

COUNTRY FACTSHEET

ITALY

WHAT ARE THE NATIONAL CIRCUMSTANCES THAT INFLUENCE DEEP DECARBONIZATION IN ITALY?

- Geographic.** The prevalence of mountainous terrain restricts the possibility of using railroads to move people and goods, hence the country's heavy reliance on road transport. The profile of Italian coastal waters is steep, with rather deep waters making exploitation of the limited offshore wind potential more difficult. High seismicity poses additional obstacles to the exploitation of nuclear and hydro-power.
- Resources endowment.** Limited fossil fuel resources, important but almost fully exploited hydro resources, limited high temperature geothermal resources, few areas with potential for offshore wind, and lots of sunshine in the South (far from electricity demand markets). Reliance on imported fuels (particularly oil and gas, but also coal and electricity) to cover her energy needs has remained above 80% until 2011, but exploitation of renewables is increasing.
- Technology.** Nuclear power option has been abandoned, hence decarbonization of the power sector must rely on improving energy efficiency and other technologies like renewables or carbon capture and storage (CCS). But challenges emerge concerning the possibility of developing cost effective technologies able to: expand the use of renewables in power generation and fully exploit existing potential (wind, biomass, solar); overcome the variability of power supplies from renewables and ensure the stability of the grid; allow commercial use of CCS in energy intensive manufacturing activities; making production processes more energy and resource efficient.
- Economic and social.** Social acceptability issues often

cause strong local or national opposition to new energy projects, whether fossil-fuel based energy plants (LNG terminals, gas pipelines, CCS plants) or renewable ones (like offshore wind farms, but also solar PV farms). These issues need to be addressed by national policies, otherwise frictions could hinder any energy transition strategy. A relevant characteristic of Italy is a strong manufacturing base (about 15% of total value added and over 4 million jobs) that should not be lost.

WHAT ARE THE MOST PROMINENT STRATEGIES TO BE IMPLEMENTED FOR DEEP DECARBONIZATION IN ITALY?

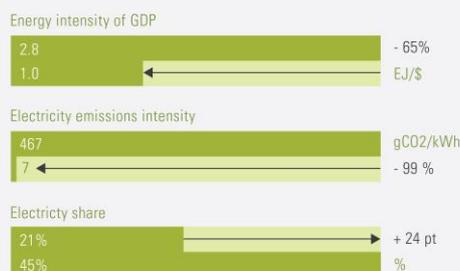
- Strong decarbonization of power generation with the switch from fossil fuels to RES or use of CCS.
- Greater energy efficiency in power generation and all end use sectors especially in buildings and in transport.

*Illustrative pathway: IT - Demand Reduction**

Development indicators from 2010 to 2050



Pillars of decarbonization from 2010 to 2050



Energy-related CO₂ Emissions



*This illustrative pathway is one of the 3 pathways developed in the DDPP country report.

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- ▶ Electrification of energy end users, in all sectors including transport.

More in detail, these strategies can be translated into:

- ▶ Fuel switching away from the most carbon-intensive fossil fuels and towards low- or zero-carbon energy sources in all sectors.
- ▶ Diffusion of renewables in power generation, as well as in heat uses (in particular, an increase in the use of biomass).
- ▶ Modal shift in the transport sector from private transport to collective public transport or car sharing, and from road transport of goods to rail and maritime.
- ▶ Use of CCS technology in industrial processes or in power generation whenever conditions are suitable.
- ▶ Across-the-board technological change, which requires R&D for innovation and the deployment and commercialization of advanced, low-carbon technologies, including in production processes.

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