



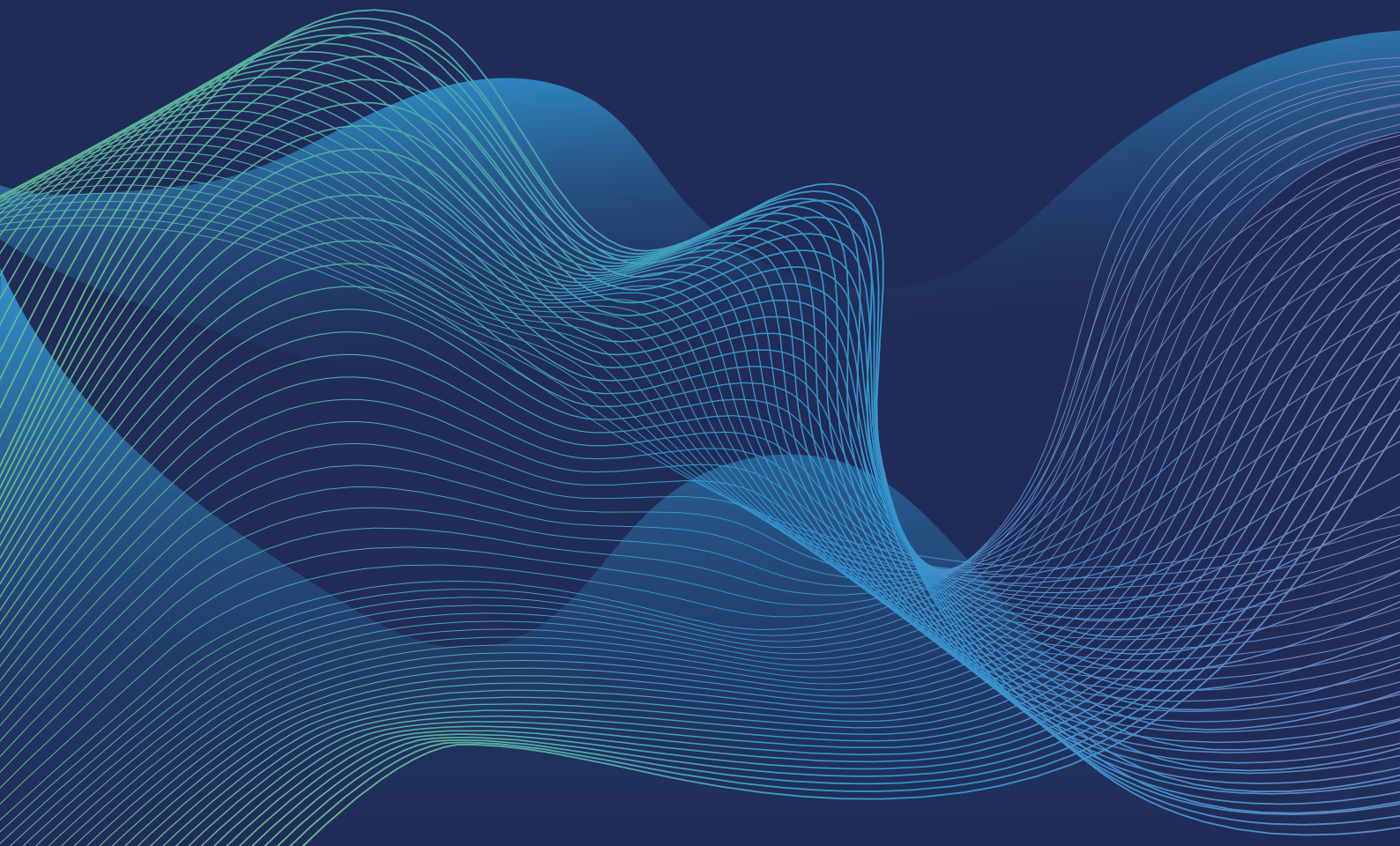
**Global Electricity
Review 2021**
G20 Profile

EMBER
COAL TO CLEAN ENERGY POLICY

ITALY

Italy's deployment of wind
and solar has stagnated

March 2021



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**About Ember's
Global Electricity
Review**

