



European Wind Integration Study (EWIS) Towards a Successful Integration of Wind Power into European Electricity Grids

EWEC Conference

International wind integration studies

1st April 2008 - Brussels

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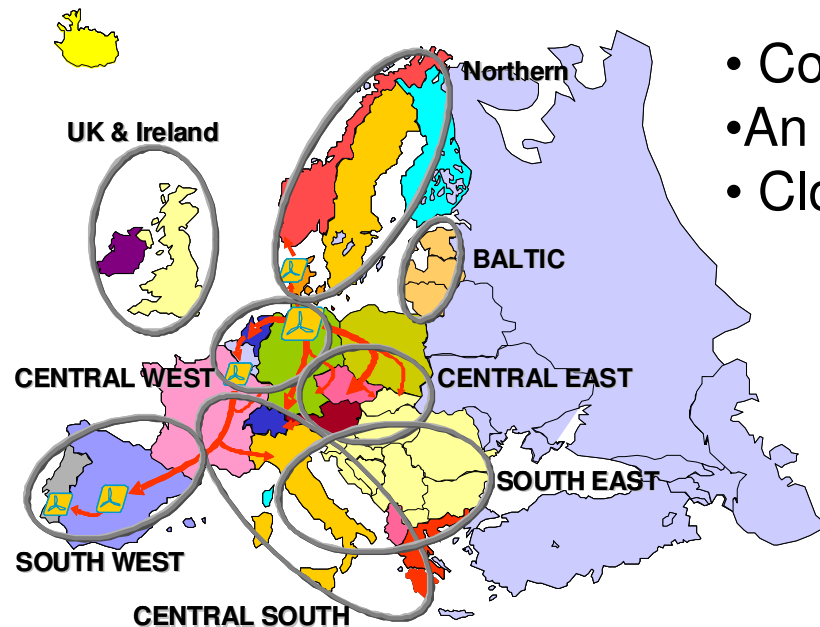
Introduction

- The EU must meet its renewables targets:
 - For this, the large-scale integration of wind energy is essential
- Europe's electricity transmission networks
 - provide the route for the efficient transport of wind power from turbines to consumers
 - provide the means for efficiently managing wind variability by harnessing diversity and backup energy sources
- The EWIS project was initiated by the European Transmission System Operators in collaboration with stakeholders to address the best way to progress
 - In particular, build upon the good work done by EWEA Tradewind

EWIS Objectives / Areas of Interest

1. Speed up consent procedures for connections and grid infrastructure
2. Enhance technical compatibilities to facilitate further wind development, minimize industry costs and maintain security of supply
3. Establish efficient arrangements to make best use of existing network capacity and drive the investment in new capacity
4. Identify transmission investments to address wind energy requirements
5. Enhance balancing arrangements to ensure efficient real-time delivery of security and quality of supply
6. Apply new technology solutions to maximize network capacity and flexibility

