

### **BROWN TO GREEN:**

### THE G20 TRANSITION TO A LOW-CARBON ECONOMY | 2018

# **ITALY**

GREENHOUSE GAS (GHG) EMISSIONS (INCL. FORESTRY) PER CAPITA (tCO<sub>2</sub>e/capita)







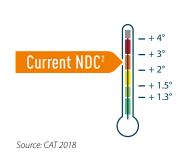
Data from 2015 | Source: PRIMAP 2018

#### The gap:

Is Italy on track to stay below the Paris Agreement temperature limit? Based on implemented policies, Italy's **GHG emissions** are expected to increase to 449 MtCO $_2$ e by 2030 (excl. forestry). This emission pathway is not compatible with the Paris Agreement.<sup>1</sup>

Italy committed to the joint **NDC** of the European Union. The EU's NDC is not consistent with the Paris Agreement's temperature limit but would lead to a warming of between 2°C and 3°C.<sup>2</sup>

Italy's sectoral **policies** are still falling short of being consistent with the Paris Agreement, especially with respect to renewable energy and energy efficiency in buildings.<sup>3</sup>



# Recent developments:

What has happened since the Paris conference?



The state-owned operator of natural gas transmission in Italy announced a €4.7bn investment in gas networks.



As part of its 2017 Energy Strategy, Italy has announced the phase-out of coal power by 2025.



Italy announced in 2017 the target of having 1 million electric vehicles on the road by 2022.

# Brown and green performance:

Where does Italy lead or lag compared to G20 countries?



Data from 2016 | Source: Enerdata 2018

#### FOSSIL FUEL SUBSIDIES

Italy's fossil fuel subsidies as share of GDP are well above G20 average

13.53 billion US\$ in 2016



G20 average: **US\$ 7.87 bn** 

Source: OECD/IEA 2018

# SHARE OF RENEWABLES IN POWER GENERATION

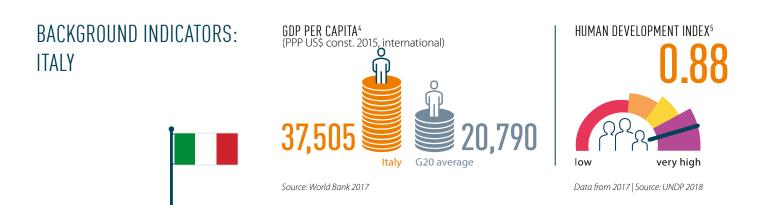
(incl. large hydro)



G20 average: 24 %

Data from 2017 | Source: Enerdata 2018

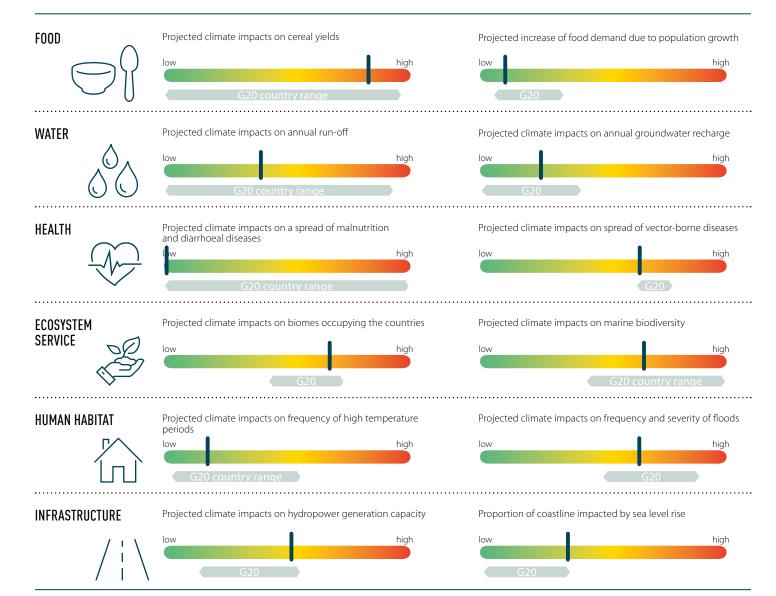
This country profile is part of the **Brown to Green 2018** report. The full report and other G20 country profiles can be downloaded at: http://www.climate-transparency.org/g20-climate-performance/g20report2018



### ITALY'S EXPOSURE TO CLIMATE IMPACTS6

This indicator shows the extent to which human society and its supporting sectors are affected by the future changing climate conditions based on an approximately 2°C scenario. This sectoral exposure will be even higher given that the efforts depicted in current NDCs will lead to an approximately 3°C scenario.





