Scenarios on global and EU decarbonisation pathways, and what it means for the energy industry

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Overview

1) Global energy and decarbonization pathways

2) Consequences for Europe

3) Consequences for the energy industry

1) Global energy and decarbonisation pathways

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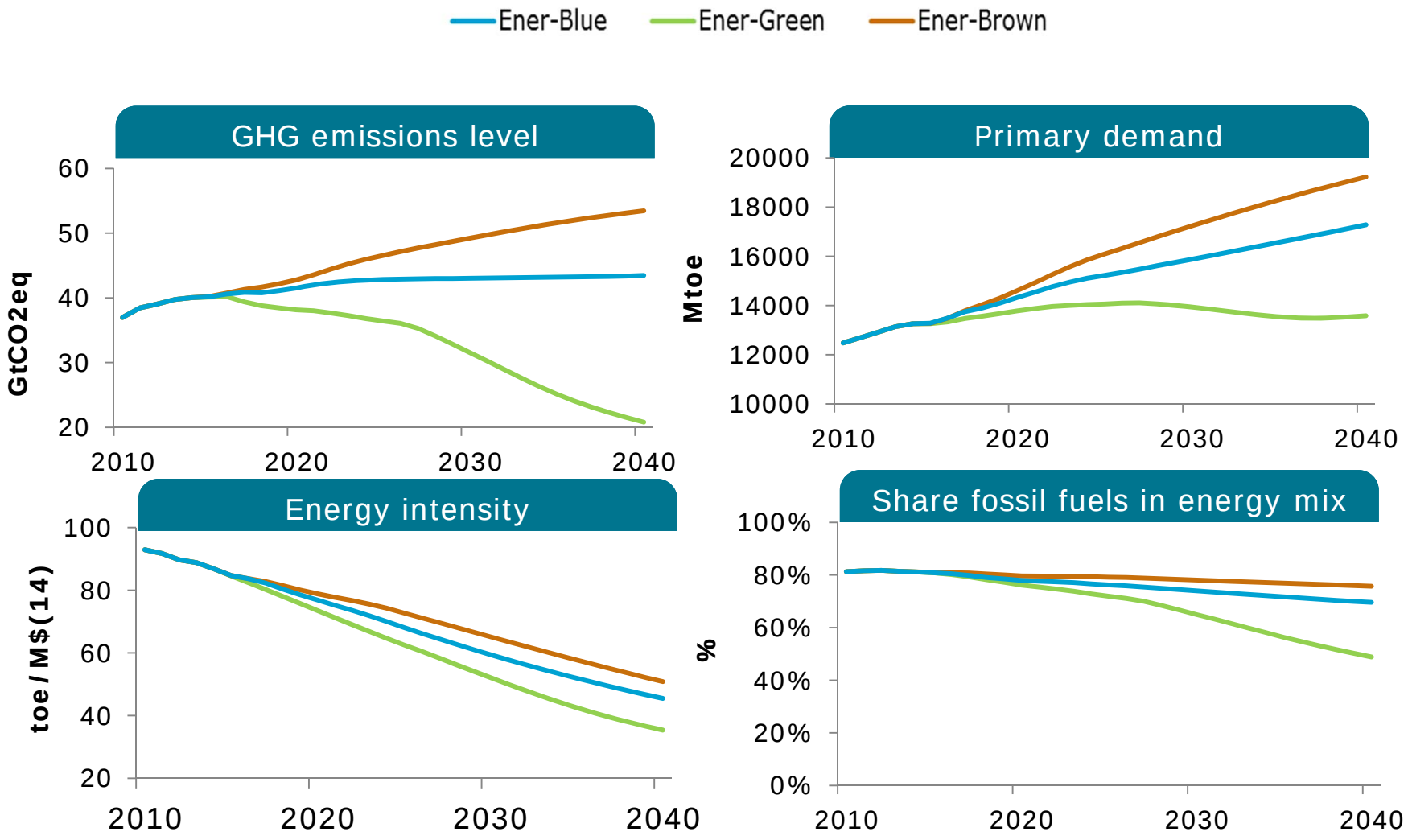
Overview of EnerFuture scenarios

