MITIGATION

Climate change mitigation is achieved by limiting or preventing GHG emissions and by enhancing activities that remove these gases from atmosphere

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Current Nationally Determined Contributions (NDCs) are insufficient, with estimates suggesting a temperature rise between 2.1 to 4oC by 2030 if these pledges are implemented

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Shifting to a low-emission energy mix, tripling renewable energy capacity, and phasing down fossil fuels require addressing regional imbalances, redirecting financial flows to underserved regions, and incentivizing renewable adoption in developing nations.

Climate change mitigation is achieved by limiting or preventing greenhouse gas (GHG) emissions and by enhancing activities that remove these gases from the atmosphere, says the Intergovernmental Panel on Climate Change (IPCC).

The imperative to limit or prevent GHG emissions stems from the sobering fact that the world is currently veering off the course in its pursuit of the emissions reductions that are essential to curb global temperature rise to 1.5°C above pre-industrial levels. This unsettling trajectory is underscored by the latest insights from the UNFCCC, as highlighted in the NDC Synthesis Report. Even with the successful implementation of existing Nationally Determined Contributions (NDC), the world is projected to emit a staggering 51.6 gigatonnes of carbon dioxide equivalent ($GtCO_2e$) by 2030. Against this backdrop, discussions on mitigation become not just a scientific or policy imperative, but a crucial societal conversation aimed at reshaping our trajectory.

Taking into account model estimates on how a rise in emissions will influence temperature increase, we see a range from 2.1 to 4°C (*see Table 1*). This is if the current climate pledges are implemented by 2030. Clearly, targets are many but all woefully insufficient.

Shifting from the broad imperative to take mitigation action, there is a need to understand where the responsibility lies. While all nations share a common responsibility to shoulder the burden of mitigation action, they do so with differentiated responsibilities based on their historical contributions to environmental issues and their current levels of development.

Carbon Budget and Emissions Analysis

Current State: 2021 Emissions

Centre for Science and Environment (CSE) analysed carbon dioxide (CO_2) emissions data for 2021 published by the Global Carbon Project.

The world emitted 37.12 gigatonne of CO_2 ($GtCO_2$) in 2021.

Table 1: Estimates of temperature rise if NDCs are implemented

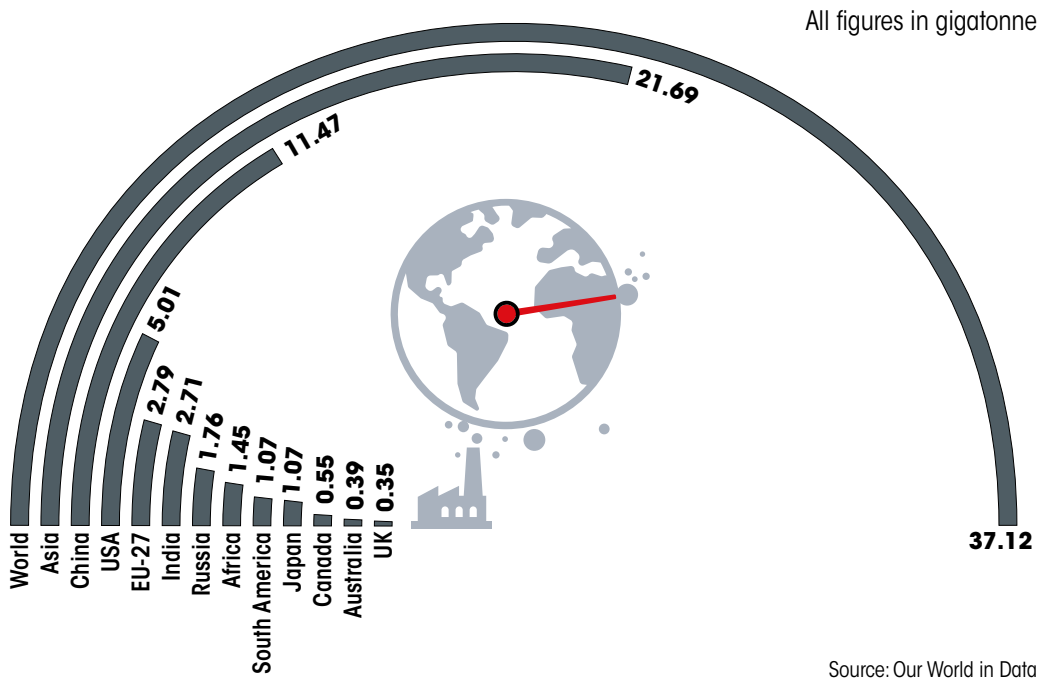
Report	Published by	Temperature rise if all 2030 NDCs are implemented (in oC)
NDC Synthesis Report 2023	UNFCCC	2.1-2.8 (In 2022, this number was 2.1-2.9)
Emissions Gap Report 2023 – 20th	UNEP	If current policies are continued: 3
If all conditional and unconditional NDCs are achieved by 2030: 2.5	Bezos Earth Fund, Climate Action Tracker, Climate Analytics, ClimateWorks Foundation, NewClimate Institute, the United Nations Climate Change High-Level Champions, and World Resources Institute	2.4–2.8°C
State of Climate Action 2023	Bezos Earth Fund, Climate Action Tracker (a project of Climate Analytics and NewClimate Institute), ClimateWorks Foundation, the UN Climate Change High-Level Champions and World Resources Institute	No number (In 2022, this number was 2.4-2.8)
World Energy Outlook 2023	IEA	2.4 (In 2022, this number was 1.7)
Mitigation of Climate Change	IPCC	3

This was much higher than the 34.81 $GtCO_2$ emitted in 2020. The rise can be attributed to the return to business-as-usual after the COVID 19 pandemic. The highest share of 2021 emissions were borne by China with 31 per cent. Combined with the EU27, UK and USA, this share went up to 52.52 per cent — more than half of global emissions.

In 2021, India contributed 2.71 $GtCO_2$, which was equal to 7.3 per cent of the global emissions. In comparison, China emitted 11.47 $GtCO_2$, while USA emitted 5.01 $GtCO_2$. The continent of Africa, with 17 per cent of the world's population, contributed less than 4 per cent to global emissions in 2021.

Factoring in per capita emissions, in 2021 one person in USA emitted 15.08 tonne of CO_2 while one person in India emitted 1.93 tonne. The wide gap in per capita emissions indicates that for developing nations like India, a growth in emissions is necessary for economic development and social wellbeing of a massive population. In contrast for developed,

Graph 1: Annual CO_2 emissions — 2021
China was the world's prime emitter in 2021



Source: Our World in Data

less populated countries like the USA, high per capita emissions can represent luxury emissions.

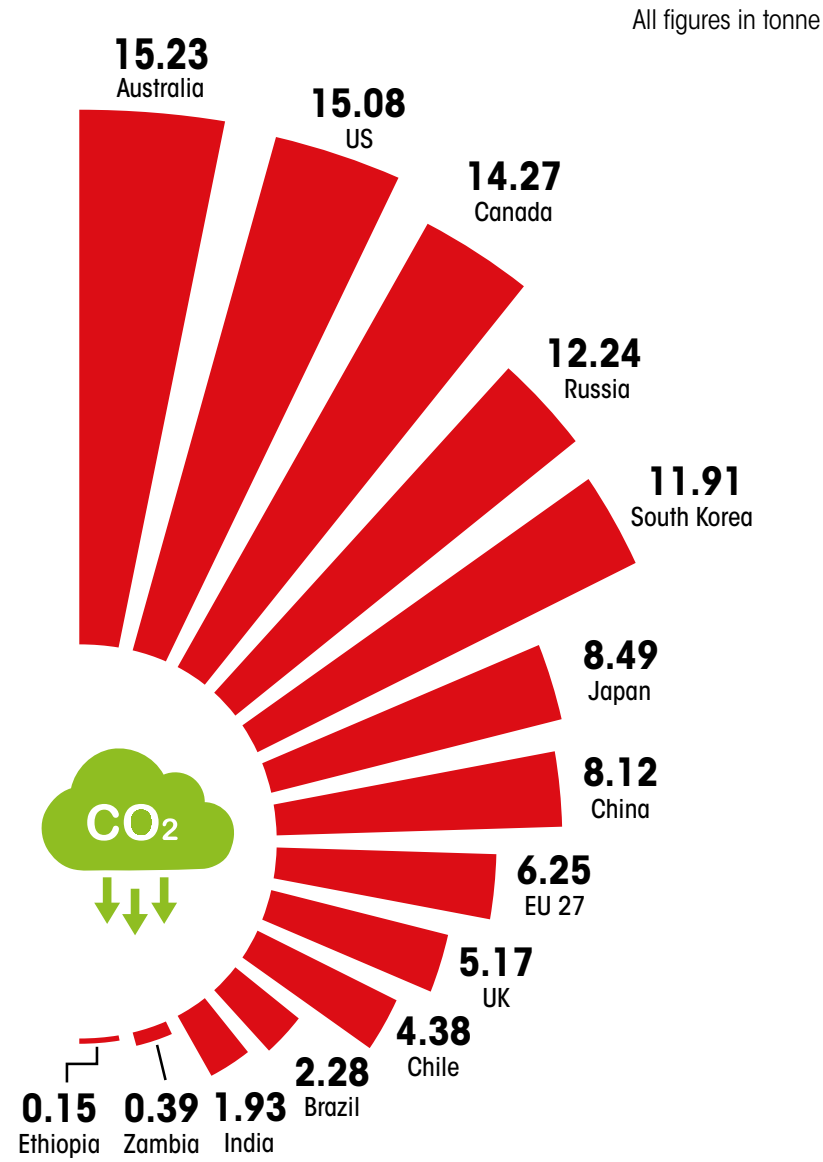
NDC Updates

Countries submit NDCs as mandated by the Paris Agreement, presenting their voluntary commitments to curb emissions. The 2023 NDC Synthesis Report assessed 168 NDCs, out of which 20 were new or updated since September 23, 2022.

