

# **The Emissions Gap Report 2015: INDC assessment**

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# Outline of talk



United Nations Environment Programme

- UNEP Emissions Gap Reports
- Focus of the 2015 edition
- Intended Nationally Determined Contributions (INDCs)
- UNEP's support and status on submissions
- Assessing the mitigation contribution and the remaining "Gap" in 2030
- Options to close the Gap

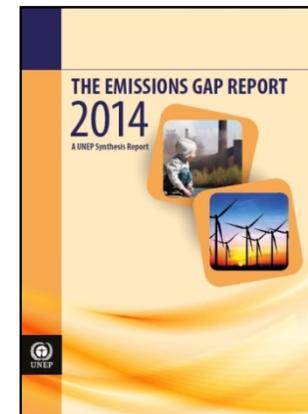
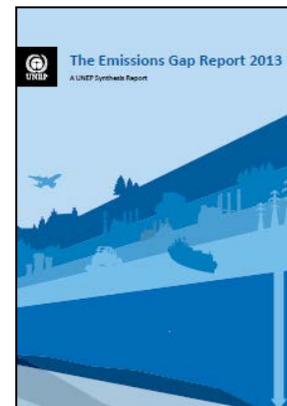
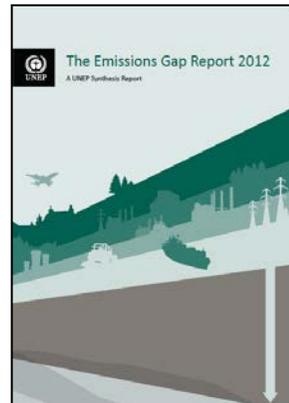
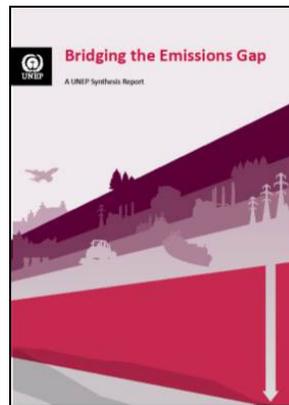
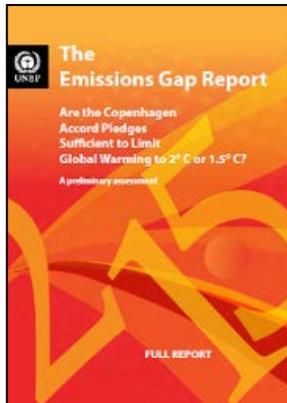
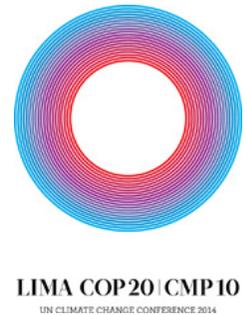
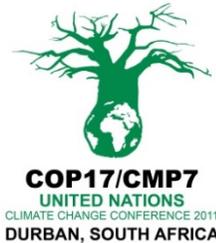
# UNEP 'emissions gap' report



"To implement individually or jointly the quantified economy-wide emissions targets for 2020"