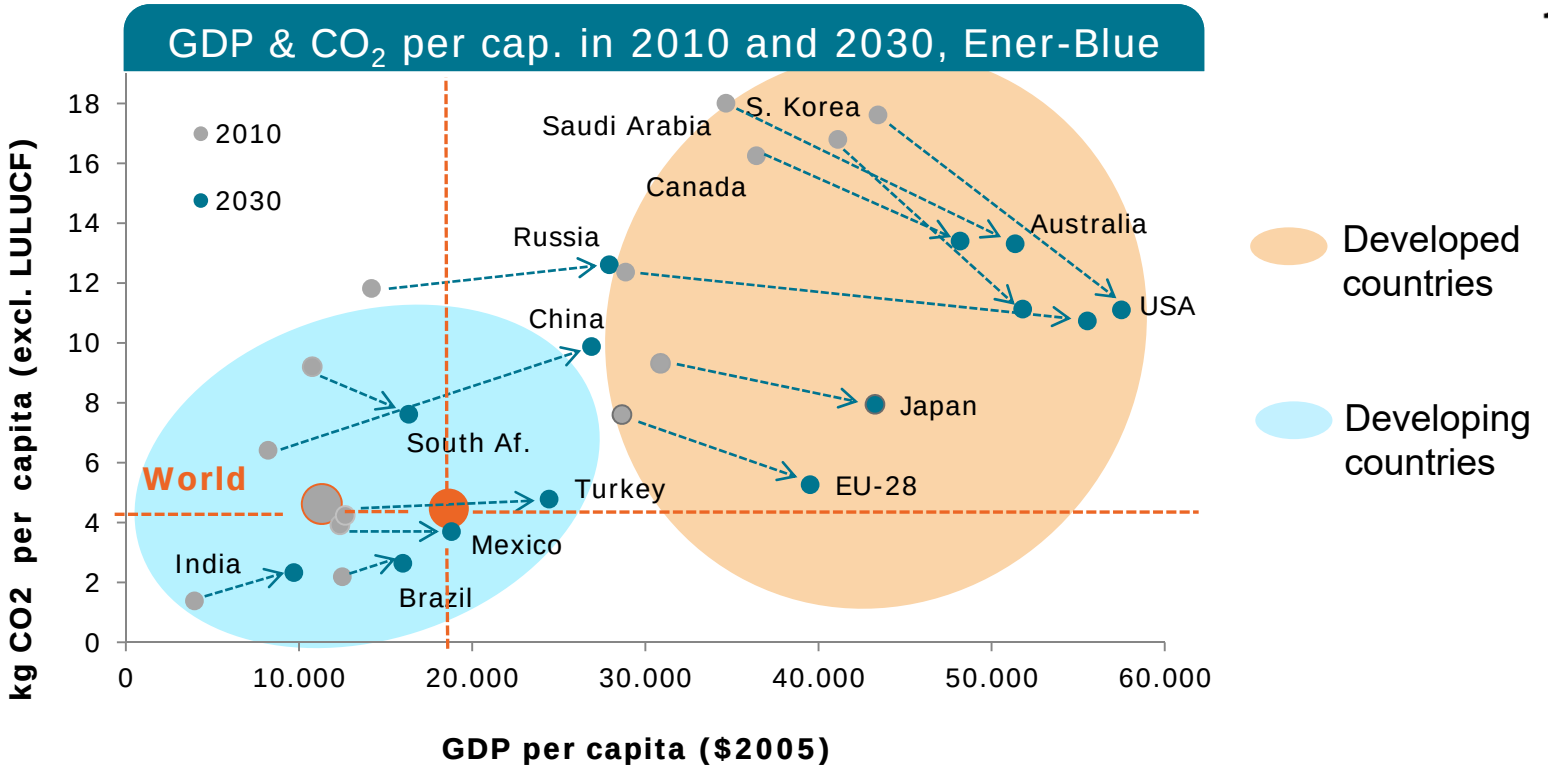
Ener-Blue	Ener-Green	Ener-Brown
CLIMATE & ENERGY POLICIES		
▪ **2030 INDCs targets achieved** ▪ **CO_2 emissions growth slow-down** ▪ **+3-4°C** temperature increase	▪ **Reinforcement** trend ▪ **INDCs** targets regularly **reviewed upwards** ▪ **+1.5-2°C** temperature increase	▪ **INDCs targets not reached** ▪ Soaring **CO_2 emissions** ▪ **+5-6°C** temperature increase
ENERGY DEMAND		
▪ **Increase** in developing countries ▪ Stable in OECD ▪ **Controlled** through INDCs	▪ **Global stabilization** ▪ Ambitious **energy efficiency policies** ▪ **Regular updates** of efficiency targets	▪ **Limited improvement** on energy intensity ▪ High growth in developing countries ▪ Growth in OECD too
ENERGY SUPPLY & PRICES		
▪ **Tensions** on available resources ▪ **Increasing energy prices** ▪ **Diversification** towards renewables	▪ Fossil fuel subsidies phase-out ▪ **Strong development** of **renewables** ▪ **Price increase** reflect policies and CO_2 constraints	▪ **Fossil fuels** renaissance ▪ Lower **energy prices** ▪ Strong **fossil fuel technological improvement** ▪ Continued efforts on renewables