CSE has projected emissions of 45 countries—a mix of developed and developing economies, including EU27—for 2022-30. Five out of the 45 made updates to their NDC submissions with stronger ambition since our previous analysis done on November 2, 2022 till November 15, 2023. These include Kazakhstan which committed to a 40 per cent decrease in emissions compared to 1990 levels on condition of international support; Brazil which increased its target to

Graph 2: Per capita emissions — 2021

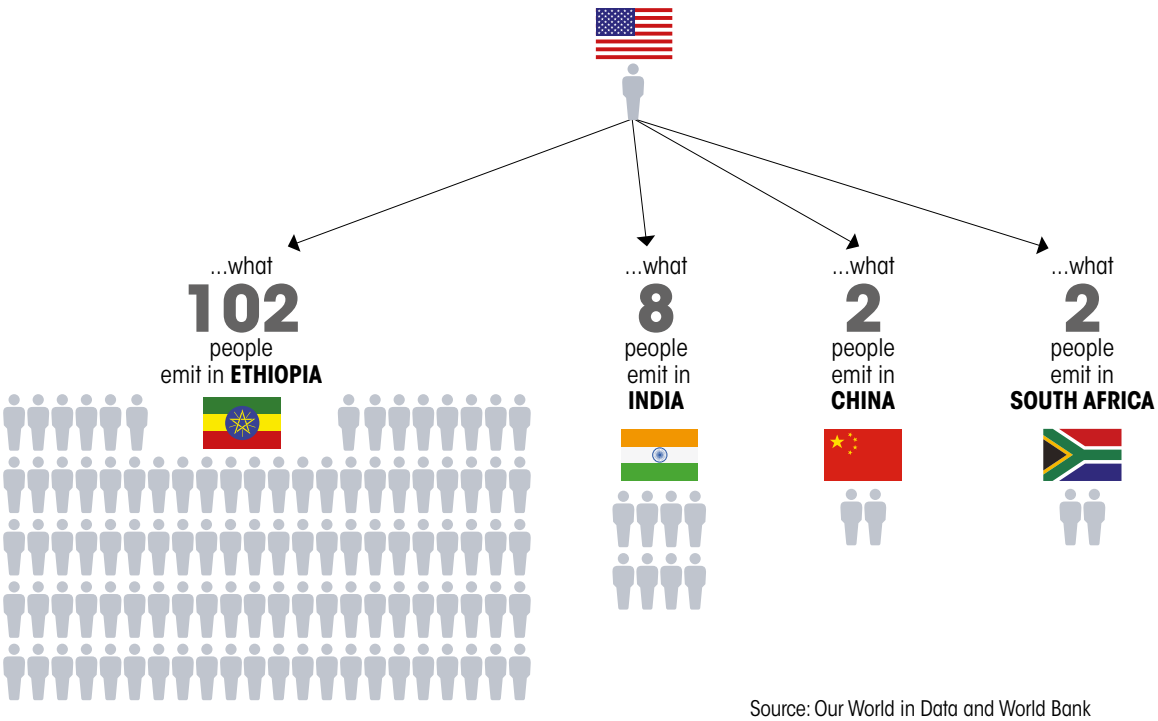
Per capita emissions of USA were eight times that of India in 2021



Source: Our World in Data and World Bank

53.1 per cent compared to a 2005 baseline; EU27 and Norway with a stronger target to reduce emissions by at least 55 per cent by 2030 compared to 1990 levels; and Singapore which committed to reducing emissions to 60 megatonne of CO_2

Graph 3: Per capita emissions – a comparison



Source: Our World in Data and World Bank

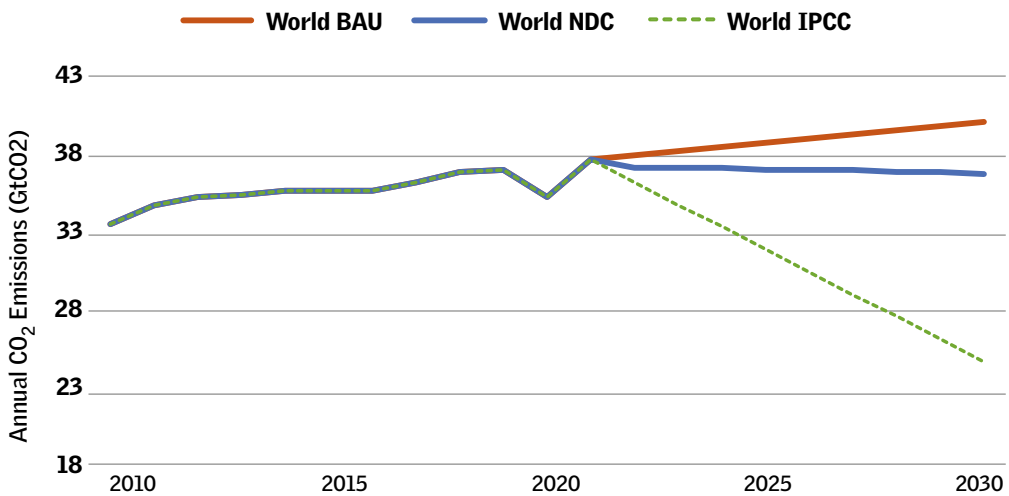
equivalent in 2030, stronger than its previous commitment to 65 $MtCO_2e$.

Our analysis shows that if the world achieves the current NDCs, it would emit 36.28 $GtCO_2$ in 2030 (see Graph 4). Of this number, 28.92 $GtCO_2$ will be emitted by the 45 countries alone. If we consider the next decade from 2022 till 2030, the world will collectively emit 328.46 $GtCO_2$ if current NDCs are achieved. Under business-as-usual (BAU) scenario, the world will emit 345.94 $GtCO_2$ in the next nine years. The NDCs are, therefore, reducing BAU emissions by just approximately 18 $GtCO_2$. Ideally, says the IPCC, to achieve the 1.5ºC goal, emission levels in 2030 should be just 20.77 $GtCO_2$. We are clearly not at all on track to achieve this.

The latest IPCC report (AR6) says that starting 2020, the world is left with a total carbon budget of 400 $GtCO_2$ for a 67 per cent chance of limiting temperatures to 1.5°C.[8] This

Graph 4: Not Nearly Enough

The world will emit 39.51 $GtCO_2$ in 2030 in a business-as-usual (BAU) scenario



carbon budget includes emissions from land use, land-use change and forestry (LULUCF) of roughly 3.3 per cent. If this is deducted, then the world has a remaining carbon budget for fossil fuel emissions of 387 gigatonne (Gt) from 2020 to keep the temperature rise to 1.5°C, as per the AR6. This means that once we cross this threshold—whenever we cross it—we are headed towards a temperature rise of more than 1.5°C.

Our analysis shows that the global carbon budget for the next nine years is 314.87 $GtCO_2$: we will be substantially overshooting this number in both the BAU and NDC projections. In a BAU scenario, we exceed the carbon budget by 31.08 $GtCO_2$ by 2030, and by 13.60 $GtCO_2$ in an NDC scenario by 2030. In comparison, our analysis last year found these numbers to be 10.49 $GtCO_2$ and 4.66 $GtCO_2$ respectively. The major jump is largely attributed to the rise in emissions post-pandemic and sets a worrying precedent for emission levels over the next decade.

The concern, especially, is of the amount of the carbon budget still being consumed by historical emitters. According to our analysis, between 1870 and 2021, 77 per cent of world emissions have come from nine countries. The rest of the world has collectively emitted only 23 per cent. Now from

Graph 5: Projected emissions for the decade 2022-30

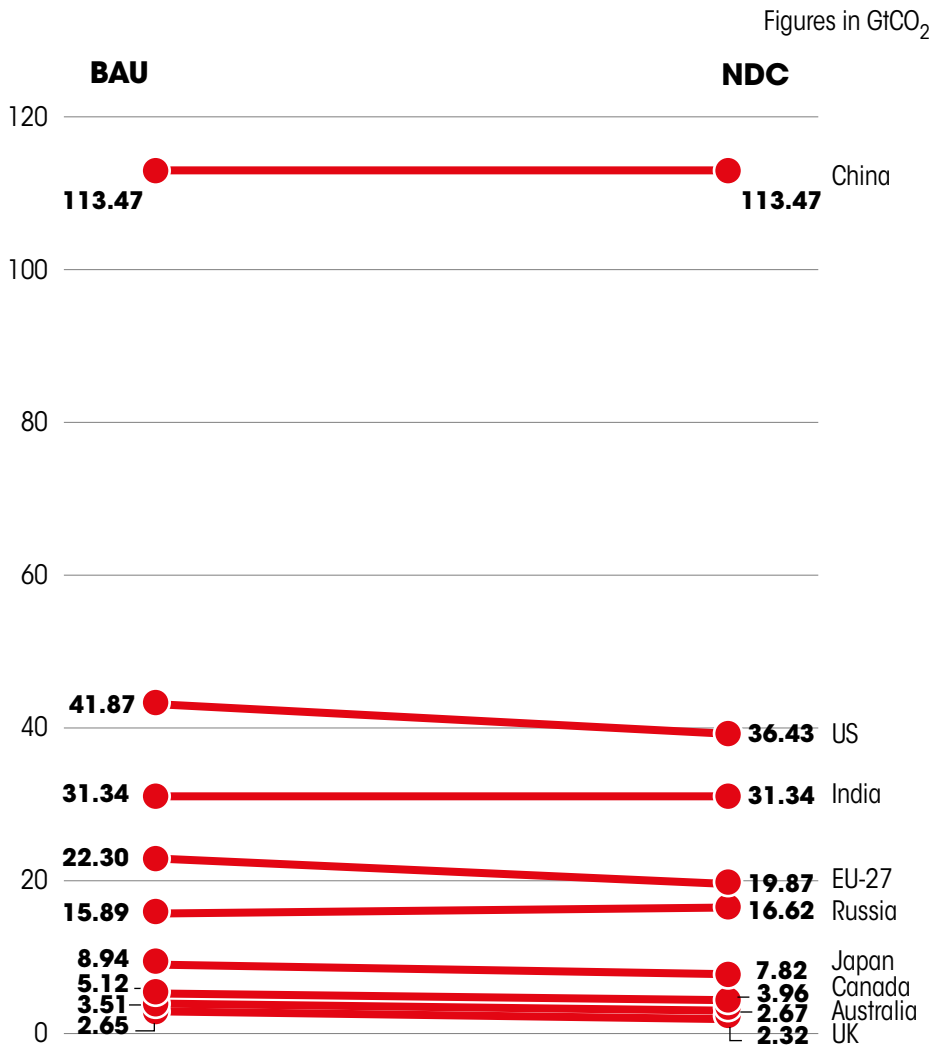
Figures in $GtCO_2$

Country	BAU 2022-2030	NDC 2022-2030	Absolute difference NDC-BAU 2022-30
Argentina	1.61	1.87	0.26
Australia	3.51	2.67	-0.84
Azerbaijan	0.36	0.31	-0.05
Belarus	0.56	0.55	-0.01
Bosnia and Herzegovina	0.11	0.15	0.04
Botswana	0.11	0.05	-0.06
Brazil	5.09	2.81	-2.28
Canada	5.12	3.96	-1.17
Chile	0.86	0.69	-0.17
China	113.47	113.47	0.00
Colombia	0.86	0.86	0.00
Cook Islands	0.00	0.00	0.00
Costa Rica	0.08	0.06	-0.02
Dominica	0.00	0.00	0.00
Equatorial Guinea	0.04	0.05	0.01
Eritrea	0.01	0.00	0.00
Ethiopia	0.29	0.95	0.66
European Union (27)	22.30	19.87	-2.43
Grenada	0.00	0.00	0.00
Iceland	0.03	0.02	-0.01
India	31.34	31.34	0.00
Japan	8.94	7.82	-1.12
Kazakhstan	2.92	2.16	-0.76
Liechtenstein	0.00	0.00	0.00
Marshall Islands	0.00	0.00	0.00
Mauritius	0.05	0.03	-0.01
Micronesia	0.00	0.00	0.00
Moldova	0.06	0.04	-0.02
Montenegro	0.01	0.01	0.00
New Zealand	0.27	0.23	-0.05
Nicaragua	0.05	0.28	0.23
Norway	0.36	0.24	-0.12
Oman	0.90	0.75	-0.14
Russia	15.89	16.62	0.73
Serbia	0.30	0.32	0.02
Singapore	0.42	0.46	0.04
South Africa	3.94	3.17	-0.77
South Korea	5.93	4.37	-1.57
Switzerland	0.29	0.25	-0.03
Tajikistan	0.16	0.08	-0.08
Ukraine	1.63	2.04	0.41
United Kingdom	2.65	2.32	-0.34
United States	41.87	36.43	-5.44
Vietnam	3.56	3.46	-0.09
Zambia	0.12	0.04	-0.08

Note: We have assumed constant emissions in "business as usual" (BAU) and nationally determined contributions (NDCs) scenarios in the case of China and India as these countries do not have quantified targets for reduction.

