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Energy Policy Research Center

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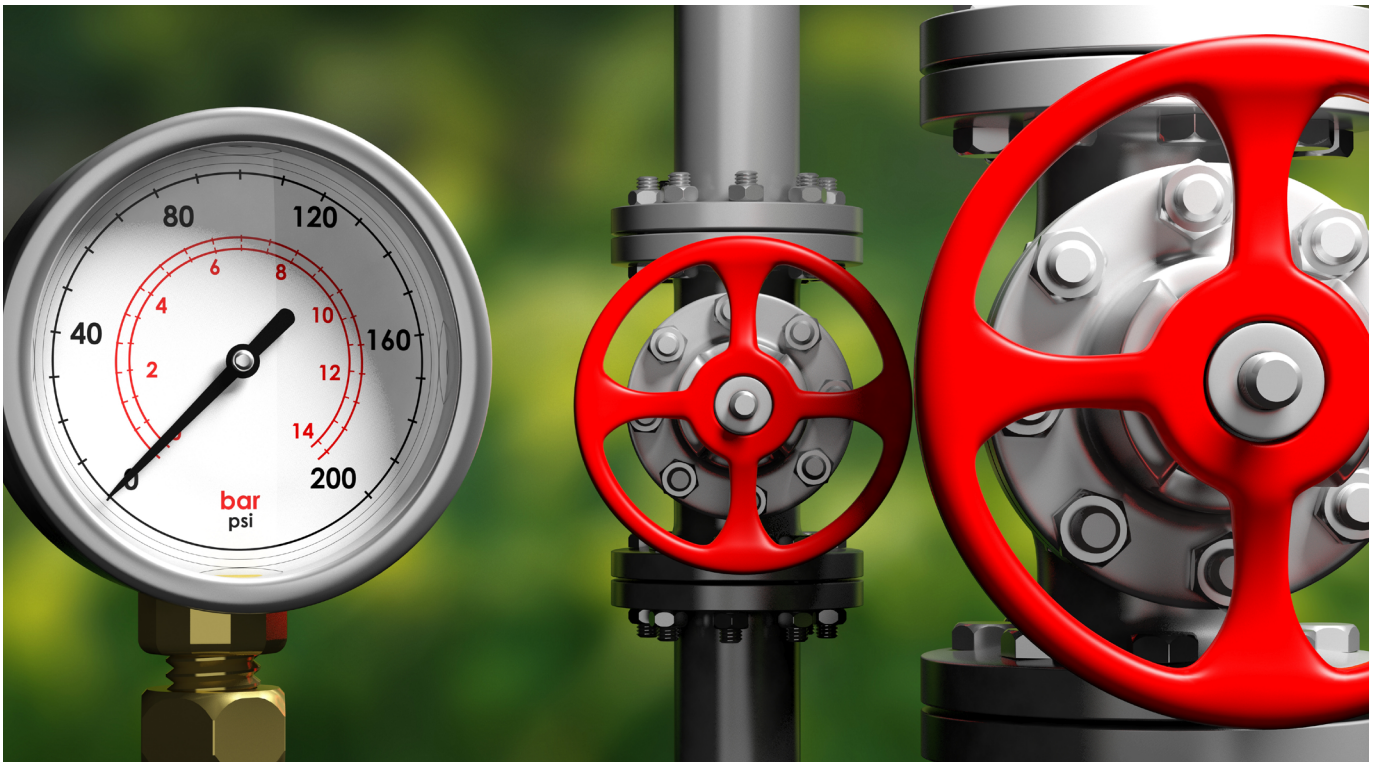
BRENT OIL	111,91 $/BL	GASOLINE	18.20 ₺/LT
USD/TRY	14.85	DIESEL	20.78 ₺/LT
EUR/TRY	16.43	FUEL OIL	14.66

