Climate Action Network

Position: Global targets for clean renewables and energy efficiency must stand alongside fossil fuel phase out

August 2023

Climate Action Network (CAN) is a global network of more than 1,900 civil society organisations in over 130 countries driving collective and sustainable action to fight the climate crisis and to achieve social and racial justice.

Summary

CAN underscores the following positions in the energy sector to keep the world on a pathway for a 1.5 degrees Celsius (ºC) survival target. The energy sector and its fossil fuel use is the key sector worldwide to provide the largest and most cost-effective GHG emissions and pollution reduction potentials. CAN demands that the world and countries individually:

- Agree on a fair, fast, full, and funded phase out of fossil fuels in all sectors and replace those with clean solutions of 100% renewables for energy and industrial processes in a just and equitable way by 2050 latest while historically and presently large and rich polluters have to move earlier; Rapidly scale up the electricity sector to supplying around three quarters of all energy by mid-century for replacing fossil fuels in sectors dominated by them, like transport, heating, industrial processes,
- Immediately start to employ at least 1.5 Terawatt (TW or 1,500 Gigawatt) renewable power annually that will lead to more than triple renewable electricity capacity by 2030 latest and beyond;
- Provide enough renewable energy services for all and overcome dire energy poverty in the Global South in line with the agreed Sustainable Development Goals by 2030.
- Focus primarily on all forms of wind, solar and geothermal for the renewable energy scaling;
- Support a substantial improvement in energy savings and energy conservation by both decreasing energy intensity and reducing wasteful energy demand, in an equitable way, including strong and binding energy efficiency legislation in all countries in next years whilst ensuring safe, clean, reliable and affordable access to energy services for all and tackling energy overconsumption by the rich, with the aim of reducing total final energy demand by at least a quarter by 2050 compared to today;
- Rapidly expand clean infrastructure as needed and as appropriate with the 1.5ºC and deep decarbonisation/electrification objective such as for large, and small decentralised grid infrastructure, necessary storage of variable energy (mostly wind and solar) and

training for the people engaged in this emerging sector of a just and clean energy transition we need worldwide;
- Mobilise the additional almost USD 3 trillion needed annually (about USD 4.5 trillion in total) and worldwide by 2030 and beyond for this global energy revolution from public and private investments including individuals;
- Of that, ensure up to USD 1 trillion annually is derived from rich and highly polluting (past and/or present) OECD nations for the clean energy development, capacity building, just transition efforts, technology transfers etc. by public grants-based funds for developing countries (excluding China who has strongly confirmed that it does not need the grants-based support from developed countries);
- Embark on social, fair, equitable, just and ecological guardrails for this rapid expansion of clean energy and infrastructure without undermining its necessary development for limiting, reducing and eventually avoiding risks for a huge climate disaster for people and ecosystems;

Finally, CAN is strongly reaffirming its opposition to nuclear power, carbon capture and storage (CCS), carbon capture, utilisation and storage (CCUS), and large expansion of solid biomass use including bioenergy carbon capture and storage (BECCS) as deeply unsustainable in the electricity/energy sector.

This position paper will deal primarily with the issues of the need for a strong renewable energy and energy efficiency target globally, while touching on the issues of fossil fuels phase out, financing for developing countries and guardrails will be subject to separate CAN position briefs in next weeks/months.

Introduction

There are growing calls for COP28 to provide a comprehensive package for energy transformation that includes clear calls for a fair, full, fast and funded phase out of fossil fuels, alongside targets to massively scale up nature-positive, renewable energy growth and energy efficiency. Such a package can play a key role in both keeping warming below 1.5 degrees Celsius (ºC) and securing energy access for all. In addition, such a package needs to include guardrails for deployment of renewable energy and a package of grants-based funding by the rich OECD countries for this energy transition. There is a crucial role for civil society to play in unlocking this possibility.

This position argues for a target of reaching at least 1.5 Terawatts (TW) of renewable energy deployment per year still before 2030 and a substantial improvement in energy savings with the aim of reducing total final energy demand, in an equitable way, by at least a quarter by 2050.

It is not enough to call for a phase out of fossil fuels only. CAN must show the alternatives to the present unjust extractive, fossil energy pathway. Clarity and alignment in this demand is important both so that we are consistent and clear in our arguments, and also to allow us to convince media, fellow civil society organisations (CSOs), governments, and progressive business. Ultimately, no government will move out of their comfort zone to replace their current

mode of operation – despite good will by several – without actionable alternatives that are environmentally friendly and socially and economically attractive.

Simultaneously, saving energy will be central to achieving the transition to a 100% renewable energy system. Lowering our energy consumption by implementing energy efficiency and sufficiency measures, would reap multiple benefits. In particular, it would lower the total costs of the transition because the less energy is consumed, the fewer renewable energy, grid and storage infrastructure needs to be deployed. This will have a positive impact on people's energy bills, help to combat energy poverty and reduce the material footprint of clean energy.

Equally, however, a renewable energy growth or energy efficiency target alone is insufficient. Without meaningful action to phase out fossil fuels and so undercut the power of the oil, gas, and coal industries and their enablers, there is a very real risk that accelerated but insufficient renewable energy growth will largely be additional to continued fossil fuel expansion inconsistent with 1.5ºC instead of replacing it. Further, without meaningful safeguards for people and ecosystems – and without significantly enhanced public finance particularly for developing countries from the global North – there is a risk of replicating harmful, colonial, extractive structures of the fossil fuel economy in the emerging renewable energy economy.

The need for 1.5ºC-aligned targets for renewable energy deployment and energy efficiency

Though there is considerable uncertainty, it is possible and necessary to set a quantified 1.5ºC-aligned 2030 target for annual renewable energy deployment. While it is not possible now to know the exact amount of deployment of clean solution technologies, or to precisely define the exact policies and finances needed by when and where, and key questions remain around ensuring an equitable Just Transition, we know however the principal direction of travel based on science.

To limit warming to 1.5ºC and so avoid many more disastrous climate impacts, the world needs to reduce global greenhouse gas (GHG) emissions rapidly and consistently. Carbon dioxide (CO_2) emissions, primarily from fossil fuels, currently account for more than two thirds of all GHG emissions.Table 1 from the recent Intergovernmental Panel on Climate Change (IPCC) *Synthesis Report* illustrates this:[1]

[1] IPCC Summary For Policymakers, 2023, Table SPM 1, page 21 - IPCC_AR6_SYR_SPM.pdf.

