
The Emissions Gap Report 2016

What are the implications of the Paris Agreement?
How can the 2030 emissions gap be bridged?

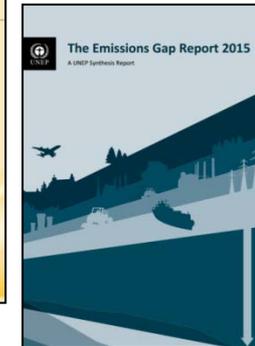
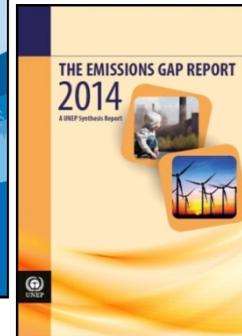
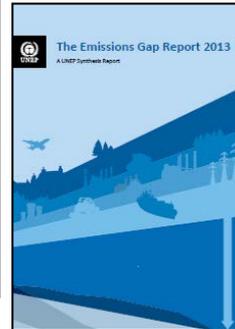
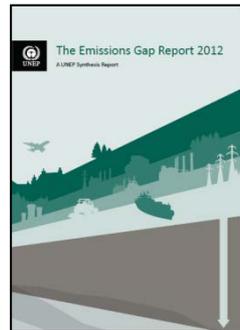
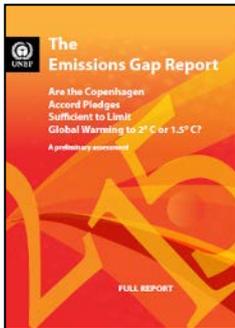
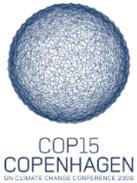
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2016 Gap Report – Main Questions



What are we aiming for?

- Keeping temperature increase well below 2°C and pursue 1.5°C by 2100

What is the pre-2020 contribution?

- Collectively countries are on a likely track to meet Cancun pledges, but these are not sufficiently ambitious to get on track to 2030 emission levels consistent with the well below 2°C or 1.5°C goal

What do INDCs contribute?

- Emission levels resulting from INDCs are 4 to 6 GtCO₂e/yr lower than the current policy trajectory in 2030, but the remaining Gap is in the order of 12 to 14 GtCO₂e/yr compared with 2°C scenarios and 15 to 17 GtCO₂e/yr compared with 1.5°C

Will this be sufficient to stay well below 2°C?

- Without enhanced ambition the likely global average temperature increase will be in the range of <2.9 - 3.4°C by the end of the century. The carbon dioxide budget for the 2°C scenario will be close to depleted by 2030, and the 1.5°C exceeded by far

How can the 2030 Gap be bridged?

- Non-state action deliver results and can be rapidly accelerated to enhance ambition
- Enhanced energy efficiency in buildings, industry, and transport holds large potential
- The SDG-Paris Agreement nexus is complex and reiterates the urgency of strategic choices if both agendas are to be achieved

Amplified urgency of enhanced pre-2020 action



General progress on Cancun pledge achievement but several countries will need to accelerate action

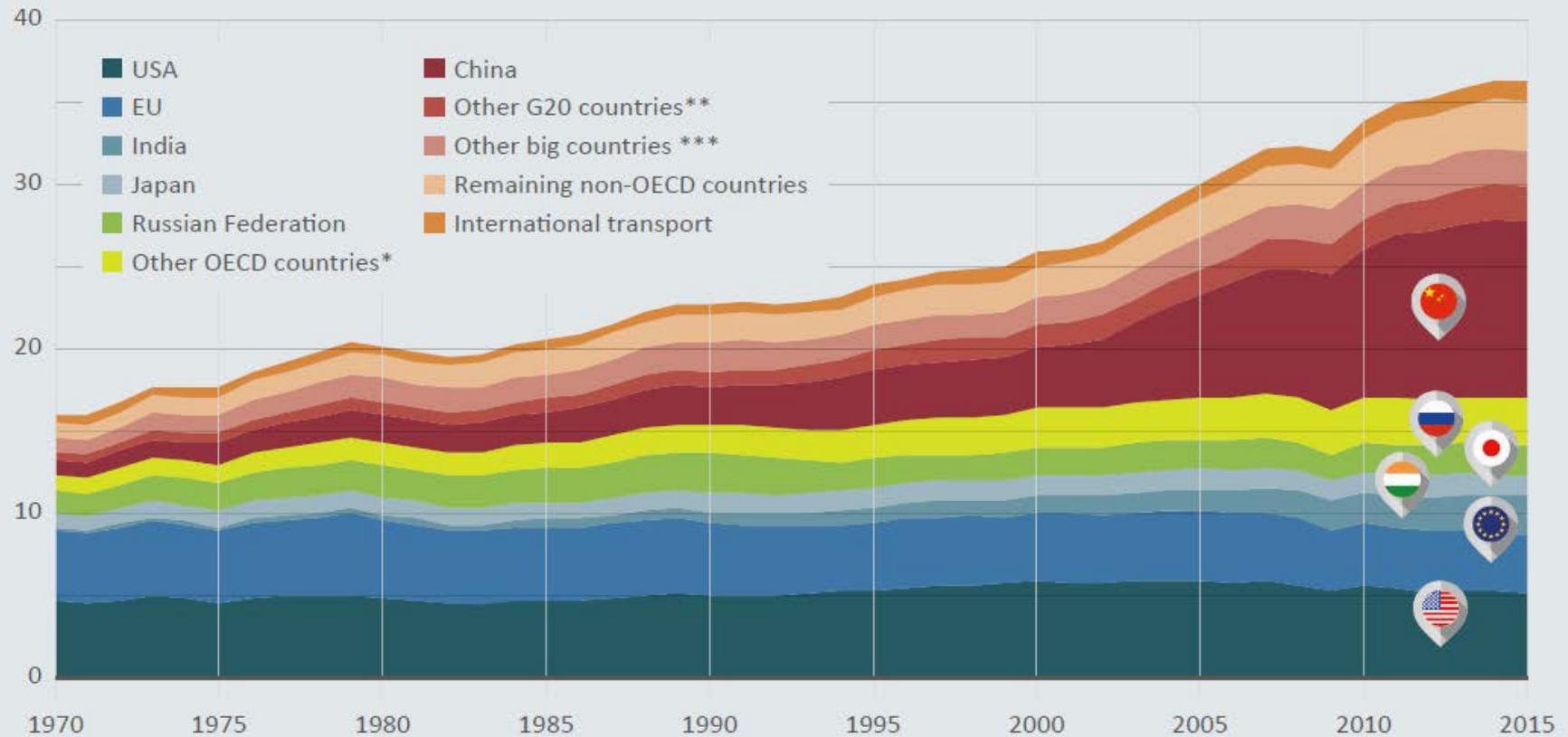
Collectively, pledges are not sufficiently ambitious to improve the starting point for meeting required 2030 emission levels

Urgency of enhanced pre-2020 action indisputable in order to:

- Maintain solution space for achieving the stringent emission reductions required
- Avoid lock-in of carbon- and energy-intensive infrastructure and reduce long term dependence on unproven technologies such as negative emissions
- Reduce the costs of mitigation
- Keep open the option of limiting global temperature increase to 1.5°C by 2100

Global CO₂ emissions from fossil fuel and industry seem to stabilise

Gton CO₂/yr



Source: JRC/PBL, 2016

* Other OECD countries include Australia; Canada; Mexico; Republic of Korea and Turkey.