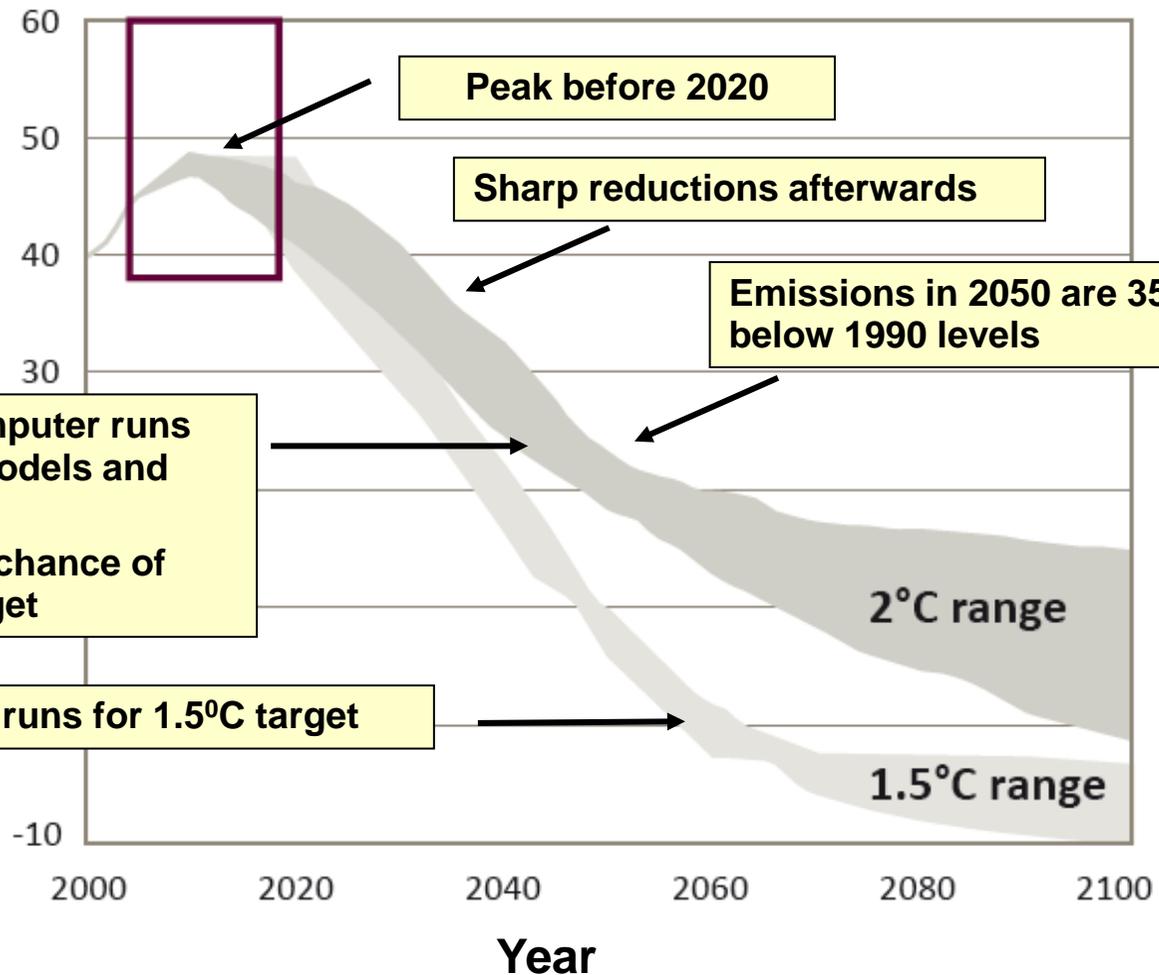
"To hold the increase in global average temperature below 2°C above pre-industrial levels"



# What are we aiming for?

## Complying with the 2°C target (2012 report)

**Global  
Greenhouse  
Gas Emissions**  
  
**Gt/year  
CO<sub>2</sub>-equiv.**



Peak before 2020

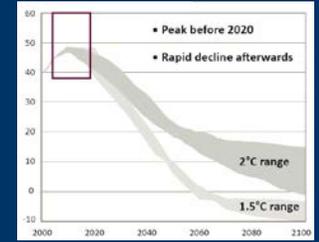
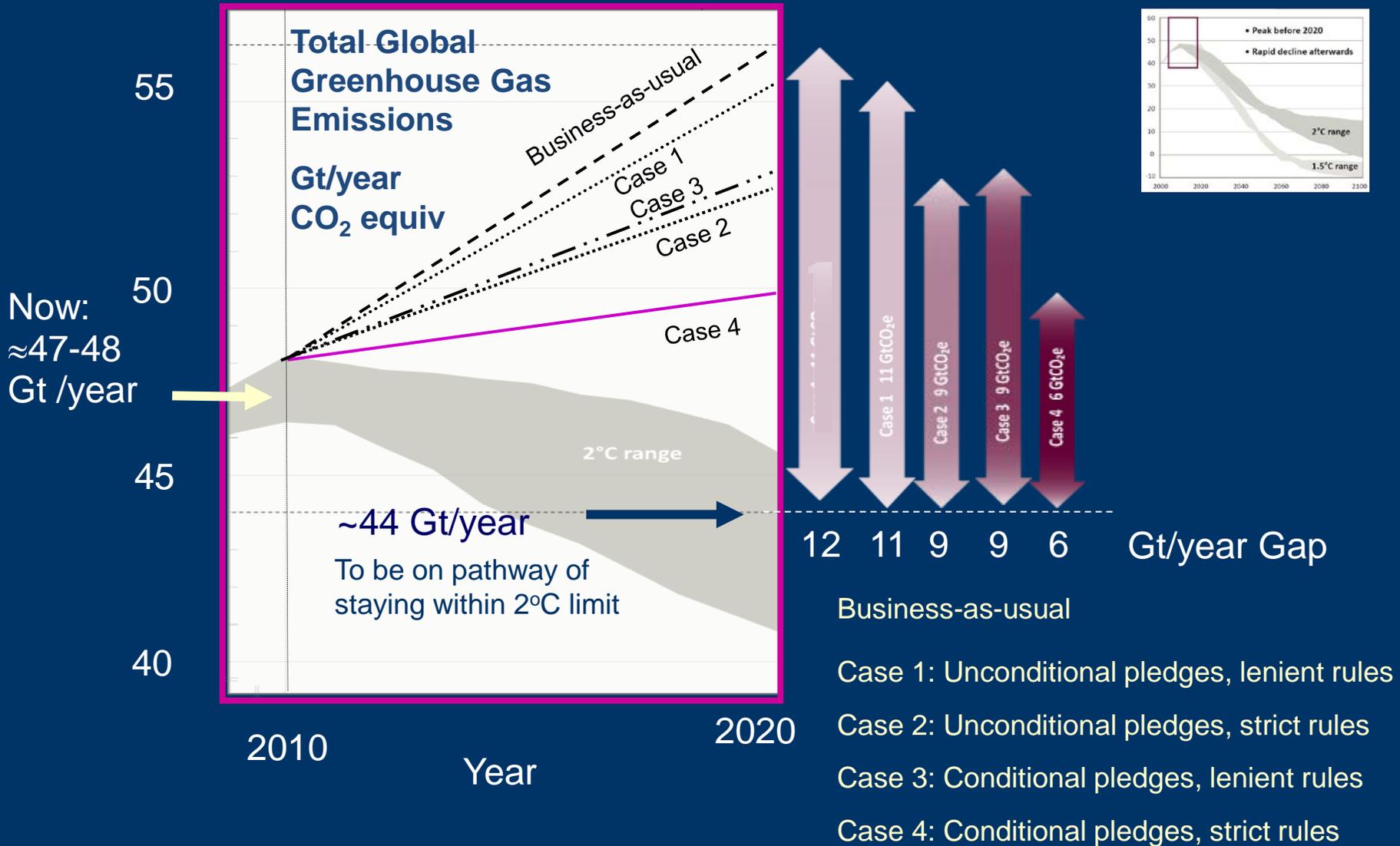
Sharp reductions afterwards