Table 1:

Table SPM.1: Greenhouse gas and CO_2 emission reductions from 2019, median and 5-95 percentiles. *[3.3.1, 4.1, Table 3.1, Figure 2.5, Box SPM.1]*

		Reductions from 2019 emission levels (%)			
		2030	2035	2040	2050
Limit warming to1.5°C (>50%) with no or limited overshoot	GHG	43 [34-60]	60 [49-77]	69 [58-90]	84 [73-98]
	CO_2	48 [36-69]	65 [50-96]	80 [61-109]	99 [79-119]
Limit warming to 2°C (>67%)	GHG	21 [1-42]	35 [22-55]	46 [34-63]	64 [53-77]
	CO_2	22 [1-44]	37 [21-59]	51 [36-70]	73 [55-90]

Importantly, the numbers in Table 1 are median numbers (that is, not mean numbers averaged across all scenarios reviewed).

CAN acknowledges that the proposed 1.5 TW renewable electricity is higher than in the corresponding 1.5ºC-aligned scenarios from the International Renewable Energy Agency (IRENA) and International Energy Agency (IEA). That is:

- IRENA assumes 1.1 TW every year from 2023 to 2050; and
- The IEA assumes only 0.8 TW/year average to 2050, but front-loaded with 1.2 TW/year in the 2030's.

However, the higher 1.5 TW value is needed because renewable electricity will inevitably take a higher share of emission cuts than the IEA and IRENA models suggest. This is due to the economic, environmental and social concerns over nuclear, CCS, and large-scale bioenergy that mean they are unlikely to scale-up to the levels currently modelled. There are also significant social, economic, climate and overall air pollution pollution risks with over-reliance on CCS or large-scale bioenergy, given that CCS projects have to-date performed far worse than initially projected and large-scale biomass burning has been shown to emit significant amounts of carbon dioxide.[2]

The higher 1.5 TW value is also needed because the carbon dioxide cuts envisioned are insufficient to keep temperatures to 1.5ºC without huge near-term reliance on CCS; for example, the IEA Net Zero Emissions (NZE) scenario cuts 36% CO2 from 2019 to 2030, where the IPCC median cut in CO2 is 48% as shown in table 1.

As set out in the CAN *Briefing Paper* for SB58 in June 2023, the case for ending oil, gas, and coal expansion immediately and rapidly phasing out all fossil fuel production and use has never been stronger. The *Sixth Assessment Report* on the climate crisis affirms that the world has

[2] See eg Brendan Mackey, David B. Lindenmayer and Heather Keith (2022). *Burning forest biomass for energy, not a source of clean energy and harmful to forest ecosystem integrity.* Griffith Climate Action Beacon Policy Discussion Paper 2/22, pp.1-8. Brisbane, Australia: Griffith University. https://doi.org/10.25904/1912/4547.

already built too much fossil fuel infrastructure[3] and underlines that, “Global fossil fuel use [...] must decline substantially by 2030 to limit warming to 1.5ºC.”[4] More specifically, a range of 1.5ºC-aligned scenarios published by the IPCC and IEA show oil and gas production and use declining by around three percent per year, on average, in the 2020s.[5] In the IEA’s 1.5ºC-aligned scenario, called ‘Net Zero Emissions by 2050’ (NZE), that pace accelerates to seven percent per year in the 2030s.[6] It is too late to phase out one fossil fuel at a time, or to phase out fossil fuels from one sector at a time. The phase out of fossil fuels must be full, fast, fair – and funded.

However, phasing out fossil fuels will not be possible without simultaneously scaling up renewable energy and saving energy. For decades, CAN has put a strong emphasis on promoting clean, nature-positive renewable energy – primarily wind, solar and geothermal for the energy sector – alongside promoting large-scale modernisation and the development of high- and low-voltage grids where appropriate, as well as electricity storage for variable energies. CAN nodes and members have also consistently highlighted that there is no one-size-fits-all approach to renewable energy deployment. Consequently, CAN and its members have called for all these measures to be developed in consultation with impacted communities, and alongside the highest standards of environmental and social safeguarding.

Expanding renewable energy supply is necessary not only for the present power sector, but also to electrify other sectors that still directly burn oil, gas, and coal – like transport, heating, industrial processes, and steam production. Presently, the electric sector represents only about one quarter of all global energy use. To have a chance for a 1.5ºC trajectory, this needs to move to over 75 to 80 percent globally.

This leaves a remaining 20 to 25 percent of global energy requirements. These could instead be address by renewable hydrogen (itself made from renewable electricity) for some hard-to-decarbonise sectors, geothermal, and ambient heat from heat pumps and solar thermal collectors .There may also be some limited sustainable use of small-scale bioenergy and hydropower where social and environmental impacts are minimised and there is no competition with agriculture, biodiversity and food security.

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[3]WGIII_Minal Pathak et al., “Technical Summary,” In Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, 2022, edited by P.R. Shukla et al., Cambridge University Press, Cambridge, UK and New York, NY, USA, p. 68, https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_TechnicalSummary.pdf.

[4] Leon Clarke et al, "Energy Systems," In Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, 2022, edited by P.R. Shukla et al, Cambridge University Press, Cambridge, UK and New York, NY, USA, p. 698, https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_Chapter06.pdf.

[5] Olivier Bois von Kursk and Greg Muttitt, "Lighting the Path: What IPCC energy pathways tell us about Paris-aligned policies and investments," International Institute for Sustainable Development, June 2022, pp. 4-5, https://www.iisd.org/publications/report/ipcc-pathways-paris-aligned-policies; IEA, World Energy Outlook 2022, October 2022, Extended Dataset - World - Total Energy Supply - Net Zero Emissions by 2050 Scenario, https://www.iea.org/reports/world-energy-outlook-2022.

[6] IEA, World Energy Outlook 2022, Extended Dataset - World - Total Energy Supply - Net Zero Emissions by 2050 Scenario.

Ultimately, building solar and wind generation alongside energy efficiency and sufficiency particularly in rich nations and addressing the global middle and upper classes across economic sectors had been shown by the IPCC to be the single largest intervention on average worldwide for decarbonisation in line with a 1.5ºC trajectory until at least 2030. These are the technologies and interventions with the most potentials for decarbonisation – and they are the most cost-effective mitigation options[7] [8].

These are the crucial backbones for moving to 100% renewable energy by 2050 for the entire world. Importantly, CAN has maintained a clear position on the basis of equity and common but differentiated responsibilities that richer countries must move faster, and provide financial and other support to other nations. Those who have done in the past and still do today the most to cause this crisis must significantly increase support for those who have done the least.

These proposed renewable energy and energy efficiency goals meet or exceed the agreed Sustainable Development Goals (SDGs) by 2030 for clean, affordable, reliable access to clean energy and achieving significant energy efficiency. Consequently, adopting these targets would contribute to achieving the SDGs.

