CLIMATE REVIEW

TSKB
Economic Research

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Temperature Changes Affect Food Prices

Climate Justice:

The communities least responsible for climate change feel most of the effects

TEMPERATURE CHANGES: Agriculture, Biodiversity, Cities

The content of Climate Review was written by Onur Bülbül, PhD.
under the supervision of TSKB Economic Research

About TSKB Advisory Services

While TSKB supports Turkish private sector investments with its thematic loans and innovative financing products, we continue to create added value for the business world and all of the drivers of development with our sector specific advisory services which we have been offering for 35 years. With our advisory teams consisting of financial advisors, engineers and economists, we guide the companies operating in the sectors driving the Turkish economy in its journey of transformation, development and sustainability. TSKB supports businesses to assess the risks and opportunities with data-based methods associated with environmental, social and governance (ESG) policy and to analyse the public and political expectations.

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Upcoming Events

U.S. National Summit on Combined Heat and Power will take place on 15 & 16 November in Washington, U.S.

Climate Ambition Summit 2023 will take place on September 20th in New York City, U.S.

Triple Witching

Welcome to the 11th issue of our Climate Review!

Seeing the title, those familiar with the markets could be forgiven for thinking that I will write about the famous coincidence in which expiration dates of three types of derivatives coincide on the last trading Friday of any given month. Instead, my point will be different in this piece. Just like L. Wintermeyer's spirit, and following the order of the World Bank, triple witching for humanity - I would say - is climate change, poverty and inequality.

Obviously, the TSKB Economic Research Department works on each component of the Triple Witching (and more). Within this framework, our quarterly Climate Review is an important tool for us to communicate the importance and urgency of climate change. How I wish you could be a fly on the wall in our meetings in which we discuss the topic for the next Climate Review. It is not difficult to find a subject - just the opposite in fact. Rather, it is difficult to choose just one topic to focus on among all those important and relevant topics regarding climate change. So, what we do is to prioritize the topics on the basis of their urgency and scope. In line with this, we have chosen to write about "Changing temperatures" in this issue, as this is rather the nub of the issue at the heart of climate change.

On a related front, we already discussed the heatwaves in the 8th issue of the Climate Change report, back in September 2022. In that very issue, we sought to convey that none of us will be able to escape from the negative externalities of rising temperatures, which is still very much the case. Indeed, here are some numbers.

•Average temperature on Earth has risen by some 0.08°C per decade since 1880

•The rate of warming per decade since 1981 has been twice this rate, reaching 0.18°C

•The ten warmest years according to historical records were within the last 12 years

This time though, we have extended our coverage. There is more to temperature change than heatwaves. Temperature anomalies, excessively cold winters or hot summers, rainfall anomalies (dry gets drier and wet gets wetter) are all under this topic. Clearly, temperature change and temperature anomalies also affect working hours, output, health spending and thus public balances. One can add price stability and monetary policy to this list as well. Put another way, changing temperatures push for changes in economic dynamics. Tackle climate change and take on the economic clichés. Challenge accepted!

Agriculture is a Different Story During Heatwaves

Agriculture is an important component of economic growth, especially for many low-income countries where it can make up over 25% of GDP. Negative shocks to agricultural production, due to factors such as diminishing water resources or drought therefore not only hurt economic development but also increase food price inflation and even threaten food security for the most vulnerable. In this framework, heatwaves are among the most devastating factors hindering agricultural production.

Heatwaves not only result in extremely dry conditions but also are usually followed by floods due to the increased level of moisture retained in the atmosphere during periods of extreme heat. Extreme heat results in increased demand for water, which cannot be immediately met in certain regions, reduced photosynthesis in plants leading to less energy for growth and increased insect activity, further harming crops and leading to smaller and poorer quality yields. In some cases, harvests may even be lost entirely depending on the intensity and duration of the heatwaves. Crops such as cereal, vegetables, fruit, sugar, and starchy roots make up almost 80% of our daily dietary energy supply. Among those, tomatoes, peppers, watermelons, grapes, wheat, corn, rice, almonds and pistachios are some of the crops most vulnerable to heatwaves.

