CLIMATE REVIEW

TSKB
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GREEN SWAN PLATFORM
A TSKB INITIATIVE

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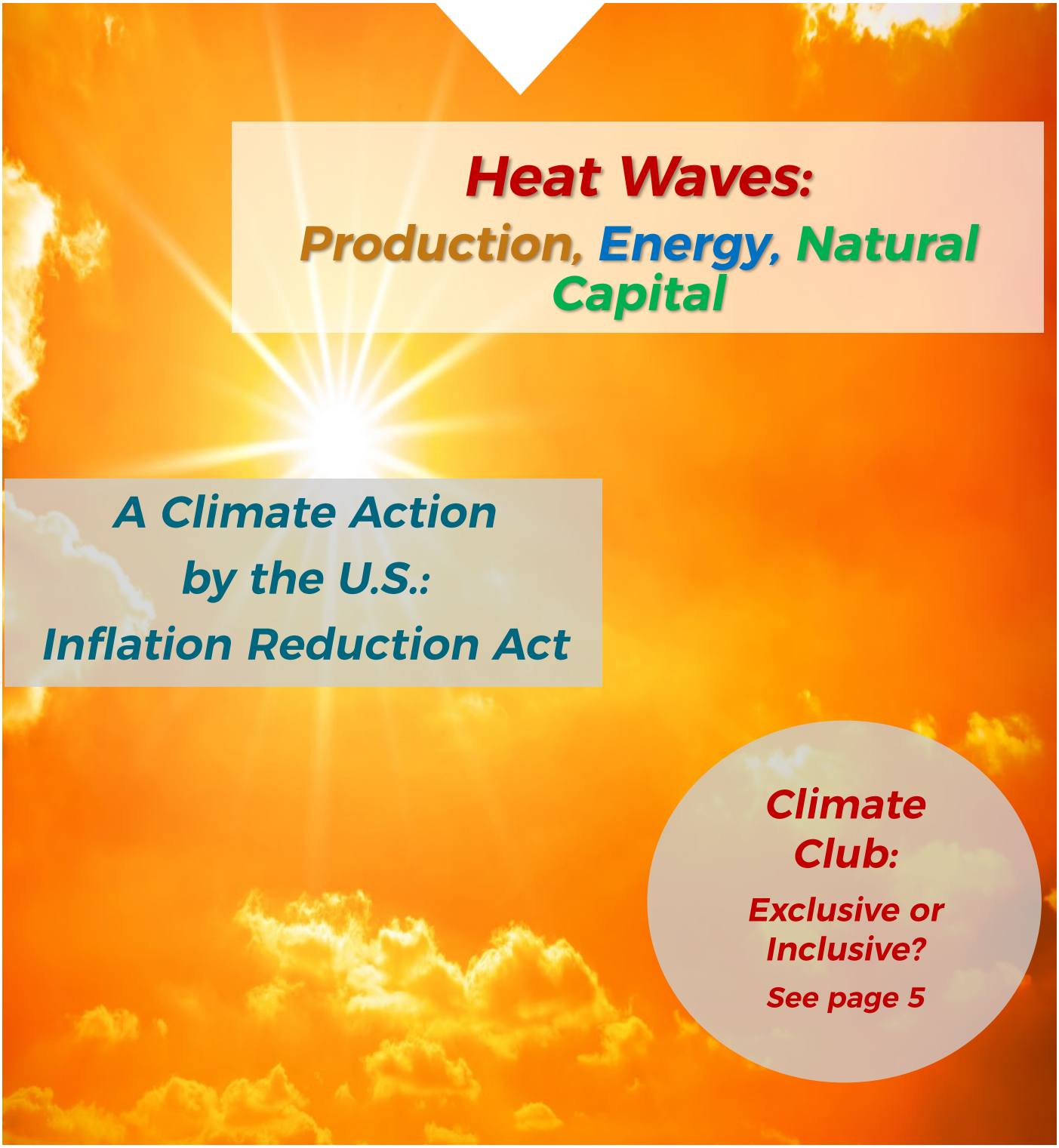

Heat Waves: Production, Energy, Natural Capital

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

About Green Swan Platform

The concept of "Green Swan", which expresses the low probability but high destructive risks related to climate, occupies the first rank globally in the agenda with the increasing effects of the climate crisis every day. Today, the climate crisis stands against us as the biggest obstacle to sustainable and inclusive development.

The Industrial Development Bank of Türkiye, which has been working for Türkiye's economic, development and social development for 70 years, established "Green Swan Platform" in order to produce solutions to this global threat.

Aiming to bring public-private sector and NGO representatives, international organizations, academics, students and the press together, the Platform invites all stakeholders to think together and produce solutions in order to achieve "Green Economic Recovery".

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.
For more inquiries and information, danismanlikhizmetleri@tskb.com.tr

Burcu Ünüvar, PhD.

Chief Economist – Head of TSKB Economic Research

unuvarb@tskb.com.tr

Upcoming Events

27th Session of the UN Climate Change Conference of the Parties (COP27) will be held in Sharm el Sheikh, Egypt between 7 and 18 November

World Ocean Tech and Innovation Summit will be held between 4 and 5 October in Halifax, Canada.

Hot Encounter

Greetings from the 8th issue of our Climate Review!

Without alluding to compete with Dr. Who, let me try to take you on a trip back in time to the mid-1930s to meet a sculpturer called Einar Utzon-Frank, working on his creation called Vejrpigerne (Weather girls). Soon he would place these sculptures over a thermometer in Copenhagen's Radhuspladsen, which would become one of the city's landmarks.

