

# Climate action in Italy

## Latest state of play

The EU binding [climate and energy legislation](#) for 2030 requires Member States to adopt [national energy and climate plans](#) (NECPs) covering the period 2021 to 2030. In October 2020, the European Commission published an [assessment](#) for each NECP. Italy's final [NECP](#) was sent in December 2019. A high proportion of Italians ([63 %](#)) expect national governments to tackle climate change.

Italy generates 11.4 % of the EU's total greenhouse gas (GHG) emissions and has reduced emissions at a faster pace than the EU average since 2005. Emissions decreased across all economic sectors in Italy over the 2005-2019 period, with the agricultural sector showing the lowest reductions.

The transport and 'other emissions' sectors, including buildings, account for almost half of Italy's total emissions. Energy industry emissions fell by 42 % between 2005 and 2019, leaving the sector in third place in terms of its share of total emissions. Under EU effort-sharing legislation, Italy reduced its emissions by 13 % by 2020 relative to 2005, and the country expects to reach the 2030 target of 33 %.

Italy achieved an 18 % share of renewable energy sources (RES) in 2019. The country's 2030 target of a 30 % share is focused mainly on wind and solar power. Energy efficiency measures centre to a large extent on the building stock and transport sectors with support schemes for industry and households.

## Emissions and demographics

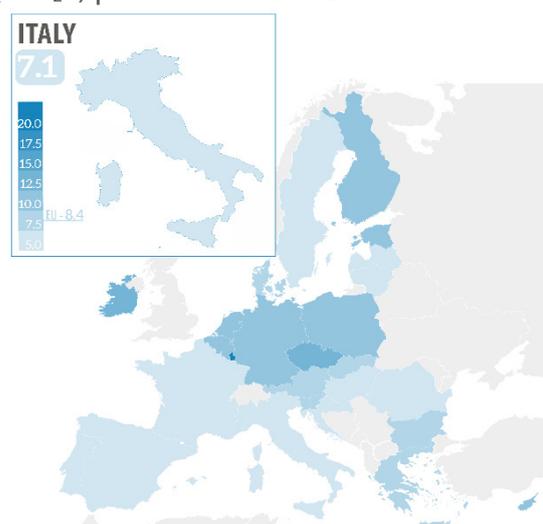
In 2019, Italy had 59.7 million inhabitants, representing 13.4 % of the total EU-27 [population](#).

From 2005 to 2011, Italy followed the EU trajectory of per capita emissions closely; the impact of the 2008 financial crisis is clearly visible with a drop in emissions from 2008 to 2009, both at overall EU level and for Italy. From 2011 to 2014 Italy decreased its per capita emissions at a steeper rate than the EU average. In 2014 per capita emissions rose slightly and they have since been stable.

Over the period in question, Italy increased the gap from 0.4 tonnes of CO<sub>2</sub> equivalent (tCO<sub>2</sub>e) below the EU average in 2005 to 1.3 tCO<sub>2</sub>e in 2019, performing better in per capita emissions.

The EU-27 population is [projected](#) to decrease from 2025, a trend which has already begun in Italy.

Figure 1 – Total greenhouse gas emissions (tCO<sub>2</sub>e) per inhabitant in 2019



Data source: Eurostat demo\_pjan and EEA ([GHG trends](#), [GHG estimates](#), [UNFCCC reporting](#)).

