

# Next Generation Energy in the EU

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# Overview

- Introduction:
  - Role of Energy in the EU and the establishment of an Internal Energy Market
- Liberalising the Energy Sector and Regulating Energy Choice:
  - The 2009 Directives governing Electricity Production, Use of Renewables and CCS
- Developing offshore wind energy and offshore infrastructure in the North Sea
- Conclusion

# Role of Energy in the EU

- EEC Treaty of 1957 did not apply to the energy sector
- General principles applied: free movement of goods and services without distortion of competition. Except for companies carrying out services of general economic interest
- It was generally accepted that energy companies were exempted.
- Oil crisis of 1970s led to focus on renewable energy but mainly based on national policies aiming at securing energy supply

# Establishment of an Internal Energy Market

- In 1988 the concept of the Internal Energy Market (IEM) was introduced, meaning that the energy sector should be subject to the general principles of the Treaty.
- In addition to the Treaty it required the need to specific secondary energy legislation:
  - Directives (to be implemented in national law)
  - Regulations (apply directly)
- The IEM aims at liberalising the energy sector

# The Development of the IEM

- The concept of the IEM has led to the entry into force of many directives and regulations
- Crucial are the directives liberalising the electricity/gas sector and the regulations governing cross-border trade
- But also directives governing the use of renewables, CHP, biofuels, CO<sub>2</sub> emissions
- In 2009 the EU Commission's proposals for an Integrated Energy and Environment Package were accepted. Package is basis for

# EU Member States



# Third Energy and Environment Package

- Energy mix EU: gas (24%), oil (36%) coal (27%), nuclear (13%), renewables (8%)

Current EU energy policy is based on 3 pillars

- Liberalisation/competitiveness (Lisbon),
- Security of supply (Moscow)
- sustainable development (Kyoto)

“Moscow” and “Kyoto” are reasons for limiting use of fossil fuels and consider next generation energy.

# Third Energy and Environment Package

Next generation energy involves 20-20-20 goals:

- Use of renewable energy sources in final energy consumption (20% target in 2020) in transport sector (10% target in 2020)
- Greenhouse gas emissions (reduction of 20% in 2012-2020)
- The need to introduce carbon capture and storage as a transitional technique
- The need to increase energy efficiency



# The Electricity Directive (i)

- Electricity Directive 96/92/EG as amended Directives 2003/54/EG and 2009/72/EG.
- The Directives aim at the creation of a liberalised/competitive electricity market
- Competition is introduced on the supply and demand side of the market. Networks are natural monopolies and regulated via TPA.
- Regulators control ex ante
- Consumers can be protected on the basis of public service obligations

## The Electricity Directive (ii)

- Supply competition: production is free
- Production requires a (or more) licence. Licensing involves planning and environmental permits but does not directly influence fuel choice.
- Tendering procedure is considered as an alternative if licensing does not create supply security or to introduce new techniques, demand side management etc.
- Consequently: no legal instruments to

## Renewables Directive (i)

Directive 2009/28/EC replaces Directive 2001/77/EC. Its aim is to increase percentage of renewables (= biomass, wind, solar, hydro, geothermal, etc.) in electricity production and in the transport sector.

Directive has a target of 20% share renewables in the Community's gross final consumption of energy by 2020.

20% target is "translated" to each MS and includes a mandatory target of 10% for Malta, 15% for UK and 49% for Sweden.

Each MS must adopt a national renewable energy action plan.

## Renewables Directive (ii)

mandatory target applies to each MS.

MS may agree on a statistical transfer of certain amounts of renewables from one to another. No obligation of any (financial) compensation.

MS may agree on joint projects relating to the production of electricity from renewables. Such generation may involve private operators. Does it include joint infrastructure? It does if a third country is involved.

MS may introduce guarantees of origin: a document certifying the origin of electricity. It can be transferred from physical transfer of electricity.

