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CEER

Council of European Energy Regulators

Decarbonisation at Least Cost

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Punta Cana, 9 May 2019

Fostering energy markets, empowering **consumers**.

European Union Energy Strategy and Energy Union

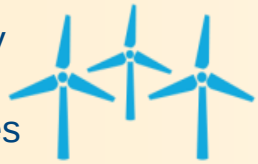
THE FUTURE OF THE ENERGY SYSTEM WILL BE DIFFERENT

2015

Paris Agreement

2030

50% of electricity generated by renewable sources



2050

Fully decarbonised electricity and cleaner transports

UNIQUE CHANCE TO MODERNIZE OUR ECONOMY

Stimulate **Investment**

Create **Employment and Growth**

Ensure **Energy Supply**

Accelerate **decarbonisation**

Give **More power to consumers**

Clean Energy Package

Innovative

Inter-connected

Enabling Framework

Energy Union Governance

Inclusive

Energy Efficiency

32.5%

Renewables

32 %

Electricity Market Design

Regulation and Directive on internal electricity market; Regulation on risk-preparedness, ACER Regulation

Socially fair

Safe for all

Digital

Investment-friendly

CEER's 3D Strategy (2019- 2021)

- Digitalisation (in consumer interest)

- Protect and empower consumers
- Cost-saving opportunities
- New business models

- Decarbonisation (at least cost)

- Promote flexibility, integration of renewables fully into the grid and market
- Whole system approach
- Market-based solutions

- Dynamic regulation

- Coherent and adaptive regulatory framework with European solutions oversight to ensure trust in the market
- Future-proofed regulatory framework that enables the energy transition and digitalisation
- Cross-sectoral cooperation

Decarbonisation at least cost

The climate agenda and “Clean Energy” objectives are major policy drivers for change in the energy sector through:

1) Development of renewable energies and green mobility;

2) Improvement of energy efficiency; and

3) CO_2 prices via a reform of the Emissions Trading Scheme (ETS) and various other schemes (carbon taxes, carbon floors, etc.) which give a signal to the market in relation to the internalisation of CO2 emissions costs.

Decarbonisation at least cost

CEER's Strategic Objectives:

- Integrate (fully) renewables in all segments (retail, wholesale and networks).
- Effectively and fairly manage the transition towards a low carbon energy system.
- Facilitate decarbonisation at least cost by two means:
  - Develop an energy market design with a minimal level of subsidy mechanisms (including cross subsidies and indirect schemes); and
  - Optimise the whole energy system cost to achieve decarbonisation at least cost, taking account of both gas and electricity, while maintaining a high level of security of supply.
- Build consumer confidence in the market by ensuring all consumers benefit in a fair way, notably through the efficiency of the network tariff, and promote the participation of consumers without discrimination between consumers/prosumers.

Decarbonisation at least cost

Challenges:	Opportunities:
Manage **penetration** of renewables, their impact on **network designs** and their **technical functioning** (variability, reverse flows, etc.)	Significant **environmental benefits**.
Provide **effective regulatory oversight** and new **regulatory approaches** for a fast-growing **diversity of new market models, business models and market actors**.	Ensure adequate **system resilience and security of supply** by reducing consumption and diversification of energy sources.
Steer **efficient investment** in a context of price volatility on wholesale energy markets with a market-based approach, in order to best **manage risk**.	Facilitate **innovation and industry development**, new business opportunities.
Adopt a **whole system approach** to **minimise consumers' bills**.	Improve **energy efficiency**.
Take decisions in a context of major uncertainty and adapt to different market circumstances, notably the role of gas, the share of green gas, electricity storage advances, the electrification of transport and future trends of green mobility and other technological developments, as yet unforeseen.	Increase in **people's involvement** in the energy system through local energy production.

