



3rd AIEE Energy Symposium

Current and Future Challenges to Energy Security

**Europe Roadmap and
the Future Strategies of the Energy Industry**

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*Bocconi University
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The history of the *National Association of Executives of Industrial Companies* began the day after “Liberation Day” in 1945, with the democratic rebirth of Italy and the start of its economic miracle.

With about 180 thousand executives, senior managers, high professionalism, in service and retired, we are the most representative association in the world of management for Italy.

We have a well-established presence on the national territory with a network of 57 offices that deal with:

- Institutional representation at the local level
- Services to associates
- Contractual, legal, tax and social security consulting
- Educational, cultural and networking initiatives



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FEDERMANAGER *protagonisti del domani*



EU Vision to 2050



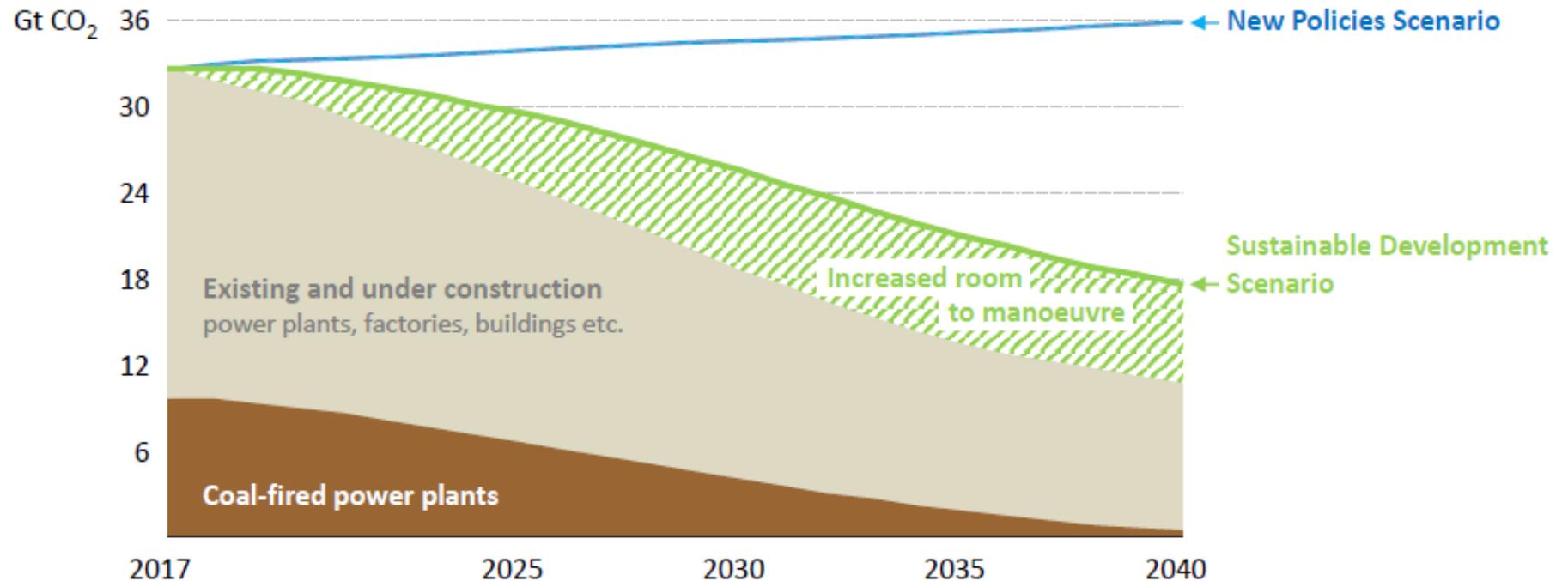
A Clean Planet for all (11/28/2018) is a Communication from the EU Commission for a strategic long-term vision in line with the *Paris Agreement* objective:

- to keep the global temperature increase to well below 2°C
- to pursue efforts to keep it to 1.5°C