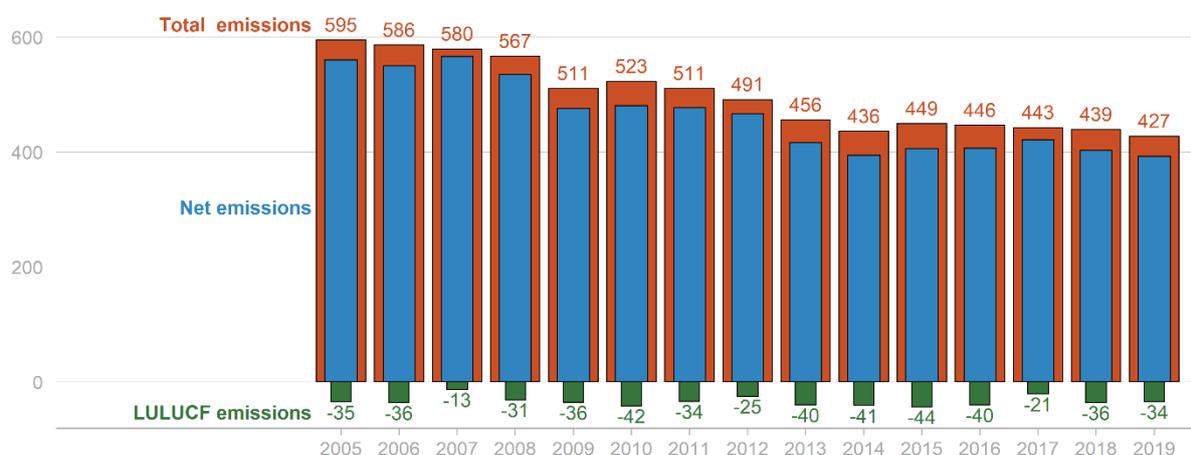
*This briefing is one in a series covering all EU Member States.*

## Italy's progress so far

Italy was responsible for emissions of 427 MtCO<sub>2</sub>e in 2019. The country's emissions account for 11.4 % of the EU-27 total and fell by 28 % between 2005 and 2019. This is above the EU-wide emissions reduction of 19 % in the same period. Carbon sink functions in the land use, land-use change and forestry sectors (LULUCF) brought Italy's 2019 net emissions down to 393 MtCO<sub>2</sub>e.

Areas classified as forest cover [31 %](#) of Italy's surface area and these have increased in size as a result of land-use changes in recent decades. Italy updated its [legislative framework](#) for forests and forest supply chains in 2018. The new decree updated guidelines and coordination arrangements for regional administrations with a view to ensuring a uniform national forestry policy. There are plans for a register for forestry companies, training activities, and forestry management and planning tools. Focusing in particular on sustainable forestry management, the aim is to increase carbon sink functions while also raising the utilisation rate and ensuring quality timber products.

Figure 2 – Total, LULUCF and net greenhouse gas (GHG) emissions (MtCO<sub>2</sub>e)



Data source: EEA ([GHG trends](#), [GHG estimates](#), [UNFCCC reporting](#)).

To promote urban sustainability, under a new measure, provincial capitals can compete for the annual [Green Capital of Italy](#) award. Cities can include projects on topics such as mobility, circular economy or air quality, with the winning projects qualifying for state funds of up to €3 million.

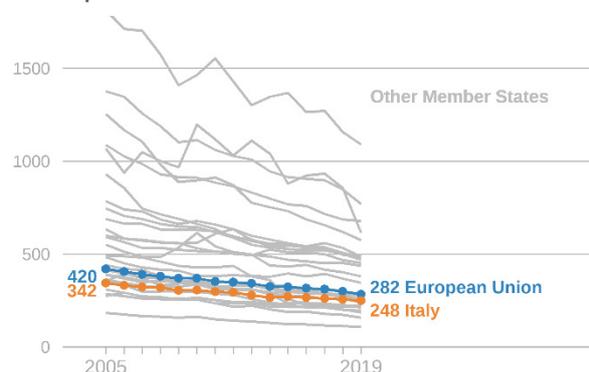
## Carbon intensity

Since 2005, Italy has remained below the EU-27 average for carbon intensity, as shown in Figure 3, though the gap is shrinking.

Following the financial crisis, Italy's gross domestic product (GDP) picked up from 2012, with positive growth between 0.8 and 1.7 % annually since 2015. Although the reduced emissions seen in Italy could signify a decoupling trend, the short time period and limited changes in emissions and GDP in recent years make it too soon to tell.

Over the 14-year period from 2005 to 2019, Italy reduced its carbon intensity per unit of GDP steadily by 27 % against the EU average reduction of 33 %.