** Other G20 countries include Argentina; Brazil; Indonesia; Saudi Arabia; South Africa and Turkey.

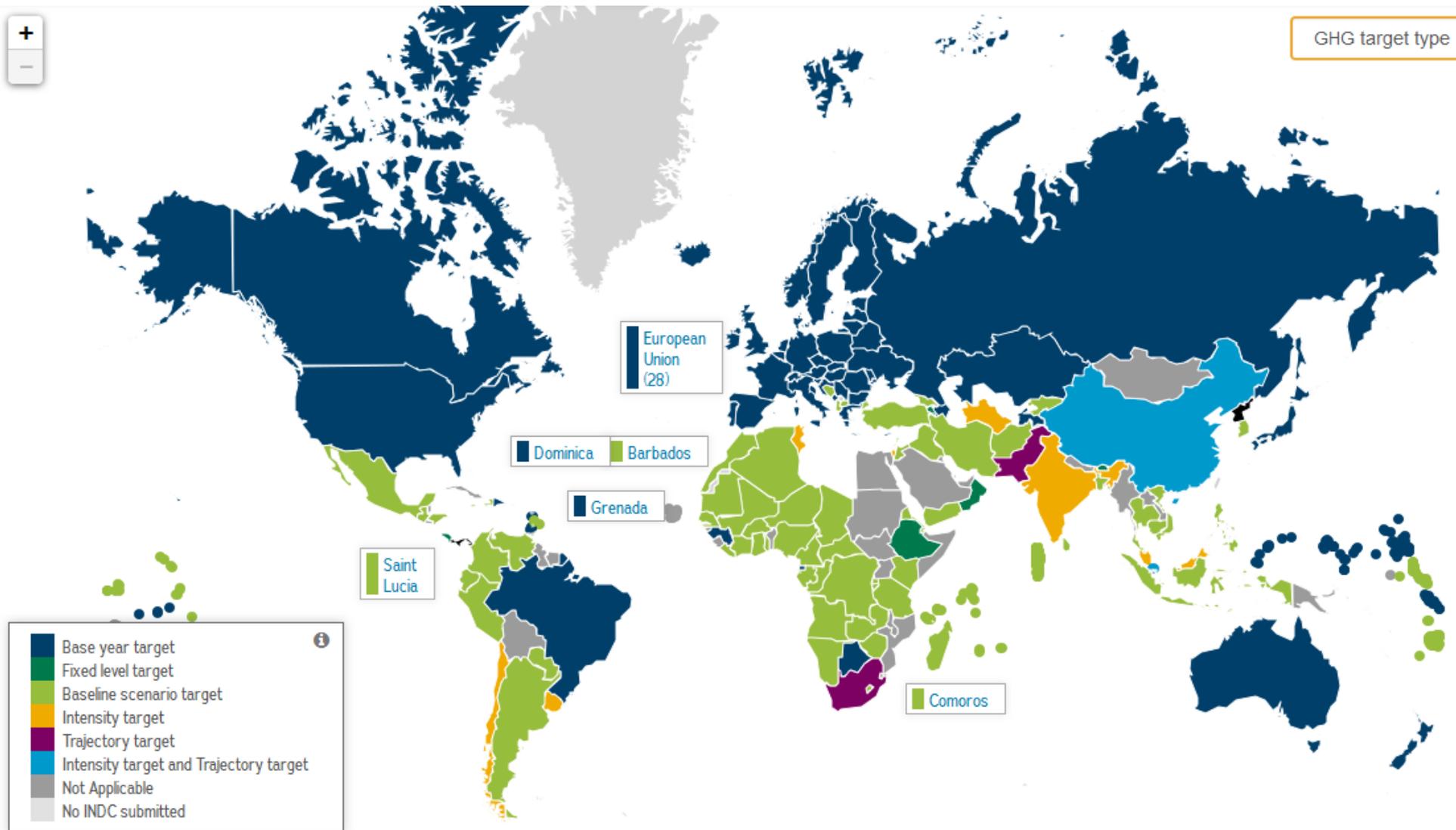
*** Other big countries and areas include Egypt; Iran; Kazakhstan; Malaysia; Nigeria; Taiwan, Province of China; Thailand and Ukraine.

Progress towards achieving the 2020 pledges for the G20 members



- Collectively, G20 members are on a likely track to meet the minimum level of the Cancun pledges
- China, India and the EU are on track to meet the 2020 pledges; Brazil, Japan, and Russia are also on track according to most estimates
- Canada, Mexico, the Republic of Korea and the United States are likely to require further action and/or purchased offsets in order to meet their 2020 pledges.
- For South Africa and Indonesia information is insufficient to assess Cancun pledge alignment. For Australia no conclusion is drawn regarding pledge attainment.

INDC submissions by type of mitigation target, by 1st October 2016



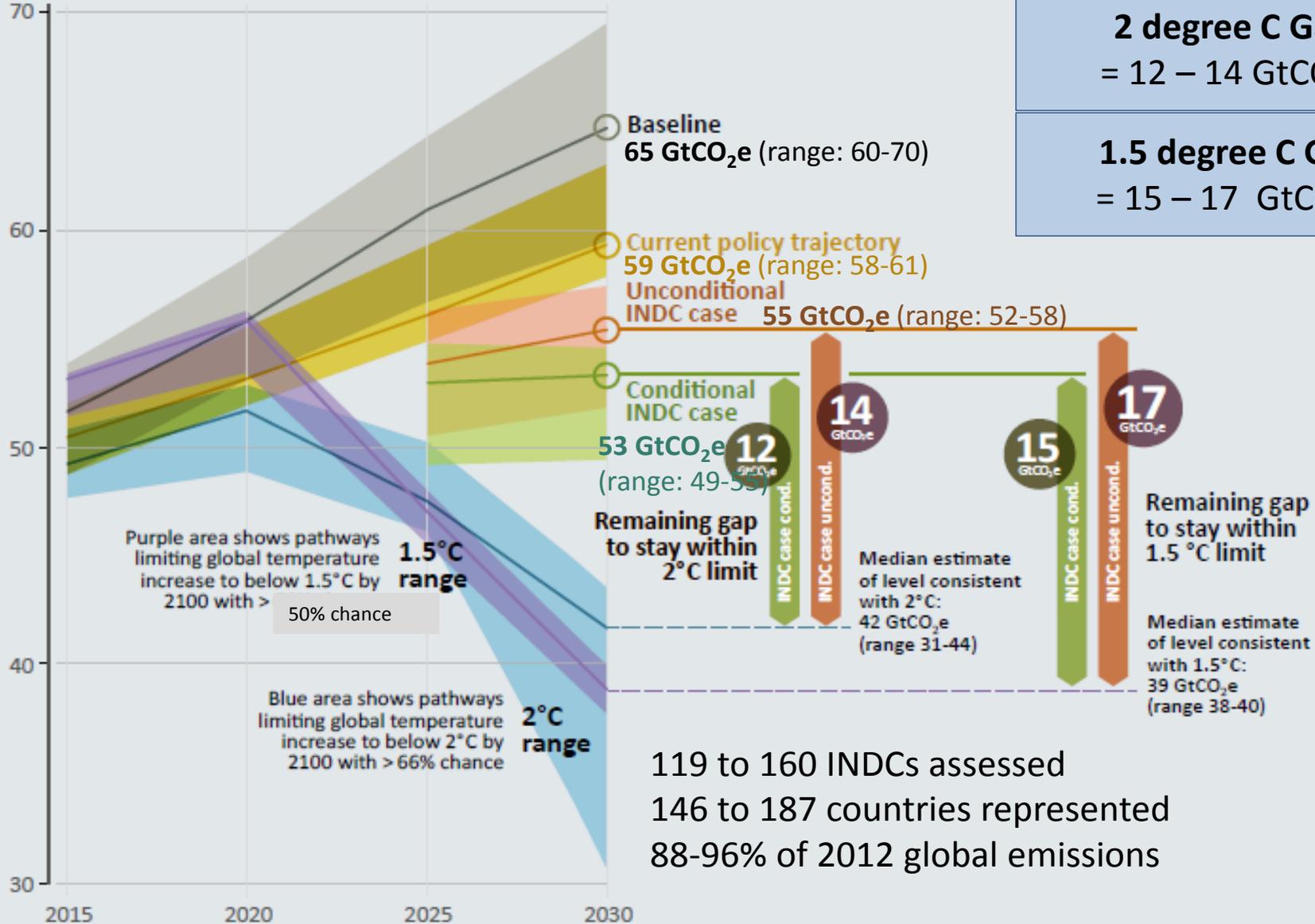
Ten independent studies, including UNFCCC synthesis report

Reference	Sector and gas coverage	Cut-Off Date Analysis INDCs	Scenario coverage	Unconditional INDC case	Conditional INDC case
Climate Action Tracker (CAT, 2015)	All	8 Dec. 2015 (Update)	Current policy trajectory, INDC	X	X
Climate & Energy College / University of Melbourne dataset (Meinshausen, 2015)	All	15 Dec. 2015 (Update)	INDC	X	X
Climate Interactive (2015)	All	20 Oct. 2015	INDC	X	—
Danish Energy Agency (DEA, 2015)	All	1 Dec. 2015 (Update)	INDC	X	—
London School of Economics and Political Science (LSE) (Boyd et al., 2015)	All	Mid-Oct. 2015	INDC	X	X
International Energy Agency - World Energy Outlook (IEA, 2015)	All ^a	15 Dec. 2015 (Update)	Current policy trajectory, INDC	X	—
Joint Research Centre (JRC) (Kitous and Keramidas, 2015) (NEW STUDY)	All	Mid-Oct. 2015	INDC	X	X
Pacific Northwest National Laboratory (Fawcett et al., 2015) (NEW STUDY)	All	Mid-Oct. 2015	INDC	X	—
PBL Netherlands Environmental Assessment Agency (den Elzen et al., 2016)	All	15 Dec. 2015 (Update)	Current policy trajectory, INDC	X	X
UNFCCC Synthesis Report (UNFCCC, 2016a) (NEW STUDY)	All	4 April 2016	INDC	X	X

Intended Nationally Determined Contributions & Emissions Gap



Annual Global Total Greenhouse Gas Emissions (GtCO₂e)

