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Energy Market(s) Integration: The ultimate Security of Supply

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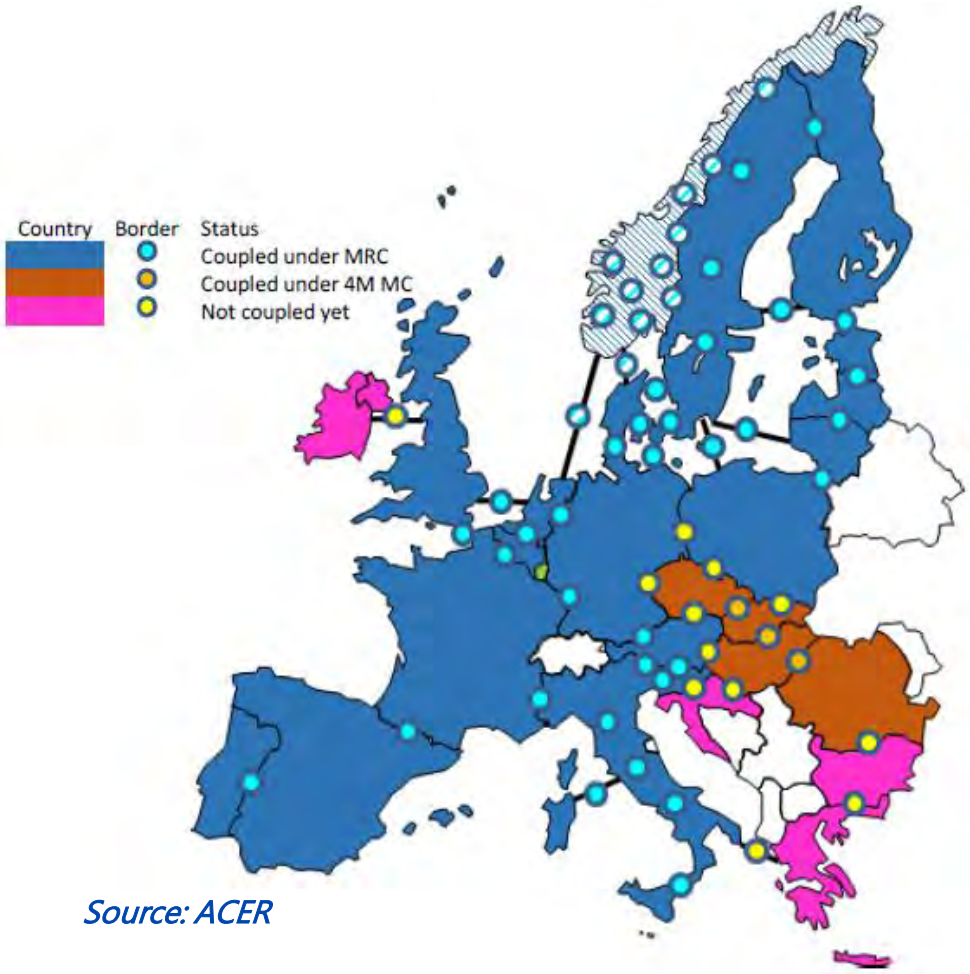
EU Electricity Target Model | Implementation of single day-ahead market coupling



Source: ACER

Today:

80% of borders coupled
46 borders coupled in a single coupling
3 borders coupled separately
12 borders still waiting for coupling