This annual report analyses electricity data from every country in the world to give the first accurate view of the global electricity transition in 2020. It aggregates generation data by fuel by country from 2000. 68 countries comprising 90% of world electricity generation have full-year data to 2020 and have formed the basis of an estimate for changes in worldwide generation. All remaining countries have full data as far as 2019. G20 countries, which comprise 84% of world electricity generation, each have a separate in-depth country analysis. All the data can be viewed and downloaded freely from Ember's website.

www.ember-climate.org/global-electricity-review-2021

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ITALY

Italy's deployment of wind and solar has stagnated

Italy's wind and solar growth since 2015 is the sixth lowest in the G20

"While other countries look to boost the share of wind and solar in their electricity systems, Italy appears to be regressing. Coal generation has decreased by over a third since 2015 but most of this has been replaced by fossil gas rather than wind and solar. Italy needs to reverse this trend now if it is to meet its current target of 55% of electricity from renewables by 2030."

Sarah Brown

Senior Electricity Analyst - Europe, Ember

Key findings

1 Italy's deployment of wind and solar has stagnated

From 2010 to 2015, Italy's wind and solar power generation almost tripled. This escalation was the second highest in the G20 behind the UK. However, progress has critically stalled.

2 Italy's wind and solar growth since 2015 is the sixth lowest in the G20

The proportion of Italy's electricity produced by wind and solar has only increased from 13.5% to 16.5% since 2015. In comparison, Turkey has seen an increase from 4.7% to 12%. Italy's wind and solar market share is above the global average of 9.4% but is half that of Germany.

3 Fossil fuels still dominate Italy's electricity mix due to increasing fossil gas

Fossil fuels still dominate Italy's electricity production at 57%. Fossil gas has actually increased its share of the electricity mix from 40% to 46% since 2015, meaning Italy now relies more heavily on fossil gas than even the US and Russia.

4 Coal generation has fallen 65% since 2015 in Italy, the second largest drop in the G20 after the UK

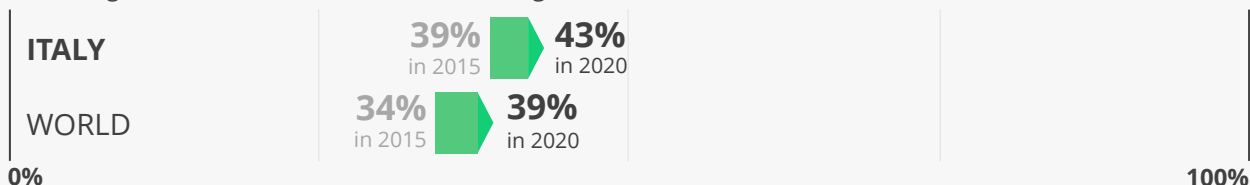
As coal fell by 28 TWh, wind and solar replaced a third of this, gaining 8 TWh over the same period. However, the rest was mostly replaced by fossil gas.

5 Covid-19 impacted Italy's electricity demand more than any other G20 country on a percentage basis

Italy's electricity demand declined by 6% (-21 TWh). This impacted fossil gas and coal production with falls of 14 TWh and 4 TWh respectively. Italy also saw a drop in power exports of 6 TWh.

