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Emerging energy security challenges and Europe

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Main Challenges

- Sustainable energy production
- Security of Supply, Transport and Demand: secure and reliable
- Access to modern energy sources (UN - SE4All)
- Security of supply at affordable and competitive prices and costs (EU)
- Efficient use of the right energy mix

Challenges for the European Union

- „The EU's energy policy must ensure security of supply for households and companies at affordable and competitive prices and costs, in a safe and sustainable manner.”
- „This is particularly important for Europe's competitiveness in the light of increasing energy demand from major economies and high energy prices and costs.”

Challenges by types of energy

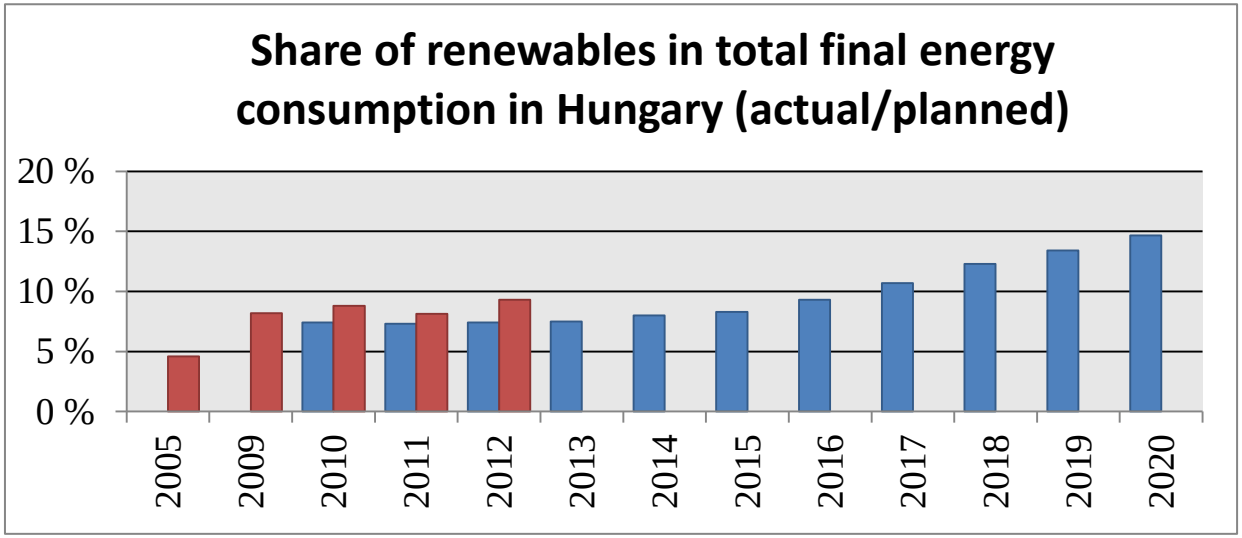
- Renewables: problems of competitivness and system malfunctioning (loop-flows)
- Nuclear energy: post-Fukushima environment
- Fossil fuels: US shale gas revolution and emerging market consumption increase

Renewable energy

- UN goals: The decade of Sustainable Energy for All (SE4All)
  - doubling the share of renewable energy in the global energy mix;
  - doubling the global rate of improvement in energy efficiency;
- EU goals: maintain or even increase the share of renewable energy in the energy mix in most of the EU member states
  - Success stories vs. Negative consequences

Increasing the share of renewable energy in the Hungarian energy mix

- In 2012 the share of renewable energy in the total final energy consumption has reached 9,3% → 14,65% to be reached by 2020
- Hungary is successful in renewable heat generation, which makes up 83,47% of total RE production. Biomass shows huge potential in the country.



Source: Ministry of National Development, Hungary

Nuclear energy
Global and European approaches

- The focus of the new builds is offset to the „eastern” hemisphere
  - China, India and Vietnam want to respond to their raising energy hunger
  - United Arab Emirates, Turkey and Saudi-Arabia wish to save a significant amount of their natural resources
- Status: Europe is divided
  - abandoning nuclear energy, searching for alternative: Germany, Italy, Switzerland
  - maintain or even increase the share of nuclear in the energy mix: United Kingdom, Finland, France, Hungary etc.

Presence of nuclear energy in Hungary:
Progress made in the field of nuclear safety

- Paks NPP has successfully carried out the **stress test** prescribed by the Council of the European Union in 2012.
- The Hungarian Atomic Energy Authority has issued the authorization on the **extension of the lifetime** of Unit I of Paks by 20 years.
- The low and intermediate level radioactive waste (LILW) repository was inaugurated at Bátaapáti in autumn 2012.
  - ✓ September 2013: 900 barrels of LILW originating from Paks is safely deposited.
  - ✓ Hungary is the pioneer in geological LILW repository construction together with Finland and Sweden.