Figure 3 – Carbon intensity of the economy: GHG emissions (gCO<sub>2</sub>e) per GDP (euro in 2015 prices)



Data source: Eurostat Nama\_10\_gdp [CLV15MEUR] and EEA ([GHG trends](#), [GHG estimates](#), [UNFCCC reporting](#)).

## Emissions across the economy

In Italy emissions have decreased across all sectors compared with 2005 levels.

In 2019, the largest shares of total emissions, each 24 %, came from the transport sector and the 'other emissions' category, which covers mostly buildings and services. The transport sector, however, reduced its emissions by 19 % over the period, while the 'other emissions' sector achieved a 12 % reduction.

Two sectors accounted for the largest emissions reductions over the 2005-2019 period. The energy industries sector managed to reduce its emissions by 42 %, while emissions from manufacturing industries and construction decreased 47 % over the same period. These major reductions decreased the share in total emissions of these sectors by 5 and 4 percentage points respectively. Having been top emitter, the energy sector is now in third place, in terms of its share of the total.

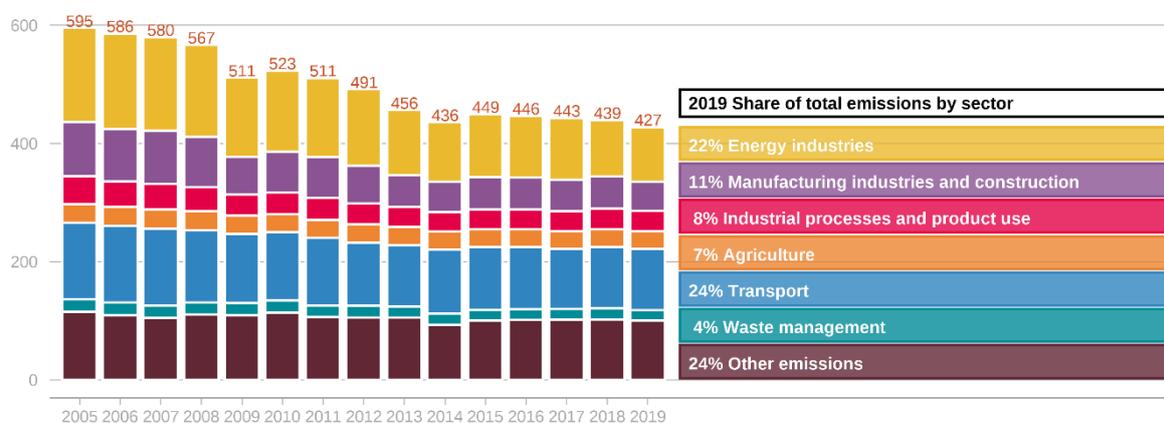
The waste sector reduced its emissions by 23 %, while maintaining a share of roughly 4 % over the period. The share of total emissions linked to industrial processes and product use remains stable while the sector's emissions decreased by 27 %.

Agriculture achieved emissions reductions of just 5.5 %, and reductions in other sectors led its share of total emissions to rise by 32 %, from 5.4 % in 2005 to 7.1 % in 2019.



Photovoltaic energy is expected to triple to contribute to decarbonisation in Italy.

Figure 4 – Total GHG emissions by sector (MtCO<sub>2</sub>e) (rounded data)



Data source: EEA ([GHG trends](#), [GHG estimates](#), [UNFCCC reporting](#)).

The EU-wide [emissions trading system](#) (ETS) covers emissions from electricity generation and industry. By 2030, the EU is aiming to achieve emission reductions in ETS sectors of 43 % against 2005 levels. While the Italian NECP applies the 43 % target for ETS sectors, the country is actually [expecting](#) to overachieve, and reach a 55.9 % reduction in ETS sectors by 2030.

With a [target](#) to phase out coal-based electricity production by 2025, Italy is currently augmenting its gas infrastructure and interconnections for secure and stable baseload electricity generation. Hydroelectric storage, along with digitalisation and smart grid solutions in buildings, is intended to further ensure a responsive and sufficient electricity supply, in view of the increase in renewables.