Emissions in 2050 are 35%- 50% below 1990 levels

Large set of computer runs from different models and scenarios  
All give “likely” chance of meeting 2°C target

Computer runs for 1.5°C target

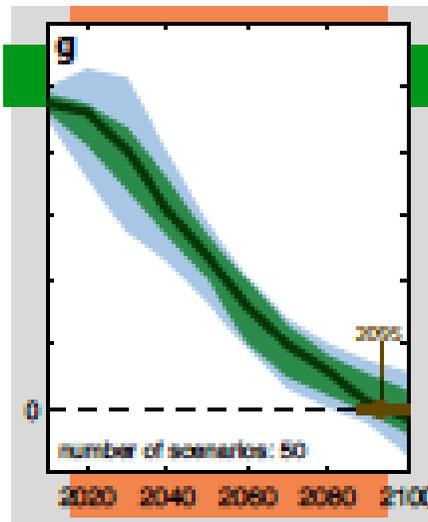
# Where are we headed? How big is gap in 2020?



# New scenarios

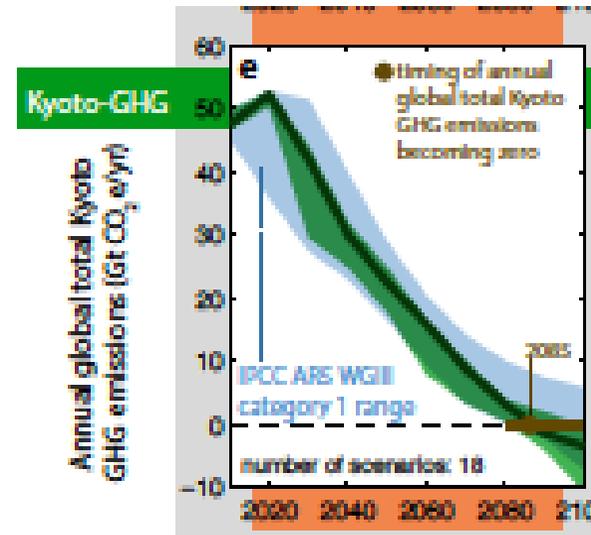
## Concerted action from 2010

- Can be done without negative emissions



## Concerted action from 2020

- Higher cost
- Negative emissions needed
- Higher risks



# 2015 GAP Report Features

- INDC assessment and 2030 Gap – Main feature
- Update on 2020 status to emphasize early action
- Policy projection to 2030 based on assessment of pledge implementation
- Summary of policy and action potential
- ICI contributions (short – long – additional?)
- Forestry options focus on REDD+