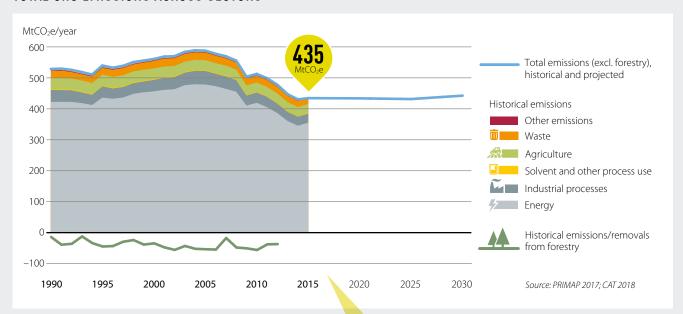
Own composition based on ND-GAIN 2017 (based on data for 2016)



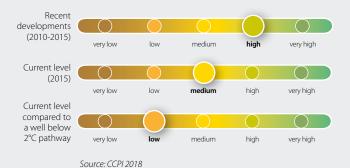
# GREENHOUSE GAS (GHG) EMISSIONS

# ITALY

### TOTAL GHG EMISSIONS ACROSS SECTORS7

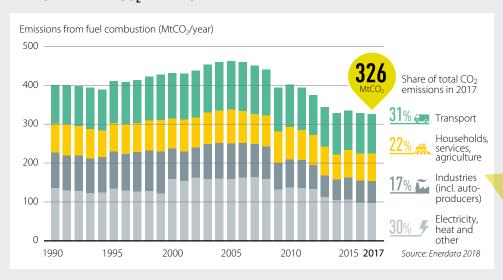


#### CCPI PERFORMANCE RATING OF GHG EMISSIONS PER CAPITA<sup>8</sup>



Italy's GHG emissions decreased by 17% between 1990 and 2015 but this trend is not expected to continue. Instead, emissions are projected to increase slightly towards 2030. Energy is the main emission source.

### **ENERGY-RELATED CO<sub>2</sub> EMISSIONS<sup>9</sup>**



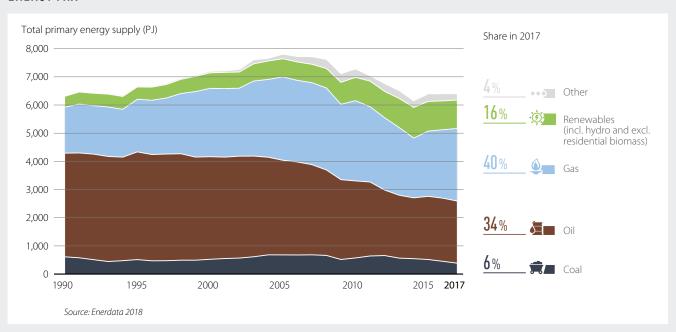
The largest driver for overall GHG emissions are CO<sub>2</sub> emissions from energy, which have decreased by 13% (2012–2017) in Italy, reflecting falling emissions from power generation.



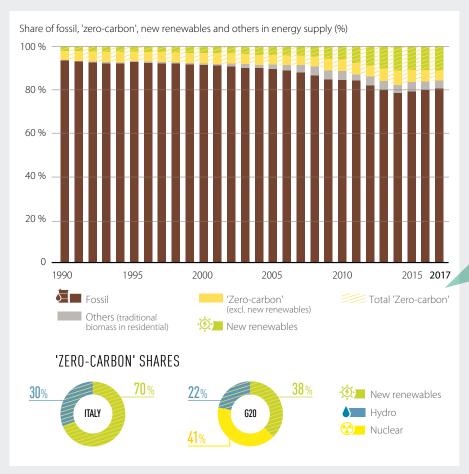
# DECARBONISATION

# **ITALY**





### SHARE OF FOSSIL FUELS AND 'ZERO-CARBON' FUELS IN ENERGY SUPPLY 11



# PERFORMANCE RATING OF SHARE OF FOSSIL FUELS<sup>12</sup>



Zero-carbon fuels include nuclear, hydropower, new renewables. In Italy, these account for 16% of energy supply, slightly above the G20 average of 14%.