The reality is that there is presently no major bottleneck to solar and wind production facilities in key countries. However, presently rather centralised global production of clean technologies must be far more spread and diversified into many more countries and regions. Setting a global target could help to accelerate this.

Alongside this, CAN also calls for the phase out of nuclear energy generation, given that it is another highly unsustainable power source with still unresolved problems, including regarding its more than 300,000 tonnes of super-highly toxic radioactive waste. Though nuclear currently provides slightly less power than solar and wind combined, there is a risk that it may be revived in a range of countries including but not limited to Turkey, Poland, Hungary, Japan, France, India, Saudi Arabia, and the USA[9].

This IPCC assessment[10] also shows that dangerous distractions like carbon capture and storage (CCS), carbon capture and use (CCU), large scale biomass burning, and nuclear power have much lower mitigation potentials and much higher costs. They are not fit for purpose, harm people and communities, and cannot deliver at scale in the 2020s, a crucial decade for emission reductions.[11]

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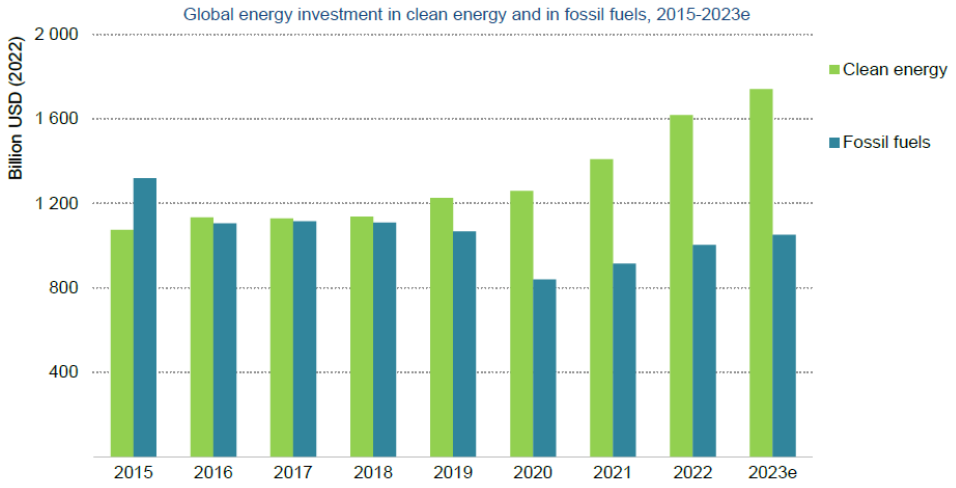
[7] IPCC, Summary For Policymakers 2023, Figure SPM 7, page 27, IPCC_AR6_SYR_SPM.pdf.
[8] "The 10% of households with the highest per capita emissions contribute 34–45% of global consumption-based household GHG emissions, while the bottom 50% contribute 13–15%. (high confidence)" in IPCC, Summary For Policymakers 2023, page 5, IPCC_AR6_SYR_SPM.pdf.
[9] Mycle Schneider et al, The World Nuclear Report 2022, wnisr2022-v3-lr.pdf (worldnuclearreport.org)
[10] See footnote 6
[11] Note that the IPCC's mitigation cost assessment did not include externalities like air pollution and human fatalities, waste production, freshwater consumption, health, security, and permanence issues.

Currently CCS projects store less than 0.05% of worldwide annual energy CO_2 emissions[12]. In fact, most existing CCS is used to extract more fossil fuels, through Enhanced Oil Recovery (EOR). Even the IEA, which has historically promoted CCS, sees the long term CCS electricity supply potential until 2050 with less than 2% of all power in its net zero scenario well below the present wind power supply[13]. Former IPCC Chair Hoesung Lee has warned of the multiple disadvantages of over-relying on CCS, including the risk of temperature overshoot[14]. Certain industries and governments promote CCS/CCU, but these suggestions appear to be nothing more than short-sighted, self-serving distractions that serve only to prolong the fossil fuel economy.

Earlier this year, the IEA published the *World Energy Investment Report 2023*[15], which confirmed that clean energy investments (including in renewables, energy efficiency, needed infrastructure) had overtaken fossil fuel investments, and the gap between clean energy and fossil fuel investments is growing. In particular, compared to oil, investments in new solar were higher in 2022 for the first time ever. For 2023, the IEA estimated clean energy investments as about USD 1.7 trillion, and fossil fuel investments as about USD 1 trillion. However, the overall investments in fossil fuels have also been growing, for a number of years. Figures 1 and 2 show the present trends while Figures 3 and 4 show the investments needed for 2030 and the approximate decline in fossil fuel investments by half in 2030 compared to today[16]. Figure 4 portrays in particular the need for escalating clean energy investment to about USD 4.5 trillion by 2030.

Figure 1:

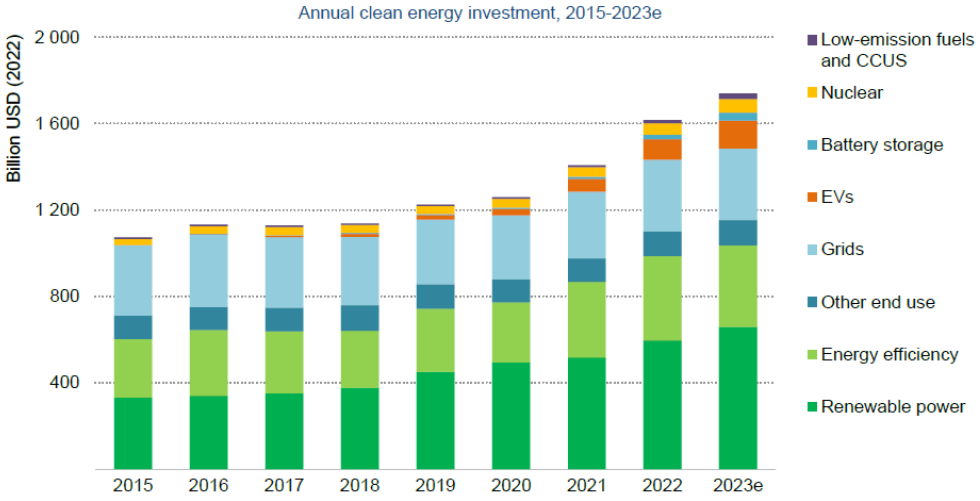
The recovery from the Covid-19 pandemic and the response to the global energy crisis have provided a major boost to global clean energy investment