The Intergovernmental Panel on Climate Change (IPCC) states that global average yields of maize decreased by 11.6%, soybeans by 12.4% and wheat by 9.2% due to the combined effects of heat and drought between 1961-2014. In Europe, for instance, where average annual temperatures have been recorded to be 2.2°C higher than pre-industrial era over the past five years, drought and heat induced crop losses have tripled in the last five decades. It must however be emphasized that heatwaves – as successive days of excessive heat – and peak high temperatures are different phenomena. Hence, measuring agricultural yield loss during heatwaves and hot seasons may not refer to the same incident. Accordingly, a recent study concludes that when heatwaves are accounted for, climate related damage in agriculture may be up to ten times larger than predicted by a focus on mean temperature shifts alone.

Average temperatures in Türkiye were recorded around seasonal averages in April while it has been

0,7°C

below seasonal averages in May

Some of the measures to increase the resilience of agricultural production to heatwaves include changing irrigation methods and planting times, using shading techniques, improved soil management practices, switching to heat resistant crops in areas with high vulnerability and closely monitoring the weather and crops to be prepared for potential heatwaves. With global warming expected to intensify, the world is bracing for more extreme heatwaves. Therefore, accelerating climate adaptation measures in agriculture is vital in ensuring that supply is able to meet demand.

El Niño is here again

The U.S. National Weather Service announced that the warm Pacific Ocean pattern, El Niño, is officially here again, after the cool pattern La Niña being in effect since 2020. Warming the Pacific Ocean, El Niño is expected to set heat records, increase rainfall in South America and exacerbate the already devastating drought in Africa with potentially dreadful implications on global economy.

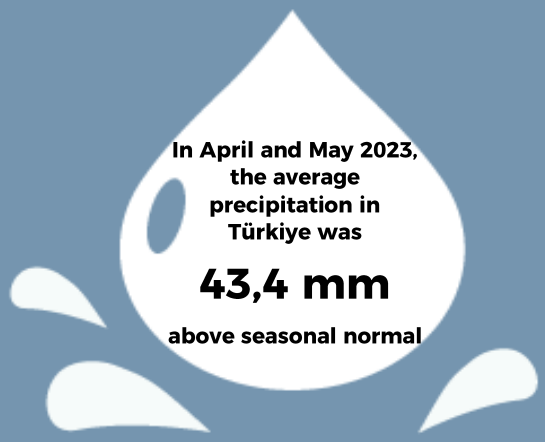
El Niño occurs when trade winds blowing from east to west in the eastern tropical Pacific Ocean weaken, allowing sea temperatures to rise in the eastern and central tropical Pacific, which can also result in higher global surface temperatures. Back in 2016, El Niño triggered a rise in temperatures, sparking the worst floods to hit South America in decades, while making 2016 the warmest year on record.

The economic impacts of El Niño have also been devastating. The 1997-98 El Niño event, for instance, is calculated to have resulted in losses of $5.7 trillion to global income, an amount which is projected to increase to $84 trillion in the 21st century under current mitigation pledges. It is also estimated to be responsible for an additional 23,000 deaths globally, mainly due to the storms and floods it helped amplify.

While El Niño and La Niña currents are a regular cycle in the Pacific, the impacts of El Niño, particularly when coupled already increasing global temperatures, may become deadlier than ever. At a time when the world, especially the developing world, appears underprepared for the worst in terms of its adaptation efforts, we can only hope for the best.

A little bit more water is now altering our balance

Scientists in South Korea reported that increased groundwater pumping had changed the tilt of the Earth's axis. Earth's rotational axis may be affected by masses moving around on the surface of our planet and the estimated 2 trillion tonnes of underground water extracted between 1993 and 2010 has alone caused the geographic North Pole to shift at a rate of 4.36 centimeters per annum. This observed shift has been in the direction of Russia's Novaya Zemlya islands, mainly due to groundwater extraction in northwestern India and western North America which has shifted the global distribution of water. The study estimates that groundwater pumping has also resulted in a rise in global sea levels of 6.24 millimeters in the same period.