The role of nuclear energy
European dilemma

- The focus of the new builds is offset to the „eastern” hemisphere
- Status: Europe is divided.
- Dilemma:
  - Long-term competitiveness is doubtful
  - Post-Fukushima security concerns
  - renewables vs. nuclear
    instead of renewables & nuclear

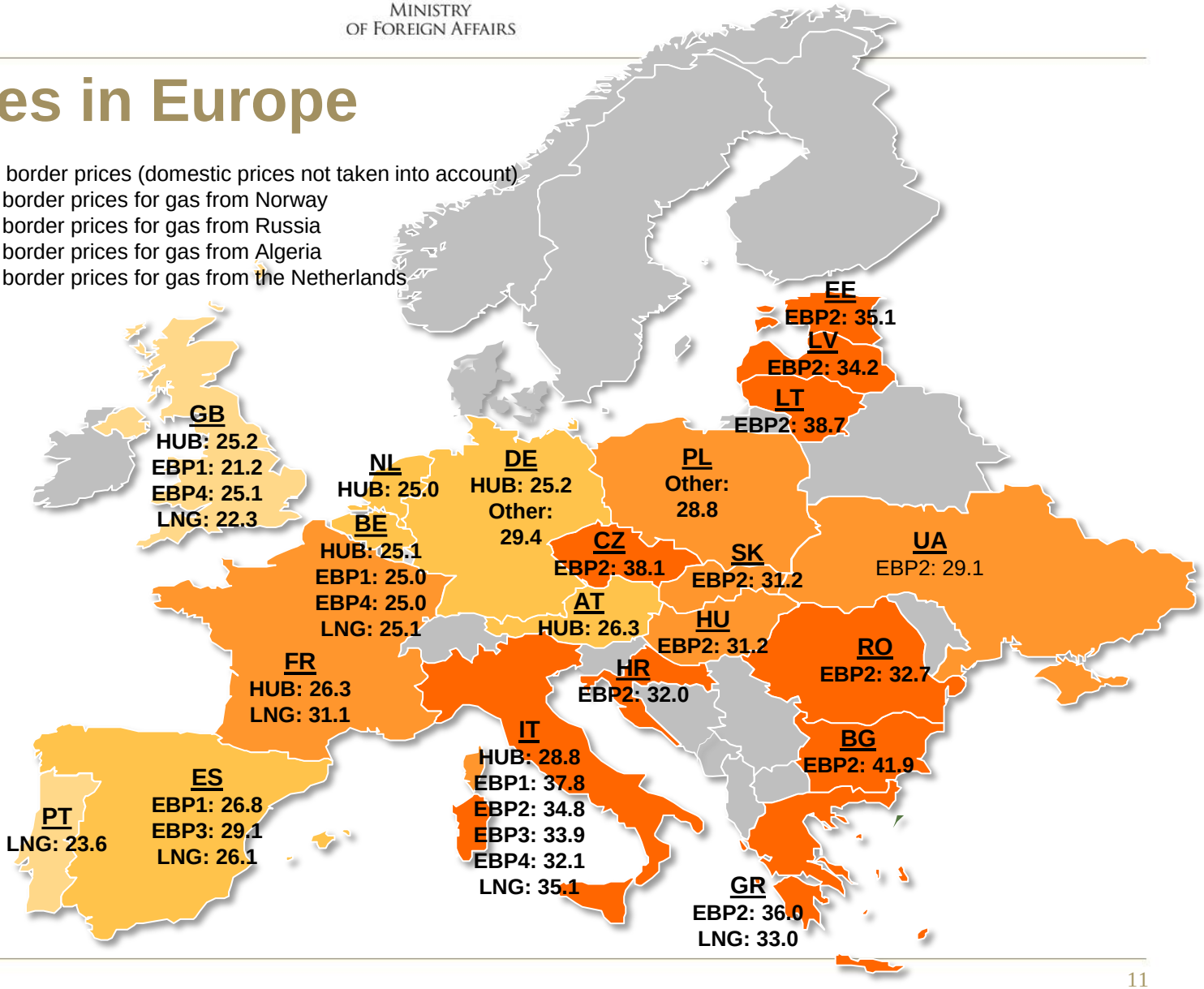
Fossil fuels

- No big change on the oil market
  - Sustaining period of high oil prices
  - OPEC+ US, Brazil, Canada, Kazakhstan
- Cheap coal from the US to Europe
  - cost vs. climate
- Changing natural gas world market
  - Gas demand rises by almost half to 2035 (IEA)
  - Creating an integrated European Energy market by 2014

