

BROWN TO GREEN:

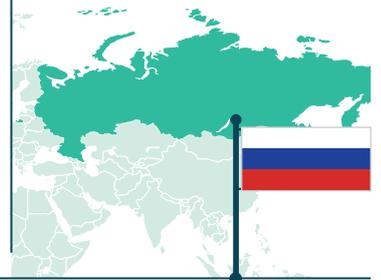
THE G20 TRANSITION TO A LOW-CARBON ECONOMY | 2018

RUSSIA

GREENHOUSE GAS (GHG) EMISSIONS
(INCL. FORESTRY) PER CAPITA
(tCO₂e/capita)



Data from 2015 | Source: PRIMAP 2018



The gap:

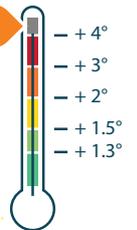
Is Russia on track to stay below the Paris Agreement temperature limit?

Based on implemented policies, Russia's **GHG emissions** are expected to rise to 2.8 GtCO₂e in 2030 (excl. forestry). This emission pathway is not compatible with the Paris Agreement.¹

Russia's **NDC** is not consistent with the Paris Agreement's temperature limit but would lead to a warming of more than 4°C.²

Russia's sectoral **policies** are still falling short of being consistent with the Paris Agreement, especially but not limited to plans to increase the volume of coal in electricity generation.³

Current NDC²



Source: CAT 2018

Recent developments:

What has happened since the Paris conference?



Russia has presented a national strategy that may delay ratification of the Paris Agreement until at least 2019.



Between 2016 and 2017, Russia adopted a set of decrees and orders in the field of energy efficiency and the promotion of renewable energy.

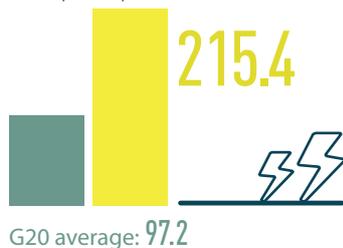


The 2017 Transport Strategy includes a set of measures to reduce road transport emissions by 2030 by 20% to 25% below 2011 levels.

Brown and green performance:

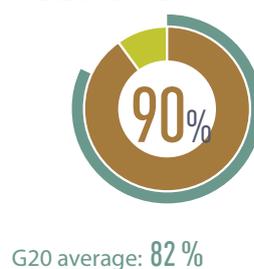
Where does Russia lead or lag compared to G20 countries?

ENERGY USE PER CAPITA
(Total primary energy supply in GJ per capita)



Data from 2017 | Source: Enerdata 2018

SHARE OF FOSSIL FUELS
IN ENERGY SUPPLY



Data from 2017 | Source: Enerdata 2018

BUILDING EMISSIONS PER CAPITA
(tCO₂/capita)



Data from 2016 | 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>

**BACKGROUND INDICATORS:
RUSSIA**



GDP PER CAPITA⁴
(PPP US\$ const. 2015, international)



Source: World Bank 2017

HUMAN DEVELOPMENT INDEX⁵



Data from 2017 | Source: UNDP 2018

RUSSIA'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.



FOOD



Projected climate impacts on cereal yields



Projected increase of food demand due to population growth



WATER



Projected climate impacts on annual run-off



Projected climate impacts on annual groundwater recharge



HEALTH



Projected climate impacts on a spread of malnutrition and diarrhoeal diseases



Projected climate impacts on spread of vector-borne diseases



ECOSYSTEM SERVICE



Projected climate impacts on biomes occupying the countries



Projected climate impacts on marine biodiversity



HUMAN HABITAT



Projected climate impacts on frequency of high temperature periods



Projected climate impacts on frequency and severity of floods



INFRASTRUCTURE



Projected climate impacts on hydropower generation capacity



Proportion of coastline impacted by sea level rise

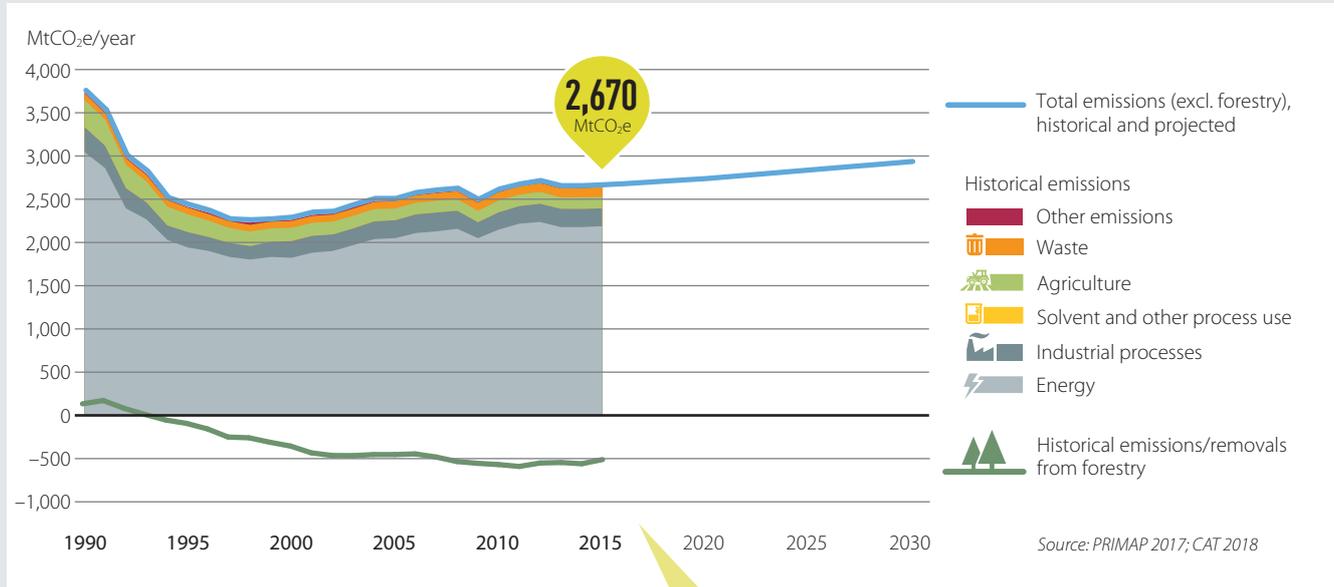


Own composition based on ND-GAIN 2017 (based on data for 2016)

