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BRENT OIL

48.74 \$/BL

GASOLINE

7.10 ₺/LT

USD/TRY

7.83

DIESEL

6.63 ₺/LT

EUR/TRY

9.50

FUEL OIL

4.09 ₺

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ABOUT US



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Pressure on the EU to Raise its Climate Ambitions

Selin Kumbaracı 

Approximately two weeks ago, the E.U. came under pressure from United Nations Secretary-General Antonio Guterres to increase its climate change goals, as well as to get more serious on various other related measures. This push came a few weeks before the Climate Ambition Summit due to take place on December 12—the so-called “sprint to Glasgow” in reference to COP26, which would have been happening right now in Glasgow had it not been for the pandemic, postponing it to 2021.

One issue Guterres touched upon, in an increasingly direct approach when it comes to pushing for climate action, was for the E.U.—and more broadly all OECD countries—to phase out coal by 2030, emphasizing that, “There must be no new coal,” at an event organized by the European Council for Foreign Relations. Guterres also called for such a phase-out in non-OECD countries by 2040. Another point he made related to the financing of fossil fuels: “I ask the E.U. to stop the financing of fossil fuels internationally and to promote a shift in taxation from income to carbon.”

Although the E.U. does indeed have an especially ambitious

approach to climate action, the matters brought up by Guterres are still sensitive ones due to certain divisions within the bloc. Notably, with regard to the increasing of the emission reduction targets by 2030, Guterres called on the E.U. to raise it from the current 40% to 55%. This matter is also on the agenda for the European Council summit due to take place on 10-11 December.

There are two significant issues to keep in mind concerning this possible increase: the challenge of getting all E.U. countries to agree to it and, on the other hand, the implications for the E.U.’s role on the world stage if it is not able to approve of this increase.

First is the way in which all 27 Member States must approve of the measure—this includes Poland, the E.U.’s most coal-dependent member. This can be seen as an obstacle that must be cleared before the E.U. can realize this measure. Indeed, Warsaw has recently said, “in-depth analysis” on the effects of such an increase is necessary before Poland can sign up to it.

IF THE EU LEADERS CAN APPROVE OF THE NEW TARGETS, IT WOULD MAKE THE BLOC AMONG THE FIRST MAJOR ECONOMIES TO PUT FORWARD SUCH AN UPDATE TO ITS PREVIOUS PLEDGE. THIS ISSUE CAN BE SEEN AS A KIND OF PRESSURE FOR THE TARGET INCREASES TO BE IMPLEMENTED. IF THE E.U. IS NOT ABLE TO AGREE TO MORE AMBITIOUS TARGETS AND UPDATE ITS NDC, IT WOULD SERIOUSLY DENT ITS IMAGE AS A LEADER IN THE AREA OF CLIMATE ACTION.



Divisions amongst the E.U. Member States are once again apparent when it comes to a related matter highlighted by Guterres: the phasing out of coal by 2030. Currently, 9 Member States are coal-free, while 11 others, plus the U.K., plan to be so by 2030. This leaves 7 Member States, having either set a later phase-out date—such as Germany and Poland at 2038 and 2049, respectively—or having set none at all. The Czech Republic is currently discussing when its own phase-out date will be, but if the recommendation of the national commission on the future of coal is followed, it will be 2038—much past the 2030 deadline Guterres is pushing for.

The phasing out of coal seems to be hitting not only the obstacle of heavy reliance on it for power production but also the challenge of “switching hundreds of thousands of jobs in the fossil fuel industry to climate neutrality industries,” as Polish Minister of Climate and Environment, Michał Kurtyka, has said.

This all comes in the midst of a standoff on the E.U.’s long-term budget, where Poland and Hungary are blocking the deal arrived at a few months ago due to a provision that would, in certain cases, allow the E.U. to halt funding to those Member States in violation of the rule of law principles.

The second significant issue is related to the image the E.U. has set for itself as a global climate leader. If these increased targets are approved, the Union will be able to submit them as its new Nationally Determined Contribution (NDC)—or climate pledge, in other words—under the Paris Agreement,

which calls for such a renewal of NDCs by this year.

If the E.U. leaders can approve of the new targets, it would make the bloc among the first major economies to put forward such an update to its previous pledge. This issue can be seen as a kind of pressure for the target increases to be implemented. If the E.U. is not able to agree to more ambitious targets and update its NDC, it would seriously dent its image as a leader in the area of climate action.

