



RISKS IN THE MODERN WORLD OF ENERGY AND THEIR GOVERNANCE

Janez Kopač

Istanbul, 27 May 2019

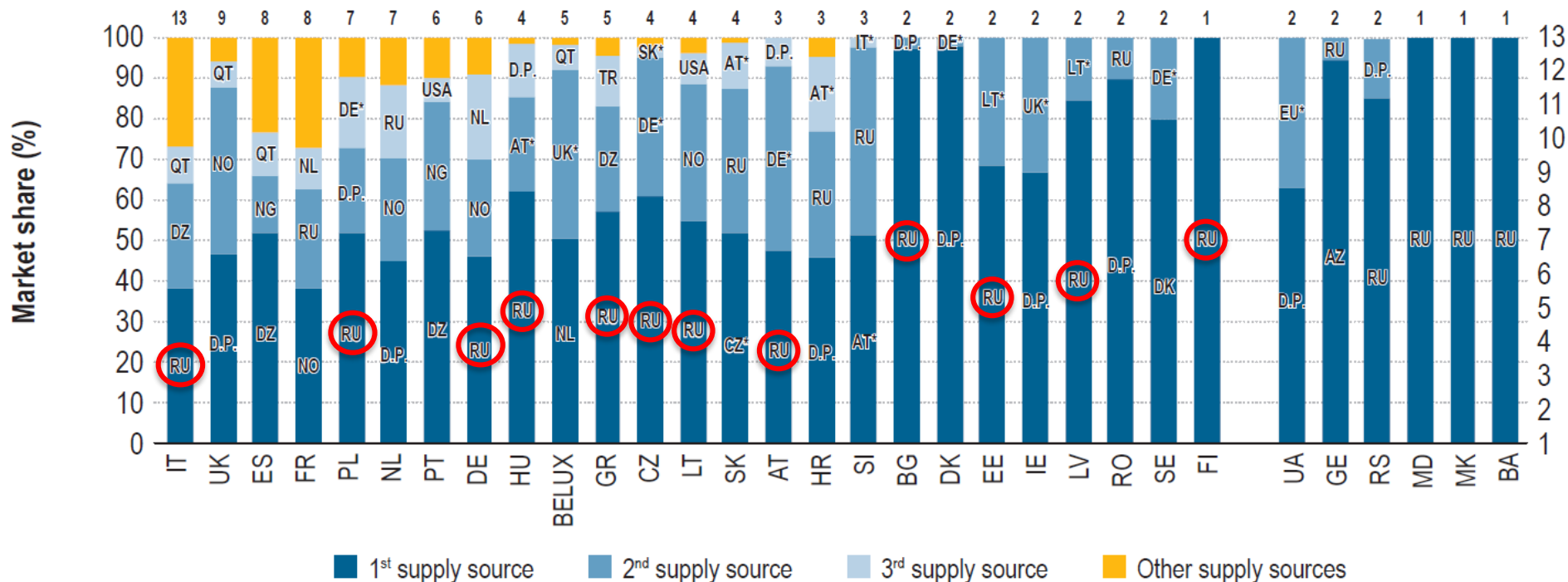
Monopolies:

- ***Commodity supply***
- ***Territorial***
- ***Commodity demand***

Imbalances:

- ***Income dependence***
- ***Overconsumption-climate risk***

Russian gas represents the largest supply source for 17 European countries (for 5 of them 100%)



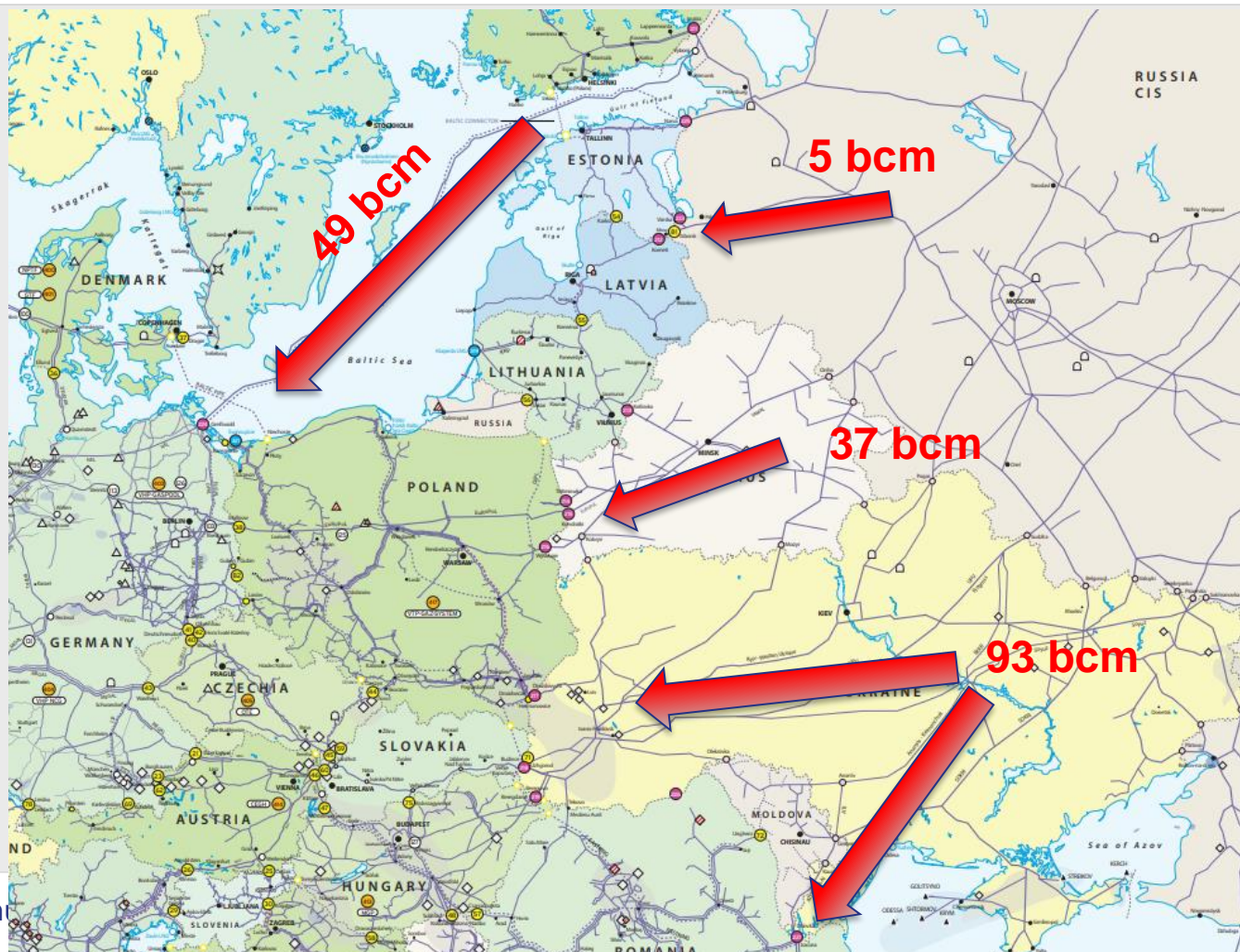
Source: [ACER Market Monitoring Report 2018](#)

