

ASSESSING CLIMATE PROTECTION PERFORMANCE:
G20 COUNTRY PROFILE

China

This Country Profile assesses China's past and present actions to help mitigate climate change, and its Intended Nationally Determined Contribution (INDC) towards future global action. The profile summarises the respective findings of the Climate Change Performance Index (CCPI)ⁱ and Climate Action Tracker (CAT)ⁱⁱ.



COUNTRY CHARACTERISTICS

KEY INDICATORS*	CHINA	G20
Population [million]	1,357	4,587
GDP per capita (PPP) [US\$]	9,787	14,505
Share of global GHG emissions**	21.7%	74.2%
Share of global GDP	16.0%	80.3%
Share of global population	19.3%	64.7%
GHG per capita [t CO ₂ e/cap]**	7.2	7.2
Energy intensity of the economy (TPES/GDP [MJ/US\$])	9.3	6.6
Carbon intensity of energy supply (CO ₂ /TPES [t CO ₂ /TJ])	67.8	63.1
Carbon intensity of the economy (CO ₂ /GDP [kg CO ₂ /US\$])	0.62	0.42
Share of fossil fuels in primary energy supply	88.2%	83.4%
Share of coal in electricity production	75.9%	35.7%
Share of renewables in primary energy supply	10.7%	11.1%

*year 2012 (unless stated otherwise)

**year 2010

GDP = gross domestic product

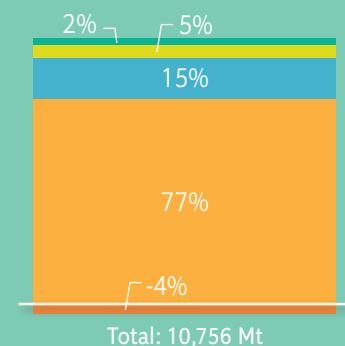
GHG = greenhouse gas emissions (net emissions including sinks from agriculture, forestry, and other land uses)

TPES = total primary energy supply

PPP = purchasing power parity in prices of 2005

EMISSIONS AND EMISSIONS TRENDS

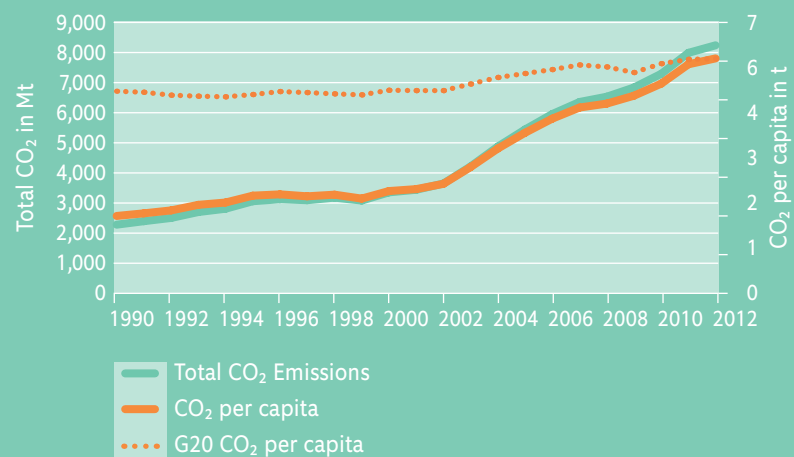
COMPOSITION OF GHG – CHINA 2010



- F-Gases
 - N₂O
 - CH₄
 - CO₂ incl. LULUCF*
 - CO₂ from LULUCF**
- * from Energy, Industry & other

Source: IEA 2014; **CAT 2015

ENERGY-RELATED CO₂-EMISSIONS – CHINA



Source: IEA 2014

China is the world's largest emitter of greenhouse gases (GHG). Carbon dioxide (CO₂) accounts for about three quarters of total annual GHG emissions. The country has slightly negative emissions from land use and forestry. Both total energy-related CO₂ emissions and per capita CO₂ emissions have been

rising, although growth has slowed in recent years. In 2012, per capita emissions have reached the G20 average for the first time. China's INDCs commits to a peaking of carbon emissions in around 2030. As a result, the CCPI ranks China's emissions level as medium with a strong negative trend.