This is particularly true in light of the recent announcement by the U.K. on December 4 that it will now be aiming for a higher emissions reduction target by 2030, from the 40% it had set with the E.U. in 2014 to 68%. As a statement by the Prime Minister’s office read, “Today’s target is the first set by the U.K. following its departure from the E.U., demonstrating the U.K.’s leadership in tackling climate change.”

Indeed, whether or not the E.U. will step up its own targets—meeting this ‘challenge’ of sorts—will not be certain until a day or two before the Climate Summit, when the December 10-11 European Council meeting brings the E.U. leaders together in Brussels.

Complexity of Energy Efficiency

Bariş Sanlı  

IEA has published Energy Efficiency 2020 report, and it is full of bad news. The energy intensity progress has slowed down, investments dampened.



Energy efficiency is one of the main pillars of energy policies across the world. When a crisis happens, the first energy policy you will hear is energy efficiency. Yet, we may be underestimating the complexity of energy efficiency.

It may sound provocative or pessimistic to think that technological improvements will just do fine without any energy policy for efficiency. The LED lighting and electric car penetration may be an example of such viewpoints. As the technology is available, accessible, and affordable, then the efficiency shows up. But how

IEA has published Energy Efficiency 2020 report, and it is full of bad news. The energy intensity progress has slowed down, investments dampened. IEA's sustainable development scenario requires renewables and efficiency to provide a hefty drop in emissions. Efficiency has a 42% role in this scenario. But it requires a 3% improvement each year. Now it will be less than 0.8%.





about behavioral change and other dimensions? It is dubious.

The IEA report underlines major points like how energy-intensive industries gained strength after most crises, which slows the efficiency. Chinese push for more energy-intensive industries is one example. About retrofitting, the contractors couldn't access the premises due to Covid. Another vivid example is the smart meter deployment in the UK and its decline.

Maybe one interesting point is the digitalization of the processes. According to the report, an increase in data transfer didn't yield a lot of energy consumption increase. It was actually nearly the same. Netflix and other streaming services on mobile devices can be a magnitude more energy-efficient than television.

Transportation is one of the hardest-hit sectors. Rail and air traffic is one of the hardest-hit subsectors. It is a chance to replace old airplanes or push for more rail travel or no travel at all. But very few governments tied the rescue schemes to efficiency. Then there is the rise of personal mobility but with support for cycling. The results are mixed.

The biggest attraction of energy efficiency is its job appeal. "Energy efficiency is a job-creation machine," and it can create up to 15 jobs per million \$ spent. But most of the energy efficiency spending will be done by the EU. The renovation will surpass new building spending. But for

the rest of the world, it is not a big deal.

So it puzzles me a lot. Why can such a logical, rational policy not be improved further? My theory is energy efficiency; in reality, it is more complex than the power sector. Growth-based resources are easy to understand and manage. You have to increase it from X to Y with an investment of such and such dollars. But degrowth resources like energy efficiency look simple on paper but actually more complex for our mindset. For an amount of million dollars, we get degrowth, and it sounds nonsense.

Therefore energy efficiency is hard to manage despite its appeal. We are used to growth dynamics. Creating jobs, investments, sectors for reducing activity footprints, energy consumptions can not be managed by state authorities. At its best, efficiency policies are designed to boost some SME's and their markets.

Just like the distribution business, energy efficiency should be one of the regulated segments of electricity markets. The deregulated or pseudo-deregulated energy efficiency policies don't work. Behavioral change is not sticky in favor of efficiency. If we want results and quickly, utilities should play a key role, and we should be honest about behavioral change. Minimalism is not a populist sport.



Denmark and Expected Energy Transformation

Batuhan Özkan 

According to the energy ministry's estimation, the burden of it is 13 billion kroner, which is equivalent to 1.1 billion euro.

A decision in Europe has been one of the most important developments in the energy agenda this week. Denmark, which is the largest oil producer in the European Union after Brexit, declared that they would end new gas and oil explorations. This decision will have been put into action to stop extracting fossil fuels by the mid 21st century and closing the fossil fuel era. Since Denmark is the European Union leader, which is one of the most crucial political entities in the world in terms of oil production, I think this move is worth examining. In the following paragraphs, backstage of the decision, and the motivation behind it, Denmark's current role in energy markets, prospective preparations of country, and potential effects on the world will be discussed.

