

ASSESSING CLIMATE PROTECTION PERFORMANCE:
G20 COUNTRY PROFILE

Korea, Rep.

This Country Profile assesses the Republic of Korea'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*	KOREA, REP.	G20
Population [million]	50	4,587
GDP per capita (PPP) [US\$]	27,993	14,505
Share of global GHG emissions**	1.3%	74.2%
Share of global GDP	1.7%	80.3%
Share of global population	0.7%	64.7%
GHG per capita [t CO ₂ e/cap]**	12.9	7.2
Energy intensity of the economy (TPES/GDP [MJ/US\$])	7.9	6.6
Carbon intensity of energy supply (CO ₂ /TPES [t CO ₂ /TJ])	53.8	63.1
Carbon intensity of the economy (CO ₂ /GDP [kg CO ₂ /US\$])	0.42	0.42
Share of fossil fuels in primary energy supply	83.2%	83.4%
Share of coal in electricity production	45.1%	35.7%
Share of renewables in primary energy supply	0.9%	11.1%

*year 2012 (unless stated otherwise)

**year 2010

GDP = gross domestic product

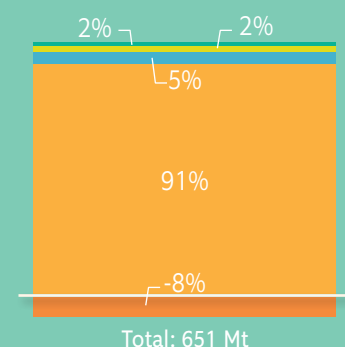
GHG = greenhouse gas emissions (net emissions including sinks from agriculture, forestry, and other land uses)

TPES = total primary energy supply

PPP = purchasing power parity in prices of 2005

EMISSIONS AND EMISSIONS TRENDS

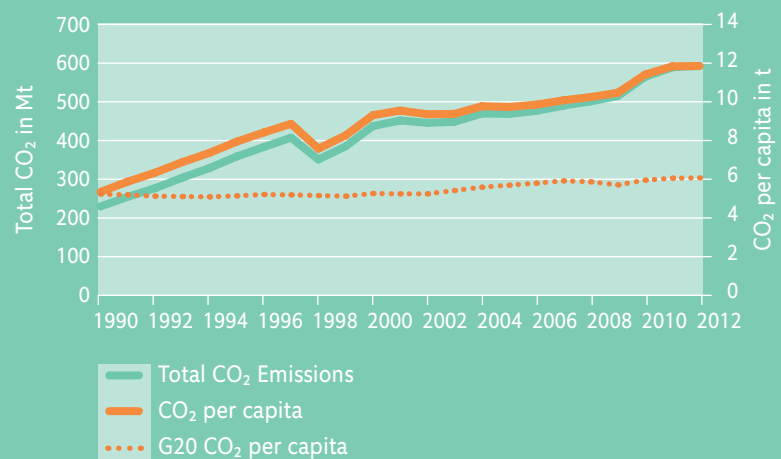
COMPOSITION OF GHG – KOREA, REP. 2010



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

Source: IEA 2014; **CAT 2015

ENERGY-RELATED CO₂-EMISSIONS – KOREA, REP.



Source: IEA 2014

Carbon dioxide (CO₂) accounts for some 91% of Korea's greenhouse gas emissions. The country has negative emissions from the land use and forestry sector. Total and per capita energy-related CO₂ emissions are both steadily increasing. Per capita

emissions are nearly twice as much as the G20 average. Reflecting the high and steady rise in emissions, CCPI ranks the country's emissions level as very poor, compared with other countries, and with a negative trend.

CCPI EVALUATION OF KOREA'S EMISSIONS



Source: CCPI 2015

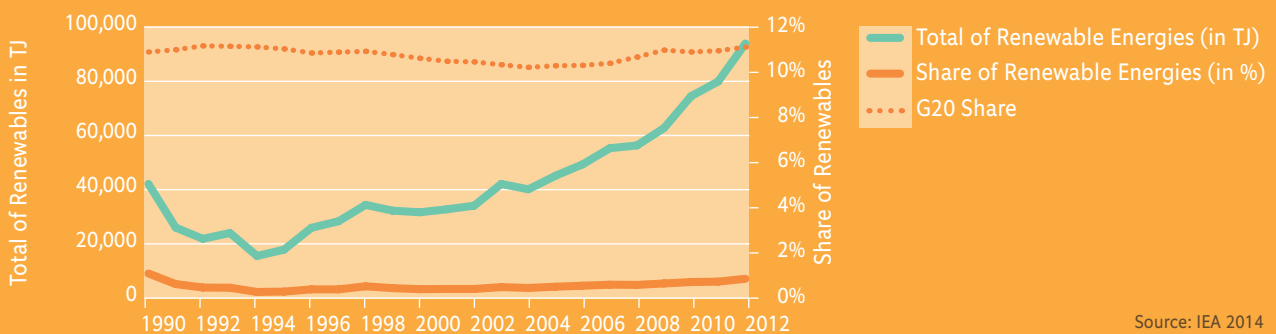
DECARBONISATION

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

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

RENEWABLE ENERGY

RENEWABLE ENERGY IN KOREA, REP.