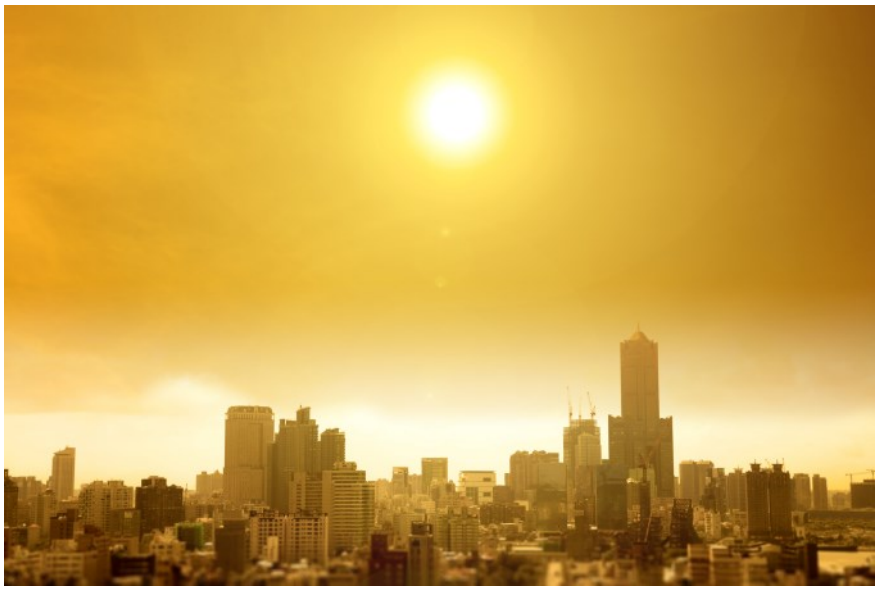
Vejrpigerne is the sculpture of two girls; one holding an umbrella, the other with a bicycle, representing different weather conditions - rainy and sunny, respectively. If the thermometer points to rainy weather, then the girl holding an umbrella comes ahead. If it is sunny, the sculpture of the girl with the bicycle moves forward.

Today, however, there is a problem with Vejrpigerne; or, rather two problems. First, if I am not mistaken, the Weather Girls can no longer move due to a technical fault. And secondly, the thermometer does not show heat above 30°C. The temperature in Copenhagen exceeded 30°C on a number of days in the summer during 2022; but this problem also indicates that 70 years ago, no could have foreseen that the temperature could rise as high as this in Copenhagen. In other words, average temperatures have climbed by more than we could have foreseen.

I sought to provide an interesting introduction hoping to attract your attention to the issue of rising temperatures since we devoted the 8th issue of the Climate Review to this subject. In this issue, it is set out that the degree to which climate change is giving rise to intense heat waves is rising. This needs to be watched as higher temperatures are associated with more disasters caused by heatwaves, droughts and wildfires, while the IMF predicts that the frequency of disasters caused by heatwaves will increase considerably by 2100. The same study conducted by the IMF also predicts that emerging market countries will bear the sharpest increase in such events. Meanwhile physical risks associated with heatwaves may threaten financial stability through increased volatility of asset prices. Last but not least, heatwaves risk human life. In a study covering 9 countries, it was found that excessive heat during 2019 was related to 365,000 deaths. On a related front, rising temperatures are also projected to deliver a loss of 2.2% in working hours, wiping USD 2.4 trillion off global GDP by 2030 due to the dangerous working conditions caused by extreme heat. Just another reason why we should shift our focus beyond headline employment data in a way to cover working conditions.

Despite the somewhat alarming picture I have sketched out, I would like to thank you if you are still reading this piece. I guess you are in desperate need of some good news, and far be it from me to disappoint you. The good news is we can still fight climate change. The schedule may be tight, but doable. It just requires us to act, now!

Heat Waves are Putting Stress on Global Manufacturing

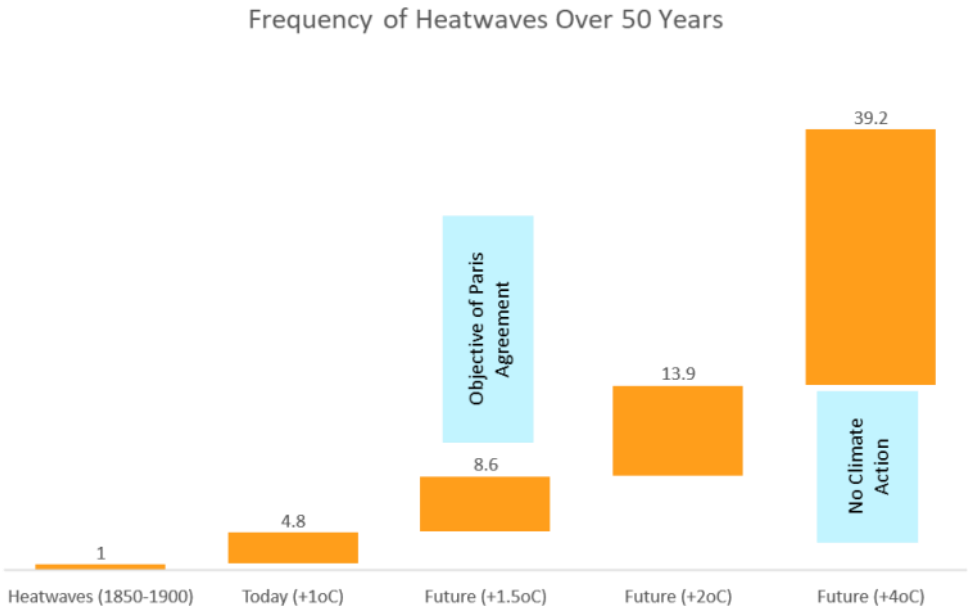


A major outcome of increasing global average temperatures is the increased frequency of heatwaves with their repercussions on human health, labor and agricultural productivity, energy use, supply chains and our natural capital in the form of increased natural disasters such as drought, fires, and floods. The World Bank indicates that the current 1.1℃ increase in global average temperatures has already resulted in five-fold increase in the incidence of extreme heatwaves, which are expected to become 8.5 times more prolific with a 1.5℃ rise in temperatures and 14 times more prolific if the increase in global temperatures reaches 2℃.

