



Italy's Climate Targets and Policies in Relation to the Paris Agreement and Global Equity Considerations

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This report was prepared at the request of A Sud, in the context of legal proceedings brought against the Italian State, for the purpose of assessing the contribution of the Italian State towards meeting the Paris Agreement temperature goal, in line with the principles of equity and common but differentiated responsibilities as enshrined in that agreement.

Executive Summary

The Paris Agreement defines its long-term temperature goal as well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels. This report assesses the contribution of the Italian State towards meeting the Paris Agreement's long-term temperature goal, in line with the principles of equity and common but differentiated responsibilities as enshrined in that agreement, so that its climate commitments represent a "fair share" towards achieving that goal.

Thus far, Italy has made some progress in reducing its emissions. After a continued gradual increase, Italy's total greenhouse gas (GHG) emissions peaked in 2005 and have fallen considerably since (-27% below 2005 levels in 2018). Prior to the COVID-19 pandemic, emissions in 2020 were projected to reach 19% below 1990 levels under current policies. While lower emissions levels were observed during 2020 through pandemic-related reductions in carbon-intensive activities, European emissions levels from energy consumption rebounded by the end of 2020 to within ~5% of those observed prior to the pandemic. Much of the pre-pandemic reduction in emissions so far has coincided with economic decline and the outsourcing of productive sectors. Under current policies – and with resumed but modest economic growth – the government's emissions projections to 2030 show a markedly slower rate of reduction than in previous years.

Following Italy's current policy scenario, 2030 emissions are expected to be 26% below 1990 levels. Under these government projections, Italy will not achieve its modest implied 2030 emission target of a 29% reduction below 1990 levels¹ [37% below 2005 levels] without additional measures. Additional policies planned by the Italian government, as outlined in Italy's Integrated National Energy and Climate Plan (NECP), are only projected to reduce emissions in 2030 by 36% below 1990 levels.

In recent decades, Italy's transport and buildings sectors have performed comparatively poorly in terms of emissions reductions, with 2018 emissions in both sectors sitting above 1990 levels. The commercial buildings sector in particular has seen a significant increase in natural gas consumption since 1990. Emissions projections under current policies show that the transport and buildings sectors will continue to underperform, leading Italy to miss its 2030 emissions reduction target for sectors not covered by the EU Emissions Trading Scheme. A large proportion of the additional emissions reductions implied by Italy's planned policies are in these sectors, as well as from the energy sector.

The electricity sector will continue to be a substantial source of emissions in Italy based on current policies. While Italy has committed to phase out coal use by 2030, it plans to do so by switching generation primarily to natural gas. Among European countries planning a coal-to-gas switch, Italy has the highest planned gas consumption in the 2020s. While Italy is targeting a 30% share of renewable energy in gross final energy consumption by 2030, it does not currently have the policies in place to achieve this target. Such substantial and continued dependence on unabated natural gas strongly contradicts the fuel consumption trends shown in 1.5°C scenarios assessed in the IPCC's Special Report on 1.5°C (IPCC SR 1.5C).

¹ Quantified by calculating the emissions level represented by both Italy's stated targets for sectors under the EU ETS and the ESR, see "Country-specific targets and compliance"

Considering Italy's policies and targets for reducing emissions, the country is **far from making a fair contribution** to the emissions reductions needed by 2030 to meet the Paris Agreement long-term temperature goal.

We compare Italy's emission target against the global emission trajectories identified by the IPCC in its 2018 Special Report on 1.5°C that would limit the temperature increase by the end of the century to 1.5°C with at least 50% probability while allowing minimal overshoot of this limit throughout the century. The median of these pathways can be characterized as an indicator of the average level of mitigation required across all countries in order to stay below 1.5°C by the end of the century. If starting from 2020 Italy were to mitigate emissions consistent with this global median pathway, it would need to reduce its emissions by 63% compared to 1990 levels by 2030 – far below its target and current emission trajectory. Importantly, this assessment does not take into account the principles of equity and common but differentiated responsibilities (CBDR) as laid down in the UNFCCC (Article. 3.1) and the Paris Agreement (Article 2.2), on the basis of which Italy needs to “take the lead” in achieving emission reductions. Italy would thus need to do more in order to do its “fair share” in line with these principles.

From an equity-based perspective, Italy's emission reduction target for 2030 lies outside the ranges assessed for 1.5°C in the literature. In its 5th Assessment Report (AR5), the IPCC assessed the available interpretations of ‘fair share’ contributions that have been assessed in the scientific literature. We use the same methodology as presented in AR5 to group these estimates and assess Italy's 2030 targets. While different interpretations of a country's fair share exist, Italy's **current domestic emission reduction target places its 2030 emissions target well outside any interpretation found in the literature of its “fair share” contribution** to meeting the Paris Agreement's long-term temperature goal (**Figure ES 1**, see the dark red horizontal line). Even taking into account **Italy's projected 2030 emissions under planned policies**, as outlined in its National Energy and Climate Plan, its projected emissions still **lie above even the upper range of the results in the fair share literature** for both 1.5°C and 2°C (**Figure ES 1**, see the red horizontal line). As illustrated in Figure ES1, Italy's emission reduction target and projected emissions reductions for 2030 (the horizontal lines) do not intersect with any interpretation of Italy's fair share (the blue, and yellow vertical axes) for either 1.5°C or 2°C.