Progress to 100% clean electricity

Percentage of all renewables & nuclear in total generation



Progress on phasing out coal

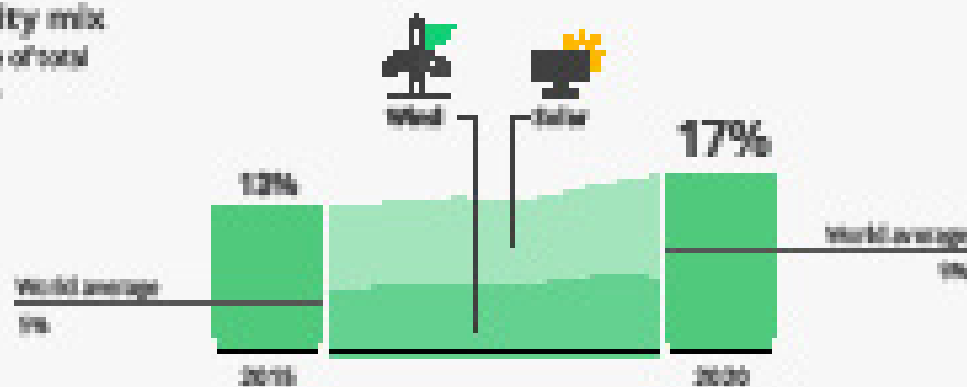
Percentage of coal in total generation



Italy's electricity transition in the spotlight: 2015-2020

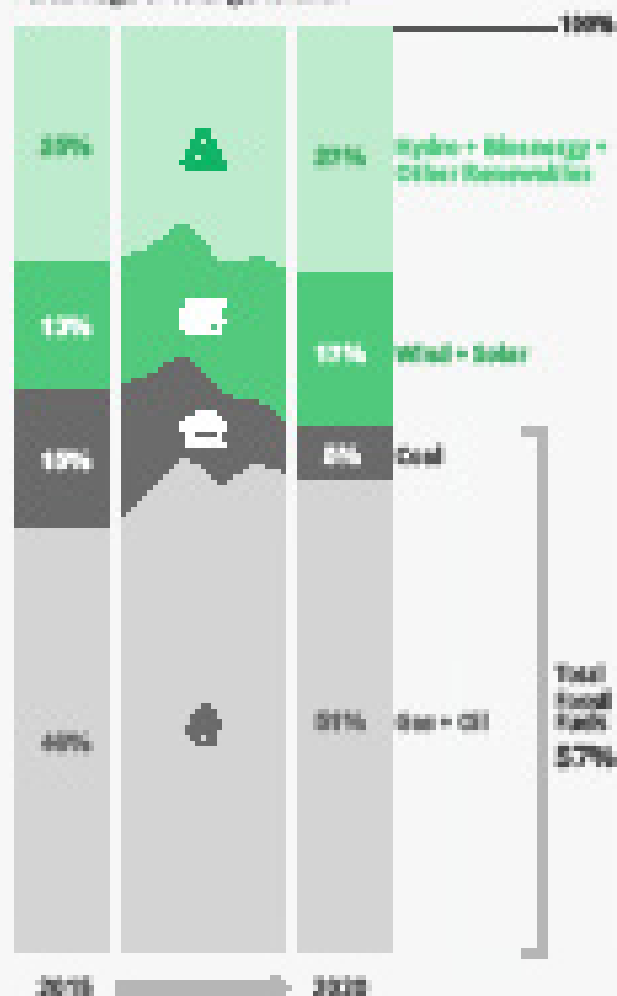
Wind and solar growth slow down since 2015

Wind & solar in electricity mix
Percentage of total generation



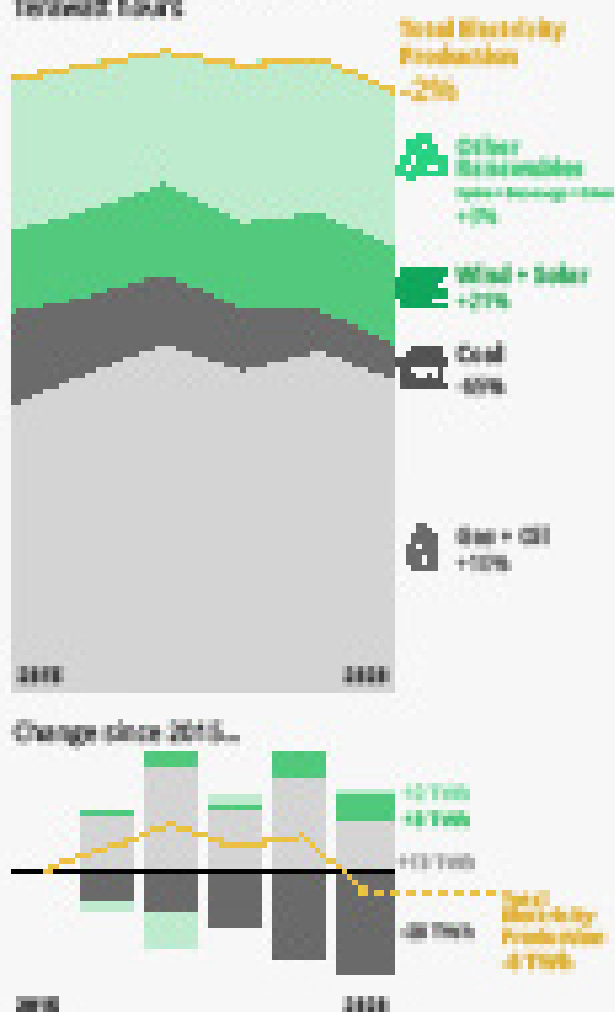
Over half of Italy's electricity is still from fossil