Source: Analysis by the Centre for Science and Environment, Delhi, based on data from Climate Watch and Our World in Data

Graph 6: Projected emissions of the top emitters



Source: Analysis by the Centre for Science and Environment, Delhi, based on data from Climate Watch and Our World in Data

2022 to 2030, these nine countries are projected to emit 76.5 per cent of the emissions while the rest of the world will emit 23.5 per cent. Basically, the large developed countries will continue their current rate of consumption while the rest of the world is expected to remain where they are today, without taking up emissions necessary to industrialise and urbanise. This is the very reason the principles of equity and common

Remaining carbon budget will be exhausted in this decade

All figures in $GtCO_2$

World CO_2 emissions (Fossil fuel and cement)	**1870-2020**	1676.50
	2021	37.12
	1870–2021	1713.63
	BAU 2022–2030	345.94
	NDC 2022–2030	328.46
Remaining IPCC AR6 Budget to stay below 1.5°C as of 2021*		**386.8**
Remaining carbon budget 2022 onwards		**314.87**

*We assume that land-use, land-use change and forestry (LULUCF) emissions account for 3.3% of CO_2 emissions and reduce the 400Gt budget accordingly for this analysis; BAU: business and usual; NDC: Nationally Determined Contributions

Source: Our World in Data, IPCC and CSE Analysis

but differentiated responsibility (CBDR) are enshrined in the UNFCCC: the continued appropriation of the carbon budget shows the disregard for them.

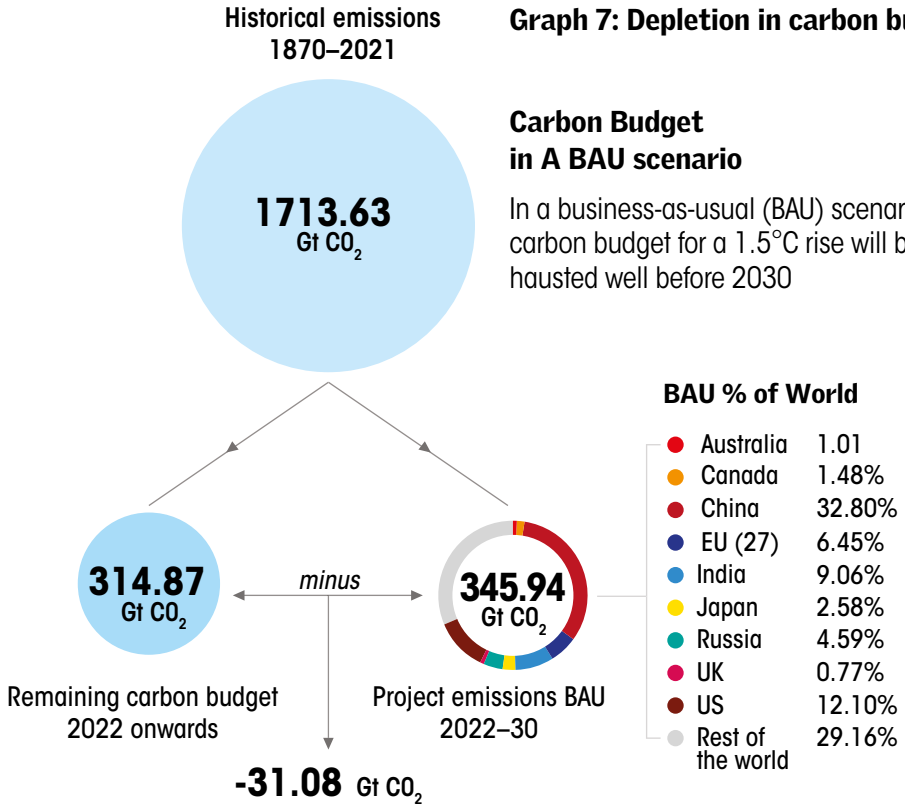
Mitigation in the COP Process

Climate negotiation processes have historically served as an important forum for mitigation action. Mitigating greenhouse gas emissions has also been the central concern of the Conference of Parties (COP) process because mitigation efforts would prevent the worst impacts of climate change in the first place. Mitigation, as a theme in COP, translates to various tracks of negotiations and discussions. The key agendas to look at in the forthcoming COP would be:

Mitigation Work Programme

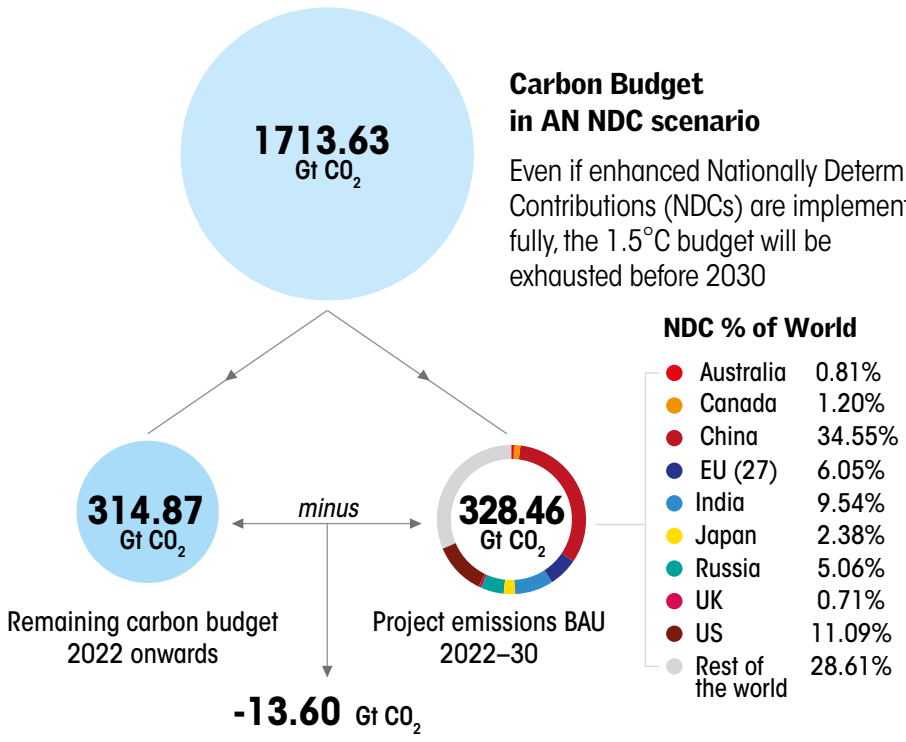
A key outcome of COP26 Glasgow Climate Pact was the agreement over the Mitigation Work Programme that would urgently scale up ambition and implementation of mitigation efforts. Its role was further detailed at COP27. The programme (Sharm el-Sheikh Mitigation Ambition and Implementation Work Programme) will host two global dialogues each

Graph 7: Depletion in carbon budget



Carbon Budget in A BAU scenario

In a business-as-usual (BAU) scenario, the carbon budget for a 1.5°C rise will be exhausted well before 2030

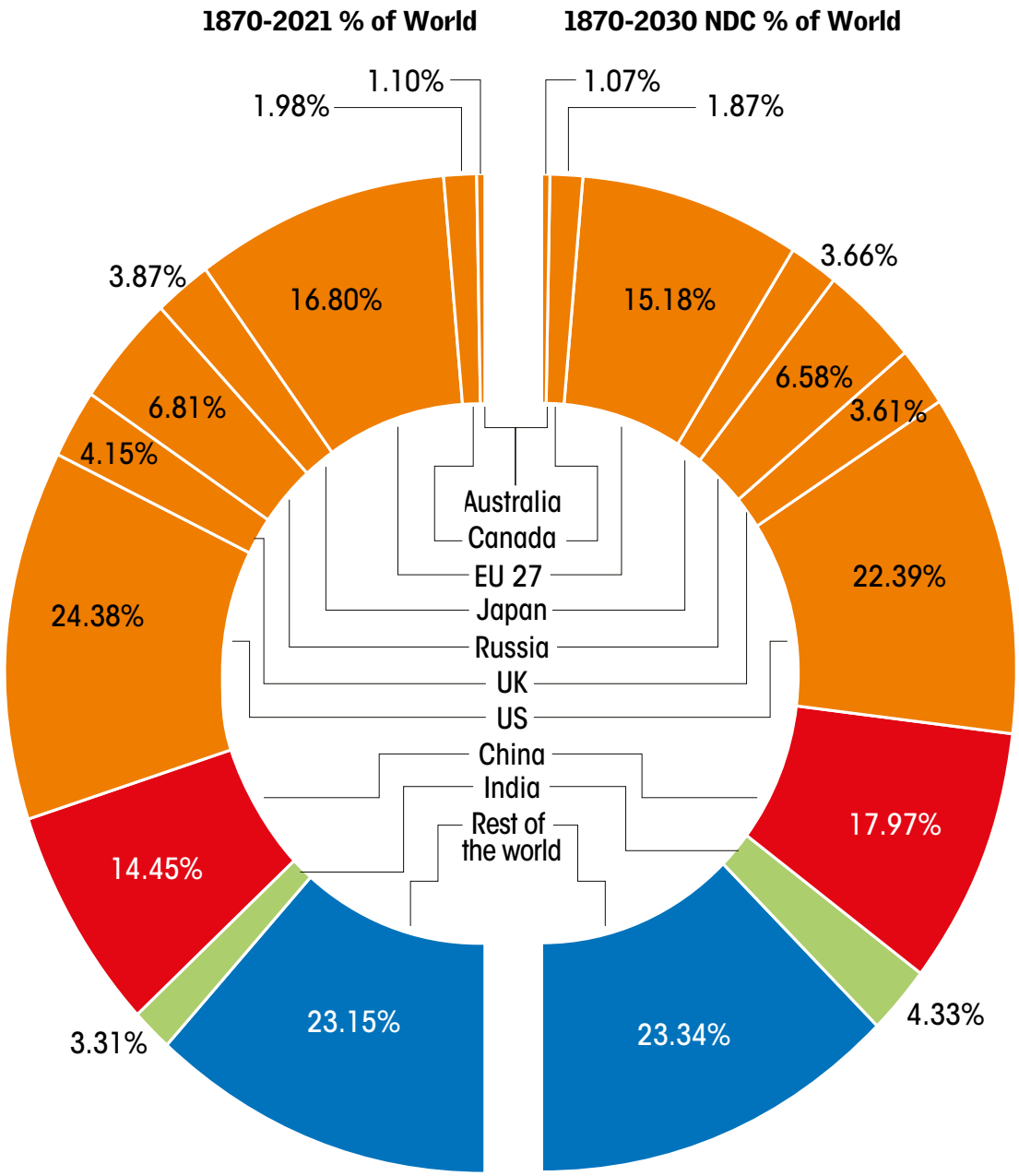


Carbon Budget in AN NDC scenario

Even if enhanced Nationally Determined Contributions (NDCs) are implemented fully, the 1.5°C budget will be exhausted before 2030

Graph 8: Appropriation of global emissions

% of total world emissions for the given period



Source: Analysis by *Down to Earth* and the Centre for Science and Environment, Delhi, based on data from Climate Watch and Our World in Data

year that will result in annual reports to be used for draft recommendations by subsidiary bodies to be adopted at the COP. Alongside the global dialogues, it will also include investment-focused events.