Reflections of the Russia-Ukraine War on the Energy Sector

Yaren Öztürk

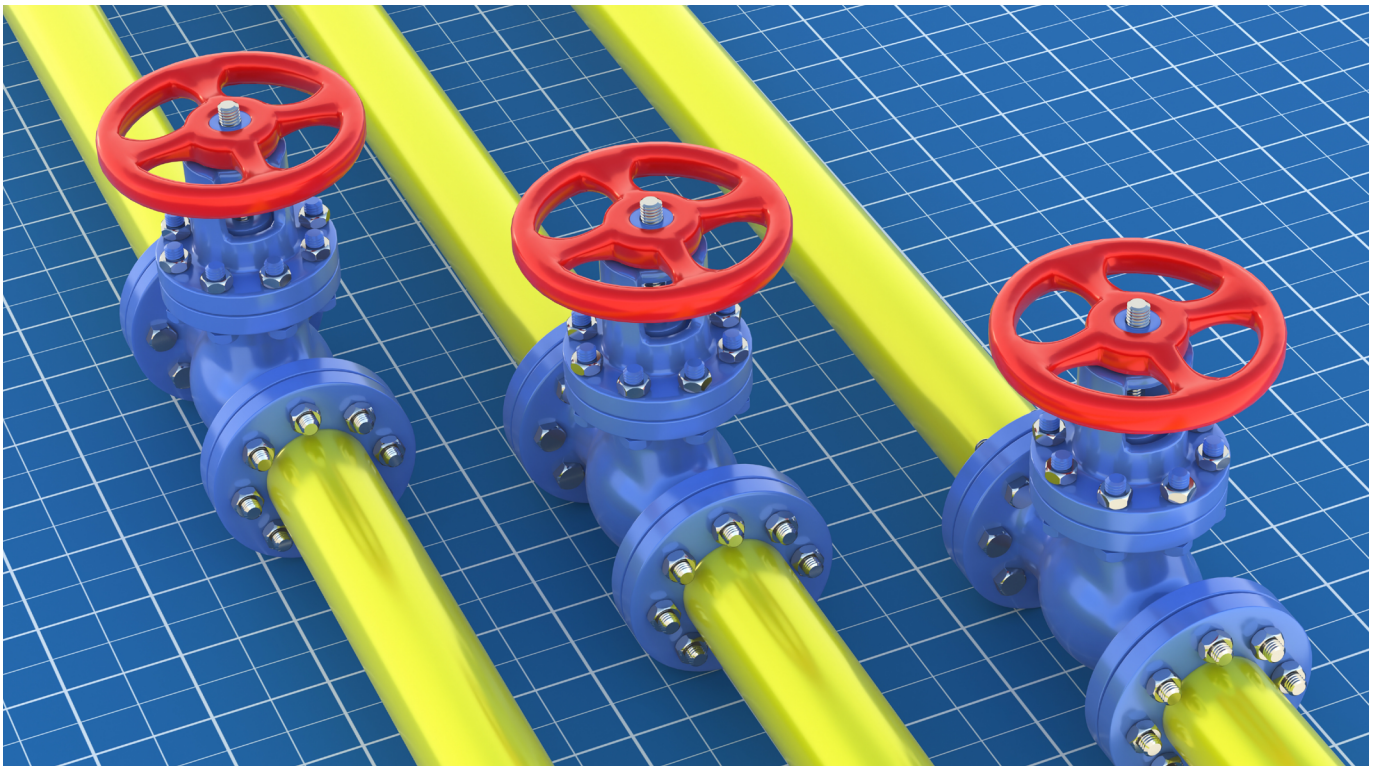
From the beginning of the Ukrainian invasion on February 24 to today, which Russia called a "special military operation," with 5581 sanctions in effect, Russia became the country with the most sanctions in the world. Two days before the invasion, Russia had a total of 2754 sanctions. After recognizing the Donetsk and Luhansk regions as independent states, countries imposed 2827 sanctions on Russia until March 8. Countries such as the USA, Switzerland, Japan, the United Kingdom, and France did not hesitate to double the number of sanctions imposed on Russia compared to previous periods. As a result, sanctions against Russia surpassed the imposed sanctions on Iran, Syria, and North Korea. Besides that, companies operating in various fields such as Apple, Adidas, Google, Disney, Exxon, and Volkswagen announced that they were withdrawn from Russia in these conditions.