Key energy indicators by scenario



Source: EnerFuture

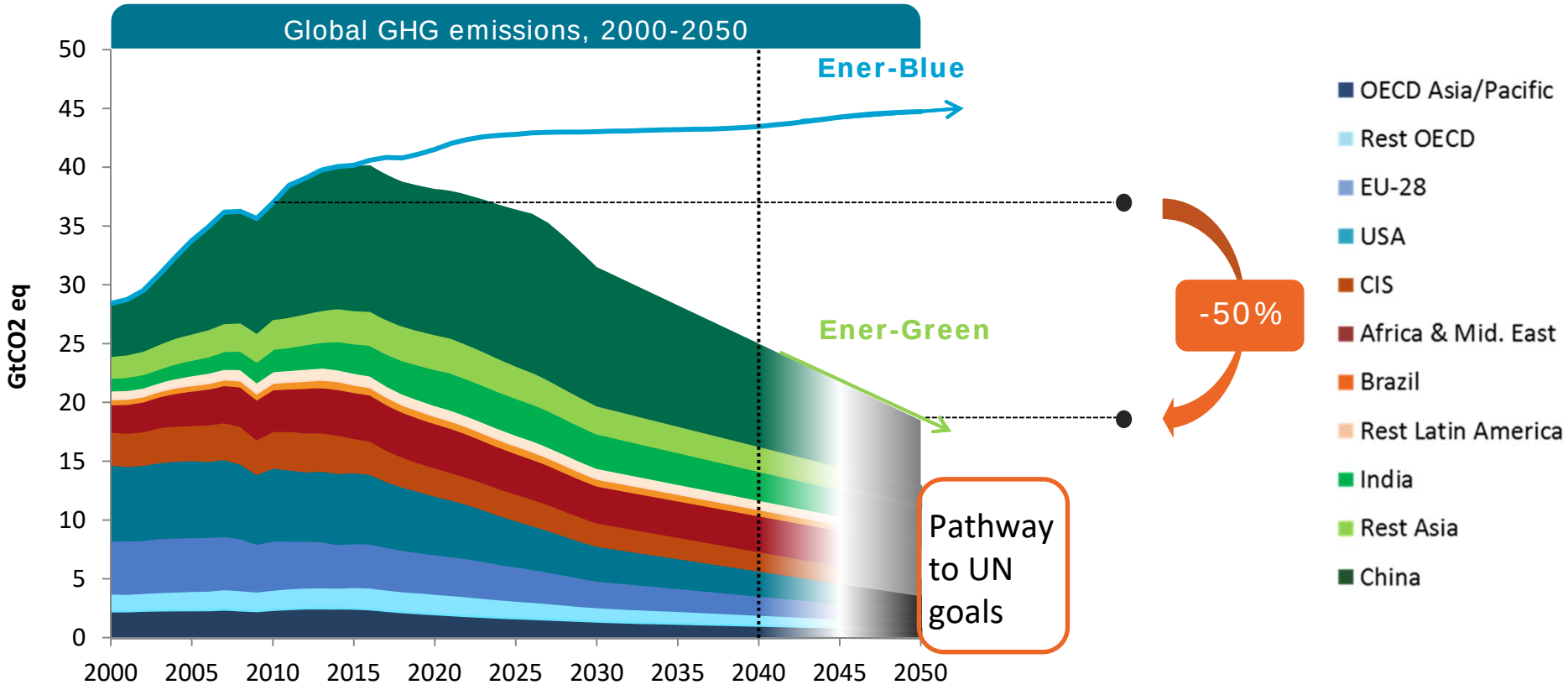
INDCs lead to a growing decoupling between GHG emissions and GDP, mostly in OECD…



…however these improvements are not sufficient to cope with global climate challenges.