CCPI EVALUATION OF CHINA'S EMISSIONS



Source: CCPI 2015

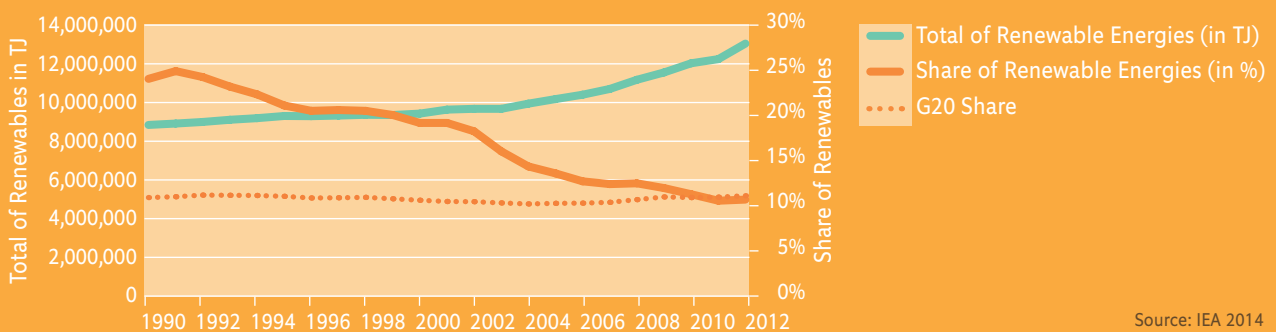
DECARBONISATION

Decarbonisation of the global economy will be a crucial element for staying below the 2°C threshold. Two important steps towards achieving such decarboni-

sation are a shift from fossil fuels to renewable energy sources, and a reduction in carbon and energy intensityⁱⁱⁱ.

RENEWABLE ENERGY

RENEWABLE ENERGY IN CHINA



Source: IEA 2014

While the share of renewable energy in total energy supply has fallen since 1992, the total production of renewable energy has risen continuously. Since 2011, China's share of renewables has fallen below the G20 average. However, the country remains the largest producer of renewable energy worldwide, and con-

tinues its expansion. CCPI assigns a strong positive trend, given this rapid growth in China's renewable sector. Reflecting the relatively low share of renewable energy, China is evaluated as medium compared with other G20 countries.

CCPI EVALUATION OF CHINA'S RENEWABLE ENERGY



Source: CCPI 2015

ENERGY- AND CARBON INTENSITY

The measurement of carbon and energy intensity uses macroeconomic data. A country's progress towards decarbonisation is indicated by decoupling of its GDP growth from growth in carbon and energy

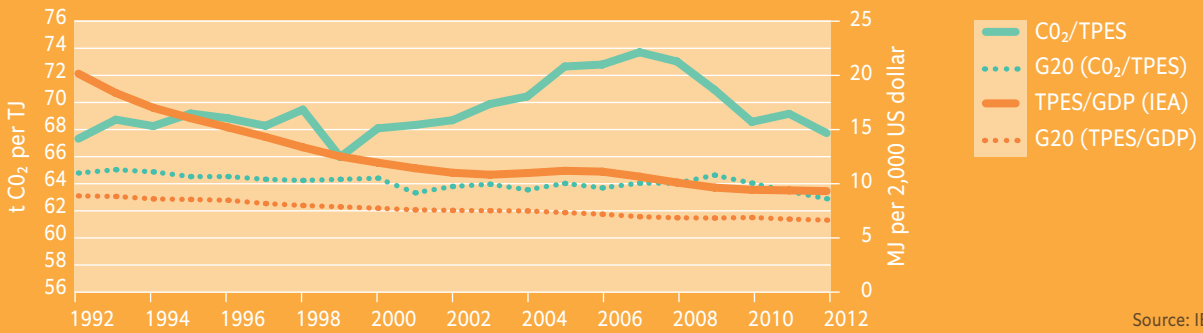
intensity. The latter are measured as CO₂ emissions per unit of Primary Energy Supply (CO₂/TPES) and Primary Energy Supply per unit of GDP (TPES/GDP) respectively.