The EU's dependence on Chinese critical raw materials.Sources: [Eurostat, 2013](#); [Moss et al., 2013](#), 560; authors' research

Material	Dependency on China	Percentage sourced from China	Other main possible supply sources
Solar			
Tellurium	Low	20*	Japan, Belgium, Sweden
Indium	Medium	58	Belgium, Germany, Italy, Netherlands, UK
Gallium	Medium	69	France
Wind			
Neodymium	High	90	Australia
Dysprosium	High	99	–

* For tellurium only global production data is available

Flows of Russian gas to the EU – territorial monopoly



EU spends roughly 400 billion euro per year on energy imports

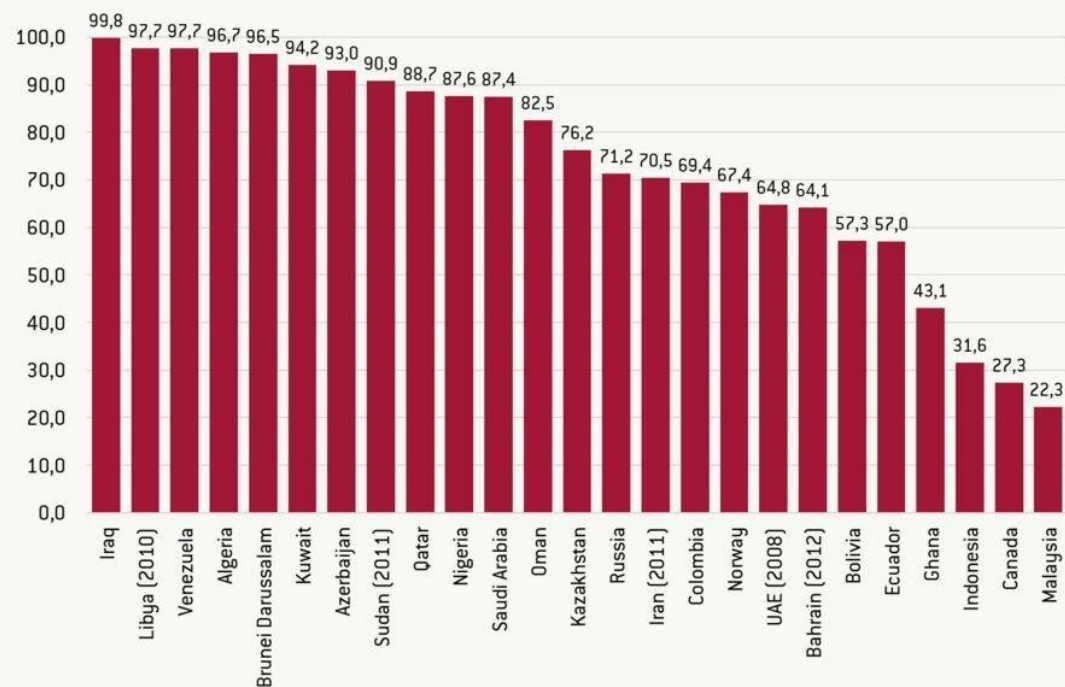
Donald Tusk's first idea on Energy Union

Euroatom (1957)

