



REALISEGRID – WP3 Final Workshop

Rome, 31 March 2011

Introduction by the Coordinator

Challenges for the pan-European transmission grids for 2020 and beyond

Integration of very large amounts of **variable RES**, while keeping network security and reliability at acceptable levels

Renewable generation exceeding local needs at a given time, requiring **transport elsewhere**

Aging of the present transmission grid; difficulties to get **consensus** for building new overhead lines

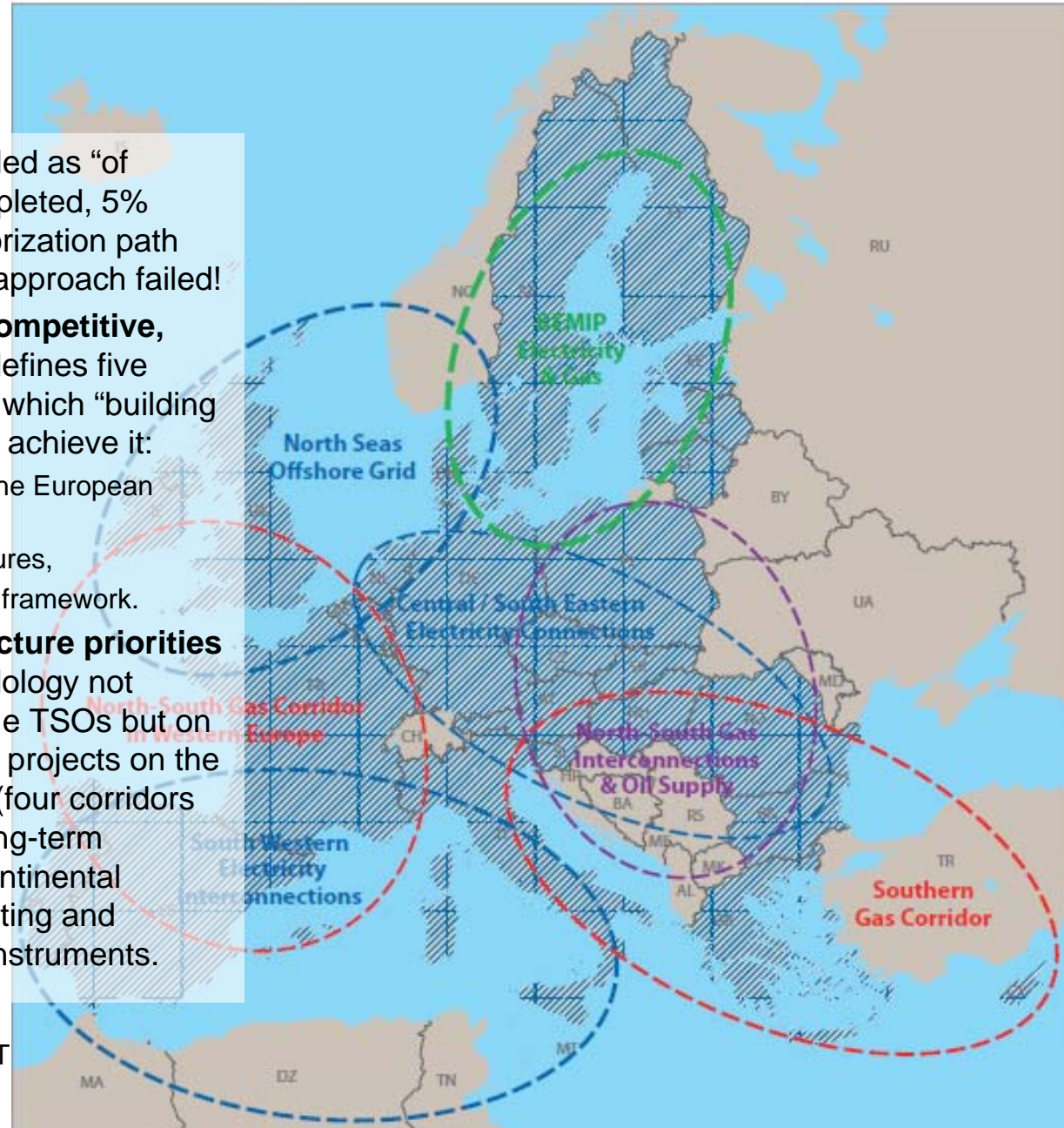
Liberalization of market inducing increased **cross-border power exchanges** rising uncertainties and congestion problems

Increasing role of **active demand** and **distributed generation** to relieve stress on European electricity system

European electricity grids are on the critical path to meet the EU climate change and energy policy objectives