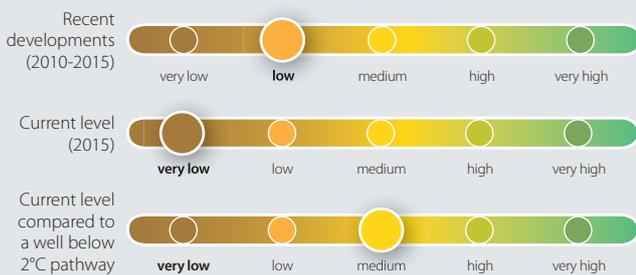
GREENHOUSE GAS (GHG) EMISSIONS

RUSSIA

TOTAL GHG EMISSIONS ACROSS SECTORS⁷

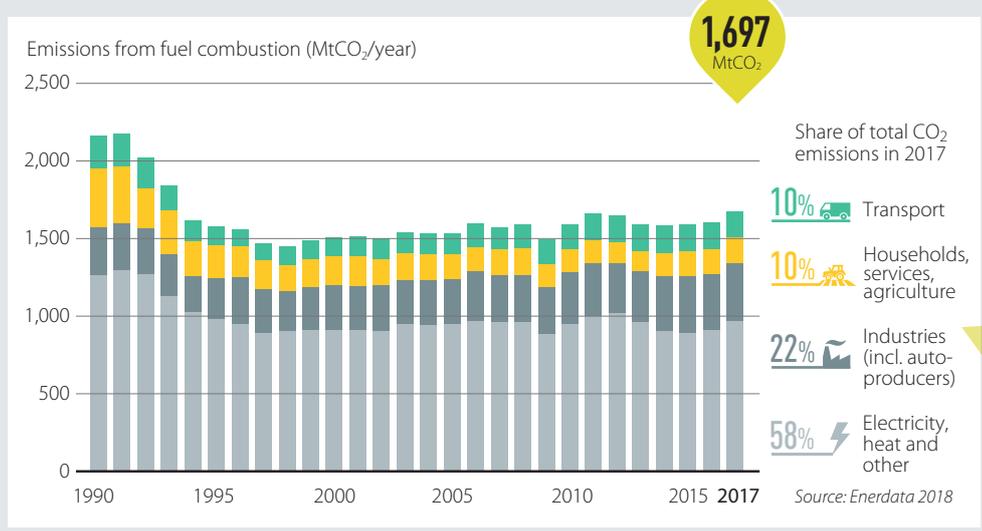


CCPI PERFORMANCE RATING OF GHG EMISSIONS PER CAPITA⁸



Russia's emissions dropped by 40% between 1990 and 1999, followed by an increase, mostly driven by emissions from energy. In 2017, GHG emissions were 29% below 1990 levels. Emissions are expected to keep increasing slightly towards 2030.

ENERGY-RELATED CO₂ EMISSIONS⁹

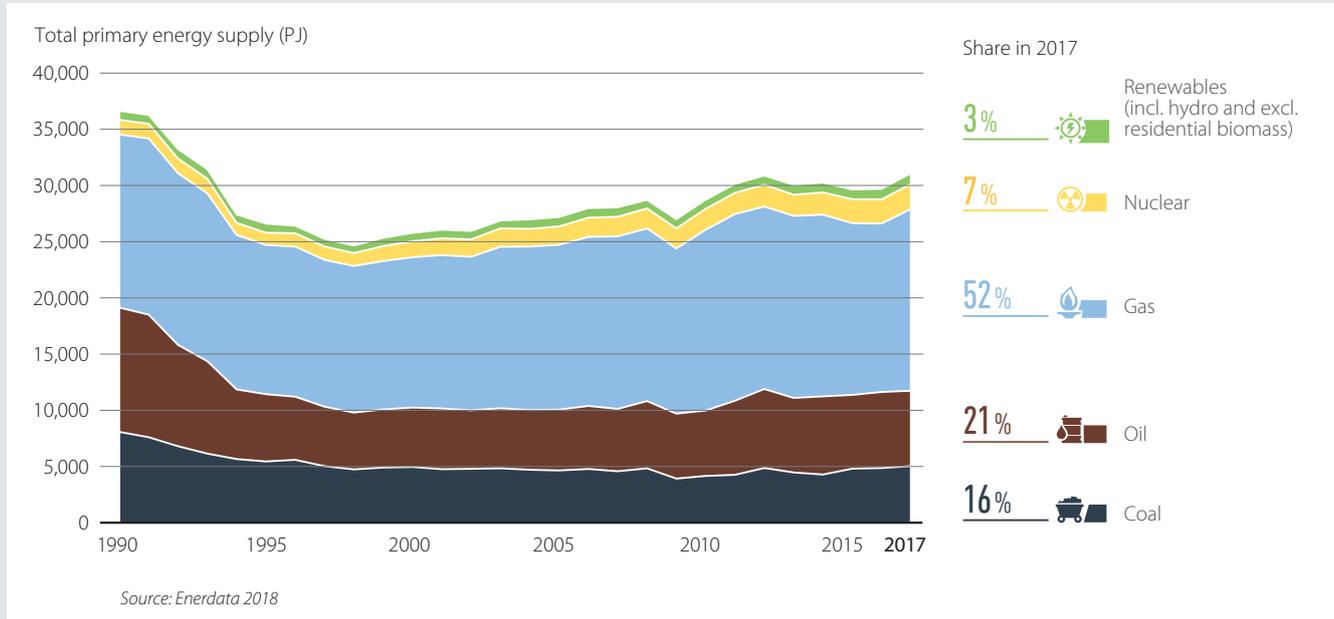


The largest driver for overall GHG emissions are CO₂ emissions from energy, which show an upward trend of 2% between 2012 and 2017, accelerating again in the past few years. Electricity and heat make up the largest share.