i Climate Change Performance Index is jointly published by Germanwatch and Climate Action Network Europe, a coalition of over 120 member organizations. The Index is 80% based on objective indicators of emissions trend and level, renewable energies and energy efficiency and 20% on national and international climate policy assessments by more than 300 experts from the respective countries. www.germanwatch.org/en/ccpi

ii Climate Action Tracker is an independent scientific analysis produced by four research organizations: Climate Analytics, Ecofys, the Potsdam Institute for Climate Impact Studies and the NewClimate Institute. www.climateactiontracker.org

iii Another indicator is energy efficiency. However, energy efficiency is complex to measure, requiring a sector by sector analysis, where comparable data sources across G20 countries are not available at present.

ENERGY- AND CARBON INTENSITY IN CHINA



Source: IEA 2014

The energy intensity of China's economy (TPES/GDP) is steadily falling. Since 2007, the carbon intensity of energy supply (CO₂/TPES) has also fallen, even though it is still among the highest worldwide. Both curves remain on a relatively high level, above the

G20 average, where only Australia has a higher value. Despite the initial position as very poor performer as rated by the CCPI, the CCPI assessment notes a positive trend.

CCPI EVALUATION OF CHINA'S ENERGY AND CARBON INTENSITY



Source: CCPI 2015

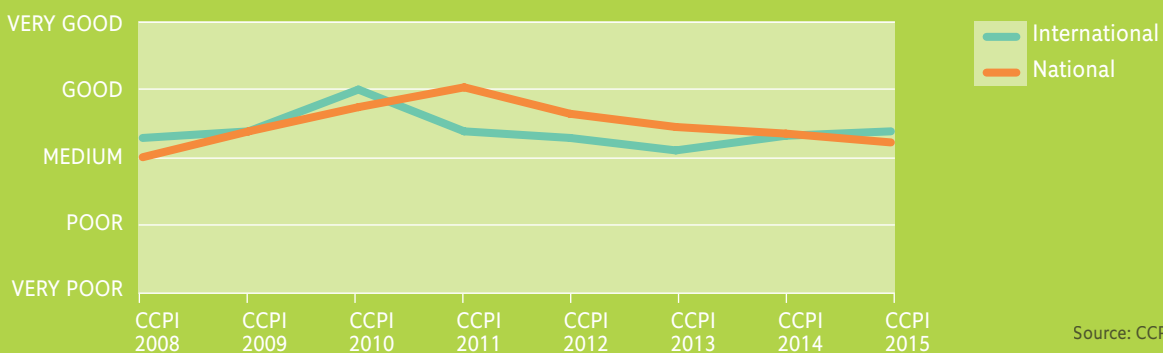
CLIMATE POLICY PERFORMANCE

EVALUATION OF RECENT CLIMATE POLICY

The CCPI evaluates a country's performance in national and international climate policy through feedback from national energy and climate experts.

The experts assess the country's performance in international negotiations, national policy making and in the implementation of climate policies.

CHINA'S CLIMATE POLICY



Source: CCPI 2008-2015

CCPI experts evaluate China's national and international policy performance efforts as good. They value the country's good performance in cleaning its electric power sector, not only by promoting renewables,