As it is mentioned before, despite the huge difference, Denmark is the largest oil producer in the European continent after the U.K. and Norway, with 103,000 barrels per day in 2019. Climate minister of Denmark Dan Jørgensen said that they are paving the way for the

end of the fossil era by this decision. In this way, the target has been approved by official sources. Since energy production is an important source of revenue and economic activity, this action's cost is unignorable. According to the energy ministry's estimation, the burden of it is 13 billion kroner, which is equivalent to 1.1 billion euro. Also, this development has been welcomed by civil society. Greenpeace Denmark evaluated it as a "watershed moment." When we consider the

planned decrease of greenhouse gases emission by 70% from the 1990s to 2030s, it can be said that Denmark can be regarded as a "green frontrunner" in the words of Helene Hagel, head of the climate and environmental policy at Greenpeace Denmark. To understand Denmark's energy transformation, not only the actions taken about the status-quo but also the prospective plans and construction of the new framework have importance. In this context, having information



about Denmark's renewable energy landscape is necessary. According to the Danish Energy Agency report, renewable energy constitutes 32.9% of gross energy consumption in 2018, and the percentage of electricity supplied by renewable energy is 60%.

Consequently, Denmark is an outstanding country in terms of energy transformation, and they acknowledge this via radical changes. When we analyze the developments in Denmark, I care about this country case because of two reasons. Firstly, they are a member of the European Union, and since they are a unitary political entity, Denmark's action can affect the alliance entirely. Secondly, they are the largest producer among the members, and with the help of this feature, Denmark can undertake the

mission of leadership. The second point that I want to emphasize is the country's structure and conditions, which catalyze the transformation. First of all, as a typical Scandinavian country, they have the advantage of a low population. In this way, they can substitute fossil fuels with renewable energy for the need of society. Secondly, concerning democracy and freedom indexes, it is known that Denmark is a country that completed its institutionalization and maintains a standard in terms of transparency. In this context, they do not have an economy based on natural resources like Middle Eastern countries.

Finally, I want to touch on the situation of other countries. As I explained above, some conditions make Denmark advantageous in

this issue. In my opinion, especially in the U.S. and Western countries, governments and leaders of the countries should take the initiative. Probably a government that has a social liberal/democrat background would be a better opportunity. This situation reminds us of the Marxist theory's base and superstructure analysis. It suggests that the base, which consists of means of production and economic relations, shapes the superstructure, consisting of politics, culture, religion, law, media, etc. On the other hand, the superstructure maintains the base. However, the relationship is not unidirectional. In this context, reforms and initiatives by governors change the energy structure of a country, which can be included in commodities (one of the components of the base).



Energy Dimension of Chinese Interest in Central Asia

Atahan Tümer



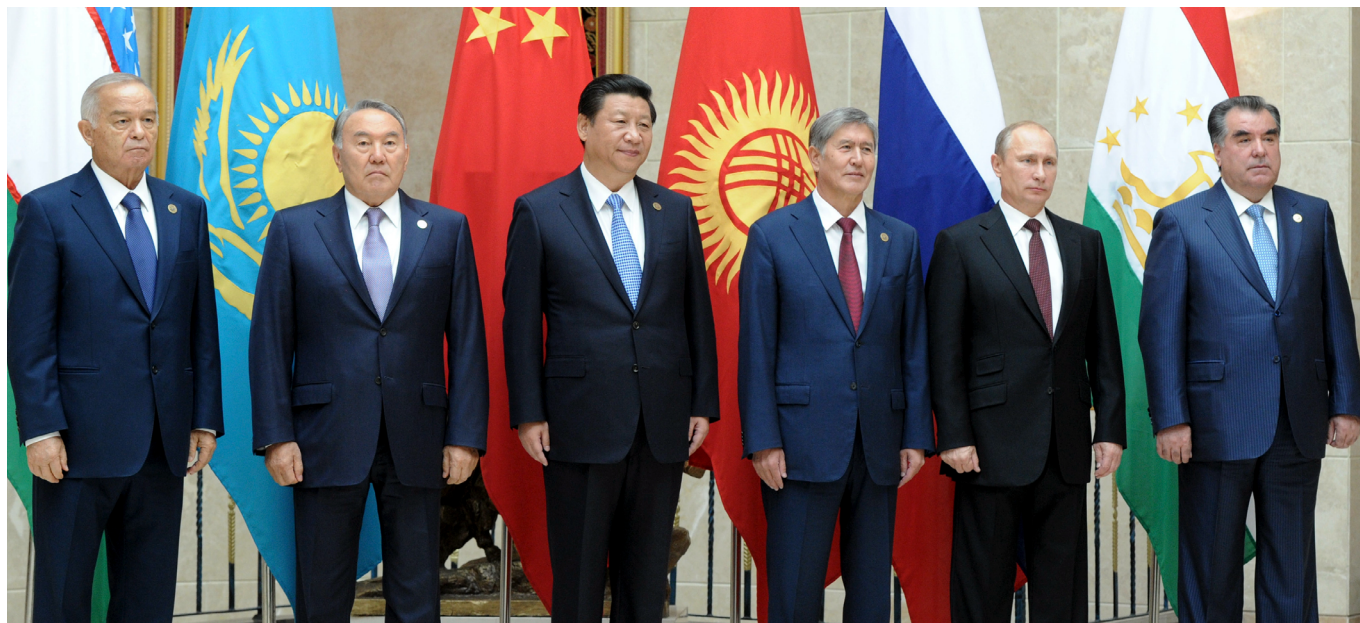
The Central Asian countries, which gained their independence after the dissolution of the Soviets and have been struggling to develop economically since then. They also have great potential. Due to their great potential, they are in a very open position to foreign investments. Central Asian countries, which occupy a key position both geographically and politically, attract many powers in the world. The reason behind Russia's inability to regain its former power in the region after the collapse of the Soviets is the other alternatives that emerged for the region's countries. Although Russia still has a great influence in the region, it is far from its old days. This creates an opportunity for superpower countries such as the United States and China. However, let's look at it from a realistic perspective. We see that it is very difficult for the US to gain power in the region, and China is advantageous due to geographical reasons. Today, China is investing quite a lot in these countries, focusing especially on developing countries. China, which has invested considerably