Home to more than 50 percent of the global population and with higher average temperatures as densely populated areas, cities bear the brunt of heatwaves. They are also production hubs, as it is estimated that world's 600 largest cities contribute around 60% to global GDP. Hence, the unique vulnerability of cities to extreme heat raises serious economic risks as well. While the 2010s witnessed the five warmest years ever recorded, the impacts of the 2022 heatwaves on production have been particularly damaging.

China's worst heat wave in recorded history which lasted for more than 70 days, for instance, forced the country to cut power in factories leading to temporary suspension of production for companies such as Toyota, Tesla and Foxconn. Europe is experiencing its worst drought in the last 500 years due to extreme heat which has also rendered river and rail transportation difficult and disrupted trade. Floods, on the other hand, have also been exacerbated by extreme heat as the atmosphere can hold 6 to 7 percent more moisture for each 1℃ of warming. The floods in Pakistan, for instance, which took place in August 2022 – after a period of extreme heat – are expected to cost the country over USD 10 billion.

When it comes to the effects of climate shocks on supply chains, a study has found that while supply chain actors factor climate risks into their risk management practices, when real shocks - particularly in terms of floods and heatwaves - exceed expectations, customers are 6 to 11 percent more likely to end existing business relationships. Even though solutions to cope with heatwaves such as urban greening, an increased use of more traditional architecture and passive cooling through shading and natural ventilation are being implemented to overcome these negative repercussions, heatwaves will likely cause greater economic damage with the world on track to hit 1.5℃ of global warming before 2050.



Climate Club: Exclusive or Inclusive?

The Climate Club and "exception" topics for cross-border fossil fuel financing were at the forefront of the G7 Leaders' Summit. The leaders decided to establish a Climate Club by the end of 2022 to support the effective implementation of the Paris Agreement. The Climate Club aims to share experience on emission reduction and carbon markets, accelerate the decarbonization of the industry and strengthen and encourage international collaborations for this purpose.

G7 Leaders have urged high carbon emitting economies and G20 members to enrich discussions and exchange views. The decision to establish a Climate Club could mark a new era in both the efforts to tackle the climate crisis and transforming industrial policies. Even though there is not enough data to determine which of these topics the new club focus on, data to create concern about its potential tendency to become an industrial policy tool rather than a tool to fight climate crisis are abundant. Another major topic to follow is the degree to which the G7 Climate Club will prioritize issues such as historical responsibility, climate justice, polluter-impacted balance, and country specific conditions.

Another issue that was at the forefront at the Leaders' Summit was whether the G7 countries would allow an exception to the decision they made in May to stop the financing of cross-border fossil fuel projects at the end of 2022. An exception to this commitment was made in the published statement. In exceptional cases, new financing will be provided, provided that it remains within the limits set for each country, in line with the 1.5°C target on global warming. In the rationale of the decision, which was interpreted as a regression in the desire to fight the climate crisis compared to May, it is stated that investment in natural gas should be undertaken to more rapidly reduce dependence on Russian energy.

World Bank contributes USD 31.7 bn to address climate change

The World Bank (WB) Group delivered a record USD 31.7 billion in the 2022 fiscal year (which covers the period from July 1, 2021 to June 30, 2022) to help countries address climate change. The figure represents a 19% increase compared to the previous year. Financing for climate action in this period reached 36% of total Bank Group financing. This exceeds the target set in the Group's Climate Change Action Plan for 2021-2025 to deploy an average of 35% of the institution's financing in support of climate action. The announcement coincided with the WB President Malpass's controversial statements about the role of scientific findings of human related activities on climate crisis.

Average temperatures in Türkiye were recorded 1,3°C above seasonal averages in August.

Will Europe Resort to Coal?

Ember's latest report indicates that the impact of the re-commissioning coal-fired plants on Europe's greenhouse gas emissions would be negligible. The study finds that coal-fired plants with a total capacity of 14 gigawatts (GW) have been placed on stand-by in Europe, adding that if they were to operate at 65% capacity throughout 2023, they would generate 60 terawatthours (TWh) of electricity, and this electricity will meet the EU's energy need for one week. The report found that the commissioning of coal-fired plants in this way would increase the EU's total carbon emissions by 1.3% in 2023. The Ember report added that coal-fired power plants are only expected to be in use temporarily over the next 6 to 18 months, with no European country suspending their targets to completely phase out coal by 2030 at the latest. The report also emphasized that the current crisis has accelerated Europe's transformation to clean energy.

Şakir Turan
TSKB Economic Research

turans@tskb.com.tr

Reflections of Heat Waves on Economy

The effects of extreme temperatures, one of the consequences of climate change, on macroeconomic dynamics are becoming more evident day-by-day. Heat waves cause shocks in economic activity and price dynamics directly and indirectly, while in the recovery period after the COVID-19 pandemic, elevated geopolitical uncertainties make economic policies more complicated.

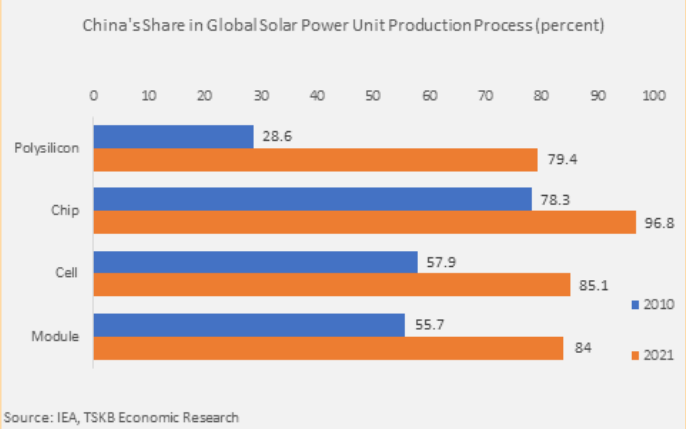
The economic cost of heat waves in Europe during the last summer is estimated to have reached significant levels. While Italy has experienced the worst drought in 70 years amid the high temperatures, it is calculated that there were significant losses in agricultural production. Empirical studies by the European Central Bank (ECB) point that temperature shocks have varying effects from country to country in the short and medium term. While the period of the year for these shocks is important, the studies underline the non-linear nature of such effect.