Russia is the producer of 12 percent of the world's needed oil and 17 percent of needed natural gas. Now, it is dragging the energy markets into a deep crisis with its occupation of Ukraine. While it is a controversial issue for countries to impose sanctions on Russia in the field of energy, US President Biden recently banned the import of oil, coal, and natural gas from Russia. By contrast with the European countries, the USA is less dependent on Russia. It only gets 8 percent of the daily oil, which means about 700,000 barrels of oil from Russia. Since Russia invaded Ukraine, the price of crude oil has risen nearly 30 percent, which corresponds to an 18 percent increase in gas prices for Americans. In his statement, Biden emphasized that defending freedom can be expensive. After that, the question of which resources would be filled in the oil vacuum created due to the bans in the country came to the fore. Although some people consider this crisis as a plus for accelerating the transition to clean energy, the installation and distribution of renewable energy sources require a certain process, so it can not be a solution in the short term. On the other hand, the Biden administration is for increasing the oil supply, setting talks with countries such as Venezuela and Iran, which have been subjected to various sanctions. However, it does not seem possible for Venezuela to open the oil valve suddenly after years of unsuccessful administrations, unsuccessful policies, insufficient investments, and sanctions imposed by the USA. To return oil production to its former high



levels in Venezuela, there is approximately a requirement of $250 billion in investment. Even if Venezuela reaches that amount of investment, seven or eight years have to pass to return to its former level. While Venezuela's national oil and gas company PDVSA exported around 3 million barrels a day twenty-five years ago, the country's oil production has dropped to just 668,000 barrels a day at the present.

After a short period of Biden's statement, the European Union announced its plan to reduce dependency on Russia, Europe's largest supplier. The plan contains reducing the oil imported from Russia by two-thirds to 2022 and reducing the dependence on Russian gas as far as possible by accelerating the installation and distribution processes of renewable energy sources. Increasing LNG imports to reduce dependency exists among the options for the European Union. Europe imports about 40 percent of the natural gas; it imports about 35 percent of its crude oil and more than 40 percent of its coal from Russia. As long as Russia's occupation of Ukraine continues, uncertainties regarding imports are increasing day by day. The vast majority of European countries are highly dependent on Russian oil. This dependency is the main reason European countries have not yet imposed any sanctions on Russia regarding the energy sector. Governments are aware that Russia's sanctions will have more costly effects on the European Union. On the other side, the United Kingdom announced its decision to phase out oil and natural gas imported from Russia. Johnson emphasized that every country has distinctive levels of dependency. Poland, which supplies 55 percent of its natural gas imports from Russia, and Slovakia, which supplies 87 percent of its natural gas imports from Russia, are supporters of the imposition of sanctions on Russia, taking into account the possibility of damaging their economies. France, which imports 17 percent of its natural gas imports, 7 percent of oil, and 30.2 percent of coal from Russia, expressed that the impact of a possible sanction on European Union countries should be taken into account. At the same time, France also underlines that they can take additional decisions if necessary. On the other hand, Germany, one of the European Union's most dependent countries on Russian natural gas, stands against any sanctions to Russia in the energy sector for now. Vice-Chancellor Habeck warned that if sanctions are



imposed, the peaceful atmosphere in the country may deteriorate, and certain sectors can find themselves in danger of serious energy shortages. In Finland, where two-thirds of the country's oil and gas is imported from Russia, the government does not favor any sanctions that could hazard the country's energy supply security and stand with Germany's same line. Despite the government's attitude, big Finnish brands such as Nokia, Wärtsilä, Fazer, and StoraEnso have decided to leave Russia. Helen, one of the largest Finnish energy companies within the municipality of Helsinki, also announced that it would no longer use Russian coal.