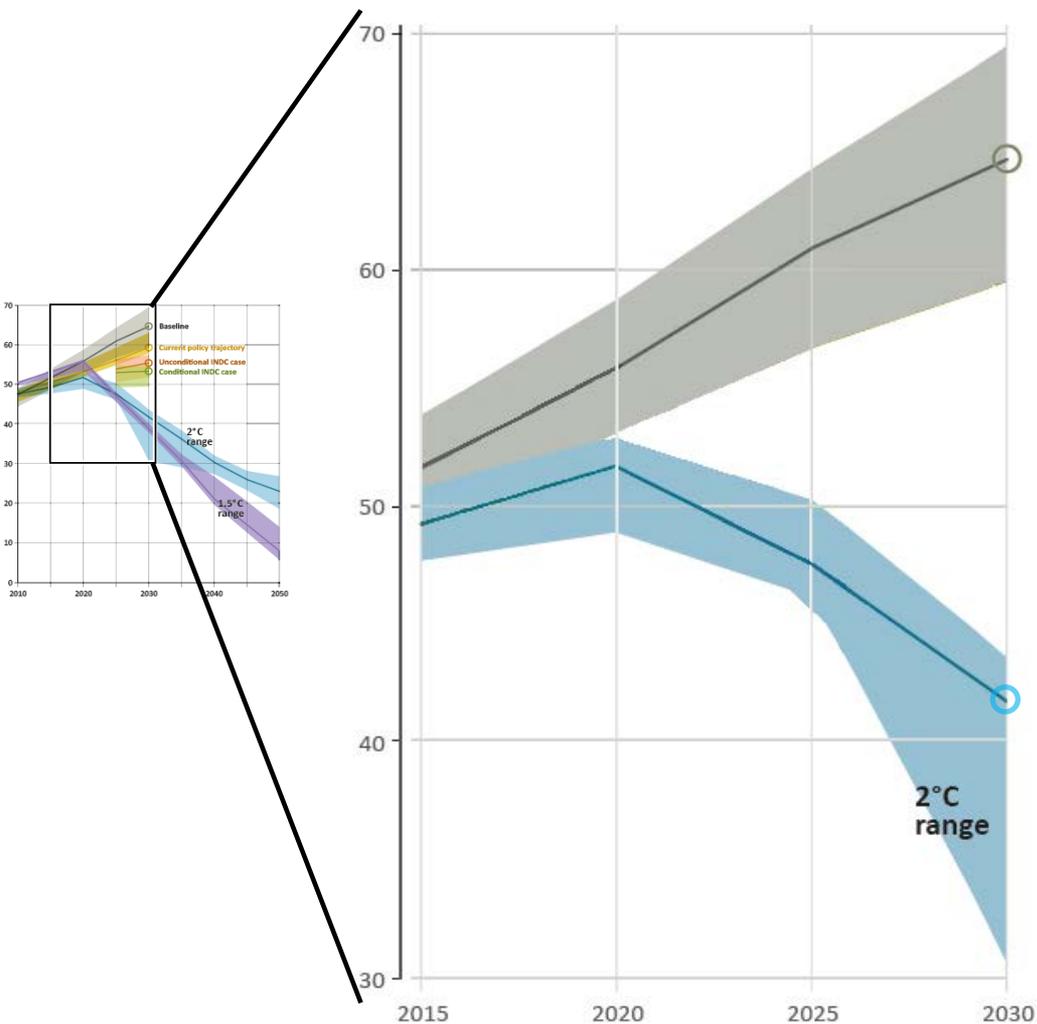


2 degree C Gap
= 12 – 14 GtCO₂e

1.5 degree C Gap
= 15 – 17 GtCO₂e

Intended Nationally Determined Contributions & Emissions Gap

Annual global total greenhouse gas emissions (GtCO₂e)

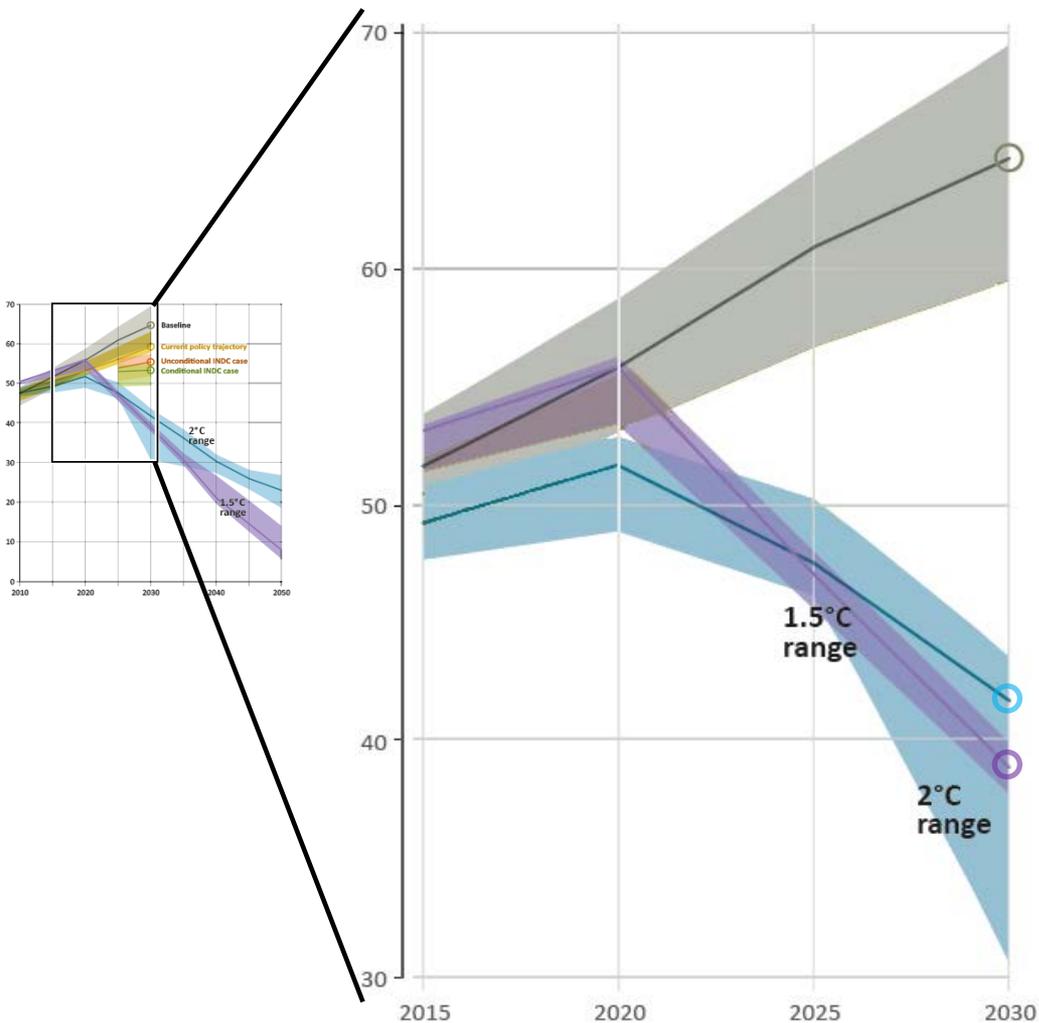


Baseline
Global total emissions:
65 GtCO₂e (range: 60-70)

2°C pathways
Global total emissions:
42 GtCO₂e (range: 31-44)

Intended Nationally Determined Contributions & Emissions Gap

Annual global total greenhouse gas emissions (GtCO₂e)