# **INDCs in the Warsaw (2013) and Lima (2014) decisions under the UNFCCC**

**The Warsaw decision (1/CP19, 2013) introduced the concept of INDCs as follows:**

- All Parties are invited to initiate or intensify preparations for their INDCs, without prejudice to the legal nature of the contributions**
- All Parties are invited to communicate their INDCs well in advance of COP21 (“by the first quarter of 2015 by those Parties ready to do so) in a manner that facilitates the clarity, transparency and understanding of the INDCs”**

**The Lima decision (1/CP20, 2014) reiterated the points agreed in Warsaw, and also:**

- Agreed that each Party’s intended nationally determined contribution towards achieving the objective of the Convention as set out in its Article 2 will represent a progression beyond the current undertaking of that Party**
- Invited all Parties to consider communicating their undertakings in adaptation planning or consider including an adaptation component in their INDCs**
- Agreed that the information to be provided by Parties may include, as appropriate, inter alia, quantifiable information on the reference point (including, as appropriate, a base year), time frames and/or periods for implementation, scope and coverage, planning processes, assumptions and methodological approaches including those for estimating and accounting for anthropogenic greenhouse gas emissions and, as appropriate, removals, and how the Party considers that its INDC is fair and ambitious, in light of its national circumstances, and how it contributes towards achieving the objective of the Convention as set out in its Article 2**

**A number of characteristics relevant to INDCs – such as the type of mitigation goal they should include, whether they should be conditional on international support or other factors, and the time frame they should cover – are not specified by decisions under the UNFCCC. As such, Parties INDCs are diverse, making it hard to compare contributions.**



# UNEP Support to INDC preparation

- UNEP has with GEF funding provided financial support for 35 countries preparing their INDCs. Technical assistance from UNEP DTU to 32 of these countries
- **Africa:** Benin, Burundi, Chad, Congo, DRC, Eritrea, Guinea Bissau, Lesotho, Mauritania, Mozambique, Namibia, Niger, Rwanda, Sao Tome Principe, Senegal, Swaziland, Zambia, Zimbabwe
- **LAC:** Dominica, Antigua and Barbuda
- **Asia:** Afghanistan, Cambodia, Kyrgyzstan, Maldives, Moldova, Mongolia, Myanmar, Sri Lanka, Turkmenistan, Uzbekistan
- **Pacific:** Fiji and Papa New Guinea
- **From the 32 countries 27 had submitted by 1 October**

# UNEP Support to INDC preparation

- **Technical support to countries:**
  - initial training workshops to familiarize with INDC concept and content definition, methodological approaches for mitigation and adaptation planning, etc
  - guidance to national teams on multi stakeholder approaches, data collection, analysis and prioritization
- All countries address both mitigation and adaptation
- Most of these countries contribute less than 0,1% of global emissions
- Most of the countries have expressed mitigation targets as deviations from a BaU, some have policies in specific sectors and one an absolute target