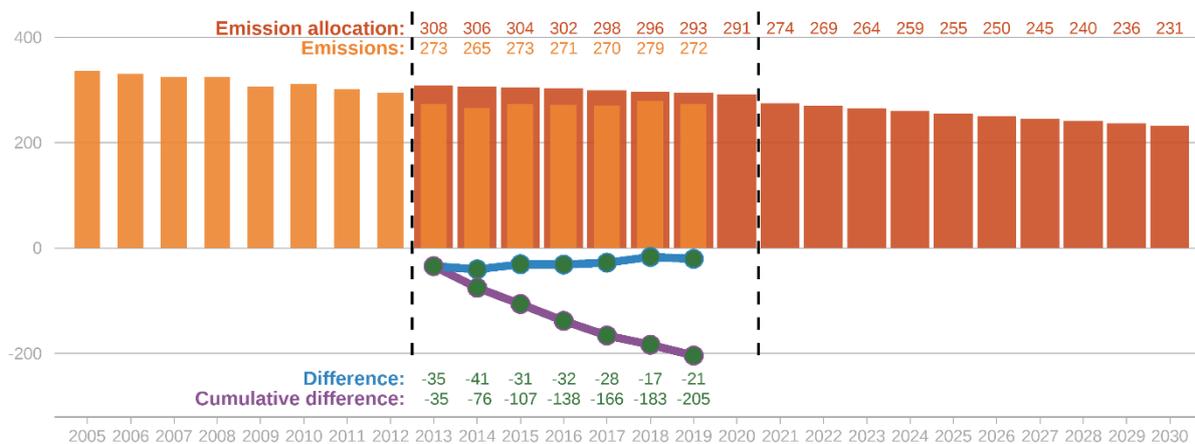
For transport, there are initiatives to increase goods transport on waterways and rail and boost alternative fuels and charging infrastructures. Public transport and cycling are key modal shift initiatives. By 2030, [85 %](#) of new public sector vehicle purchases for urban services must be electric or hybrid, and sustainable urban mobility plans will increasingly be a prerequisite to access funding.

## Effort-sharing sectors

EU effort-sharing legislation covers emissions from sectors not included in the ETS, such as transport, buildings, agriculture and waste. The Effort-sharing Decision (ESD) for the 2013-2020 period required Italy to reduce its non-ETS GHG emissions by 13 % compared with 2005. For the [Effort-sharing Regulation](#) (ESR) covering the 2021-2030 period, Italy must reduce its emissions by 33 % against 2005 levels. Italy has remained consistently within its allocated emission allowances and [estimates](#) that its planned measures will result in the country slightly exceeding the 2030 target.

Key measures for building stock include training, awareness activities and tax deductions, with [110 % refunds](#) for some retrofits through the latest 'ecobonus' scheme, and more general energy retrofitting support available from the National Fund for Energy Efficiency. Heat pumps are expected to play a significant role for households, with business and public sector incentives to invest in cogeneration and district heating through the '[conto termico](#)' and '[white certificate](#)' schemes. Efforts are being made to reduce cumbersome application processes and the number of schemes.

Figure 5 – Italy's emissions under the Effort-sharing Decision/Regulation (MtCO<sub>2</sub>e)



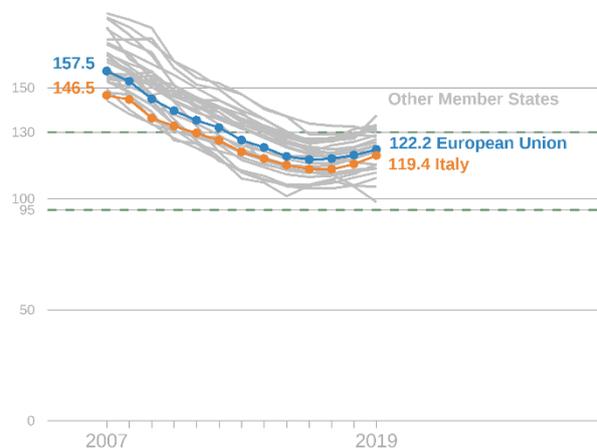
Data source: Commission [ESD allocation](#), [EUR-Lex](#) and [EEA](#), figures display rounded data.