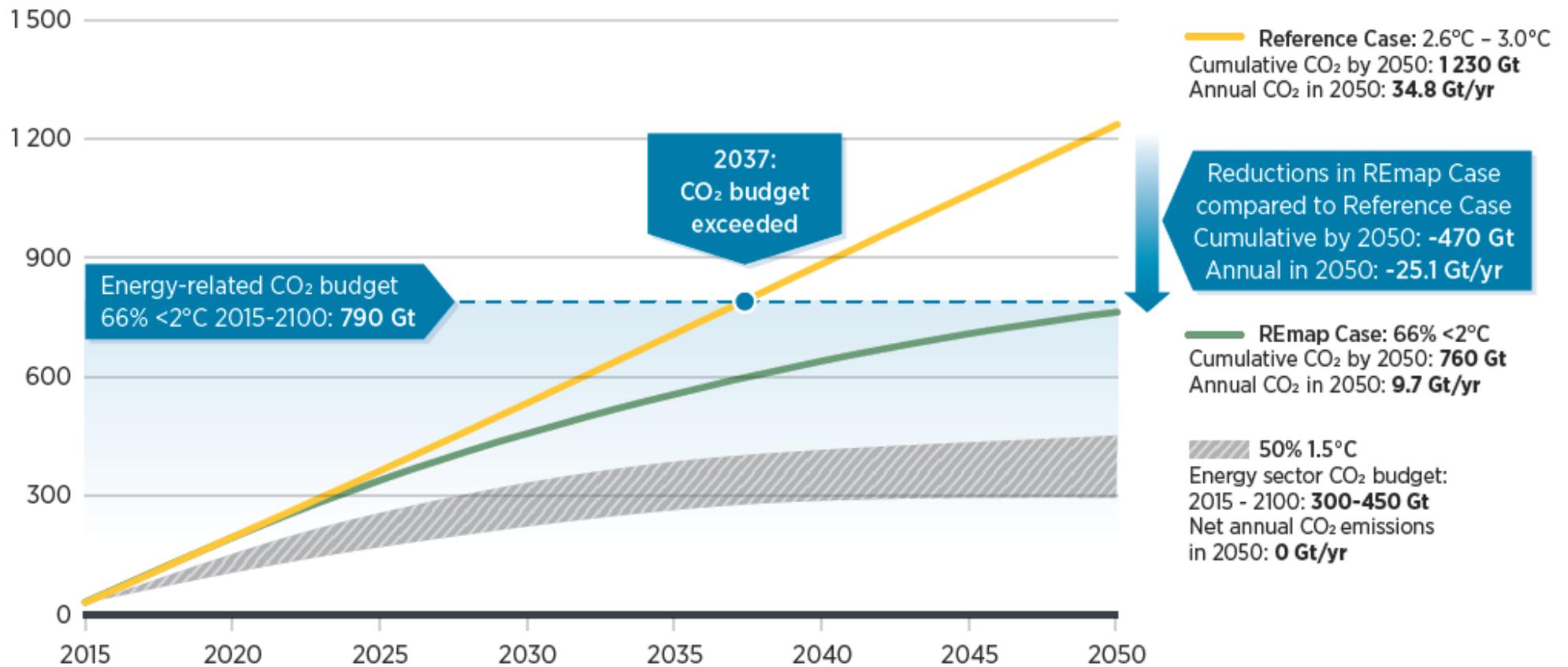
The aim is just to set the “direction of travel” of EU climate and energy policy