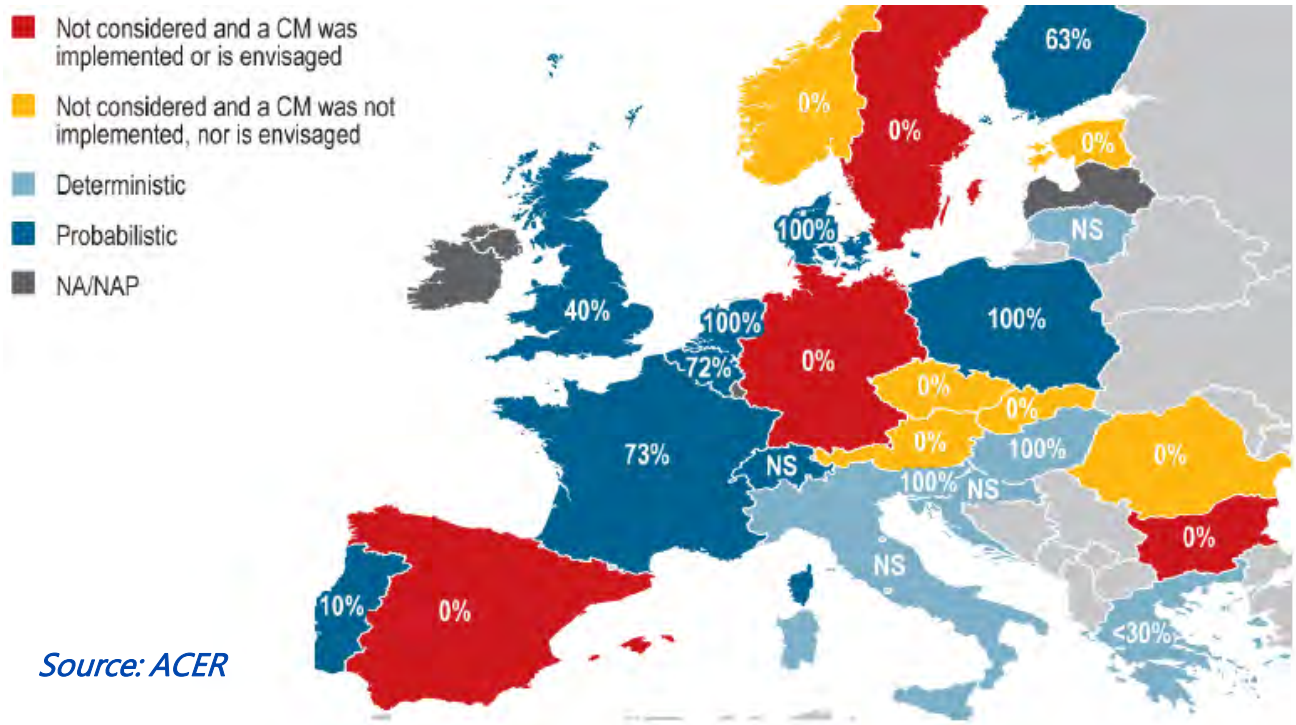
Final goal:

EU-wide day-ahead market coupling with implicit auctions

SEE and Greece

- Need for faster implementation
- Need to think cross-border

Electricity National adequacy assessments | Contribution of Interconnectors in security of supply

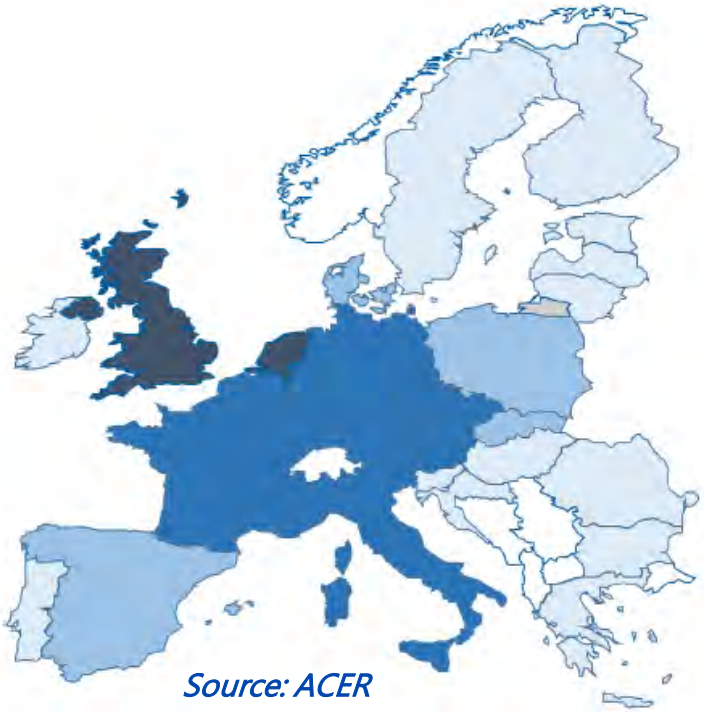


Source: ACER

ACER Recommendations

- Use the maximum feasible cross-border capacity (not the left overs)
- Share the cost of remedial actions (e.g. redispatching) fairly among TSOs
- Reconfigure zones when necessary (remedies are insufficient or too costly)
- Define a binding target for cross-zonal capacity always available for trading
- Implement provisions of Security Regulation Guidelines sooner