# Approach to INDC assessment

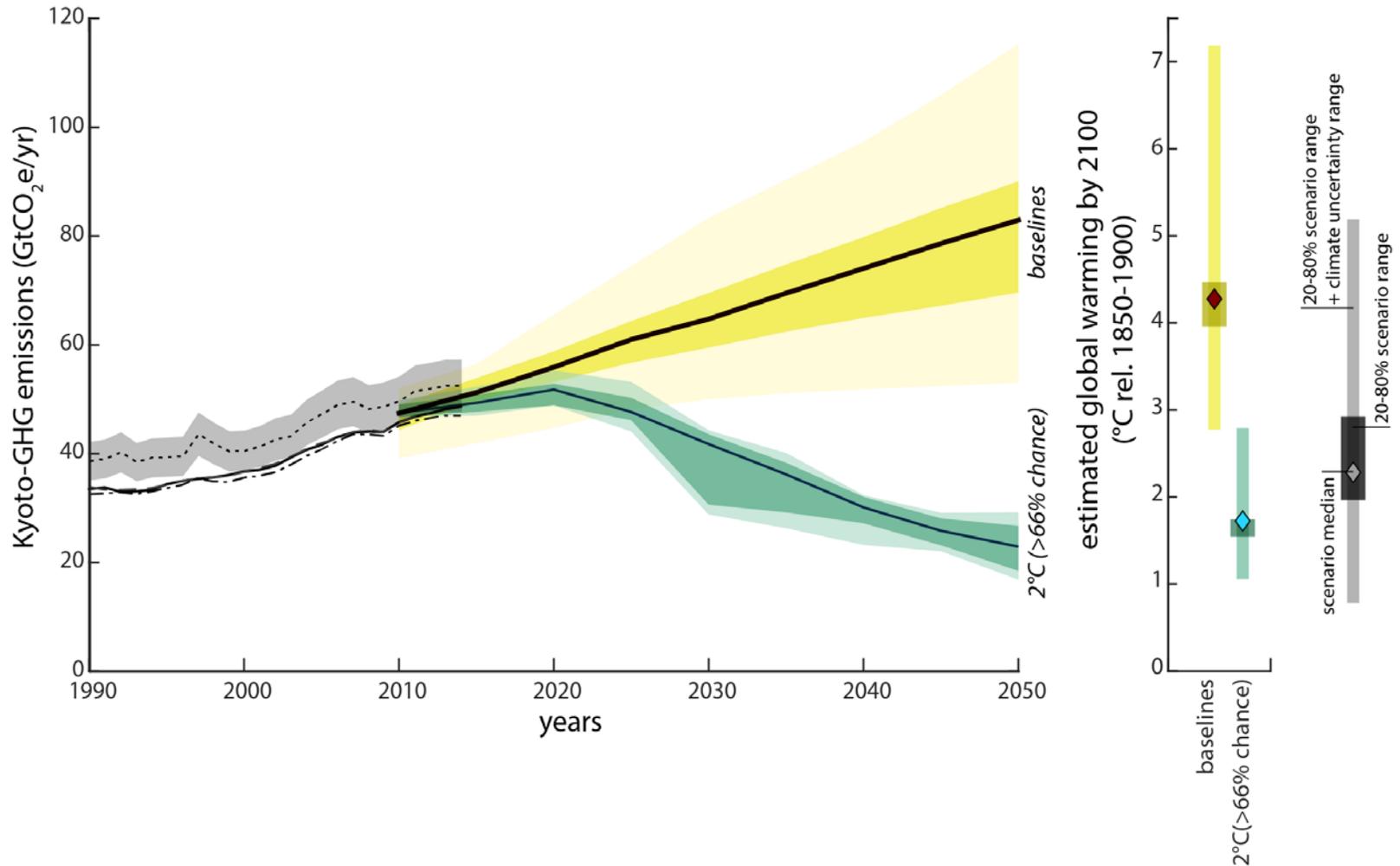


## What is the global emission level as a result of the INDCs?

- Part of the 2015 UNEP gap report
- Assessment of literature on INDCs from global models and national models
- Wide review of the results, including reaching out to individual countries in a pilot phase
- Regular updates: e.g. September, November, January
- Core group of experts:
  - Amit Garg (Indian Institute of Management Ahmedabad)
  - Fu Sha (National Center for Climate Strategy and International Cooperation)
  - Taryn Fransen (Word Resources Institute)
  - Roberto Schaeffer (University of Rio de Janeiro)
  - Harald Winkler (University of Cape Town)
  - Michel den Elzen (PBL)
  - Niklas Höhne (NewClimate Institute)

# What are we aiming for?

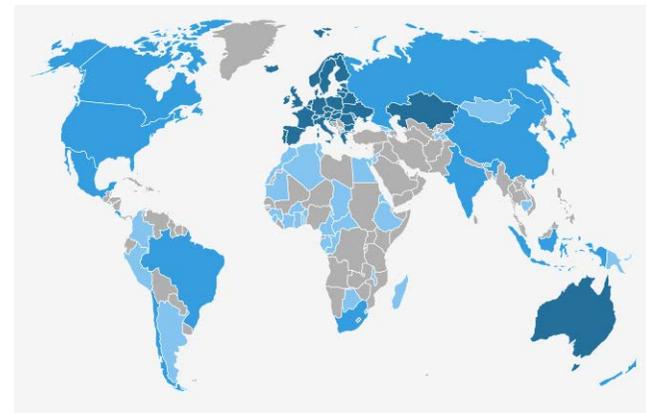
## Complying with the 2°C target (2015 report)



