The Sustainable Development Goals Report 2021

Extended Report

-Goal 7-

Ensure access to affordable, reliable, sustainable and modern energy for all

Note: The UN Statistics Division (UNSD) prepares the annual *The Sustainable Development Goals Report*, also known as the glossy report, based on storyline inputs submitted by UN international agencies in their capacity as mandated custodian agencies for the SDG indicators. However, due to space constraints, not all information received from custodian agencies is able to be included in the final glossy report. Therefore, in order to provide the general public with all information regarding the indicators, this 'Extended Report' has been prepared by UNSD. It includes all storyline contents for each indicator as provided by the custodian agencies and is unedited. For instances where the custodian agency has not submitted a storyline for an indicator, please see the custodian agency focal point information linked for further information.

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Target 7.1: By 2030, ensure universal access to affordable, reliable and modern energy services

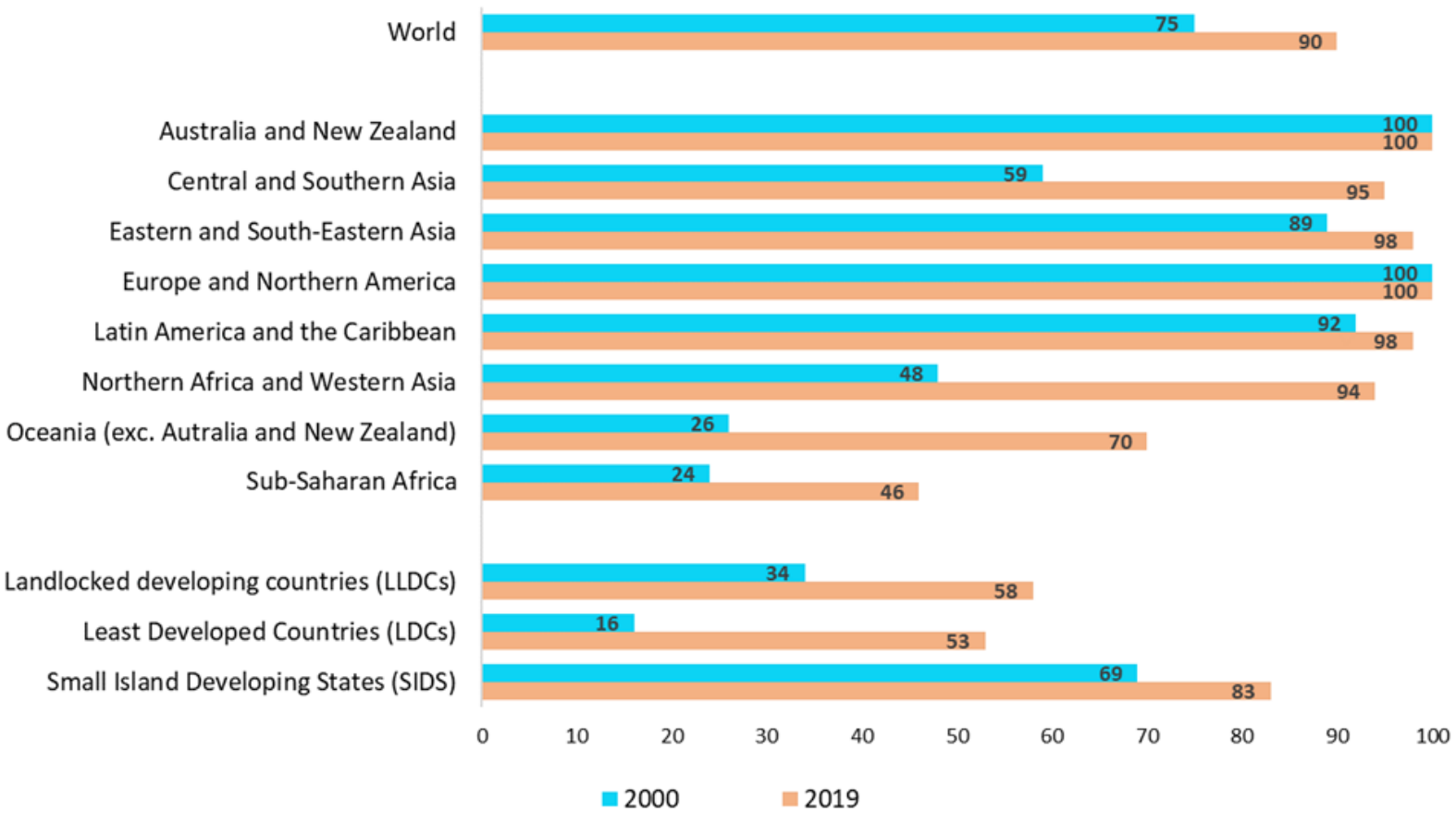
Indicator 7.1.1: Proportion of population with access to electricity

Global efforts to close the gaps in electrification are important to reach universal access to reliable and affordable energy by 2030 and mitigate the negative impacts of the COVID-19 pandemic

The global electricity access rate improved from 75 percent in 2000 to 90 percent in 2019. In 2019, top 20 countries–concentrated in Sub-Saharan African–account for 76 percent of the 759 million people left without access to electricity. To achieve the SDG7 7.1.1 target of universal access to electricity by 2030 and considering the risks rising from the pandemic crisis, a total of 940 million people will require to gain access in just 9 years from 2021, after accounting for expected population growth. At the current pace, however, only 280 million people are projected to gain access to electricity, leaving as many as 660 million people without access in 2030 (IEA 2020).