# PERFORMANCE RATING OF SHARE OF ZERO-CARBON TECHNOLOGY<sup>12</sup>



Source: own evaluation

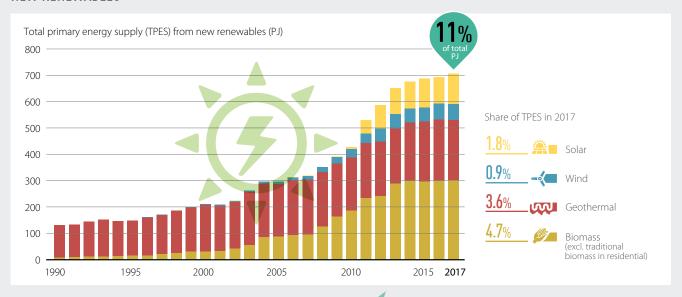
Source: Enerdata 2018



### DECARBONISATION

# ITALY

### NEW RENEWABLES<sup>13</sup>



Source: Enerdata 2018

"New renewables" excludes unsustainable renewable sources such as large hydropower. New renewables make up 11% of Italy's energy supply – this is one of the highest levels in the G20 (G20 average: 5%). Supply from new renewables increased by 20% (2012–2017), with solar and wind energy gaining strength.

### PERFORMANCE RATING OF NEW RENEWABLES<sup>12</sup>

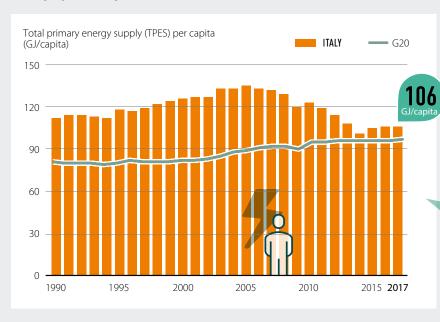


developments (2012-2017)



Source: own evaluation

#### ENERGY USE PER CAPITA<sup>14</sup>



### PERFORMANCE RATING OF ENERGY USE PER CAPITA<sup>12</sup>

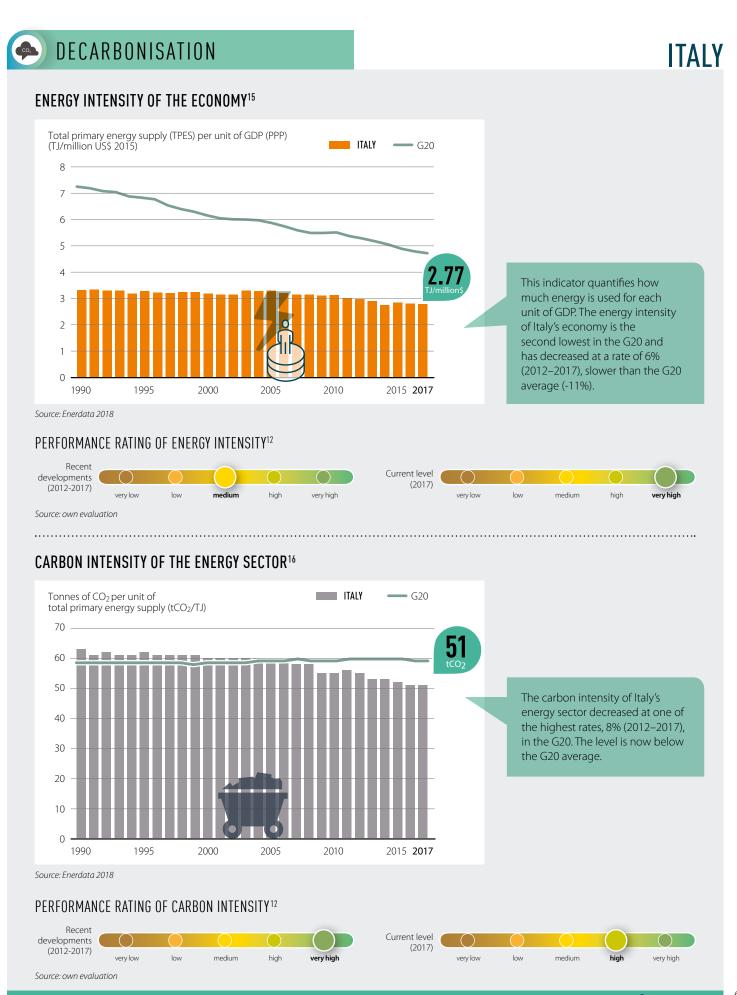


Current level (2017)very low high very high

Source: own evaluation

Energy use per capita in Italy is slightly above the G20 average but has decreased at a rate of 7% (2012-2017).