Electricity mix
Percentage of total generation



Coal falls in part due to rising gas

Electricity generation
Terawatt hours



Renewable generation is lagging behind fossil fuels. In 2020, renewables provided 43% of Italy's electricity compared to 57% for fossil fuels. This is contrary to the trend across the EU-27 where, in a landmark moment, [renewables overtook fossil fuels](#) for the first time.

The continued dominance of fossil fuels in Italy is despite coal production tumbling by 65% (-28 TWh) since 2015. Wind and solar replaced less than a third (+8 TWh) of this lost coal generation, while fossil gas made up for over half (+15 TWh).

Wind and solar produced 17% of Italy's electricity in 2020, above the global average of 9.4% but significantly less than the UK (29%) and Germany (33%). This is only a three percentage point increase since 2015, when wind and solar accounted for 14% of the electricity mix. Since 2015, Italy has installed less than 2 GW of wind capacity and 3 GW of solar capacity. In contrast, 2011 alone saw 1 GW of wind and 10 GW of solar installed. Much of this is due to the slow and problematic authorisation processes in relation to new wind and solar projects. Consequently, Italy had the sixth lowest growth in wind and solar in the G20 between 2015 and 2020.

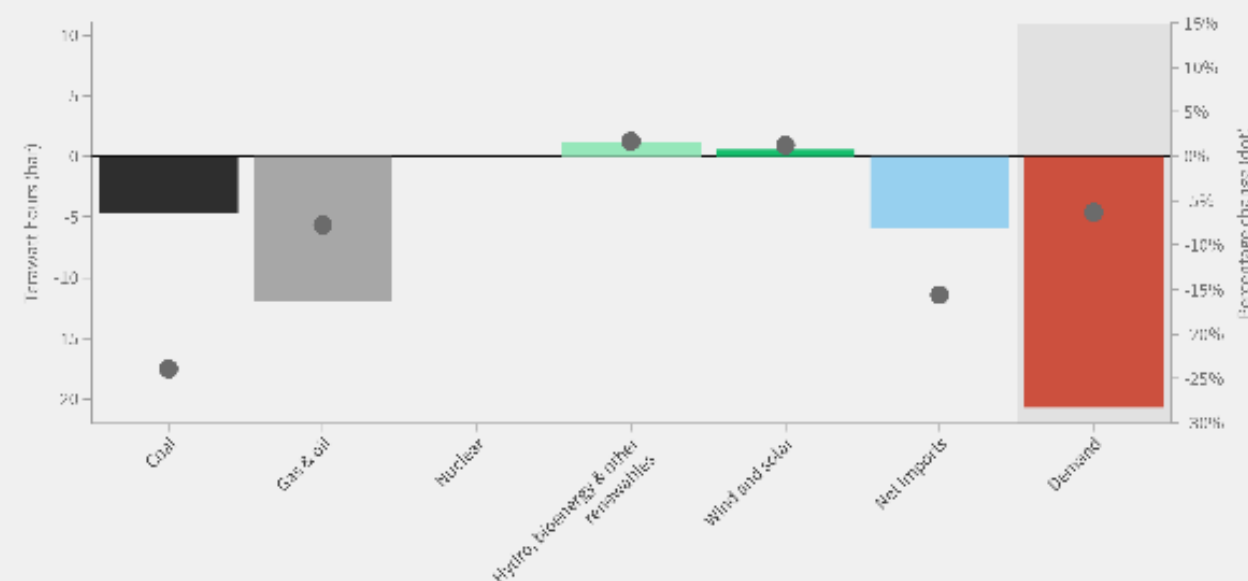
Coal's share of generation fell by two-thirds in 2020 to account for only 5% of electricity production compared to 15% in 2015. Despite this, the share of fossil fuels in Italy's electricity mix has remained relatively flat since 2015. An increase in fossil gas generation of 13% (+15 TWh) offset the majority of the fall in coal generation. Fossil gas increased its share of electricity production from 40% to 46% from 2015 to 2020. This is twice as much as the gain wind and solar made (14% to 17%).