Electrification progress has been uneven across unserved regions since 2000. Even though Central Asia and Southern Asia and Sub-Saharan Africa remained the largest access deficit regions in 2019, both regions showed significant progress. During the 2017-2019 period, 65 million and 30 million people were annually electrified in Central Asia and Southern Asia region and Sub-Saharan Africa region respectively, outpacing population growth in both regions. In Central Asia and the Southern Asia region, the access rate reached 95 percent in 2019 from 59 percent in 2000. Meanwhile, the electrification rate in Sub-Saharan Africa rose from 24 percent in 2000 to 46 percent in 2019. But still, the global access deficit has been increasingly concentrated in Sub-Saharan Africa since 2000, indicating 75 percent of the global access deficit coming from this region in 2019 and 570 million people remaining without access to electricity in the region. In terms of urban-rural disaggregation, 97 million people in urban zones and 471 million in rural areas still lacked electrification in this region. In contrast, the access deficit of Central Asia and Southern Asia has decreased over the 2000-19 period in both urban and rural areas, demonstrating sustained electrification efforts.

Proportion of population with access to electricity, 2000 and 2019 (percentage)



Source: World Bank

Progress analysis: *See progress chart*

Additional resources, press releases, etc. with links:

- Tracking SDG7: The Energy Progress Report; Link: https://trackingsdg7.esmap.org/downloads

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Indicator 7.1.2: Proportion of population with primary reliance on clean fuels and technology

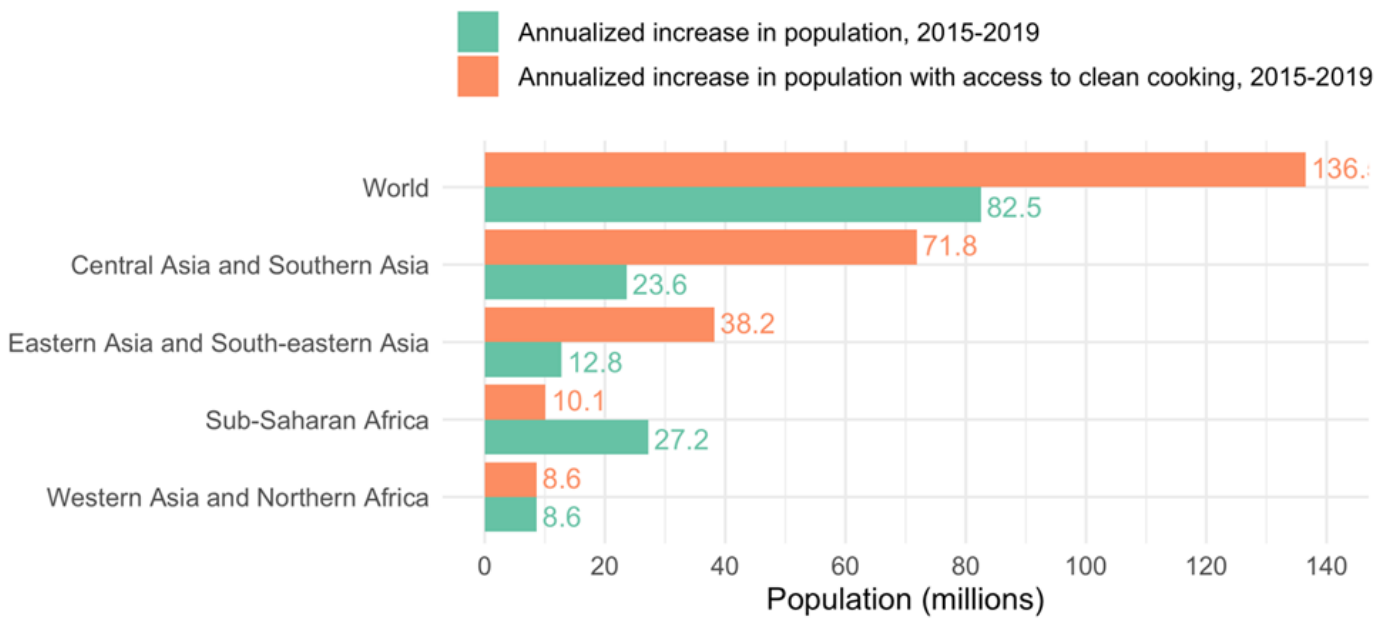
In 2019, 2.6 billion people still lacked access to clean and safe fuels and technologies

Access to clean fuels and technologies is distributed unevenly across the globe. During the period 2010-2019, the rate of access to clean cooking fuels and technologies increased at annual rate of 1.0% per year. In 2019, 66% of the global population, had access to clean cooking fuels and technologies. In contrast, 2.6 billion people remain without access to clean cooking, and rely primarily on inefficient and polluting cooking systems. For the period 2010-2019, much of the increase in access to clean fuels and technologies was dominated by the 5 most populous low- and middle-income countries, Brazil, China, India, Indonesia and Pakistan. While these countries made steady progress, the global access rate excluding these countries was remained unchanged between 2010 and 2019 (Figure 1). For the first time, in 2019, more people without access to clean fuels and technologies reside in Sub-Saharan Africa than in any other region (Figure 2).