Source: Enerdata 2018





## **ITALY**

### SECTOR-SPECIFIC INDICATORS

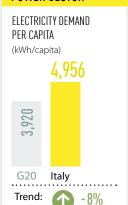
Legend for trend:





The trend number shows developments over the past five years, where data is available

#### **POWER SECTOR**



Data from 2017 Source: Enerdata 2018 EMISSIONS INTENSITY OF THE POWER SECTOR (gCO<sub>2</sub>/kWh)



G20 average

Trend: -16%

Data from 2016 Source: Enerdata 2018 SHARE OF RENEWABLES IN POWER GENERATION (incl. large hydro)



G20 average: **24**%

Trend: +34%

Data from 2017 Source: Enerdata 2018 SHARE OF POPULATION
WITH ACCESS TO ELECTRICITY



Trend: 0%

Data from 2016 Source: World Bank 2018 SHARE OF POPULATION WITH BIOMASS DEPENDENCY



Data from 2014 Source: IEA 2016

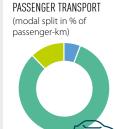
### TRANSPORT SECTOR



Data from 2017 Source: Enerdata 2018 MOTORISATION RATE (Vehicles per 1000 inhabitants)



Data from 2016 | Source: Agora Verkehrswende 2018



car bus rail

Data from 2016 | Source: Agora Verkehrswende 2018





Data from 2015 | Source: Agora Verkehrswende 2018

#### MARKET SHARE OF ELECTRIC VEHICLES IN NEW CAR SALES (%)





Data from 2017

### INDUSTRY SECTOR



Data from 2015 Source: PRIMAP 2018

### **BUILDING SECTOR**



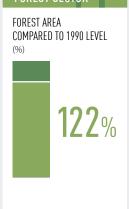
Data from 2017 Source: Enerdata 2018

### AGRICULTURE SECTOR



Data from 2015 Source: PRIMAP 2018

### FOREST SECTOR



Data from 2015 Source: PRIMAP 2018

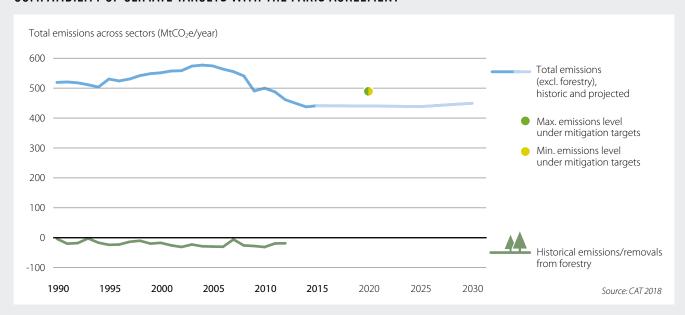




### **CLIMATE POLICY**

## ITAIY

### COMPATIBILITY OF CLIMATE TARGETS WITH THE PARIS AGREEMENT<sup>2</sup>



Italy has a national target of reducing GHG emissions in 2020 by 18% below 2005 levels. As an EU member state, Italy did not submit its own NDC under the Paris Agreement, committing instead to the EU NDC. The CAT rates the EU's NDC "insufficient" as it is not ambitious enough to limit warming to below 2°C, let alone to 1.5°C. Under current policies, the EU is not on track to meet its 2030 target.

### CLIMATE ACTION TRACKER (CAT) EVALUATION OF NDC2



### NATIONALLY DETERMINED CONTRIBUTION (NDC)

The table presents the NDC of the European Union that includes contributions from all member states.

MITIGATION			
Targets	Overall targets At least 40% domestic GHG emissions reduction compared to 1990 by 2030		
	Coverage 100% of emissions covered (all sectors and gases)		
Actions	Not mentioned		

ADAPTATION		
Targets	Not mentioned	
Actions	Not mentioned	

FINANCE	
Conditio- nality	Not applicable
Investment needs	Not specified
Actions	Not mentioned
International market mechanisms	No contribution from international credits for the achievement of the target

Source: own compilation based on UNFCCC 2018





### **CLIMATE POLICY**

# **ITALY**

### POLICY EVALUATION<sup>17</sup>

The ratings evaluate a selection of policies that are essential pre-conditions for the longer-term transformation required to meet the 1.5°C limit. They do not represent a complete picture of what is necessary.

Legend:
 low No action
 medium Some action
 high Significant action and a long-term vision
frontrumer
Significant action, and a long-term vision that is compatible with 1.5°C

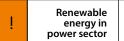
! most important measures based on share of emissions and political relevance

GHG emissions target for 2050 or beyond

Long-term low emissions development strategy

Italy has no long-term emission strategy nor a 2050 emission target.



