Workshop on the EU Directives and legally binding obligations in the area of sustainable energy under the Energy Community Treaty

EU energy policy

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A bit of history (1)

► 1951 Treaty of Paris founded the European Coal and Steel Community: common coal policy
► 1957 Treaty of Rome established the European Economic Community: common market
► 1973 oil crises prompted the EEC to reconsider the urgent need for a common energy policy
  ◇ IEA established
  ◇ energy efficiency, renewables
A bit of history (2)

1990’s

- Market liberalisation
  - electricity and gas directives

- Climate
  - Bruntland’s report
  - Kyoto targets
  - ETC

2000’s

- Security of supply
  - US blackouts
  - Ukraine gas crisis 2006 and 2009
Development of the EU energy policy

- **First strategic review**
- **Green Paper**
- **European Energy Policy**
- **Action Plan Energy Efficiency**

- **Second Strategic Review**
- **Energy Action Plan**

- **Energy and Climate Package**

- **Third Internal Energy Market Package**

- **Energy Programme for Recovery (EEPR)**

- **Energy Strategy 2020**
- **Energy Infrastructure Package**
- **Regulation on security of gas supply**

- **Energy Infrastructure Instrument**
- **Roadmap 2050**
- **Energy Efficiency Plan**
- **Communication external energy policy**

- 2006
  - Jan
- 2007
  - Nov
- 2008
  - Dec
- 2008
  - June
- 2009
  - July
- 2009
  - Nov
- 2010
  - Nov
- 2011
The prime aim of the European Community’s energy policy is to ensure a supply of energy to all consumers at affordable prices while respecting the environment and promoting healthy competition on the European energy market.
Why energy policy matters

- The EU pays 2.5% of its annual GDP to import energy:
  - €270 bn for oil
  - €40 bn for gas

- We can do better - a truly integrated EU energy market will lead to:
  - 0.6% - 0.8% increase in GDP
  - each consumer to save €100 a year by switching supplier/tariff

- Achieving renewable and energy efficiency targets could create 5 million more jobs by 2020

- Energy efficient use can help to cut consumers’ annual bills by €1000 per household
The 2007 integrated energy package

Competitiveness

Internal Market
Interconnections
European electricity
and gas network
Research and innovation

Internal Market
Interconnections
European electricity
and gas network
Research and innovation

Sustainable Development

Renewable energy
Energy efficiency
Nuclear
Research and innovation
Emission trading

Security of supply

International Dialogue
European stock management
Energy storage
Diversification

FULLY BALANCED
INTEGRATED
AND
MUTUALLY REINFORCED
2nd Strategic energy review

Energy Efficiency
Indigenous energy resources
External Relations
Oil stocks & gas crisis mechanisms
Infrastructure

sustainable development
security of supply
competitiveness

Energy Security and Solidarity Action Plan
Energy 2020 - A strategy for competitive, sustainable and secure energy

Priority 1: Achieving an energy-efficient Europe

Priority 2: Building a pan-European integrated energy market

Priority 3: Extending Europe’s leadership in energy technology

Priority 4: Protecting consumers and achieving the highest level of safety and security

Priority 5: Strengthening the external dimension of the EU energy market
Europe’s strategy: 20-20-20 by 2020

- **20%**
  - Emissions capping and trading – credible carbon price; emissions reductions in developing countries

- **20%**
  - Non-binding target - compared to baseline projections – throughout economy

**EU target, binding national targets; 10% biofuels in road transport fuel - binding minimum national target – contingent on sustainability**

- **20%**
  - Greenhouse gas levels

- **20%**
  - Energy consumption

- **20%**
  - Renewables in energy mix
GHG emissions: Where is the EU now?

- EU emissions reduced by 16% between 1990 - 2009
- EU GDP grew 40%
- EU manufacturing grew by 34%
- EU on track towards the 20% emission reduction target by 2020
- However, current policies would only lead to ca. -40% GHG emissions by 2050
**Carbon emissions’ reductions**

80% domestic reduction in 2050 is feasible
- with currently available technologies,
- with behavioural change only induced through prices
- If all economic sectors contribute to a varying degree & pace.