in large geographies from Asia to Europe, the Middle East to Africa, and even North and South America, is preparing for a world leadership role. China focuses the most on the energy sector in the countries it invests in. One reason for this is the desire to meet the huge energy needs of the industry. At this point, especially Central Asian countries have a very important place for China. These countries are in an almost critical position for China, both in terms of border security and their potential to meet China's energy needs. It will be useful to consider these before examining China's Central Asian investments.

Central Asian countries have great energy potential. However, they have a lot of trouble marketing their potential. The difficulties they face in the Caspian Sea, especially due to Russia and Iran, prevent them from fully demonstrating their potential. Although they can bring energy resources to the European market with some breakthroughs in the coming years, this doesn't seem easy in the short term. Central Asian

countries, which want to use their resources most efficiently due to the economic problems after the collapse of the Soviets, are in search of new markets.

Due to its growing economy and highly developed industry, China has difficulties in meeting its energy needs. Although they can meet some of their energy needs, they have to import the vast majority. Simultaneously, it seems very difficult for them to meet their energy needs with their resources soon. China, which meets most of its energy needs from countries far from it, such as the Middle East and Africa, has security concerns as these products arrive by sea. Due to such reasons, it will be very beneficial for China to meet its energy needs from geographies close to it. When examining the situation strategically, it seems more rational and logical for China to meet its energy needs from countries such as Turkmenistan and Kazakhstan instead of countries such as Angola, Venezuela, and Brazil. At the same time, turning to geographically



close sources will greatly reduce the cost of these products. We have to say that China's orientation towards Central Asia is the most natural result of the energy need problem brought about by the huge industry.

Immediately after the collapse of the Soviet Union, China began to show interest in this region without delay. However, because of the East Turkistan issue, China first wanted to ensure its security. East Turkistan's deep cultural, religious, and ethnic ties with Central Asian countries pushed China to solve its problems with these countries. China aimed to cooperate with these countries in solving regional problems and, to a large extent, achieved this goal. Afterward, the establishment of organizations such as the Shanghai Cooperation Organization greatly strengthened the relations. China also saw Central Asia as an expansion area and aimed to dominate the region in the long term. We can easily say that this has succeeded or is close to success by looking at China's increasing trade volume in the region. This region,

where China was initially taken to ensure its security, later became a Chinese influence area. Today it is interesting that; Kazakhstan's biggest trade partner in China. Kazakhstan makes a large part of its exports to China. China also invests in oil resources in Kazakhstan.

Among the Central Asian countries, China does not only invest in Kazakhstan. Turkmenistan, the other major energy producer in the region, also gets its share from China's investments. So much so that China aims to develop the countries' energy sector by making huge investments in the energy sector here. However, there is a country where that is uncomfortable with these investments in China. It shouldn't be difficult to guess which country this is. Russia is very uncomfortable with the emergence of the Central Asian countries as an alternative to Russia's energy supplier role. Moreover, China uses its investments in these countries as leverage in energy agreements with Russia. Seeing this, we can easily understand why

Russia is uncomfortable with China's investments in the region.