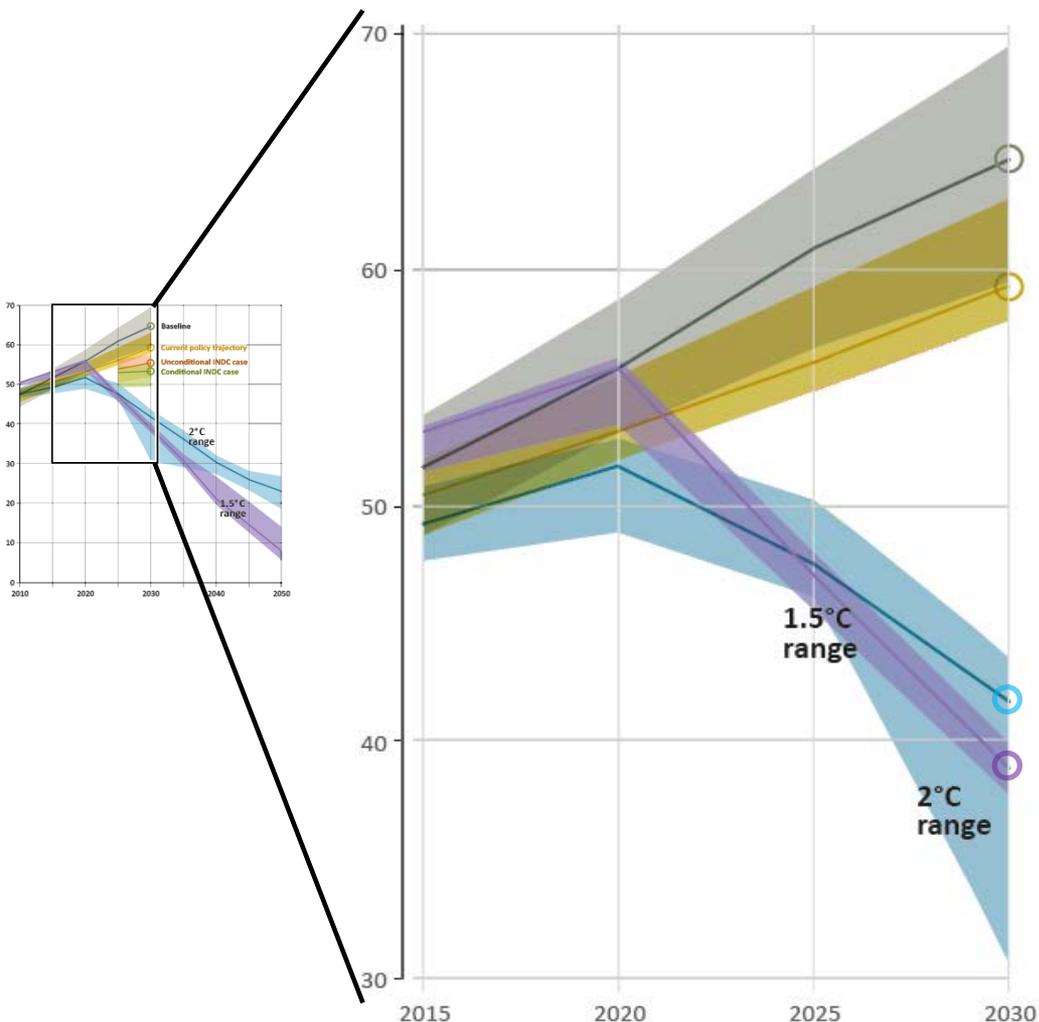
Baseline
Global total emissions:
65 GtCO₂e (range: 60-70)

2°C pathways
Global total emissions:
42 GtCO₂e (range: 31-44)

1.5°C pathways
Global total emissions:
39 GtCO₂e (range: 38-40)

Intended Nationally Determined Contributions & Emissions Gap

Annual global total greenhouse gas emissions (GtCO₂e)



Baseline
Global total emissions:
65 GtCO₂e (range: 60-70)

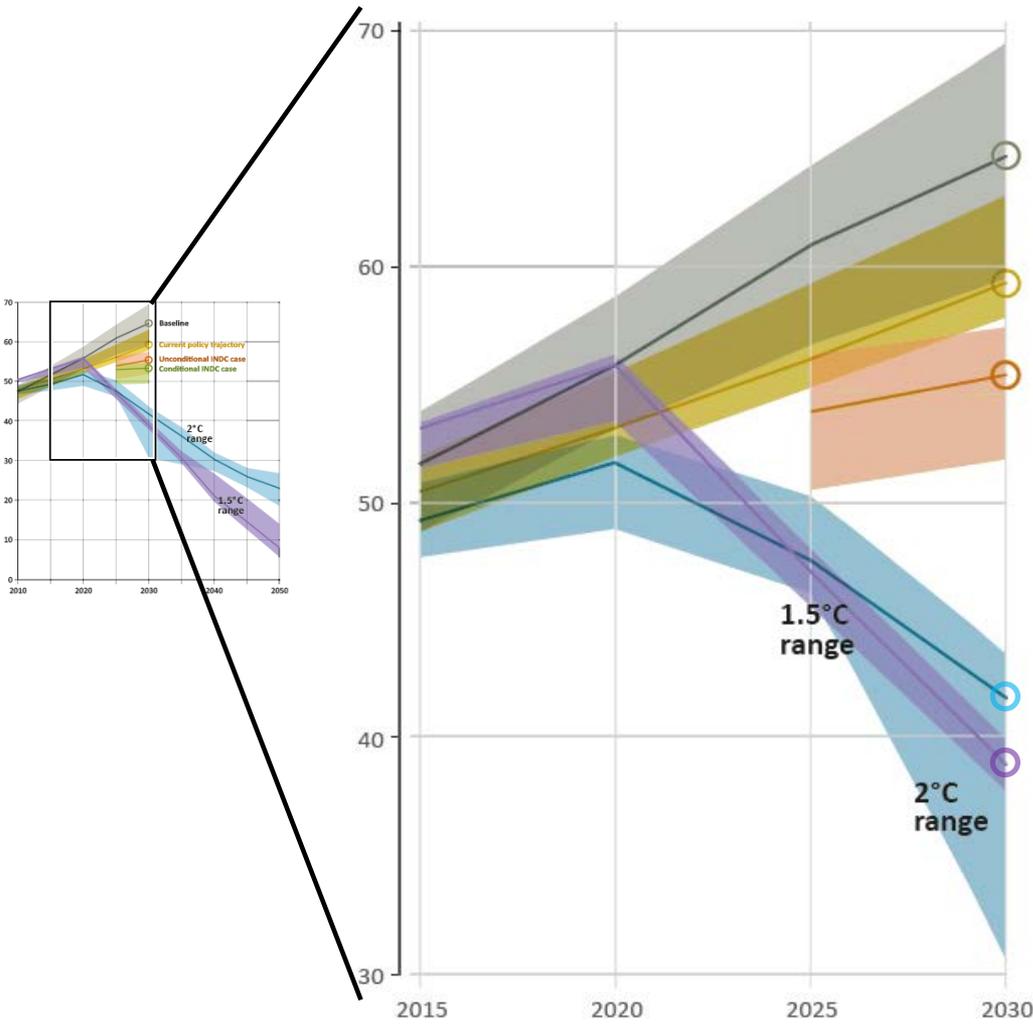
Current policy trajectory
Global total emissions:
60 GtCO₂e (range: 58-62)

2°C pathways
Global total emissions:
42 GtCO₂e (range: 31-44)

1.5°C pathways
Global total emissions:
39 GtCO₂e (range: 38-40)

Intended Nationally Determined Contributions & Emissions Gap

Annual global total greenhouse gas emissions (GtCO₂e)



Baseline
Global total emissions:
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Current policy trajectory
Global total emissions:
60 GtCO₂e (range: 58-62)

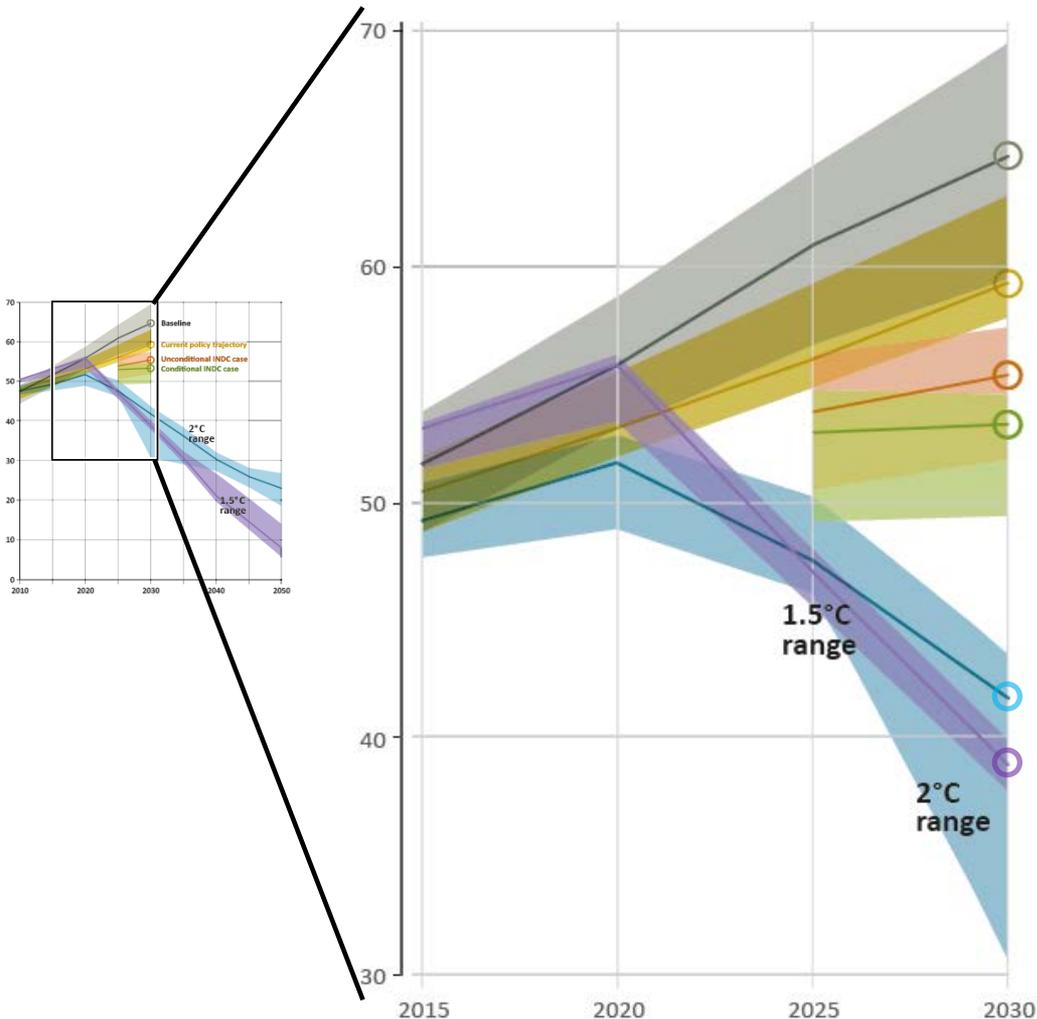
Unconditional INDC case
Global total emissions:
56 GtCO₂e (range: 54-59)