# Country by country data collection

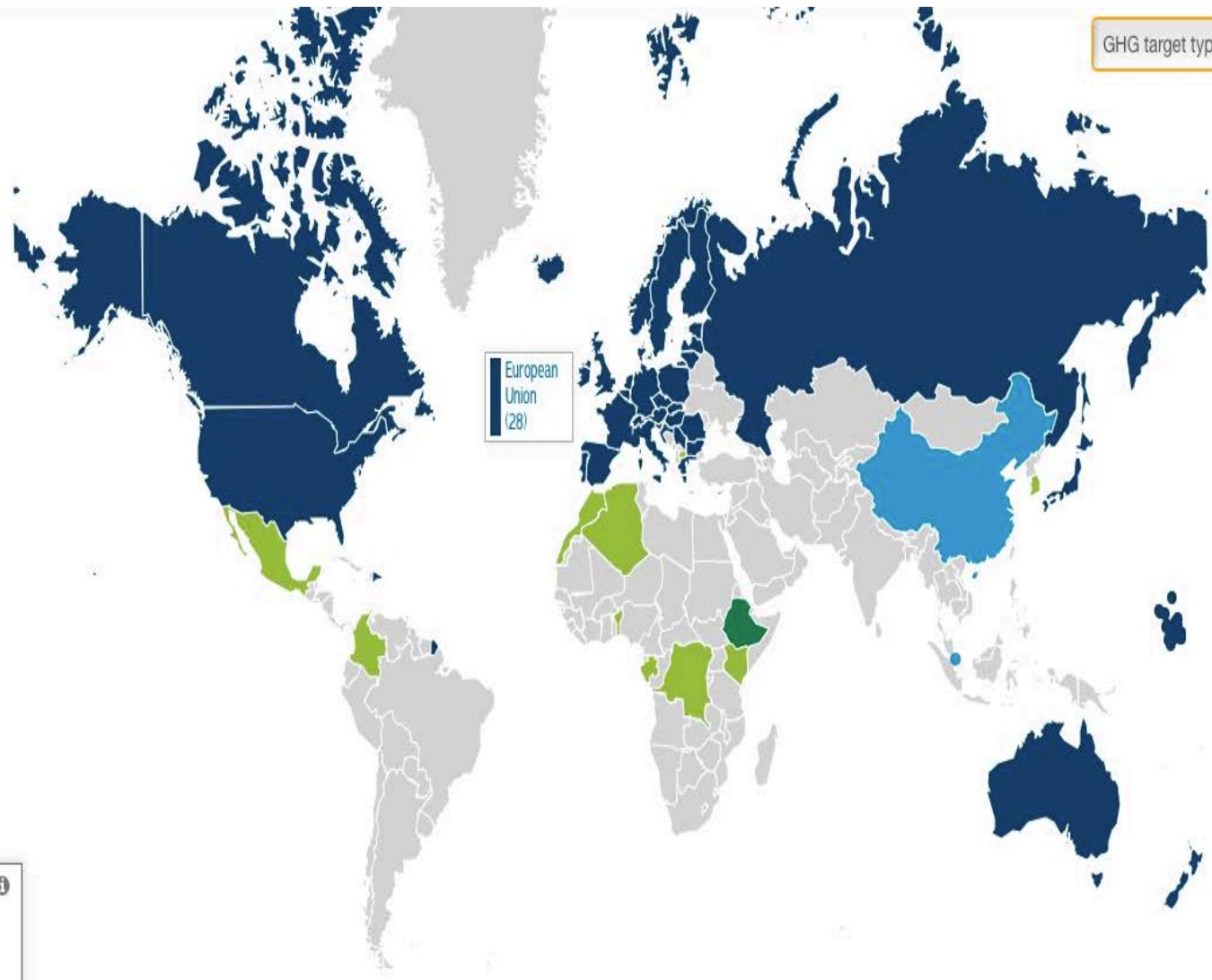
- Official estimates by the country (INDC and other reports)
- Information from independent estimates (national studies and global models) as comparison
- Scenarios
  - Current trajectory (with currently implemented policies)\*
  - Emissions implied by the INDC (assuming their full implementation)
- Review of the data by the country

\* Defined as “legislative decision by the parliament, executive order or equivalent”. Example: Publicly announced plans or strategies (Obamas climate action plan) alone do not qualify. The individual executive orders underneath (on e.g. HFCs) would qualify. Still there may be a grey area and this study is bound by the definitions that the research groups use.





GHG target type



European Union (28)

	Base year target	
	Fixed level target	
	Baseline scenario target	
	Intensity target	
	Trajectory target	
	Intensity target and Trajectory target	
	Not Applicable	
	No INDC submitted	