China has become the second-largest economy in the world today due to its breakthrough, especially after the 90s. However, it will not take long for it to become the world's largest economy. If it maintains its current growth trend, it will become the largest economy in the world soon. Investments made in wide geography around the world bring along comments as China aims to establish global hegemony. In the following years, we may see that China takes a more active role in different geographies. It would be a great mistake to think that a country that has large investments and important commercial relations, even in Africa but will not show any interest to a region on its border like Central Asia. We should take China into account when examining Central Asia because it is an important power in the region.

Hydrogen As Solution to Climate Change

Mihael Gubas



Hydrogen (H) is the first element in the periodic table of elements; with one proton in the nucleus and one electron in the shell, it is the lightest and most abundant element in the universe. It is in him that many scientists and politicians see a solution for alternative energy sources that would meet global energy needs without further environmental pollution. Since this is a largely unknown technology to the public, I believe it is of great importance to shine a light on its possibilities.

First of all, the technology used to obtain electricity from hydrogen is not new. It has been in use since the 19th century. The first hydrogen internal combustion engine was built in 1807, and the debate over the use of hydrogen from electrolysis to replace coal appeared as early as 1863. As early as the 1920s, Norway and China produced huge electrolysis devices with a capacity of more than 10 megawatts to produce fertilizers for industry using hydropower. Such and similar periods in our industrial history, in the 70s of the last century, began to be called cycles of "hype" in which enthusiasm for the potential of hydrogen as an energy source is aroused. Because of the cost of its production, everything is given up again. The last such "hype" occurred in this century, at the time of "oil peaks" and in 2003 when it was announced (especially in the US) the launch of large investment cycles in hydrogen. The International Petroleum Games have also triggered the idea of switching to hydrogen as an energy source in international sanctions. With the economic crisis of 2008, this also died down, and investments in hydrogen began to fall again during that period. A table with accurate data can be found on Carbon Brief, who conducted a huge in-depth analysis on this topic.

Contrary to the expectations of conspiracy theorists, hydrogen technology has never taken root in the mainstream - not because some elite group that secretly runs the world has not allowed technology to develop - and vice versa for those who would like to think the capital of companies for



the processing and sale of fossil fuels - the technology simply did not come to life because it is too expensive and often energy inefficient. For example, to meet climate targets (stopping warming to below 2 degrees Celsius), it would be necessary to produce 36,000 terawatt-hours of electricity. That's 38 percent more electricity than is produced worldwide today. They calculated so in Bloomberg NEF.

It seems, then, that not all hydrogen is green technology. Moreover, given its availability, scientists were forced to attribute the entire long color to hydrogen. So we have green, blue, gray, pink, yellow, purple... hydrogen.

Only green hydrogen is environmentally friendly. It is created by electrolysis, a process that separates water into hydrogen and oxygen with an electric current, using energy obtained from renewable sources. On the other hand, blue hydrogen is mainly produced by reacting methane in gas with steam and then capturing and storing the resulting CO2 emissions. In the methane vapor reaction, the most common method, fossil gas is burned to stimulate the process and used as a raw material. Currently, most of the hydrogen produced by human production in the world is not green or blue, but it is obtained from fossil fuels without any capture and storage of CO2. Production methods based on carbon, lignite, and carbon-free gas are called "black", "brown," and "gray".



According to the International Energy Agency (IEA), 76% of hydrogen comes from gas and 23% from coal - the latter is mostly in China - and only 2% comes from electrolysis. Less than 0.7% of current hydrogen production comes from green or blue stocks with low carbon content. Hydrogen can also be generated by nuclear energy to drive electrolysis. According to the IEA, there is no "determined color" for hydrogen produced by nuclear energy, but reports have variously called it "yellow," "pink," and "purple." And there is "turquoise" hydrogen, created as a by-product of methane pyrolysis, which uses heat to split fossil gases into hydrogen and carbon. In addition to the basic color palette, there are a handful of other production methods - some of which are low-carbon - that could contribute to future hydrogen demand. Turquoise hydrogen has the potential for low emissions if the process is powered by renewable energy or nuclear energy, and the resulting carbon is stored. However, a recent study concluded that, like blue hydrogen, it would continue to generate significant emissions due to the production of gas used to provide the heat needed for the process.