[12] Global CCS Institute, 2022, GCCSI_Global-Report-2022_PDF_FINAL-01-03-23.pdf.
[13] IEA World Energy Outlook 2022, pages 445 - 448 World Energy Outlook 2022 – Analysis - IEA.
[14] Carbon capture and storage is 'no free lunch', warns climate chief | Carbon capture and storage (CCS) | The Guardian.
[15] World Energy Investment 2023 (windows.net).
[16] IEA 2023, pages 8, 10, 22, 129 World Energy Investment 2023 (windows.net)

Figure 2:

Renewables, led by solar, and EVs are leading the expected increase in clean energy investment in 2023

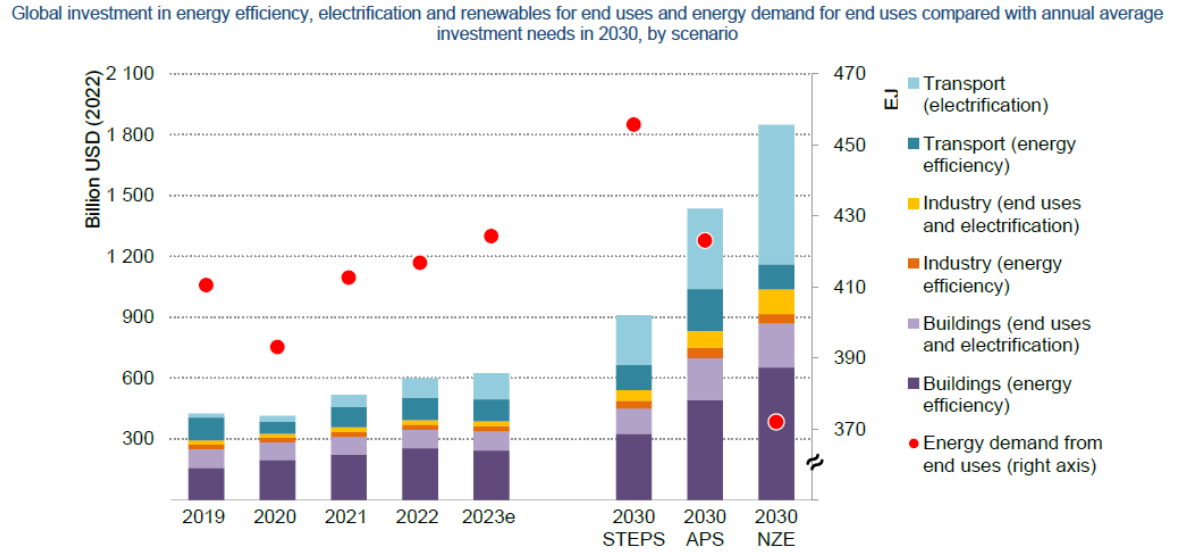


IEA. CC BY 4.0.

Notes: "Low-emission fuels" include modern liquid and gaseous bioenergy, low-emission hydrogen and hydrogen-based fuels that do not emit any CO_2 from fossil fuels directly when used and emit very little when being produced; "Other end use" refers to renewables for end use and electrification in the buildings, transport and industrial sectors. 2023e = estimated

Figure 3:

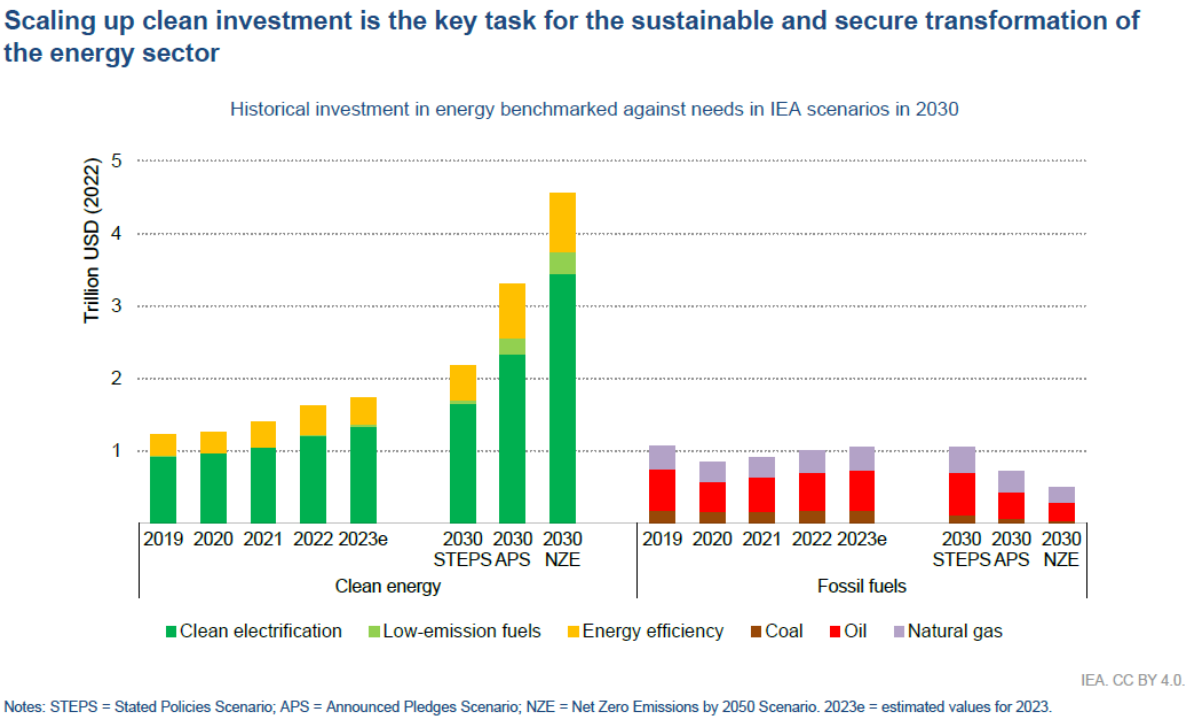
Spending on energy efficiency and electrification is reaching new highs thanks to dynamic growth in electrification of the transport sector



IEA. CC BY 4.0.

Notes: APS = Announced Pledges Scenario; NZE = Net Zero Emissions by 2050 Scenario; STEPS = Stated Policies Scenario; includes end-use renewables in the buildings and industrial sectors; 2023e = estimated values for 2023.

Figure 4:



Other assessments show slightly different numbers but still in same ballpark[17]. Notably,however, the majority of these clean energy investments are in a limited number of countries, and particularly in OECD and China. Less than 1% of renewable energy investment is in Least Developed Countries (LDCs)[18].