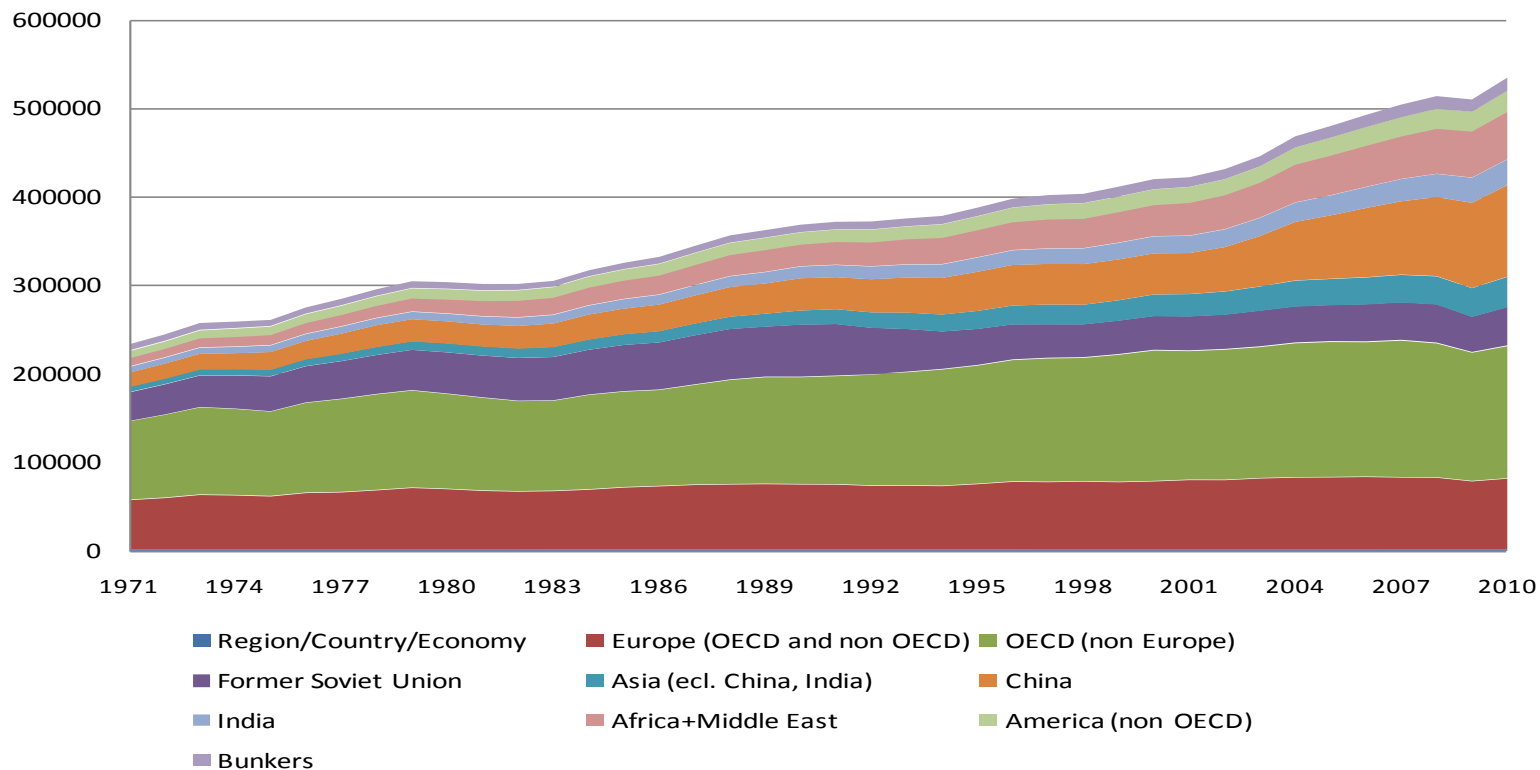
Caspian Development Corporation (2010)

Carbon based life

Figure 2: Fuel exports as percentage of merchandise exports, 2013 unless otherwise indicated

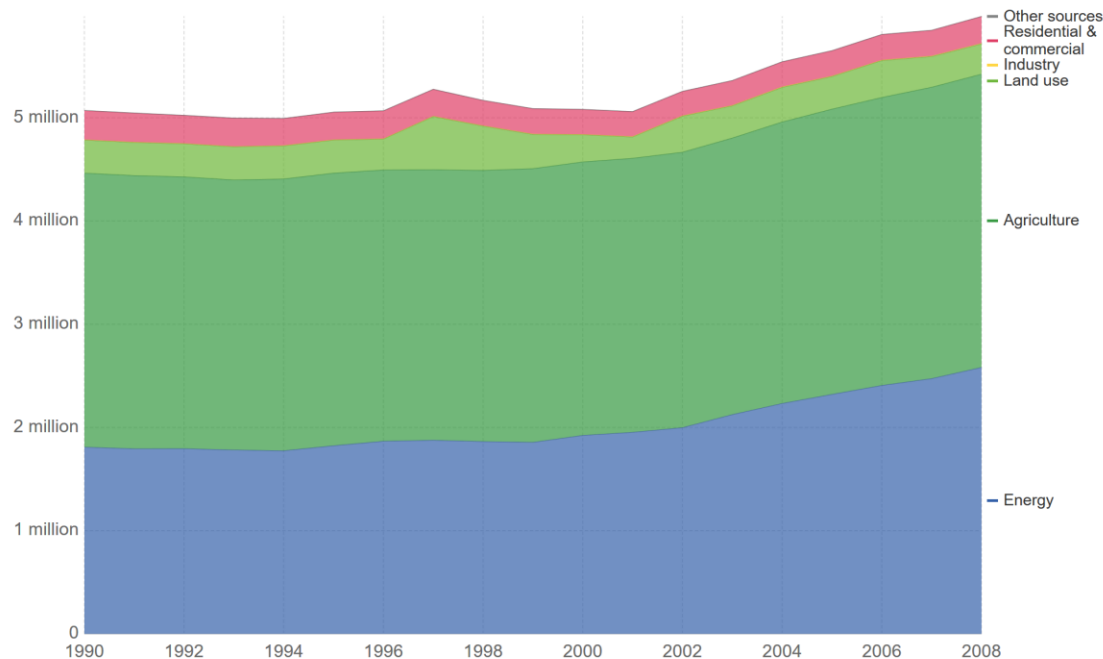


Development of PES consumption, PJ



Methane emissions by sector (Gg CO₂e)

Breakdown of total global methane (CH₄) emissions by sector, measured in gigagrams of carbon-dioxide equivalents (CO₂e). Carbon dioxide equivalents measures the total greenhouse gas potential of the full combination of gases, weighted by their relative warming impacts.



Source: UN Food and Agricultural Organization (FAO)