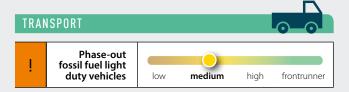






No 2050 renewable target exists. In an effort to reduce energy dependency, Italy's 2017 National Energy Strategy envisages an increase of renewables in electricity demand from 39% currently to 55% by 2030. The strategy is to be revised in 2019.

Italy's 2017 National Energy Strategy, which is under revision, plans to phase out coal in power generation by 2025, but the government has not taken any implementing measures.



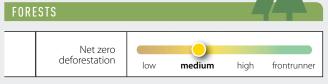
Under EU law, Italy is required to reduce CO2 emissions of vehicles per km and to increase the share of biofuels. Italy plans to have 1 million EV vehicles on the road by 2022 but has not taken implementing measures, and plans to more than triple the share of renewables in transport to 21% by 2030, but has no phase-out target for fossil fuel vehicles.



Italy is obliged under EU law to have all new buildings near zero energy from 2020 onwards.



Italy forms part of the EU Emissions Trading Scheme and uses a white certificate scheme to reduce energy consumption of all end uses.



Italy adopted a new Forest Law in 2018 that requires the government to adopt a new Forest Strategy.

Source: own evaluation

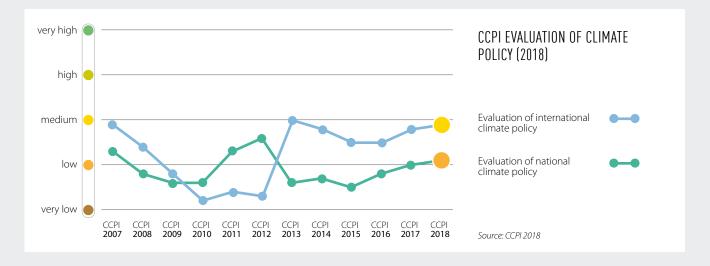


### CLIMATE POLICY

# ITALY

### CCPI EXPERTS' POLICY EVALUATION<sup>18</sup>

Italy's experts give the country a low rating for its national climate policy performance. They maintain that Italy lacks clear long-term targets and measures for implementing its long-term strategies domestically. They also criticise the cutting back of incentives for renewable energy. Despite playing a constructive role in the context of the G7 process, Italian experts criticise their country for not being proactive enough. They thus rate Italy's international climate policy performance as medium.



#### JUST TRANSITION<sup>19</sup>

Italy's fossil fuel is supplied predominantly from imported oil and gas. In 2017, the Italian government published and ratified the National Energy Strategy, setting out the country's energy plans to 2030. This targets raising the share of renewables to 28% of primary energy supply and 55% of electricity generation, as well as the phase-out of coal in electricity generation by 2025. Around 90% of Italy's coal supply is imported, and therefore the coal phase-out may have less of an impact on upstream workers, compared with other G20 nations. Nevertheless, while not referring to explicit just transition policy, the strategy does

call for "timely actions to retrain workers and create new jobs and skills". In June 2018, Italy's new Prime Minister, Giuseppe Conte, pledged to "work to speed up the process, already in progress, of the 'decarbonisation' of [Italy's] production system".





### FINANCING THE TRANSITION

ITALY

# FINANCIAL POLICIES AND REGULATIONS

Through policy and regulation governments can overcome challenges to mobilising green finance, including: real and perceived risks, insufficient returns on investment, capacity and information gaps.

# APPROACHES TO IMPLEMENTING THE RECOMMENDATIONS OF THE TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES (TCFD)<sup>20</sup>

This indicator establishes the degree of government engagement with the recommendations of the G20 Financial Stability Board's Task Force on Climate-Related Financial Disclosure.

No formal engagement with TCFD	Political and regulatory engagement	Formal engagement with private sector	Publication of guidance and action plans	Encoding into law

Source: CISL 2018

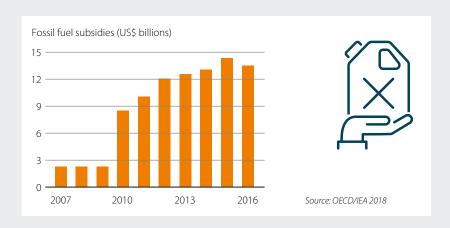
Under the Italian Presidency, the G7 (minus the US) welcomed the work of the TCFD. In 2017, Italy's central bank also endorsed the TCFD. The Ministry of the Environment's newly created National Observatory on Sustainable Finance will discuss the impact of environmental issues on Italy's financial system and has already engaged banks, insurance companies and asset managers through a TCFD-relevant survey.