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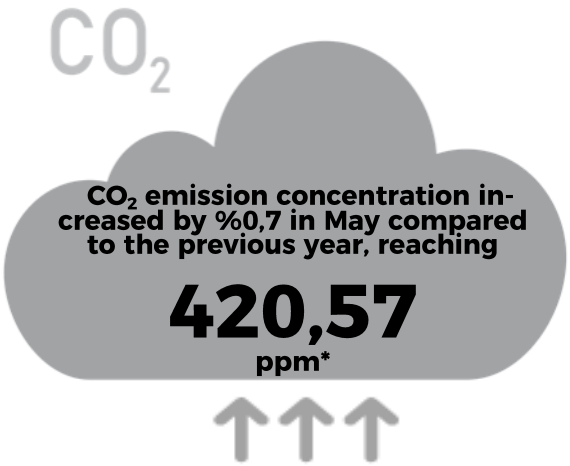

*parts per million

What Does El Niño Mean for Our Food Systems?

2022 made history as the fifth hottest year in the world. This picture only worsens considering how La Niña had the globe under a cooling influence last year. The year 2023 has already demonstrated that an abatement is unlikely in the near future, with heatwaves from Siberia to Spain, forest fires in Canada and floods in many countries from Italy to Somalia. The EU Copernicus Climate Change Service has announced that the temperature record for early June has already been broken, while experts warn that this rise in temperatures will only accelerate further as the effects of El Niño are felt. It is understood that El Niño, with its impact on climate events, causes drought and flooding worldwide and has wide-ranging effects from public health to the economy. Another undeniable impact will be on food systems.

With so little time left to meet the goal of eliminating hunger by 2030, global statistics provide us with a grim picture. The progress which was made until the mid-2010s appears to have been reversed in recent years, with both the total number of undernourished people and the prevalence of undernourishment (%) on the rise. According to the FAO's most recent report in this area, 29.3% of the world's population is suffering from moderate or severe food insecurity. And now El Niño is arriving on the scene as the newest challenge to our food systems, whose fragility has been laid bare over the past few years by the Covid-19 pandemic and the Russia-Ukraine conflict. So, what effects could this have? To better understand this, we must go back to 2014-2016, the last time El Niño strongly affected precipitation and temperature patterns.

The period, which also includes the hottest year on record, changing climate conditions had an adverse effect on the food security and nutrition conditions of 60 million people, jeopardizing the gains made over decades. Droughts and floods reduced agricultural production and diversity of the harvest, leading to malnutrition. However, these effects are not limited to Pacific-rim countries where the precipitation and drought impacts of El Niño are felt most keenly. While yields of some crops (like soybeans) appear to have been positively affected by rising temperatures, yields of other crops (such as corn, rice and wheat) decreases during El Niño periods. Such a decrease on supply is expected to have an impact on food inflation. Take wheat for example, during El Niño periods the global production goes down whereas export prices start to increase. But the inflationary pressure of El Niño isn't felt equally around the globe. An IMF study shows that in countries where food items take up a larger share of the consumer price index (CPI) basket of goods, this pressure is greater. Thus, even though Turkey is not located in a geographical area directly affected by it, with food items making up %25,32 of the CPI basket El Niño is something to keep an eye out for. It should also be noted that, El Niño's effect on prices, just like its effect on temperatures, is temporary.

On the other hand, the effects of climate change are much more permanent and rapid. As such our agricultural methods and food systems do not have the luxury of standing still. Only change and improvement rapid enough to rival the pace of our changing climate can help us build a world where no one will go to bed hungry.

Are We the Only Sunstroke Species?

Although mostly overlooked, the unique biodiversity of our world and the services it provides through the ecosystem such as purifying water, cleaning air, absorbing carbon or releasing oxygen are vital for sustaining life on Earth. However, biodiversity is under severe threat globally, as several species are facing extinction in our oceans, lakes and terrestrial ecosystems such as forests. Heatwaves are only exacerbating this massive loss.