The EU Energy Policy



- **TEN-E Guidelines:** 32 projects labeled as “of European interest”: only 19% is completed, 5% under construction, 76% in the authorization path and/or in study. Bottom-up fixed-list approach failed!
- **Communication: “A strategy for competitive, sustainable and secure energy”:** defines five priorities for energy strategy, among which “building a truly integrated energy market”. To achieve it:
 - Action 2: establishing a blueprint of the European infrastructure for 2020-2030,
 - Action 3: streamlining permit procedures,
 - Action 4: providing the right financial framework.
- **Communication “Energy infrastructure priorities for 2020 and beyond”:** new methodology not based on bottom-up contributes of the TSOs but on a shared methodology for prioritizing projects on the basis of European priorities at 2020 (four corridors for electricity, three for gas) and a long-term perspective of a smart-supergrids continental interconnection. Improvement permitting and consensus. Set up of new financial instruments.

The project **REALISEGRID** (<http://realisegrid.rse-web.it>)

The ultimate objective of REALISEGRID is to **develop a set of criteria, metrics, methods and tools to assess how the transmission infrastructure should be optimally developed to support the achievement of a reliable, competitive and sustainable electricity supply in the EU**

Research centers and universities

- RSE (I), Coord & WP3
- Politecnico di Torino (I), WP2
- Technische Universiteit Delft (NL)
- Technische Universität Dortmund (D)
- Technische Universität Dresden (D)
- EC Joint Research Centre - Inst. Energy
- Univerza v Ljubljani (SL)
- The University of Manchester (UK)
- Observatoire Méditerranéen Energie (F)
- R&D Center for Power Engineering (RU)
- Vienna University of Technology, EEG (A)

TSOs

- RTE (F)
- APG (A)
- Terna (I)
- TenneT (NL)

Industry

- Technofi (F), WP1
- ASATREM (I)
- KANLO (F)
- Prysmian (I)
- RIECADO (A)

Activities of REALISEGRID

- Identification of technical performances, economic benefits and costs of novel **technologies** aimed at increasing capacity, reliability and flexibility of the transmission infrastructure
- Definition of long term **scenarios** for the European power sector, characterized by different evolutions of demand and supply, such as the integration of a large amount of intermittent renewable energy sources (e.g. wind power), meeting specific targets concerning security of supply and sustainability
- Implementation of a framework to facilitate harmonisation of pan-European approaches to electricity infrastructure evolution and to evaluate benefits of **transmission investments**

Work Package 3 “Transmission investments”

WP3

Planning Practice

WP3.1 Analyzing current practice and developing a robust set of criteria for improved transmission planning in presence of a large penetration of RES-E generation

Testing Bed

WP3.5 Validation of the cost-benefit methodology set up in WP3.3 on a real case concerning the TEN-E priority axis EL2

Regulation

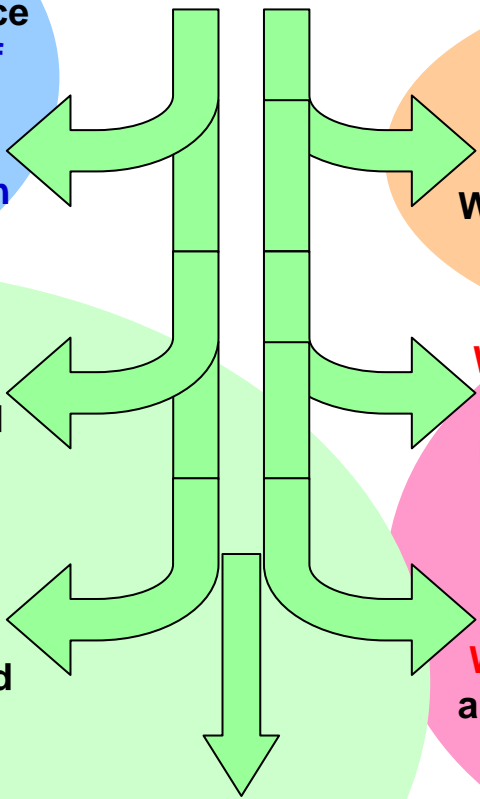
WP3.6 analyzing the impact of regulation and incentive mechanisms on transmission investment

WP3.7 deriving a benefit-based approach to improve consensus on new infrastructures

WP3.2 Evaluate bottlenecks and investment needs in cross-border capacities in the European Electricity markets

WP3.3 Set up a methodology and a supporting tool to carry out multi-criteria cost-benefit analysis supporting the development of trans-European transmission infrastructure

Modeling tools



WP3.4 Creation of a tool to support coordinated investment in electricity and gas infrastructure