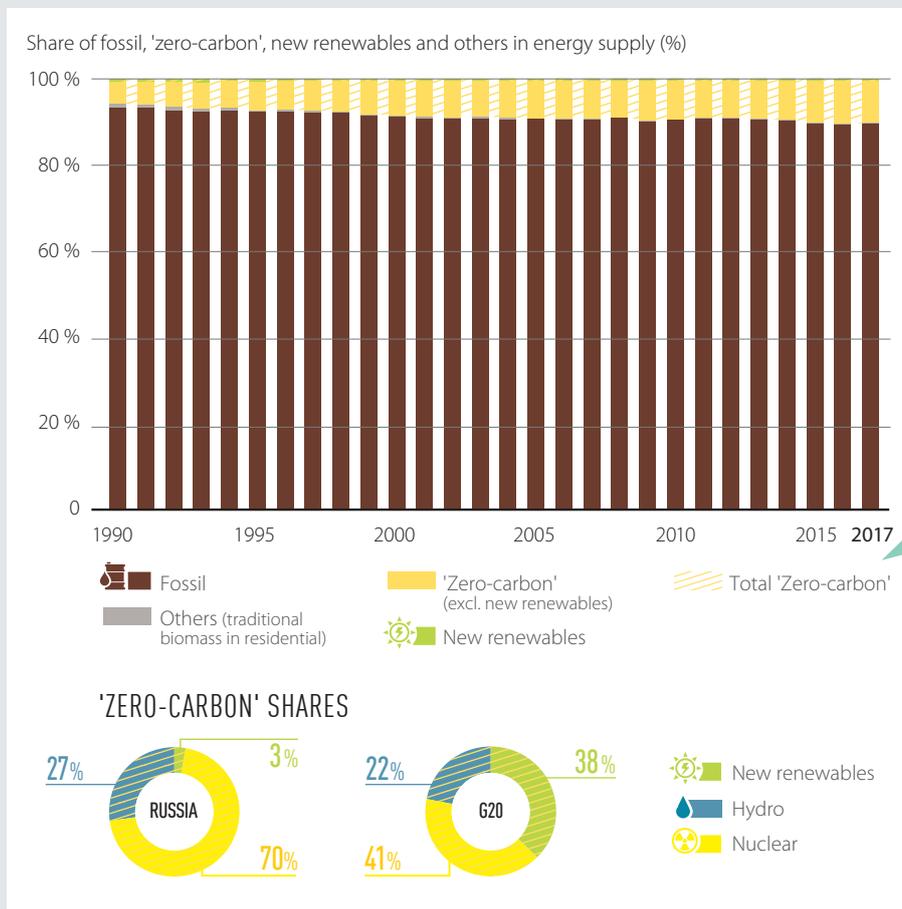
DECARBONISATION

RUSSIA

ENERGY MIX¹⁰



SHARE OF FOSSIL FUELS AND 'ZERO-CARBON' FUELS IN ENERGY SUPPLY¹¹



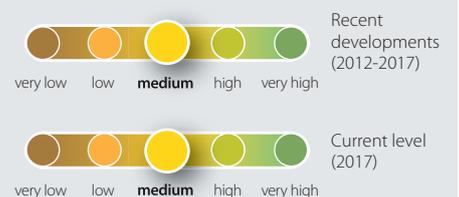
PERFORMANCE RATING OF SHARE OF FOSSIL FUELS¹²



Source: own evaluation

Zero-carbon fuels include nuclear, hydropower, new renewables. Their share in Russia's energy mix (mainly nuclear) has increased by 15% (2012-2017), but at 10% remains below the G20 average (14%).

