Bringing the Energy Union forward

What Strategy for the next 5 Years?

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Strasbourg, 13 March 2019
The Energy Union: from defensive policy to all-encompassing vision

Regardless of how the stand-off over Ukraine develops, one fact is clear: excessive dependence on Russian energy makes Europe vulnerable and not sell its resources cheap – at least, not to everyone.

This, of course, is basic economics. A dominant supplier can set prices and reduce supply. The way to correct this market failure is for Europe to confront Russia’s monopolistic position with a body charged with buying its gas.

Once this has been achieved, Europe should undertake the longer-term task of breaking up the Russian gas monopoly and restoring free market competition to the European gas industry. A unified position is, in fact, already being taken by financial institutions. The bloc’s 28 members jointly buy uranium and fund nuclear power plants through the EU’s atomic energy agency, Euratom, and should take the same approach with Russia’s gas.

The Energy Union reform steps

- **FEB 2015**: Energy Union Strategy launch. Definition of the 5 axis of work.
- **JUL 2015**: «Summer Package» including the reform of the EU carbon pricing (EU ETS).
- **NOV 2017**: Amendment to the Gas Directive (application of EU rules to import pipelines).
- **DIC 2017**: Agreement on EU ETS Reform.
- **DIC 2018**: Agreement on all files of the Clean Energy Package (including GHG, Efficiency and RES targets).

Source: Financial Times, 2014
What challenges going forward? Delivering on the 2030 targets with an eye to 2050...

CIRCULAR ECONOMY & CARBON SINKS
- Turning waste into sustainable energy resources
- Delivering on CCU and CCS

ENERGY SECURITY
- Securing and diversifying EU growing share of energy imports

CLIMATE & ENVIRONMENT
- Timely phase-out coal in power generation
- Bringing forward policy solutions to decarbonise gas and heat networks

COMPETITIVENESS
- Increasing system efficiency by integrating electricity, gas and industrial heat

ENERGY UNION 2.0
Europe’s gas import will grow due to falling domestic production

**EU28 Energy mix | Mtoe**

<table>
<thead>
<tr>
<th>Year</th>
<th>coal</th>
<th>oil</th>
<th>gas</th>
<th>nuclear</th>
<th>Renewables</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>6%</td>
<td>15%</td>
<td>23%</td>
<td>29%</td>
<td>19%</td>
</tr>
<tr>
<td>2017</td>
<td>15%</td>
<td>13%</td>
<td>12%</td>
<td>12%</td>
<td>23%</td>
</tr>
<tr>
<td>2030</td>
<td>23%</td>
<td>25%</td>
<td>27%</td>
<td>28%</td>
<td>23%</td>
</tr>
<tr>
<td>2040</td>
<td>37%</td>
<td>33%</td>
<td>27%</td>
<td>23%</td>
<td>14%</td>
</tr>
</tbody>
</table>

**EU28 Gas Supply-Demand balance | Bcm**

- **Domestic production**
  - 2000: 120 Bcm
  - 2017: 120 Bcm
  - 2030: 120 Bcm
  - 2040: 120 Bcm

- **Net imports**
  - 2017: 345 Bcm
  - 2020: 380 Bcm
  - 2030: 410 Bcm
  - 2040: 410 Bcm

**Import Dependency**
- 2000: 19%
- 2017: 14%
- 2030: 11%
- 2040: 7%

**EU28 Energy mix**
- **Demand**
  - 2000: coal, oil, gas, nuclear, Renewables
  - 2017: coal, oil, gas, nuclear, Renewables
  - 2030: coal, oil, gas, nuclear, Renewables
  - 2040: coal, oil, gas, nuclear, Renewables

**Supply**
- 2000: coal, oil, gas, nuclear, Renewables
- 2017: coal, oil, gas, nuclear, Renewables
- 2030: coal, oil, gas, nuclear, Renewables
- 2040: coal, oil, gas, nuclear, Renewables

**EU gas production**
- **Will decline** rapidly and will require higher import volumes (~65 Bcm in 20 years)

Source: IEA & Wood Mackenzie
Energy Diplomacy in the Mediterranean is central to improve security of supply and neighbourhood stability

- Mediterranean potential about 48 Tcm, more than Russia’s (44 Tcm)
- 85% in North Africa, with 14 Tcm of conventional gas (mainly Nile Delta) and 27 Tcm unconventional (Algeria)

9 Tcm of Gas reserves in the Mediterranean

4 Tcm of gas discovered in East Med

Source: IHS & Wood Mackenzie
The East Med could become a strategic energy hub for the EU