Freshwater lakes and rivers, home to more than 10% of all known animals and 50% of fish species, are also highly vulnerable to the devastating impacts of heatwaves. Prolonged extreme heat results in extensive evaporation, loss of surface water and changes the chemical composition of the water, hence leading to high mortality rates for freshwater species. Today, the rate of loss of freshwater species are estimated to be around 76%, which is much larger than the rate of loss in terrestrial or marine habitats.

Marine heatwaves, for instance, are estimated to have increased by more than 50% in the past century, are leading to loss of coral reef habitats, hence damaging the marine life they support and reducing the resilience they provide to coastal areas from waves and tropical storms. The loss of underwater ecosystems which is estimated to have absorbed 26% of all the carbon released between 2002 and 2011 also turns these carbon sinks into carbon sources.

Wildfires also worsen during periods of extreme heat, adding to the loss of biodiversity on land. The 2022 heatwaves in Europe, for instance, gave rise to the hottest summer on record and the second warmest year ever to be recorded on the continent. It is no coincidence that the same year was also the continent's second worst fire season on record after 2017. Apart from their impact on biodiversity, wildfires are estimated to be responsible for one-third of global carbon emissions generated by ecosystems, further exacerbating global warming and leading to a vicious cycle.

Breaking this vicious circle will require preserving between 30% and 50% of terrestrial, oceanic, and freshwater ecosystems and, where possible, improving them in order to maintain existing ecosystem services. This effort is also of vital importance in reducing the severity and frequency of heat waves and thus slowing the loss of biodiversity in our world.

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It's Getting Hot in Here!

In his The Spirit of Law (1750), the famous thinker Montesquieu expressed that the climate had a profound effect on people, both sociologically and politically. While emphasizing the significance of climate change in human life, Montesquieu illustrates the differences between people living in hot and cold climate regions. Since natural climate differences has such an impact on people, unnatural climate change clearly requires serious consideration. Globally, both the negative effects and destructive force of climate change shocks are increasing. One of the most significant effects has been the temperature change shock.

In the introduction of this issue, where our topic is "temperature change", our Chief Economist shared some statistics on global warming. Based on global statistics, (i) average temperatures are rising and (ii) the frequency of days with extreme heat is likewise rising. In other words, the incidence of extreme heat is becoming more common in the world.

The topic is unquestionably global, but let us recognize that geography may sometimes be instrumental. With this in mind, I would rather focus on Türkiye. In Figure 1 and Figure 2, I depicted some temperature statistics for Türkiye covering the period between 1970 and 2020.

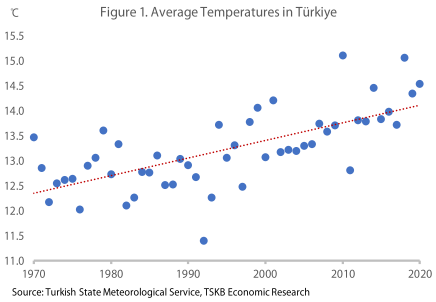
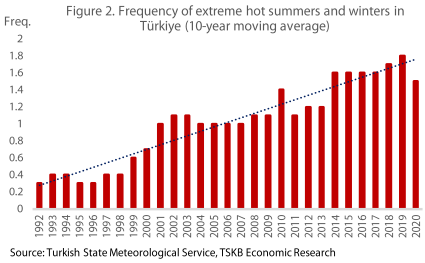


Figure 1 depicts the upward trend of average temperatures over the last 51 years. We are warming up. There is a 3.7°C gap between the years with the highest and lowest average temperature over the last 51 years, and a 1.1°C difference between the average temperature in the earlier 25-year period and the recent 25-year period. The implications for humanity, facing the task of limiting the increase in global temperatures to 1.5°C, are truly frightening.