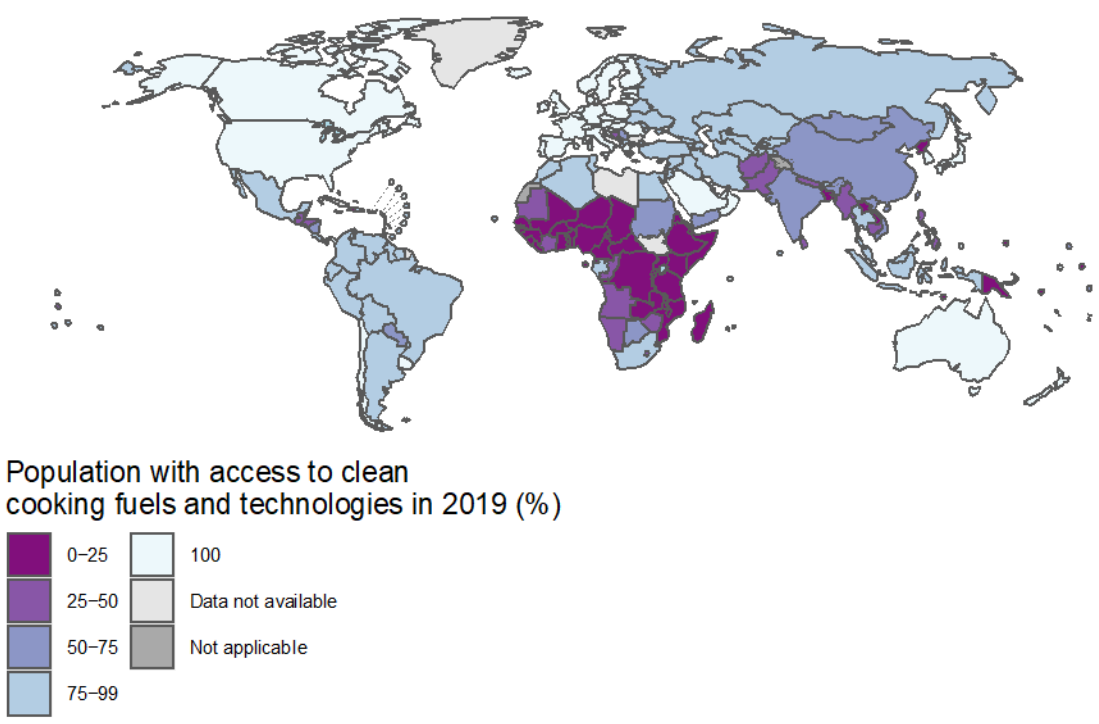
At a global scale, a large discrepancy in access to clean cooking fuels and technologies exists between urban and rural areas. This difference has been declining since 2010 (Figure 3), due to a combination of two factors. The access is rate is growing faster over time for rural areas, almost reaching 2pp in 2019. At the same time, in large part due to urbanization, improvements in clean cooking access have stagnated in urban areas, showing a growth of less than 0.5pp over the last decade. In low- and middle-income countries, the overall use of clean gaseous fuels (liquid petroleum gas, natural gas and biogas) continues to increase, having overtaken biomass fuels as the dominant fuel type since 2010 (Figure 4). In urban areas, the use of electricity for cooking has risen, but gaseous fuels remain the most common cooking fuel. In rural areas, meanwhile, a decline is seen in the use of polluting fuels, particularly biomass and coal. This trend has been accompanied by an increase in the use of cleaner gaseous fuels, however biomass fuels continue to be the dominant form of cooking energy in rural areas. The global proportion using charcoal is low, but in urban Sub-Saharan Africa it has overtaken other biomass as the most popular fuel.

The majority of poor people rely on polluting fuels for cooking activities, making them especially vulnerable to COVID-19. Poor communities are also likely to have unreliable or inadequate health care infrastructure, creating a negative feedback loop. The COVID-19 pandemic and the lockdowns imposed as a result threaten to create an economic adverse response, forcing people to rely on economic polluting fuels and putting in danger the progress achieved so far toward clean cooking access. Since 2010, only small global improvements in access to clean fuels and technologies for cooking have been realized. Unless rapid action is taken, the world will fall short of achieving universal access by 2030, leaving one third of the global population unacceptably vulnerable to significant adverse health effects, as well as social and economic burdens. The latter is especially true in Sub-Saharan Africa, where less population growth far exceeds increase in clean cooking access. That said, universal access remains achievable if serious efforts are made to accelerate the transition to clean cooking worldwide.

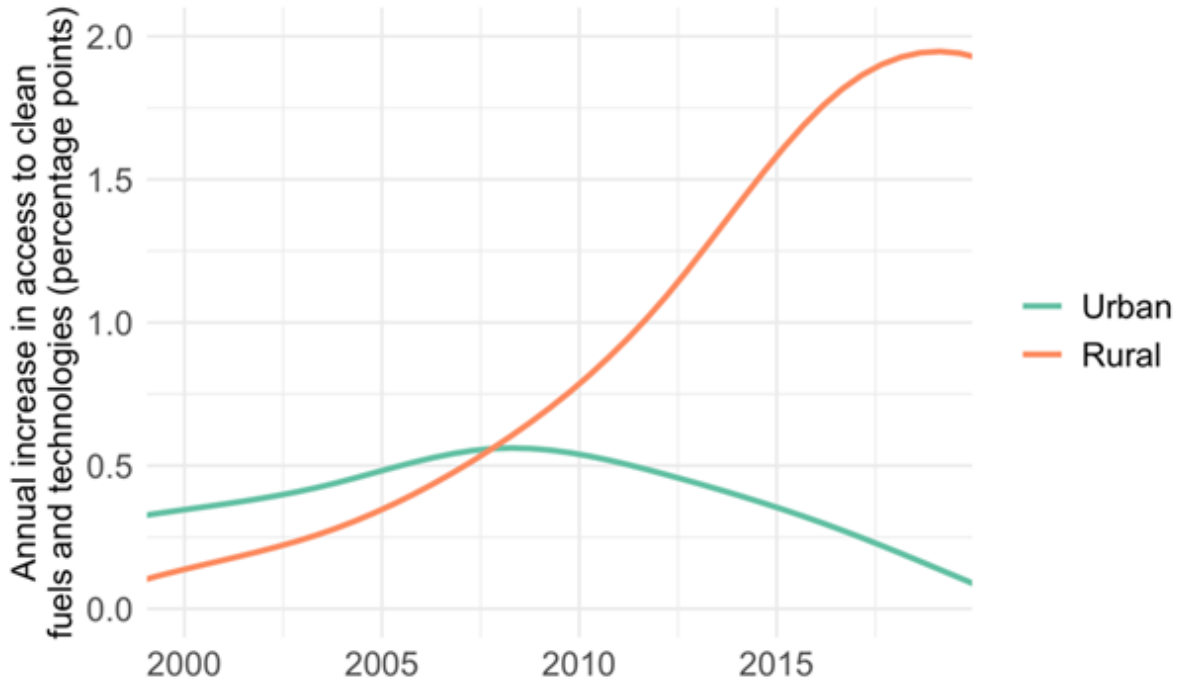
Progress in clean cooking access from 2015 to 2019.