## Renewables Directive (iii)

may support the use of renewables by way of

- Subsidies, investment aid, tax incentives leading to a reduction of costs. In general this is not allowed under EU Treaty. Environmental goals can be reason to allow for S

- A renewable energy obligation, meaning that producers, suppliers and/or consumers can be obliged to produce, consume, supply a % renewable energy

2009 Directive allows for joint support schemes

## Renewables Directive (iv)

er instruments to promote renewables includ  
streamlining of administrative/permitting proce

priority or guaranteed access to the grid or prio  
ratching. This has implications on transportat  
s and management of the grid. How to deal  
question and who will pay for the additional co

mass is often used together with fossil fuels  
n installation is subject to an emission permit a  
EU ETS. The Renewables Directive regulates

# Greenhouse Gas Emissions

Increasing the use of renewables limits the emissions of greenhouse gases

EU emissions trading system also aims at reducing greenhouse gases. The 2009/29/EC extends the current regime after 2012. New elements include advance allocation at EU level and auctioning of allowances. The ceiling of emissions will be lowered by year.

Key instrument is the Directive governing Carbon

## CCS Directive (i)

The CCS Directive governs carbon capture, transport and storage.

By capturing the CO<sub>2</sub>, it is not emitted and therefore there is no need to transfer any emissions allowances at the end of the year (= main trigger)

In order to avoid that the carbon ever is emitted, it has to be permanently stored in the subsoil.

For major point emitters and subsoil storages usually not situated in the same place, the carbon needs to be transported. Preferably through pipelines.

The Directive focuses on the subsoil storage of CO<sub>2</sub>.



## CCS Directive (ii)

The Directive applies to geological storage of CO<sub>2</sub> onshore as well as offshore

Introduces a permitting regime: exploration and storage permits. Exploration permit only if necessary for safe site selection and holder has priority when applying for storage permit

Storage permit based on objective and non-discriminatory criteria. EU Commission has advisory role but advice is not binding

Operator constantly monitors safety of the site supervised by competent authority. Monitoring

## CCS Directive (iii)

ation in MS may differ: there may be many  
stors and few storages and vice versa.

Directive therefore explicitly provides that MS  
ould facilitate cross-border CCS.

be even more important is stresses the need  
party access to storage facilities and pipeline  
access rules are based on the essential facilities  
rine and does in fact leave MS/operators with  
ers to deny access as long as reasonable

an be assumed that interest in storage perm  
TPA will depend on availability of storages a

## CCS Directive (iv)

liability of permit holder/operator is linked to the closure of the site. Closure (after termination and/or withdrawal licence) depends on approval authorities. After approval the operator remains responsible for 20 years. Responsibility is transferred to the State if it is likely that the CO<sub>2</sub> is permanently stored. States act in two capacities: it sets the rules of closure and will in the end take over the entire responsibility. States with ample storage capacity and lenient liability rules will be attractive for CCS.