OurWorldInData.org/co2-and-other-greenhouse-gas-emissions/ • CC BY-SA

The Other World

1,2 billion people (17% of global population) have no electricity

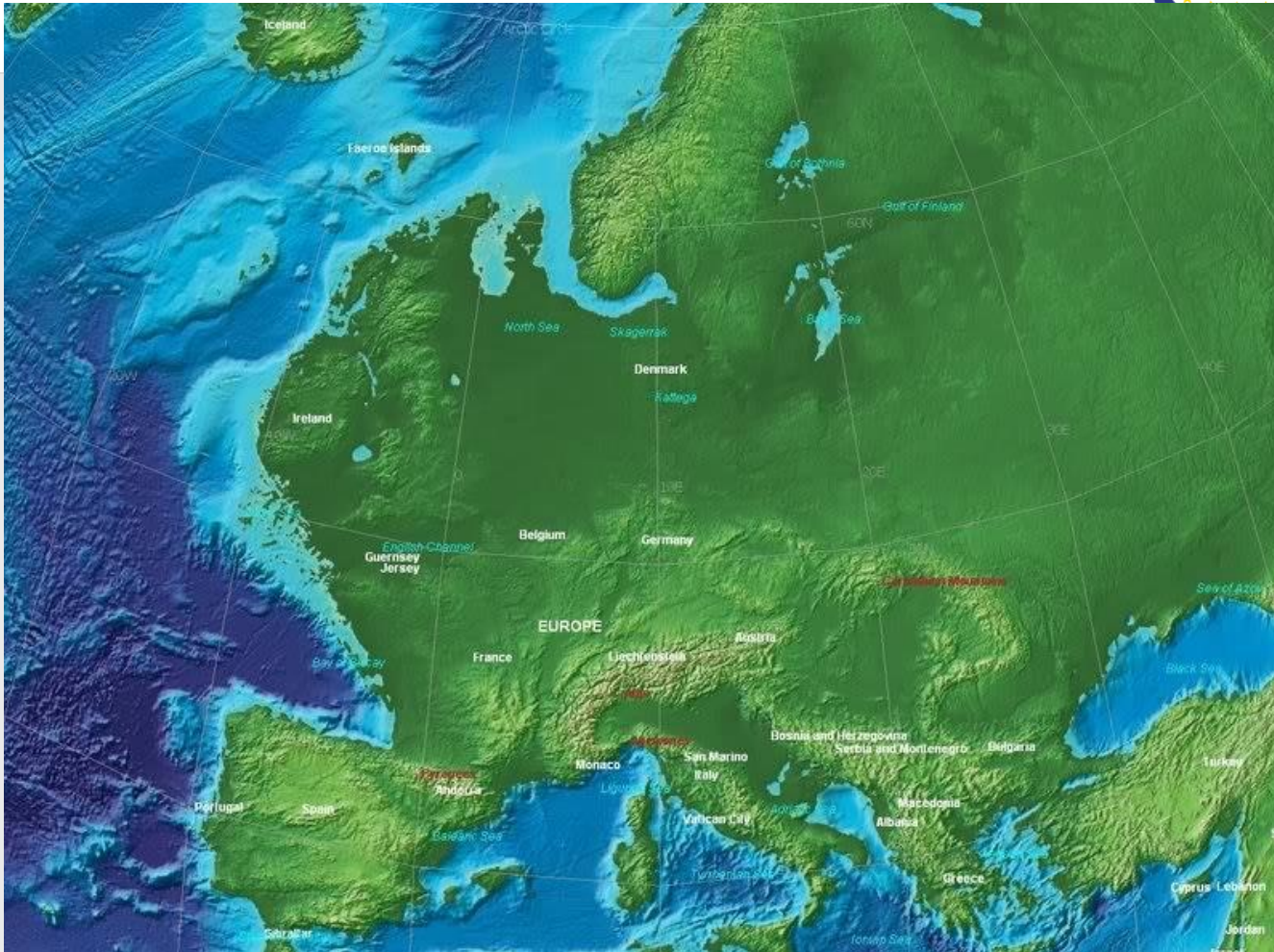
2,7 billion people (38 % of global population) cook and heat with „solid biomass“, mostly dried dung

Obesity and diabetes are among the most common diseases of the rich world. At the same time, some 800 milion people (each 9th on this planet) are chronically undernourished

Nice life

EU CO₂ emissions grew in 2017 by 0.3 per cent excluding airlines

Average CO₂ emissions generated by new cars in Europe increased during 2017





Monopoly is ugly (except if it is mine 😊)

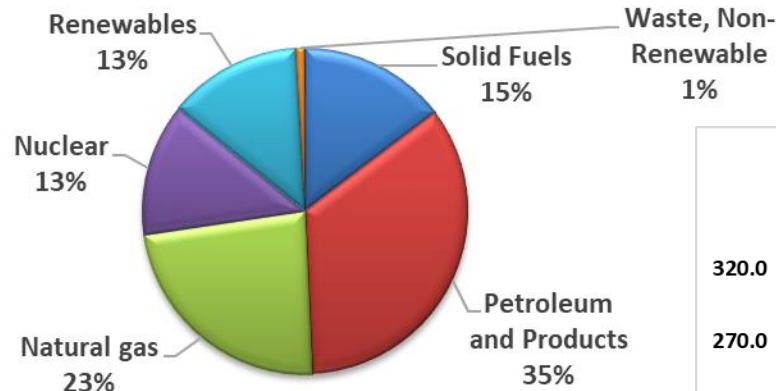


Mitigation measures (governance):

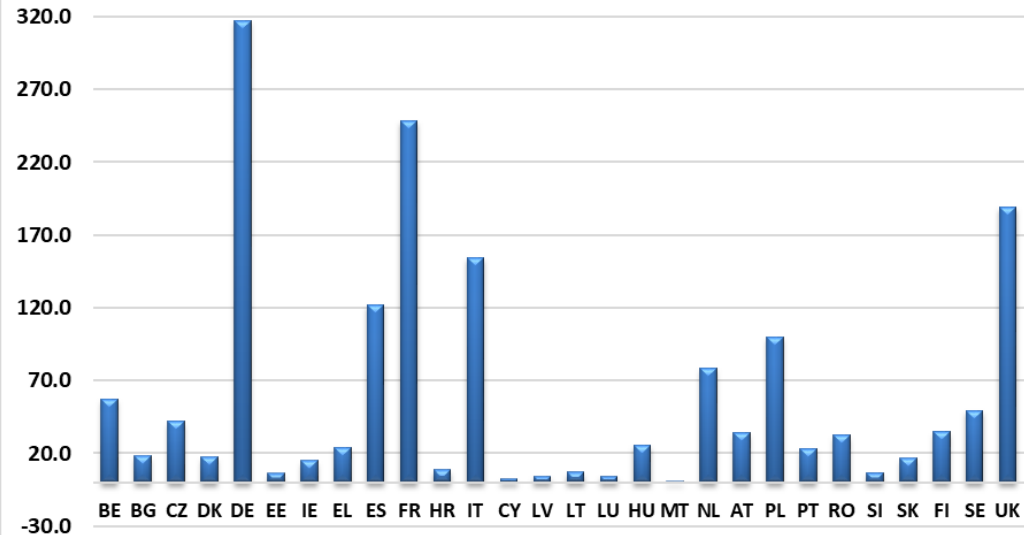
- *Common market, competition, Third Party access*
- *Reverse flows, N-1 criteria*
- *LNG Strategy*
- *Route diversification*
- *Energy mix*
- *Renewables Directive (local production)*
- *GHG emissions limitations*
- *EU Raw materials Initiative*
- *or violence*