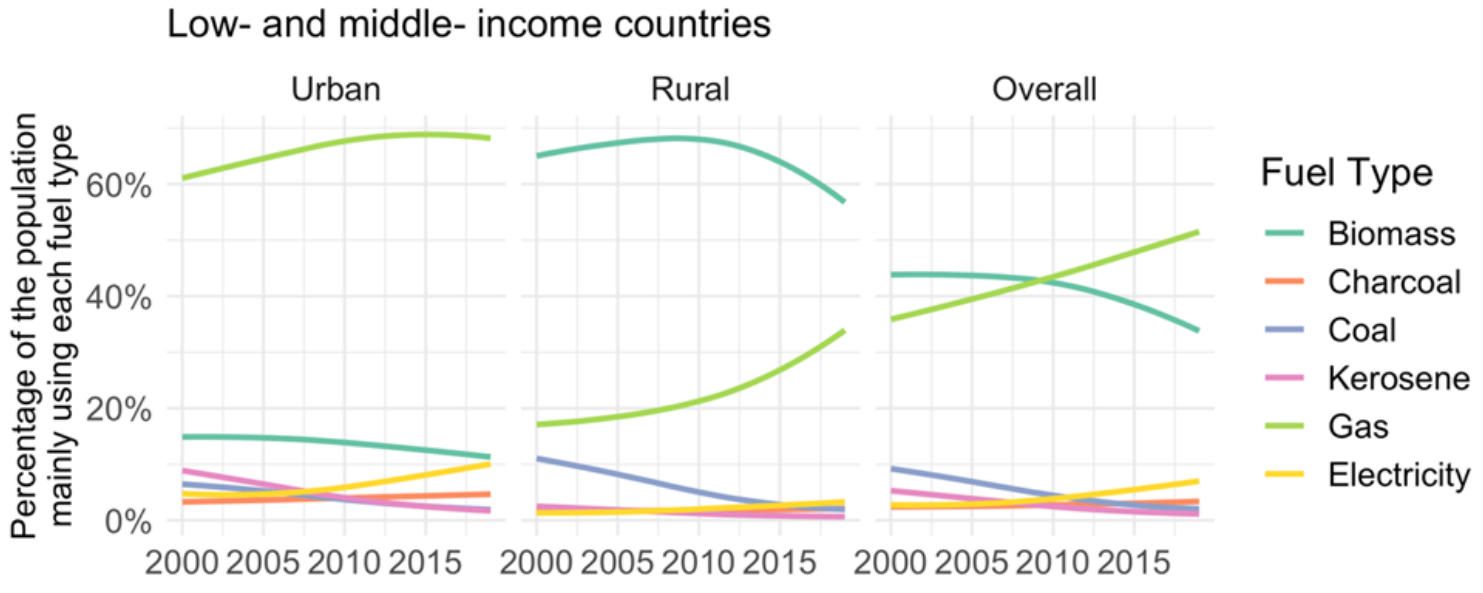
Sub-Saharan Africa bears the largest burden from lack of access to clean cooking in 2019



Annual increase in access to clean fuels and technologies for urban and rural areas



Percentage of people using each cooking fuel type in low- and middle- income countries, for urban areas, rural areas and overall



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Target 7.2: By 2030, increase substantially the share of renewable energy in the global energy mix

Indicator 7.2.1: Renewable energy share in the total final energy consumption

Greater efforts to expand use of modern renewables across all end-uses, notably in heat and transport, needed to meet the ambitious SDG target.

In 2018, when traditional uses of biomass are included, the share of renewable energy in TFEC amounted to 17.1%, similar to 2017, as TFEC increased at the same rate as renewable energy consumption (+2.1%). This emphasizes the importance of containing TFEC by means of energy efficiency and sufficiency in order to progress towards the SDG7.2 target.