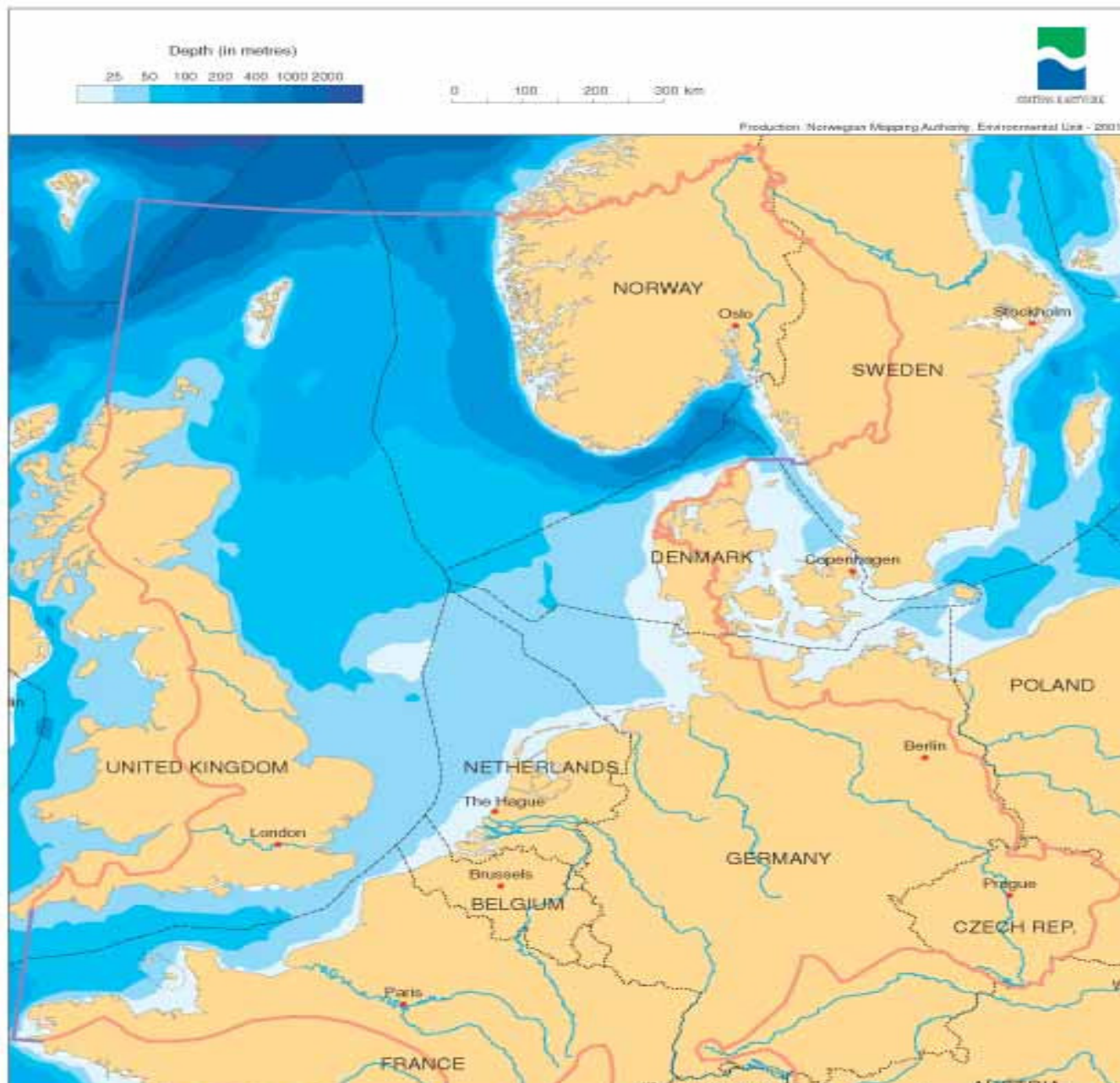
Uncertainty about long term effects of carbon storage, public opposition, low carbon prices seems to limit

# Offshore wind energy: a new regime

In northern Europe wind energy is the most obvious available resource. Due to lack of space many countries consider to develop offshore wind energy. According to International Law (UNCLOS) coastal states have several offshore zones: territorial sea, continental shelf and exclusive economic zone (EEZ). Territorial laws apply to territorial sea. Outside the EEZ coastal states have sovereign rights regarding the production of wind energy if they have established an EEZ.

In the high seas: freedom to lay cables

# The North Sea



## Wind Energy in the North Sea (i)

coastal states have established an EEZ and are developing offshore wind energy. So far most wind farms are in territorial sea.

Typically, the national electricity laws apply in the territorial sea. In EEZ coastal states need to decide explicitly that the electricity act applies.

Not all MS have done so but not all. The application depends on how generation is governed under the national regime and this again depends on how the state has implemented the Electricity Directive. Is the national licensing or tendering regime in place?

## Wind Energy in the North Sea (ii)

imes in the North Sea differ: some MS apply (s) of the Electricity Act to the EEZ. Others do not consider a wind farm merely as an installation. Some may thus apply a tendering regime in combination with a production licence on the basis of the Electricity Act. Others apply a 'first come, first served' regime. Some require a building permit and an environmental impact assessment. Increasingly a need is seen for more planning.

What is the role of the EU? Surprisingly very small. EU favours offshore wind but have not been involved



## Wind Energy in the North Sea (iii)

Onshore wind energy also requires a grid but how should such a grid look like? Who should develop it?

Onshore grids have been dedicated "park-shore" grids. Large scale offshore grid needs to be developed. How? By the national TSOs? If so, are we then extending the national regimes offshore and thus creating harmonisation problems?

September 2009: declaration of 9 North Sea states expressing interest in developing a joint North Sea



# Conclusions

is necessary to increase the use of renewable  
use of "Moscow" and "Kyoto".

2009 Package provides several instruments  
mandatory renewables targets and emissions  
ng

these instruments sufficient? Will depend on  
of renewables, CO2 price, oil price etc

ar few Member States have met their target  
ommission has no penalty system as they ha  
r the emissions trading regime.