Source: IEA 2014

Korea's total annual renewable energy production has risen consistently over the past two decades. However, the share of renewables in the country's energy supply is below 1%, far below the G20

average. As a result, the CCPI evaluation of the renewables level ranks the country as a very poor performer. However, the trend is strongly positive.

CCPI EVALUATION OF KOREA'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

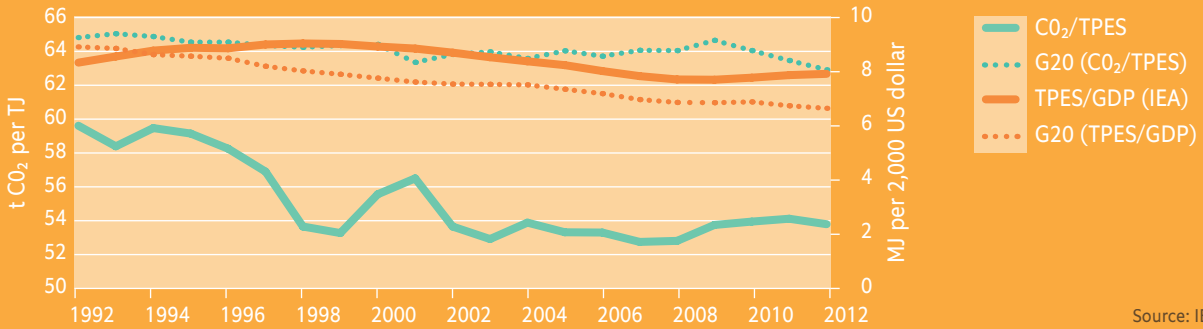
intensity. The latter are measured as CO₂ emissions per unit of Primary Energy Supply (CO₂/TPES) and Primary Energy Supply per unit of GDP (TPES/GDP) respectively.

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 KOREA, REP.



Source: IEA 2014

Korea's carbon intensity of primary energy (CO₂/TPES) has only gradually fallen over the assessment period. The energy intensity of Korea's economy (TPES/GDP) has also fallen only slightly. There is no

clear trend. Korea's level of energy and carbon intensity is ranked as very poor, in comparison with other countries.

CCPI EVALUATION OF KOREA'S ENERGY AND CARBON INTENSITY



Source: CCPI 2015

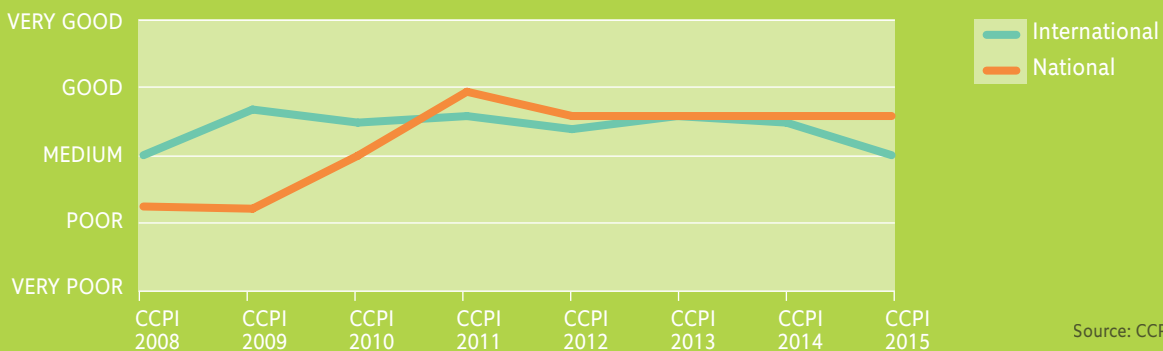
CLIMATE POLICY PERFORMANCE

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.

CLIMATE POLICY PERFORMANCE IN KOREA, REP.