PERFORMANCE RATING OF SHARE OF ZERO-CARBON TECHNOLOGY¹²

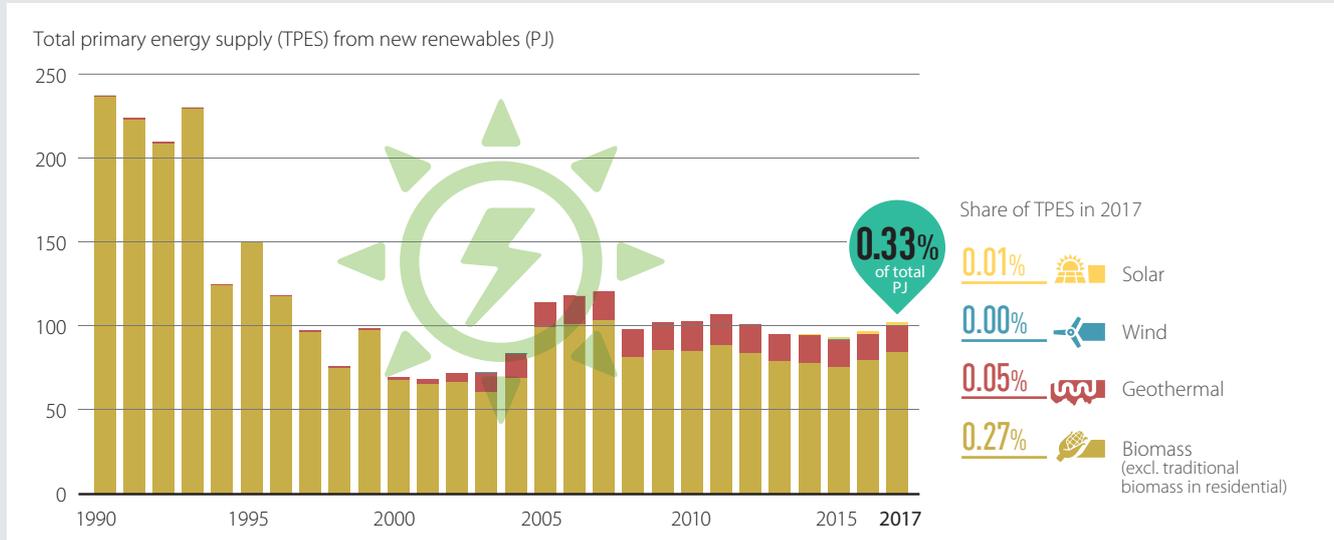


Source: own evaluation

DECARBONISATION

RUSSIA

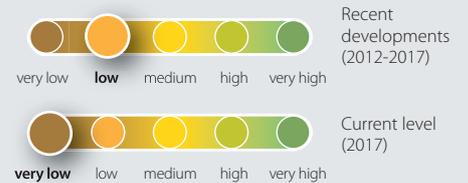
NEW RENEWABLES¹³



Source: Enerdata 2018

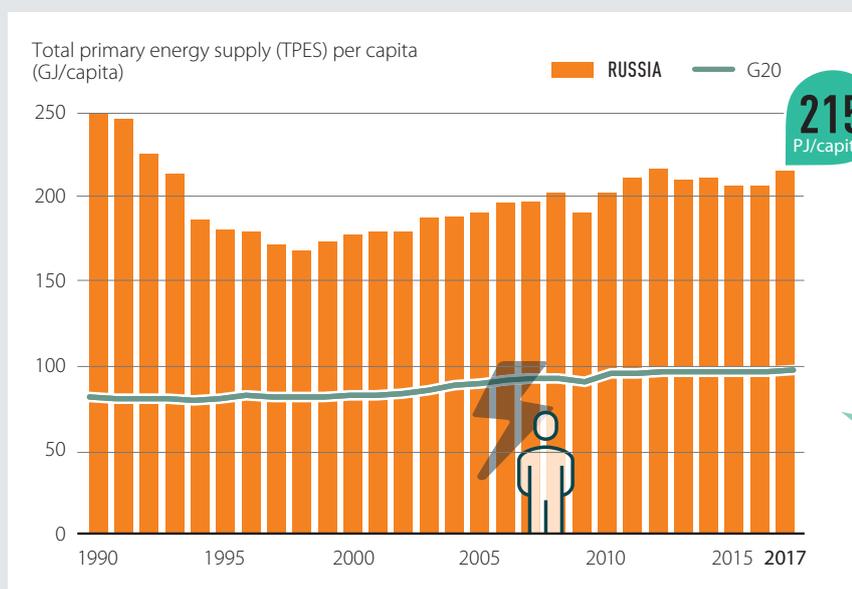
“New renewables” excludes unsustainable renewable sources such as large hydropower. The amount of energy from new renewable sources (mainly biomass) dropped significantly in the 1990s and has remained more or less constant ever since. The share in total energy supply is negligible at just above 0.3%.

PERFORMANCE RATING OF NEW RENEWABLES¹²



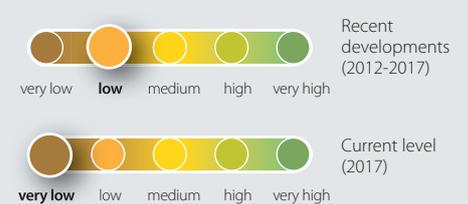
Source: own evaluation

ENERGY USE PER CAPITA¹⁴



Source: Enerdata 2018

PERFORMANCE RATING OF ENERGY USE PER CAPITA¹²



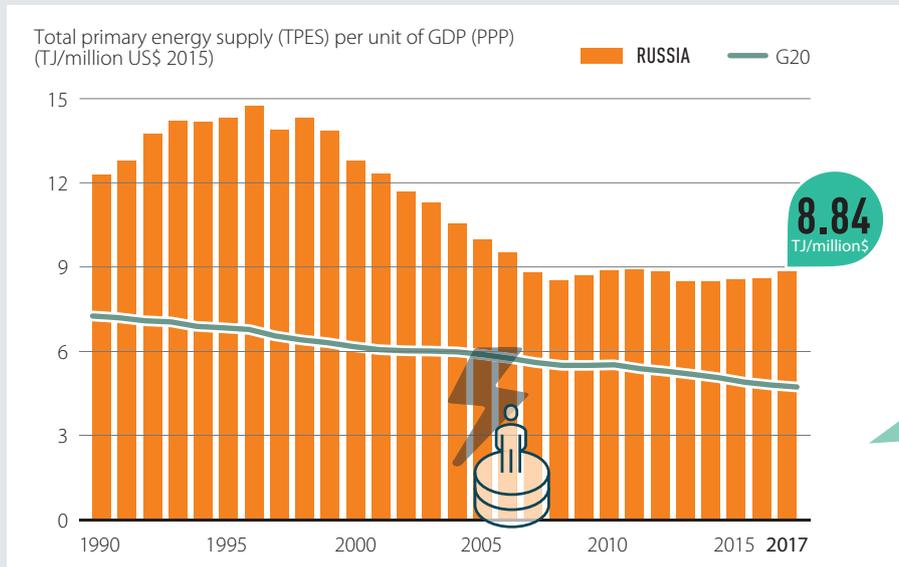
Source: own evaluation

Energy use per capita in Russia dropped slightly in the 1990s but the level is still more than double the G20 average.

DECARBONISATION

RUSSIA

ENERGY INTENSITY OF THE ECONOMY¹⁵



This indicator quantifies how much energy is used for each unit of GDP. Russia has the highest energy intensity in the G20. The level is almost constant (2012–2017), contrasting with a decreasing G20 trend.