While Europe continues these discussions, companies are in the dilemma of the reputational risk and financial benefits of being in Russia. Results show that the reputational risk outweighs than economic benefits. Well-established companies containing BP, Shell, Exxon, Equinor prefer to protect their reputation and avoid probable legal problems. Even though the sanctions imposed on Russia do not target energy supply in the first place, the data shows that Russian oil in the market has decreased compared to the past days. Russia, in turn, threatens to cut off gas flow to Europe and argues that oil prices could rise to $300 per barrel. Last week, Russia declared that they added Biden and a dozen senior US officials to the sanctions list due to their opposition to Russia, signaling that it could expand further. In conclusion, albeit it is uncertain what will occur in the coming days, the experiences indicate that the reflection of the tension between Russia and the West on the energy sector may increase to higher levels and cause more detriment.

Relationship Strengthened by the Crisis: Russia-India Energy Cooperation

Erkin Sancarbaba

Recent geopolitical crises encourage countries to make new collaborations to protect their interests and eliminate risks. Increasing cooperation between Russia and India in energy can be evaluated in this context. It can be expected that the effects of this regionally important cooperation will also be reflected in the energy markets.

As the third-largest oil importer globally, India meets 85% of its crude oil needs through imports. The increase in energy prices brought by the Ukraine crisis is reflected as a huge burden on the Indian treasury. In line with these developments, the Indian government aims to reduce the effects of the crisis by preferring to cooperate with Russia on a stable and relatively cheap energy supply. The two countries have close cooperation in the energy industry. While Indian oil companies invest in oil fields such as Sakhalin, Vankor, and Srednebotuobinskoye in Russia, the Russian companies such as Rosneft ensure the supply of Russian oil to the world market with investments such as Essar Refinery in India. The cooperation between the two countries with the cross-investment method and based on the gain of both sides also contributed to the transfer of technology in the field of energy between the two countries.

Although India demonstrated strong cooperation with Russia in the energy industry, less than 5 percent of India's total oil imports were supplied from Russia. One of the reasons for this situation is the high shipping costs associated with oil supply from Russia to India. However, Russia's role in the Indian oil market is increasing as the Ukraine crisis deepens and the sanctions imposed on Russia under the leadership of the United States also cover the energy sector.

In parallel with Russia's tendency to stable and long-term cooperation, the energy demand from Russia is increasing in countries such as India. The $25-30 discount per barrel applied by Russia in Urals crude oil prices to India is an indicator of the aforementioned situation. Conditions that made Russian oil attractive brought India's oil imports from Russia to unprecedented levels. India's average rate of Russian crude oil purchases increased to 360,000 bpd (barrels per day), which corresponds to four times the average of daily purchases last year.

Increasing cooperation between Russia and India on energy supply can be an example of a partnership that can exceed the expectations of both sides. However, it is important to prohibit some difficulties caused by the current crisis environment to sustain the bilateral cooperation in a stable manner.

Developing a mechanism on how to make payments between countries without being subject to the jurisdictions of the United States and European countries due to sanctions can be evaluated in this context. Here, the main sources of the complications are the sanctions imposed on Russian banks, as well as the barriers to commercial transactions with Russia through reserve currencies.

According to the information shared with the public, the Reserve Bank of India plans to take steps to establish a payments mechanism that will operate in local currencies so that trade with Russia can continue without interruption. It is aimed to increase the bilateral trade volume by providing a trade mechanism based on the rupee-rouble arrangement between the two countries. Undoubtedly, establishing and maintaining this mechanism after the feasibility assessment will pave the way for India to conclude long-term energy contracts with Russia. The cooperation that can be achieved through the aforementioned mechanism can be an important step for India in overcoming the obstacles to the diversification of energy importing countries and establishing an energy policy that promises long-term stability. In terms of Russia, it can be considered as a successful result of efforts to seek alternative energy markets.