The Mitigation Work Programme (MWP) stands out in the UNFCCC due to its urgent nature, annual follow-ups by SBSTA and SB, and the unique flexibility for Parties to shape outcomes, assess progress, and recommend draft decisions for the COP annually.

In June 2023, the First Global Dialogue and Investment-Focused Event in Bonn addressed energy transition, covering renewable energy, grid and energy storage, CCU/CCS, and energy efficiency. Discussions highlighted the benefits of increasing renewables, challenges in smart grids and energy storage. The Investment-Focused Event explored solutions for accelerating energy transition, addressing unequal distribution of investments in renewable energy, and emphasizing the link between investments and NDCs.

This year, the agenda item on the Mitigation Work Programme could not be included in Bonn Climate Conference due to the difference over financing mitigation action in developing countries. Bolivia, representing the Like-Minded Developing Countries (LMDC), proposed adding a new agenda item regarding urgent financial support from developed countries. The request emphasized the challenges faced by developing nations in implementing climate actions due to economic constraints. While acknowledging the importance of mitigation efforts, the LMDC argued that the financial burden for addressing climate change, including mitigation, adaptation, and infrastructure needs, is a significant challenge for many developing countries. Thus, the LMDC protested the inclusion of MWP as an agenda without discussing financial support for mitigation efforts.

On October 15-17, 2023, the Second Global Dialogue and Investment-Focused Event in Abu Dhabi focused on energy transition in transport systems. Discussions included collective and non-motorized transport, energy efficiency in transportation, electrification of vehicles, and low- or zero-carbon fuels. Participants called for cooperation in critical

mineral supply chains, infrastructure, and technology access, addressing obstacles related to finance, technology access, and capacity building.

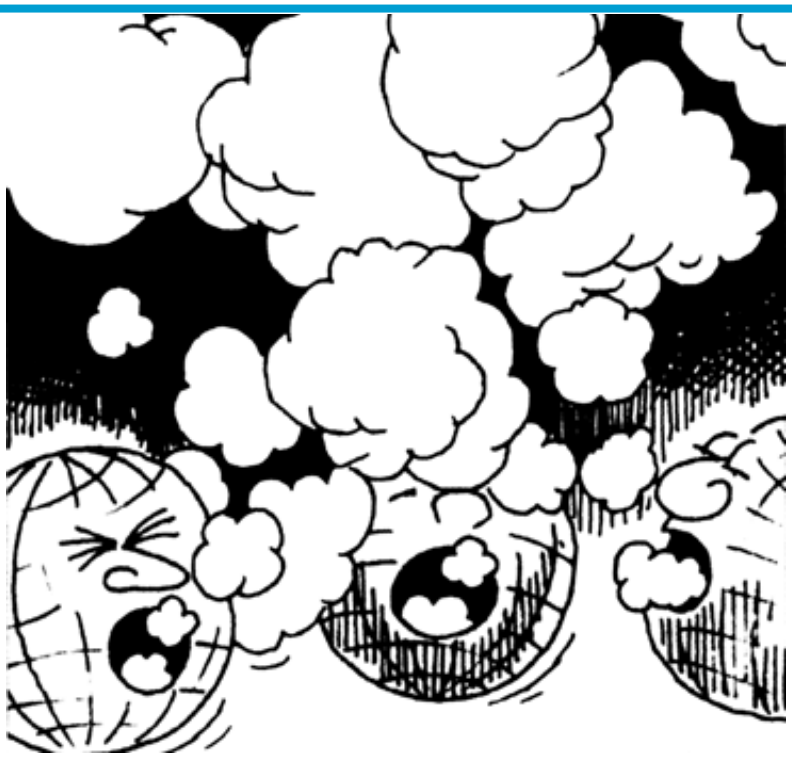
The First Global Stocktake

Mitigation is a key theme under the Global Stocktake, the first ever assessment of the progress of countries towards their climate commitments. The synthesis report on the technical phase of the GST process stated that the world is off-track to achieve the emissions reduction necessary to keep the 1.5°C goal in sight. It highlighted the need for much more ambitious mitigation efforts from countries.

In the GST negotiations, mitigation has had two highly debated elements: pre-2020 gaps and the operationalisation of equity and common but differentiated responsibility (CBDR). Developing country blocs like the Like-Minded Developing Countries (LMDC), African Group of Negotiators (AGN) and Group of 77 (G77) and China demand that the GST heavily focuses on the failure of historical polluters to curb emissions before 2020 as directed under the Kyoto Protocol. Similarly, the Global South blocs argue that the GST must reflect the principles of equity and CBDR in highlighting that developing countries have the right to continue economic growth with more access to the remaining global carbon budget than Global North countries.

The GST should be based on equity and ambition, so that countries are held responsible to set mitigation targets based on their historical contributions to global emission levels. To that end, the GST must reflect the importance of equitable burden sharing and hold countries accountable in terms of

IN THE GST NEGOTIATIONS, MITIGATION HAS HAD TWO HIGHLY DEBATED ELEMENTS: PRE-2020 GAPS AND THE OPERATIONALISATION OF EQUITY AND COMMON BUT DIFFERENTIATED RESPONSIBILITY (CBDR)

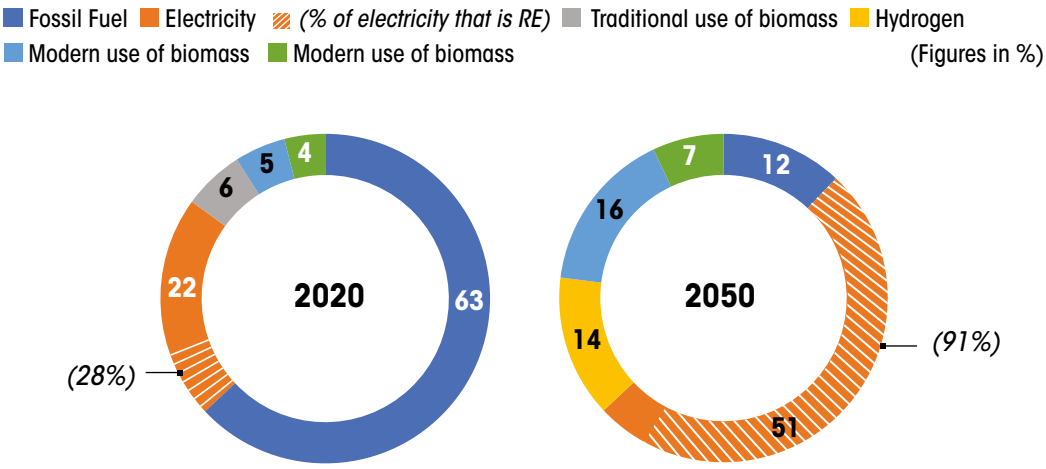


the emissions reduction they have achieved so far versus the amount ideally required. Overall, the GST should become the basis for setting a rule-based framework for global climate action moving forward. Combining historical emission burdens, per capita emissions and the right to equitable shares of the remaining global carbon budget, the GST should become the new framework guiding country ambitions for mitigation.

Energy Transition Agenda

In 2022, global primary energy consumption reached 604 exajoules, with 55 per cent coming from oil and natural gas; 27 per cent from coal; and 7.5 per cent from renewables (excluding hydro). Fossil fuel-based energy caused 34.4 $GtCO_2$ emissions, intensifying the climate crisis. The imperative is to shift towards a less emission-intensive energy mix, ensuring an equitable, accessible transition, particularly for those least responsible. Achieving the 1.5°C goal demands a focus on scaling up renewable energy, emphasising increased electricity's share in final consumption, raising renewable power in the electricity sector (currently at 28 per cent), and fulfilling new power demand exclusively through renewables.

Graph 9: Total final energy consumption by energy source under the 1.5°C scenario



Source: World Energy Transition Outlook 2023, IRENA.

At COP28 in Dubai, it is hoped that the global community would commit to targets on energy transition, most notably on tripling of RE capacity.

According to IRENA, world's total renewable energy capacity stood at 3.38 TW in 2022. Under the 1.5ºC scenario, it underscores the need to reach 11 TW of renewable energy capacity by 2030. It is only fitting therefore to ask for a minimum commitment to triple the RE capacity by 2030.

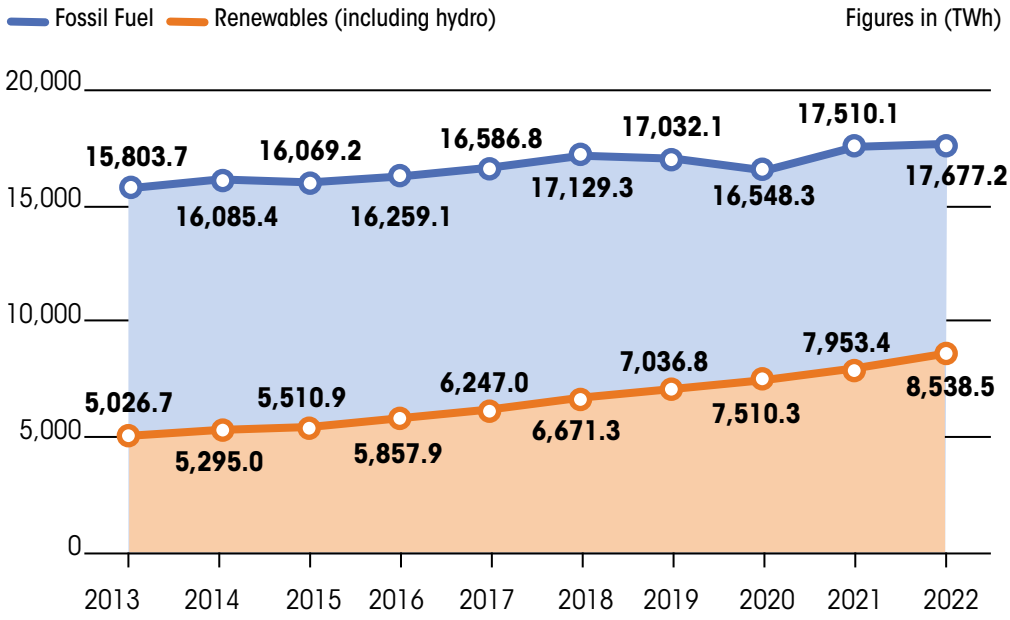
The G7 already committed to increasing solar capacity by 1 TW earlier this year and the G20 committed to triple the RE capacity by 2030. However, there has to be considerations beyond broad target settings:

1. Without fossil fuel phase-down, RE tripling carries no meaning for emission reductions

Even with a target of tripling renewable energy capacity, the significance of emission reductions may be compromised without a concurrent phase-down of fossil fuel usage, as evidenced by the persistent high levels of fossil fuel-generated energy in over the years.