The climate crisis requires an end to new fossil fuel production and downstream infrastructure immediately, and then embark on a rapid, equitable decline in existing fossil fuel production and consumption, across all sectors. At the same time, we need to further grow renewables and energy savings, and move to significantly lower consumption pathways wherever possible particularly in richer countries such as from individual cars to public transport, walking and cycling[19].

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[17] IISD 2023 https://www.google.com/url?q=https://www.iisd.org/system/files/2022-10/navigating-energy-transitions-mapping-road-to-1.5.pdf&sa=D&source=docs&ust=1690619921723746&usg=AOvVaw2cNQk1s9GNH3hzfmQtS9H7.

[18] IEA 2023, Scaling Up Private Finance for Clean Energy in Emerging and Developing Economies – Analysis - IEA.

[19] "Demand-side measures and new ways of end-use service provision can reduce global GHG emissions in end-use sectors by 40–70% by 2050 compared to baseline scenarios, while some regions and socioeconomic groups require additional energy and resources. Demand-side mitigation encompasses changes in infrastructure use, end-use technology adoption, and socio-cultural and behavioural change. (high confidence)", in IPCC AR6 Synthesis Report 2023 page 70 & Figure 4.4 (bottom) IPCC_AR6_SYR_LongerReport.pdf.

To achieve this, global targets on renewables and energy efficiency and in conjunction with significantly upscaled funding for developing countries could play a significant role in shifting finance and influencing political decision-makers – especially when coupled with specific sectoral or national measures, building for instance on the UNFCCC Mitigation Work Programme (MWP) and Global Stocktake (GST). A number of countries and institutions like IEA and IRENA as well as prominent figures, including the COP28 president-elect from the UAE, have proposed such targets. But if we are to have those they must stand as part of a package, alongside a fossil fuel phase out call, an energy efficiency target, and meaningful safeguards. It is critical that the target does not disincentivise the renewable energy expansion we need by being set too low.

Quantifying the 2030 renewable energy and energy efficiency targets

The IEA NZE scenario provides a useful floor for ambition for the minimum renewable energy expansion needed for 1.5ºC and the eventual achievement of a 100% renewable energy economy eventually.

While the IEA stops at proposing an annual renewable energy deployment of 1.1 - 1.2 TW annually, CAN scientists from Climate Analytics proposes 1.5 TW each year and based on solar and wind power[20].

The IEA NZE scenario includes an almost tripling by 2030 from a 2022 baseline of so-called clean energy supply as well as electrification efforts and grid investments (which also includes nuclear, some CCS, and enhancement of forest biomass use).

In the IEA NZE scenario, energy demand reduction policies and clean energy investment together result in investments in fossil fuels shrinking to less than half by 2030 compared to today, mostly in oil and an almost complete phase-out of any new coal investments globally.

Additionally, IEA NZE finds no room for new oil and gas fields nor coal mines to be approved for development from 2023, and no room for investment in new fields and mines either.
CAN endorses the full stop of any new fossil fuel development.

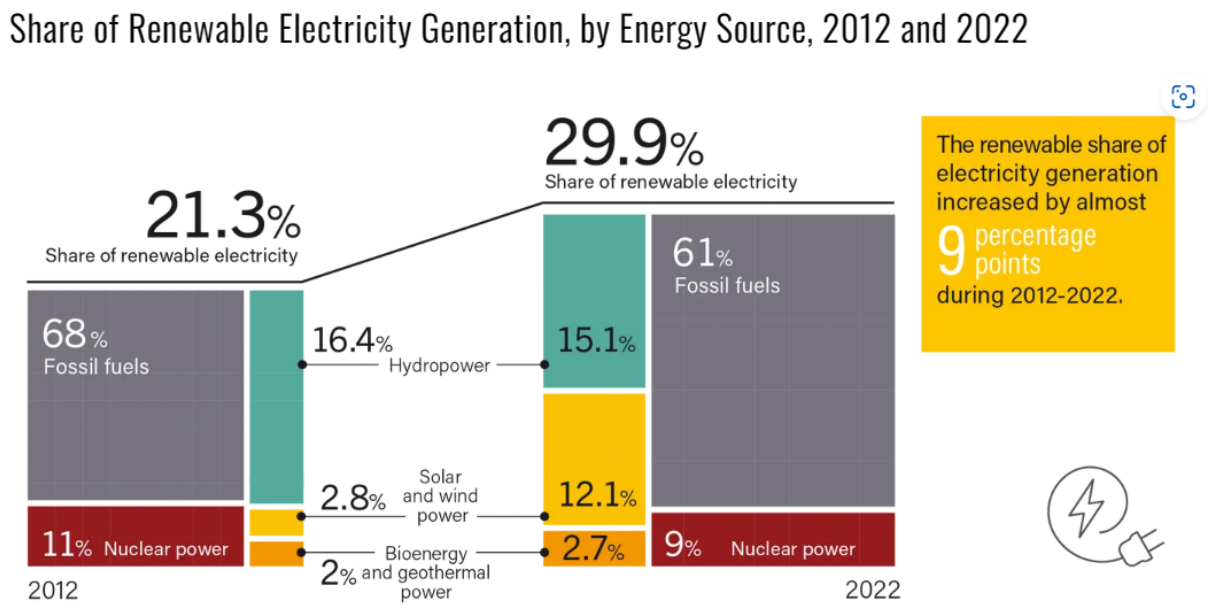
In its *Renewable Energy Market Update*[21], the IEA suggested that renewable energy growth in the power sector since the initial waves of Covid-19 will prevail with estimated 440 Gigawatts (GW) and 550 GW new additions in 2023 and 2024 respectively. Over 80% of those new additions are from solar and wind. The IEA suggested that this would mean that renewable energy growth projections would be globally 20 to 25 percent higher than assumed earlier.

[20] Climate Analytics 2023 2030 targets aligned to 1.5°C: evidence from the latest global pathways / Climate Analytics.
[21] IEA 2023, pages 4 - 11 Renewable Energy Market Update - June 2023 (windows.net).

Figures 5, 6, 7, 8, 9, 10, 11 show the growth in last decade of all renewables in electricity and all energy sector (excluding traditional biomass), across regions, and wind and solar power (PV) in particular[22].

Three things are outstanding. First, rapid increases of solar and wind have been and will be occurring in future, but so far not enough and only in the classical power sector which in itself represents less than one quarter of the entire energy use. Second, the share of fossil fuels in the global energy mix is about the same as about a decade ago. Third, electrification is coming only very slowly. Renewable energy development is slowest in the Middle East (and OPEC nations in particular).