Despite crises, countries can maintain successful policies by continuing their strategic cooperation and focusing on economic security. In this context, the political debates in energy today stand out. Since they are based on political value judgments, most of the arguments could not successfully emerge from the crises. In this direction, energy policies based on rational decision-making mechanisms can contribute to people's welfare and stability. The energy cooperation between Russia and India, which does not focus on political discussions and aims to benefit the parties, has the potential to contribute to the two countries and the region. The existing cooperation in the oil trade may also lead the two countries to a stronger partnership in the trade of other energy resources. These two countries, one of which needs energy export revenues and the other, which is highly dependent on foreign energy resources, have found common ground in producing common energy policies. The fact that the aforementioned energy cooperation sets a successful example for the region depends on the continuation of the rational approach of both sides.

The Role of the Sustainable Development Goals in Turkey's EU Admission

Nur Durmaz

For many problems that countries are exposed to be solved on common ground, United Nations member countries are one step closer to the goals and solutions with the Sustainable Development Goals (SDG). Countries that have agreed on 17 issues that negatively affect people globally take universal action to provide accessible and clean energy to people, eradicate poverty, protect the climate and nature, and ensure that all people live in peace and prosperity by 2030 to leave a better future for future generations. According to the SDG index, Turkey is the 70th country among 165 countries implementing the SDGs in 2021.

The European Commission has published country reports to Turkey and other candidate countries every year since 1998, showing whether they comply with the Copenhagen criteria. These reports are unilateral documents showing the comments and evaluations of the European Commission. Turkey responds to these reports with press releases and feedback to the European Commission. The country report is the basic structure for Turkey's accession to the European Union. It includes the problems of countries on many issues and their progress in solving these problems. These problems intersect with the Sustainable Development Goals at many points. Some of these problems are SDGs 6 (Clean Water and Sanitation), 7 (Accessible and Clean Energy), 13 (Climate Action), 14 (Life in the Water), and 15 (Life on Land).

SDG 6 aims to improve water quality worldwide by reducing water pollution, eliminating unregulated landfills, minimizing the release of hazardous chemicals and substances, halving the proportion of untreated wastewater, and greatly increasing recycling and safe reuse. Unfortunately, Turkey remains stagnant in this regard. According to the 2021 EU country report, Turkey has not yet harmonized with the EU Drinking Water Directive. The Drinking Water Directive concerns the quality of water intended for human consumption. Its purpose is to protect human health from the negative effects of any pollution or chemicals by ensuring that water intended for human consumption is healthy and clean. Turkey is advanced in chemicals but weak in implementation and enforcement. Turkey is only partially compliant with the Regulation of the European Parliament and the Council (REACH) on the Registration, Evaluation, Authorization, and Restriction of Chemicals. In addition, the increase in the wastewater treatment capacity with the 1,134 wastewater treatment plants established in the country is a continuous investment, and 87% of the population has been reached with these plants. Turkey aims to reach 100% of the

population by 2023.

However, Turkey's alignment with the EU Maritime Strategy needs to be sustained. The EU Marine Strategy Framework Directive (MSFD) has been implemented to protect the marine ecosystem and biodiversity on which our health and marine economic and social activities depend. This is closely related to the 14th SDG. The purpose of SDG 14 is to prevent and reduce all kinds of marine pollution, especially from land-based activities, including marine waste and nutrient pollution. It aims to strengthen the resilience of water resources, manage and protect marine and coastal ecosystems sustainably, avoid significant negative impacts, and take action for their restoration to obtain healthy and productive oceans. Unfortunately, it is seen that Turkey still has serious problems in terms of SDG 14 and remains stagnant in this regard. As the EU Commission has stated, Turkey has lagged in this regard. To put its name higher on the list in the SDG index and become a member of the EU, it needs to pay more attention to these issues.