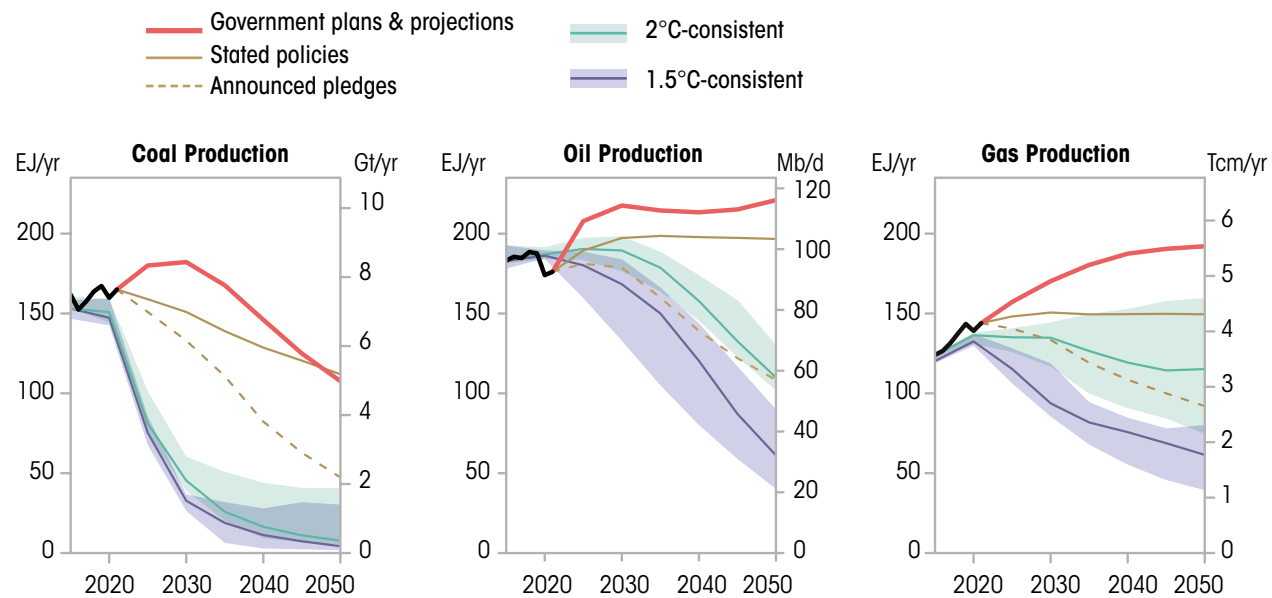
While coal production is projected to be on a declining path after 2030, both oil and gas production would continue

Graph 10: Energy generation
Data on Energy Generation. While RE capacity has been steadily increasing, so has been fossil-based power capacity



Source: Statistical Review of World Energy, Energy Institute

Graph 11: Difference between need to restrict fossil fuel production and the actual trajectory of production based on current policies and developments



Source: Production Gap Report 2023

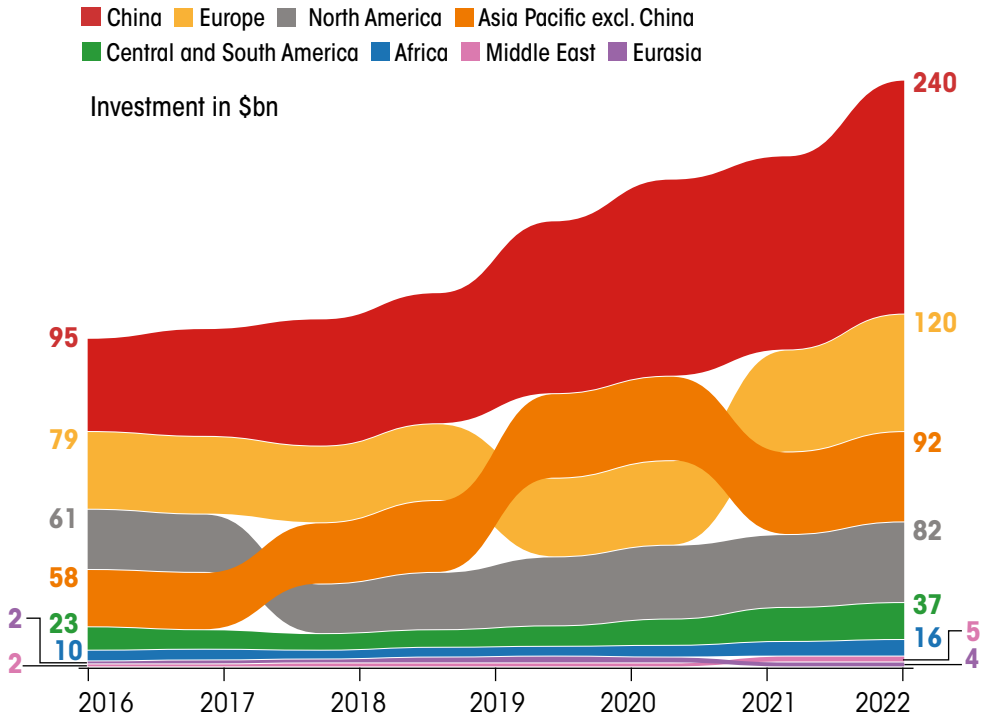
to grow beyond 2050. According to the production gap report, the difference in production levels from what would be consistent with a 1.5°C scenario is projected to be 84 million barrels per day for oil and about 3.8 trillion cubic meters per year for gas in 2050.[1]

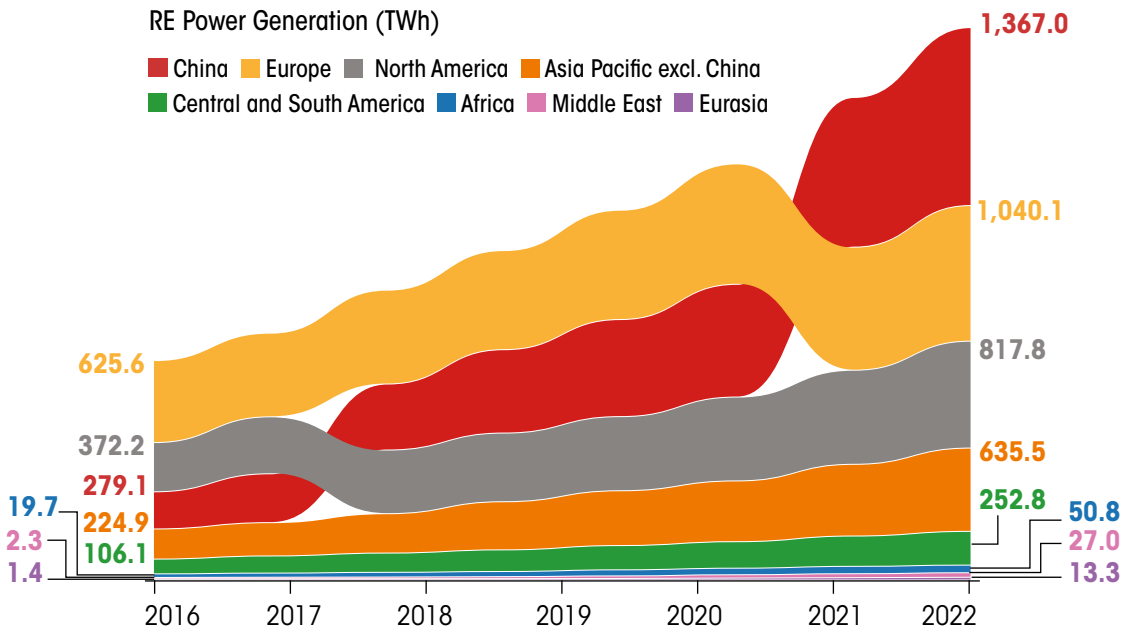
2. Clean power generation and investment have regional disparity. According to a report by IRENA, renewable energy investments have steadily increased over the years, with global investment hitting an all-time high of a record US $500 billion in 2022, led by investments in China and Europe. However, the growth story hasn't been uniform worldwide. Just 2 per cent of worldwide investments in renewable energy over the past two decades have been allocated to Africa.[2]

   This reveals stark regional imbalances. In terms of per capita investment, clean energy investments are almost

Graph 12: Differences in clean energy investment and generation

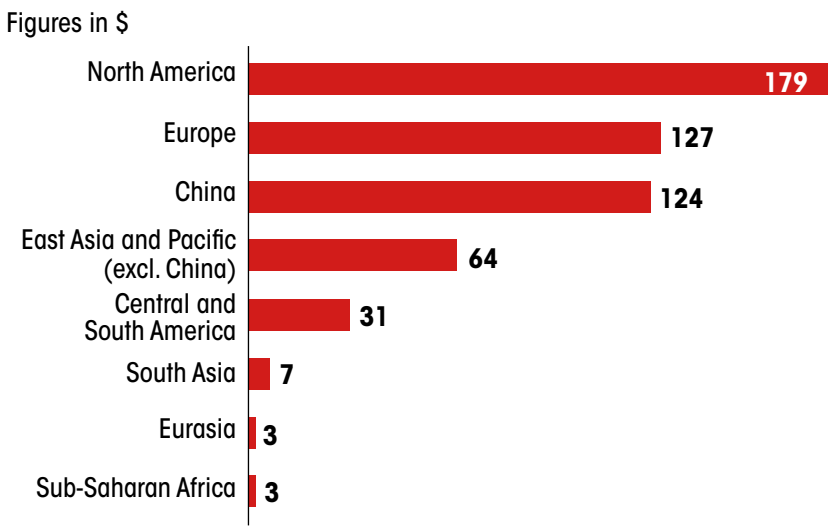
The regional difference in clean energy investment and generation has only grown over the year with the combined investment in Asia, Africa, Central and South America being less than China





Source: IEA, Energy Institute

Graph 13: Per capita clean energy investment by region (2021)



Source: CPI 2022 and World Bank

25 times higher in North America than in South Asia. It is important to direct financial flows to countries that have so far lagged behind, not just to replace the legacy power capacity but also to meet new demands, which are growing faster in these countries compared to developed countries.

The disproportionate energy consumption per capita between regions underscores the urgency for an equitable transition. Achieving the ambitious renewable energy targets, as being endorsed by the global community, is crucial; however, the effectiveness hinges on parallel efforts to phase down fossil fuel usage. The regional disparities in clean energy investments emphasize the need to redirect financial flows to underserved areas, ensuring an inclusive and sustainable transition for all.

3. Mitigation ambition should uphold the principle of differentiated responsibility. With the developed world overrunning its climate budget, the primary onus is on it to make the transition, and targets such as tripling renewable power should be more ambitious for the rich countries. Having said that, it is also important to ensure that the developing countries don't lag behind in energy transition. To accelerate renewable energy adoption in developing nations, the emphasis should shift towards incentivizing rather than imposing punitive measures. The primary hurdle, unaffordability, particularly in financing due to exorbitant capital expenses, must be addressed. Presently, emerging economies face financing costs up to seven times higher than their counterparts in the United States and Europe. To bridge this gap, a strategic approach involving targeted grant-based and concessional finance is crucial.