Italy's electricity demand had remained stable between 324 TWh and 331 TWh since 2015, but in 2020 Covid-19 caused a 6.3% drop to 307 TWh.

What happened in 2020?

Italy - Electricity changes in 2020 by source

Year-on-year change



Covid-19 had a significant impact on Italy's electricity demand in 2020 with a fall of 21 TWh (-6.3%). It was the highest percentage drop in the G20. This caused coal generation to decrease by 24% (-5 TWh) and fossil gas by 9% (-12 TWh). Electricity net imports were also reduced by 16% (-6 TWh).

As for the effect on renewable generation, wind and solar saw a negligible increase of 1% (+0.6 TWh)—one of the lowest percentage rises of all G20 countries. Only 137 MW of new wind capacity was installed in 2020. This represents a 75% drop from 2019, a year which also only saw 500 MW of wind installed. Solar did not fare much better, with 800 MW in 2020, equal to the increase in 2019.

Hydro performed the best out of the renewable sources with a 3% increase in generation due to favourable weather conditions.

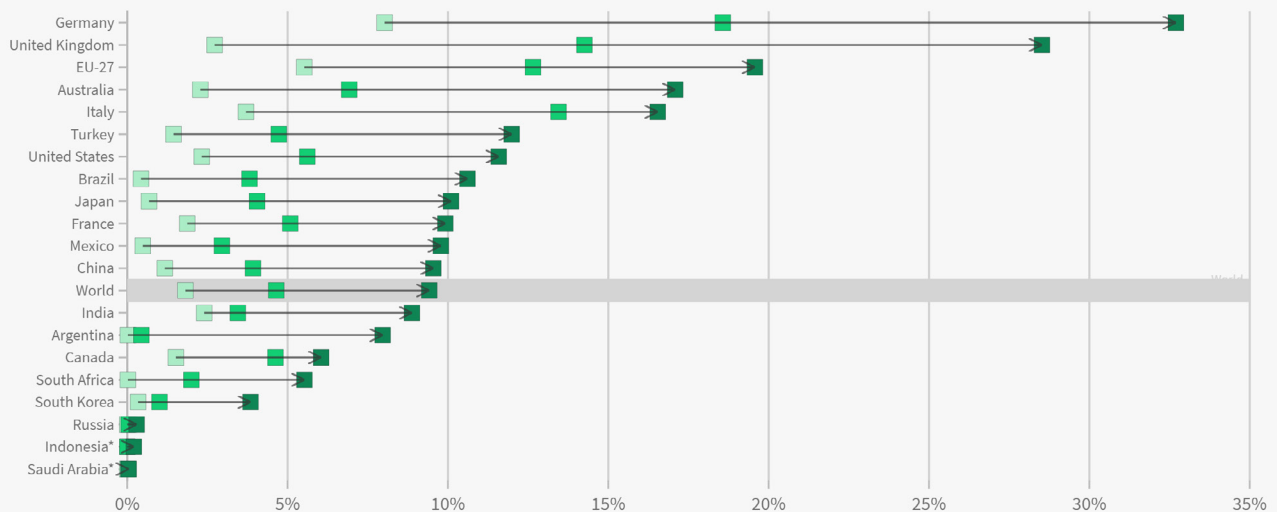
Although electricity demand fell overall due to the impact of Covid-19, this was concentrated in the first six months and, since September, it has bounced back to pre-Covid levels. In fact, in December Italy's demand was up year-on-year by 3%.