### FISCAL POLICY LEVERS

Fiscal policy levers raise public revenues and direct public resources. Critically, they can shift investment decisions and consumer behaviour towards low-carbon, climate-resilient activities by reflecting externalities in prices.

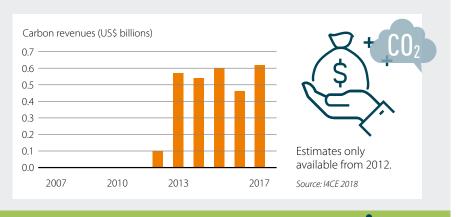
#### **FOSSIL FUEL SUBSIDIES**

In 2016, Italy provided US\$13.5bn in fossil fuel subsidies (US\$2.3bn in 2007). Between 2007 and 2016, subsidies were greater (US\$0.004) than the G20 average (US\$0.003) as a proportion of GDP. Subsidies primarily targeted consumption (93%), provided through direct budget support and tax exemptions. In absolute terms, the largest subsidy is the differential excise tax for diesel fuel (US\$5.3bn in 2016).



#### CARBON REVENUES

Italy has no national carbon tax or emissions trading scheme, but forms part of the EU Emissions Trading Scheme that, in 2017, generated US\$0.6bn in Italy alone. The scheme covers 45% of EU emissions (in power, industry and aviation), priced at US\$21/tCO<sub>2</sub> as of September 2018. In 2012 to 2017, Italy's carbon revenues were lower (US\$0.0002) than the G20 average (US\$0.0005) as a proportion of GDP.





### FINANCING THE TRANSITION

# ΙΤΔΙΥ

### PUBLIC FINANCE

Governments steer investments through their public finance institutions including via development banks, both at home and overseas, and green investment banks. Developed G20 countries also have an obligation to provide finance to developing countries and public sources are a key aspect of these obligations under the UNFCCC.

### NATIONAL AND INTERNATIONAL PUBLIC FINANCE IN THE POWER SECTOR<sup>21</sup>

From 2013 to 2015, Italy's public finance institutions spent an annual average of US\$2.1bn brown, US\$0.1bn green and US\$0.8bn grey financing in the power sector, domestically and internationally. The largest transactions were a loan guarantee (US\$1.2bn) for the MIDOR refinery expansion in Egypt, and an equity investment (US\$0.9bn) in Ansaldo Energia.

> coal, oil and gas projects (and associated infrastructure)

grey

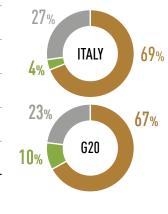
brown

green

large-scale hydropower, biofuels, biomass, nuclear, incineration, transmission, distribution, storage, energy efficiency, other general electricity support

> renewable energy projects (excluding grey financing)

2013-2015 annual average of power finance (US\$ billions) 25 2.0 1.5 1.0 0.5 0.0 **Brown** Green Grey



Proportion of total public finance

to power

Source: Oil Change International 2017

### PROVISION OF INTERNATIONAL PUBLIC SUPPORT

Between 2013/14 and 2015/16, Italy has gone from the smallest G20 contributor of bilateral climate finance, to sixth place ahead of Australia and Canada. It remains the smallest contributor among the G20 members with obligations under the UNFCCC to the multilateral climate funds. More than half of bilateral spending goes to actions supporting both mitigation and adaptation (cross-cutting), while this figure increases to more than three-quarters for funding via the multilateral climate funds. While Italy may channel international public finance towards climate change via multilateral development banks, this has not been included in this report.

**OBLIGATION TO PROVIDE CLIMATE FINANCE** UNDER UNFCCC





#### CONTRIBUTIONS THROUGH THE MAJOR MULTILATERAL CLIMATE FUNDS<sup>22</sup>

Note: See Technical Note for multilateral climate funds included and method to attribute amounts to countries

Source: Climate Funds Update 2017

Annual average contribution			
(mn US\$, 2015-2016)			
31.27			

Theme of support			
Adaptation	Mitigation	Cross- cutting	
25%	46%	29%	

#### **BILATERAL CLIMATE** FINANCE CONTRIBUTIONS<sup>23</sup>

Annual average contribution (mn US\$, 2015-2016) 166.84

Theme of support			
Mitigation	Adaptation Cross- cutting		Other
14%	22%	64%	0%



Source: Country reporting to the UNFCCC

# ANNEX



For more detail on sources and methodologies, please refer to the Technical Note at: <a href="https://www.climate-transparency.org/wp-content/uploads/2018/11/Technical-Note\_data-sources-and-methodology.pdf">https://www.climate-transparency.org/wp-content/uploads/2018/11/Technical-Note\_data-sources-and-methodology.pdf</a>