Reduced emissions from agriculture are only expected linked to energy use in the sector. As regards methane, ammonium and nitrous oxide emissions, [measures](#) such as feedstock strategies, nitrogen management and low-emission manure storage and spreading techniques aim to improve air quality. Agricultural activity emissions are expected to remain [stable](#) up until 2030.

Italy [expects](#) to reach 4 million electric vehicles (EV) and 2 million hybrid vehicles by 2030. Advanced biofuels, primarily biomethane, will also play a part in reaching the Italian target of a 22 % RES share in transport by 2030. Italy has an extensive gas for transport [infrastructure](#) and vehicle fleet. The EV fleet is very small, [estimated](#) at 100 000, making the 2030 target of 4 million EVs very ambitious. Subsidies and regulations will support both public and private [fleet renewal](#).

[Emissions from new passenger cars](#) remained below the European average between 2005 and 2019, though getting closer to the EU level in recent years. Italy has also remained below the EU-wide target of 130 g CO<sub>2</sub>/km since 2011, but is still a considerable distance from the new EU-wide target of 95 g CO<sub>2</sub>/km as of 2021.

Figure 6 – Average emissions: New passenger cars (g CO<sub>2</sub>/km)



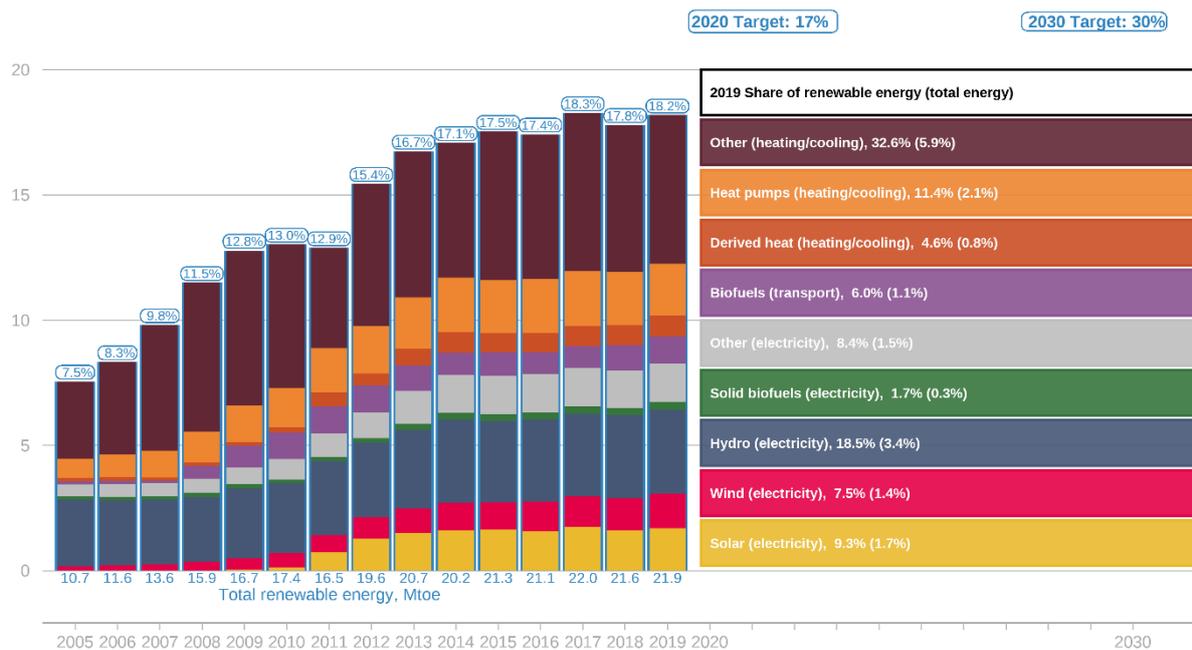
Data source: [EEA](#) and Eurostat sdg\_12\_30.

