Development of Human Activities in the North Sea

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EWEA Members –
Across entire supply chain
EWEA Wind Energy scenario to 2020

2011
Capacity: 94 GW
Production: 206 TWh
6.3% of EU demand

2020
230 GW
581 TWh
16% of EU demand

Similar targets in other 2020 scenarios...
IEA = 199 GW  NREAPs = 213 GW  EC = 222 GW
European offshore wind energy market in 2011

- In 2011, 3.8GW offshore wind capacity installed across 53 wind farms in 10 European countries
- Worth €2.4bn annual investments
- 59% capacity installed in the North Sea
- Using around 2,400 km² sea space
Offshore wind energy market in the EU in 2020 & 2030

- 40GW by 2020 and 150GW by 2030
- Meeting 4% and 14% of total EU electricity demand in 2020 and 2030
- Using 25,000 km² sea space in 2020
Offshore wind energy market in the EU 2011 – 2020 (MW)

- 2012: annual installations of around 1.4 GW
- 2020: annual installations of 6.9 GW
- 2020: cumulative installations of 40 GW

Source: EWEA 2011
2012 and beyond

- 9 offshore projects under construction
  - Increase installed capacity by 2,375 MW
  - Bringing cumulative capacity in Europe to 6,188 MW

- Preparatory work has started on 9 other projects
  - cumulative installed capacity of 2,910 MW
  - Bringing cumulative capacity in Europe to 9,098 MW
Online, underconstruction and consented projects at end 2011 (MW)

Share of consented offshore capacity

- Germany: 6,726/45%
- Netherlands: 1,226/12%
- Ireland: 1,226/11%
- Estonia: 882/7%
- Sweden: 777/6%
- Finland: 777/5%
- Belgium: 777/5%
- UK: 777/5%
- Norway: 250/2%
- Latvia: 245/1%
- Italy: 245/1%
- Denmark: 0
NORTHERN IRELAND

Estate Offshore Wind Licence Round in Ireland is expected shortly. The Offshore wind identified in a recent resource shown in Green.

IRISH SEA

LEGEND

Cables Routes in Operation
Planned Cable Route
Cable Routes in Planning

Site Name
Generating Capacity

North Hoyle (50 MW, 30)
ingpower renewables
Progress in 2012

Installation and Grid connection between 01/01/2012-30/06/2012 (EWEA Mid-year Statistics, 2012):
EWEA studies for reference:

EWEA Pure Power III: Wind energy targets for 2020 and 2030 (2011)

EWEA Wind In our Sails (2011):

SEANERGY2020 final report:

EWEA Offshore wind key trends and statistics 1st half 2012 (2012):  

EWEA Offshore wind key trends and statistics for 2011 (2012):
So what is a marine spatial plan?

“The process of analyzing and allocating parts of three-dimensional marine spaces (ecosystems) to specific uses, to achieve ecological, economic and social objectives that are usually specified through a political process.”

And how do you make one?

Establish the current situation

Identify optimal locations for each activity

Identify conflicts between activities

Prioritise spatially conflicting activities

Produce a map to show the areas prioritised for various activities
Issues in creating a plan

Data collection:
- Scale
- Accuracy

Data collation:
- Technical capability
- Metadata accuracy

Trans-boundary co-operation:
- National interests and jurisdictions
- Cumulative and long distance effects
Stage 1 – Mission Statement

Promote national MSP to meet common regional objectives
Example objectives include:
  – **Balancing** ecological, sociological and economic aspects.
  – **Allocating** space to minimise conflict
  – **Using** MSP as a tool for sustainable development
  – **Co-operating** to avoid trans-boundary pollution or conflict.
Stage 2 – Collating the Data

**Identify** areas of conflict between activities and the environment. These are applicable to all regions.

**Appreciate and promote** the need for full and accurate information.

**Co-ordinate** core information to ensure comparability.

**Catalogue** or collate the data in a central database.
Stage 3 – Make regional plans

With data available, conduct GIS analysis to identify conflict areas.
Understand the national targets and absorb them into regional targets.
Create a visual impression of the area in 25 years time.
Marine Spatial Planning and Management
Because of increasing use demands and potential conflicts between different uses and/or with marine nature conservation (ecosystem sea) there is a need for integrated, comprehensive sustainable management of human activities.

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analysis of ship traffic

Analysis based on AIS-information by Water- and Shipping Administration

red: westbound traffic
green: eastbound traffic
• Shipping lanes as basic structure of the draft (Art. 60 VII UNCLOS)

• priority areas: must be kept free from obstacles

• reservation areas: shipping has special weight in balancing process

• no traffic regulation!!!!!! (protection of existing traffic)
Shipping and military training areas
Platforms, pipelines, cables, sand extraction, mariculture
Spatial claims by Offshore Windparks

- Target in D: 25,000 MW Offshore Windenergy by 2030 in the EEZ and the territorial sea
- Based on turbines with 3 bis 5 MW: 5,000 up to 8,000 turbines necessary
- Renewable Energy Act: 35 % of the electricity supply must be from renewable energy by 2020
- Coverage of ca. 15 % of the German EEZ
Windenergy projects: more than 100

29 licences (2081 WEA, equals roughly 9.000 MW)
- 26 in North sea (1841 WEA)
- 3 in the Baltic sea (240 WEA)
- alpha ventus (12 WEA) producing electricity;

76 applications for 5752 WEA
- BARD and Borkum West 2 under construction
Spatial Plan for the EEZ in the North sea

designations:

Priority areas for wind energy (red)

Priority areas for shipping (blue)

Importance of environment: no turbines in Natura 2000 areas!

gates for electricity cables to the coast

set into force on 26th September 2009
Strategic Environmental Assessment for MSP

For the first time a large scale SEA has been carried out in a sea area distant from the coast

Main content of the report:
• description and evaluation of state of the marine environment
• description and assessment of any substantial impacts on the marine environment that are likely to be caused by the implementation of the plan

Result of SEA: no substantial impacts on the marine environment by the designations of the plan
Common guillemot (uria aalge): example for a large scale analysis by connecting information from private and public sources.
International Cooperation

Transboundary cooperation and planning very important because of transnational uses and marine conservation issues.
Conclusions

**Promoting** national marine spatial planning to meet common regional objectives

**Highlighting** the need for bi-lateral communication

**Providing** guidelines for the common collection and exchange of data

**Streamlining** reporting requirements

**Steering** the reporting requirements to meet the future EU Marine Strategy Framework Directive