A Reference Study on European Level

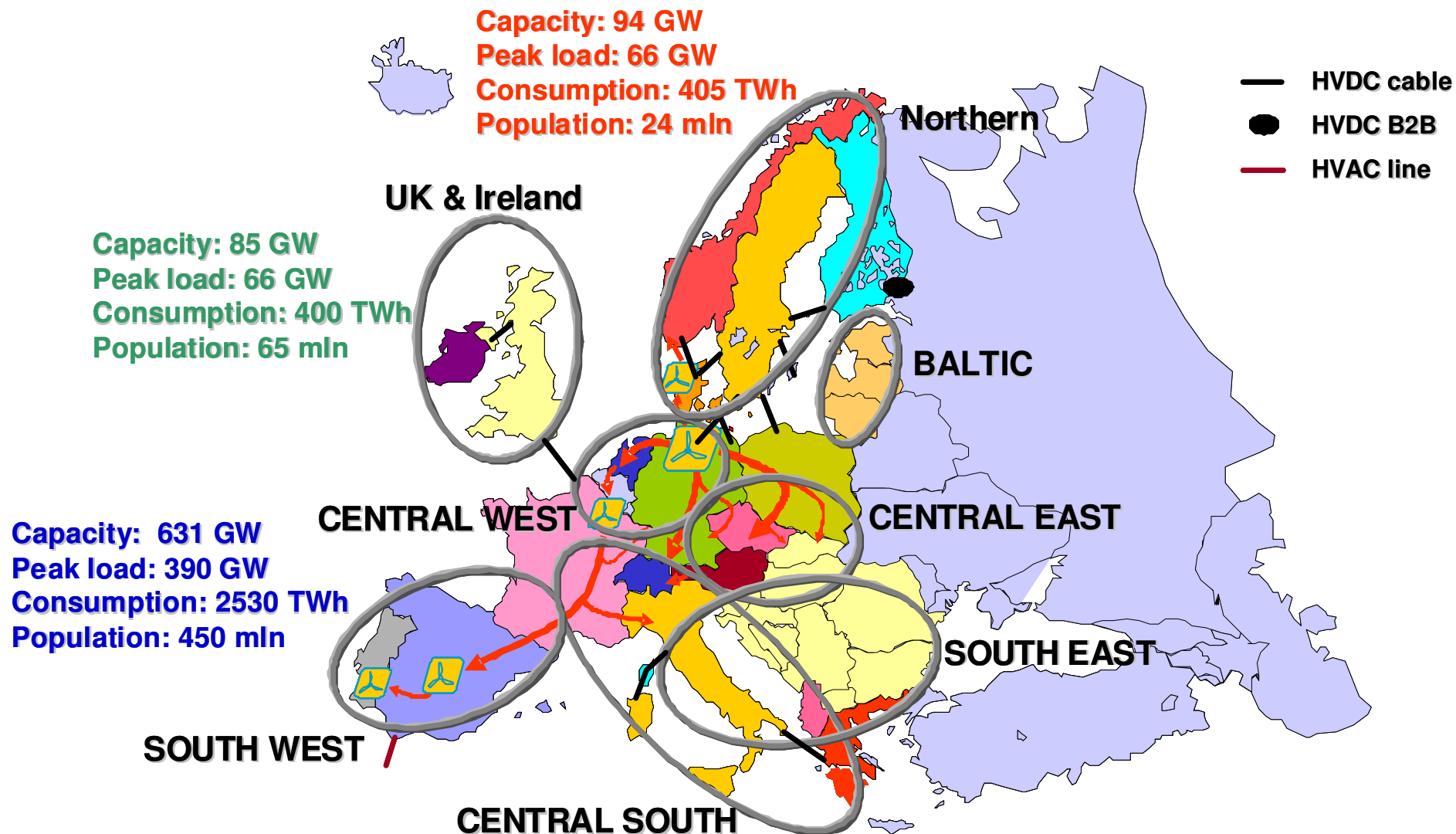


- Common initiative of European TSOs
- An EC SmartGrids project
- Close cooperation with external stakeholders
 - Network operators (TSOs and DSOs)
 - Wind power producers and wind turbine developers
 - Market participants
- Relevant studies on Wind integration
 - TradeWind, IEA-Task 25 ...
- Consumers
- Regulatory representatives
- National Governments and authorities...

... Aims to be accepted and supported by major European players...



