GHG mitigation scenarios for major emitting countries: an overview of recently adopted policies

The April 2018 update of the November 2017 report

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Introduction

This document presents an overview of climate and energy policies adopted between July 2017 and April 2018 in 25 countries and regions. The policy information compiled by NewClimate Institute, PBL and IIASA in this document supplements the November 2017 report on the projected greenhouse gas (GHG) emissions under currently implemented policies and mitigation commitments (Kuramochi et al. 2017). The overview table in the following pages (Table 1) provides not only the qualitative descriptions of policies but also their possible implications on GHG emissions projections in 2030 whenever available.

The adopted policies in this document are defined here as legislative decisions, executive orders, or their equivalent. This excludes publicly announced plans or strategies, while policy instruments to implement such plans or strategies would qualify. Ultimately, however, these definitions could be interpreted differently, and therefore this assessment is bound by the interpretations that our research group uses (Kuramochi et al. 2017). We further only include the measures that have direct effect on reducing greenhouse gas emissions, and thus do not include all supporting policies or policy instruments, such as regulation on monitoring and reporting emissions, or sector-specific supporting policies. Note that planned policies or proposed policies have also been included in some instances when they were considered to be important.

The 25 countries and regions assessed in this document are: Argentina, Australia, Brazil, Canada, Chile, China, Colombia, Democratic Republic of the Congo (DRC), Ethiopia, the European Union (EU), India, Indonesia, Japan, Kazakhstan, Mexico, Morocco, the Philippines, Republic of Korea, the Russian Federation, South Africa, Saudi Arabia, Thailand, Turkey, Ukraine, and the United States. These 25 countries and regions cover all of G20 countries (excluding the four individual EU member states) and comprised 79% of total global GHG emissions in 2012 (JRC/PBL 2014).[1]

[1] The emissions data from the EDGAR database excludes short-cycle biomass burning (e.g. agricultural waste burning and Savannah burning) but includes other biomass burning (e.g. forest fires, post-burn decay, peat fires and decay of drained peatlands).

Table 1: Overview of recently adopted policies since July 2017

Country/ region	Sector	Policy (date)	Description of the policy	Possible implications on GHG emissions projections in 2030	References
Argentina	Economy-wide	Carbon tax (December 2017)	Argentina passed a carbon tax on fossil fuels, based on a price of about 7 USD/tCO_2 for coal and 9 USD/tCO_2 for gasoline (based on the current currency exchange rate). It covers all sectors, with some discounts for the agricultural sector.	No third-party estimates or projections available.	(Ministerío de Justicia y Derechos Humanos 2017; FARN 2017)
	Energy supply Buildings	Law No.27424 on the distributed generation renewable energy sources under net metering (December 2017)	This new law enables residential users and small and medium enterprises to generate renewable electricity and sell the surplus to the country's electricity grid.	The new law will enhance renewable energy deployment by providing favourable conditions for new players. No third-party estimates or projections on GHG emissions available.	(Government of Argentina 2017; Globe International 2017)
Australia	*No significant policy development noted*				
Brazil	Transport	RenovaBio Law 13.576 (December 2017)	Brazil's Congress approved the National Biofuels Policy (RenovaBio), which seeks to boost the use of renewable fuels and expand its share in the energy mix.	No third-party estimates or projections available.	(Presidência da República Brasil 2017)
	Transport	Decree No. 9.308 (February 2018)	This decree establishes the regulation framework of RenovaBio. The regulations include a description of the responsible agencies (including the RenovaBio Committee), their tasks, a description of the carbon scheme, as well as how the mandatory emission reduction targets will be set and when they will be valid.	The decree does not mention specific targets but states that the overall emission reduction targets will be set by the National Committee of Energy Policy (CNPE) between mid-June and December 2018. These overall targets will be then allocated to individual biofuel producers by the National Petrol, Gas and Biofuel Agency (ANP) in 2019 and be valid at the latest in December 2019.	(Presidência da República Brasil 2018)