2°C pathways
Global total emissions:
42 GtCO₂e (range: 31-44)

1.5°C pathways
Global total emissions:
39 GtCO₂e (range: 38-40)

Intended Nationally Determined Contributions & Emissions Gap

Annual global total greenhouse gas emissions (GtCO₂e)



Baseline

Global total emissions:
65 GtCO₂e (range: 60-70)

Current policy trajectory

Global total emissions:
60 GtCO₂e (range: 58-62)

Unconditional INDC case

Global total emissions:
56 GtCO₂e (range: 54-59)

Conditional INDC case

Global total emissions:
54 GtCO₂e (range: 52-57)

2°C pathways

Global total emissions:
42 GtCO₂e (range: 31-44)

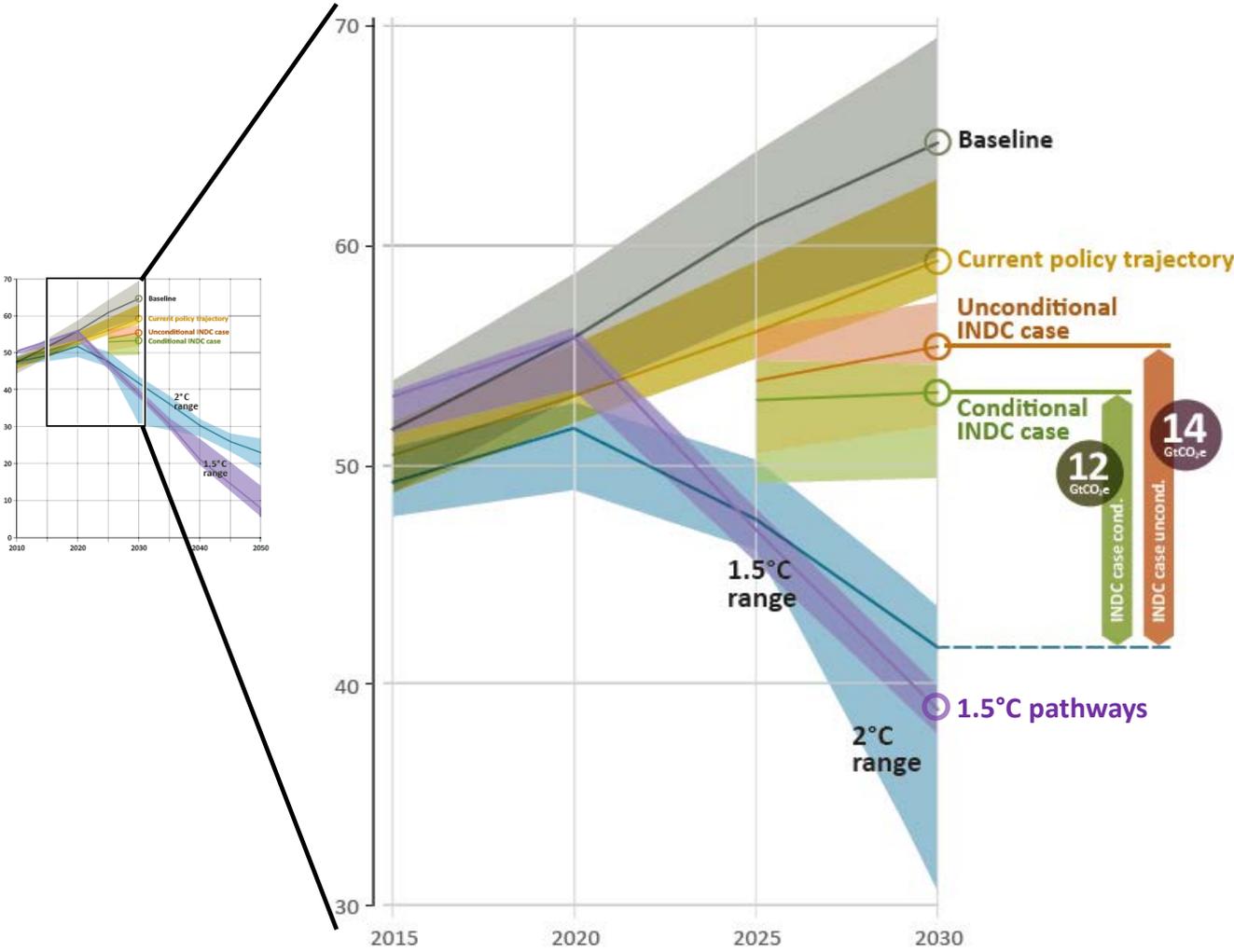
1.5°C pathways

Global total emissions:
39 GtCO₂e (range: 38-40)

Intended Nationally Determined Contributions & Emissions Gap



Annual global total greenhouse gas emissions (GtCO₂e)