Temperatures outside seasonal norms are generally experienced in summer and winter in Türkiye. Temperatures which surpass seasonal norms are becoming more common, in line with the global statistics. In Figure 2, an observation is deemed “exceptionally hot” if the temperature in that month is at least 1.5°C higher than the 50-year average in the relevant month. This means that we are experiencing four times the number of extreme hot winters or summers, over a 10-year view, compared to 30 years ago.

Statistics demonstrate that "it's getting hot in here", while indicating that “this heat will be common soon”.

Measuring the climate impact of food by bananas?

The Economist magazine introduced a banana index to measure the climate impact of the food we consume. The index relies on the relative carbon impacts of food by comparing greenhouse gas (GHG) emissions by their weight, calorie count and protein content to a banana, which has a middling level of climate impact as well as nutritional value. The index finds some interesting results; according to their emissions by weight, for instance, beef stands at the higher end of the spectrum in terms of emissions, whereas the meat free burger, almonds or fruit such as apples and oranges are at the lower end. In fact, beef stands as the highest emitter in terms of emissions both by calorie count and protein content, supporting the argument that switching to plant-based diets is good for the climate. However, the conundrum that nuts such as almonds - which are determined to have a comparably small carbon footprint when evaluated in terms of GHG – have one of the highest water footprints among foods reveals the complexity of the climate problem.

Cities Are Both a Source and Victim of Heatwaves

It is that time of the year again when heatwaves start to occupy the global agenda – at least for the Northern hemisphere. Global warming continues to demonstrate its devastating effects in the form of extreme weather events such as droughts, floods and heatwaves. For example, it is estimated that in the areas which are currently home to 1 to 3 billion people, mean annual temperatures will be so hot within the next 50 years that those areas will no longer have climate conditions suitable for human life. Cities, as the most densely populated areas, are particularly vulnerable in this respect.

In fact, cities are not only the biggest potential victims of heatwaves but also major contributors to heat. Human induced heat emissions, such as waste heat from cooling systems, are estimated to increase local temperatures between 1 and 3°C. Urban heat islands (UHI), for instance, which are directly related to factors such as land use changes due to urbanization soil sealing, decreased vegetation, transportation, or heat absorption by buildings enhance the adverse impacts of heatwaves in cities. Soil sealing is a particularly significant source of extreme heat in cities as dry urban surfaces under direct sunlight can become between 25°C and 50°C hotter than air under shade or over moist surfaces which remain at similar heat levels as the air temperature on a hot summer day.

Europe is especially becoming a hotspot for heatwaves compared to other regions due to atmospheric dynamical changes unique to the region, causing huge human and economic losses. According to the European Environment Agency, which Türkiye is also a member of, heatwaves accounted for around 68% of fatalities caused by extreme events such as storms, floods, droughts and fires between 1980 and 2017, while comprising about 5% of total economic losses. Besides their direct health impacts, heatwaves can also result in labor and agricultural productivity losses, adversely impact water resources, increase risk of wildfires and accidents as well as power outages. Another study found that under a high emissions scenario, the mean increase in the mortality risk would be around 3.2% of global GDP in 2100, while global deaths due to heatwaves could almost match the number of deaths from all infectious diseases combined today.

Besides the mitigation efforts to cut global warming, building urban resilience to heatwaves requires a number of adaptation measures. Nature-based solutions, such as increasing the coverage of vegetation, can provide cooling effects by shading and evapotranspiration while at the same time increasing stormwater retention, biodiversity and groundwater recharge. Expanding bodies of water in and around cities and utilizing them as heat absorbers also helps cool cities in addition to their positive impacts on biodiversity. Finally, reducing the heat storage of buildings by using reflective materials and colors rather than traditional darker materials can also be a good measure to stem the increasing vulnerability of cities to heatwaves.

Climate Finance

A slow start to Global Sustainable Fund Flows in Q1 2023, but Assets Reach $2.74 trillion

Investment research company Morningstar reported that global sustainable fund inflows in the first quarter of 2023 stood at $29 billion, marking a decrease from the $37.7 billion recorded in the previous quarter. The slowdown is believed to have been mainly due to macroeconomic pressures such as rising interest rates, inflation and fears of recession in most regions. However, higher valuations resulted in a recovery of global sustainable fund assets, allowing them to reach $2.74 trillion by the end of Q1.