Country/ region	Sector	Policy (date)	Description of the policy	Possible implications on GHG emissions projections in 2030	References
Canada	Industry	Federal regulations to phase-down hydrofluorocarbons (October 2017)	The regulations will phase down HFCs in accordance with the Kigali Amendment	Environment and Climate Change Canada estimates the impact to be 9 $MtCO_2$/year in 2030.	(Government of Canada 2017)
Chile	Energy supply	No new coal-fired power plants (January 2018)	Chile's Ministry of Energy agreed with major utilities to cease the construction of new coal power plants that do not incorporate CCS technologies. This agreement also included an aim to phase out coal by 2050, without yet specifying a schedule on how to achieve it.	Unclear, dependent on the phase-out schedule.	(Ministerio de Energía 2017; Ministerio de Energía 2018)
China	Energy supply	National emissions trading system (December 2017)	China has announced a new national emissions trading system, which will initially apply only to the power sector (expected to be fully operation by 2020) but may be expanded to other sectors in the future. For details on the features of the China's national ETS as announced in December 2017 (see Table 1 of Jotzo et al. (2018)).	The overall emissions impact of the system is not yet clear, as many operational details are still to be shared, including the start date and the level and distribution of emissions allowances. It is estimated that the full scheme to cover 5 $GtCO_2$/yr, and 3 to 3.5 $GtCO_2$/yr when only applying to the power sector.	(Stavins 2018; Carbon Brief 2018; Jotzo et al. 2018)
	Industry	Work report on reduction of steel and coal production (March 2018)	The National Development and Reform Commission announced it will reduce steel capacity by around 30 million tonnes and coal output by about 150 million tonnes this year, thus achieving targets from the Five-Year Plan ahead of the original target year 2020.	The 2018 cuts are reported to be largest than expected. No third-party estimates or projections on GHG emissions available.	(The National People's Congress of the People's Republic of China 2018; Xu & Daly 2018)

Country/ region	Sector	Policy (date)	Description of the policy	Possible implications on GHG emissions projections in 2030	References
Colombia	Economy-wide	Decree 926 (June 17)	This decree establishes a mechanism for exemption of the national Carbon Tax (Law 1819 Art 221). The national carbon tax is charged to all liquid fossil fuels since beginning of 2017. For exemption, actors in the value chain of liquid fossil fuels (including end users) need to demonstrate carbon neutrality, which can be achieved through offsets from external projects on, e.g., renewable energy and energy efficiency	No third-party estimates or projections available.	(Ministerio de Hacienda y Crédito Público 2017) (Congreso de la República 2016)
	Transport Industry Buildings	Resolution No.1988 (September 2017) Resolution No.585 (October 2017)	The resolution No. 1988 establishes the adoption of environmental goals in different sectors as described in the PAI (Indicatory Action Plan on energy efficiency) 2017-2022. The goals are translated into measures that include use of natural gas and electricity in the transportation sector, energy efficient lighting, cooling and heat in the industry sector, and energy efficiency in the commercial and residential buildings sector. The resolution No.585 establishes procedures to carry out those measures.	No third-party estimates or projections available.	(Ministerio de Ambiente y Desarrollo Sostenible 2017; Unidad de Planeación Minero Energética de Colombia 2017)
	Buildings	National policy for sustainable buildings (March 2018)	Planning for sustainable construction to 2030. The Board of the National Economic and Social Policy (CONPES) approved on March 2018 the national policy for sustainable buildings with a target to make new construction in Colombia more energy efficient.	No third-party estimates or projections available.	(Consejo Nacional de Política Económica y Social et al. 2018)

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D.R. Congo	LULUCF	The process of lifting the moratorium for new forest logging concessions has started. (February 2018)	Director General of forests in the Ministry of the Environment announced that the process for lifting the 2002 moratorium on new concessions for forest logging in D.R. Congo has started. At the same time, three new logging concessions have been granted by the government.	No third-party estimates or projections available.	(Labarre 2018; Cannon 2018)
Ethiopia	*No significant policy development noted*				
European Union	Energy supply Industry	Revision of the EU ETS (adopted in March 2018)	The revision of the EU ETS for the period from 2021 to 2030 encompasses three key elements: reducing the cap at an annual rate of 2.2%, from 2021 onwards; doubling the Market Stability Reserve (MSR) feeding rate between 2019 and 2023 to reduce surplus of allowances; and invalidating allowances in the MSR exceeding the number of allowances auctioned in the previous year, from 2023 onwards.	This binding cap measure contributes to achieve the planned 2030 reductions for the ETS sector (43% reduction below 2005). [2] No third-party estimates or projections available.	(Council of the European Union 2017b)