**Efficient pathway:**
- 25% in 2020
- 40% in 2030
- 60% in 2040
What the EU renewable target means

Each Member State has a binding target - set as a combination of renewable potential and GDP - to increase its share of renewable energy by 2020.
Significant global investments in renewables

In 2009, investment in renewable energy fell in the EU by 10% in the context of the economic crisis, while it increased by more than 50% in China.
Meeting our “20-20-20 by 2020” goals

- Reduce greenhouse gas levels by 20%
- Increase share of renewables to 20%
- Reduce energy consumption by 20%

Current trend to 2020:
- Reduce greenhouse gas levels: -20%
- Increase share of renewables: 20%
- Reduce energy consumption: -10%

15
Additional efforts are needed to achieve the 20% energy efficiency improvement. Current policies will achieve only 10% savings.
Priority 1 : Achieving an energy-efficient Europe

Action 1: Making the most of National Energy Efficiency Plans
- National Energy Efficiency Actions plans as a single annual reporting / benchmarking tool

Action 2: tapping into the biggest energy saving potential – buildings and transport
- New incentives to accelerate the renovation rate; set conditions in public procurement; full implementation of the White Paper on transport policy

Action 3: reinforcing the competitiveness of our industry
- Promote a robust energy services market & energy management schemes

Action 4: reinforcing efficiency in the supply side
- Increase the uptake of cogeneration and district heating & cooling; promote energy saving schemes with consumers
A new directive on energy efficiency

- Implementation of the plan 20-20-20 is successful in reduction of GHG emissions and penetration of renewables
- Unfortunately, it is not so with energy efficiency
- If the current trend prevails - until 2020 energy efficiency will grow by 10% only
- Therefore in 2011 a new Directive on energy efficiency was proposed by the EC, it was approved in October 2012
- It will repeal Directives 8 and 32 (on co-generation and energy services)
What improving energy efficiency means for a single family house built in the 70s (150 m²)

No renovation

Renovation to new build standard

Renovation to low energy house standard

Annual CO₂ emissions in tonnes

14 t

5.6 t

2.8 t

Consumption of heating oil per year

4500 litre

1800 litre

900 litre

÷ 2.5

÷ 2
Priority 2: Building a pan-European integrated energy market

Action 1: timely and accurate implementation of the internal market legislation

- Consolidate the regulatory framework, promote competition and transparency; monitor the implementation of the renewable energy directive

Action 2: establishing a blueprint of the European infrastructure for 2020 and beyond

- Map out the key strategic infrastructure for the good functioning of the internal market, the large-scale deployment of renewable energy and security of supply

Action 3: removing technical and regulatory obstacles to infrastructure developments

- Simplified procedure for projects of ‘European interest’; ACER to ensure all technical and regulatory obstacles to interconnections are removed

Action 4: providing the right financing framework

- Innovative funding mechanisms for projects of ‘European interest’
Electricity and gas Directives

- 1st Electricity directive
- 1st Gas directive
- 2nd Electricity and Gas directives
- 3rd package: Electricity and Gas directives, Regulations
- Implementation of the 3rd package
- Competitive pan-European market?

- 2014
- 2011
- 2009
- 2003
- 1998
- 1996
Unbundling requirements

First Directives, 1996-1998

Unbundling of accounts

Second package, 2003

Legal and managerial unbundling

Third package, 2009

Ownership Unbundling or ISO or ITO
Other changes

Third party access

- 1\textsuperscript{st} Directives allowed 3 options: negotiated, regulated TPA and a single buyer
- 2\textsuperscript{nd} package only the regulated TPA left

Market opening

- 1\textsuperscript{st} Directives required gradual market opening for large consumers
- 2\textsuperscript{nd} package set time frame for a full market opening (07.2004 for commercial and 07.2007 for residential)
Market liberalisation, the 3rd package

Directives 2009/72&73/EC:
- Mandatory market opening
- Public service obligations & consumer protection
- TSO unbundling-options
- DSO legal unbundling
- Regulated TPA for grids
- Independent regulators

National implementation:
- subsidiarity
- limited role of EU Commission

Regulations:
- Cross border trade electricity
- Gas grids
- ACER
TSO-unbundling

What are the options?

- **Full OU of TSO**
  - No incentives to discriminate
  - Externalities new power plant vs new network

- **ISO**
  - Split TO and SO
  - TO can stay at vertically integrated monopoly
  - SO: independent

- **ITO**
  - “independent TSO”
  - Detailed & complex relation
Unbundling options

OWNERSHIP UNBUNDLING

Independent system operator

Independent transmission operator

Regulated relation
Implementation of the internal energy market

- Effective and efficient unbundling – Separation of transport and supply/production
- Transparency
- Market integration through framework guidelines and network codes

- Agency for the Cooperation of Energy Regulators (ACER) in Ljubljana (Slovenia)
- ENTSO-G/E

Community-wide 10-Year-Network Development Plans as starting point for joint and consistent investment planning
Electricty:
• Increasing electricity demand
• Up to 2020, doubling of RES production
• Need for interconnected and smart grid including large-scale storage
• Beyond 2020, need for higher voltage long-distance transmission

Gas:
• Key role continued, also as back-up fuel
• Need for additional, diversified imports
• Single-source dependency in Eastern Europe
• Need to improve network resilience, additional flexibility
The wind challenge

The solar challenge
Priority 3: extending Europe’s leadership in energy technology

Action 1: implementing the European Strategic Energy Technology Plan (SET-Plan) without delays
- Concentrate Community funding on the 6 industrial initiatives