Italy's transition in comparison with G20 countries

Italy's wind and solar growth since 2015 is five times less than the UK and Germany

Wind and solar as % share of electricity production for G20 countries

Year 2010 2015 2020

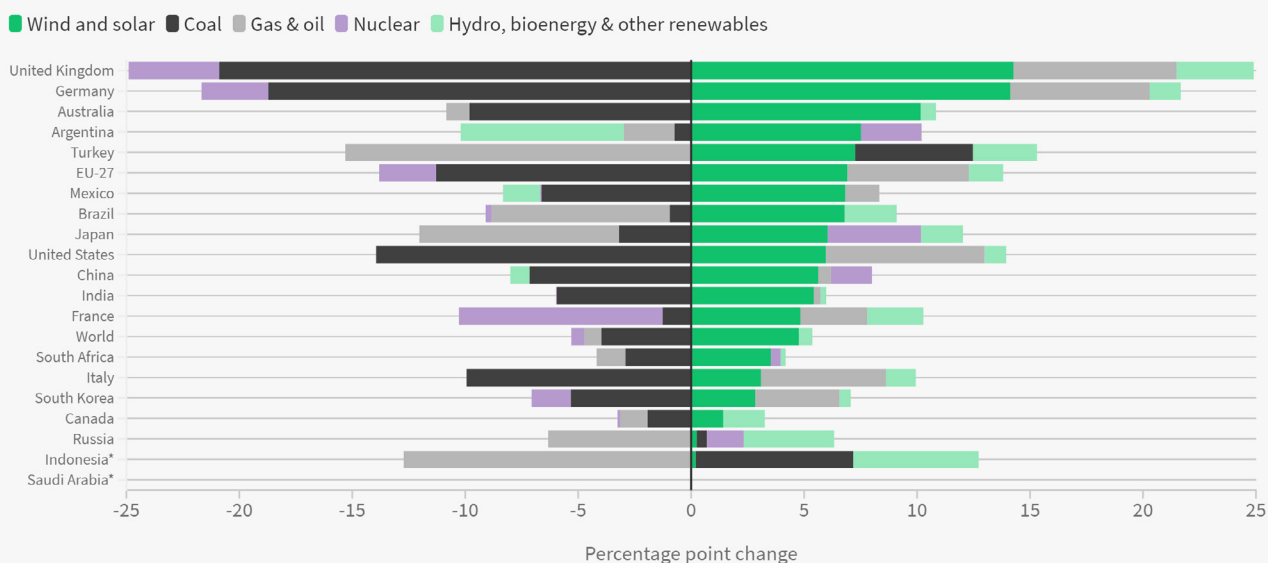


*For Indonesia and Saudi Arabia, 2019 is used as no 2020 data exists
Ember's Global Electricity Review, March 2021.

Italy may be ranked fourth in the G20 for percentage share of generation from wind and solar, but its rate of deployment has stagnated since 2015. Italy saw the fifth smallest increase in share of production from wind and solar between 2015 and 2020.