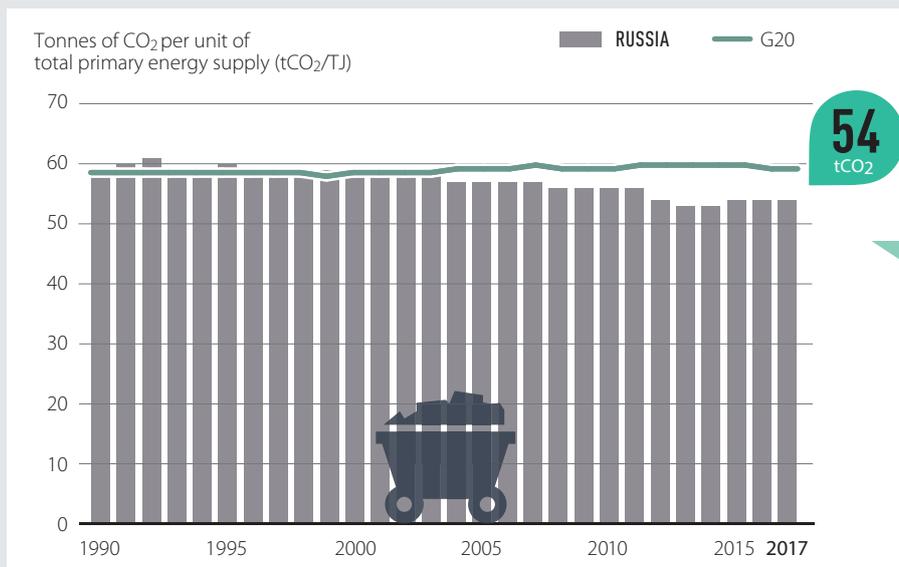
Source: Enerdata 2018

PERFORMANCE RATING OF ENERGY INTENSITY¹²



Source: own evaluation

CARBON INTENSITY OF THE ENERGY SECTOR¹⁶



The carbon intensity of Russia's energy sector decreased between 1990 and 2017 by 8%, but the recent trend (2012–2017) has been positive (+1%). The carbon intensity remains below the G20 average due to a high share of gas.

Source: Enerdata 2018

PERFORMANCE RATING OF CARBON INTENSITY¹²



Source: own evaluation

DECARBONISATION

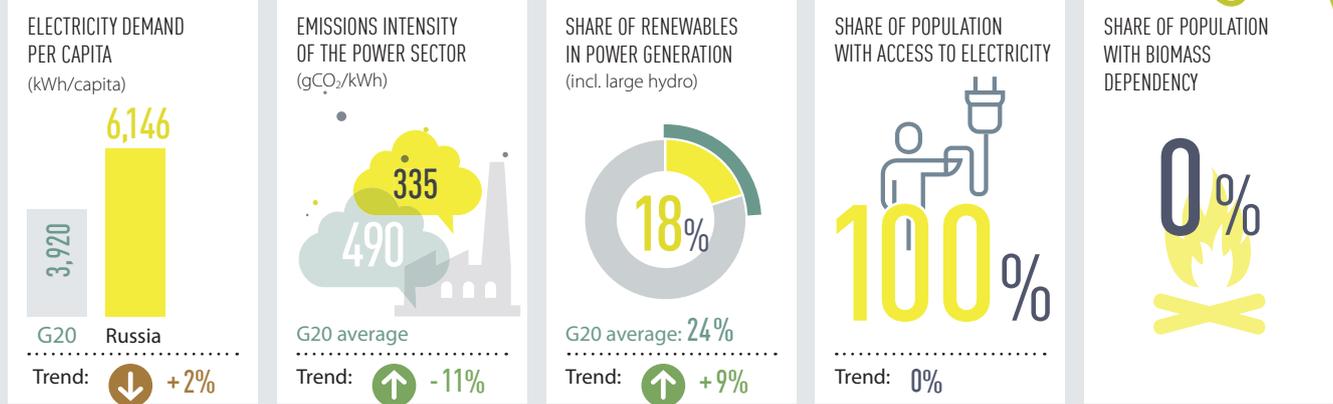
RUSSIA

SECTOR-SPECIFIC INDICATORS

Legend for trend: negative positive

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

POWER SECTOR



Data from 2017
Source: Enerdata 2018

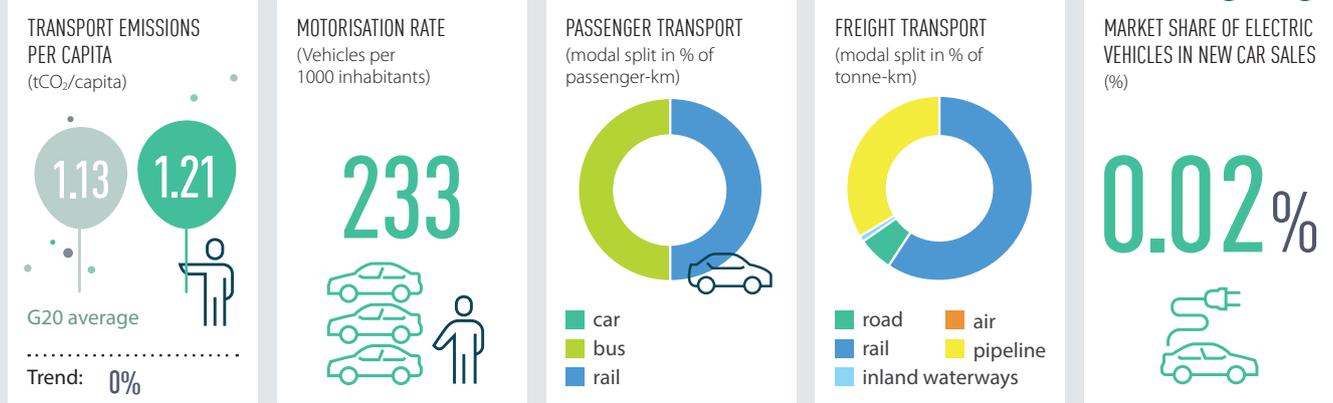
Data from 2016
Source: Enerdata 2018

Data from 2017
Source: Enerdata 2018

Data from 2016
Source: World Bank 2018

Data from 2014
Source: IEA 2016

TRANSPORT SECTOR



Data from 2017
Source: Enerdata 2018

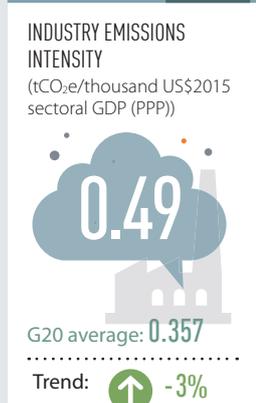
Data from 2009 | Source: Agora Verkehrswende 2018