THE REGIONAL DISPARITIES IN CLEAN ENERGY INVESTMENTS EMPHASIZE THE NEED TO REDIRECT FINANCIAL FLOWS TO UNDERSERVED AREAS

Fossil fuel phase-out

While there is a clear imperative to do away with fossil fuels, the politics of fossil phase-out are more nuanced and characterised by the tension between the urgency to take mitigation action in combating climate change, the resistance driven by economic concerns within fossil fuel industries, and the need for energy-poor countries to have accessible and affordable energy.

Leading up to COP28, global calls to phase out fossil fuels have intensified. Over the last two years, such calls have failed to persuade countries to make a commitment. However, with the first Global Stocktake calling for a complete phase-out of unabated fossil fuels, the needle ought to shift this year. Just nine days before the start of COP, the European Parliament has formally called for a fossil fuel phase-out in its resolution for COP28. However, several other countries may not agree with this commitment. For instance, Russia has vocally opposed talks on fossil fuel phase-out in the GST process, or some countries may agree to a conditional version, such as the African Group's contention that the phase-out must come first from developed countries.

Mitigation in National Ambition

Amidst all the talk of global goals at COP, the significance of well-defined domestic strategies cannot be overstated. As the developing world engages in negotiations, seeking financial support and technology transfer, it is important for them to chart their own course, aligning with their domestic imperatives. This proactive approach is essential to avoid the potential repercussions of top-down prescriptions that may not be suitable for their unique circumstances. Beyond financial considerations, the Global South requires design solutions and institutional interventions-decisions that are best made at the domestic level. Emphasising locally relevant pathways in each sector needs to be the guiding factor for the global support expected to come their way.

ANNEXURE 1: CO_2 Emissions of 2021-2030 in a BAU Scenario (All emissions are in gigatonnes CO_2)

Country	2021	% of World 2021	2022	2023	2024	2025
Argentina	0.19	0.50%	0.18	0.18	0.18	0.18
Australia	0.39	1%	0.39	0.39	0.39	0.39
Azerbaijan	0.04	0.10%	0.04	0.04	0.04	0.04
Belarus	0.06	0.16%	0.06	0.06	0.06	0.06
Bosnia and Herzegovina	0.01	0.04%	0.01	0.01	0.01	0.01
Botswana	0.01	0.02%	0.01	0.01	0.01	0.01
Brazil	0.49	1.32%	0.50	0.52	0.53	0.55
Canada	0.55	1%	0.55	0.55	0.56	0.56
Chile	0.09	0.23%	0.09	0.09	0.09	0.09
China	11.47	31%	11.69	11.91	12.13	12.36
Colombia	0.09	0.25%	0.09	0.09	0.09	0.09
Cook Islands	0.00	0.00%	0.00	0.00	0.00	0.00
Costa Rica	0.01	0.02%	0.01	0.01	0.01	0.01
Dominica	0.00	0.00%	0.00	0.00	0.00	0.00
Equatorial Guinea	0.01	0.01%	0.01	0.00	0.00	0.00
Eritrea	0.00	0.00%	0.00	0.00	0.00	0.00
Ethiopia	0.02	0.05%	0.02	0.02	0.02	0.03
European Union (27)	2.79	7.52%	2.73	2.66	2.60	2.53
Grenada	0.00	0.00%	0.00	0.00	0.00	0.00
Iceland	0.00	0.01%	0.00	0.00	0.00	0.00
India	2.71	7.30%	2.84	2.99	3.14	3.29
Japan	1.07	3%	1.05	1.04	1.02	1.01
Kazakhstan	0.28	0.75%	0.29	0.29	0.30	0.31
Liechtenstein	0.00	0.00%	0.00	0.00	0.00	0.00
Marshall Islands	0.00	0.00%	0.00	0.00	0.00	0.00

2026	2027	2028	2029	2030	2022-2030 BAU	2022-2030 BAU % of World	% of world BAU 2021-30
0.18	0.18	0.18	0.17	0.17	1.60	0.46%	0.42%
0.39	0.39	0.39	0.39	0.39	3.51	1.01%	1.06%
0.04	0.04	0.04	0.04	0.04	0.36	0.10%	0.11%
0.06	0.06	0.06	0.06	0.06	0.56	0.16%	0.17%
0.01	0.01	0.01	0.01	0.01	0.11	0.03%	0.06%
0.01	0.01	0.01	0.02	0.02	0.11	0.03%	0.03%
0.56	0.58	0.60	0.62	0.63	5.09	1.47%	1.38%
0.57	0.57	0.58	0.58	0.59	5.12	1.48%	1.52%
0.10	0.10	0.10	0.10	0.10	0.86	0.25%	0.25%
12.59	12.83	13.07	13.32	13.57	113.47	32.80%	33.07%
0.10	0.10	0.10	0.10	0.10	0.86	0.25%	0.26%
0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00%
0.01	0.01	0.01	0.01	0.01	0.08	0.02%	0.02%
0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00%
0.00	0.00	0.00	0.00	0.00	0.04	0.01%	0.02%
0.00	0.00	0.00	0.00	0.00	0.01	0.00%	0.00%
0.03	0.03	0.04	0.04	0.05	0.29	0.08%	0.06%
2.47	2.41	2.35	2.30	2.24	22.30	6.45%	6.31%
0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00%
0.00	0.00	0.00	0.00	0.00	0.03	0.01%	0.01%
3.46	3.63	3.81	4.00	4.20	31.34	9.06%	8.77%
0.99	0.98	0.96	0.95	0.94	8.94	2.58%	2.60%
0.32	0.33	0.34	0.35	0.37	2.92	0.84%	0.96%
0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00%
0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00%

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Country	2021	% of World 2021	2022	2023	2024	2025
Mauritius	0.00	0.01%	0.00	0.00	0.00	0.00
Micronesia	0.00	0.00%	0.00	0.00	0.00	0.00
Moldova	0.01	0.02%	0.01	0.01	0.01	0.01
Montenegro	0.00	0.00%	0.00	0.00	0.00	0.00
New Zealand	0.03	0.09%	0.03	0.03	0.03	0.03
Nicaragua	0.01	0.01%	0.01	0.01	0.01	0.01
Norway	0.04	0.11%	0.04	0.04	0.04	0.04
Oman	0.08	0.22%	0.08	0.09	0.09	0.10
Russia	1.76	5%	1.76	1.76	1.76	1.76
Serbia	0.03	0.08%	0.03	0.03	0.03	0.03
Singapore	0.03	0.09%	0.03	0.04	0.04	0.04
South Africa	0.44	1.17%	0.44	0.44	0.44	0.44
South Korea	0.62	1.66%	0.62	0.63	0.64	0.65
Switzerland	0.03	0.09%	0.03	0.03	0.03	0.03
Tajikistan	0.01	0.03%	0.01	0.01	0.01	0.02
Ukraine	0.20	0.54%	0.20	0.19	0.19	0.18
United Kingdom	0.35	1%	0.34	0.32	0.31	0.30
United States	5.01	13%	4.93	4.86	4.79	4.72
Vietnam	0.33	0.88%	0.34	0.35	0.37	0.38
Zambia	0.01	0.02%	0.01	0.01	0.01	0.01
Total of 45	29.24	79%	29.48	29.74	30.01	30.30
Rest of the World	7.88	21%	7.90	7.90	7.89	7.86
World	37.12	100.00%	37.38	37.64	37.90	38.17

2026	2027	2028	2029	2030	2022-2030 BAU	2022-2030 BAU % of World	% of world BAU 2021-30
0.01	0.01	0.01	0.01	0.01	0.05	0.01%	0.01%
0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00%
0.01	0.01	0.01	0.01	0.01	0.06	0.02%	0.02%
0.00	0.00	0.00	0.00	0.00	0.01	0.00%	0.01%
0.03	0.03	0.03	0.03	0.03	0.27	0.08%	0.10%
0.01	0.01	0.01	0.01	0.01	0.05	0.01%	0.01%
0.04	0.04	0.04	0.04	0.04	0.36	0.10%	0.11%
0.10	0.10	0.11	0.11	0.12	0.90	0.26%	0.22%
1.77	1.77	1.77	1.77	1.77	15.89	4.59%	4.40%
0.03	0.03	0.03	0.03	0.04	0.30	0.09%	0.13%
0.05	0.05	0.05	0.06	0.06	0.42	0.12%	0.14%
0.44	0.44	0.44	0.44	0.44	3.94	1.14%	1.34%
0.66	0.67	0.68	0.69	0.70	5.93	1.72%	1.78%
0.03	0.03	0.03	0.03	0.03	0.29	0.08%	0.08%
0.02	0.02	0.02	0.02	0.02	0.16	0.05%	0.04%
0.18	0.18	0.17	0.17	0.17	1.63	0.47%	0.52%
0.29	0.28	0.27	0.27	0.26	2.65	0.77%	0.78%
4.65	4.58	4.51	4.45	4.38	41.87	12.10%	11.51%
0.39	0.41	0.42	0.44	0.46	3.56	1.03%	1.01%
0.01	0.01	0.02	0.02	0.02	0.12	0.03%	0.03%
30.61	30.94	31.29	31.65	32.04	276.07	79.80%	79.33%
7.82	7.76	7.68	7.59	7.47	69.87	20.20%	20.67%
38.43	38.70	38.97	39.24	39.51	345.94	100%	100.00%

ANNEXURE 2: CO_2 emissions of 2021–30 if NDCs are implemented

Country	NDC % Emission Reduction (Checked in 2022 till Nov 1)	2021	2022	2023	2024	2025
Argentina	Cap net emissions of 349 MtCO2e in 2030	0.19	0.19	0.20	0.20	0.20
Australia	43% reduction of greenhouse gas emissions by 2030 below 2005 levels	0.39	0.37	0.35	0.33	0.32
Azerbaijan	" 40% compared to 1990 (base year) level by 2050 if international support is provided through financing, technology transfer and capacity building"	0.04	0.04	0.04	0.04	0.04
Belarus	Reducing its emissions by 35% by 2030 compared to 1990 levels (unconditional), and 40% by 2030 compared to 1990 levels (conditional)	0.06	0.06	0.06	0.06	0.06
Bosnia and Herzegovina	Reduce emissions by 12.8% (unconditional) and 17.5% (conditional) by 2030; 50% (unconditional) and 55% (conditional) by 2050, compared to 2014 levels	0.01	0.01	0.01	0.02	0.02
Botswana	15% reduction in GHG emissions by 2030 compared to 2010	0.01	0.01	0.01	0.01	0.01
Brazil	"Brazil commits to an absolute net greenhouse gas emission target in 2030 consistent with a reduction of 53.1% in comparison with 2005, according to the latest inventory data."	0.49	0.45	0.42	0.38	0.35
Canada	-40-45% GHG below 2005 by 2030	0.55	0.52	0.50	0.48	0.46
Chile	A goal of 95 MtCO2eq by 2030 excl. LULUCF	0.09	0.08	0.08	0.08	0.08
China	Carbon intensity, peak emissions, non fossil energy and forest stock	11.47	11.69	11.91	12.13	12.36
Colombia	Maximum of 169.44 MtCO2e in 2030	0.09	0.09	0.09	0.09	0.10
Cook Islands	38% reduction by 2020 (unconditional) and 81% reduction by 2030 (conditional) in GHG emission from electricity generation compared to 2006	0.00	0.00	0.00	0.00	0.00
Costa Rica	2030 cap of 9.11 MtCO2e net-emissions and a maximum net-emissions budget of 106.53 MtCO2e from 2021 to 2030	0.01	0.01	0.01	0.01	0.01
Dominica	Reducing its greenhouse gas emissions by 45% below 2014 levels by 2030	0.00	0.00	0.00	0.00	0.00
Equatorial Guinea	20% reduction in emissions by 2030 compared to 2010 levels, in order to acheive a 50% reduction by 2050	0.01	0.01	0.01	0.01	0.01
Eritrea	The government of Eritrea is committed to reduce the CO2 emissions from fossil fuels by 4.2% in 2020, 6.2% by 2025 and 12.0% by 2030 compared to the projected BAU of the reference year of 2010. If additional support is availed, it can further be reduced by 12.6% in 2020, 24.9% by 2025 and 38.5 by the year 2030.	0.00	0.00	0.00	0.00	0.00
Ethiopia	Reduce GHG emisssions by 14% (unconditional) and 68.8% (conditional) by 2030 compared to BAU	0.02	0.04	0.05	0.07	0.09
European Union (27)	domestic reduction of net greenhouse gas emissions by at least 55% compared to 1990 by 2030.	2.79	2.68	2.56	2.44	2.32
Grenada	40% reduction of the 2010 emissions levels by 2030	0.00	0.00	0.00	0.00	0.00
Iceland	"Economy-wide net reduction of at least 55% in greenhouse gas emissions by 2030 compared to 1990"	0.00	0.00	0.00	0.00	0.00
India	Emissions intensity, non fossil power, sink	2.71	2.84	2.99	3.14	3.29
Japan	-46% GHG below 2013 by 2030	1.07	1.03	0.99	0.95	0.91