Source: EnerFuture, Ener-Blue scenario

From INDCs to 2°C: a huge gap to close !



Source: EnerFuture, Ener-Blue & Ener-Green scenarios

2) Consequences for Europe

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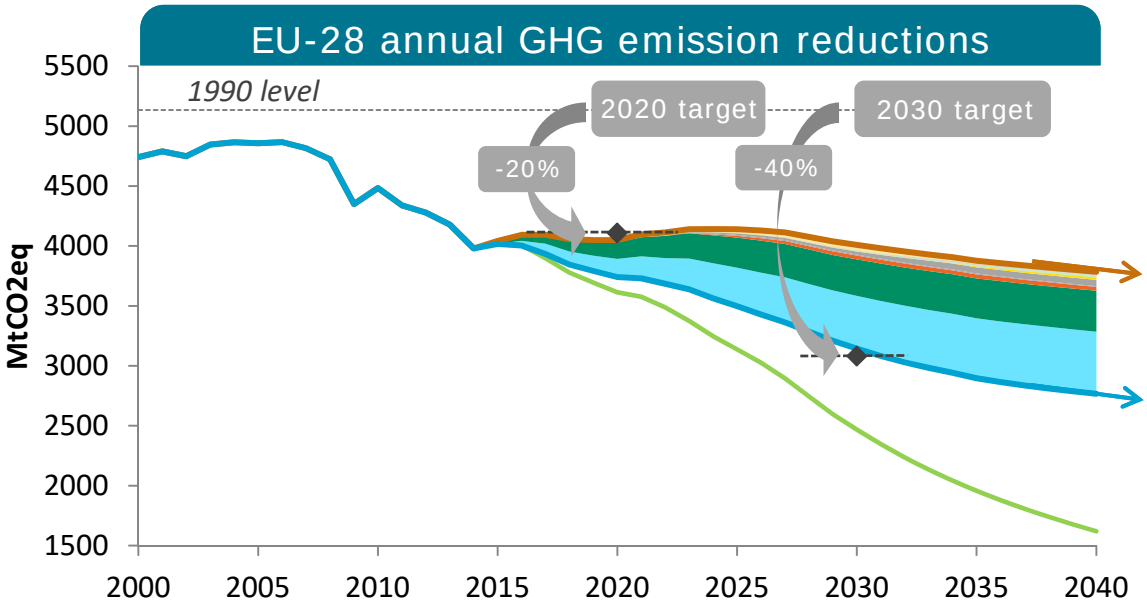
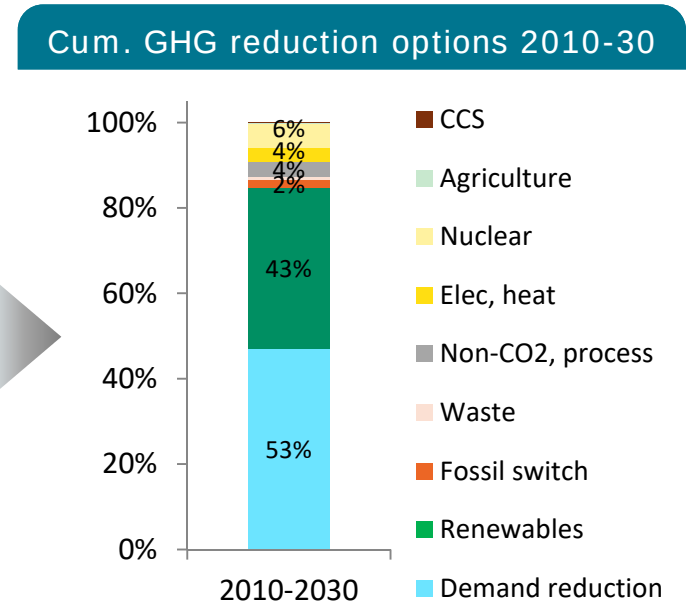
EU's **2030 target** on emissions mainly reached via the deployment of renewables & efficiency