- The 2030 projections of the future development of greenhouse gas (GHG) emissions under current policies are based on the Climate Action Tracker (CAT) estimates.
- 2) The CAT is an independent scientific analysis that tracks progress towards the globally agreed aim of holding warming to well below 2°C, and pursuing efforts to limit warming to 1.5°C. The CAT "Effort Sharing" assessment methodology applies state-of-the-art scientific literature on how to compare the fairness of government efforts and (Intended) Nationally Determined Contribution ((I) NDC) proposals against the level and timing of emission reductions consistent with the Paris Agreement. The assessment of the temperature implications of a country's NDC is based on the assumption that all other governments would follow a similar level of ambition.
- 3) This assessment is based on the policy evaluation on page 9 of this Country Profile.
- 4) Gross Domestic Product (GDP) per capita is calculated by dividing GDP with mid-year population figures. GDP is the value of all final goods and services produced within a country in a given year. Here GDP figures at purchasing power parity (PPP) are used. Data for 2017.
- 5) The Human Development Index (HDI) is a composite index published by the United Nations Development Programme (UNDP). It is a summary measure of average achievement in key dimensions of human development. A country scores higher when the lifespan is higher, the education level is higher, and GDP per capita is higher.
- 6) The ND-GAIN index summarises a country's vulnerability to climate change and other global challenges in combination with its readiness to improve resilience. This report looks only at the exposure indicators as part of the vulnerability component of the ND-GAIN index for six sectors. It displays the exposure scores provided by the ND-GAIN on a scale from low (score: 0) to high (score: 1).
- 7) The indicator covers all Kyoto gases showing historic emissions in each of the IPCC source categories (energy, industrial processes, agriculture, etc.). Emissions projections (excl. forestry) under a current policy scenario until 2030 are taken from the Climate Action Tracker and scaled to the historical emissions from PRIMAP (see Brown to Green Report 2018 Technical Note).

- 8) The ratings on GHG emissions are taken from the Climate Change Performance Index (CCPI) 2018. The rating of "current level compared to a well below 2°C pathway" is based on a global scenario of GHG neutrality in the second half of the century and a common but differentiated convergence approach.
- CO<sub>2</sub> emissions cover only the emissions from fossil fuels combustion (coal, oil and gas) by sector. They are calculated according to the UNFCCC methodology (in line with the 2006 IPCC Guidelines for National Greenhouse Gas Inventories).
- 10) Total primary energy supply data displayed in this Country Profile does not include non-energy use values. Solid fuel biomass in residential use has negative environmental and social impacts and is shown in the category "other".
- 11) Zero-carbon fuels include nuclear, hydropower and new renewables (non-residential biomass, geothermal, wind, solar).
- 12) Climate Transparency ratings assess the relative performance across the G20. A high scoring reflects a good effort from a climate protection perspective but is not necessarily 1.5°C compatible.
- 13) New renewables include non-residential biomass, geothermal, wind and solar energy. Hydropower and solid fuel biomass in residential use are excluded due to their negative environmental and social impacts.
- 14) Total primary energy supply (TPES) per capita displays the historical, current and projected energy supply in relation to a country's population. Alongside the intensity indicators (TPES/GDP and CO<sub>2</sub>/TPES), TPES per capita gives an indication on the energy efficiency of a country's economy. In line with a well-below 2°C limit, TPES per capita should not grow above current global average levels. This means that developing countries are still allowed to expand their energy use to the current global average, while developed countries have to simultaneously reduce it to that same number.
- 15) TPES per GDP describes the energy intensity of a country's economy. This indicator illustrates the efficiency of energy usage by calculating the energy needed to produce one unit of GDP. Here GDP figures at PPP are used. A decrease in this indicator can mean an increase in efficiency but also reflects structural economic changes.
- 16) The carbon intensity of a country's energy sector describes the CO<sub>2</sub> emissions per unit of total primary energy supply and gives an indication of the share of fossil fuels in the energy supply.