2026	2027	2028	2029	2030	2030 Should be	2030-2021 Difference (9 yrs)	NDC 2022-2030	"% Of W NDC 2022-2030"	BAU 2022-2030	"% Of W BAU 2022-2030"	Absolute difference NDC-BAU 2021-30
0.21	0.21	0.22	0.22	0.23	0.23	0.00	1.87	0.57%	1.61	0.47%	0.26
0.30	0.28	0.26	0.24	0.22	0.22	-0.02	2.67	0.81%	3.51	1.01%	-0.84
0.03	0.03	0.03	0.03	0.03	0.03	0.00	0.31	0.09%	0.36	0.10%	-0.05
0.06	0.06	0.06	0.06	0.06	0.06	0.00	0.55	0.17%	0.56	0.16%	-0.01
0.02	0.02	0.02	0.02	0.02	0.02	0.00	0.15	0.05%	0.11	0.03%	0.04
0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01%	0.11	0.03%	-0.06
0.31	0.28	0.24	0.21	0.17	0.17	-0.04	2.81	0.86%	5.09	1.47%	-2.28
0.44	0.42	0.40	0.38	0.35	0.35	-0.02	3.96	1.20%	5.12	1.48%	-1.17
0.08	0.08	0.07	0.07	0.07	0.07	0.00	0.69	0.21%	0.86	0.25%	-0.17
12.59	12.83	13.07	13.32	13.57	13.57	0.23	113.47	34.55%	113.47	32.80%	0.00
0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.86	0.26%	0.86	0.25%	0.0025
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%	0.00
0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.06	0.02%	0.08	0.02%	-0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%	0.00
0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.05	0.01%	0.04	0.01%	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.01	0.00%	0.00
0.11	0.12	0.14	0.16	0.18	0.18	0.02	0.95	0.29%	0.29	0.08%	0.66
2.21	2.09	1.97	1.86	1.74	1.74	-0.12	19.87	6.05%	22.30	6.45%	-2.43
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01%	0.03	0.01%	-0.01
3.46	3.63	3.81	4.00	4.20	4.20	0.17	31.34	9.54%	31.34	9.06%	0.00
0.87	0.83	0.79	0.75	0.71	0.71	-0.04	7.82	2.38%	8.94	2.58%	-1.12

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Country	NDC % Emission Reduction (Checked in 2022 till Nov 1)	2021	2022	2023	2024	2025
Kazakhstan	15% (unconditional) to 25% (conditional) reduction in GHG emissions by 2030 compared to 1990	0.28	0.27	0.26	0.25	0.25
Liechtenstein	40% reduction in GHG emissions by 2030 compared to 1990	0.00	0.00	0.00	0.00	0.00
Marshall Islands	GHG reduction of at least 45% below 2010 levels by 2030.	0.00	0.00	0.00	0.00	0.00
Mauritius	Reduce GHG emissions by 40% by 2030 compared to BAU (6900 ktCO2e)	0.00	0.00	0.00	0.00	0.00
Micronesia	28% (unconditional) up to 35% (conditional) reduction in GHG emissions by 2025 compared to 2000	0.00	0.00	0.00	0.00	0.00
Moldova	70% (unconditional) and up to 88% (conditional) reduction in GHG emission in 2030 compared to 1990	0.01	0.01	0.01	0.00	0.00
Montenegro	Economy-wide GHG emission reduction target of 35% by 2030 compared to base year (1990) emissions, excluding LULUCF	0.00	0.00	0.00	0.00	0.00
New Zealand	Reduce net greenhouse gas emissions to 50% below gross 2005 levels by 2030	0.03	0.03	0.03	0.03	0.03
Nicaragua	69 MtCO2e in 2030 or 10% reduction compared to BAU (77 MtCO2e)	0.01	0.01	0.02	0.02	0.03
Norway	At least 55% reduction in greenhouse gas emission by 2030 compared to 1990 levels	0.04	0.04	0.04	0.03	0.03
Oman	Oman commits to reduce GHG Emissions by 4% (unconditional) and 7% (conditional) by 2030 compared to BAU (125.254 MTCO2e)	0.08	0.08	0.08	0.08	0.08
Russia	-24% GHG below 1990 by 2030 excl LULUCF	1.76	1.77	1.79	1.81	1.83
Serbia	13.2% reduction in GHG emissions by 2030 compared to 2010	0.03	0.03	0.03	0.03	0.03
Singapore	To reduce emissions to around 60 MtCO2e in 2030 after peaking its emissions earlier. 11% above 2010 levels acc to CAT 2022	0.03	0.04	0.04	0.04	0.05
South Africa	"In 2030, annual GHG emissions will be in a range from 350-420 Mt CO2-eq"	0.44	0.42	0.40	0.39	0.37
South Korea	Reduce GHG emissions by 40% by 2030 compared to 2018 levels (727.6 MtCO2e)	0.62	0.59	0.56	0.54	0.51
Switzerland	Reduce greenhouse gas emissions by at least 50% by 2030 compared to 1990 levels	0.03	0.03	0.03	0.03	0.03
Tajikistan	Not exceeding 80-90% (amounts to 1.7-2.2 tCO2e per capita) (unconditional) of 1990 level by 2030; achieve 65-75% (amounts to 1.2-1.7 tCO2e per capita) (conditional) of 1990 level by 2030	0.01	0.01	0.01	0.01	0.01
Ukraine	65% reduction below 1990 levels by 2030	0.20	0.21	0.21	0.22	0.22
United Kingdom	-69% GHG below 1990 by 2030 excl LULUCF	0.35	0.33	0.31	0.29	0.28
United States	-43-50% GHG below 2005 by 2030 excl LULUCF	5.01	4.82	4.62	4.43	4.24
Vietnam	Reduce total GHG emissions by about 15.9% compared to the BAU scenario	0.33	0.34	0.35	0.36	0.37
Zambia	Zambia commits to reduce its GHG emissions conditionally by at least 25% (under limited international support) and towards 47% (with substantial international support) compared to 2010 levels	0.01	0.01	0.01	0.01	0.00
Total of 45		29.24	29.16	29.09	29.02	28.97
Rest of the World		7.47	7.52	7.56	7.58	7.58
World		36.71	36.68	36.64	36.60	36.56

2026	2027	2028	2029	2030	2030 Should be	2030-2021 Difference (9 yrs)	NDC 2022-2030	"% Of W NDC 2022-2030"	BAU 2022-2030	"% Of W BAU 2022-2030"	Absolute difference NDC-BAU 2021-30
0.24	0.23	0.23	0.22	0.21	0.21	-0.01	2.16	0.66%	2.92	0.84%	-0.76
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01%	0.05	0.01%	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01%	0.06	0.02%	-0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00%	0.01	0.00%	0.00
0.03	0.02	0.02	0.02	0.02	0.02	0.00	0.23	0.07%	0.27	0.08%	-0.05
0.03	0.04	0.04	0.05	0.05	0.05	0.01	0.28	0.08%	0.05	0.01%	0.23
0.03	0.02	0.02	0.02	0.02	0.02	0.00	0.24	0.07%	0.36	0.10%	-0.12
0.08	0.08	0.09	0.09	0.09	0.09	0.00	0.75	0.23%	0.90	0.26%	-0.14
1.85	1.86	1.88	1.90	1.92	1.92	0.02	16.62	5.06%	15.89	4.59%	0.73
0.04	0.04	0.04	0.04	0.04	0.04	0.00	0.32	0.10%	0.30	0.09%	0.02
0.05	0.05	0.06	0.06	0.07	0.07	0.00	0.46	0.14%	0.42	0.12%	0.04
0.35	0.34	0.32	0.30	0.28	0.28	-0.02	3.17	0.96%	3.94	1.14%	-0.77
0.49	0.46	0.43	0.41	0.38	0.38	-0.03	4.37	1.33%	5.93	1.72%	-1.57
0.03	0.03	0.03	0.02	0.02	0.02	0.00	0.25	0.08%	0.29	0.08%	-0.03
0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.08	0.02%	0.16	0.05%	-0.08
0.23	0.23	0.24	0.24	0.25	0.25	0.01	2.04	0.62%	1.63	0.47%	0.41
0.26	0.24	0.22	0.20	0.19	0.19	-0.02	2.32	0.71%	2.65	0.77%	-0.34
4.05	3.86	3.66	3.47	3.28	3.28	-0.19	36.43	11.09%	41.87	12.10%	-5.44
0.38	0.40	0.41	0.42	0.43	0.43	0.01	3.46	1.05%	3.56	1.03%	-0.09
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01%	0.12	0.03%	-0.08
28.94	28.91	28.90	28.90	28.92			260.81	79.40%	276.07	79.80%	-15.26
7.57	7.55	7.50	7.44	7.36			67.66	20.60%	69.87	20.20%	-2.22
36.51	36.46	36.40	36.34	36.28			328.46	100.00%	345.94	100.00%	-17.48

ANNEXURE 3: Per capita emissions

Country	Population 2021	Population 2030	Emissions 2021 in tonnes
Argentina	45808747	48400764	186448290
Australia	25688079	27907732	391187420
Azerbaijan	10137750	10532068	38492804
Belarus	9302585	8901447	59602456
Bosnia and Herzegovina	3270943	3111789	13566311
Botswana	2588423	2972271	6499919
Brazil	214326223	223908968	488881100
Canada	38226498	41352656	545634500
Chile	19493184	19933769	85446920
China	1412360000	1401531648	11472369000
Colombia	51516562	54129764	91703380
Cook Islands	N/A	N/A	91403
Costa Rica	5153957	5432243	7819507
Dominica	72412	74988	158529
Equatorial Guinea	1634466	1999678	5224788
Eritrea	3620312	4283355	820601
Ethiopia	120283026	149296378	17792552
European Union (27)	447179800	440531940	2793016300
Grenada	124610	130367	319210
Iceland	372520	398852	3374964
India	1407563842	1514994080	2709683700
Japan	125681593	119190912	1067398460
Kazakhstan	19000988	21397918	276683460
Liechtenstein	39039	41030	150950
Marshall Islands	42050	44733	158962
Mauritius	1266334	1267403	4471674
Micronesia	113131	122704	158962