Figure 5:



[22] REN 21, Global Status Report 2023, as figures 2, 4 in RENEWABLES 2023 GLOBAL STATUS REPORT (ren21.net), as figure 2 GSR2023_GlobalOverview_Full_Report_with_endnotes_web.pdf. (ren21.net), as figures 24, 25, 31, 32 in GSR-2023_Energy-Supply-Module.pdf (ren21.net).

Figure 6:

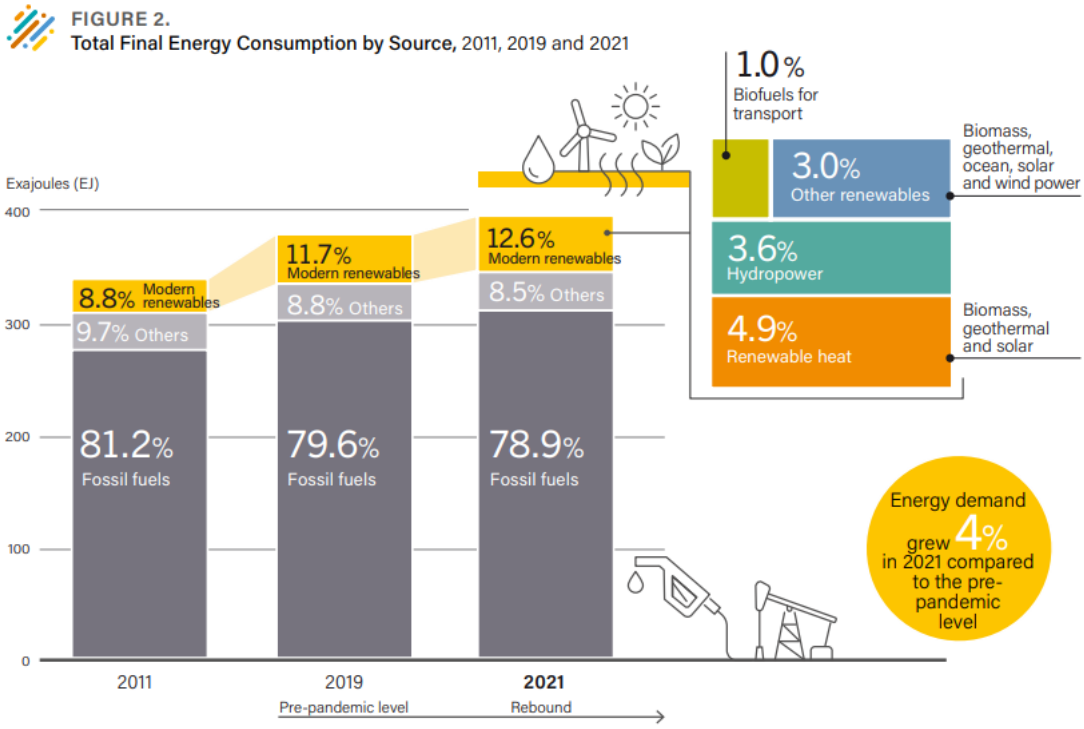


Figure 7:

Renewable Share of Electricity Generation, by Region, 2012 and 2022

Figure 8:

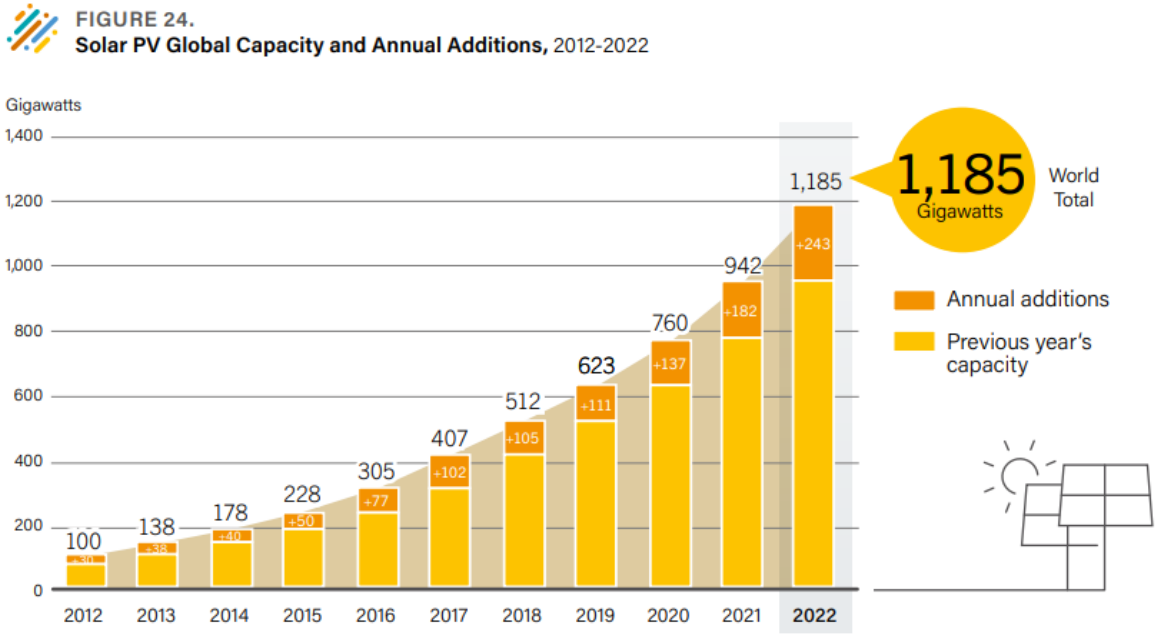


Figure 9:

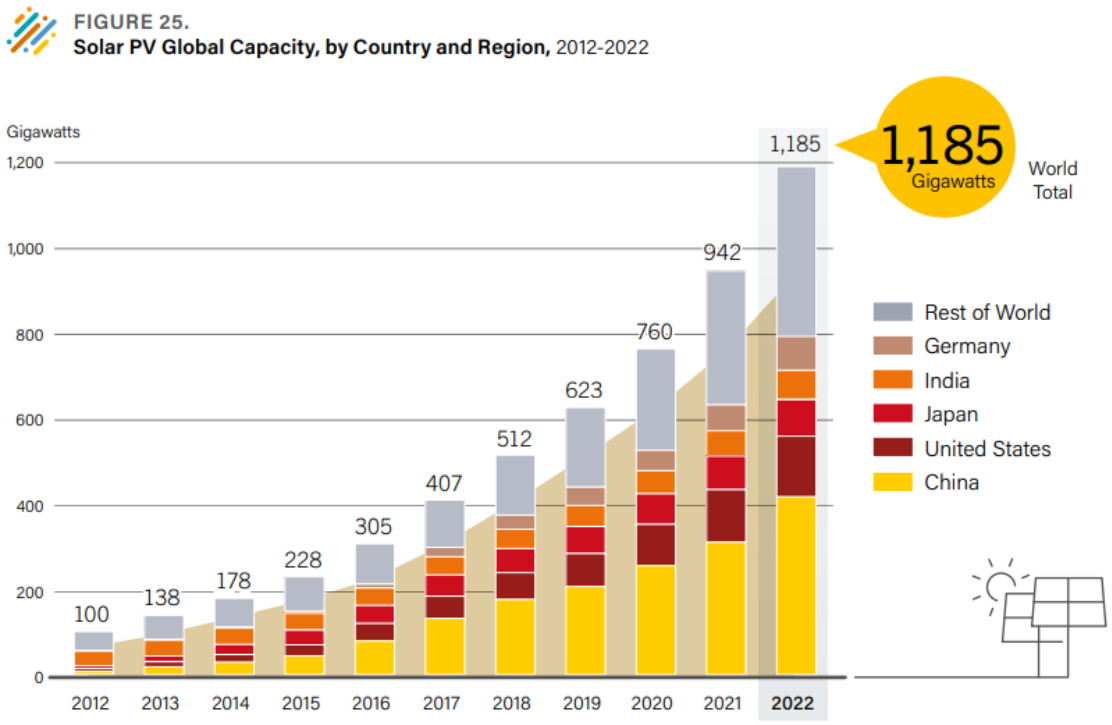


Figure 10:

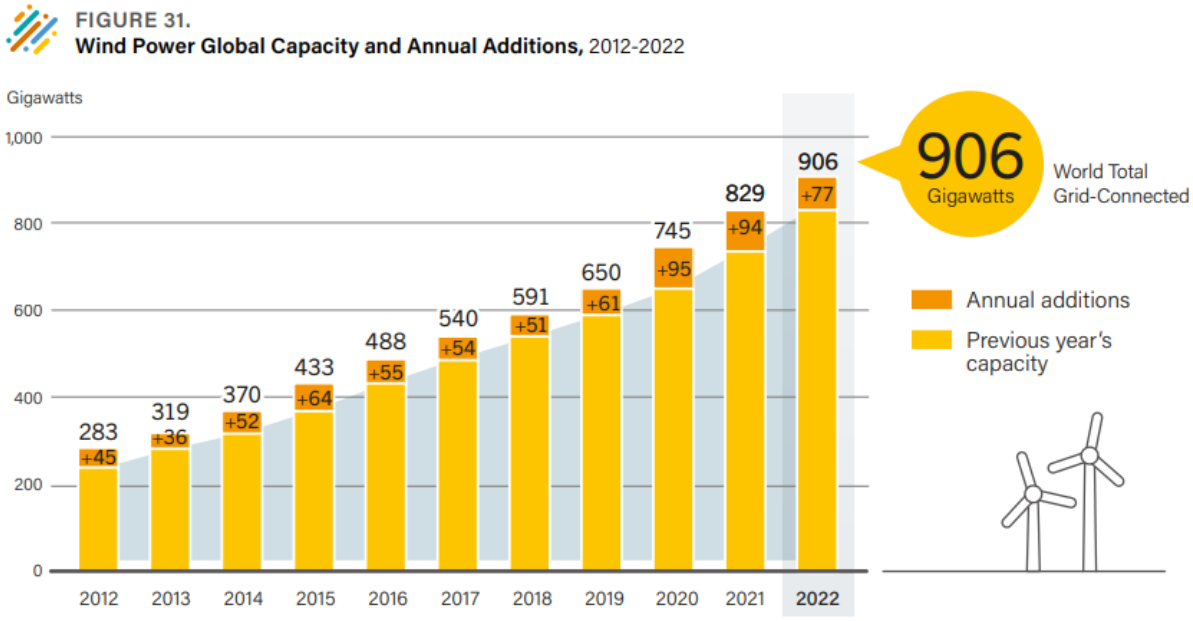
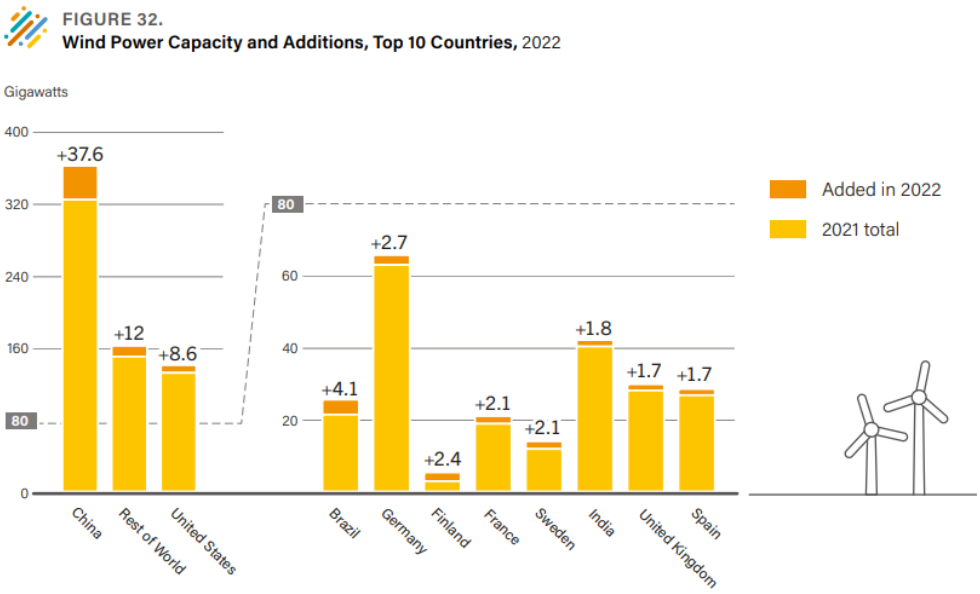


Figure 11:



To be on a 1.5ºC pathway, as suggested by IEA NZE, total electric capacity has to grow to more than fourfold from today to 2050 to about 34,000 GW while overall renewables and including storage need to grow to almost 10-fold from today, to about 27,000 GW capacity, with the overwhelming majority of more than 23,000 GW being solar PV and wind.[23] If about tripling of present renewable electricity happens by 2030 compared to today, we see more than 10 TW renewable power. If than the annual 1.5 TW expansion is maintained until 2050, and if most of that is from wind and solar, the world would be achieving approximately 40 TW mostly new renewable power, and would be able to not only replace any need for new fossil fuel capacity and phase out the existing one, but also abandon any idea on CCU and CCS, as well as nuclear and other dangerous technologies - and everything under the assumption of maintained strong energy efficiency legislation.