# ANNEX (continued)

- G20
- 17) The selection of policies rated and the assessment of 1.5°C compatibility are informed by the Paris Agreement and the Climate Action Tracker (2016): "The ten most important short-term steps to limit warming to 1.5°C". The table below displays the criteria used to assess a country's policy performance. See the Brown to Green Report 2018 Technical Note for the sources used for this assessment.
- 18) The CCPI evaluates a country's performance in national climate policy, as well as international climate diplomacy through feedback from national experts from non-governmental organisations to a standardised questionnaire.
- 19) See the Brown to Green 2018 Technical Note for the sources used for this assessment.
- 20) The University of Cambridge Institute for Sustainability Leadership (CISL) in early 2018 reviewed the progress made by the national regulatory agencies of G20 members in making the Task Force on Climate-related Financial Disclosures (TCFD) recommendations relevant to their national contexts. See the Brown to Green Report 2018 Technical Note for more information on the assessment.
- 21) This data includes bilateral public finance institutions such as national development banks and other development finance institutions, overseas aid agencies, export credit agencies, as well as key multilateral development banks. The analysis omits most finance delivered through financial intermediaries and significant volumes of multilateral development bank (MDB) development policy finance (due to a lack of clarity on power finance volumes). Given a lack of transparency, other important multilateral institutions in which G20 governments participate are not covered. See the Brown to Green Report 2018 Technical Note for further details.
- 22) Finance delivered through multilateral climate funds comes from Climate Funds Update, a joint ODI/Heinrich Boell Foundation database that tracks spending through major multilateral climate funds. See the Brown to Green Report 2018 Technical Note for multilateral climate funds included and method to attribute approved amounts to countries.
- 23) Bilateral finance commitments are sourced from Biennial Party reporting to the UNFCCC. Financial instrument reporting is sourced from the OECD-DAC; refer to the Brown to Green Report 2018 Technical Note for more detail. Figures represent commitments of Official Development Assistance (ODA) funds to projects or programmes, as opposed to actual disbursements.

On endnote 17)	Criteria description			
	• Low	<ul><li>Medium</li></ul>	<ul><li>High</li></ul>	<ul><li>Frontrunner</li></ul>
GHG emissions target for 2050 or beyond	No emissions reduction target for 2050 or beyond	Existing emissions reduction target for 2050 or beyond	Existing emissions reduction target for 2050 or beyond and clear interim steps	Emissions reduction target to bring GHG emissions to at least net zero by 2050
Long-term low emissions development strategy	No long-term low emissions strategy	Existing long-term low emissions strategy	Long-term low emissions strategy includes interim steps and/or sectoral targets	Long-term low emissions strategy towards full decarbonisation in the second half of the century; includes interim steps and/or sectoral targets, plus institutions and measures in place to implement and/or regularly review the strategy
Renewable energy in power sector	Allianz Monitor 2018 Category 1.2 (targets) and 2 (policies), average 0-25	Allianz Monitor 2018 Category 1.2 (targets) and 2 (policies), average 26-60	Allianz Monitor 2018 Category 1.2 (targets) and 2 (policies), average 61-100	Allianz Monitor 2018 Category 1.2 (targets) and 2 (policies), 61-100 plus 100% renewables in the power sector by 2050 in place
Coal phase-out	No consideration or policy in place for phasing out coal	Significant action to reduce coal use implemented or coal phase-out under consideration	Coal phase-out decided and under implementation	Coal phase-out date compatible with 1.5°C
Phase-out of fossil fuel light duty vehicles (LDVs)	No policy or emissions performance standards for LDVs in place	Energy/emissions performance standards or support for efficient LDVs	National target to phase out fossil fuel LDVs in place	Ban on new fossil-based LDVs by 2025/30
Near zero-energy new buildings	No policy or low emissions building codes and standards in place	Building codes, standards or fiscal/financial incentives for low emissions options in place	National strategy for near zero-energy buildings (at least for all new buildings)	National strategy for near zero-energy buildings by 2020/25 (at least for all new buildings)
Low-carbon new industry installations	No policy or support for energy efficiency in industrial production in place	Support for energy efficiency in industrial production (covering at least two of the country's sub-sectors (e.g. cement and steel production))	Target for new installations in emissions-intensive sectors to be low-carbon	Target for new installations in emissions-intensive sectors to be low-carbon after 2020, maximising efficiency
Net zero deforestation	No policy or incentive to reduce deforestation in place	Incentives to reduce deforestation or support schemes for afforestation / reforestation in place	National target for reaching zero deforestation	National target for reaching zero deforestation by 2020s or for increasing forest coverage

# CLIMATE TRANSPARENCY

Partners:





























Funders:





Supported by:





based on a decision of the German Bundestag

Data Partners:









http://www.climate-transparency.org/g20-climate-performance/g20report2018