A study conducted by Germany's leading Economic Research Institute (Zew) reveals that hot weather leads to falling labor productivity, while also pointing out a decline in exports due to supply constraints. Zew researchers find that exports are 3.4% lower in a month when the average monthly temperature is above 30°C, compared to another month when monthly temperatures are below this threshold. While suggesting that a local heat wave event may lead global consequences, the study argues that the decline in exports and the disruption in supply chains are reflected as an additional cost to the importing country. According to the study, which calculates the global cost of an average heat wave as USD 360 million, two-thirds of these costs are borne by countries that were not directly affected by the temperature shock.

While the conflicts between Russia and Ukraine lead to tightness in the global energy market, the evidence points out that record level temperatures increase downside risks on economic growth as well as upside risks on inflation outlook. In other words, climate related factors have increasing importance in the decision-making process of policy makers, especially central banks of advanced and emerging market economies.

Is China Becoming a Global Monopoly on Solar Panel Production?

The International Energy Agency (IEA) sounded a warning about China's market dominance of solar panel supply chains. The IEA cautioned that the high level of national and geographical concentration of key stages in the manufacturing of renewable energy could present a degree of global vulnerability in efforts to switch to clean energy. The Agency highlights that China's share in the production of solar panels and polysilicon has already passed 80% and could hit 95% in some stages of production by 2025. Fatih Birol, the head of the IEA, stated that such high levels of concentration of global supply chains for any product would create global vulnerabilities, while adding that such risk would not stem from geopolitical issues, but risks related to fires or floods in one region would increase overall vulnerability. The report also mentions that China's Xinjang region is currently home to 40% of global polysilicon production. The U.S., meanwhile, banned imports from Xinjang in late June in response to alleged human rights abuses.



Source: IEA, TSKB Economic Research

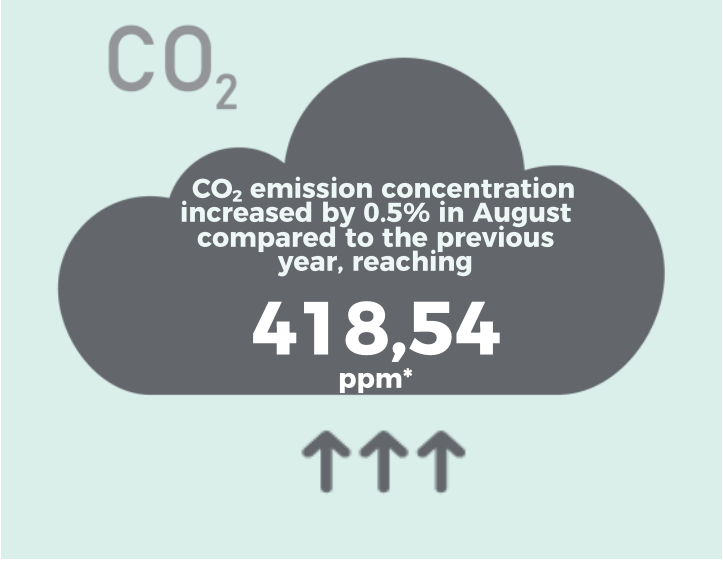
Energy Industry Among the Hardest Hit by Heat Waves

Energy is one of the sectors to be most adversely affected by heatwaves as they result in increased energy demand while placing severe stress on supply. While the increased need for cooling due to heatwaves leads to a sudden increase in demand for electricity, the possible mismatch between demand and supply and/or the possibility that the transmission line cannot meet the excess demand usually results in power outages as seen in North America in 2006 and in Australia in 2009. On the supply side, however, heat waves negatively affect production capacities of hydropower, nuclear and solar power generation facilities.

Hydro-electric power is also compromised by drought caused by heatwaves due to falling water levels, hence decreasing the power production capacity of the reservoirs. This year's heat waves in China, for instance, brought water levels in the Yangtze, China' longest river, to an all-time low, resulting in a 50% decrease in hydro-electric capacity in Sichuan, a province which generates 80% of its electricity through hydro-electric power. An key downside of such developments has been the region's shift towards coal for electricity generation. Even Norway, a country generating 90% of its electricity from hydro-electric power, has not been unaffected, with reservoir levels in the country dipping to their lowest point in 25 years in 2022. European heatwaves have also resulted in a 40% decline in hydro-electric power generation in Italy and a fall of 44% in Spain.

France, on the other hand, has demonstrated the problem with nuclear power – that it relies heavily on water to cool off. Decreasing flows and warming of water in rivers has rendered the cooling process challenging in France, leading the country to lower production in nuclear reactors. In terms of solar energy, experts indicate that the efficiency of solar panels declines at temperatures of above 25°C.

Problems with energy generation due to heatwaves particularly in Europe exacerbate the impact of the current energy crisis caused by strained relations with Russia. Wholesale gas futures soaring to over €300 per MWh for early 2023, compared to less than €30 last summer are already raising the specter of energy rationing in Europe. It remains to be seen if Europe will be able to weather the coming storm and if the world will stay on track to achieve green transformation in energy.