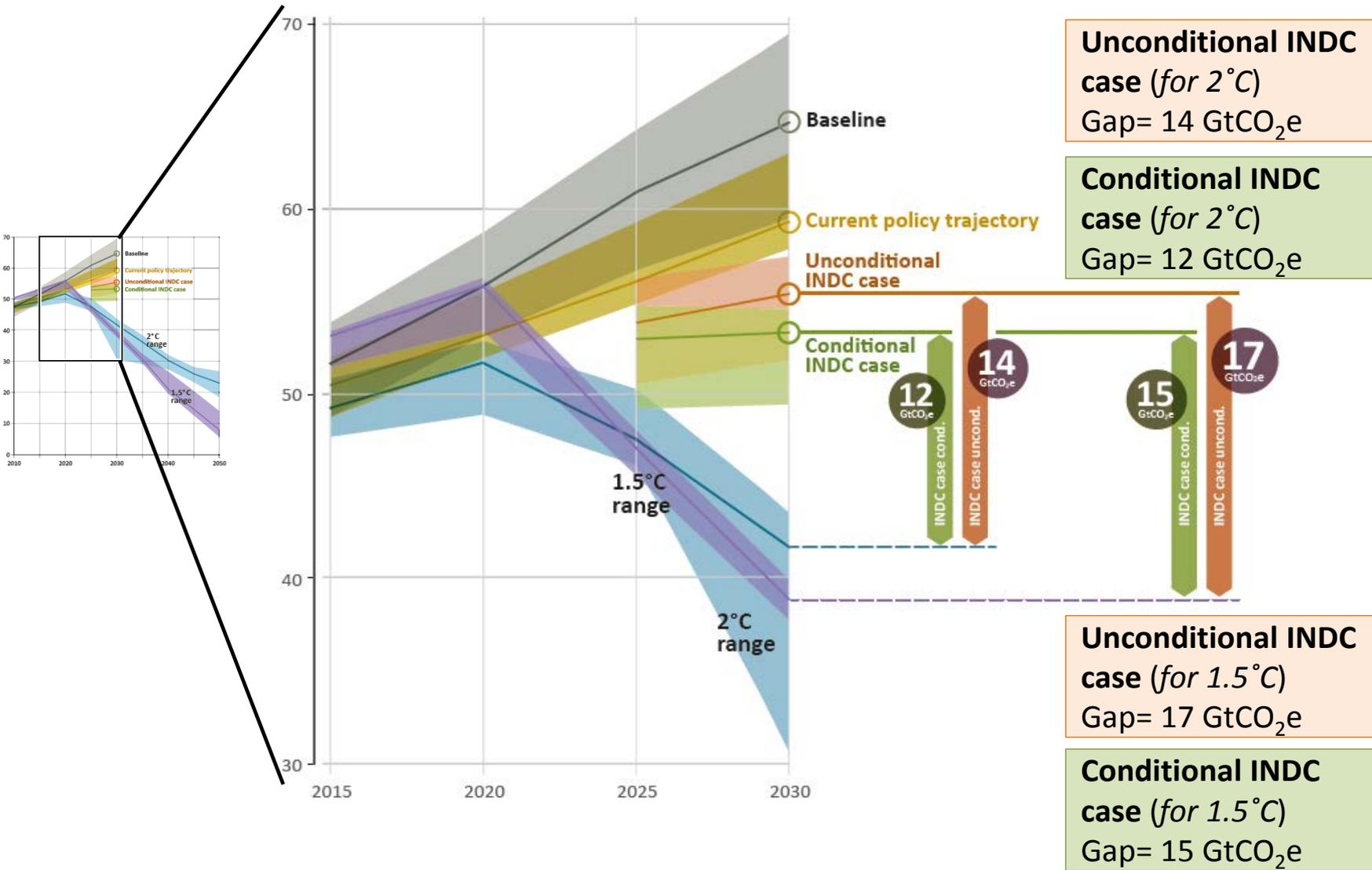


Unconditional INDC case (for 2°C)
Gap= 14 GtCO₂e

Conditional INDC case (for 2°C)
Gap= 12 GtCO₂e

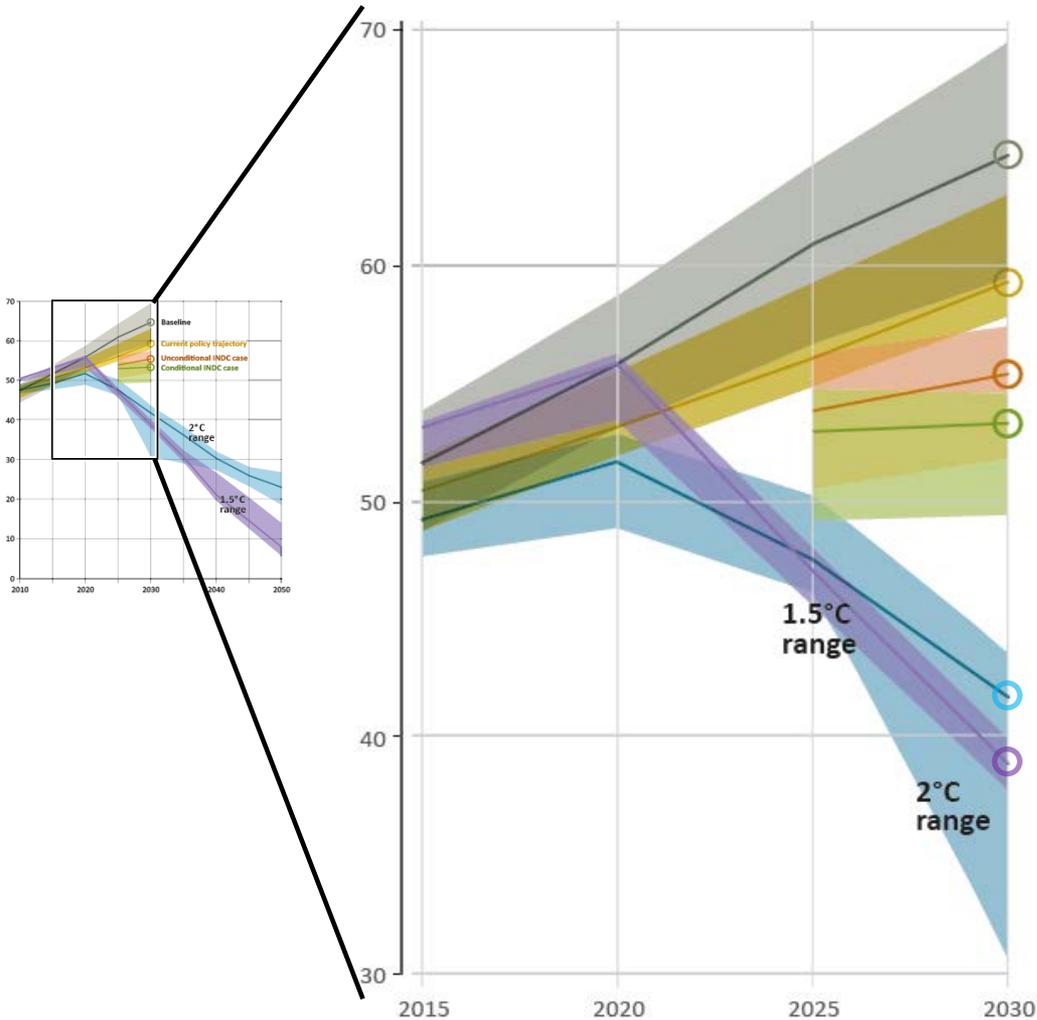
Intended Nationally Determined Contributions & Emissions Gap

Annual global total greenhouse gas emissions (GtCO₂e)



Intended Nationally Determined Contributions & Emissions Gap

Annual global total greenhouse gas emissions (GtCO₂e)



INDCs represent a first start to initiate the required transition, but are far from consistent with the well below 2°C / 1.5°C temperature goals

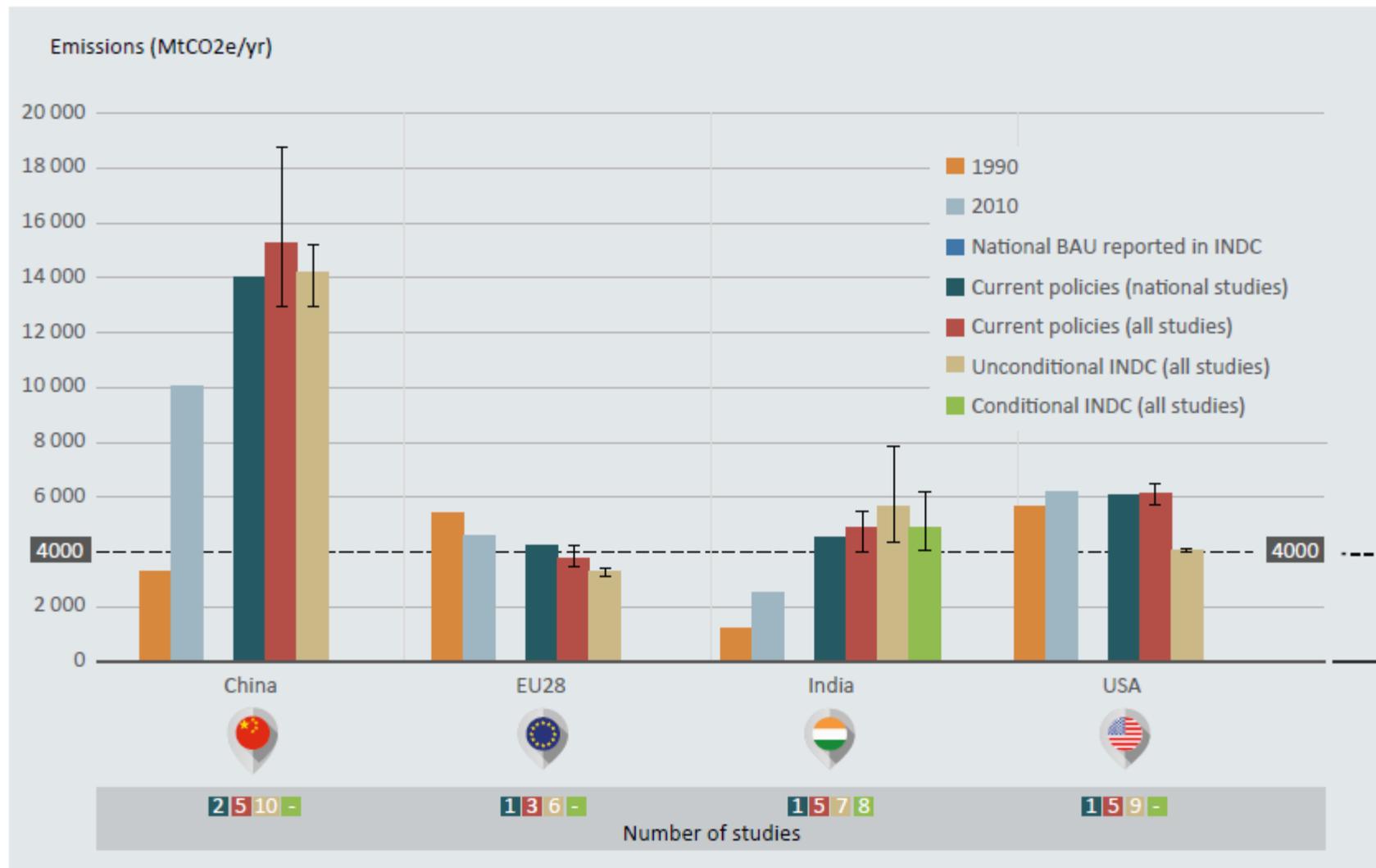
Full implementation of unconditional INDCs is consistent with staying below a 3.2°C temperature increase by 2100. Additional implementation of conditional INDCs lowers this by about 0.2°C

By 2030, carbon dioxide budgets for a likely chance of limiting temperature increase to below 2°C will be close to depleted under INDC implementation and well exceeded for the 1.5°C target