Data from 2016 | Source: Agora Verkehrswende 2018

Data from 2016 | Source: Agora Verkehrswende 2018

Data from 2017
Source: IEA 2018

INDUSTRY SECTOR



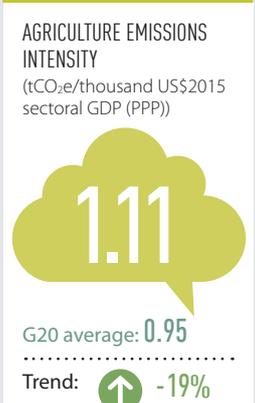
Data from 2015
Source: PRIMAP 2018

BUILDING SECTOR



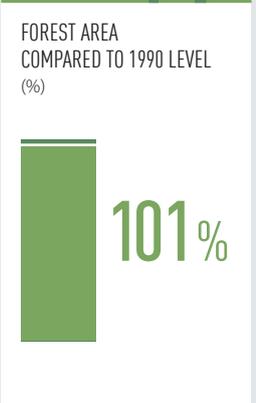
Data from 2016
Source: Enerdata 2018

AGRICULTURE SECTOR



Data from 2015
Source: PRIMAP 2018

FOREST SECTOR



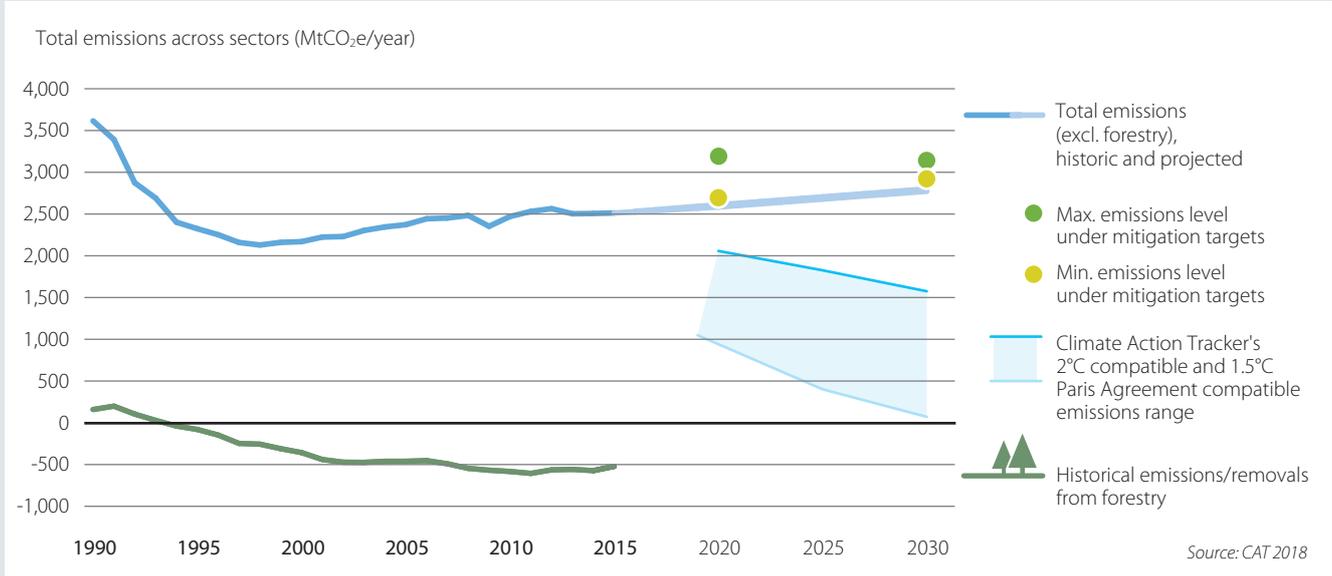
Data from 2015
Source: PRIMAP 2018



CLIMATE POLICY

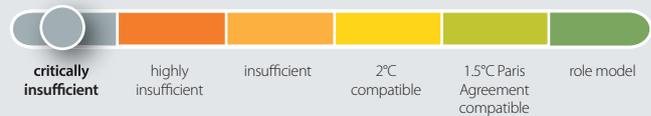
RUSSIA

COMPATIBILITY OF CLIMATE TARGETS WITH THE PARIS AGREEMENT²



The CAT rates Russia’s INDC “critically insufficient”, meaning the target is well beyond the fair range and not at all consistent with holding warming to below 2°C, let alone to 1.5°C as required by the Paris Agreement. While it is more than likely that Russia will achieve its INDC target under current policies, the target is so weak that it does not require GHG emissions to fall. Russia is the only big emitter that has not yet ratified the Paris Agreement.

CLIMATE ACTION TRACKER (CAT) EVALUATION OF NDC²



NATIONALLY DETERMINED CONTRIBUTION (NDC)

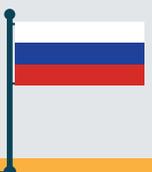
Russia’s ratification of the Paris Agreement and thus the submission of its definitive NDC are still pending (table presents its INDC).