Source: CCPI 2008-2015

Korea's climate experts evaluated the country's climate policy performance as good. They especially value the country's new emissions trading scheme, which will play an important role in reducing emis-

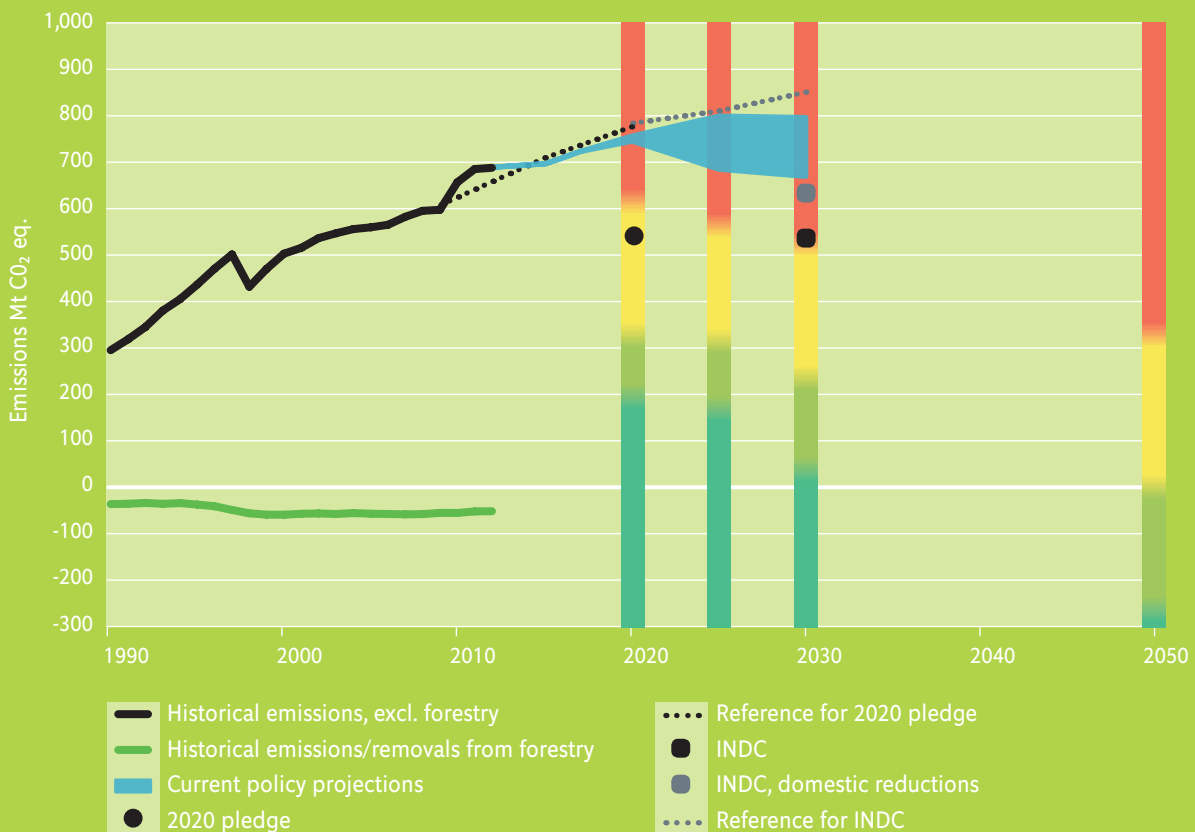
sions in the energy sector, as well as a system of carbon credits which will help cut emissions in the residential sector.

CCPI EVALUATION OF KOREA'S CLIMATE POLICY



Source: CCPI 2015

COMPATIBILITY OF NATIONAL CLIMATE TARGETS WITH 2°C



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

South Korea's Intended Nationally Determined Contribution (INDC) was submitted on 30 June 2015 and proposes an economy-wide target to reduce its greenhouse gas (GHG) emissions by 37% below business-as-usual (BAU) levels of 850.6Mt CO₂e by 2030. The target is equivalent to limiting GHG emissions in 2030 to 536Mt CO₂e, which is 81% above 1990 emission levels, excluding land-use, land-use change and forestry (LULUCF). Climate Action Tracker (CAT) rates this target "inadequate". If all governments showed such low ambition levels, global average warming would likely exceed 3–4°C this century. To reach a "medium" pathway by 2030, South Korea's annual emissions would need to fall below 500Mt CO₂e in 2030.

South Korea intends to achieve part of this target through "carbon credits from international market mechanisms". Despite some growth in renewable energy technologies, the country is still dependent on coal, implying ample potential for more ambition.

CAT EVALUATION OF THE REPUBLIC OF KOREA'S INTENDED NATIONALLY DETERMINED CONTRIBUTIONS (INDC)