The rate of new product development also slowed with new sustainable fund launches scaled back by almost two thirds in Europe, the largest market for sustainable funds. New product development in the rest of the world on the other hand, maintained its momentum. While 113 new sustainable funds were estimated to be introduced in Q1, this number is considerably lower than in the previous quarter, which saw the introduction of around 200 new funds.

Europe and the United States, as the two largest markets making up 95% of global sustainable fund assets, experienced opposing trends in asset flows in Q1. While Europe saw asset inflows of $32.3 billion, there were $5.2 billion in asset outflows from the U.S. Whereas there was a 7.5% expansion in global sustainable fund assets in the first quarter, exceeding the overall global fund market growth of 4% in the same period, global sustainable assets remained below their peak of around $3 trillion recorded in Q4 2021.

Global Carbon Pricing "Generates $95 billion in revenue" - World Bank

The World Bank has published its annual report " State and Trends of Carbon Pricing 2023" where the Bank sets out global developments regarding carbon pricing. According to the report, a total of 73 direct carbon pricing instruments were in use globally as of April 2023 with revenues from carbon taxes and emission trading systems increased by 10% compared to the previous year, reaching $95 billion in 2022. Despite its upward trend, this sum remains a fraction of fossil fuel-based tax expenditures (excise duties) and incentives totaling around $1 trillion. The ratio of emissions covered by carbon pricing instruments in global total emissions stood at 23%, unchanged compared to the previous year

The World Bank has also stated that in the face of the global energy crisis and high inflation, many countries have implemented support mechanisms such as reducing energy taxes, offering fossil fuel incentives or even direct payments. While these measures have elevated already high levels of public debt, the World Bank finds that climate policy measures continued to be implemented in many high carbon emitting countries, despite such obstacles. The report also notes that the current conjuncture further complicates the political economy of carbon pricing.

Norway urging U.S. Companies to scale up their ESG Game

Norway's giant $1.4 trillion oil fund, which holds on average 1.5% of every listed company in the world, is urging American companies to raise their game in the way they handle Environmental, Social and Governance (ESG) topics. The oil fund states that the main reason behind their decision was that U.S. companies were lagging behind in ESG areas when compared to their European counterparts. The fund is using shareholder proposals to step up its demands for the companies it has invested in to set various targets to be net zero by 2050. Between 2009 and 2015 the fund filed 21 shareholder proposals at 13 U.S. companies mainly on governance issues, but the climate proposals are new.

COP 28 looks set to be the scene of heated debates about the future of fossil fuels

The road leading to the Conference of the Parties (COP) is almost always paved with confrontation and this year the main hiccup concerns fossil fuel "emissions". This year's COP 28 will be held in the United Arab Emirates (UAE) under the leadership of the UAE's Sultan Al Jaber, who also happens to be the head of Adnoc, the country's fossil fuels giant.

Ahead of COP 28 to be held this November, several conferences will be held to discuss and finalize the summit's agenda. The Bonn Climate talks, for instance, are held every year in June, which resulted in the inclusion of a discussion on the loss and damage facility at last year's COP, perhaps the biggest outcome of the COP 27 - although its murky details are a different story. This year, however, the Bonn climate talks could not even produce an agenda after a seven-day debate.

The Petersburg Climate Dialogue (PCD) held on 2-3 May 2023 in Berlin also included debates on potential calendars to phase out fossil-fuel usage and the role of carbon capture technology in the energy transition. Fossil fuel producing countries such as the Gulf states, Iran and Russia are pushing to set the tone of the discussions on phasing out fossil fuel "emissions". This raises the prospect of a discussion on utilizing largely unproven and costly carbon capture technologies, rather than phasing out "fossil fuels" as a major source of emissions. On this point, the Intergovernmental Panel on Climate Change (IPCC) warns that while capturing one tonne of carbon dioxide (CO_2) costs between $50 and $200, transitioning into renewables - where utility scale solar and onshore wind stand as the cheapest options for electricity generation - can actually save money.