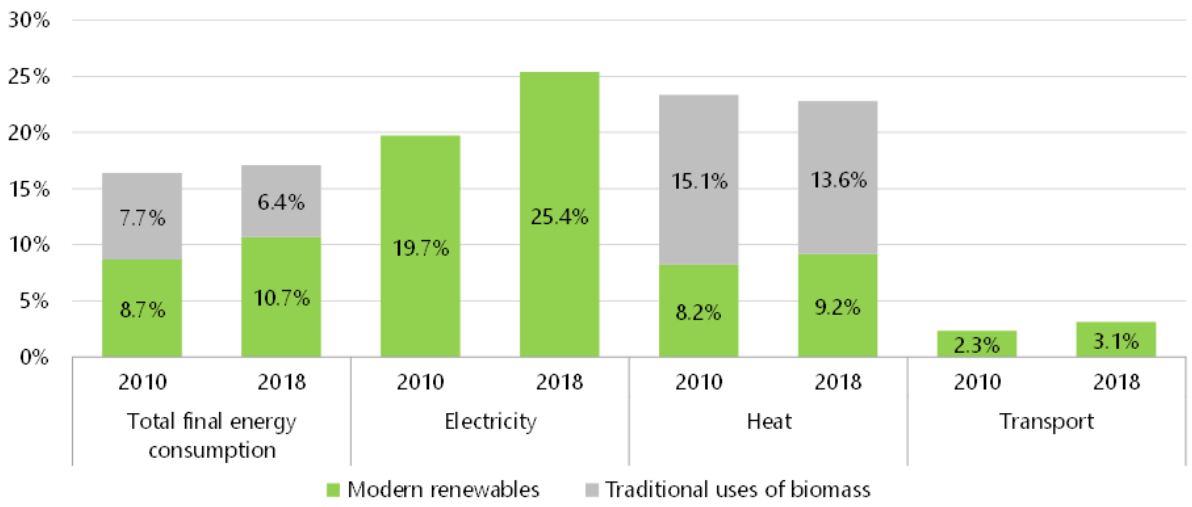
Contrasting trends are visible across end-uses: most growth in renewable energy in 2018 has been concentrated in the electricity sector, with renewables share exceeding 25% in this end-use in 2018. This is mainly attributable to favourable hydrological conditions compared to the year before (e.g. in the EU), as well as to the continuing expansion of wind and solar power, supported by sustained policy support and cost reductions. Nonetheless, electricity makes up only around 21 percent of final energy use. The remaining renewables are concentrated in the heat and transport sectors, where in 2018 modern renewables – excluding indirect consumption via district heating and electricity - penetrated 9.2 percent and 3.4 percent of the global market respectively. Meeting the ambition of the SDG target will therefore require increased policy attention on the deployment of modern renewables in these key sectors.

Sub-Saharan Africa has the largest share of renewable sources in its energy supply in 2018; however, traditional uses of biomass dominate and account for more than 85% of consumption. Excluding traditional uses of biomass, Latin America and the Caribbean show the highest share of modern renewable energy uses in TFEC, owing to significant hydropower generation, and to the consumption of bioenergy in industrial processes and biofuels for transport. In 2018, more than a third of the global year-on-year increase in modern renewable energy consumption took place in Eastern Asia, where wind and solar PV dominate the growth.

Renewable energy was no immune from the impact of the Covid-19 pandemic. Global electricity demand declined 2% in 2020 compared to 2019, but renewables use for power generation increased by almost 7% year-on-year. Long-term contracts, low operating costs, priority access to the grid and continuous installation of new renewable capacities all contributed to expanding renewable electricity generation while output from all other fuels declined. This growth more than compensated for declines in bioenergy demand for industry and biofuels for transport. Lower economic activity resulted in an estimated 3% decline in global heat demand in 2020. Despite looming economic uncertainties, investor appetite for renewable energy remains strong, especially for renewable electricity, as reflected by record-high global auction results in 2020. Furthermore, the recent policy momentum to support economic recovery has the potential to accelerate further renewable energy growth.

Despite the impact of the Covid-19 pandemic, the outlook for renewables remains positive in all regions helped by supportive policies and falling technology costs. In the power sector, the IEA and IRENA scenarios both conclude that solar photovoltaic (PV) and wind will account for most renewables-based electricity generation by 2030. The outlook for the use of renewables in transport and heating and cooling is not as strong. Despite its large share of final energy consumption, heat receives limited policy attention globally compared with other end-use sectors. The number of countries with national targets for renewable heat is less than one-third those with targets for renewable electricity. Policy support is also critical for the outlook in transport, particularly in a lower oil and gas price environment.

Share of renewable energy in total final energy consumption and by end use, 2010 and 2018 (percent)



Source: International Energy Agency (IEA), United Nations Statistical Division (UNSD). Notes: Totals may not equal sum of parts due to rounding. Heat refers to the amount of energy used for heat-raising purposes. Traditional biomass use corresponds to solid biomass consumption in the residential sector in developing countries. The shares of renewable energy in transport and heat do not account for indirect renewable energy consumption through renewable-based electricity and district heat.

Additional resources, press releases, etc. with links:

- IEA, IRENA, UNSD, World Bank, World Health Organization. 2021. Tracking SDG7: The Energy progress Report 2021.
- IEA, Renewables 2020 (https://www.iea.org/reports/renewables-2020)
- IEA, World Energy Outlook 2020 (https://www.iea.org/reports/world-energy-outlook-2020)

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Target 7.3: By 2030, double the global rate of improvement in energy efficiency

Indicator 7.3.1: Energy intensity measured in terms of primary energy and GDP

Energy efficiency is improving but stronger action from policy makers is needed to achieve global targets.