Varied energy consumption – energy mix of EU MSs

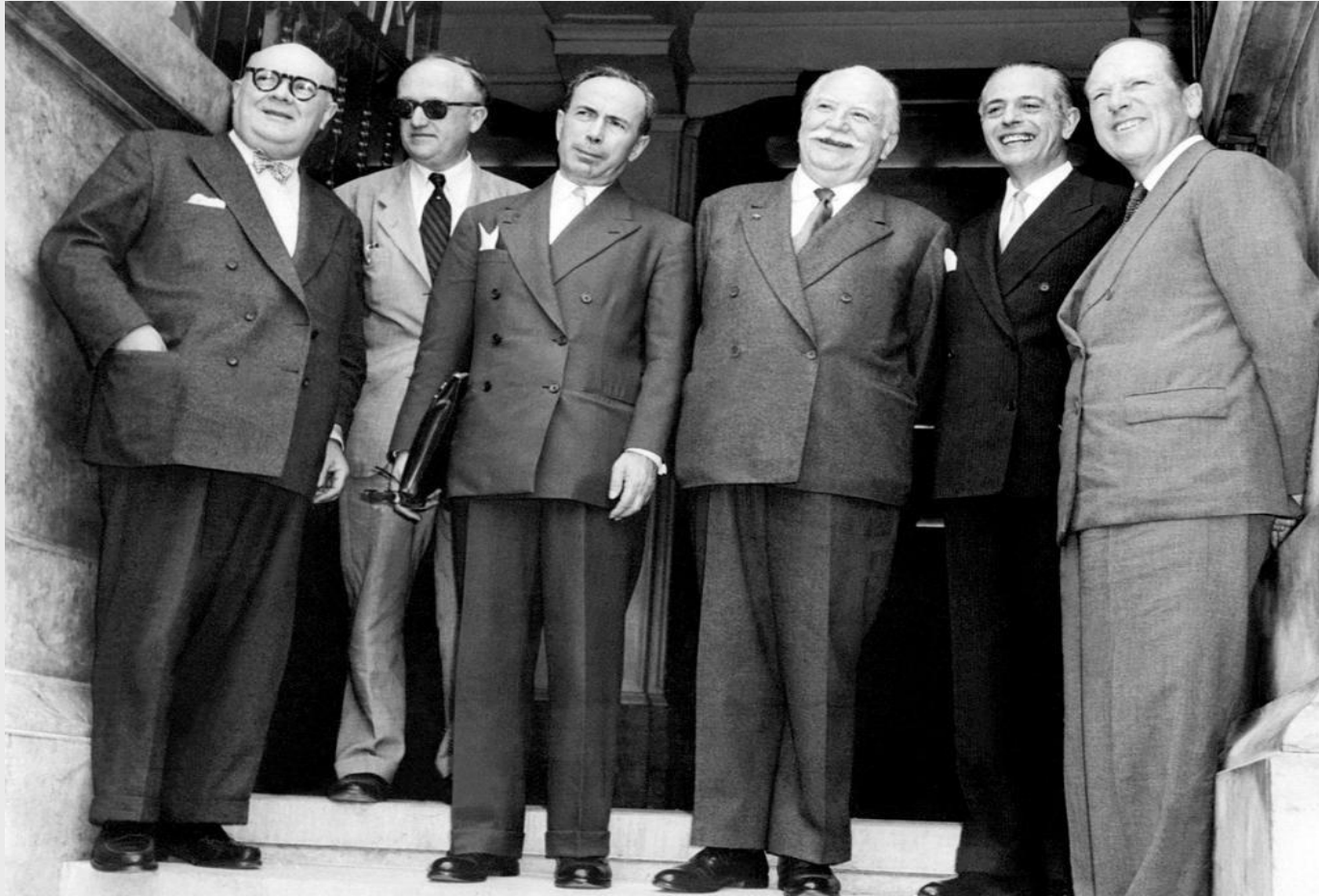
EU-28 gross inland energy consumption in 2016 (Mtoe)



Gross energy consumption by EU MS in 2016 (Mtoe)