Understanding the mitigation efforts of the INDCs: country-level



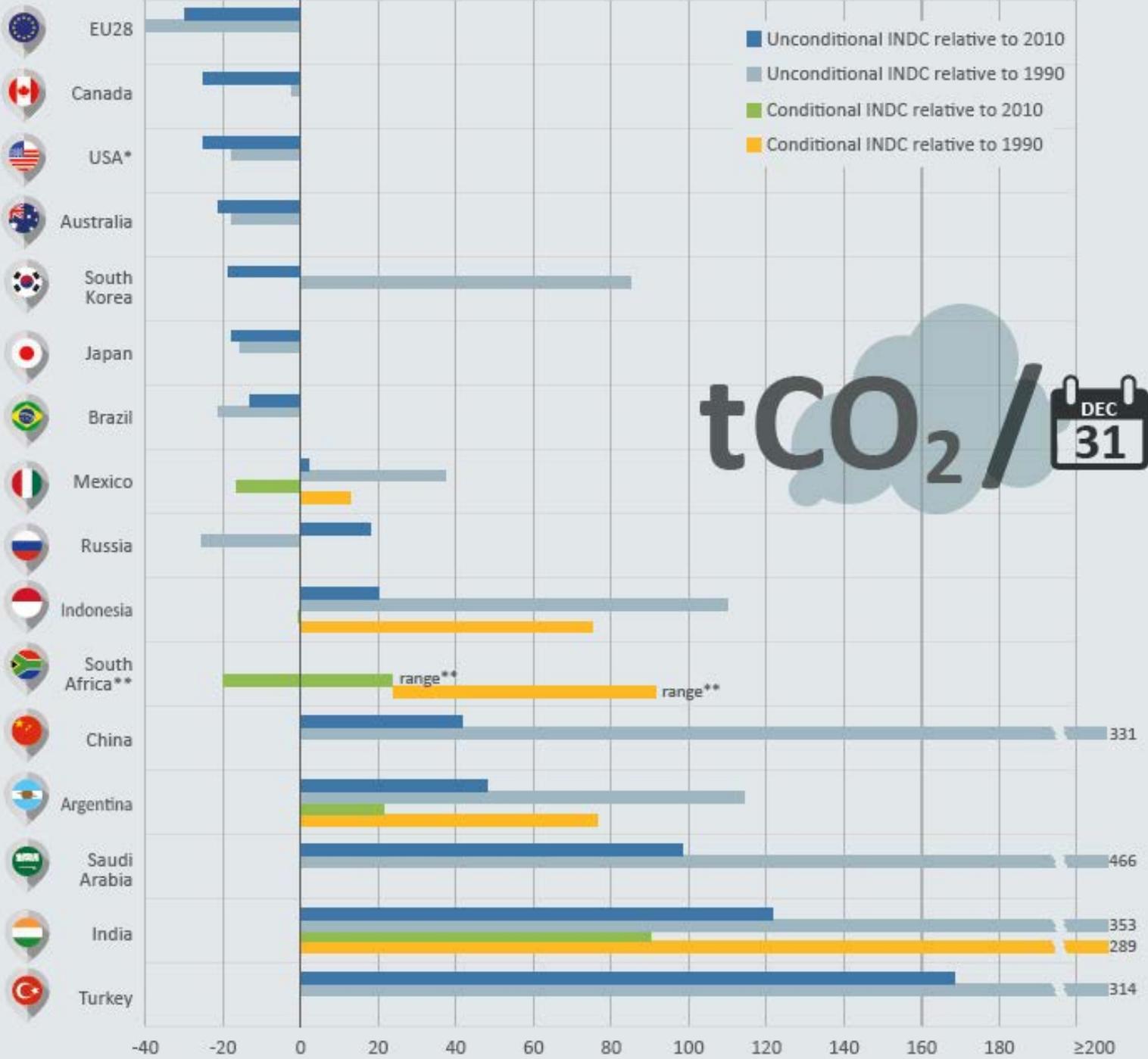
GHG emissions under the INDC, current policies & BAU scenario for G20 countries in 2030

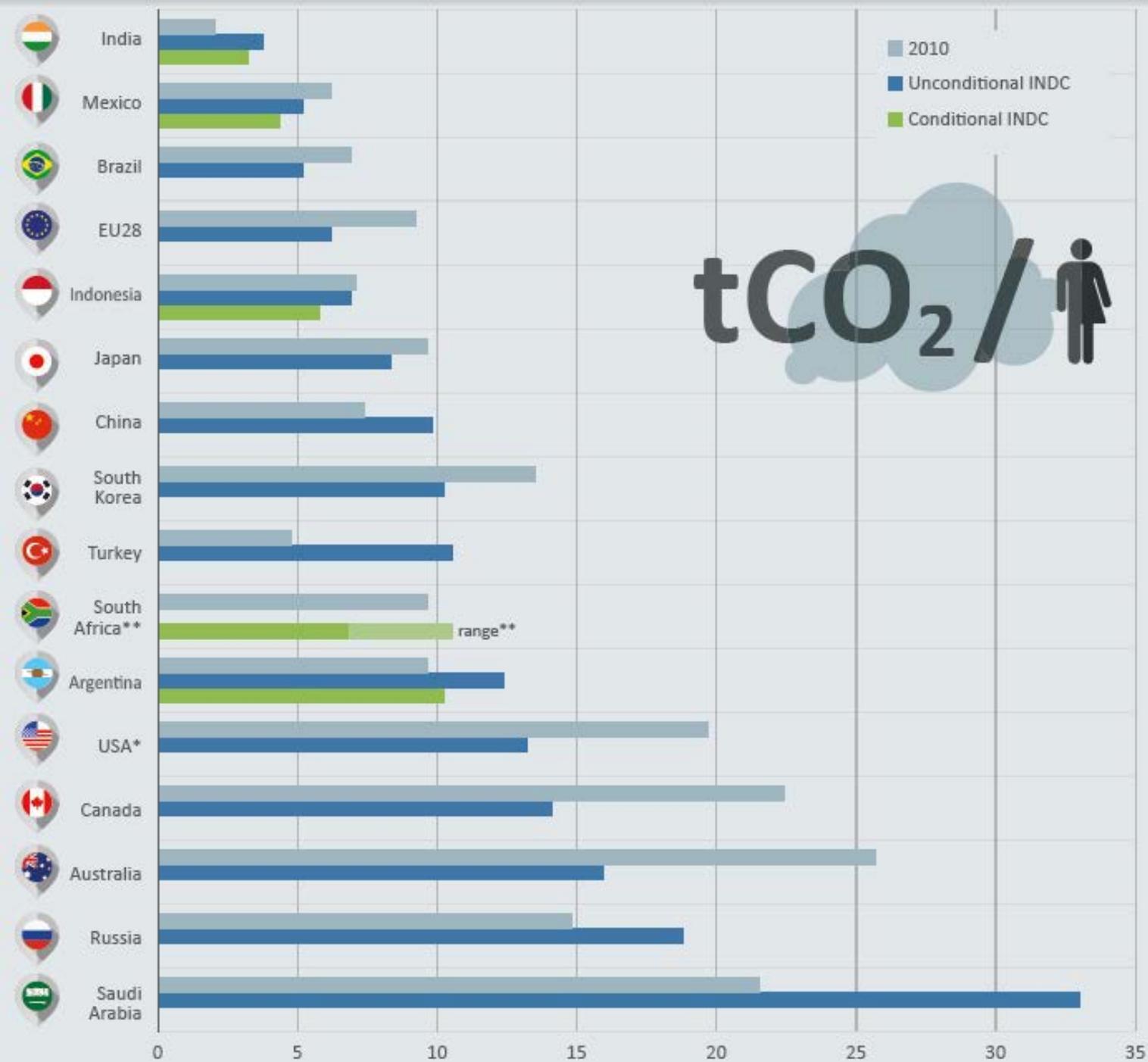




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Countries ranked to Emissions relative to 2010, with EU, Canada and US the highest reductions, and India and Turkey the highest increase compared to 2010 levels