Within this perspective, COP 28 looks set to be the scene of heated debates about the future of fossil fuels. Whether the world can get on track to limit global warming to the levels set by the Paris Agreement, on the other hand, remains to be seen.

Climate 101

Urban Heat Island

The difference in temperature between an urban area and nearby rural regions, which affects factors such as water flow, heat retention and surface reflectivity.

Waste Heat

Unused heat generated by the transfer of excess heat emitted by machinery, transport systems, cooling systems or industrial processes.

Urban Resilience

The capacity of a city and its individual components to anticipate, absorb, adapt to or bounce back from the impacts of a hazardous event promptly and effectively, which involves safeguarding, restoring, or enhancing its essential structures and functions.

Soil Sealing

A procedure that alters the composition of soil by overlaying it with impermeable substances such as concrete, metal, and asphalt.

Urban Microclimate

A localized collection of atmospheric conditions within a relatively small region (typically spanning up to 100m) that contrasts with the weather patterns in surrounding areas.

Climate Justice

Energy inequalities remain persistent according to the United Nations

A new joint report by the International Energy Agency (IEA), International Renewable Energy Agency (IRENA), the United Nations Statistics Division (UNSD), the World Bank and the World Health Organization (WHO) states that inequalities in basic energy access at a global level remain persistent with 675 million people lacking access to electricity and 2.3 billion people using polluting fuel to cook. This has important implications for the health and prosperity of the communities most vulnerable to climate change in the world.

Tracking the progress on Sustainable Development Goal (SDG) 7 (ensuring access to affordable, reliable, sustainable and modern energy), the report finds that achieving SDG 7 appears impossible given the current rate of progress as 1.9 billion people will be without access to clean cooking and 660 million will still lack access to electricity by 2030 unless energy investments are ramped up. According to WHO estimates, the use of polluting fuels and technologies which increase toxicity in household air pollution is responsible for a death toll of around 3.2 million annually. Most of these losses fall on the communities least responsible for climate change. For those lucky enough to survive, traditional biomass gathering takes up to 40 hours a week with an unequal burden on women and children who are mainly responsible for this job, eroding the amount of time available for employment or schooling.

In Sub-Saharan Africa for instance, 567 million people did not have access to electricity in 2021 according to the report, accounting for more than 80% of the global population with no access to electricity. International public financial flows for clean energy investments, on the other hand, were 35% lower in 2021 than the annual average between 2010 and 2019, and 80% of the commitments were only directed to 19 countries.

In ramping up efforts to reach the SDG 7 targets, the report emphasizes the need for a structural reform of international public finance and to find new opportunities to unlock energy investments. Even though the share of total final energy consumption from renewables increased from 16% in 2010 to 19.1% in 2021, the world still has a long way to go to get on track to reach the energy goal by 2030.

U.S. holds its first Climate Justice trial in Montana

16 young people in Montana are accusing state agencies and the governor of violating their constitutional right to “clean and healthful environment” by embracing fossil fuels. The State of Montana is home to around 30% of total U.S. recoverable coal reserves and has never denied permits to fossil fuel projects. As the first U.S. climate justice trial to be held, the case might result in the State applying more scrutiny in fossil-fuel project permits, which could include consideration of their environmental impacts as well.

Company Highlights

The additional strain on cooling systems that comes during heatwaves pushes companies to produce solutions which increase the efficiency of these systems utilizing innovative approaches. Carel, an Italian company specialized in control solutions for air conditioning, refrigeration, heating, humidification and evaporation systems provides a good example of companies working towards such efforts.