The European Union attaches importance to terrestrial areas as well as sea and water. According to the report, Turkey has a certain level of preparedness for nature protection. However, no progress has been made in adopting the national biodiversity strategy and action plan. Planning and zoning in wetlands, forests, and natural sites are still not in line with the EU acquis. The institutional framework needs to be activated and adequately resourced to manage future Natura 2000 sites. Reviewing the status of protected areas continued throughout 2020 without transparency and participation, resulting in changes in the status and boundaries of some potential Natura 2000 areas. Natura 2000 is a core network of breeding and resting areas for rare and threatened species and some rare natural habitat types protected in their own right. The network aims to ensure the long-term survival of Europe's most valuable and threatened species and habitats listed under both the Birds Directive and the Habitats Directive. In this regard, SDG 15 plays a key role. SDG 15 aims to protect, restore, and sustainable the use of terrestrial and inland freshwater ecosystems and services, particularly forests, wetlands, mountains, and drylands, in line with obligations under international agreements. Looking at the EU report and the SDG level instrument panel, Turkey, needs to pay more attention to protecting ecosystems and endangered species and be more careful in this regard.

Changing the ecosystem and environmental pollution have an important role in climate change. As climate change increases, ecosystems will continue to deteriorate. Therefore, both the EU and the SDGs have included climate change in a separate article. This issue is explored in SDG 13. SDG 13 aims to improve resilience and adaptive capacity to climate-related hazards and natural disasters. Signing the Paris Agreement is one of the most important moves. As of April 2018, 175 countries have ratified the Paris Agreement, and 168 countries have submitted their first nationally determined contributions to the United Nations Climate Change Secretariat framework convention.

According to the EU report, Turkey has a certain level of preparedness in this area, facing critical environmental and climate challenges in both mitigation and adaptation. While some progress has been made, important advice has been given in response to the road taken. One of these advances is the ratification of the Paris Agreement by the Turkish Grand National Assembly. The Paris Agreement is a legally binding international agreement on climate change. Work needs to continue on decarbonization and adaptation plans and the necessary legislation to reflect these at the national level. Unfortunately, OECD countries have remained more passive in SDG 13 than other countries.

In the EU chapter on energy, Turkey is prepared on some parts. However, by next year, Turkey needs to formulate and legalize more transparent, cost-based, and non-discriminatory prices for natural gas. Therefore, the natural gas market needs to be developed in-depth, with a binding plan and timetable. This allows the Natural Gas Market Law to be updated and thus aligns with the EU's Third Energy Package. This package draws attention to the competitiveness of natural gas and electricity markets. It means the liberalization of markets, the ability of consumers to choose their markets as they wish, and the indiscriminate access of all countries and people to energy, especially for the natural gas and electricity sectors. Even if SDG 7 does not contain a clause about the free choice of energy suppliers, its objectives are to ensure universal access to affordable, secure, and modern energy services to significantly increase the share of renewable energy in the global energy mix. To improve international cooperation and encourage investment in energy infrastructure and clean energy technology to facilitate access to business and clean energy research and technology, including cleaner fossil fuel technology. Compared with the EU report, it is possible to see that it has similar contents. According to the EU Commission, Turkey has made limited progress in the domestic energy market regarding transparent, payment-oriented, and non-discriminatory pricing for electricity and natural gas. However, after the strategies put into action on the most efficient use of renewable and domestic energy resources, the country's share in renewable energy obtained from hydroelectricity increased from 29% to 44% in 2020. The total renewable energy facilities ratio increased from 45% to 51%. This shows that Turkey is moderately active regarding the increase and accessibility of renewable energy.

SDGs and EU Commission country reports are compared, it is possible to see that their wishes for global problems are similar. It is possible to see that the goals of international organizations and countries always move in the same direction, whether it is to increase the ranking in the SDG country index or to try to finish the chapters to enter the EU. If Turkey proceeds on a certain route, it will fulfill two purposes, and more prosperous life can be provided to people.