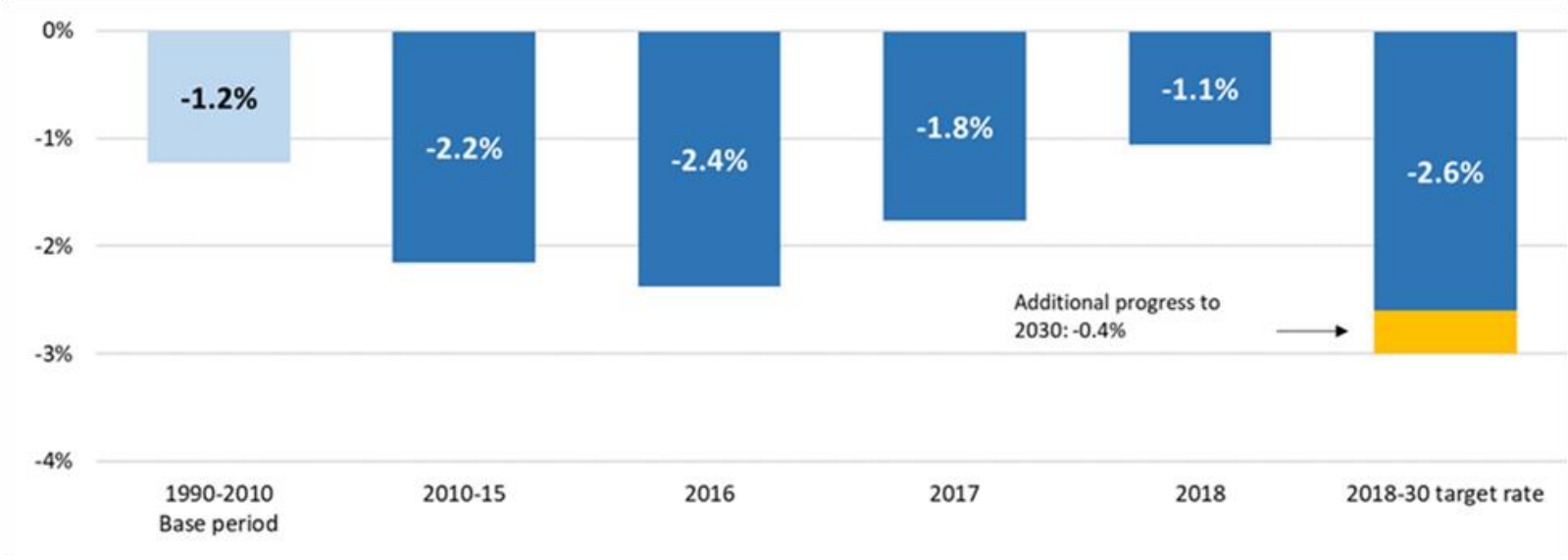
Improving energy efficiency—along with increasing energy access and affordability—is central to the global goal of reducing greenhouse gas emissions. Primary energy intensity, defined as total energy supply per unit of GDP, improved by 1.1 percent in 2018: the lowest rate of improvement seen since 2010, bringing the annual rate of improvement between 2010 and 2018 to 2 percent. Energy intensity improvements until 2030 will now need to average 3 percent if the world is to meet the target set in SDG 7.3. Nonetheless, the 3 percent target remains well within reach, provided there is significant investment in cost-effective energy efficiency improvements on a systematic scale.

The most robust and continuous energy intensity improvements are in Asia. Between 2010 and 2018, primary energy intensity in Eastern Asia and South-eastern Asia improved by an annual average rate of 3.1 percent. Similarly, in Central Asia and Southern Asia and Oceania, the average annual improvement rate of 2.6 percent between 2010 and 2018 was above the global average (2 percent) and an improvement on historic trends. Rates of improvement were just below the global average in Northern America and Europe (1.9 percent), with the lowest rates of improvement in Western Asia, Northern Africa, Latin America and the Caribbean (0.8 percent) and Sub-Saharan Africa (1.4 percent). Data on absolute energy intensity reveal wide regional differences: energy intensity in Sub-Saharan Africa is almost double the level in Latin America and the Caribbean. These variations rather mirror differences in economic structure, energy supply and access than energy efficiency.

The Covid-19 crisis had a major impact for energy intensity. Lockdowns and travel restrictions cut global economic activity dramatically, leading to an expected 4.6 percent fall in global GDP and a 5.3 percent fall in global total energy supply. Consequently, primary energy intensity improved by only 0.8 percent, the lowest rate since just after the last global economic crisis in 2010. Particularly in industry, investments in new energy efficient technologies and practices are likely to have weakened, as economic uncertainty led businesses to reprioritize their investments. Overall, however, the International Energy Agency estimates energy efficiency investments remained relatively stable in 2020.

Given the multiple benefits of energy efficiency, it is an obvious choice of government support, reflected in a range of recent stimulus packages throughout the world. One important benefit is that improved efficiency at scale would be a key factor in achieving affordable, sustainable energy access for all. The recent slowdown of intensity improvements, the significant potential opportunities for investment and economic recovery, and the pressing need for expanded access all point to the need for urgent action by governments to enact policies that would foster rapid progress toward a 3 percent annual improvement.

Growth rate of primary energy intensity, by period and target rate, 1990–2030



Sources: International Energy Agency (IEA), United Nations Statistical Division (UNSD) and World Development Indicators (WDI).

Progress analysis: *See progress chart*

Additional resources, press releases, etc. with links:

- IEA, IRENA, UNSD, World Bank, World Health Organization. 2021. Tracking SDG7: The Energy progress Report 2021.
- IEA, Energy Efficiency 2020 (https://www.iea.org/reports/energy-efficiency-2020)
- IEA, World Energy Outlook 2020 (https://www.iea.org/reports/world-energy-outlook-2020)

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Target 7.a: By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology

Indicator 7.a.1: International financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems

International financial flows to developing countries in support of clean and renewable energy reached 14 billion in 2018, a decrease of 35 per cent compared to 2017

International financial flows to developing countries in support of clean and renewable energy reached 14 billion in 2018. This was 35 per cent lower than in 2017, but large annual fluctuations sometimes occur, mostly due to variations in large hydropower commitments. Overall, the trend of financial flows remains positive over the last decade, with a three-fold increase during the period 2010-2018 when considering a 5-year moving average.

In light of the current COVID crisis and in line with the need to urgently scale up overall investment in renewable energy financial flows to developing countries need to increase substantially. Notably, higher financial flows would be needed in least developed countries falling furthest behind in reaching SDG 7. In the post-COVID recovery phase, aligning public financial flows towards a low-carbon and climate-resilient development will be critical to help accelerate progress towards SDG 7 and, at the same time, secure economic development and employment creation. Some promising announcements in this direction have been made by development finance institutions and governments.