Global energy-related CO₂ emissions



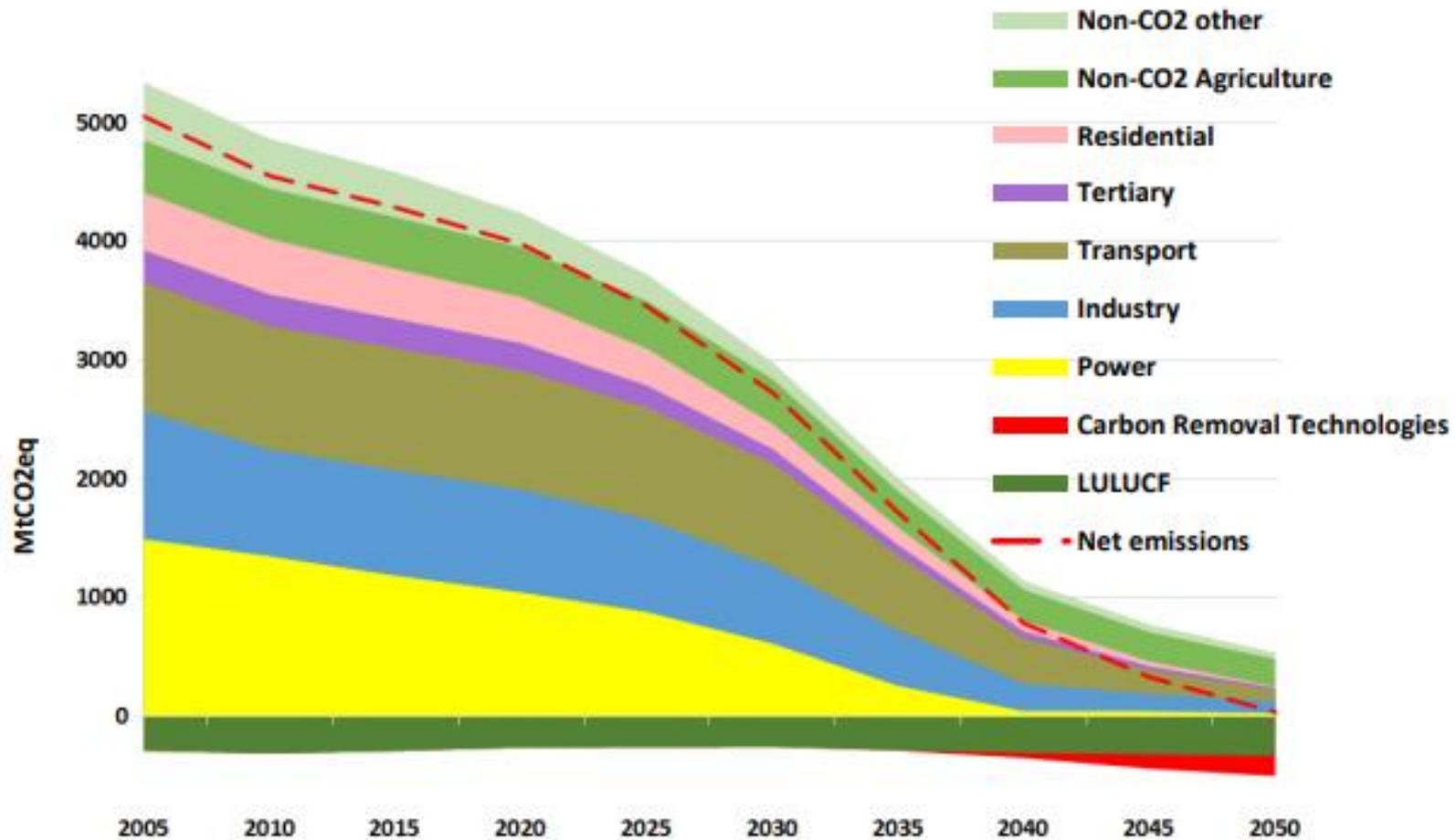
Coal plants make up one-third of CO₂ emissions today and half are less than 15 years old; policies are needed to support CCUS, efficient operations and technology innovation

Cumulative energy-related carbon emissions (Gt CO₂)