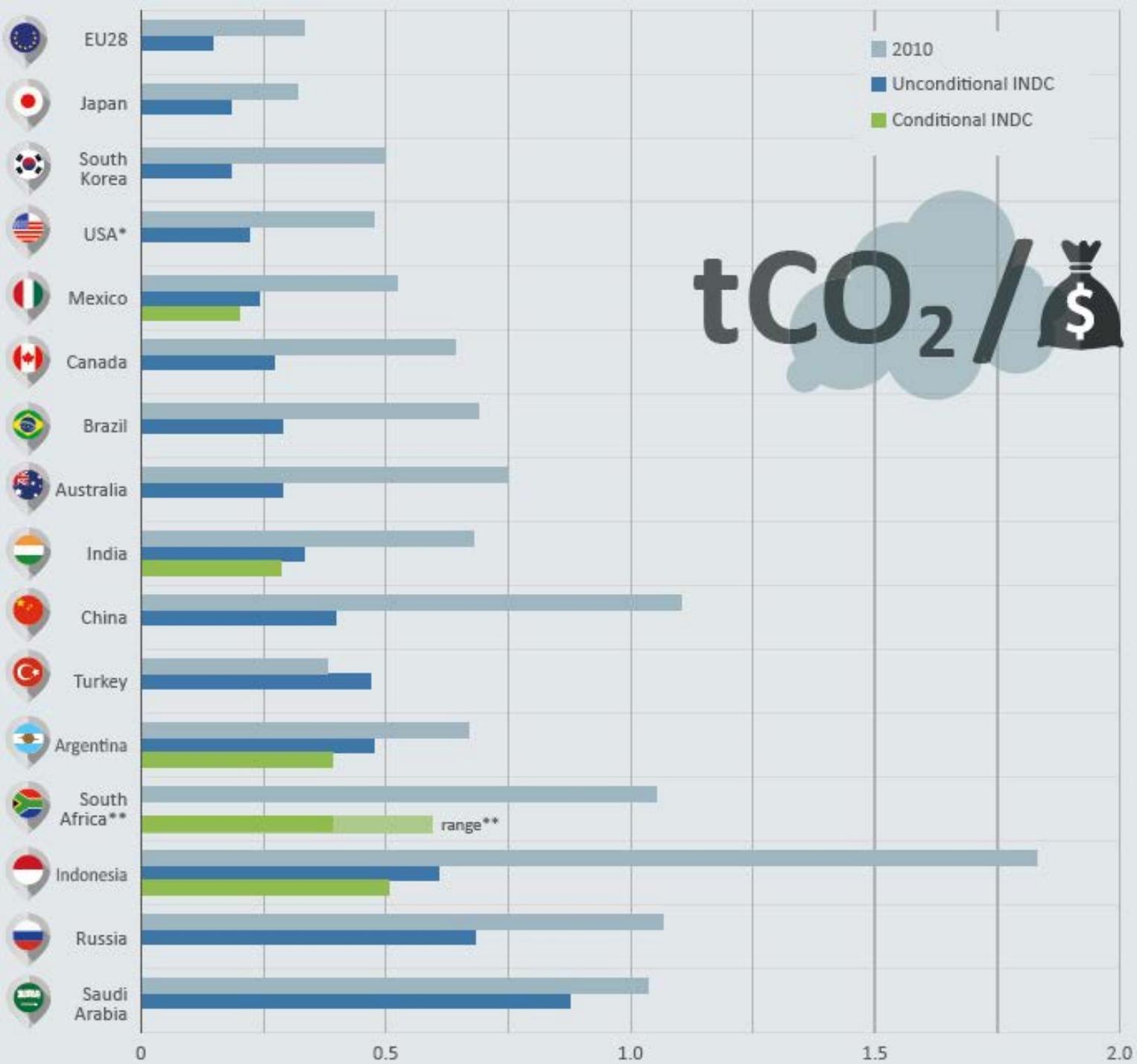


Countries ranked to per capita emissions in 2030, with the low estimates for India, Mexico, Brazil, and high values for the US, Canada. The highest estimates for Russia and Saudi Arabia



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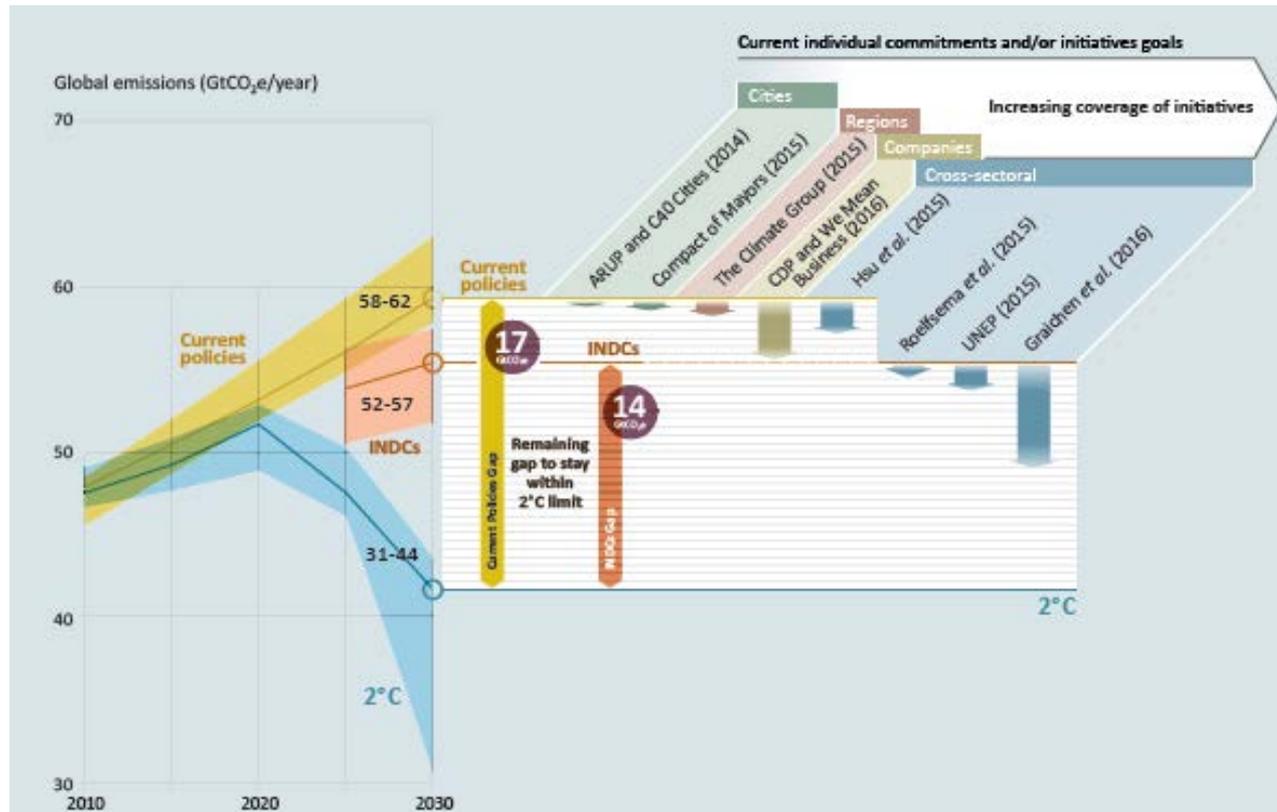
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Countries ranked to Emissions intensity of national economy, with the lowest for the EU and Japan, and the highest values for Russia and Saudi Arabia

Bridging the gap – non-state actor initiatives

- More than 10,000 climate commitments
- Credibility and transparency varies between initiatives
- Formalised reporting gradually being strengthened
- Contribution to closing the Emissions Gap may be significant



Action on energy efficiency can help close the gap



- Ambitious action on energy efficiency becomes more urgent given that the long-term objectives in the Paris Agreement are more stringent.
- Well-documented opportunities exist to strengthen national policies and deliver deeper reductions through more effective delivery of energy efficiency policies.
- The estimates of direct and indirect emissions reduction potentials in 2030 are 5.9 GtCO₂e for buildings, 4.1 for industry and 2.1 for transport.

Buildings

- Energy codes
- Information and energy performance certification
- Highly energy efficient buildings

Industry

- Energy Management, ISO 50001 and Energy Performance Monitoring
- Energy performance standards for industrial equipment
- Energy service companies

Transport

- Vehicle Fuel Economy Standards
- Electric Mobility for Passenger Transport
- Sustainable Logistics/Freight Transportation

The Paris Agreement and the SDGs

- Climate action directly affects and is affected by efforts to achieve many of the other SDGs
- Impacts of climate change may undermine achievement of SDGs
- Failure to enhance mitigation ambition will have even more significant implications post-2030



Alignment	SDG	Topic
Path-aligned	SDG7	Sustainable Energy Access
	SDG11	Sustainable Cities
	SDG12	Sustainable consumption and production
	SDG15	Terrestrial Ecosystems
Path-contingent	SDG2	Hunger and food security
	SDG8	Growth and employment
	SDG9	Infrastructure, industrialization, and innovation



What will be the contribution of Intended Nationally Determined Contributions to the temperature target?

- Even if fully implemented, the unconditional Intended Nationally Determined Contributions are only consistent with staying below an increase in temperature of 3.2°C (2.9 – 3.4) by 2100 with greater than 66 per cent probability, and 3.0°C, if conditional Intended Nationally Determined Contributions are included
- This is lower than the 3.6 °C (3.4 – 3.7) under the current policies but represents far less than is needed
- Peaking of emissions by 2020 is essential

The Emissions Gap Report 2016

Thank you

Marrakech ♦ 14 November, 2016



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