European Wide Regional Initiatives



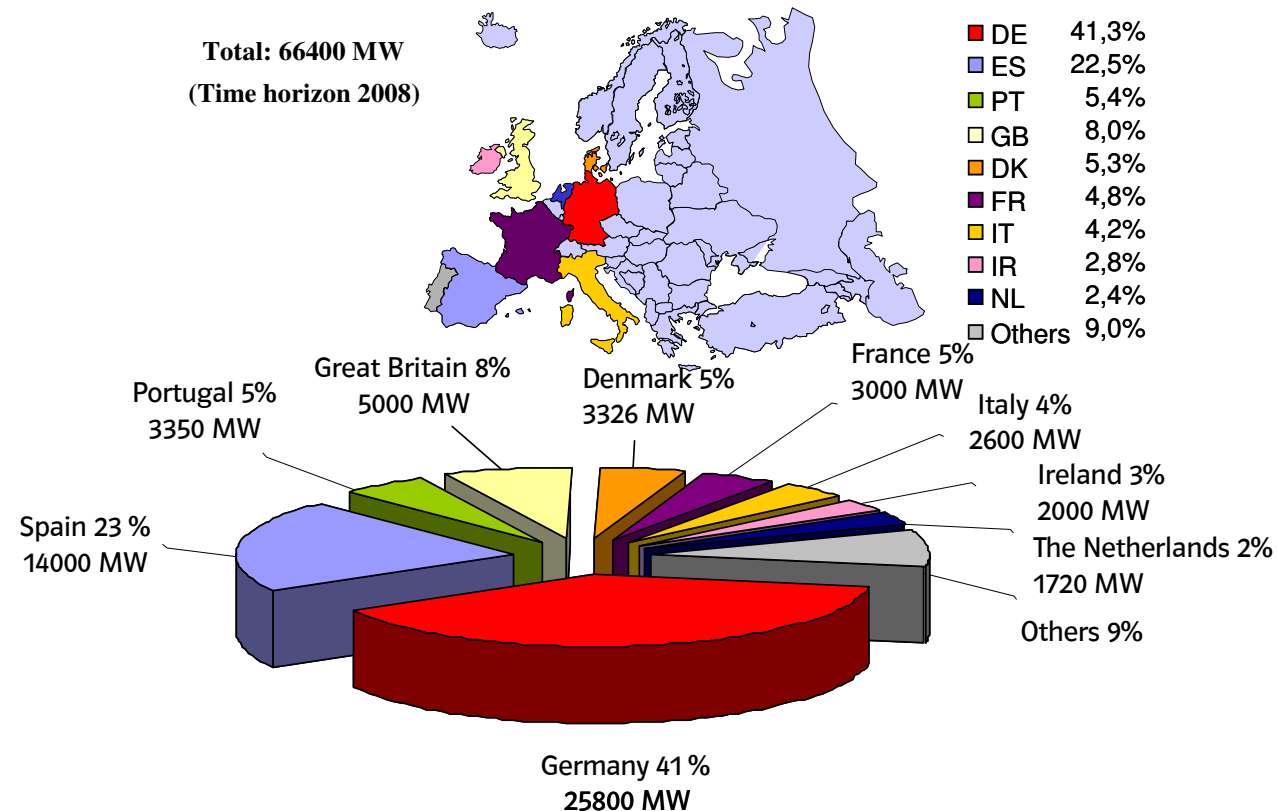
Methodology / Approach

- Review present situation
 - 2008 Scenarios (done)
- Identify immediate challenges
 - 2015 Scenarios (in progress)
- With detailed assessment of:
 - Network technical performance
 - Market operation and economics
 - System operation facilities and procedures
 - Legal & regulatory requirements

Present Situation – First Results

Wind Power Integration all over Europe

High wind power increase from 41 GW in 2005 to nearly 67 GW already in 2008 with a concentration in only 3 countries which represent more than 70% of the total installed capacity





Present situation

TSO Related Measures and Activities

A

Additional requirements for wind power generation in Germany, Spain and Great Britain represent more than 70% of the total installed capacity in Europe based on the results of national studies and studies on European level (EWIS) in 2007

B

European Wind Integration study EWIS confirmed the grid reinforcement already identified at the national level. TSOs have started the necessary grid reinforcement activities in those regions as well as wind connections.

C

Cross-border capacity management: Coordinated measures for power flow control by phase shifters offers improved transfer capacity and control in areas with significant wind penetration

D

Coordinated installation of additional FACTS devices for reactive power compensation will maintain voltage performance and minimise transmission losses.