*Parts per million

Fit for 55 Seems to be on Full Throttle

Ministers of the European Union (EU) member states approved some regulations within the scope of the Fit for 55 Package. Among the approved articles is the regulation to reduce carbon emissions in new cars sold within the Union by 55% by 2030 and 100% by 2035. The regulation prohibits the sale of new fossil fuel cars in the EU in 2035. The regulation appears to have taken place despite attempts by countries such as Italy and Slovakia to extend the transition period to 2040. Ministers also approved the regulation that will make polluting fuels used in transportation and buildings also face carbon costs effective 2027.

Cem Avcıoğlu

TSKB Economic Research

avciogluc@tskb.com.tr

Consequences of Heat Waves Are Becoming Evident

As the rise in global average temperatures has exceeded the 1°C threshold, the frequency and severity of extreme weather events, including drought, flooding, storms, and wildfires is increasing noticeably. Forming another category in weather-related events, heatwaves are usually ignored due to their limited threat to physical infrastructure and non-immediate impact on human health.

According to the international disasters database (EM-DAT), a total of 6,681 climate-related disasters were recorded between 2000 and 2019. Compared to the previous 20-year period, the number of such events increased by 83% while the number of people affected by disasters soared from 3.2 billion to 3.9 billion. In this period, heatwaves accounted for 432 events which were categorized as disasters. Remarkably, the frequency of the heat waves increased by a factor of 3.3 compared to 1980-1999 period – a far greater rise compared to the increase in any other disaster categories.
Recent studies reveal the level of the threat posed by heatwaves to human life. Over the last 20 years, global death toll due to heat waves has averaged around 500,000. In this period, one in every 100 deaths globally has been caused by heatwaves. Besides, the 2003 heat wave in Europe and the 2010 heat wave in Russia led to the deaths of almost 128,000 people. These two events were among the 10 deadliest disasters in the 2000-2019 period.

Scientific work and up-to-date disaster statistics provide a clearer picture of the negative impacts of heatwaves on societies. Heatwaves not only place an additional burden on health services but also create disruptions in agriculture and livestock activities as well as energy systems. Thus, they constitute an important topic in efforts to combat climate change.

Inflation Reduction Act: Neither a savior nor a disappointment

The United States enacted a landmark climate law, the "Inflation Reduction Act" in August which is estimated to inject USD 369 billion into the clean energy sector through a combination of tax-credits, loan guarantees and grants to render climate friendly technologies more affordable for ordinary Americans. Although the amount foreseen by the bill is considerably less than the Democrats' original USD 3.5 trillion Build Back Better Act proposal and less than half of the country's annual defense budget, the Act is an important step in demonstrating America's determination to limit global warming.

Rather than punishing carbon emitting industries, the bill codifies subsidies for electric vehicles (EV), solar panels, heat pumps and other home improvements aimed at energy efficiency while including a compromise by providing enhanced leasing opportunities of federal water and land for oil and gas projects. Perhaps the most important component of the bill is the pricing of methane which - even though not a tax on carbon - is interpreted as the first step towards an important aspiration. With the bill, facilities reporting their greenhouse gas emissions to the EPA will be charged USD 900 per metric ton of methane which could increase to USD 1,500 by 2026. This equates to a fee of USD 36 to USD 60 per metric ton of CO_2 equivalent. A second important component of the bill is the introduction of a 15% minimum tax rate for corporations with more than USD 1 billion in annual income, which is expected to reduce the federal budget deficit by USD 300 billion over the next decade. The bill also foresees higher support for carbon capture via increasing tax credit for sequestering CO_2 produced by industrial activity from $50 to USD 85 per ton, and introducing a tax credit of USD 180 per ton for direct air capture. Several economic modellings suggest that the "Inflation Reduction Act" will cut the country's greenhouse gas emissions by 40% by 2030 compared to 2005 levels. Without the bill, greenhouse gas emissions were projected to be cut by 30% - yet the 10% difference is almost two years' worth of Britain's emissions.

International reaction to the specific EV tax credit provisions of the bill has been rather sour. Although the Inflation Reduction Act is expected to increase EV sales by 2030 from a previous projection of 3.4 million to a whopping 8 million units, discriminatory nature of EV tax-credits only foreseen for vehicles made by parts sourced from the U.S. and its free trade agreement partners have raised concerns. Toyota's decision to invest USD 5.3 billion to produce EV batteries in the U.S. and Japan, for instance, is seen as an interesting outcome of this. The EU, on the other hand, has already publicly announced that in their current form, the EV credits pose a significant transatlantic trade barrier which discriminates against EU car manufacturers. Whether the issue will evolve into a WTO dispute, though, remains to be seen.

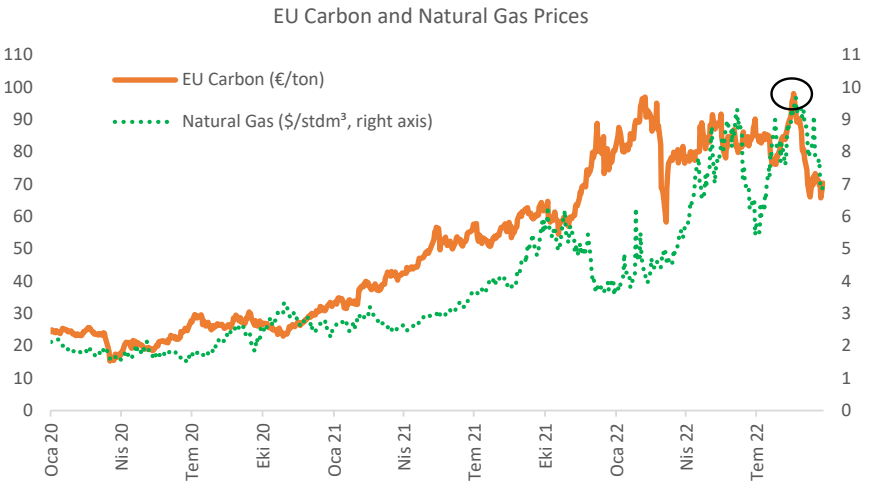
Climate Finance

European Carbon Reaches a Fresh Record in August

The price of European carbon credits hit record highs in August. Following a steep three-week rally, EU carbon prices reached an all-time-high level of €98 per ton on August 19th. The price hike was primarily fueled by a supply crunch with monthly auction volumes dropping 43% in August compared to their July levels. Nevertheless, there are also contributing factors behind the record which was clearly apparent in 2022.