Italy's coal generation is being replaced by fossil gas more than wind and solar

Change in electricity market share between 2015 and 2020, for G20 countries

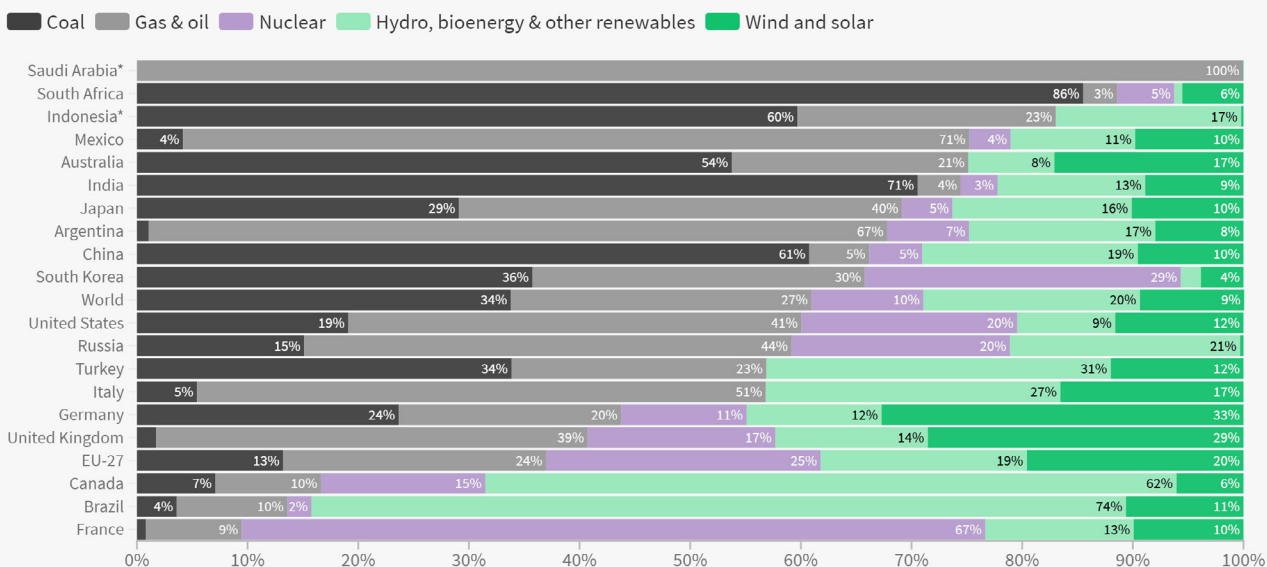


*For Indonesia and Saudi Arabia, 2019 is used as no 2020 data exists.
Ember's Global Electricity Review, March 2021.

The proportion of coal in Italy's electricity mix fell by a substantial 65% from 2015 to 2020. However, contrary to the global trend, Italy is not predominantly replacing coal with wind and solar. Instead, fossil gas has increased its market share by twice that of wind and solar. As a result, Italy is ranked behind even India and Turkey in terms of wind and solar growth.

Italy has the fourth highest percentage share of fossil gas in the G20

Electricity production mix in 2020, for G20 countries



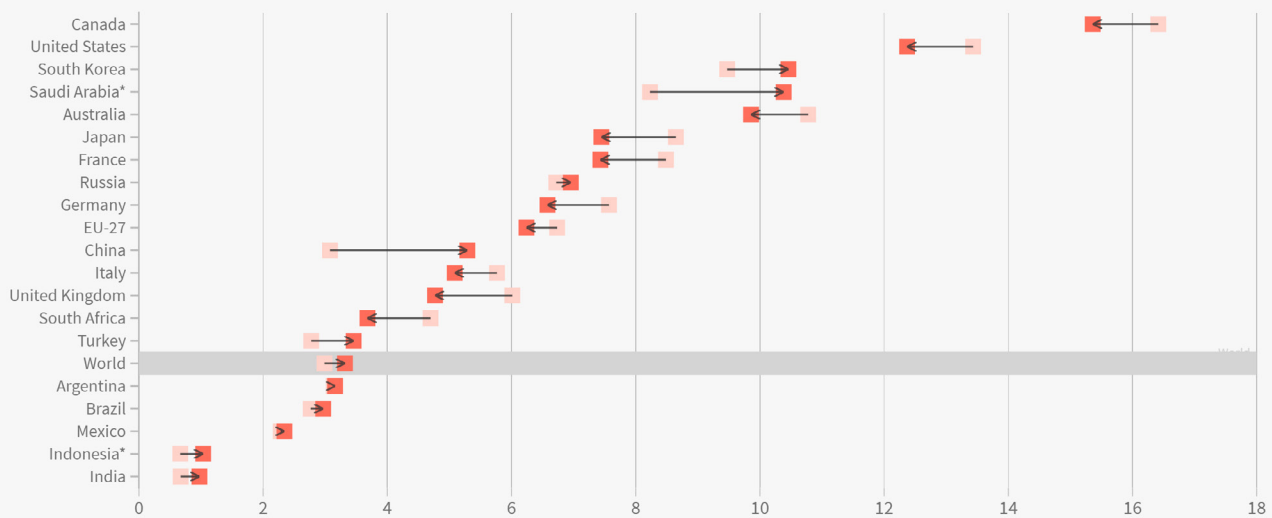
*For Indonesia and Saudi Arabia, 2019 is used as no 2020 data exists.
Ember's Global Electricity Review, March 2021.

Italy sits around the global average for fossil fuel share of production, despite having one of the lowest levels of coal generation. This is because, at 46%, its fossil gas share is more than twice the global average. It even ranks above Russia and the US.