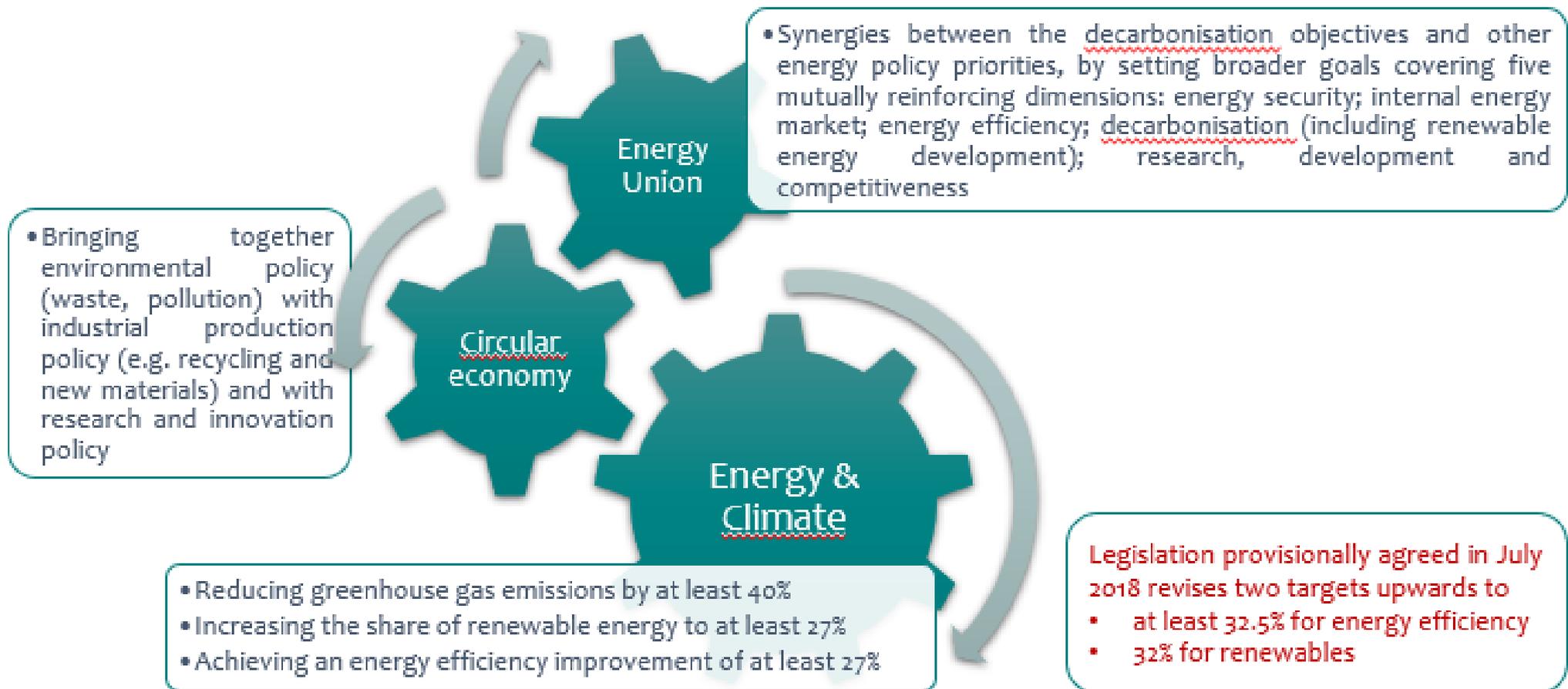
To meet the below 2°C goal, immediate action will be crucial. In under 20 years, the global energy-related CO₂ emissions budget to stay below 2°C will be exhausted