Firstly, the dramatic hike in natural gas prices is changing Europe's energy mix in favor of coal. With natural gas prices more than ten times their average over the last decade, the use of coal is becoming increasingly feasible despite the additional costs related to carbon emissions. The fact that coal can produce twice as much carbon emissions compared to natural gas results in an increased demand to carbon allowances.

Secondly, power generation from hydroelectric plants has been diminished due to the drought seen this year. Thus, coal-fired power generation became an important source in meeting demand. Additionally, as another consequence of climate change, heatwaves have raised demand for cooling in commercial buildings and created demand for allowances. The effects of recent developments are apparent in the projections. According to BloombergNEF, in the first 9 months of 2022 emissions from fossil fuel-burning power plants in Germany, France, Britain and Italy are set to rise 10% compared to the same period in 2019.



Source: Thomson Reuters, TSKB Economic Research (last data: September 27, 2022)

On the other hand, European manufacturers in some of energy-intensive sectors are halting production in response to the surge in energy prices. For example, in a letter to the EU Commission President, Ursula von der Leyen, the industry association Eurometaux stated that about 50% of EU aluminium and zinc production capacity had been forced offline due to the power crisis. An increasing number of plant closures could potentially curb industrial energy demand As of September 27, EU carbon prices are standing at €70, 28% below the record levels as the developments surrounding the conflict in Ukraine and mounting recession worries continue to create significant volatility in energy commodities.

Climate 101

Heat Wave: A heat wave is a period of hotter than historical average temperatures for a given area that lasts for two or more days.

Carbon Leakage: Carbon leakage is a situation when production out of a country with stricter climate policies to a country with laxer regulations, resulting in an increase in greenhouse gas emissions.

Historical Responsibility: Historical responsibility refers to the cumulative amount of greenhouse gas emissions at the country level - and the share of country's total emissions in global emissions - since the start of the industrial revolution, taken as the year 1850.

Fit for 55 Package: Fit for 55 Package refers to various legislative proposals that are proposed or implemented since 2021 by the European Union to reduce overall carbon emissions by 55% by 2030 compared to 1990 levels.

Carbon Capture and Sequestration: Carbon capture and sequestration refers to the process of trapping carbon dioxide before it is released to the atmosphere and storing it in a way that avoids its release back into the atmosphere.

Is Natural Capital Comforting or Vital?

Besides their negative effects on the manufacturing and energy industries, heatwaves also place a heavy burden on our natural capital, ranging from our fresh water, soil, forests, oceans, and many more sensitive natural resources which we desperately need to survive.

Regarding water, the World Bank indicates that "day-zero" events are prone to become more common in the world's cities as rising heat stress and water scarcity puts urban water supplies under severe threat. On top of this, water deficits in rural areas are driving agricultural workers to urban areas leaving agricultural production and income under stress due to drought and flooding as other events exacerbated by heatwaves. In Spain, for instance, the most severe drought in the last 15 years left more than a third of the country in a situation of "prolonged drought" in August this year, leading to an estimated 10 billion Euro loss in agricultural production.

Deadly floods in Pakistan are estimated to have been exacerbated by heatwaves leading to melting glaciers – another important natural resource needed to slow down global warming and rising sea levels. Heatwaves also lead to earlier, more rapidly spreading and intense wildfires as seen in the Mediterranean and the American West this year. Marine Heat Waves (MHW), described as a 'discrete, prolonged anomalously warm water event' which "lasts five or more days, with temperatures higher than the 90th percentile relative to climatological values" exacerbate the loss of fish, sea snakes, octopus and crabs while leading to increased coral bleaching.

While many more examples can be cited regarding the negative impacts of heat waves on natural capital - among many other resources required for our life - the main message stays: Climate crisis is here to stay unless humanity acts fast!

The Most Recent Phase in China - West Tango: Forced Labor

The United States banned imports of products from China's Xinjiang region due to their alleged production with forced labor. The decision is based on the "Uyghur Forced Labor Prevention Act" enacted in December 2021 which assumes that anything produced – even partially – in the region is manufactured with forced labor.

Meanwhile on September 14th the European Commission proposed a new regulation to prohibit products made with forced labor from entering the EU market. According to the proposal, using different sources of information such as submissions from NGOs, databases on forced labor risks and due diligence carried out by companies, national authorities would first assess if there were well-founded reasons to suspect that products were likely to have been made with forced labor. In case a strong link had been established with forced labor, the national authorities would be required to prohibit the product from the EU market, ask the economic operators to withdraw the product and to have the product destroyed, rendered inoperable or disposed of in line with national law.

Meanwhile, the EU's decision to regulate trade in products manufactured with forced labor, following the U.S. ban on imports from the Xingang province is expected to reduce EU imports from the region as well. Meanwhile, the Xingang province accounts for a growing share of global production of solar panels and parts. Hence, the repercussions of the EU and U.S. regulations could pose important risks in the fight against global climate change due to the regional concentration of solar panels and parts production.

EU Energy Market in Turmoil

Under severe stress for the upcoming winter, on September 14th the European Commission (EC) announced several measures to ease the energy price burden on consumers and energy companies. The Commission's proposal is based on three main building blocks: capping revenues from electricity generators that do not rely on gas, asking fossil fuel firms to share windfall profits from energy sales and obliging Member States to reduce electricity consumption by at least 5% during selected peak hours.