EU Gas Trading | Evolution of EU Gas Hubs



Source: ACER

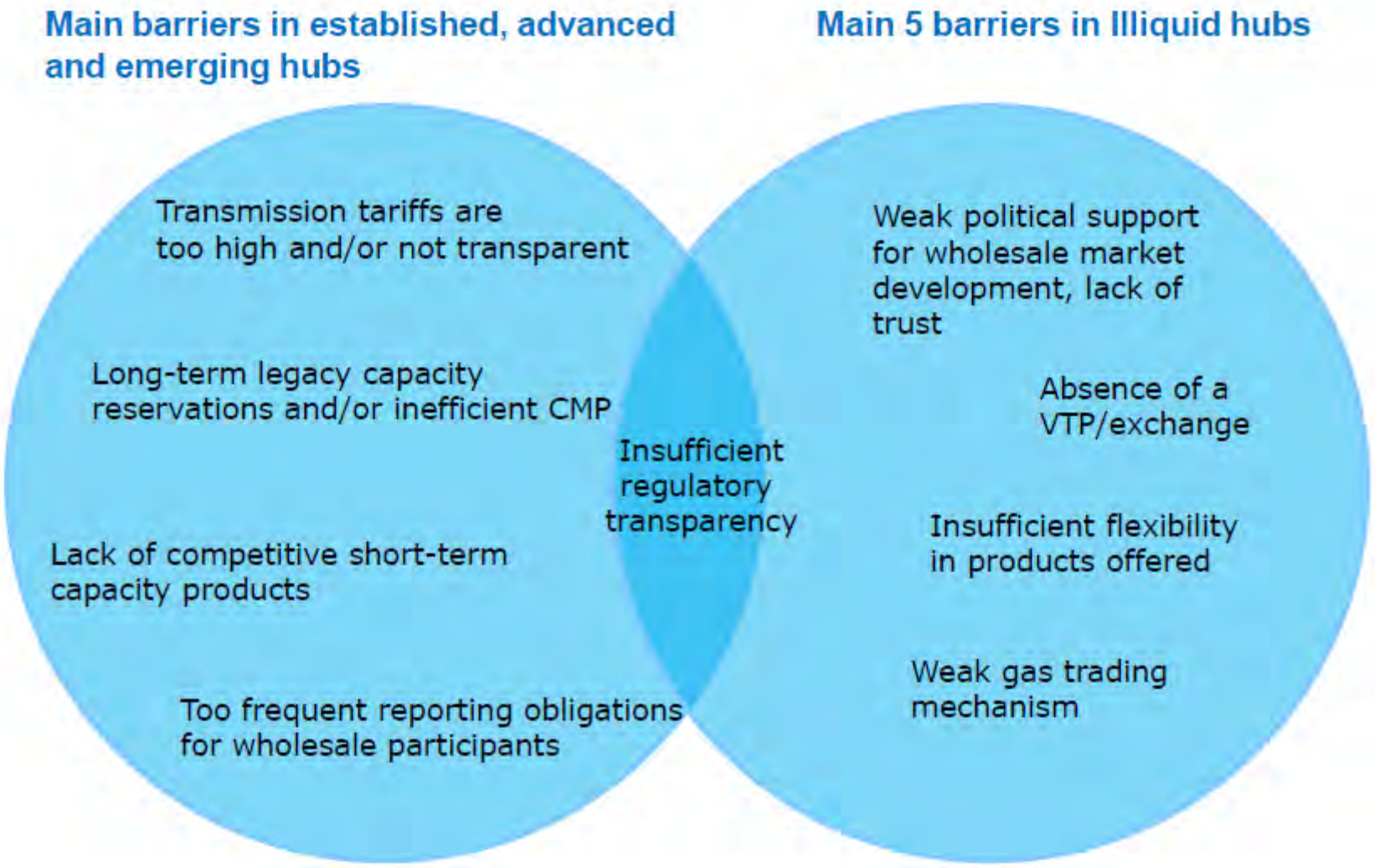
- **Established hub:** broad liquidity with sizeable forwards and price reference indexes.
- **Advanced hubs:** higher liquidity but 'spot/prompt' dominated.
- **Emerging hubs:** Low but improving liquidity. High reliance on long-term contracts.
- **Illiquid-incipient hubs:** Diverse group with organised markets in early stage, embryonic liquidity.