EU deep decarbonization pathways in a 1.5°C scenario

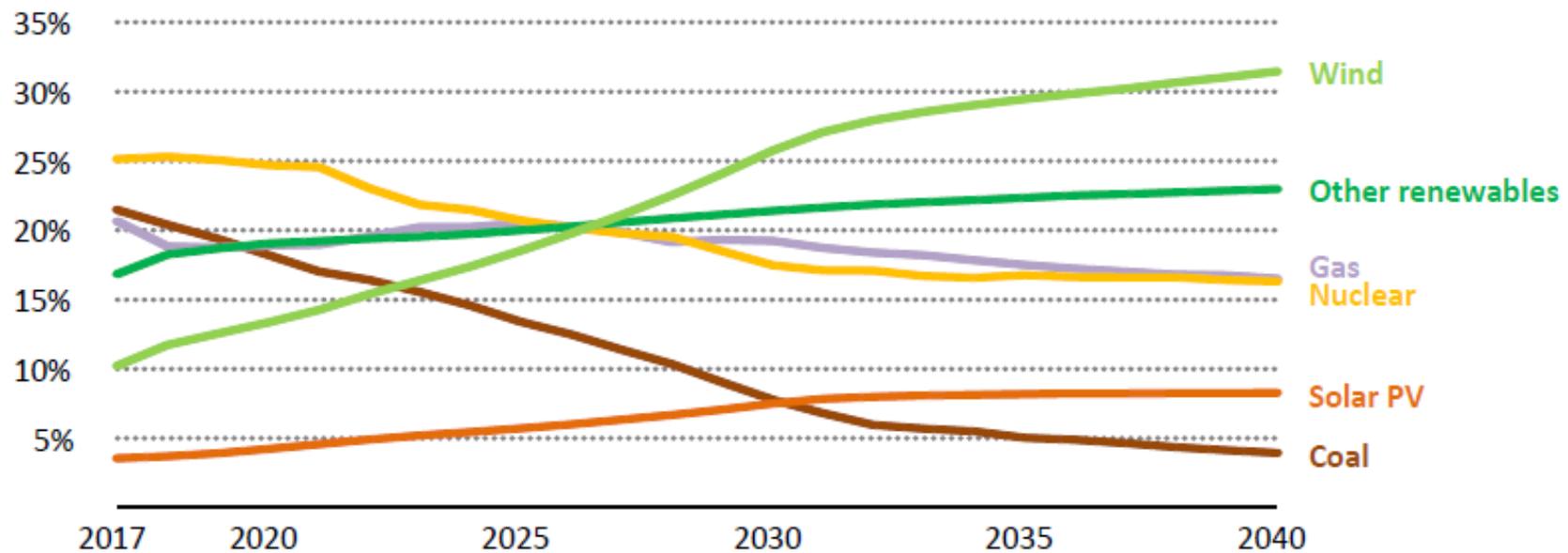


All sectors involved means all citizens and actors involved: Consumers, Producers, Travellers, Institutions, Researchers