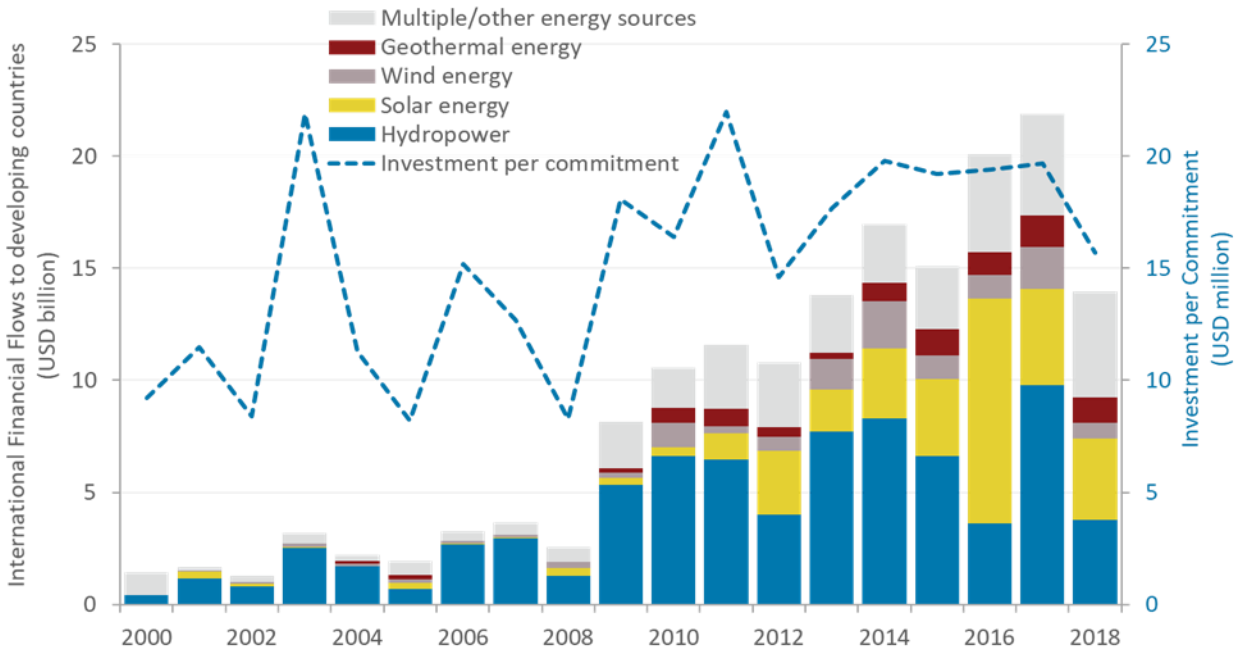
International public financial flows decreased across all renewable energy technologies between 2017 and 2018, with the largest drops in hydropower and wind at 61% each. From focusing mainly on hydropower before 2010, a growing share of public financial flows are now directed towards solar energy, which received around 20-25% of commitments in 2016-2018. With the surge in multi-purpose green funds over the last decade, a larger share of commitments has also been made in the “multiple/other renewable energy” category.

Apart from Eastern and South-Eastern Asia, international financial flows dropped across all regions between 2017 and 2018. However, based on a 5-year moving average, an upward trend in financial flows exists in all regions over the 2010-2018 period, with the largest increases observed in Central and Southern Asia, and Oceania (with six-fold and four-fold increases respectively). In contrast, Sub-Saharan Africa has seen less progress than other regions, with only a doubling of public financial flows over the same period.

Public financial flows continue to be concentrated in a few countries. For example, India, Pakistan, Nigeria, Argentina and Turkey received 30% of total commitments in the 2010-2018 period. In contrast, the 46 least developed countries (LDCs) in total received only 20% of commitments in 2018. Most of the countries with the lowest levels of electricity access are LDCs (particularly in Sub-Saharan Africa), but many receive far less international public funding than the global average when measured on a per capita basis (in 2018, the global average for all developing countries was USD 2.4 per capita).

The most commonly used financial instrument was concessional loans, with an average 65% of annual financial commitments during 2010-2018. Together with grants – which accounted for an average 6% of commitments – concessional loans have an important role to play in supporting the development of renewable energy markets in developing countries. Increasing use of risk mitigation instruments will also be critical in the post-COVID phase, given that recent market uncertainty and volatility in financial markets have made investors more risk averse.

International public financial flows (commitments) to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems, by technology between 2000 and 2018 (at 2018 prices and exchange rates)



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Target 7.b: By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States and landlocked developing countries, in accordance with their respective programmes of support

Indicator 7.b.1/12.a.1: Installed renewable energy-generating capacity in developing countries (in watts per capita)

Developing countries had 219 Watts per capita of renewable energy capacity in 2019. This figure increased by 7 percent over the year, but this growth was slightly less than the 8.8 percent increase in 2018