[2] The -40% domestic reduction target consisting of -43% in ETS and -30% in non-traded sectors is established in the 2014 impact assessment of the policy framework for climate and energy in the period from 2020 up to 2030 (http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52014SC0015), and the subsequent impact assessments concentrated on details related to implementation, i.e.: ETS proposal (https://ec.europa.eu/clima/sites/clima/files/ets/revision/docs/impact_assessment_en.pdf); LULUCF proposal (http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016SC0249&from=EN); and ESR proposal (http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016SC0247&from=EN)

Country/ region	Sector	Policy (date)	Description of the policy	Possible implications on GHG emissions projections in 2030	References
European Union (continued)	Transport Buildings Agriculture and waste	Effort Sharing Regulation (ESR) (provisionally agreed in April 2018; formal adoption in May 2018)	The provisionally agreed Effort Sharing Regulation applies to GHG emissions from sectors not covered by EU ETS, i.e. transport, buildings, agriculture and waste management. The overall targeted emission reduction from these sectors is 30% by 2030, relative to 2005, to be achieved by legally binding annual emission limits for each Member State, for the years 2021–2030.	This measure, if fully implemented, contributes to achieve the planned 2030 reductions in the non-ETS sector (30% reduction below 2005). [2] No third-party estimates or projections available.	(Council of the European Union 2017c)
	LULUCF	Regulation on the inclusion of emissions from LULUCF sector in the EU 2030 climate and energy framework (provisionally agreed in April 2018; formal adoption expected in May 2018)	The regulation requires the Member States to ensure that the emissions and removals in the LULUCF sector are in balance. Member States will account for their emissions and removals, with the target of balancing the emissions and removals to be met across two five-year periods (2021-2025 and 2026-2030). If a Member State does not meet its commitment in either period, the shortfall will be deducted from its allocation of allowances under the Effort Sharing Regulation.	This measure, if fully implemented, contributes to achieve the planned 2030 reductions in the non-ETS sector (30% reduction below 2005). [2] No third-party estimates or projections available.	(European Parliament 2018)
	Buildings	Amendment to the Energy Performance Buildings Directive (EPBD) (December 2017)	This amendment obliges member states to submit a long-term renovation strategy leading to full decarbonisation of its building stock by 2050, with specific milestones for 2030, 2040 and 2050, targeting especially the worst-performing building stock.	The impact assessment accompanying the Proposal for a Directive of the European Parliament and of the Council amending Directive 2010/31/EU on the energy performance of buildings estimates a potential reduction of 3.2 $MtCO_2$/yr by 2030.	(Council of the European Union 2017a; European Commission 2016).

Country/ region	Sector	Policy (date)	Description of the policy	Possible implications on GHG emissions projections in 2030	References
India	Transport	Extension of the Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME) initiative (April 2018)	The FAME initiative, set up in 2015 under the National Electric Mobility Mission Plan, aims to support the development of the hybrid/electric vehicles market and deploy 6-7 million vehicles per year by 2020. The first phase was initially planned until 31 March 2017 but has since then been extended until March 2018. The current extension started on 1 April 2018 and will last for six months or until the approval of the second phase of the initiative.	No third-party estimates or projections available.	(Government of India 2015; Ministry of Heavy Industries & Public Enterprises 2018)
Indonesia	*No significant policy development noted*				