EU 2030 targets and Energy Union

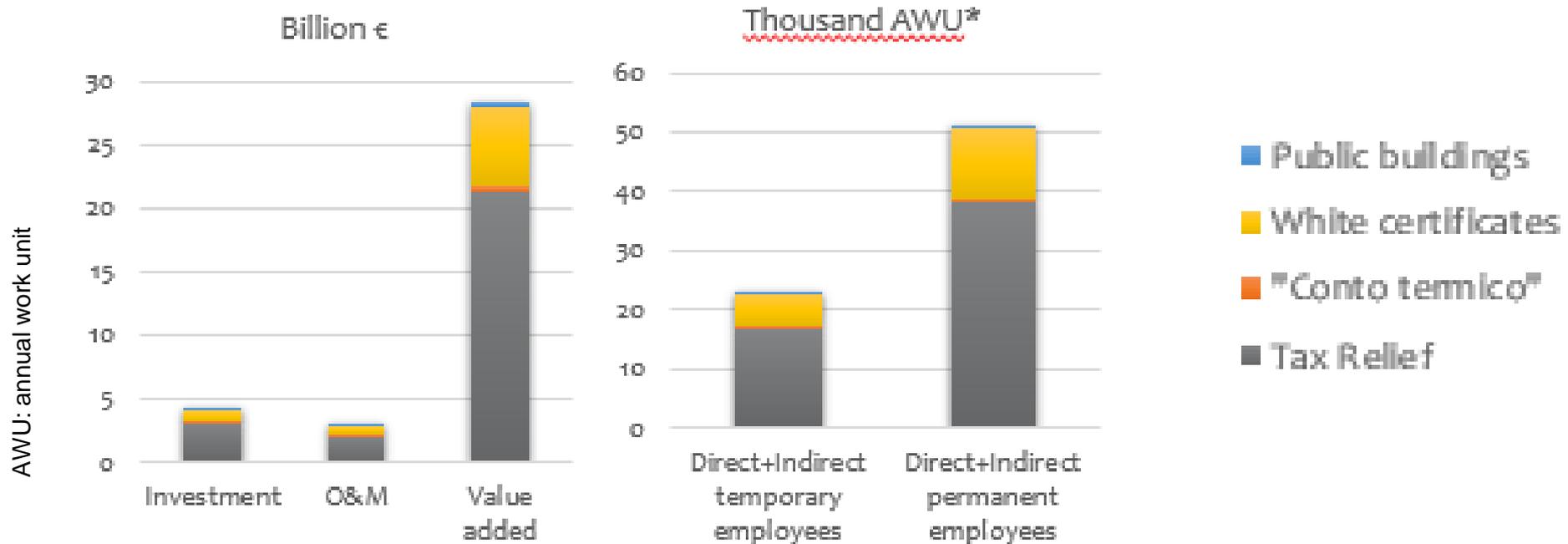


Share of electricity generation by source in European Union, 2017-40



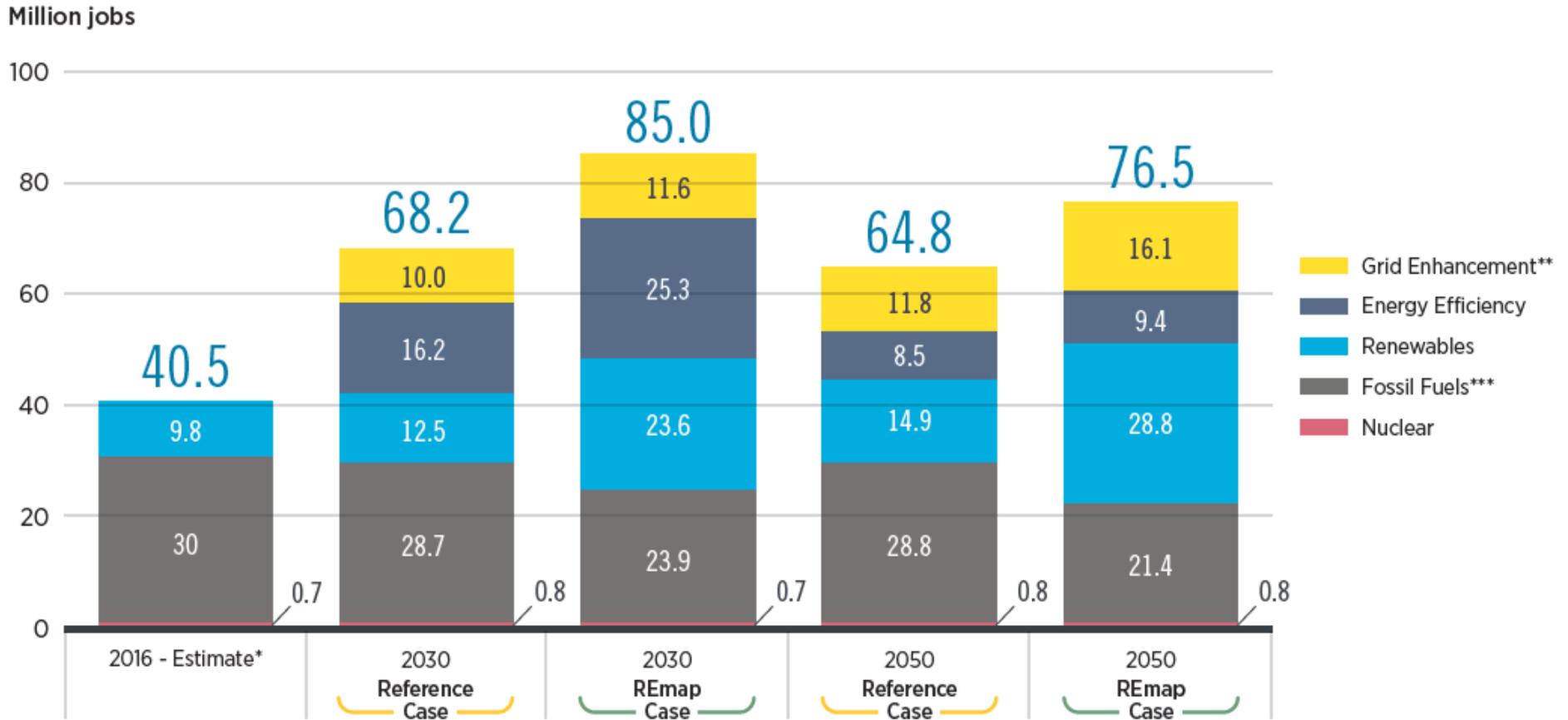
Wind electricity generation in the EU more than triples to 1.100 TWh by 2040; the rapid increase of variable forms of generation calls for new approaches to system integration