Action 2: launching four new, targeted, large scale European projects
- Smart grids; electric storage; second generation biofuels; smart cities

Action 3: ensuring long-term EU technological competitiveness
Massive modernisation investment is needed

Total investment needs in the electricity and gas sector between 2010-20: over € 1 trillion

- Power generation: ~ € 500 bn
- Transmission and distribution: ~ € 600 bn
  - Renewables: ~ € 310-370 bn
  - Distribution: ~ € 400 bn
  - Transmission: ~ € 200 bn

Investments of over € 1 trillion will be needed by 2020 to replace obsolete power plants, to modernise and adapt infrastructure to the latest technologies and to cater for demand for low carbon energy

Source: Commission calculations
Priority 4: protecting consumers and achieving the highest level of safety and security

Action 1: making energy policy more consumer-friendly

- Regular benchmark reports with a particular focus on vulnerable consumers; London Forum

Action 2: continuous improvement in safety and security

- Strengthen the safety framework for offshore oil and gas extraction; enhance the safety and security framework for nuclear energy
Consumer rights

• Change of supplier within 3 weeks
• Final account closure after 6 weeks
• Supply to all customers by any supplier in the EU (subject to trading, balancing and SoS rules)
• Define the concept of vulnerable customers
• Consumers’ access consumption data
• Single contact point for consumer rights & Energy Ombudsman
Priority 5: strengthening the external dimension of the EU energy market

- **Action 1**: integrating energy markets and regulatory frameworks with our neighbours
  - *Energy Community Treaty; European neighbourhood policy*

- **Action 2**: establishing key partnerships
  - *Energy framework agreements with key supplier and transit countries*

- **Action 3**: promoting the EU global role for a low-carbon energy future
  - *Prominent role for sustainable energy in bilateral and global cooperation*

- **Action 4**: promoting legally-binding nuclear safety, security and non-proliferation standards worldwide
  - *International initiative on nuclear safety, security and non-proliferation standards*
Today, the EU is very reliant on a few partners for its oil and gas supplies. Diversification of routes and sources is a strategic priority for the EU.
A more pro-active approach to external energy policy

- Energy security should feature in EU Neighbourhood Policy
- EU urged to play a full role in international energy relations and negotiations,
- Recognition of need for level playing field for EU and non-EU players in international markets
- Call for deepening and extending Energy Community
- Support for new gas import developments, such as Southern Corridor
Extension of the EU energy market to the neighbourhood

- EU
- Energy Community Parties
- Energy Community Observers
- Other Neighbourhood Policy Countries

Source: European Commission
EU Energy Roadmap 2050

- Scenarios to help in assessment of long-term impacts of broad energy policy choices open to the EU going forward

- Purpose is not to choose one scenario but to ensure a long term perspective for EU energy policy

- Some policy actions make sense in a range of scenarios – eg. energy efficiency – active demand – infrastructures and markets – carbon pricing

- Develop better understanding of implications for markets and policy of choices made by Member States
The road to 2050

- No silver bullets; all options available
- Energy efficiency is a key

Source: JRC-IPTS, POLES
80% by 2050 only possible with zero-carbon power supply

<table>
<thead>
<tr>
<th>EU-27 total GHG emissions</th>
<th>Sector</th>
<th>Abatement</th>
<th>Within sector¹,²</th>
<th>Fuel shift</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Power</td>
<td>95% to 100%</td>
<td>&gt;95%</td>
<td>75% (electric vehicles, biofuels and fuel cells)</td>
</tr>
<tr>
<td></td>
<td>Road transport</td>
<td>95%</td>
<td>20%</td>
<td>20% (biofuels)</td>
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<td></td>
<td>Air &amp; sea</td>
<td>50%</td>
<td>30%</td>
<td></td>
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<tr>
<td></td>
<td>transport</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Industry</td>
<td>40%</td>
<td>35% (CCS³)</td>
<td>5% (heat pumps)</td>
</tr>
<tr>
<td></td>
<td>Buildings</td>
<td>95%</td>
<td>45% (efficiency and new builds)</td>
<td>50% (heat pumps)</td>
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<tr>
<td></td>
<td>Waste</td>
<td>100%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agriculture</td>
<td>20%</td>
<td>20%</td>
<td></td>
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<tr>
<td></td>
<td>Forestry</td>
<td>-0.25 GtCO₂e</td>
<td>Carbon sinks</td>
<td></td>
</tr>
</tbody>
</table>

¹ Based on the McKinsey Global GHG Cost Curve
² Large efficiency improvements are already included in the baseline, especially for industry
³ CCS applied to 50% of industry (cement, chemistry, iron and steel, petroleum and gas, not applied to other industries)

SOURCE: McKinsey Global GHG Abatement Cost Curve; IEA WEO 2009; US EPA; EEA; Team analysis