Country/ region	Sector	Policy (date)	Description of the policy	Possible implications on GHG emissions projections in 2030	References
Japan	Energy supply	New Basic Energy Plan (preparation work concluded, March 2018)	The recent recommendations and conclusions from expert panels under the Advisory Committee for Natural Resources and Energy of the Ministry of Economy, Trade and Industry (METI) for the formulation of a new Basic Energy Plan and a long-term energy strategy indicate that the electricity generation mix target laid out in the NDC would remain unchanged. At the same time, the documents refer to renewables as "main power sources", which is a major policy shift from the current 2014 Basic Energy Plan's "important low-carbon and domestic power source". Nuclear power remains as an "important power source" in the update.	There is still a risk that the power sector emissions could become higher than currently targeted—it is highly uncertain that the nuclear share target would be met, and the gap would likely be partially filled by fossil fuel-fired power sources.	(METI 2018b; METI 2018a)
Kazakhstan	Energy supply Industry	National Allocation Plan for GHG emissions under KAZ ETS for 2018–2020 (December 2017)	Kazakhstan has relaunched its ETS in January 2018, after a two-year revision period. The relaunch includes new operating rules to address oversupply of allowances. In December 2018 the government approved the allocation plan for the period 2018–2020 to emit about 162 $MtCO_2e$/yr, which is a tighter cap than before the revision.	No third-party estimates or projections available.	(Thomson Reuters 2018)
Mexico	*No significant policy development noted*				
Morocco	*No significant policy development noted*				

Country/ region	Sector	Policy (date)	Description of the policy	Possible implications on GHG emissions projections in 2030	References
The Philippines	Energy supply	Tax Reform for Acceleration and Inclusion (TRAIN) Bill (December 2017)	The tax reform measure raises the excise tax on coal from its current rate of US$0.20 per metric tonne to US$1 up to US$3 per metric tonne over the next three years until 2020.	No third-party estimates or projections available.	(Department of Finance 2017; Fernandez 2018; Ahmed 2017)
Republic of Korea	Energy supply	Plan for Electricity Supply and Demand (December 2017)	A new 15-year "Plan for Electricity Supply and Demand" was released—it confirms the intention to shift electricity generation away from coal and nuclear towards more renewables. The government plan would result in an electricity generation mix in 2030 based on 23.9% nuclear, 36.1% coal, 18.8% natural gas and 20% renewable energy.	The Government projects that the implementation of the Plan would lead to power sector GHG emissions of 237 $MtCO_2e$/year in 2030. For reference, the current target is 258 $MtCO_2e$/year. The Climate Action Tracker estimates that if fully implemented, these announcements would lead to a 17 to 33 $MtCO_2e$/year (6%–12%) reduction in electricity-related emissions compared to a current policies scenario in 2030.	(Ministry of Trade 2018; Climate Action Tracker 2018a)

Country/ region	Sector	Policy (date)	Description of the policy	Possible implications on GHG emissions projections in 2030	References
Russia	Energy supply	Plan to stimulate the development of renewable energy generation facilities with installed capacity up to 15 kW (July 2017)	Plan to reform all existing federal laws concerning energy generation facilities to include renewable energy microgeneration (facilities with installed capacity up to 15 kW). These include regulations on facilities, pricing and tax advantages. The plan also includes a reform to laws concerning grid connection. This aims to facilitate connection between microgeneration renewable energy facilities and consumers. The Biennial Update Report mentions this document as one of three decrees and orders in energy efficiency and promotion of renewables that have been adopted between 2016 and 2017.	No third-party estimates or projections available.	(Ministry of Environment and Natural Resources 2017) (Government of Russian Federation 2017)
Saudi Arabia	Transport	Fossil fuel price reform (December 2017)	Fossil fuel price reform delay announced by the government in December 2017, stating that it would slow down the pace of energy subsidy cuts. The plan is now to reach international gasoline parity prices, increase diesel prices up to 90% of international prices, and raise the price for other fuels between 2018 and 2025.	No third-party estimates or projections available.	(Nereim 2017)
	Economy-wide	5% VAT in fuel prices (January 2018)	Starting January 2018, the government has implemented a 5% VAT on fuels.	No third-party estimates or projections available.	(Toumi 2017)