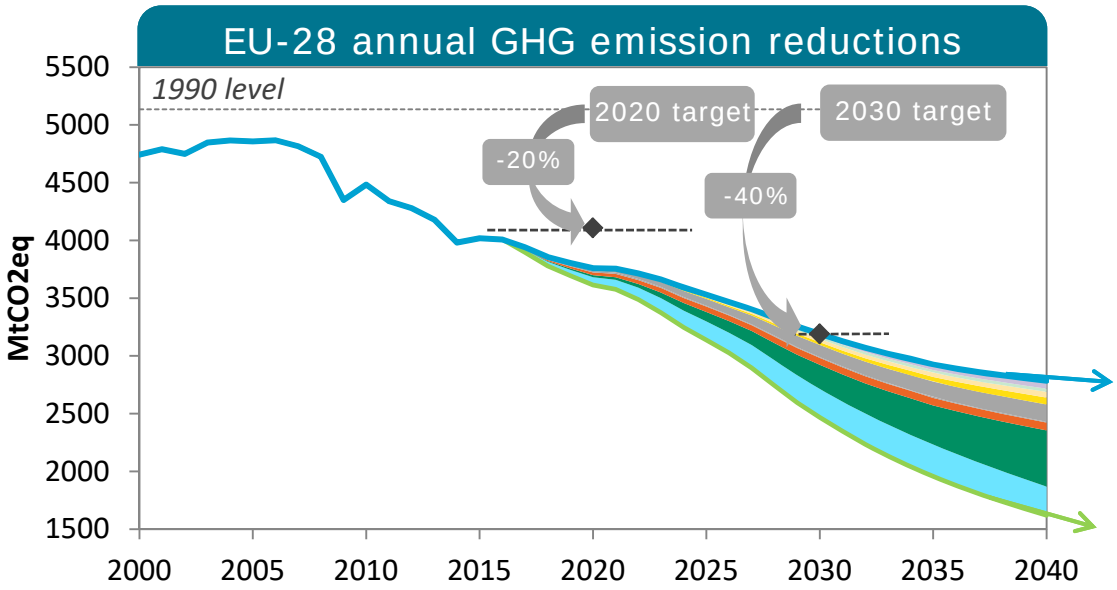


Source: EnerFuture

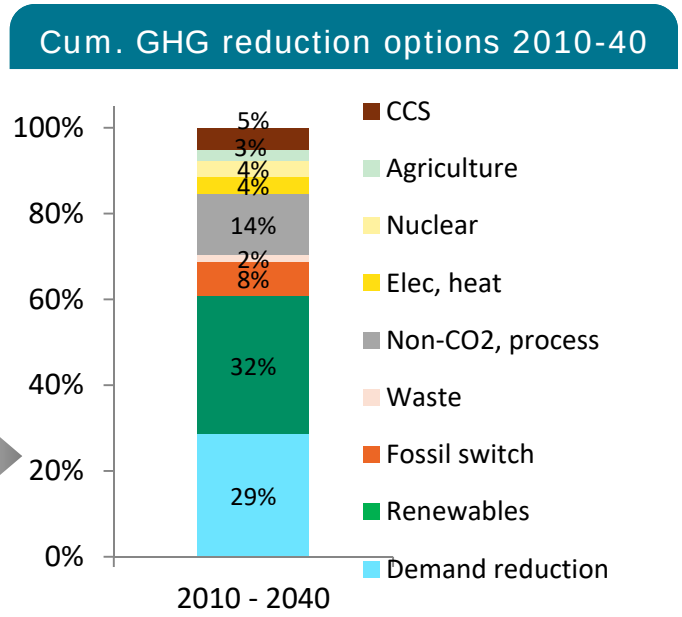


Source: EnerFuture, Ener-Blue and Ener-Brown scenarios

Enabling the **2°C target** will heavily depend on demand reduction and renewables…



