest gas consumer in the EU
 - ▣ small share of gas in Poland’s electricity and energy mix
 - ▣ the share of gas will increase
 - ▣ there is a room for reducing gas demand through increasing efficiency
- Gas production
 - ▣ not negligible
 - ▣ shale
 - hype of the early 2010s, but all efforts have failed
 - foreign companies have faced difficult geological and regulatory terrain
 - lower oil prices have discouraged investment
 - Poland aimed at eliminating dependence on Gazprom
 - Climate incentives were not considered

Gas security 2

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Poland

- Imports in 2016
 - ▣ By pipeline
 - Russia: 74.3% ■ Germany: 18.2% ■ Czech Republic: 0.04%
 - ▣ LNG
 - Qatar: 6.9% ■ Norway: 0.6%
- Not to extend the Russian supply contract when it expires in 2022
 - ▣ replace it with that of Norwegian via a yet-to-be built pipeline and with LNG
- Infrastructure
 - ▣ in the 2010s, notable steps have been made
 - ▣ Further pipeline plans or projects
- Contracts
 - ▣ The 1990's: a stream of diversification announcements, but only a small contract with Norway
 - ▣ Before 2009: from Ukraine and from Central Asia through intermediary companies
 - ▣ LNG
 - one long-term and one mid-term LNG supply contract + the spot market
 - questions about the price or affordability dimension

Gas security 3

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Hungary

- Hungary's dependence on Russian gas has decreased, gas security has increased
 - ▣ availability of large-scale cheaper gas imports from Western Europe
 - ▣ constructions of new gas interconnections
 - ▣ sharply decreasing domestic gas consumption
- But
 - ▣ electricity imports, and the role of nuclear power and coal has increased
 - ▣ domestic gas production has declined
 - ▣ large pipeline projects have failed
- There has been a shift in domestic energy security policy towards the affordability dimension
- Unlike Poland, the Hungarian government intends to sign a new long-term gas supply contract with Gazprom

Summary and conclusions

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- Hungary: the three-dimensional approach is appropriate, Poland: some correction is required
- Great uncertainty about Poland and Hungary's energy policy and supply security
- What future role for the particular fuels in the energy mixes?
- Coal
 - The industry captures Poland's energy policy? The geopol. dimension also cements reliance. But low energy import dependence
 - In Hungary: no decision to introduce a new lignite power plant
- Renewables
 - Both Poland and Hungary are sceptical
 - Renewables do not affect the role of conventional power industry
- Nuclear
 - Poland: no decision to take off the project
 - Paks-2: a domestic diversification, an unexpected turn regarding Hungary's energy dependence
- Gas
 - Since 2009, both countries have taken action to diversify
 - Hungary: to sign an advantageous long-term gas supply contract
 - Poland: goodbye to Russian gas?