Country/ region	Sector	Policy (date)	Description of the policy	Possible implications on GHG emissions projections in 2030	References
South Africa	Economy-wide	Carbon Tax Bill (entered parliamentary process in February 2018)	The proposed Carbon Tax Bill entered the parliamentary process in February 2018 after two years of consultations. After further parliamentary hearings and revisions, the final draft is expected to be completed by mid-2018.	No third-party estimates or projections available, but crucially depending on tax-free thresholds and additional allowances, which might result in tax exemptions for up to 95% of emissions.	(EY 2017; Ensor 2018; Republic of South Africa 2017)
Thailand	*No significant policy development noted*				
Turkey	Economy-wide	National Energy Efficiency Action Plan (NEEAP) for 2017–2023 (November 2017)	On energy savings in buildings and services, energy, transport, industry and technology and agriculture, the Action Plan aims to reduce primary energy use by 23%. The government plans to invest US$11 billion on energy efficiency measures. The Plan also aims for a 30% share of renewables in total power capacity by 2023. Administrative processes will be expedited for existing buildings to promote renewable energy. On transport, planned policy measures to limit cars in city centers and promote the use of public transportation are presented.	No third-party estimates or projections available.	(Grantham Research Institute on Climate Change and the Environment 2018)

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Ukraine	Economy-wide	Draft revised NDC (February 2018)	In February 2018, the Environmental Minister announced that the government aims to reduce GHG emissions to 31–34% of 1990 levels. The target year was not explicitly stated, but the Climate Action Tracker estimates it to be 2050 based on the Draft Low Carbon Development Strategy of Ukraine until 2050. This strategy also suggests that emissions can be reduced by 71% from 1990 levels in 2030.	71% reduction by 2030 would be far more ambitious than the current NDC (40% below 1990 levels incl. LULUCF), if fully implemented. The targeted emission level would become approximately 280 $MtCO_2e$/year in 2030 (in SAR GWP terms).	(Government of Ukraine 2017; Ministry of Ecology and Natural Resources of Ukraine 2018; Climate Action Tracker 2018b)
United States	Energy supply	Advance notice of proposed rulemaking (ANPRM) to limit GHGs from existing electricity generating units (December 2017)	Under the Clean Air Act, the EPA is required to regulate GHG emissions. Since it has proposed a repeal of the Clean Power Plan (CPP), it is now considering proposing a new rule to establish emission guidelines for power plants. The ANPRM does not propose a rule but suggests that any proposed rule would be limited to emissions reductions at individual power plants, for example through efficiency measures. The original CPP set emissions targets for entire states, which could be met, for example, by changing the electricity generation fuel mix.	Considering the current political environment in the United States, any proposed rule to regulate GHGs from power plants would likely make no reductions beyond business as usual.	(EPA 2017)

Country/ region	Sector	Policy (date)	Description of the policy	Possible implications on GHG emissions projections in 2030	References
United States (continued)	Transport	Mid-Term Evaluation of Light-Duty Vehicle Greenhouse Gas Emissions Standards for Model Years 2022–2025 (April 2018)	On 2 April, the US EPA determined that the existing emissions standards for light duty vehicles for the years 2022–2025 were “not appropriate and should be revised.” The existing standards set the average fuel economy of new cars and trucks to 23.2 km/L in 2025 and are expected to be weakened. California has said that it would maintain the existing standards set by the Obama administration.	The existing standards were expected to reduce emissions by 959–1098 $MtCO_2e$ over the lifetime of vehicles produced between 2018–2029. Reductions based on revised standards will likely be lower, but the magnitude depends on the final values for the revised standards, and if states like California can and choose to maintain more stringent standards.	(U.S. Environmental Protection Agency & U.S. Department of Transportation 2016; U.S. Environmental Protection Agency 2018b; U.S. Environmental Protection Agency 2018a)
	Energy supply	Increased tariffs on imported solar cells and modules (January 2018)	The US has increased tariffs on imported solar cells and modules by 30%.	The tariffs will make imported solar components more expensive, which could slow the uptake of solar technologies, and therefore lower the share of renewables in the future electricity mix. No third-party quantification of impact of future GHG emissions is available.	(The Executive Office of the President 2018)