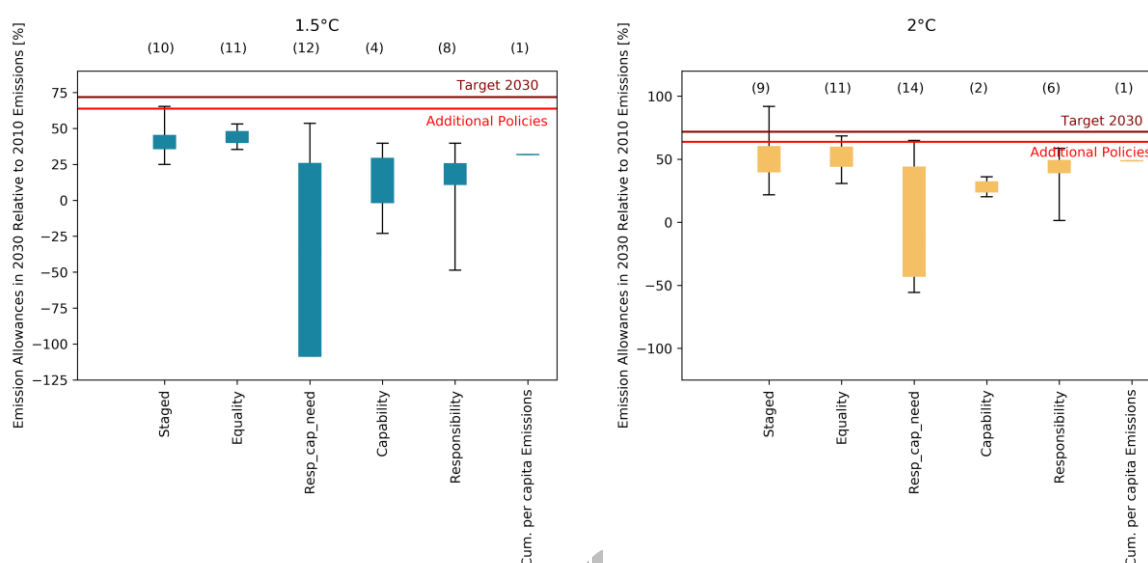
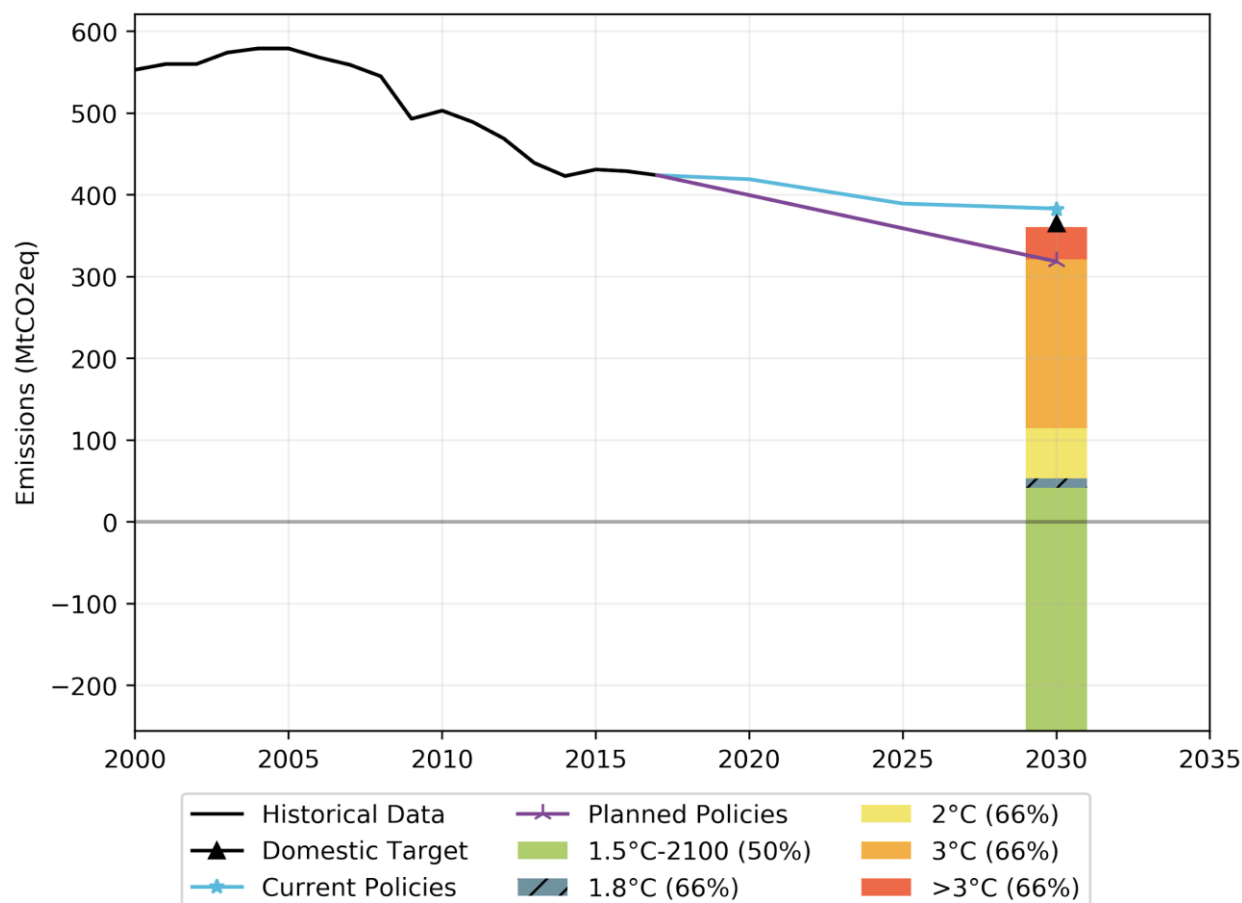