TSOs Overview over Wind Power Integration

A

The European transmission networks are keen to play their role in bringing wind power to market efficiently and economically

B

TSOs are being proactive in initiating a harmonised approach to addressing the various network issues concerning wind power integration

C

TSOs are working with stakeholders on wind power integration into the European Transmission Network

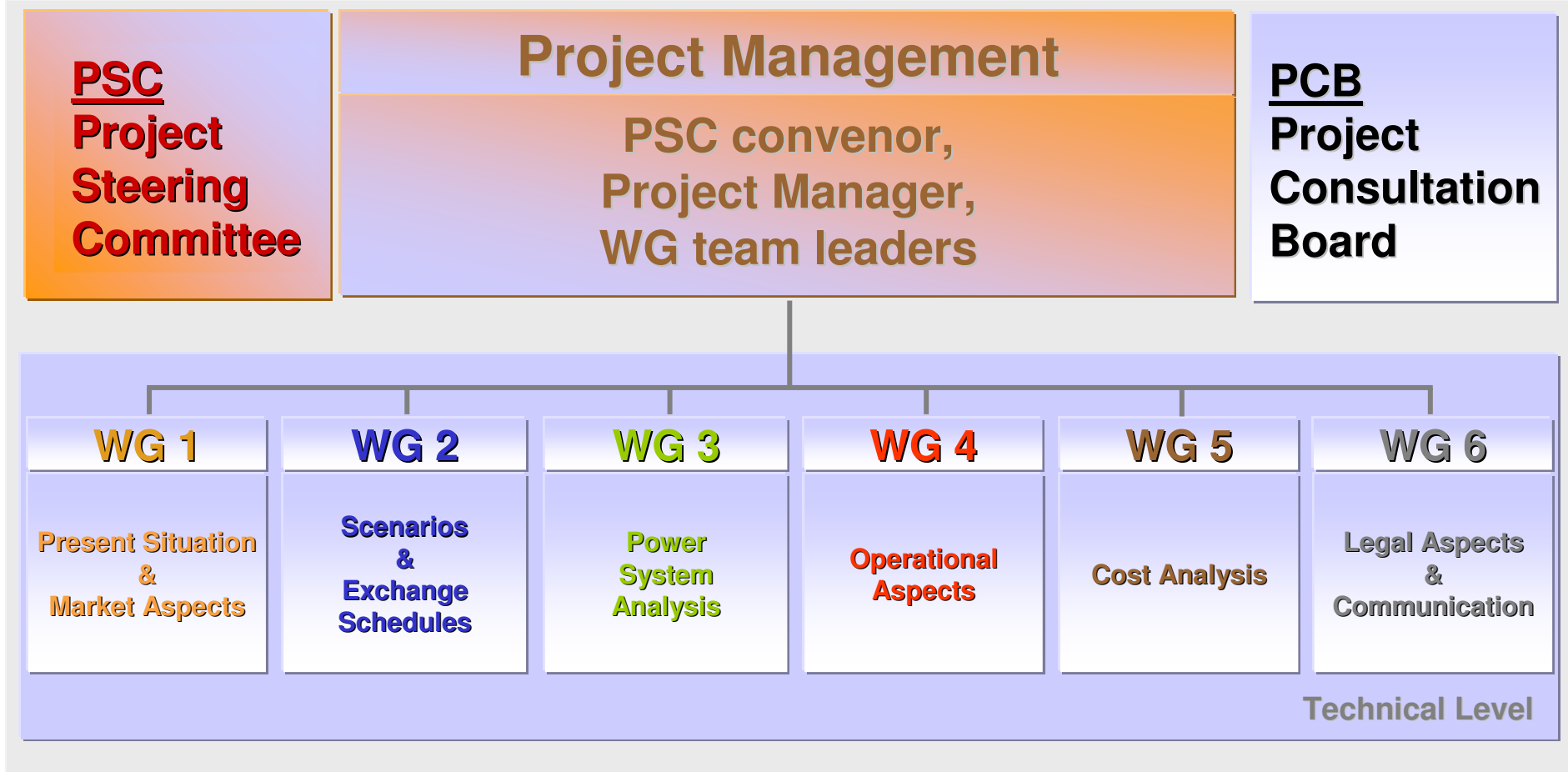
EWIS - TradeWind Cooperation ...