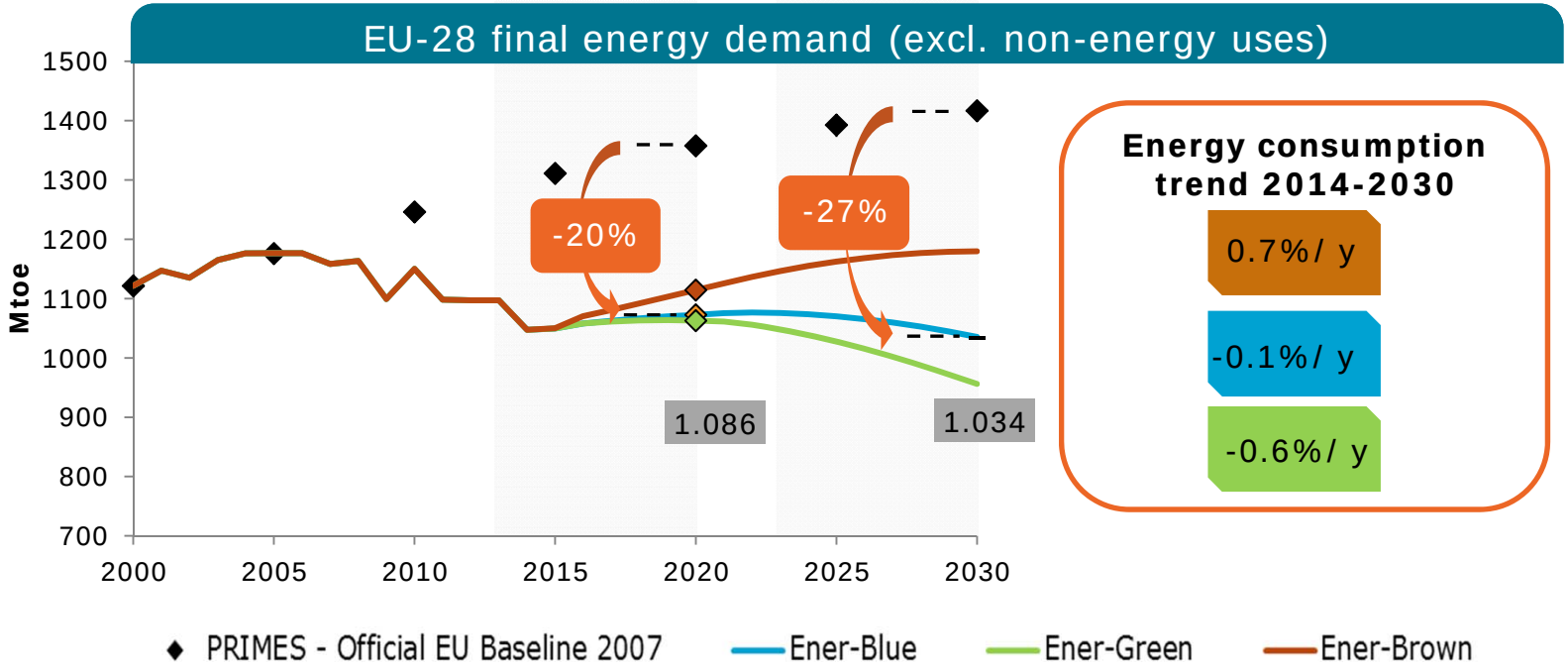
Source: EnerFuture



Source: EnerFuture, Ener-Blue and Ener-

- … with a decarbonisation principally achieved in the power and transport sectors…
- … but fossil fuel switch (coal to gas) and industrial processes improvement should be pursued as a first option