Economic impact of energy efficiency in Italy in 2016



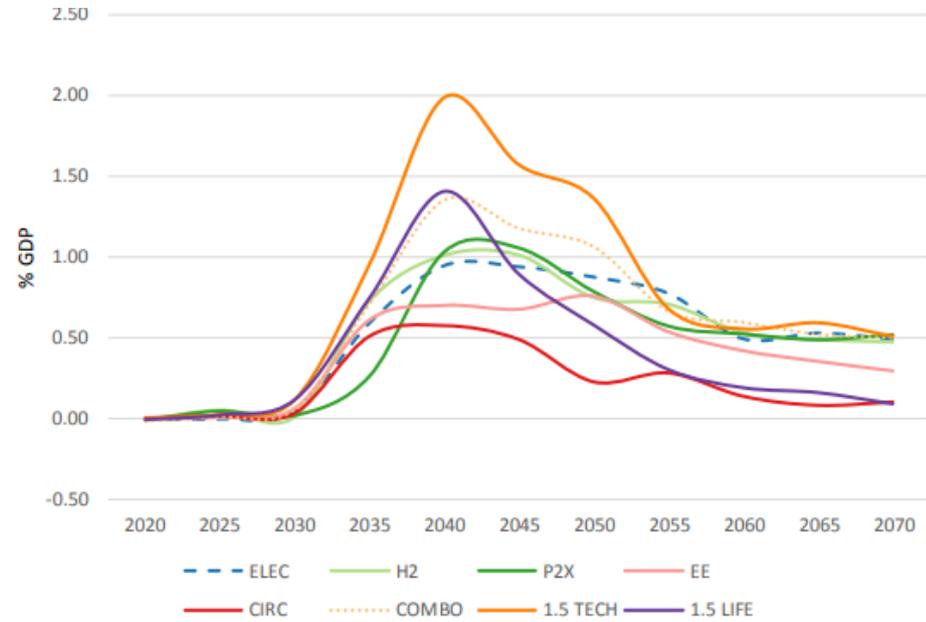
- In 2016 energy efficiency generated **28 billion euro of value added**, 4 billion of investment and 3 billion for Operation & Maintenance activities in Italy
- Estimates of direct and indirect employment say that there is a clear prevalence of permanent work, with **51.000 work units per year**, compared to 23.000 that are temporary
- **The residential sector has already reached its target for 2020, while industry is half way to its goal. Industry 4.0 will certainly boost the process**