# Methodological challenges

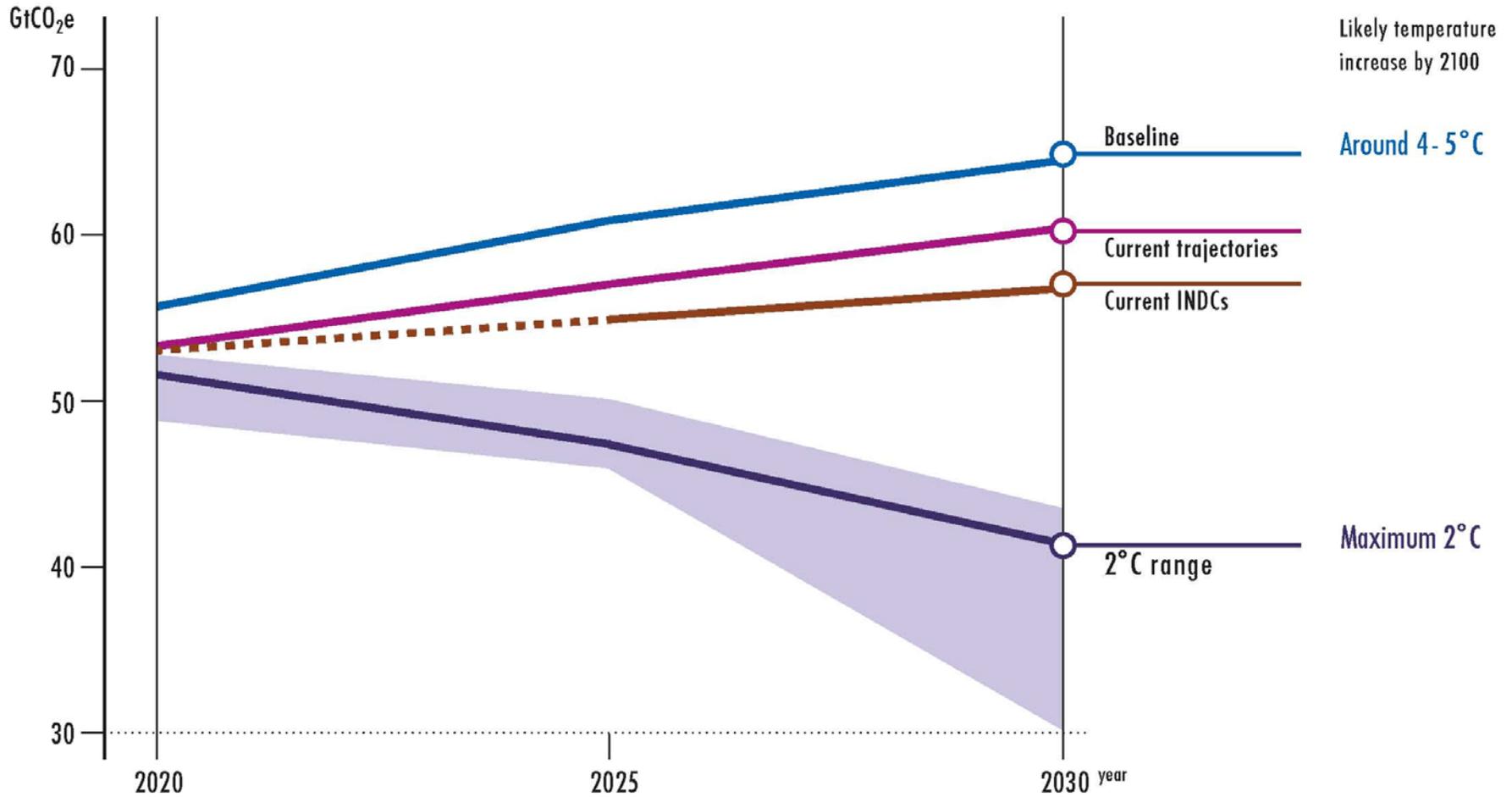
- **Differences in reporting:** Reported historical data differs slightly between inventory and projections
- **Forestry:** estimates for LULUCF and exact accounting rules are not always known
- **Missing estimates:** Inter- and extrapolation is necessary where 2025 and 2030 were not provided, timing but not level of peak provided
- **GWPs:** Emissions are reported in GWP from SAR and AR4, historical emissions and projections may not match
- **Market mechanisms:** extent of intended use of market mechanisms is often not reported, potential double counting
- **Missing information on countries/sectors:** for global aggregation, information on all countries and sectors is necessary

# Status of the calculations



- Types of results included:
  - Official estimates
  - Estimates from national models
  - PBL (<http://infographics.pbl.nl/indc>)
  - CAT ([www.climateactiontracker.org](http://www.climateactiontracker.org))
  - WEO adapted for non-CO2 and LULUCF (not yet the special report on energy and climate)
  - Grantham Institute (data received, currently checking for consistency)
  - MILES project (undertake an INDC assessment, possibly submit data)
  - NIES? PNNL? University of Melbourne?
- Further possible changes
  - Improve the uncertainty ranges (low and high INDCs)
  - Improve the LULUCF projections