In this scenario, the IEA assumes implementation of policies for an annual four percent energy efficiency improvement, including transport electrification and globally across all economic societal sectors. These policies result in a reduction of global energy use of about a quarter by 2050 compared to today while still providing projected economic growth. We build on this and other scenarios and call for a substantial improvement in energy savings with the aim of reducing final energy demand by one quarter by 2050 (as compared to 2020 levels), to be implemented on the basis of equity, energy access for all and tackling overconsumption by the rich.

To compare, annual societal energy efficiency improvements across all sectors (expressed in primary energy use decline per unit GDP), were around one percent in recent years and only in 2022 climbed to two percent as a result of the high energy prices in that year, due to Russia's

[23] IEA WEO 2022, Tables ANNEX NZE, pages 446 - 449.

invasion of Ukraine. New annual rates of high energy efficiency improvement needs to be maintained permanently for supporting strong renewable energy expansion in next years for a 1.5ºC trajectory eventually[24].

However, the IEA NZE scenario includes a number of risky modelling choices. It depends on rapid and unrealistic rates of CCS deployment – especially this decade, and involves substantial reliance on biofuels and nuclear power. The IEA has a history of underestimating renewable energy growth rates. Consequently, there are good reasons to call for a faster scale-up of renewable energy than in the IEA NZE scenario.

CAN therefore calls for COP28 to adopt ambitious renewable energy and energy efficiency targets as part of a comprehensive energy transformation package, of:

An average annual clean renewable electricity capacity growth of at least 1,500 GW (1.5 TW) globally combined with a substantial improvement in energy savings with the aim of reducing total final energy demand, in an equitable way, by at least a quarter by 2050.

Notably, renewable electricity growth targets and energy efficiency objectives are interdependent. That is, the less is done in one, the more is needed in another.

Other factors and dynamics must also be supported

These proposed renewable energy deployment and energy efficiency targets must not stand alone. They must be part of a comprehensive package including a fair, fast, full, and funded fossil fuel phase out – and a set of other measures and safeguards. These considerations include:

A review process must be created
This objective must be regularly independently, scientifically and transparently reviewed, monitored. The COP, an appropriate subsidiary body, or another body will need to conduct this review.
An annual and regularly reviewed implementation target puts much higher pressure on governments and private finance institutions to invest their money where their mouth is.

Community engagement must be ensured
This objective requires strong engagement by civil society, science, governments, progressive business and financial sectors to find and agree on sectoral and national renewable energy and energy efficiency targets in the months/years to come in line with equity, Just Transition, social and climate justice and environmental care.

[24] IEA, Energy Efficiency 2023 Energy efficiency – Topics - IEA.

CAN has long called for strongly upscaled community involvement in energy decisions and community ownership of energy.

Equity and ecological safeguards must be implemented
The scenarios underpinning these goals project forward energy efficiency gains from current energy consumption and economic growth patterns while ensuring energy access for all by 2030 and a total energy consumption reduction from now until 2050 in line with the Paris Agreement goals, especially for high emitters including countries in the Global North. National implementation of overall global objectives need to include a number of changes in lifestyles from individual transport to living, food, etc. particularly by the richer upper and middle classes in the OECD and other richer nations.

There is a real risk that some renewable energy projects and expansion could reflect or even create new inequities.

Transfer of climate finance, technology transfer and intellectual property and capacity building to the global south will be essential in a fair and just transition to renewable energy and its needed clean infrastructure.

CAN, as we call for renewable energy expansion, will also address the issues of equity in implementing these targets, focusing both on energy access for all but also the wasteful over-consumption patterns of the wealthiest. The global north is looking to the global south to provide supply chains of minerals and green hydrogen. The Just Transition and fossil phase out in the global south will have to be facilitated by large scale international grants-based public finance, technology and capacity building.

CAN acknowledges the significant impact that this scale of technology expansion, including but not limited to renewable energies and storage, batteries and grid development from offgrid to local small distribution to large transmission of renewable power, electric vehicles, and renewable hydrogen based technologies, as well as the transition to mineral supply chains - will have on communities, human rights, land rights, and the environment. We need to minimise this impact through reduced consumption (sufficiency and equity), energy efficiency and recycling of minerals. We must call for the highest standards of community consultation and social and environmental safeguarding to minimise the inevitable impact of this very urgent transition to renewable energy.

The energy transition to 1.5ºC and 100% renewables is likely to be unavoidably mineral-intensive, so we need to work on and include policies and measures including fiscal interventions for strengthened energy efficiency, material efficiency, material change, reuse and recycling and the continued introduction of the circular economy into our policy portfolio much more than before.

However, CAN will always keep in mind that by far the worst pathway for people and the planet is based on present super-high climate and other pollution from the maintenance of fossil fuel development and its enshrined inequalities and plethora of negative impacts.

In calling for the acceleration of renewable energy deployment, CAN will further review how to minimise luxurious energy and resource over-consumption and demand for energy and associated minerals, and address energy equity and poverty issues within and between nations.

Conclusion

In conclusion, the 1.5 TW annual renewable electricity growth target combined with the energy efficiency objective is an essential part of the comprehensive energy transformation package that COP28 must deliver. This target will contribute and help ensure the achievement of 100% renewable energy by mid century, our ultimate goal for meeting the 1.5ºC objective in the energy sector in a fully sustainable manner. It will also contribute to preventing growth in fossil fuel finance and help encourage its rapid decline in the next decade, a crucial component of a fair, fast, full, and funded fossil fuel phase out.

In demanding this target, CAN excludes environmentally harmful, socially detrimental, and scientifically questionable solutions, like nuclear, CCS, and large scale biomass. These options unfortunately are part of the IEA and IRENA net-zero scenarios, which is why CAN calls for a greater rate of annual renewable energy deployment, 1.5 TW, than IEA or IRENA models.

In the current geopolitical context, the world currently faces some supply chain distortions and delays, alongside price increases for solar, wind, storage, grid components in a world of economic uncertainty following Russia's invasion of Ukraine. These issues are also particularly linked to critical minerals and not limited to clean energy supply, increasing human rights violation, forced labour under marginal, non-controlled mining and manufacturing as well as growing environmental water and soil pollution from unregulated mining including growing sea-bed mining. CAN maintains its call for a sustainable energy transition that benefits people and communities not big polluters.

While CAN strongly maintains the overwhelming priority of phasing out fossil fuels rapidly, the transition to renewable energy needs to ensure the least possible impact on people and planet and the highest possible standards for social and environmental safeguarding.

As a start, COP28 must deliver a comprehensive energy transition package which has never happened before at any UNFCCC conference.