**The evolution of the East Med**

4,000 Bcm

*Main recent discoveries:*

- **Tamar (2009)**
  - 380 Bcm

- **Leviathan (2010)**
  - 790 Bcm

- **Aphrodite (2011)**
  - 170 Bcm

- **Glaucus (2019)**
  - 142-227 Bcm

- **Zohr (2015)**
  - 850 Bcm

*POTENTIAL YET TO BE FOUND GAS RESOURCES*

2,800 - 8,500 Bcm

Source: Eni & Wood Mackenzie

1% of global gas supply

~ 30% recent discoveries worldwide
The next 5 years will also be central to meeting the 2030 and 2050 climate targets

GHG emissions reduction targets in the EU

Today’s consensus: pre-conditions to meet the EU targets?

- Substantial coal phase-out (-77% by 2030 according to the IEA)
- Successful energy efficiency policies
- Renewables > 50% of the electricity generation mix
- Support to circular economy solutions, CCUS and system integration

1 - Source: EEA, 2018
Phasing out coal remains a priority...

Source: EEA, Europe Beyond Coal, Eni data elaboration
So as integrating an increasingly high share of intermittent renewables...

Renewables capacity growth by technology 2018 vs 2040 \(^1\)

<table>
<thead>
<tr>
<th>Technology</th>
<th>2018 Capacity</th>
<th>2040 Capacity</th>
<th>Growth %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solar</td>
<td>+159</td>
<td>+138</td>
<td>+138%</td>
</tr>
<tr>
<td>Wind</td>
<td>+195</td>
<td>+110</td>
<td>+110%</td>
</tr>
<tr>
<td>Waste</td>
<td>+16</td>
<td>+37</td>
<td>+37%</td>
</tr>
<tr>
<td>Hydro</td>
<td>+8</td>
<td>+6</td>
<td>+6%</td>
</tr>
</tbody>
</table>

Gas provides more than 1500TWh of flexible energy every year \(^2\)

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1 Source: Eurostat, Eni data elaboration
2 Source: ENTSOG, Tesla, Statkraft, Eni data elaboration
Mainstreaming circularity

- Waste separation and collection at the source
- Sharing economy

- New sustainable feedstocks for industrial uses (chemicals, refining, advanced materials)

- Reducing CO2 emissions across sectors:
  - Agriculture/farming and energy
  - Materials and manufacturing

- Reduced use of primary resources
- Reduced waste and CO2 emissions
Eni has already started a process of deep transformation towards the circular economy...

### GREEN CONVERSION

- **VENEZIA**: 1° BIO-REFINERY IN THE WORLD
- **GELA**: start up IQ 2019

Industrial plants can treat animal fats, green chemistry by-products, non-edible oils by a proprietary process and residues from plastic production

**Green diesel within 2021**

1 Mton/y

### WASTE VALORIZATION

<table>
<thead>
<tr>
<th>RECOVERY</th>
<th>SUSTAINABLE MOBILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>USED COOKING OIL</strong></td>
<td><strong>ADVANCED BIOFUELS</strong></td>
</tr>
<tr>
<td><strong>PLASMIX</strong></td>
<td><strong>BIOMETHANE/H₂</strong></td>
</tr>
<tr>
<td><strong>ORGANIC AND INORGANIC WASTES</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Car Sharing**
Europe’s climate policy success will be measured also in terms of global alignment with its policies...

- In 2017, the EU’s CO2 emissions were 19.5% lower than in 1990, and 16.5% (or 3.5 GT) lower than in 2005.
- Per capita emissions in the EU are now below those of China and half of those in the US.
- The CO2 intensity of the EU economy is around a third below the US and around two thirds below China.
- EU emissions will account for ~6-7% of global GHG emissions behind China, US and India.

Annual GHG emissions per region with uncertainties*

THE EU SHOULD SUPPORT ACTIVE CLIMATE POLICIES IN ITS NEIGHBOURHOOD AND IN THIRD COUNTRIES AS A MEANS TO COUNTER THE DECREASING IMPACT OF ITS DOMESTIC EMISSION REDUCTION POLICIES

1 – Source: European Commission – JRC, 2019
Conclusions

- The Energy Union is the most ambitious reform package ever delivered in the EU energy sector.
- The next five years will be crucial to deliver on the Energy Union goals and to prepare for deeper decarbonisation.
- Europe’s energy interdependence with its neighbourhood is a strength and an opportunity.
- Delivering carbon neutrality in the energy sector by 2050 will depend on the speed of implementing existing policies as well as the upcoming reform of the gas sector.
- Circular economy should be mainstreamed and become the default design of every policy.