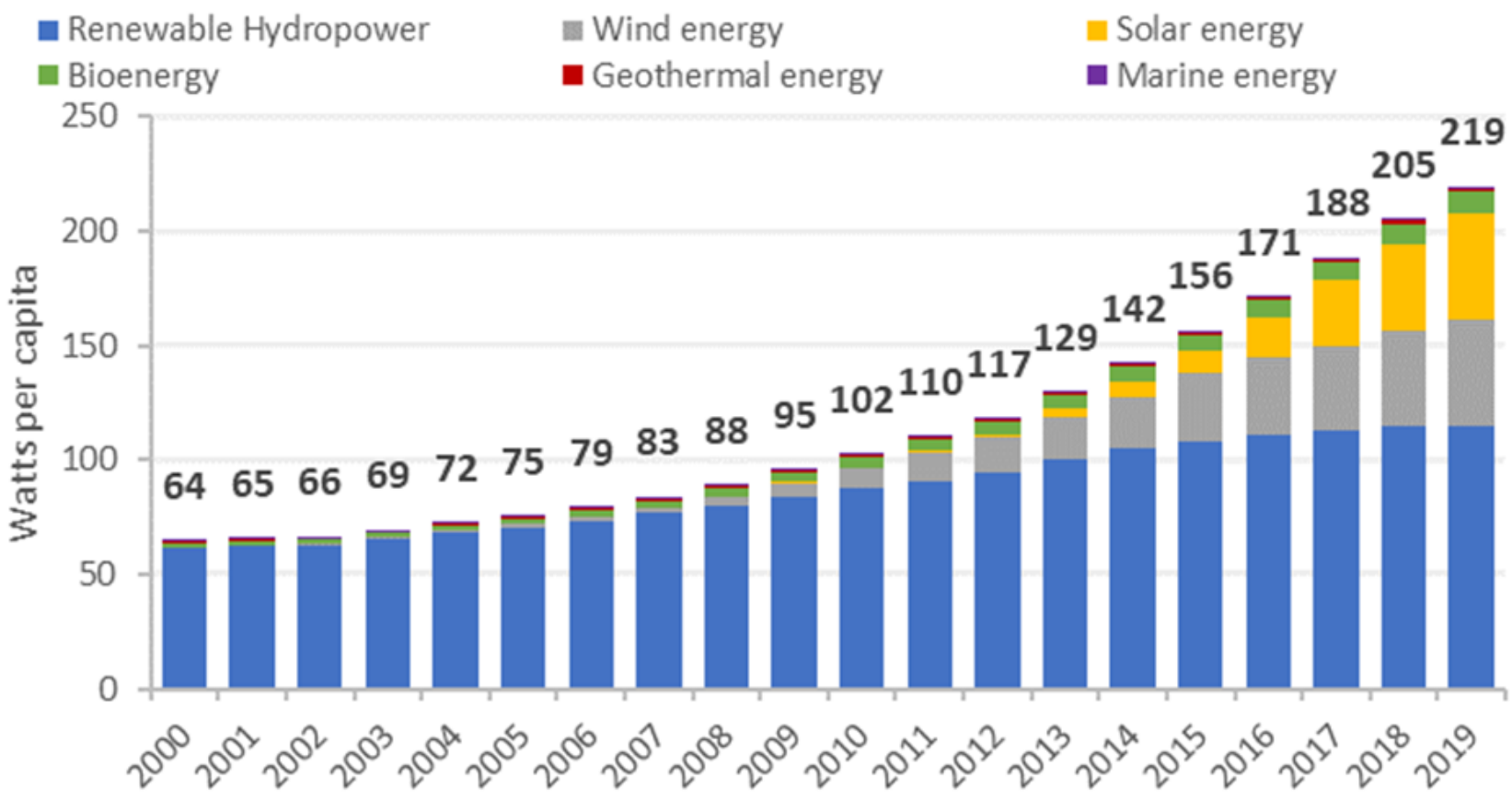
At the global level, there has been a remarkable increase in renewable energy capacity in the last decade, with expansion of renewable electricity generation capacity outpacing growth in non-renewable capacity every year since 2014. In 2019, renewable capacity increased by 7.5 percent and accounted for 72 percent of the total expansion in generating capacity. Furthermore, since 2017, most new renewable energy capacity has been installed in developing countries. In these countries, the rapid rise of renewables over the last decade is mostly due to the large-scale expansion of solar and wind capacity, which have increased at average annual growth rates of 69 percent and 21 percent respectively (from 2010 to 2019).

Developing countries had 219 Watts per capita of renewable energy capacity in 2019 (1.4 TW across 6.4 billion people). The 7 percent increase in this figure in 2019 was lower than the 8.8 percent growth in 2018 and the long-term trend of 8.9 percent annual growth from 2010 to 2019. This slight slowdown in improvement was due to a fall in the expansion of per capita solar power capacity, which increased by 22.2 percent in 2019, compared to 35.5 percent in 2018. Per capita capacity of wind power increased by 11.3 percent in both 2018 and 2019, while per capita hydropower capacity remained the same. These differences by technology reflect the overall trend in recent years, where total hydropower capacity in developing countries is expanding at about the same rate as population growth while wind and, in particular, solar power, have been expanding at several times the rate of population growth.

On a per capita basis, renewable energy capacity in 2019 was highly concentrated in Latin America and the Caribbean with 405 Watts per capita, closely followed by Eastern & South-eastern Asia at 391 watts per capita. Per capita renewable energy capacity is mostly from hydropower in Latin America and the Caribbean and it has been relatively high for many years but is growing only slowly. In contrast, the largest regional increase in per capita capacity in 2019 occurred in Eastern & South-eastern Asia, where it grew by 191 percent, driven primarily by solar and wind energy deployment. Sub-Saharan Africa is far behind these other regions, with only 34 Watts per capita of renewable generating capacity at the end of 2019.

While the last decade has seen a positive development, there remains significant untapped potential for developing countries to expand their renewable electricity capacity. For example, although most new renewable capacity has appeared in developing countries in the last two years, renewable capacity in developed countries was 880 watts per capita in 2019 (about four time higher than in developing countries), suggesting that there is still considerable room for further growth.

Installed renewable energy-generating capacity in developing countries (in watts per capita), by technology between 2000 and 2019



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