Changes in 2016 versus 2015:
1) VOB (CZ): from emerging to advanced hubs
2) OTC (SK): from illiquid to emerging hubs

Implementation of the Gas Target Model

- Starting from the NW Europe gas hubs are established and progressing
- A lot needs to be done in SE Europe
- Fortunately efforts are increasing
- Greece has a temporal advantage but cooperation with neighbors is the key

ACER Study | Barriers to wholesale gas markets



Source: ACER

Central East South Energy Connectivity | Gas Priority Projects

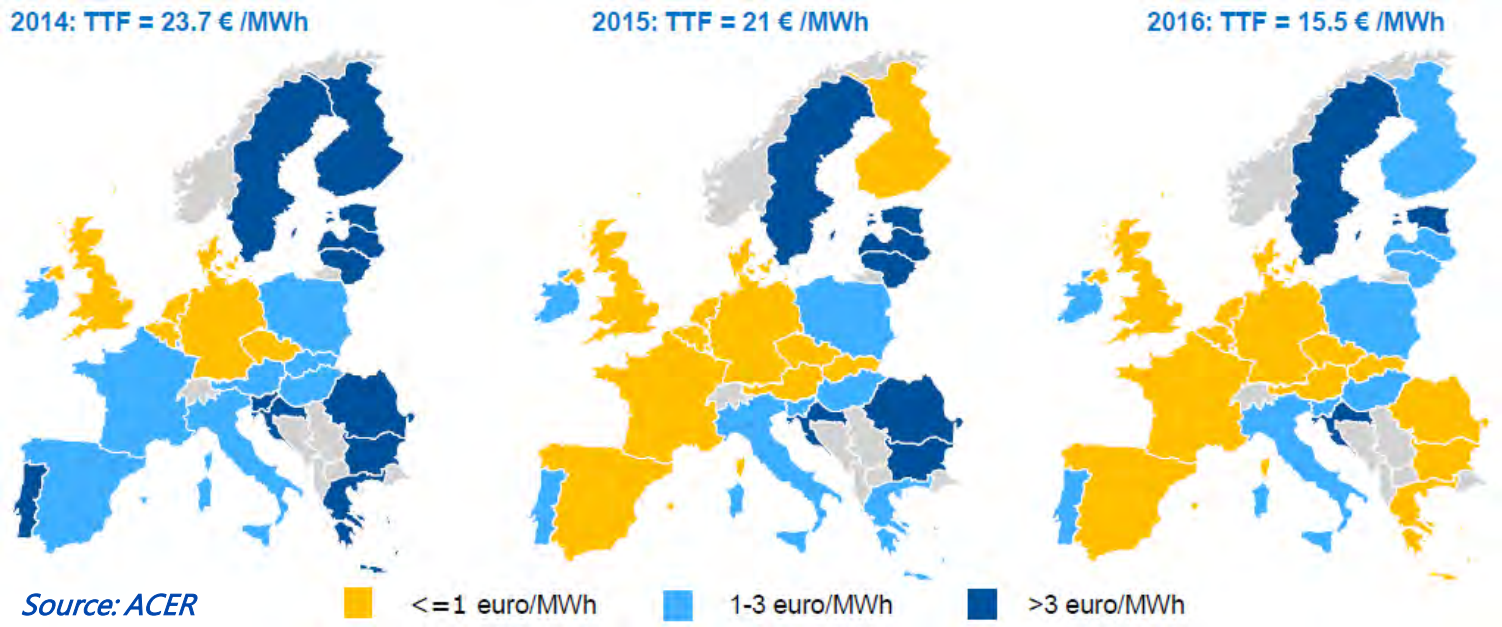
The List of Projects:

1. IGB
2. Interconnector Bulgaria – Serbia
3. Reinforcement of the Bulgarian System
4. BRUA
5. Krk LNG
6. Evacuation line to Hungary
7. Expansion of BRUA to Black Sea
8. Interconnector Croatia – Serbia
9. LNG Alexandroupolis

CESEC Initiative

- Becomes an important tool for the streamlining of efforts at political and technical level
- First results are evident (Gr-Bg, Vertical Corridor, LNG, Trans-Balkan Pipeline)
- Soon expands to electricity
- Important for all countries (EU and non-EU)

Market Integration | Impact on Gas Prices



Initial Signs of Price convergence (?)

- Encouraging message
- Tariffs will be a challenge

Market Integration | Impact on security of supply

Rationale

- Power, Gas and RES: Interrelated and more complex
- Market convergence is pan-EU (and beyond)
- Security of supply is based on proper investments and market rules
- Bankability of energy projects is of paramount importance
- Risk mitigation becomes of paramount importance
- Market integration is the key:
  - Investment support: TAP, IGB, LNG (?), East-Med (?), South Kavala(?), Eurasia Interconnector (?)
  - Reduction of costs for security of supply (e.g. reserves, balancing, swaps)

Prerequisites

- Political will and support
- Regulatory stability
- Know-how
- Time and effort
- Greece (and SEE) has a difficult path ahead

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Thank you

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