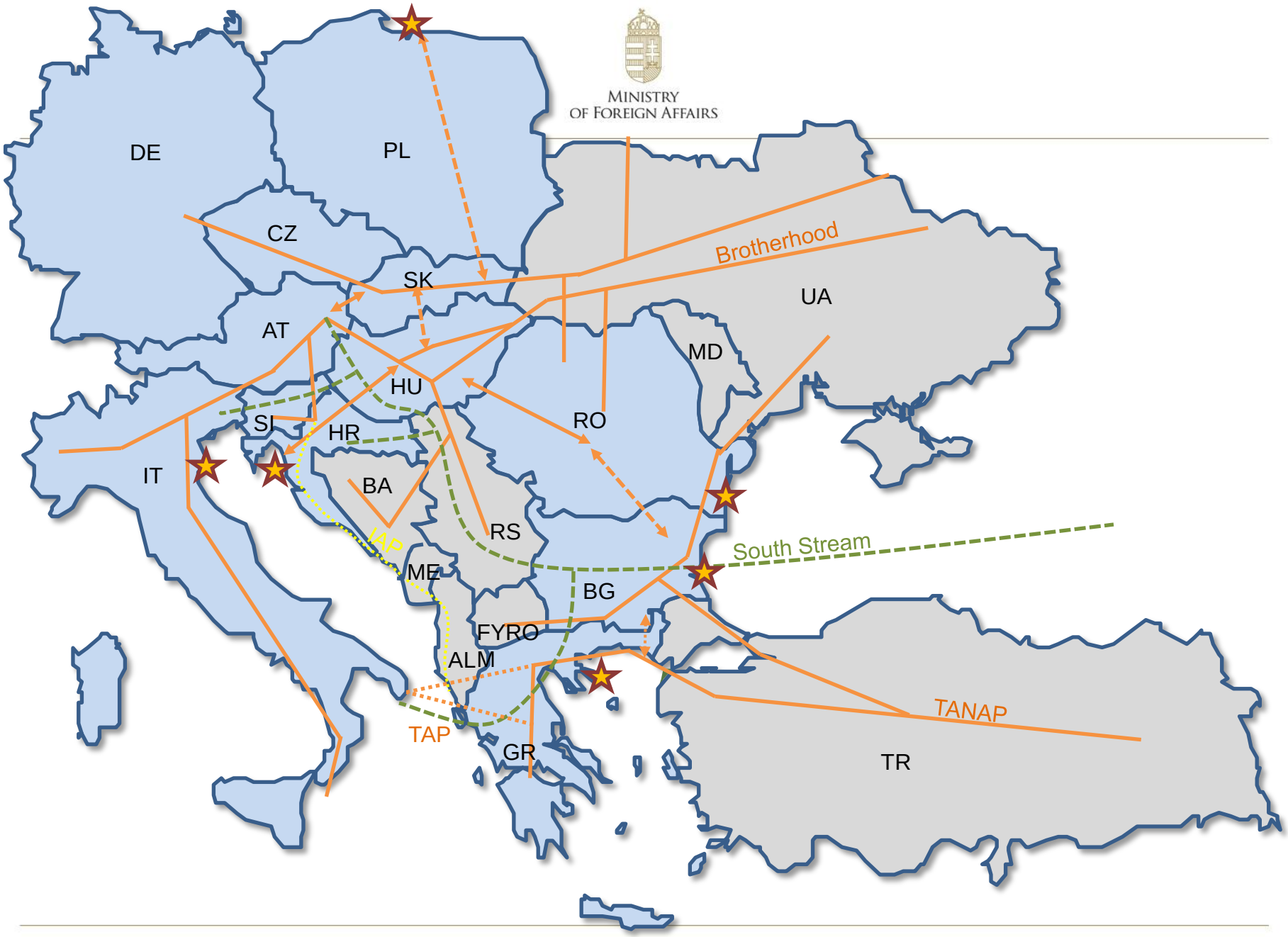
➢ **Building interconnectors and Connecting Energy Axes**

Gas prices in Europe

EBP: EBP prices are estimated border prices (domestic prices not taken into account)
EBP1 prices are estimations of border prices for gas from Norway
EBP2 prices are estimations of border prices for gas from Russia
EBP3 prices are estimations of border prices for gas from Algeria
EBP4 prices are estimations of border prices for gas from the Netherlands



Sources:
EBP & LNG: ESTAT COMEXT;
HUB: Platts.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Connecting Energy Axes

- Based on already existing National energy infrastructure within the European Union marshaled to axes.
- The necessary interconnectors are identified among the Projects of Common Interest (PCI).
- The more interconnectors are built, the more integrated the market becomes.
- The connecting corridors create an adjustable network which significantly increase the flexibility and security.
- Multiple potential entry and exit points offer more diversification options.

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Thank you for your attention!

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