Italy's electricity demand per capita is 1.5 times the global average, but it is falling

Electricity demand per capita (Megawatt hours), for G20 countries

Year ■ 2010 ■ 2020

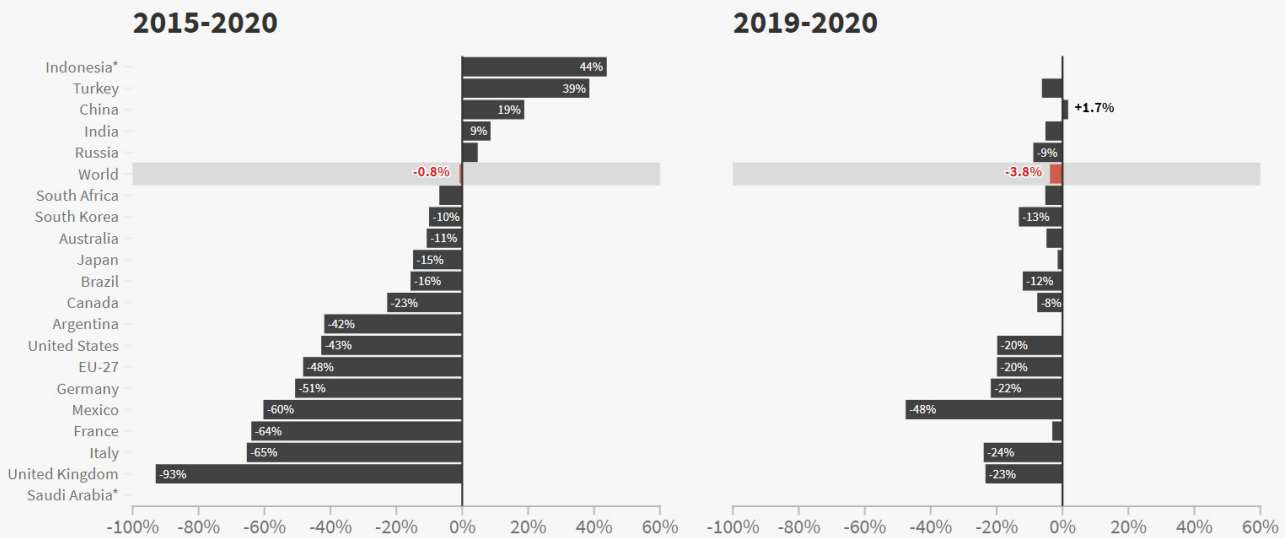


For Indonesia and Saudi Arabia, 2019 is used as no 2020 data exists. • Population sourced from United Nations. Ember's Global Electricity Review, March 2021.

As with most EU countries, Italy's electricity demand per capita has decreased over the past decade (-12%). It is still higher than the global average of 3.3 MWh/capita but at 5.1 MWh/capita, it is 30% lower than France and 27% lower than Russia.

Italy's coal production has plummeted by 65% since 2015

Change in coal generation, for G20 countries



*For Indonesia and Saudi Arabia, 2019 is used as no 2020 data exists.
Ember's Global Electricity Review, March 2021.

Italy has seen the second largest drop in coal generation in the G20 since 2015. Only the UK has achieved a greater decrease at a colossal 93%. Italy is also ranked second in terms of fall in coal generation in 2020 at 24%, six times the global average of 4%.

Concluding remarks

Italy has a coal phase-out date of 2025. Only 5% of production is currently provided by coal so, theoretically, this should not be hard to achieve or require any further investment into fossil gas.

Italy's National Energy and Climate Plan (NECP) includes a target to meet 55% of electricity demand with renewables by 2030. This will require additional wind and solar capacity of 42 GW. A significant barrier to achieving this goal is the inefficient internal authorisation procedure for wind and solar projects. Furthermore, Italy's 55% target was set prior to the EU target increasing from 40% to 55%, so Italy's ambitions may need to rise.

[Ember's analysis](#) of the NECPs found that Italy will account for 10% of the EU-27 power sector emissions in 2030 as a consequence of its reliance on fossil gas. Proposals to convert coal-fired plants to fossil gas such as Vado Ligure and Torrevaldaliga exacerbate this situation. Italy's capacity market auctions may also be enabling fossil gas expansion, having recently awarded up to 75,000 €/MW/year for 15 years to new capacity. And it is significant that the Italian electricity [implementation plan](#) set a thermal generation target for 2040 that is unchanged from 2020.

These factors are impeding the decarbonisation of Italy's electricity market.

More information about the Global Electricity Review 2021

Global Electricity Review 2021

www.ember-climate.org/global-electricity-review-2021

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