“Club of six” – Messina, 1955



M



CONCERNS

STAKEHOLDERS

NEEDS

Social Aspects

Well-being

Ecology

Energy

Energy

Energy

Energy

Energy

Energy

Energy

Energy

Energy

Energy

Planning authorities

Permitting authorities

Implementing authorities

Grid Operators

National and Local Energy Providers

Construction Companies

Local public Residents Civil Initiatives

Nature Conservationists

Conventional and Ecological Transition Industry

Land Owners

Parent Owners

Stakeholders

For planning process

For planning process

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Social Aspects

Well-being

Ecology

Technology

(Socio-) Economy

Politics

www.inspire-grid.eu

Prague, 30.11.2017

Liberalization – two headaches

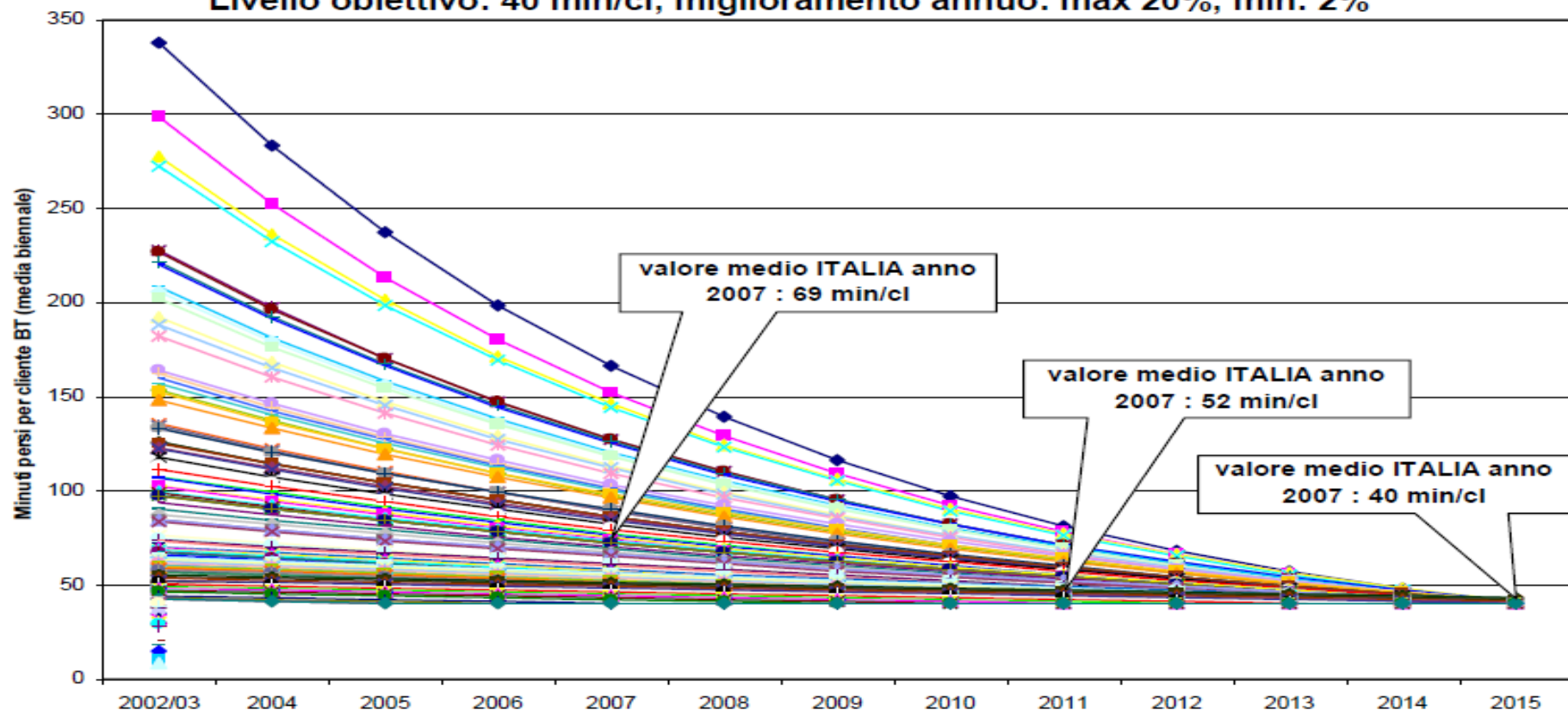
Market activities

Regulated activities

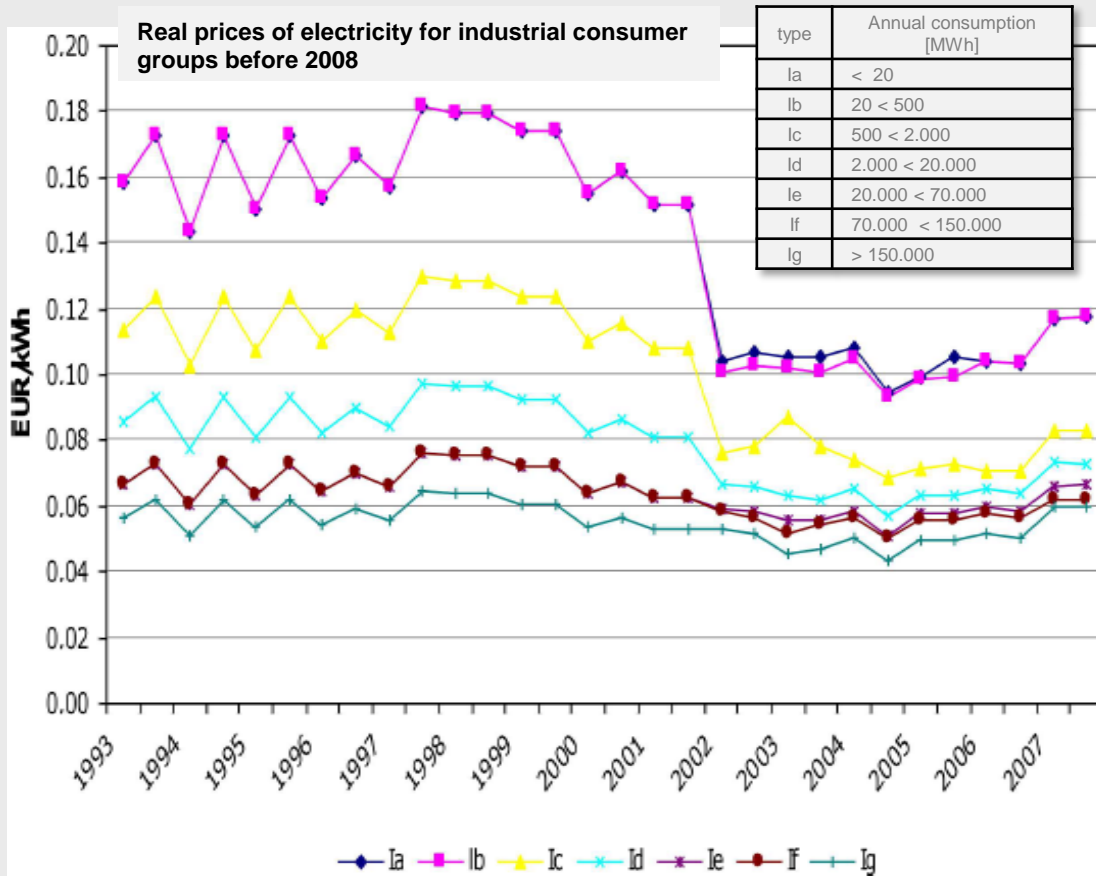


Livelli tendenziali - Media concentrazione

Livello obiettivo: 40 min/cl; miglioramento annuo: max 20%; min: 2%



Slovenia – electricity market liberalization

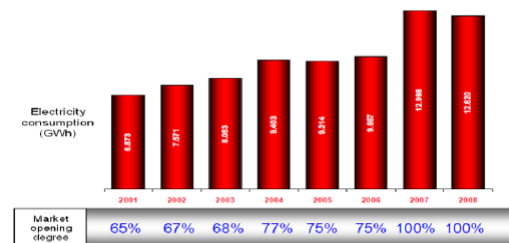


* "Deregulation of electricity market and drivers of demand for electrical energy in industry" – Š. Bojnec, D. Papler - Management and Production Engineering Review, September 2016