Illegal Use of Electricity in Turkey

Halil Öztürk

We will make electricity so cheap that only rich will burn candles. - Thomas Edison

The first public electricity was furnished in London in 1881, after which electricity use has made our lives more comfortable and gone up and up. Although, as usual, there is an electricity market based upon the supply and demand concept, unlike many other products in the world we consume daily, there is a term "electricity theft" in this market. For definition and clarity, electricity theft can be in the form of fraud, stealing, billing irregularities, and unpaid bills. To demonstrate and highlight the size of the issue, according to the news by Northeast Group, across 138 countries, electricity theft and non-technical losses cost utilities $101.2 billion per in lost revenue, and theft is increasing in most regions of the world, still. In this paper, I show how well Turkey is in this issue simply and fundamentally by introducing data and conducting a correlation analysis. In doing so, I use the electricity theft rates shared by T.C. EPDK (Republic of Turkey Energy Market Regulatory Authority) and GDP per capita data by TÜİK (Turkish Statistical Institute) will be benefited from.

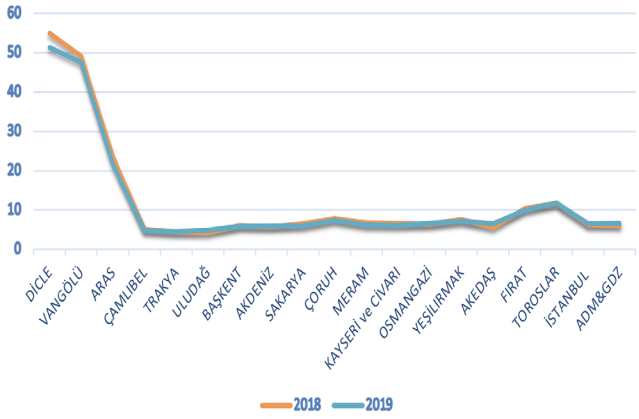
Turkey is classified as an upper-middle-income country by World Bank and has successfully electrified all of its population. Additionally, Turkey is considered a newly industrialized country, meaning a transition from being primarily based in agricultural economic activities to being primarily based in goods-producing industries. However, despite such successes about the “strategic” product, electricity, within the first 100 years of the Republic, electricity theft in Turkey has been a hot debate.

Initially, an observation, taking the popularity of Wikipedia as a source of information around the world into account, in the related page of Wikipedia, Electricity Theft, there are just five countries mentioned: Pakistan, India, Russia, Brazil, and Turkey, which may help us say that electricity theft is a problem in Turkey.

In Turkey, 21 major electricity suppliers share the market by cities, and some have nearly as ten times a large theft ratio as some others do. When we look at the cities, the firms are responsible for, and we see that South-eastern Anatolia Region is of the highest ratio, as Marmara is of the lowest one. The sum of the top 10 companies (56.89) is nearly equal to the ratio of the highest one, DİCLE (54.94), for 2018. Also, interestingly, from 2018 to 2019, as there are declines in the top 5 highest-ratio-ones, there are some increases in electricity theft for the lowest ratio ones.

To assess, I conducted a basic correlation analysis between production per capita and the rate of electricity theft. We can see there is an inverse correlation between them (-0.505 for 2018, -0.497 for 2019). For correlation, because the supplies of some cities are shared by more than one firm, I naively used their average and for the calculation of production per capita, since by definition production means income, I used the average GDP per capita of the cities where the companies operate.

Figure 1: Illegal Use of Electricity Share in Turkey by Regions



Although "correlation does not mean causation," there is literature about causation. Hence, if we accept the following statement that there is causation in the correlation between production per capita and electricity theft, we can claim that policies that encourage less electricity theft will lead to a growth in production. To give an example, based upon Solow's Growth Model, policies about human and physical capital and so forth may provide such an increase and eventually lower the theft rates for the regions in which the rates are by far higher than others.