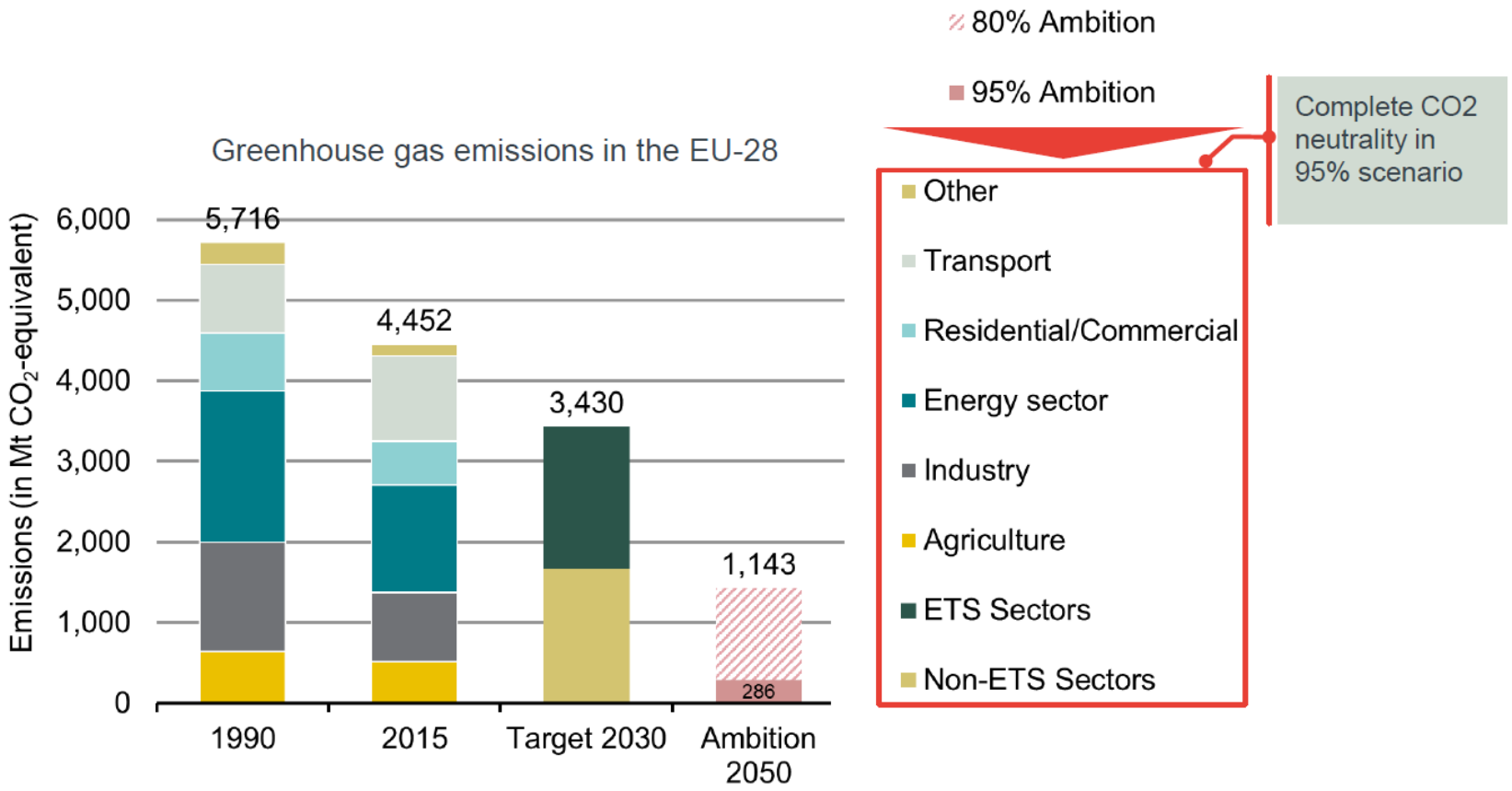
The role of regulation

Boost wholesale market **flexibility** and provide **clear price signals** to facilitate the continuing penetration of renewable energies and ensure investments

Enable **active consumer participation** and ensure that **consumers are protected and benefit** from progress in energy technologies

Promote **regional cooperation** and provide a truly **European dimension to security of supply**

Where we stand



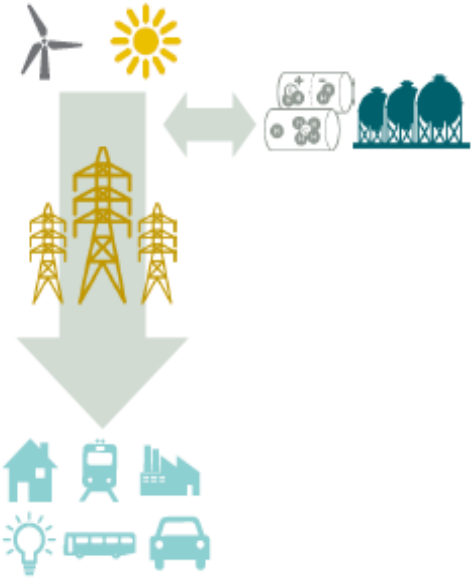
Source: Frontier Economics based on European Environment Agency data.

We consider 3 scenarios with varying degrees of use of gas infrastructure. 95% emissions reduction target for 2050 will be achieved in all of them

Electricity only

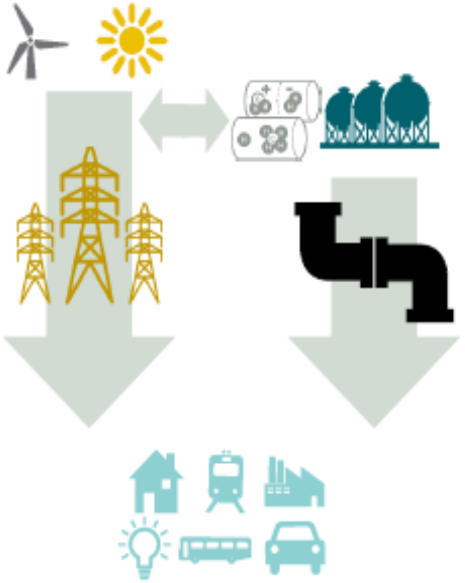
- End applications primarily directly electrified (e.g. electric vehicles, HP, direct heating)
- No gas-based end applications
- No Power-to-Gas
- Electricity networks alone combine power generation and end energy use