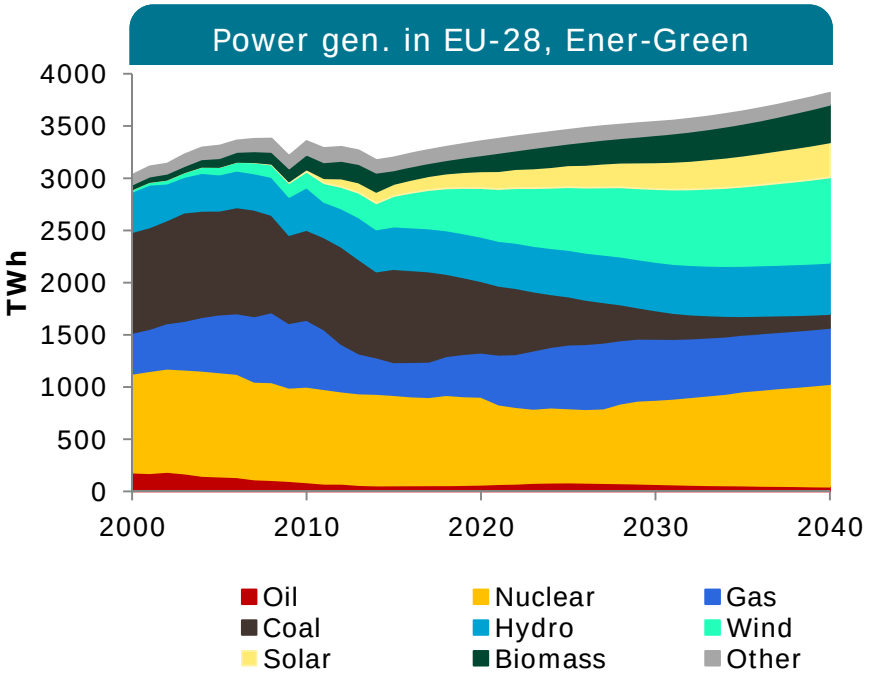
EU energy consumption objective: energy efficiency efforts should be intensified after 2020…

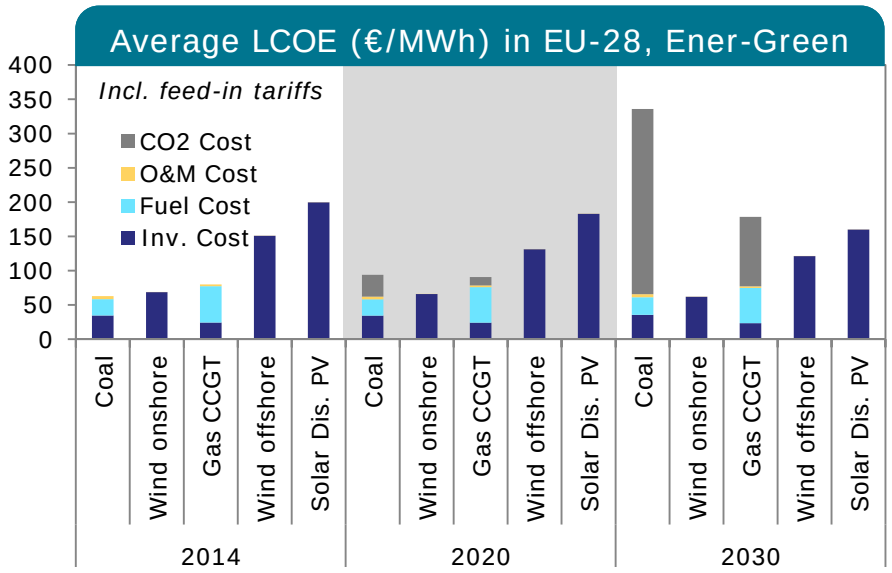


… with highest savings potentials coming from buildings.

Source: "Evaluating EU energy efficiency policies and future policy options up to 2020 and beyond", DG ENER, EnerFuture

In the power sector, EU's climate policies mainly affect coal generation costs, benefiting gas…





LCOE: Levelised cost of electricity is the average generation cost for a given technology, expressed in present value equivalent. Direct renewable support is included.

… but its attractiveness is eventually reduced as renewables become a very competitive option.

Source: EnerFuture, Ener-Green scenario

Consequences for the Energy Industry

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Three key drivers are underpinning the transformation of the Energy Industry:

The 3-D Energy sector:

- Decarbonization: driven by public policies
- Digitalization: driven by innovation coming from the private sector (IT)
- Decentralization: driven by convergence of the previous two trends

Traditional sectorial boundaries are blurring

increasing interaction between:

- energy
- transport
- buildings
- industry
- telecommunications

Energy is transforming from « commodity » to « service »

- In the future, energy companies might well be forced to become « integrated energy service companies »
- The time factor is important: the sooner energy industries will move the better
- The risk of not moving is to become obsolete and ultimately disappear

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About Enerdata:

Enerdata is an energy intelligence and consulting company established in 1991. Our experts will help you tackle key energy and climate issues and make sound strategic and business decisions.
We provide research, solutions, consulting and training to key energy players worldwide.

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Thank you for your attention!