Liberalization period (2000 – 2008)

- **Electricity prices for industrial consumers**
 - **2001** – immediately after liberalization a sharp drop of electricity prices for commercial consumers (industry) on low voltage (Ia, Ib) and medium voltage (Ic, Id) was recorded
 - **2005 - 2009** - slight increase of prices due to increasing wholesale electricity prices in the EU

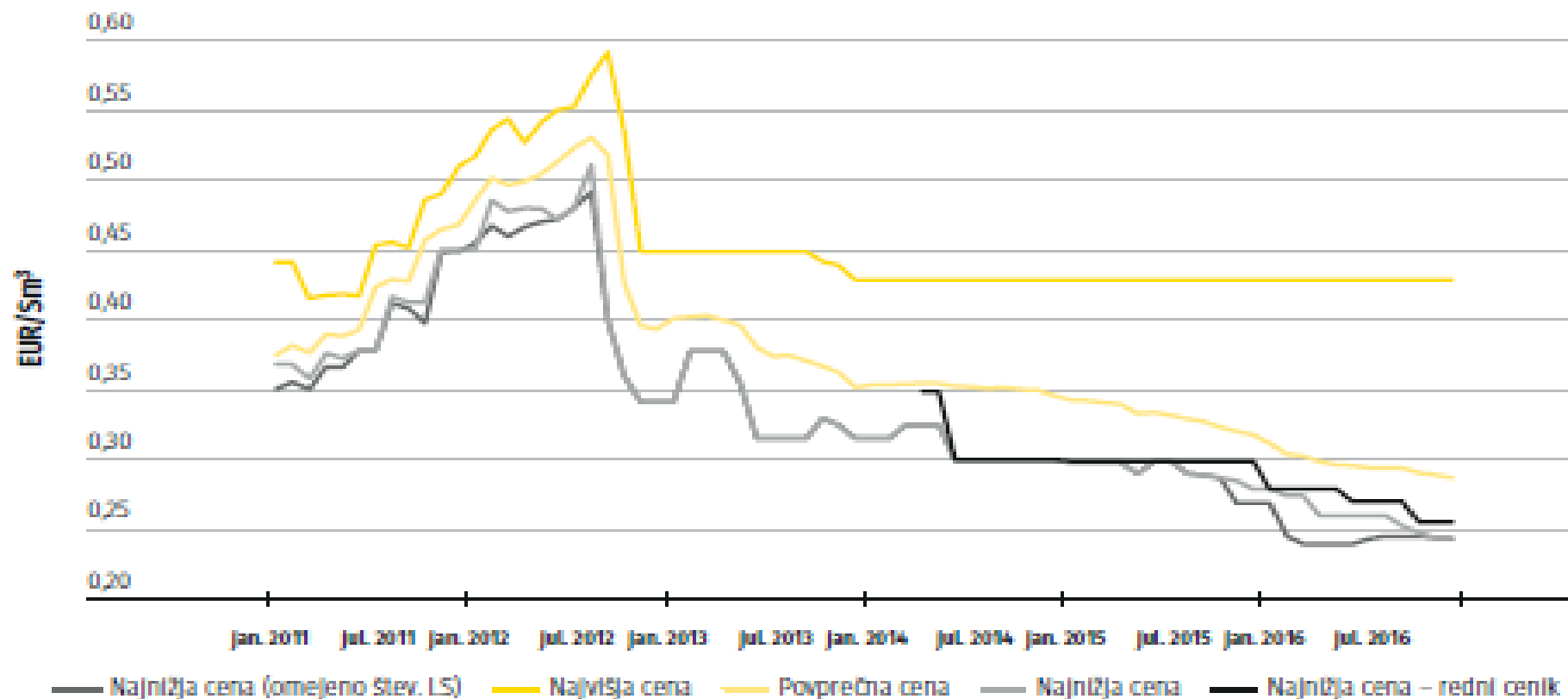
Dynamics of opening up the electricity market in Slovenia