With this proposal, the EC plans to minimize the impact of expensive resources such as coal and gas on the final price of electricity by imposing a "temporary revenue cap" of €180 per MWh by 31 March 2023 on the revenues of renewable, nuclear and lignite coal plants (inframarginal electricity producers), that do not rely on gas for electricity production

With this revenue cap, the EC is expecting a "solidarity contribution" from the oil, gas, coal, and refinery sectors for profits which exceed their 3-year average profits by 20% for a period of one year after the proposal's entry into force, which is expected to amount to 33% of the taxable surplus profit of fossil fuel producers' from the 2022 fiscal year. The EC expects this contribution to amount to around 25 billion Euros of public revenue. The proposal also targets a decrease of at least 10% in overall electricity consumption within the EU by March 31st, 2023.

Overall, the plan aims to reduce the EU's natural gas consumption by around 1.2 billion cubic meters over 4 months, leading to a reduction of around 4% in consumption over the winter season across the EU. The proposal includes extraordinary and time-limited measures and requires a qualified majority vote in the Council to be approved.

Green Transformation and Energy Report is Published

TSKB Economic Research produced a report on the "Green Transformation and Energy" as part of the consultancy project for the Banks Association of Türkiye (TBB). The report, published on the TBB website, offers a detailed assessment of the relationship between the green transformation and the energy sector from many different angles. At the highest level, the report highlighted that "reducing the share of fossil fuels, increasing electrification, raising the share of renewable energy sources in energy production, accelerating energy efficiency gains, improving carbon capture and storage technologies through the commissioning of low-emission energy technologies" were the most critical areas in the green transformation process. The report also reviews energy supply security and the current energy market volatility in the EU.

New Climate Regulation from the European Central Bank

The European Central Bank (ECB) has revealed plans to limit the share of high-carbon assets it will accept as collateral against its lending to banks. It will also consider climate risks when calculating the haircuts applied to corporate bonds when used as collateral – potentially labelling those from polluting companies as more risky and therefore less valuable.

Climate Justice

Proposal on Climate Justice from the Brookings Institution: A Developed Country Perspective

Ahead of the COP27 Summit to be held in Sharm El Sheikh this November, where climate justice - particularly in the form of divergent opinions between developing and developed countries - will be centre stage, the Brookings Institution released a Policy Brief titled "Why Developing Country Voices Will Shape the Global Climate Agenda".

Despite labeling the obstructive impacts of climate policies implemented by advanced economies, such as large-scale carbon-intensive fossil fuel consumer and exporters on the development of low- and middle-income countries as a "perceived" hypocrisy, the brief comes up with a couple of compromising proposals to make progress at the next COP. The brief focuses on the "more" destructive impacts of climate change on emerging markets and developing economies (EMDEs) and is built on the notion that without active participation of EMDEs in climate mitigation and adaptation efforts, the chance that rich countries will achieve their "ambition" of keeping global warming to below 1.5°C will not be sufficient. While also emphasizing that a little less than 30% of global carbon emissions are derived from advanced economies with Gulf countries, China and other EMDEs being responsible for the remaining 70%, the brief acknowledges "in a footnote" that when computed based on cumulative carbon emissions to date (aka "historical responsibility"), or "consumption rather than production", these shares "look very different".

The brief opts for a global green transition by "raising collective ambition on climate mitigation in an equitable manner", "building resilience to climate change", and "investing in natural capital and protecting biodiversity". Under these topics, the brief underlines the need for G7 countries to be more ambitious due to their "dominant contribution to past emissions" and their "capability to mobilize the necessary financial resources" while also highlighting the need for "a significant contribution across the EMDEs" for the efforts to be sufficient. In terms of building resilience to climate change, the report acknowledges the importance of a "loss and damage" facility – perhaps one of the potentially hottest topics in the COP 27. The brief finally mentions "access to finance and technology" and highlights that a focus at COP27 on doubling bilateral climate disbursements to USD 60 billion in 2025, elevating financing through "concessional funds", tripling the level of multilateral development funding by 2025, and partnering with private sector to double private finance by 2025 could be productive.

The brief, overall, aspires to find common ground between the two ends of climate action with an aim to achieve progress in the upcoming COP. Nonetheless, it appears to miss a major point that EMDEs that perceive themselves as the losers in the game both historically and currently. The historical part comes from the aforementioned "historical responsibility" concept about who bears the responsibility for the present situation, whereas the "current" part rests on the question of, if "collective" action is needed, of who is more in need. The outcome of COP27 within this framework is currently up in the air.

Nature Editorial Warns About COP27 Deadlock

Climate finance seems to be the most complicated issue in the upcoming COP27 to be held in November. While richer nations committed to provide low- and middle-income countries (LIMCs) with an annual USD 40 billion in the form of "adaptation finance" starting from 2025 during COP26 in Glasgow - on top of the USD 100 billion annual financing commitment made at COP15 in Copenhagen - a modelling made by International Institute for Environment and Development (IIED) shows that actual payments so far will amount to USD 21.8 billion in 2025. Another analysis by the Global Center on Adaptation (GCA) states that even USD 40 billion is a small fraction of what is needed. Donor nations who are obliged to report their progress towards meeting their pledges, however, tend to use an amount already committed to projects that include wider climate-protection components such as infrastructure development rather than the "loss and damage" that have already occurred due to climate change.

Company Highlights

August 2022 was the third warmest August globally, and the hottest summer (June-August) ever recorded in Europe according to the European Commission's Climate Change Service, Copernicus, and the increasing tendency towards global warming, especially in the form of summer heatwaves, is expected to continue. The initial reaction of a global population to extreme summer temperatures is to find ways of cooling down, driving up the use of air conditioning units. In fact, the International Energy Agency (IEA) indicates that the use of air conditioning and electric fans account for almost 20% of the total electricity used in buildings, and for 10% of overall global electricity consumption - which is expected to rise due to higher demand for air conditioning, which is projected to be found inn around two thirds of the world's homes by 2050.