MITIGATION	
Targets	<p>Overall targets Limiting anthropogenic GHGs in Russia to 70–75% of 1990 levels by the year 2030 might be a long-term indicator, subject to the maximum possible account of absorbing capacity of forests</p> <p>Coverage 100% of emissions covered (all sectors and gases)</p>
Actions	Not mentioned

FINANCE	
Conditionality	NDC not conditional on international financial support
Investment needs	Not specified
Actions	Not mentioned
International market mechanisms	The target is to be achieved with no use of international market mechanisms

ADAPTATION	
Targets	Not mentioned
Actions	Not mentioned

Source: own compilation based on UNFCCC 2018



CLIMATE POLICY

RUSSIA

POLICY EVALUATION¹⁷

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:

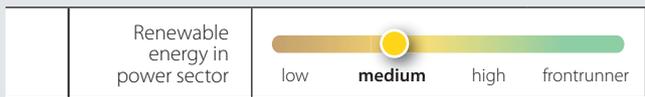
- low** No action
- medium** Some action
- high** Significant action and a long-term vision
- frontrunner** Significant action, and a long-term vision that is compatible with 1.5°C

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

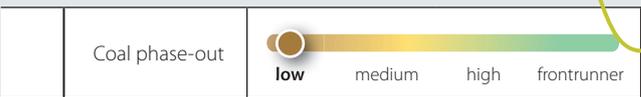


Russia has no long-term emissions strategy nor a 2050 target.

POWER



According to its 2009 Strategy for Development of Renewable Energy, Russia aims to increase the share of renewables in the electricity mix from around 1% currently to 2.5% by 2020. The previous target of 4.5% by 2024 has been abandoned and there are no longer-term targets for renewable energy. Russia supports renewables through long-term capacity agreements, at least for the next decade.



The government aims to increase the share of coal in electricity generation by 16% to 17% until 2035, which implies a 24% increase of coal consumption by 2035. There are no phase-out plans for coal power.

TRANSPORT



Production of new light-duty vehicles needs to comply with Euro V standards from 2015–2018, depending on vehicle type. There are no phase-out plans for fossil fuel cars.

BUILDINGS



A building code prescribes thermal insulation for new and existing buildings. In 2018 the government adopted a target to decrease heat consumption by multi-compartmental houses by 15% from 2016 to 2030. There is no strategy for near-zero energy buildings.

INDUSTRY



Russia requires mandatory energy audits for large energy consumers and transition to best available technologies by 2025.

FORESTS



Russia has a complex set of forest regulations in place but no long-term forest protection plan.

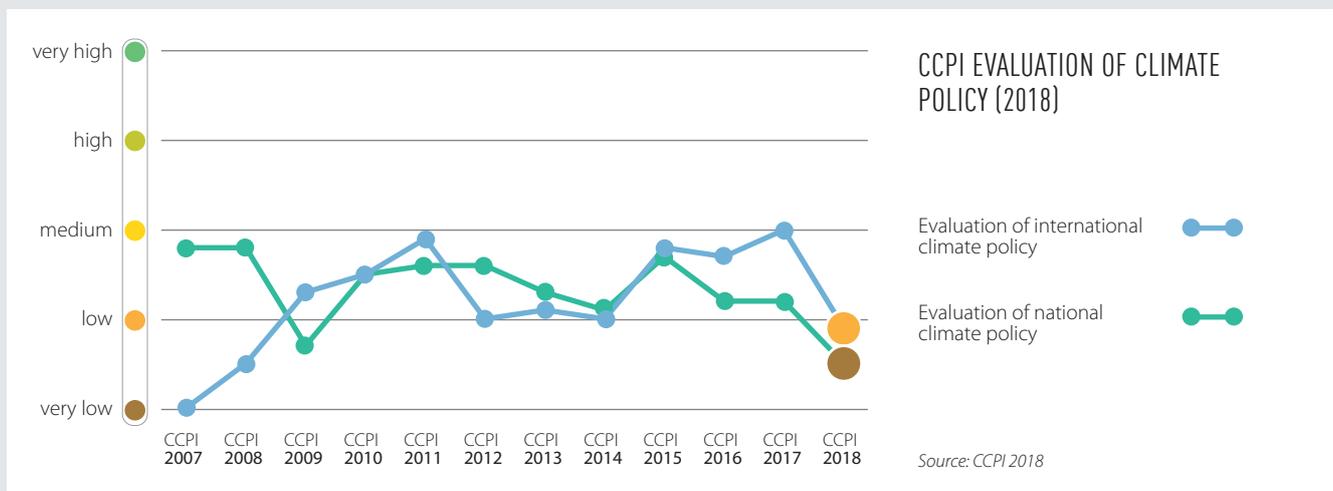
Source: own evaluation

CLIMATE POLICY

RUSSIA

CCPI EXPERTS' POLICY EVALUATION¹⁸

Experts say that Russia's mitigation target for 2030 drastically overshoots a well-below 2°C compatible pathway. They value useful policies that support renewable energies, but criticise their small scale. Furthermore, experts disapprove of Russia's limited ambitions in national climate policy and the lack of concrete measures for implementation. Accordingly, they rate Russia's national climate performance as very low. They give its international climate policy performance a low rating, due to its silence in negotiations and the promotion of nuclear rather than renewable energies on the international level.

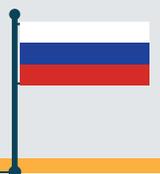


JUST TRANSITION¹⁹

The Russian economy relies largely on revenue from fossil fuel extraction and exports. It would experience significant shifts if climate action increased beyond the current target levels, or if the export market were to shrink.

Several Russian provinces and towns depend on fossil fuel industries, such as Kemerovo Oblast province, which is vulnerable to coal sector job losses, should the international coal market decline dramatically. In the past, Russia responded with social

migration for displaced workers (particularly from coal mining) after the collapse of the Soviet Union and heavy industries. It remains to be seen how the government will act to aid workers displaced through mitigation measures and/or energy system restructuring.



