Lessons Learnt from the analysis

General Conclusions of the study & comparison with ENTSOG's 10YNDP

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Achieved goals of ERGEG's Study

- ✓ **Increase know-how** on European infrastructure
- ✓ **Examination / validation of ENTSOG's work on 10YNDP and preparation for ACER**
- ✓ **Top down aspect: developing a European perspective**
  - European wide Supply and Demand assumptions and 6 different major infrastructures scenarios
  - European wide Map of gas flows
  - Addressing European security of supply issues
- ✓ **Identification of existing and expected potential infrastructure bottlenecks (physical) → indications**
- ✓ **Consequences of Stress Situations (supply disruptions) can be better evaluated and be made visible**

Positive experience with use of the TIGER model

- Study / TIGER-Model is **an economic based network simulation model,** but **no (technical) flow simulation** model
- Currently, necessary **data for European wide technical flow simulation not available** (for NRA´s)
- Infrastructure Model is based on existent **published capacity data** (no “capacity optimisation” performed by model)
- Sufficient resolution for (first) European analysis / plan
- **Practical applications** of the model result in satisfactory **resemblance of real flows (2008 validation)**

→ “Best feasible” approach !

Main Results of the Study

- Study generally **confirms** (as ENTSOG's 1st 10YNDP does) that the EU gas grid (in terms of technical security of supply) is and will be **sufficiently well developed** assuming that:

  → all new included ("fixed") projects (FID) will indeed go online
  → optimal/efficient functioning of the market and use of existing network (e.g. all efficient swaps are realised, efficient CAM & CMP)

- But some physical congestions and "economic bottlenecks" have been identified

- Distinction between clear "physical bottlenecks" and "potential bottlenecks" helpful

Detected bottlenecks

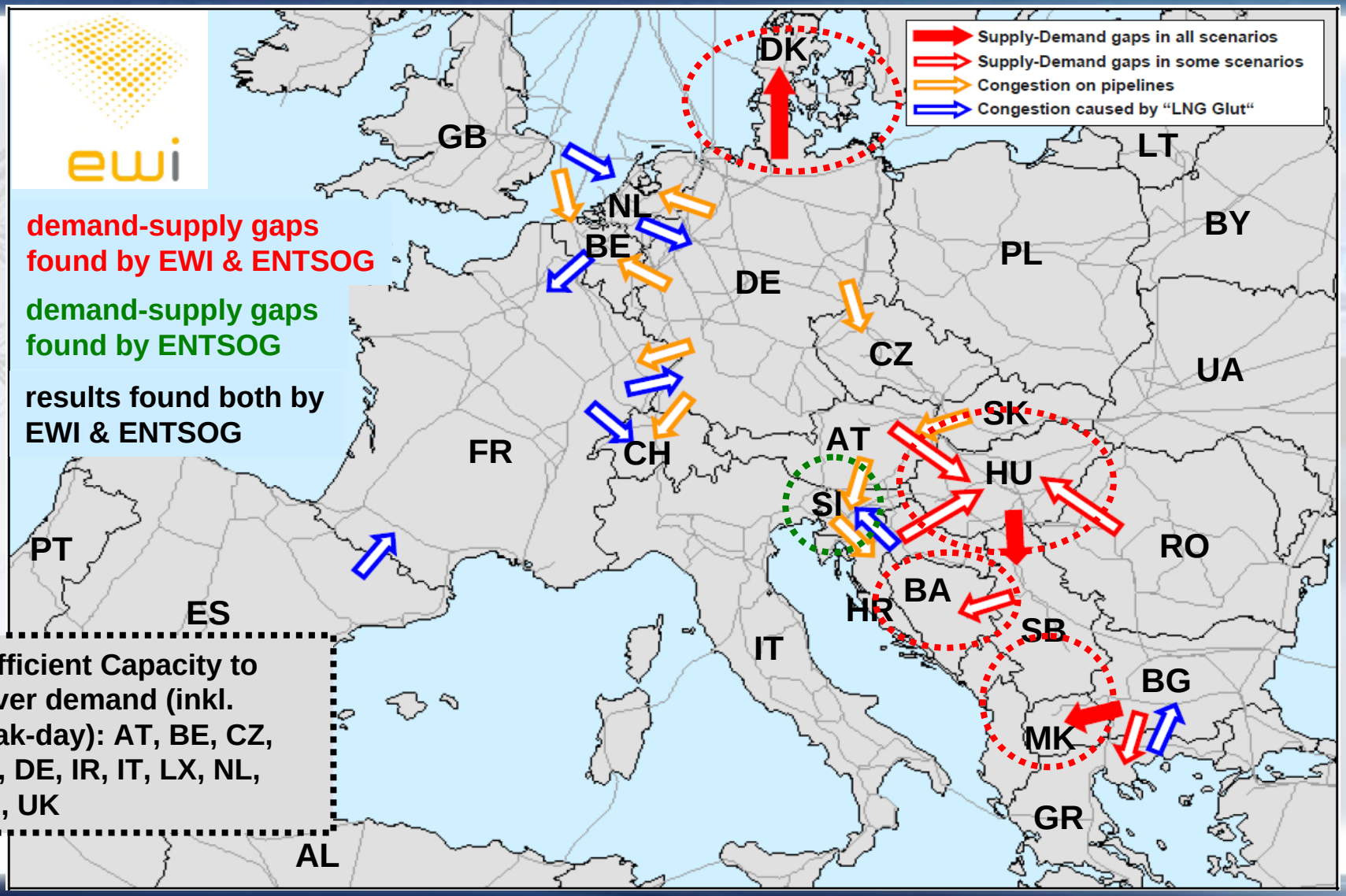
Physical need for network expansion until 2019:

- **decreasing domestic production** (e.g. in DK / S) → strong need for new cross-border capacity DE → DK
- **missing links in SE-EU** for sufficient supplies during **winter months** (mainly HU & Balkans, somewhat eased with Nabucco or South Stream online)
- **resultant investments** induced by new major infrastructures (e.g. Nord Stream/NEL)
- **preventive measure against crises** → reverse flow projects mainly for Eastern EU countries in case of Russian supply disruption

"Potential" bottlenecks:

- For Western-EU, a **potential need** for capacity increases to improve **market integration** has been identified at several borders: DE→NL, DE→BE, DE→CH, DE→CZ, UK→BE, SK→AT, AT→SI, SI→HR, DE→FR **on peak days**
- Such congestions are to be analysed on a **case-by-case basis** and might even be healed without physical capacity increases
- There are some general **West-to-East** bottlenecks in the **LNG "glut" scenario**.

Comparison of EWI's & ENTSOG's results



Comparison with ENTSOG's 10YNDP

- **Similar results regarding interconnection of countries and supply-demand gaps**
  - Five of six demand-capacity gaps identified by ENTSOG are replicated by EWI study (Denmark and Sweden, Hungary, Bosnia and Herzegovina, Macedonia, Serbia)
  - Not replicated by EWI study is demand-supply gap in Slovenia (probably due to differing assumptions; Krk LNG terminal)
- **Further results of ERGWG/EWI study**
  - Variation of infrastructure assumptions between scenarios; potential demand-supply gaps are also a function of new infrastructure projects (see results in south-eastern Europe) ⇨
  - Focus on gas volumes (in addition to capacities); volume-based approach allows for identification of congestion on pipeline routes (congestion which is not so severe as to cause demand disruption, but hampers market integration) ⇨

Conclusions & Way Forward

- ✓ Study generally **confirms** (as ENTSOG's 1st 10YNDP does) that the EU gas grid (in terms of technical security of supply) is and will be **sufficiently well developed**
- ✓ **Some capacity increases** have to be realised!
- ✓ **But: This is true under the assumptions that gas flows are not hampered by inefficient capacity allocation / contractual capacity "blocking"** (which is currently the case)

  → **CAM / CMP have to be improved in order to avoid economically inefficient capacity expansion**

Next steps:

→ Discussion of results at **national** and **ERGEG level**

→ Discussion with **ENTSOG** on **implementation** of **top-down approach** (modelling analyses incl. different scenarios) according to ERGEG recommendations)

→ Presentation at 18th **Madrid Forum** (Sept. 2010)

Thank You!