Carel has been providing residential, industrial, and commercial solutions to increase energy efficiency with 38 subsidiaries, 15 production plants, and over 2,000 employees -13% of whom have been working in research and development globally since 1973. The company's system optimization products, which mainly go into larger units, help increase the efficiency of heating and cooling systems, while decreasing carbon dioxide (CO_2) emissions and having a positively contribution to the efforts to control climate change. In 2021, Carel's products have allowed its

customers to save 5,867 gigawatthours (GWh) of energy and reduce their CO_2 emissions by 1.26 million tons. Ejectors, as one of the company's main products, were responsible for 74% of the energy savings in 2021.

Carel is also working to reduce the carbon footprint of its own operations. In 2021, the company prevented 201.5 tons of CO_2 emissions, increased the share of renewables in its energy use to 51% as of 2020 while decreasing its total energy consumption by 10% despite a 13% increase in work hours. Accordingly, in January 2023, Carel was ranked as Italy's second-best industrial product and component sector company on the basis of the reduction in its ratio between CO_2 emissions and revenues.

In Short...

New York bans Natural Gas stoves in new buildings

New York Governor Kathy Hochul signed a $229 million budget in May that includes the first statewide ban on natural gas and other fossil fuels in new buildings. The State introduced the Climate Leadership and Community Protection Act in 2019 mandating an 85% reduction in greenhouse gas emissions by 2050 while almost half of the target is required to be met by 2030. New York aims to generate 70% of its electricity from renewables by 2030 and establish a carbon-free power grid by 2040.

Mexico in efforts to seed clouds to produce rain

Mexico's Agricultural Ministry is running a pilot program for cloud seeding to ease droughts in the country. The experimental technique relies on dispersing silver iodide particles into already existing clouds to attract water droplets and help the clouds become laden enough to initiate rainfall.

G7 sets out new ambitions on solar and wind energy

The G7 meeting in April ended with an agreement to accelerate the development of renewable energy and phase out the use of fossil fuels more rapidly. In the joint communique, G7 members pledged to increase their offshore wind capacity by 150 gigawatts (GW) and solar capacity more than 1 terawatt (TW) by 2030. However, the group could not commit to phasing out coal by 2030, despite a push from Canada.

Germany shuts down its nuclear plants, but the debate rolls on

Following the 2011 Fukushima disaster in Japan, Germany enacted a law to phase out nuclear power plants by 2022. However, the debate rumbles on as other European countries, such as France and Finland, are increasingly resorting to nuclear power for their electricity needs. Germany has already been phasing out its nuclear plants, which generated just 4% to 6% of the country's power in 2022. But critics question the wisdom of shutting down nuclear power while the country is still reliant on coal for about a third of its electricity.

Full speed ahead for Solar and Battery Power

The International Energy Agency (IEA) announced that the manufacturing of solar panels and wind turbines was expanding at a pace sufficient to meet the Agency's net zero emissions scenario by 2050. Solar energy capacity met the deployment needs by 2022, while battery production capacity now stands at 97% of the IEA's requirement in the net-zero scenario.

Canadian wildfires choke American cities

The wildfires in Eastern Canada have blanketed the Northeastern U.S. in thick yellow smoke, slowing airline traffic and forcing many schools to cancel their outdoor activities. New York, one of the cities most affected by the smoke, became the city with the worst air quality in the world for a couple of days as its air quality index exceeded 400, indicating "hazardous" air, well above the "unhealthy" level of 100. Air pollution is estimated to be responsible of more than 6.5 million deaths annually worldwide.

Rising sea levels pose serious threat to China

Scientists at an American NGO, Climate Central, predict that between 43 and 57 million people in China live in areas at risk of being submerged during high tides, and an additional 60 million people will be at risk from potential coastal floods by the end of the century. This is projected to result in up to $4.5 trillion (around 10% of China's predicted total GDP) in losses in a scenario where greenhouse gas emissions remain high.

World Bank offers $434.7 million to Improve water circularity and efficiency in Türkiye

With an aim to improve wastewater and reuse as well as irrigation services in Türkiye, the World Bank approved $434.7 million in financing under the Türkiye Water Circularity and Improvement Project. The project aims to scale up the country's water security where more than two thirds of its river basins are facing water scarcity and almost half of its rivers are considered to be highly contaminated.

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