Cooling systems, especially during extreme heatwaves, have extensive benefits on human health, productivity at work and even learning at school. Nonetheless, the adverse effects of air conditioning on climate change leads to a catch-22 situation, since air conditioning accounts for almost 4% of annual global greenhouse gas (GHG) emissions with a total of 1,950 million tons of CO_2 emissions. This amount is also projected to increase around 14% in hottest climate regions and by 41% in the mildest by 2050. In other words, the need to stay cool during extreme heat fuels even more extreme heat, and hence greater demand for air conditioning units in the future.

Blue Frontier has come up with a solution to this exact problem. The start-up aims to disrupt the AC industry by decreasing the amount of carbon emitting substances used in air conditioning units while increasing efficiency in electricity use. The start-up's cutting-edge solution is expected to use between one-third and one-fifth the amount of refrigerants – a chemical substance known to have global-warming effects – in air conditioning units. Blue Frontier's line of products are expected to lead to a 60% reduction in energy use with a 90% reduction during peak electrical demand. With their final products expected to be fully commercialized by 2027 at the latest, the company expects a combined effect of up to 87% reduction in their system's contribution to global warming.

With their proposed solution to disrupt the Air Conditioning industry, Blue Frontier received a USD 20 million grant from the Bill Gates founded investment company Breakthrough Energy Ventures to scale up the manufacturing supply chain, customer adoption, and the development of distribution and service relationship efforts from. As a start-up, the company is not yet publicly listed.

In August 2022, the average precipitation in Türkiye was

2,3mm

above the seasonal normal.

In Short

Buildings Are the Main Culprits of Extreme Heat in India

In India, where more than 6,100 people have died from heat events since 2010, urban heat islands which are as much as 6°C warmer than their surrounding areas are directly linked to buildings. Tall buildings, for instance, obstruct the sky and lower wind speeds, while building materials absorb heat and energy use within buildings leads to greater heat release. Hence, greening the buildings by using cool paints on roofing surfaces and walls is an option tabled by the WRI as it adds additional heat insulation in reducing indoor air temperature and cooling demand.

Naming Heat Waves

Seville, Spain is the first city to have named heatwaves. With an aim of highlighting attention on the growing severity and disastrous impacts of heatwaves, the city of Seville named the June 2022 heat wave Zoe. Designated in reverse alphabetical order, Zoe will be followed by Yago, Xenia, Wencelaso and Vega. The initiative is based on a three-tier category with Category 1 as the mildest and Category 3 being the most severe. Each category is defined by a set of emergency responses such as issuing weather alerts, opening cooling centers and dispatching community health teams to check on vulnerable persons.

Australia's New Climate Law

Following devastating fires and floods over the last two years, the Australian Parliament passed a climate law targeting a 43% cut in emissions by 2030 compared to 2005 levels. The Australian response to the climate crisis is in fact rather controversial, as 72 new coal and 44 new gas and oil projects were under development in the country as of November 2021, which are expected to result in 1.7 billion tons of CO_2 emissions per year. However, the new law makes it more difficult for any future government to water down the 43% target.

Capturing Carbon Before Being Released into the Atmosphere

Japan's Mitsubishi Heavy Industries came up with a plan to introduce small to medium sized carbon capture systems by 2023 to sequester up to 95% of CO_2 emitted from polluters such as municipal waste incinerators, cement plants and shipping. The market for sequestering, transporting and storing CO_2 is expected to expand to nearly USD 70 billion per year by 2050. Despite criticism that this technology could prolong the life of fossil fuel facilities, the U.S. Inflation Reduction Act's aim of increasing tax credits, for instance, is also expected to provide a boost to such projects.

G20 Talks on Climate Collapse in Bali

The Climate and energy ministers' meeting held in Bali in August ahead of November's COP27 collapsed due to the disagreements between G20 members on climate finance, methane, carbon levies and setting the global warming target at 1.5 or 2^0C. Britain and Egypt warned of backsliding among several countries on their Paris commitments. A further disagreement on the weight of emphasis on "loss and damage" - referring to compensation of damage caused by unrecoverable or unadaptable climate impacts – was also an agenda in Bali.

Rise in Temperature May Also Be Responsible for Increasing Violence

According to a study conducted in the USA, people tend to anger more easily in uncomfortable temperatures. The armed incidents in Chicago, which increased by 33.8% in 2016 compared to 2012, coincided with a period when the city warmed by about 3^0C. Although the certainty in the relationship in question has not yet been proven, there is a consensus among experts that the climate crisis will increase incidents of violence.

Trees in Cities at Risk Due to Climate Crisis

Rising temperatures and falling humidity are threatening more than a thousand tree species in cities, according to a study published by the Nature Climate Change Journal. This figure corresponds to 65% of the trees in cities, and this rate may increase to 76% in 2050. Only Trabzon from Türkiye was included in the study, which was conducted using the Global Urban Tree Inventory database, which recorded 4,129 trees and shrubs in 78 countries and 164 cities.

Saving Pacific Atoll Islands

On the sidelines of the UN General Assembly Meeting this week, leaders of "drowning" Pacific atoll islands launched "The Rising Nations Initiative" aimed at containing the harm caused by rising sea levels and to protect the sovereignty and rights of their countries. The initiative has so far received the support of the U.S., Germany, South Korea and Canada.

Economic Research

ekonomikarastirmalar@tskb.com.tr

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MECLİSİ MEBUSAN CAD. NO 81

FINDIKLI İSTANBUL 34427, TÜRKİYE

Tel: (90) 212 334 50 50 Fax: (90) 212 334 52 34