D

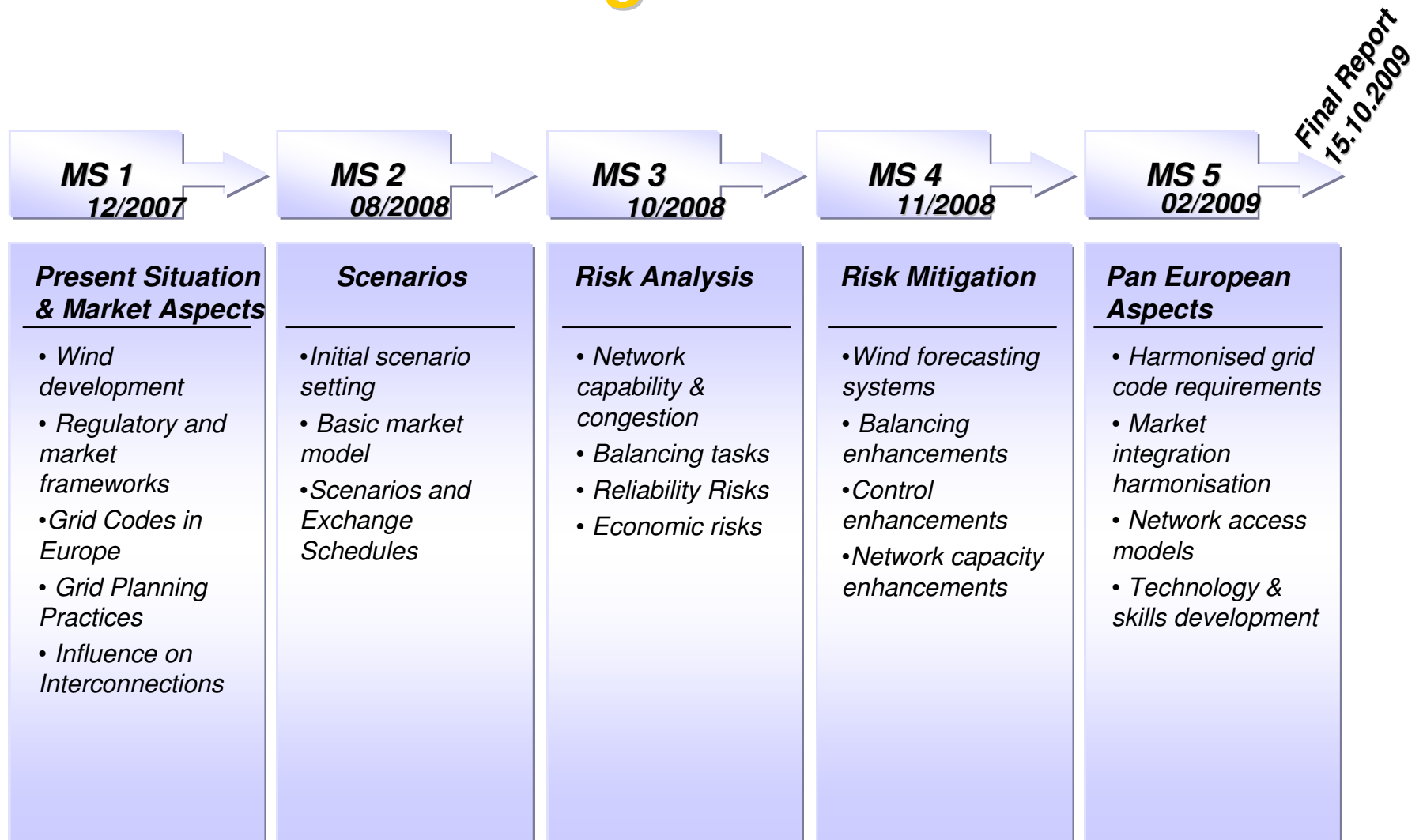
Given that Tradewind is now nearing completion, TSOs intend to pick up the TradeWind findings and to take wind integration forward

Project Organisation

Project Assembly (TSO Consortium members)



Working Schedule



Contact Project Management Office

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