Overall, the Republic of Turkey will celebrate her 100th anniversary in the year to come, and also her industrialization and development will be celebrated. Nonetheless, there is still room to claim that Turkey has not yet addressed her electricity theft successfully. In this paper, I tried to show the electricity theft problem of Turkey by a simple data analysis and observation, and then make simple policy advice with the help of a correlation between GDP per capita and electricity theft rates.

Equity Concern in Climate Change

Büşra Öztürk

UN Emission Gas Report illustrates that the world needs to drop in annual emissions of 13 gigatons (Gt) of carbon by 2030 to get on track to limit global warming to 2°C as in the Paris Agreement target. On the contrary, the global carbon emissions rebounded to their highest level in history with 36.3 Gt last year. The Climate Action Tracker that tracks government targets, policies, and climate action indicate that most countries are not hitting 2030 climate goals. As the pledges fail, the heavy consequences of climate change, including tropical storms, extensive flooding, debilitating droughts, wildfires, and diminished crop yields, will be inevitable. In this sense, I suppose it is important to identify urgently the reasons that detain the achievement of the climate target. In this article, I would like to explain a missing item to reach the target: Equity Concern in Climate Change.

Since climate change is a global problem that influences welfare worldwide, it is a fact that everyone is responsible for it its contribution to carbon emissions and is in danger of experiencing big impacts from it. That's why everyone must be involved in pulling together against climate change. However, "the extent" to which the burden should be shared is controversial. Historically, the vast majority of carbon emissions today are caused by the combustion of fossil fuels, human activity, such as deforestation, has contributed significantly to the total. And the developed countries have been the largest contributors to greenhouse gas emissions. When humanity was unaware of the impact of fossil fuels, developed countries powered their way to prosperity. With the scientific developments, alternative energy sources are available to mitigate climate change. However, the availability does not bring affordability and accessibility to those sources equally for everyone.

Taking actions to mitigate climate change requires a considerable cost, but that can not realistically be spread equally across all countries and individuals. It is due to the current imbalance of power, which favors developed countries, which control the majority of global capital, military power, natural resources, and knowledge resources. In this regard, global climate action will fail without considering how equity weighs in causes and power. Equity is not only a moral concept; but also the heart of the matter and a practical requirement to prevail in the face of the climate crisis.

Developing countries generally aim for the economic development and growth of the country's welfare in

the first line. It could be unreasonable to expect these countries to achieve their climate targets as much as developed countries can in this development process. Therefore we need to reconsider expectations and climate targets considering the equity concern. Prof. Shukla, the co-chair in the Intergovernmental Panel on Climate Change (IPCC), underlines that the climate goals should arrive at a "fair and impartial" distribution of mitigation burden that demands international cooperation on an unprecedented scale. For that, the developed countries should lead in the pathway to the Paris goals and help developing countries in the transition to green energy. Since energy resource endowments in developing countries are polluting, such as coal in China and India, efficient alternative ways should be provided to them to achieve their development goals while keeping the emissions level low.

The equity concern in climate change does not exist only among developed countries and developing &undeveloped countries. It also exists among rich and poor people who disproportionately contribute to the global emissions burden. Consumption habits that change according to individuals' income imply they have different responsibilities. For instance, a person who only has access to electricity for a portion of the day cannot be expected to bear the same burden as a businessman who travels frequently. Therefore, it is necessary to evaluate territorial-based and consumption-based when calculating emissions. Consumption-based outcomes can produce healthier results in this regard because they demonstrate a product's total emissions over its entire lifetime. Therefore, that could allow finding a path to allocate the share of the burden among the concentrated wealth levels.

Overall, tackling the climate change problem requires considering the equity in the climate goals. Expecting everyone to be involved equally is not realistic because of the asymmetric share of historical emissions, the inequivalent development levels of countries, the different consumption habits within the income level. However, I think that global success in combating climate change is possible only if we consider our climate targets and draw a consistent path without ignoring this equity concern.

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