Employment in the overall world energy sector in 2016, 2030 and 2050



% of GDP of investment to reach EU GHG reduction targets

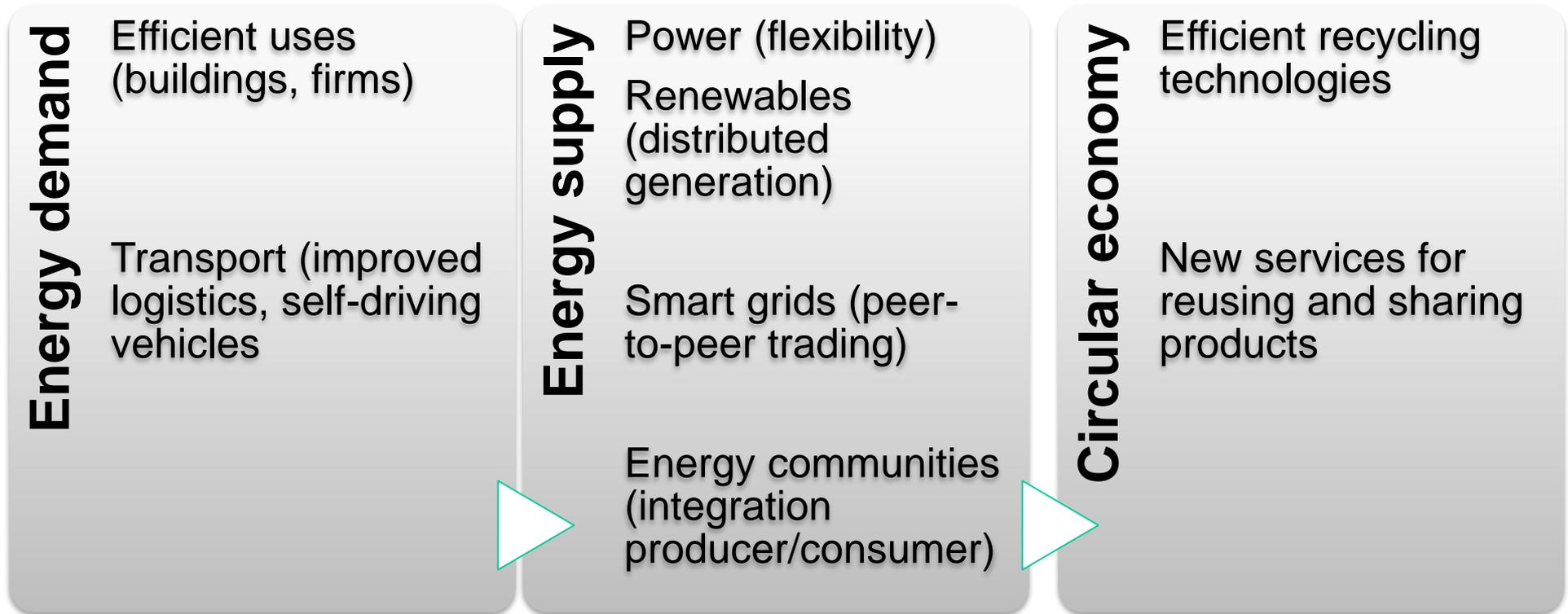
Additional investments (including transport) compared to Baseline in % of GDP



- Baseline scenario* is in line with 2030 requirement, but falls short of long term target (**only 65% GHG reduction in 2050**)
- Beyond 2030 investment and costs diverge significantly across pathways, reflecting both the level of ambition for decarbonisation (**80%-90%-100% GHG reduction to 2050**) and the estimated economic implication of the options pursued
- Some decarbonisation pathways are more capital intensive than others

* Current decarbonization path based on EU Commission proposals

Digitalization



- **Digitalization can help in many ways the transition to a low carbon econom**
- **A competitive EU industry and the circular economy as a key enabler to reduce GHG**



The transition up to 2030 can greatly boost overall employment

Political commitment to deep decarbonization across all sectors

Active involvement of citizens (DSG/prosumers)

Tap into the strong synergies between energy efficiency and renewable energy

Plan a power sector for which renewables provide a high share of the energy

Increase use of electricity in transport, building and industry

Foster system-wide innovation

Align socio-economic structures and investment with the transition



Thank you for the attention!

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