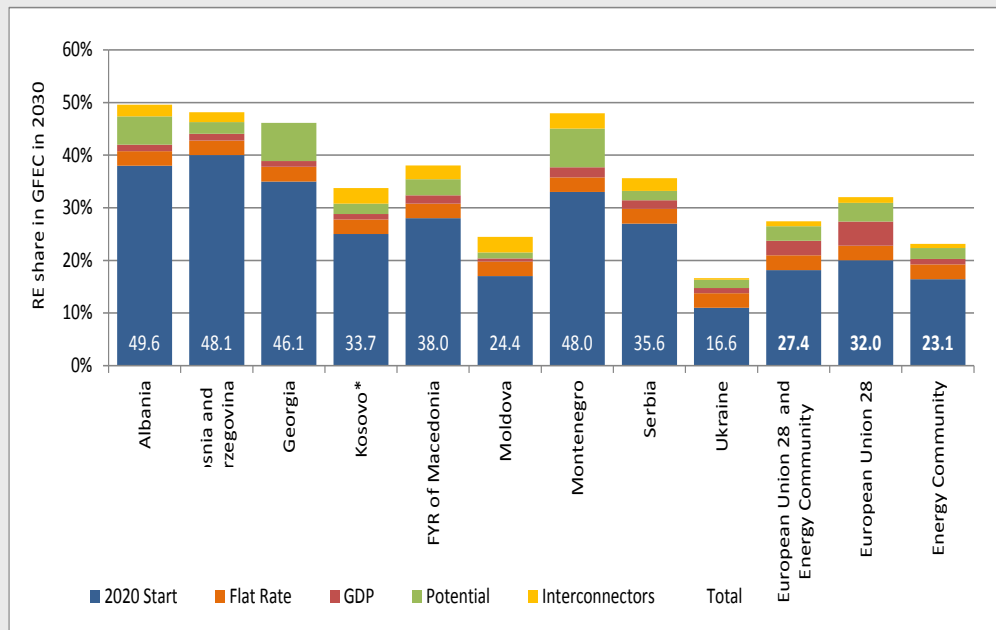
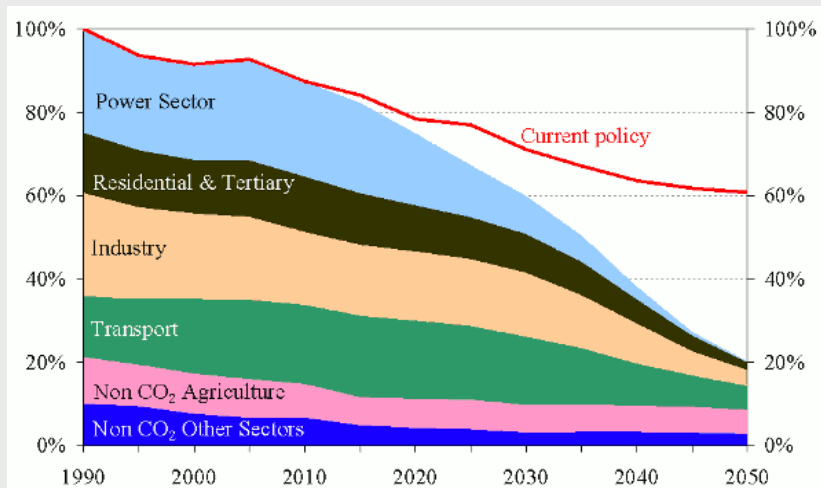
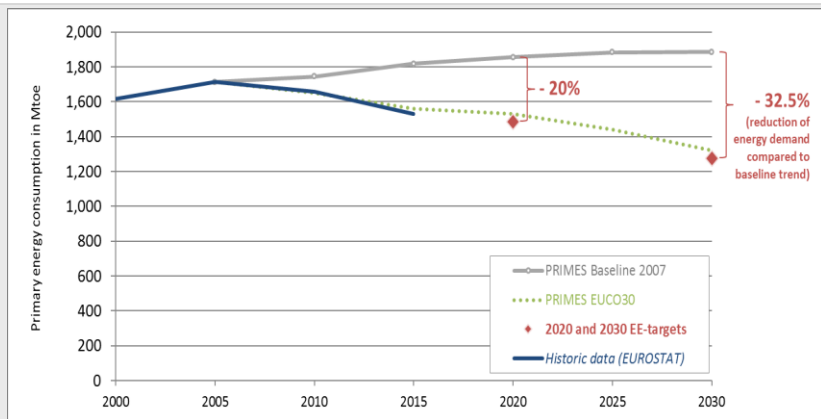


* "The Slovenian Electricity Market and the Prices of Electricity" - WSEAS TRANSACTIONS on POWER SYSTEMS, April 2010

Slovenia – gas prices for smaller final consumers

MALOPRODAJNI INDEKS CEN IN NEKATERE ZNAČILNE CENE ZEMELJSKEGA PLINA BREZ OMREŽNINE, DAJATEV IN DDV



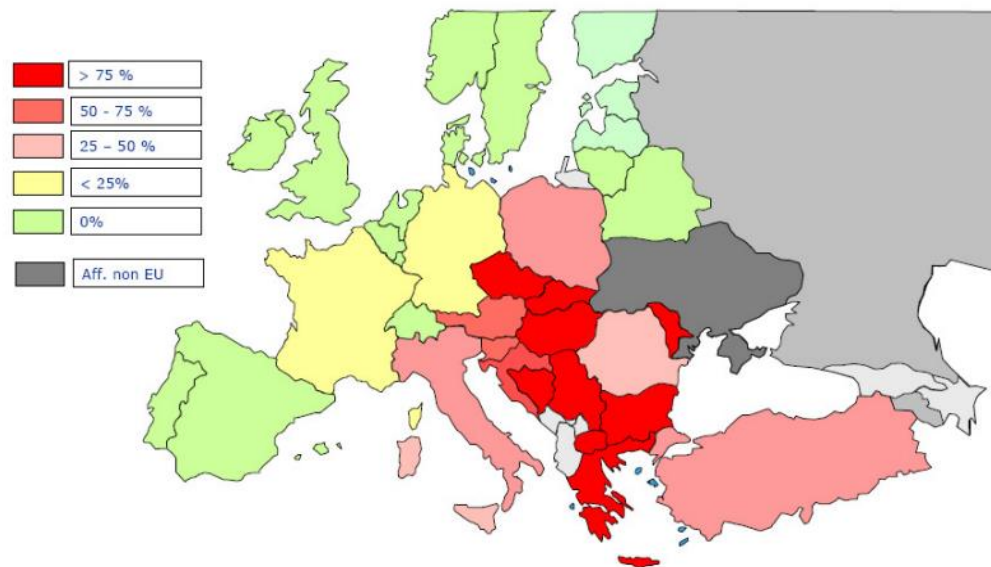


Cut of gas supply in January 2009

JANUARY CRISIS - ASYMMETRIC IMPACT



Reduction in gas supply in %



Source: DG TREN

Who said this (a politician sending military units to a troubled region)?

„They have [automatic rifles] and are locked and loaded... these troops know how to shoot and kill... and I expect they will.“

New Orleans 2005

Hurricane Katrina, August 2005

80 % of city under water, no electricity, no law

Louisiana Governor Kathleen Blanco sent National Guard units: „They have M-16s and are locked and loaded... these troops know how to shoot and kill... and I expect they will.“



BBC West Midlands, 11.11.2017

<http://www.bbc.com/news/uk-england-birmingham-41953644>

Angry public

The sense of dissatisfaction with status quo is palpable across the West: Brexit, Trump, yellow jackets in France, elections in Czech Republic, Austria, Italy, Ukraine,...

Energy transformation will look differently in different countries



*Thank you
for your attention!*

www.energy-community.org