# UNEP 2030 emissions gap assessment: Preliminary results



Likely temperature increase by 2100

Around 4-5°C

Maximum 2°C

- Baseline - based on IPCC scenarios assuming no further action after 2010
- Current - scenarios with recent policies and 2020 pledges implemented
- INDC - scenarios based on analysis of submissions by UNEP INDC Assessment team
- 2°C - analysis of based on IPCC scenarios with more than 66% chance of staying below 2°C

# Example EU



## European Union

**Table 1. Greenhouse gas data and sources (all data in MtCO<sub>2</sub>e/a)**

	1990	2010	2020		2025		2030		INDC - conditional	INDC - unconditional
			Current policies	Current policies	INDC - conditional	INDC - unconditional	Current policies	INDC - conditional		
CAT	5,374	4,451	3,856 – 4,116	3,639 – 4,087	3,484	3,484	3,422 – 4,059	3,112	3,112	
PBL	5,368	4,439	3,648 – 3,914	3,513 – 3,899	3,360 - 3,641	3,360 - 3,641	3,245 – 3,886	3,093	3,093	
Official data <sup>1)</sup>	5,368	4,439	4,359	4,299			4,239			
WEO2014 adjusted	5,170		4,084	4,054	3,600	3,600	4,022	3,116	3,116	

1) UNFCCC inventories for historic data/6th National Communication for projections

# Example input to UNEP gap report: ESRC / Grantham

Emitter	Annual emissions (Gt CO <sub>2</sub> e)		
	2010	2030 <i>(China's emissions peak in 2025)</i>	2030 <i>(China's emissions peak in 2030)</i>
<b>Total country emissions</b>	<b>47.4</b>	<b>56.2</b>	<b>57.7</b>
<i>...international bunkers</i>	<i>1.1</i>	<i>1.3</i>	<i>1.3</i>
<b>Total global emissions</b>	<b>48.5</b>	<b>57.6</b>	<b>59.0</b>
<b>Total (EU-US-China)</b>	<b>21.1</b>	<b>20.9</b>	<b>22.3</b>
<i>...share of total (excluding bunkers)</i>	<i>45%</i>	<i>37%</i>	<i>39%</i>
<b>Total (Rest of the world)</b>	<b>26.2</b>	<b>35.4</b>	<b>35.4</b>
<i>...share of total (excluding bunkers)</i>	<i>55%</i>	<i>63%</i>	<i>61%</i>

Source: <http://www.lse.ac.uk/GranthamInstitute/publication/what-will-global-annual-emissions-of-greenhouse-gases-be-in-2030-and-will-they-be-consistent-with-avoiding-global-warming-of-more-than-2c/>

# Possible contributions from International Corporate Initiatives

Actors or sectors		UNEP (Ecofys)	Yale	CISL/ Ecofys	PBL	
Target year		2020	2020	2020	2020	2030
Sub-national	Cities and municipalities	1080	454		600	700
	Regions	760				
Companies		630		51-100 10-30	800	1400
Sectoral	Energy efficiency	60	1750	60		
	Efficient cookstoves	120				
	Renewable energy		0.2			
	Transport				200	500
	Methane and other SLCP	90			500	1300
	Fluorinated GHG			0.2-1.4	0	700
	Reduce deforestation	100	331	10-200	300	700
	Agriculture	300				
	Shipping and aviation				200	500
Overlap between initiatives		200	-		200	300
Total expected impact	Midpoint	2900	2540		2500	5500
	Range	2500-3300				

# Global Energy Efficiency Accelerator Platform

The Accelerator Platform was established to support specific sector-based energy efficiency accelerators

<p><b>Transport and Motor Fuel Efficiency</b></p> <p>Improve the fuel economy capacity of the global car fleet</p> 	<p><b>Lighting</b></p> <p>Global market transformation to efficient lighting</p> 	<p><b>Appliances &amp; Equipment</b></p> <p>Global market transformation to efficient appliances &amp; equipment</p> 	<p><b>Building Efficiency</b></p> <p>Promote sustainable building policies &amp; practices worldwide</p> 
<p><b>District Energy</b></p> <p>Support national &amp; municipal governments to develop or scale-up district energy systems</p> 	<p><b>Industrial Energy Efficiency</b></p> <p>Implementing Energy Management Systems, technologies &amp; practices</p> 	<p><b>Power Sector</b></p> <p>Improving the efficiency of generation, transmission, distribution &amp; end-use</p> 	<p><b>Finance</b></p> <p>Accelerating investment in energy efficiency</p> 