## Energy transition

### Renewable energy

Italy expects to triple its production of solar energy and double its production of energy from wind by 2030. The phasing out of coal in electricity production will be a main driver behind this development, with [projections](#) of 55 % of final electricity consumption to come from RES by 2030. The NECP further identifies the significant cost reductions of wind and photovoltaic technologies as key, and will seek optimisation by upgrading existing installations, such as wind farms.

Figure 7 – Renewable energy share of gross final energy consumption



Data source: Eurostat ([shares tool](#)), [NECP 2030 targets](#) and [EEA](#).

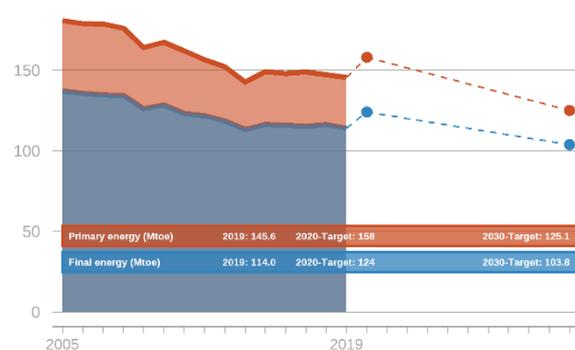
Roofs, car parks and service areas will be focus areas for photovoltaic installations. Ground-mounted installations will be guided by the classification of areas as non-arable, infrastructure adjacent, contaminated or waste sites to limit soil consumption. Hydropower, which is strategic for energy security concerns and historically the backbone of Italian RES production will remain important.

### Energy efficiency

The European Commission has evaluated Italy's 2030 ambition to be sufficient as regards both primary and final energy consumption.

Italy has seen significant efficiency gains, not least in terms of primary energy demand, which according to the [NECP](#) dropped 18 % between 2005 and 2016. New measures to promote sustainable mobility and full implementation of the [National Fund for Energy Efficiency](#) will support efforts to reach the 2030 targets. With proper implementation of the 'with additional measures' scenario, the European Commission [expects](#) Italy to meet its 2030 targets.

Figure 8 – Energy efficiency: Primary and final energy consumption (Mtoe)



Data source: Eurostat nrg\_bal\_s, [NECP 2020 + 2030 targets](#) and [EEA](#).

## Outlook: Plans and policies

Italy has seen several legislative and strategic policy updates relating to climate action in recent years. Air pollution limits are often exceeded in Italian urban areas and the June 2019 [action plan for improving air quality](#) includes several measures with the dual purpose of limiting air pollutants and supporting decarbonisation efforts. Along with this, the transfer into law of the [Climate Decree](#) in 2019, further aligns several Italian climate action measures with the EU Green Deal.

Italy's new Prime Minister, Mario Draghi, was sworn in on 13 February 2021 and launched a ministerial reshuffle. In the new setup, the key areas for climate action – environment, ecosystems and energy infrastructures – previously divided between two ministries, were reorganised under the Ministry of Ecological Transition. Further evidence of the new government's [focus](#) on sustainability is provided by the renaming of the ministry dealing with transport and other infrastructures as the Ministry of Sustainable Infrastructures and Mobility (MIMS), and the appointment of co-founder and former spokesperson of the Italian Alliance for Sustainable Development, Enrico Giovannini, as minister.

In Italy's [national recovery and resilience plan](#), €62 billion (of which €41 billion from the [Recovery and Resilience Facility](#)) is earmarked for infrastructure projects under MIMS supervision, including investments in rail infrastructure and low-emission public transport, digitalisation and housing.

In 2021, Italy chairs the G20 and will, as co-chair of the COP26 climate change conference, host pre-COP meetings in Milan in September, ahead of the final event in Glasgow in November 2021.

In a [conversation](#) with US Special Envoy on Climate, John Kerry, Italian Minister for Ecology Transition, Roberto Cingolani stated that Italy was increasing its 2030 emission reduction target to 60%. A cross-government, minister-led unit should issue an ecological transition plan in 2021.

### MAIN REFERENCES

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Lombardini M., [Italy's Energy and Climate Policies in the Post COVID-19 Recovery](#), Briefing memo, IFRI Centre for Energy & Climate, February 2021.

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