FINANCING THE TRANSITION

RUSSIA

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)²⁰

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

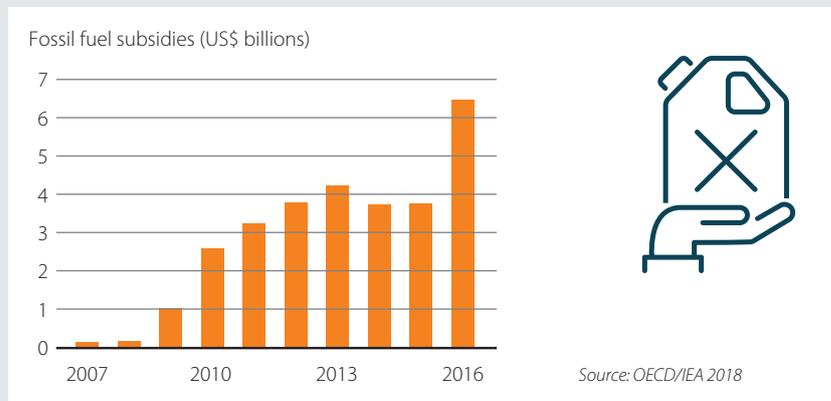
No evidence of formal engagement with TCFD-compliant initiatives was found in Russia.

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, Russia provided US\$6.5bn in fossil fuel subsidies (from US\$0.1bn in 2007). Between 2007 and 2016, subsidies were lower than the G20 average (US\$0.001 compared to US\$0.003) per unit of GDP. Subsidies were provided through direct budget support and tax exemptions, primarily targeting production (91%). In absolute terms, the largest subsidy is oil extraction tax reductions, based on the volume of oil extracted and depletion of subsoil (US\$2.5bn in 2016).



Source: OECD/IEA 2018



CARBON REVENUES

Russia does not have a national carbon tax or emissions trading scheme, nor are any such schemes planned. Despite this, 35% of energy-related CO₂ emissions are subject to other taxes.

NO EXPLICIT CARBON PRICING SCHEME FROM 2007 TO 2017

Source: I4CE 2018; OECD 2018

FINANCING THE TRANSITION

RUSSIA

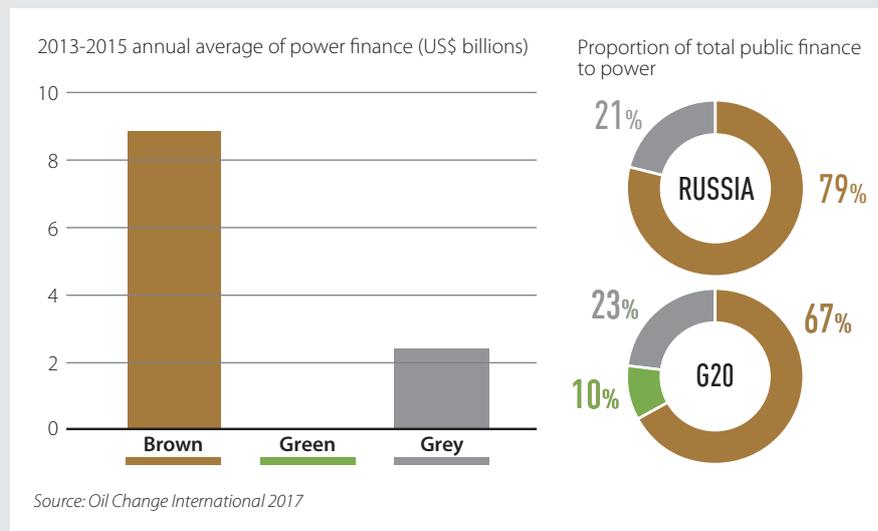
PUBLIC FINANCE

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 SECTOR²¹

From 2013 to 2015, public finance institutions spent an annual average of US\$8.8bn brown, US\$0.02bn green and US\$2.4bn grey financing in the power sector, domestically and internationally. The largest transaction was the US\$2.9bn Sberbank loan for Yamal Razvitiye to acquire a 60% stake in Italy's energy company ENI. This data is likely to be non-comprehensive due to poor transparency of public finance institutions.

- coal, oil and gas projects (and associated infrastructure) **brown**
- large-scale hydropower, biofuels, biomass, nuclear, incineration, transmission, distribution, storage, energy efficiency, other general electricity support **grey**
- renewable energy projects (excluding grey financing) **green**



PROVISION OF INTERNATIONAL PUBLIC SUPPORT

Russia is not listed in Annex II of the UNFCCC and is therefore not formally obliged to provide climate finance. While Russia may channel international public finance towards climate change via multilateral and other development banks, this has not been included in this report.

OBLIGATION TO PROVIDE CLIMATE FINANCE UNDER UNFCCC



CONTRIBUTIONS THROUGH THE MAJOR MULTILATERAL CLIMATE FUNDS²²

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)	Theme of support		
	Adaptation	Mitigation	Cross-cutting
8.87	30%	40%	30%

BILATERAL CLIMATE FINANCE CONTRIBUTIONS²³

Source: Country reporting to UNFCCC

Annual average contribution (mn US\$, 2015-2016)	Theme of support			
	Mitigation	Adaptation	Cross-cutting	Other
6.92	0%	0%	100%	0%



ANNEX



For more detail on sources and methodologies, please refer to the Technical Note at:

https://www.climate-transparency.org/wp-content/uploads/2018/11/Technical-Note_data-sources-and-methodology.pdf

- 1) 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.
- 9) CO₂ 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 CO₂/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 CO₂ emissions per unit of total primary energy supply and gives an indication of the share of fossil fuels in the energy supply.



ANNEX (continued)



- 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	● Medium	● High	● Frontrunner
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

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