Figure ES1: Emission allowances in 2030 for 1.5°C and 2°C temperature levels, based on the categorization method used in the IPCC's 5th Assessment Report. The vertical axis shows the emission allowances in 2030 as percentage compared to its 2010 levels. The blue and yellow bars show the range of results for Italy's fair share allowances for the different interpretation in the literature. The horizontal lines present the emission levels on the basis of current policy projections (dark red) and the additional policies projections (red) by the Italian government.

This report considers the estimates from the equity literature and uses a method consistent with the notion of “Common but Differentiated Responsibility” to identify an emissions target in 2030 within the Italian fair share range to meet the Paris Agreement long-term temperature goal expressed as limiting end-of-century warming to 1.5°C with 50% or higher probability. The report further shows that if all countries were to lower their emissions to the level proposed in the literature that is most preferable to them, this in itself would not result in a contribution sufficient to achieve the Paris Agreement long-term temperature goal. On the contrary, this study assesses that if all countries were only to adopt the interpretation most preferable to themselves, global average temperature would rise to higher than 3.0°C by 2100. This report therefore identifies the fair share emissions level *within* the entire range of interpretations in the equity literature that *would be* consistent with meeting the Paris Agreement long-term temperature goal.

The analysis of Italy's required reduction of emissions is premised on the notion that other countries also set a reduction target that, with respect to their own fair share ranges, matches the ambition level of Italy's action. If Italy were to set a reduction target that is *above* its Paris-compatible fair share level, still meeting the Paris Agreement long-term temperature goal would require greater effort on the part of other countries above and beyond their own “fair share” to compensate for Italy's failure to do so. The results of our analysis are shown in Figure ES2 and Table ES1. The vertical-coloured bar shows the entire range of fair share results for Italy that is presented in the scientific literature, with each coloured section indicating the range of emission reductions for Italy in 2030 that would be compatible with different temperature levels.



Temperature	Absolute emission allowance in 2030	Minimum 2030 Emission Reduction (% below 1990 levels)	Emission Gap from Domestic Target (2030)	Emission Gap from Emissions under Planned Policies (2030)
1.5°C Paris compatible	41 Mt MtCO ₂ e	92%	323 MtCO ₂ e	276 MtCO ₂ e

Table ES1: Minimum emissions reduction below 1990 levels needed meet the Paris Agreement long term temperature target and emissions gaps between domestic target under fair share consideration

Italy's fair share contribution to achieve the Paris Agreement long-term temperature goal - of limiting warming to 1.5°C in 2100 - would be an **emission reduction of 92% by 2030 compared to its 1990 emission level** (shown in the graph as the border between green and the hatched blue bar). As is shown in Figure ES2, even taking into account planned policies, Italy's emissions in 2030 would lie at

the top end of the emission range that is compatible with a likely warming of more than 3°C. **Italy's current target represents such a low level of ambition that, if other countries were to follow it, it would likely lead to unprecedented warming of more than 3°C by the end of the century.**

Italy's remaining emission budget between 2020 and 2030 that is compatible with its fair share contribution to the Paris Agreement long-term temperature goal **amounts to nearly 2.09 GtCO₂eq at most**. If the current levels of emissions were to continue, **Italy would exhaust its fair share of allowances for the period between 2020 and 2030 already in 2025.**

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