Electricity and gas storage



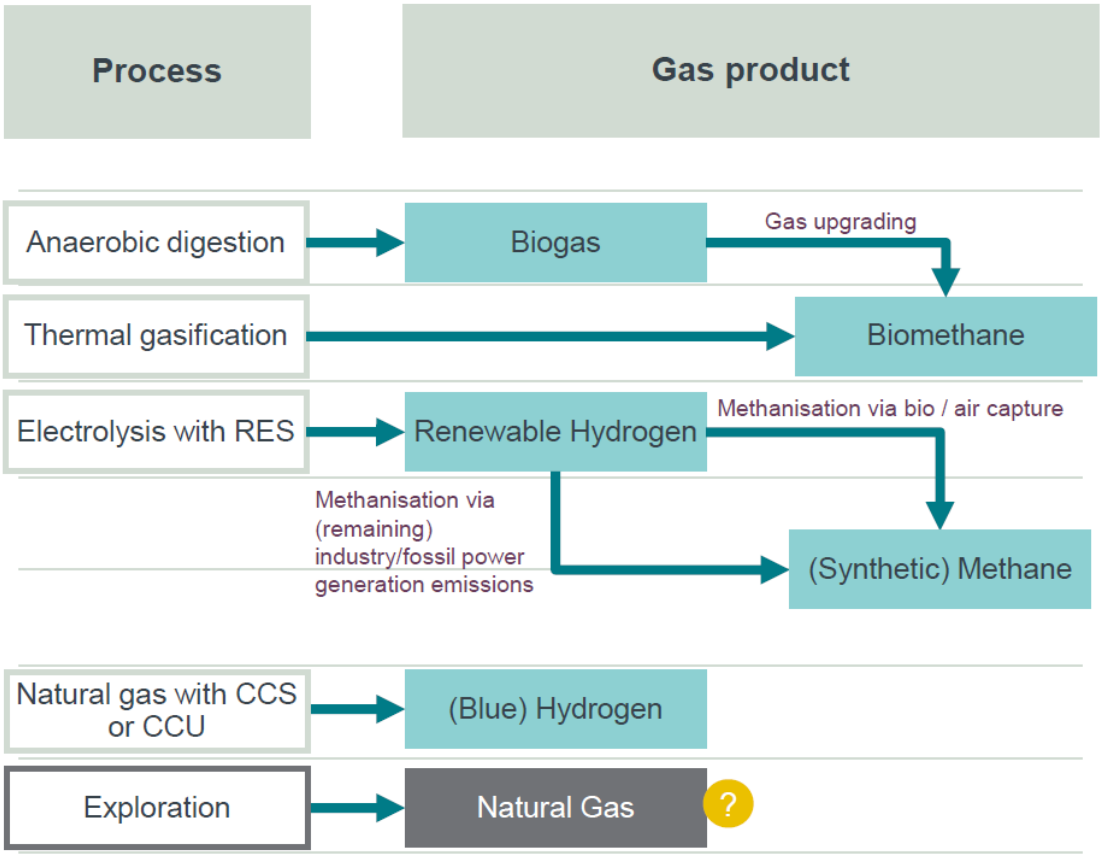
- End applications primarily directly electrified (e.g. electric vehicles, HP, direct heating)
- No gas-based end applications
- Possibility of "Power-to-Gas-to-Power" for seasonal storage
- Electricity networks alone combine power generation and end energy use

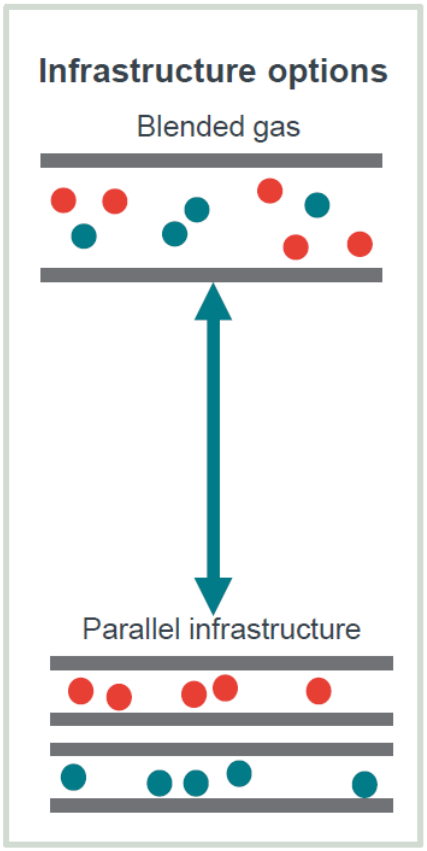
Electricity and green gas



- End applications partly directly electrified, partly based on green gas
- "Power-to-Gas " in Germany for the production of green gas
- (Existing) gas infrastructure parallel to the power grid

Future role of gas





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Thank you for your attention!

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