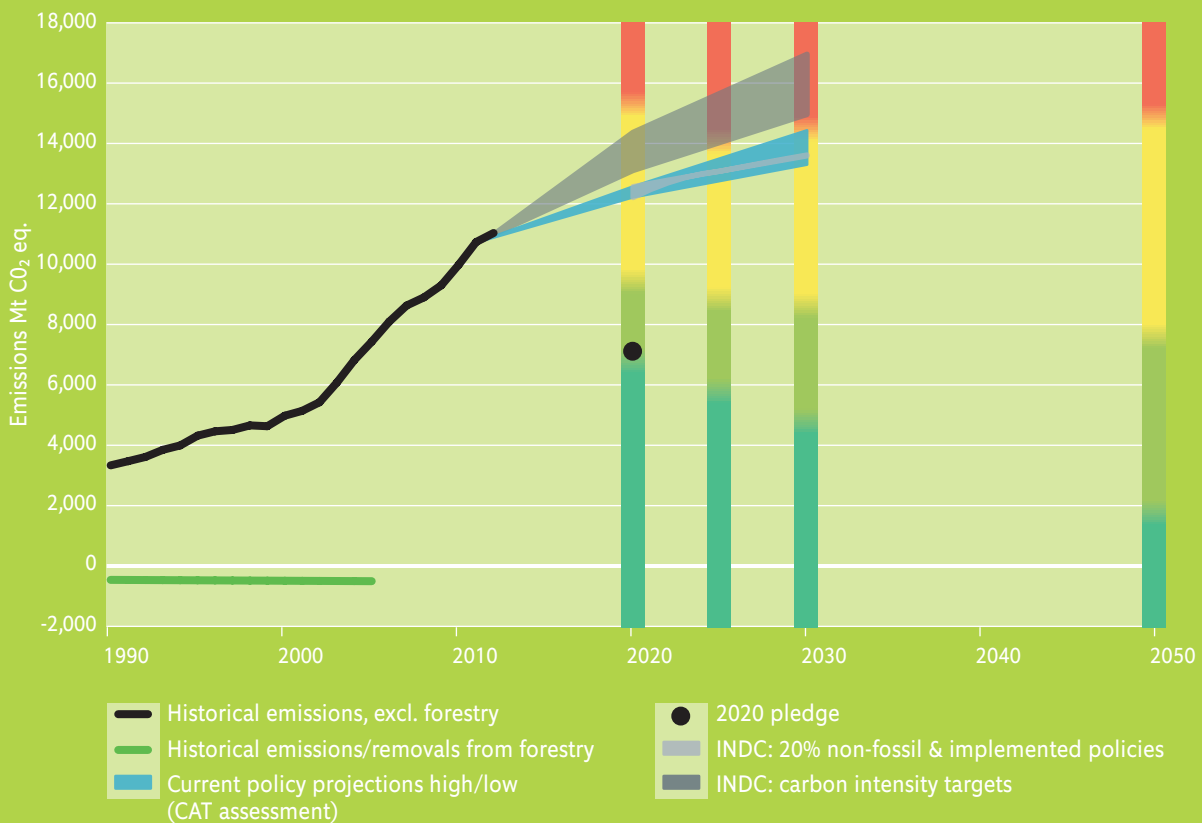
but also by constantly increasing the energy efficiency of its coal-fired power plants. At the same time, the experts demand more ambitious structural changes, especially in the energy sector.

CCPI EVALUATION OF CHINA'S CLIMATE POLICY



Source: CCPI 2015

COMPATIBILITY OF NATIONAL CLIMATE TARGETS WITH 2°C



Source: © www.climateactiontracker.org/Climate Analytics/Ecofys/ NewClimate/PIK

China submitted its Intended Nationally Determined Contribution (INDC) on 30 June 2015. The INDC included a target to peak CO₂ emissions by 2030 at the latest, and to reduce the carbon intensity of GDP by 60–65% below 2005 levels by 2030. Other targets included to increase the share of non-fossil energy in total primary energy supply to around 20% by 2030, and to increase its forest stock volume to a total of around 4.5 billion cubic meters, above 2005 levels.

China's collective INDC action, with the exception of the carbon intensity target, would reduce emissions in 2025 and 2030 to levels rated as medium by CAT. The emissions resulting from the 2030 carbon intensity targets, if taken in isolation, would be significantly higher, and rated as "inadequate." Based on

the CAT analysis, the weak INDC carbon intensity targets, if taken literally, would only be reached at the expense of important national policies and actions, for example in relation to air pollution. This appears unlikely, according to CAT. Consequently, a hybrid rating "medium with inadequate carbon intensity targets" is given. Total GHG emissions are likely to continue to increase in 2030, as only few specific actions are proposed to address non-CO₂ GHG emissions. The difference between the INDC carbon intensity goal and national actions and goals which have already been implemented is disappointing, and may reflect a desire by the Chinese government to have a "safe" international goal.

CAT EVALUATION OF CHINA'S INTENDED NATIONALLY DETERMINED CONTRIBUTIONS (INDC)