Emissions BAU 2030 in tonnes	Emissions NDC 2030 in tonnes	Per capita 2021	Per capita BAU 2030	Per capita NDC 2030	NDC-BAU
170000000	225134640	4.07	3.51	4.65	1.139
389051050	220312669	15.23	13.94	7.89	-6.046
40401682	30795504	3.80	3.84	2.92	-0.912
64973271	62213827	6.41	7.30	6.99	-0.310
11825558	18831279	4.15	3.80	6.05	2.251
17383205	3855880	2.51	5.85	1.30	-4.551
633332112	170889999	2.28	2.83	0.76	-2.065
588437480	354507195	14.27	14.23	8.57	-5.657
104833502	70300000	4.38	5.26	3.53	-1.732
13567864142	13567864142	8.12	9.68	9.68	0.000
98872835	99286562	1.78	1.83	1.83	0.008
111367	9050	#VALUE!	#VALUE!	#VALUE!	#VALUE!
9959143	6741400	1.52	1.83	1.24	-0.592
192026	96730	2.19	2.56	1.29	-1.271
4205293	5493069	3.20	2.10	2.75	0.644
1091112	305653	0.23	0.25	0.07	-0.183
47894950	175380000	0.15	0.32	1.17	0.854
2242795213	1739471265	6.25	5.09	3.95	-1.143
433662	156086	2.56	3.33	1.20	-2.129
3288268	1011511	9.06	8.24	2.54	-5.708
4196838637	4196838637	1.93	2.77	2.77	0.000
936222295	709939619	8.49	7.85	5.96	-1.898
366083753	210910465	14.56	17.11	9.86	-7.252
109019	119381	3.87	2.66	2.91	0.253
200234	74562	3.78	4.48	1.67	-2.809
5627709	3063600	3.53	4.44	2.42	-2.023
244962	83356	1.41	2.00	0.68	-1.317

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Country	Population 2021	Population 2030	Emissions 2021 in tonnes
Moldova	2615199	2226189	5601510
Montenegro	619211	610842	1751386
New Zealand	5111400	5413621	33789824
Nicaragua	6850540	7688686	5059770
Norway	5408320	5751641	40918550
Oman	4520471	5093376	80991180
Russia	143449286	140192288	1755547400
Serbia	6834326	6399209	30868986
Singapore	5453566	5896621	32506890
South Africa	59392255	64659278	435928900
South Korea	51744876	50903768	616075000
Switzerland	8703405	9140538	34931692
Tajikistan	9750064	11421430	10336408
Ukraine	43792855	40619312	201857710
United Kingdom	67026300	68456440	346773200
United States	332031554	346298144	5007336000
Vietnam	97468029	102699905	326013660
Zambia	19473125	24676417	7676180

NOTES

The above 45 countries have been selected since their NDCs have percentage reduction targets of emissions for 2030 and are quantifiable.

BAU emissions till 2030 have been projected based on the median annual rate of change of the past decade (2010-2019).

This analysis uses only annual production-based carbon dioxide (CO_2) emissions from the burning of fossil fuels for energy and cement production. Land use change and consumption emissions are not included.

DATA SOURCES:

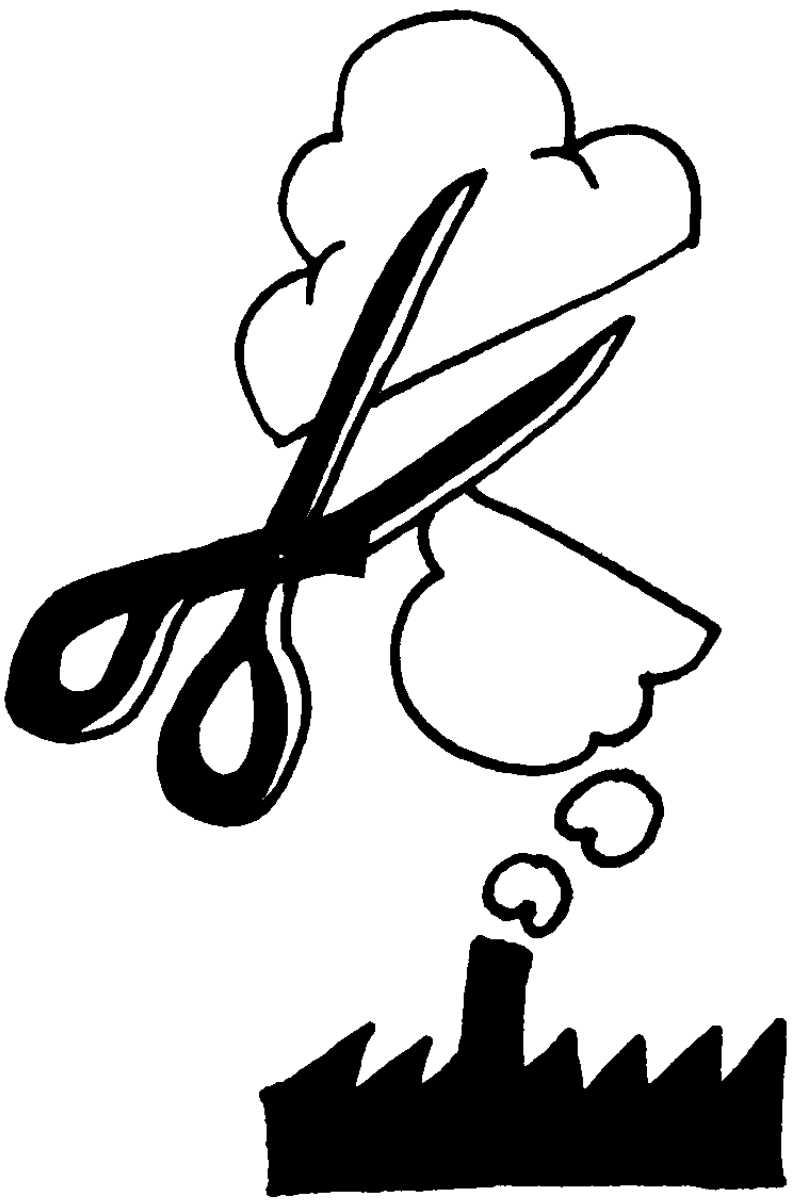
CO_2 Emissions

Our World in Data based on Global Carbon Project; BP; Maddison; UNWPP https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions

Emissions BAU 2030 in tonnes	Emissions NDC 2030 in tonnes	Per capita 2021	Per capita BAU 2030	Per capita NDC 2030	NDC-BAU
7046729	3333485	2.14	3.17	1.50	-1.668
1403626	1245063	2.83	2.30	2.04	-0.260
27997266	18785520	6.61	5.17	3.47	-1.702
5997478	51060000	0.74	0.78	6.64	5.861
38778781	15750000	7.57	6.74	2.74	-4.004
116683952	86199803	17.92	22.91	16.92	-5.985
1773619027	1919223274	12.24	12.65	13.69	1.039
35503365	39664498	4.52	5.55	6.20	0.650
59980541	65000000	5.96	10.17	11.02	0.851
438326229	284900000	7.34	6.78	4.41	-2.373
695406527	380960441	11.91	13.66	7.48	-6.177
29318109	22518755	4.01	3.21	2.46	-0.744
24731412	7093154	1.06	2.17	0.62	-1.544
165375483	247040497	4.61	4.07	6.08	2.010
257159416	186148644	5.17	3.76	2.72	-1.037
4380373182	3280562742	15.08	12.65	9.47	-3.176
457545357	432000000	3.34	4.46	4.21	-0.249
18979683	1358166	0.39	0.77	0.06	-0.714

References

1. SEI, Climate Analytics, E3G, IISD, and UNEP. (2023). The Production Gap
2. IRENA and CPI (2023), Global landscape of renewable energy finance, 2023, International Renewable Energy Agency, Abu Dhabi.



COP28

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FACTSHEET

ARTICLE 6 OF THE PARIS AGREEMENT

While the negotiation carves out further guidance on Article 6, bilateral deals between countries are making Article 6 operational

Parties need infrastructure and institutional capacities to understand the opportunity cost of trading mitigation outcomes

Non-market approaches under Article 6 are equally important and require more attention than they currently receive

FACTSHEET

ADAPTATION GOAL

Even after eight Glasgow Sharm El-Shaikh (GlaSS) workshops on the Global Goal for Adaptation (GGA), adoption of the GGA framework at COP 28 may be tricky

The GGA framework has to be in line with the principle of common but differentiated responsibilities and respective capacities

Grant-based contributions for adaptation finance, especially to the Adaptation Fund, from developed countries have to increase by many times to reduce the Adaptation Finance Gap

FACTSHEET

CLIMATE FINANCE

In 2009, developed countries committed to providing US $100 billion in climate finance per year to developing countries from 2020. In 2021, the total climate finance provided by them stood at US $89. 6 billion according to OECD

Progress on deciding a New Collective Quantified Goal (NCQG) on climate finance by 2025 is slow. Developing countries hope to see discussions on the quality of finance at COP 28

FACTSHEET

MITIGATION

Climate change mitigation is achieved by limiting or preventing GHG emissions and by enhancing activities that remove these gases from atmosphere

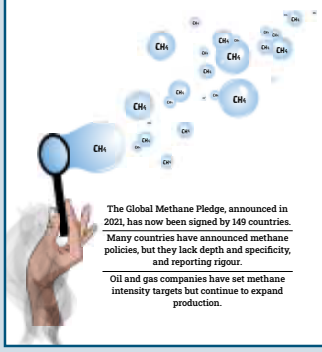
Current Nationally Determined Contributions (NDCs) are insufficient, with estimates suggesting a temperature rise between 2.1 to 4oC by 2030 if these pledges are implemented

Shifting to a low-emission energy mix, tripling renewable energy capacity, and phasing down fossil fuels require addressing regional imbalances, redirecting financial flows to underserved regions, and incentivizing renewable adoption in developing nations.

FACTSHEET

METHANE

IS ALL THE TALK ACCOMPANIED BY A WALK?



The Global Methane Pledge, announced in 2021, has now been signed by 149 countries.

Many countries have announced methane policies, but they lack depth and specificity, and reporting rigour.

Oil and gas companies have set methane intensity targets but continue to expand production.

FACTSHEET

LOSS AND DAMAGE

Estimations of economic, non-economic and ecological losses due to ongoing and future impacts of climate change are termed as loss and damage (L&D)

The world needs to provide L&D finance under the broader climate justice and equity framework

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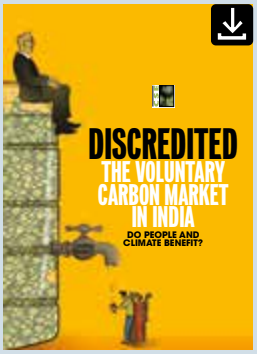

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