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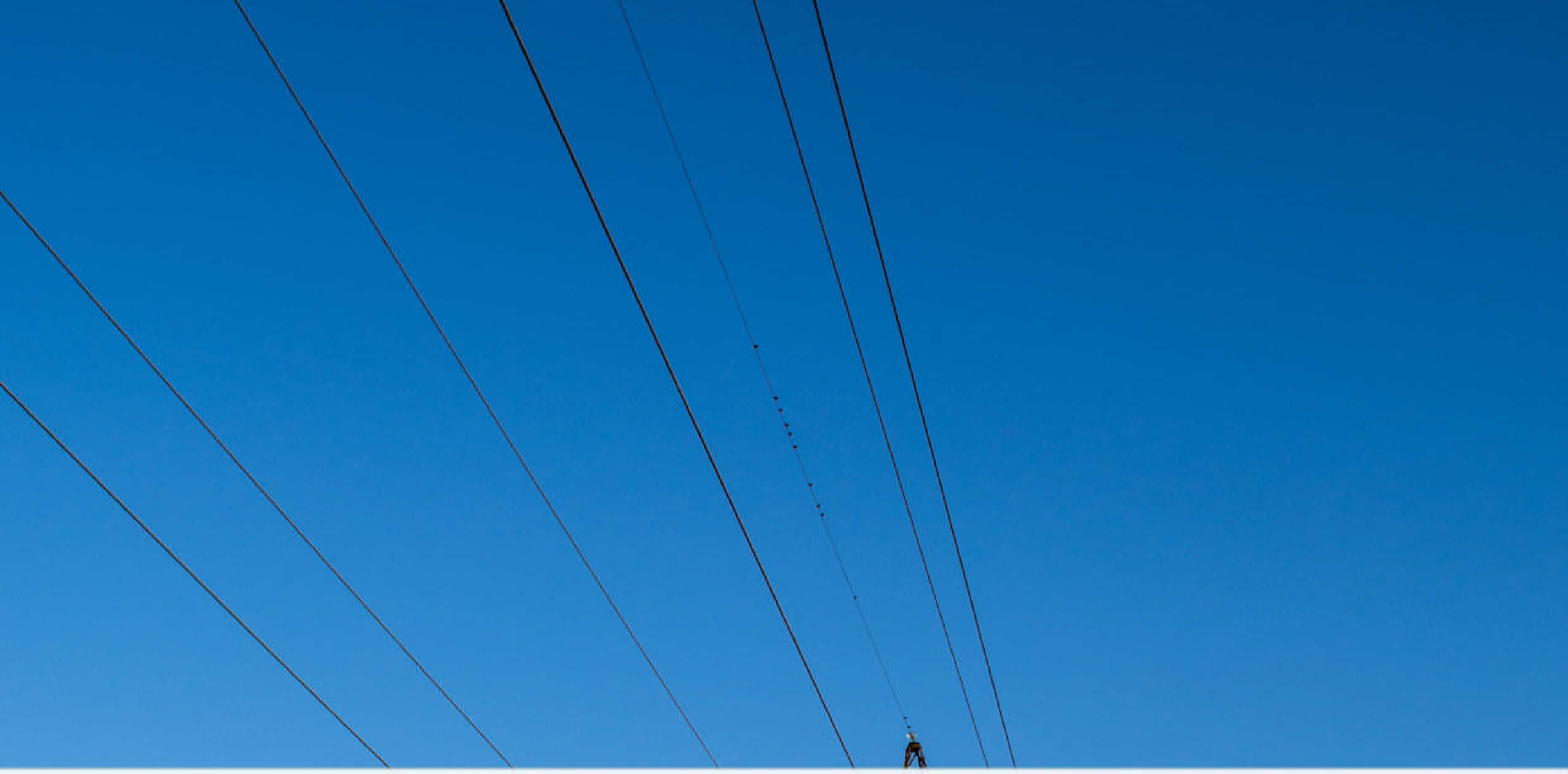

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