According to the Carbon Brief, a report by consulting firm Lucid Catalyst states that the amount of hydrogen needed to achieve international climate goals is "much higher than can be produced by renewable energy sources", which makes nuclear hydrogen

necessary. It is a pity that the European Union concluded that nuclear energy is not green just this year, while gas, for example, is. Nuclear energy is a risk due to the human factor and potentially catastrophic consequences. However, if the real risk of nuclear power plants were proportionally high to moral panic on the same topic, then and only then would nuclear energy be a real reason to panic. Thus, if we compare the number of nuclear power plants on the planet and the number of catastrophic accidents, it seems that you have a higher chance of dying in a car and similar examples of unsafe human practices than in a nuclear explosion.

But when we talk about the economic viability of hydrogen, it should be borne in mind that the cheapest "gray" hydrogen - the one obtained from coal. Its price is about 1 USD per kilogram - if it is obtained from Middle Eastern gas, but it reaches as much as 3 USD per kg in some regions. For China and India, which import most of their gas supplies, coal-based hydrogen is usually the cheapest option. Gray hydrogen can turn blue if the carbon capture and storage method are used, but this increases the cost by approximately \$1.5 per kg, according to the IEA. For comparison, the Agency states that green hydrogen obtained from solar energy or land wind usually costs between \$2.5 and \$6 per kg.



Also, the Carbon Brief has conducted a meta-analysis of numerous studies on hydrogen as an energy source. The most interesting, it seems to me, is the difference they noticed when comparing the IEA and BNEF data for green hydrogen. The difference comes down to estimating the costs of installing electrolysis devices, which are twice as high in IEA forecasts, with the addition of slightly higher electricity price assumptions. In order for the investment in electrolysis devices to pay off, the result would have to be stable and relatively cheap electricity. If the machines do not work all the time, the hydrogen cost is higher than is currently commercially viable. Also, the cost of transport should be added to hydrogen's production price, which means that green hydrogen is certainly the most expensive form of hydrogen. Transport at a distance of more than 1500 km becomes completely unprofitable.

In theory, writes the Carbon Brief, "hydrogen has the potential to decarbonize everything, from the steel used to make someone's car to the gas that heats their home. However, in practice, it is unlikely that hydrogen will be used universally. Moreover, the amount needed to meet all possible low-carbon applications would probably far exceed the amount available, even if production is significantly increased. The question, then, is no longer at all whether you are for hydrogen or against it. The question

is where it is necessary to use hydrogen and where it is too expensive or environmentally unsatisfactory. Transport is certainly something that could take away 25 percent of the carbon produced, and the power sector could consume 30 percent, as could industry. But buildings are likely to be heated in other ways, so according to Bloomberg research, their share of hydrogen consumption by 2050 will be just 15 percent.

Given the climate target of stopping warming to an average of 1.5 degrees Celsius per year, according to Bloomberg, hydrogen would meet only 24 percent of final global energy demand. Charts explaining this are available at this link. According to an IEA survey called Energy Technology Perspectives published in September 2020, hydrogen consumption is projected to meet less than 7% of total energy demand by 2050, of which transport (44%), industry (28%), power (19%) and buildings (9%). This is a much stricter estimate than Bloomberg's. The difference is infrastructural, and it relates to the cost of labor. That is, the infrastructural loads calculated by the International Energy Agency are more expensive than those that Bloomberg thinks can be built cheaper. Such assessments also contain poorly visible social policies. The very fact that public administration bodies do not go to the maximum cheap price of production testifies to us again that something has changed in Europe. This is also clear from the non-existence of the issue of the price of hydrogen technology. I guess it is calculated that investments in this will pay off through a smaller financial burden on the health system and social peace.

Documentary Review:

2040

Gökberk Bilgin 

"The documentary aims to show how we can control the carbon emissions with the technologies we already have today before 2040."

Damon Gameau is a famous Australian director best known for the That Sugar Movie documentary, where he explained how sugar affects our health. It helped many people to lose weight and made him famous worldwide. Last year, Gameau directed another documentary named 2040, explaining how we caused current climate problems and the solutions.

The documentary begins by introducing how the carbon levels in the atmosphere affect our lives. In nature, there was a balance in the carbon cycle. However, after the industrial revolution, carbon released into the atmosphere increased by 40%.

The distortion lead-carbon dioxide levels to increase where 90% of them absorbed by the oceans. Eventually, the conditions change, and living creatures

cannot adapt to the new situation. These climate changes occur in the history of our planet; however, none of them are happening at this pace, and changing weather conditions creates massive problems to our existence.

The documentary aims to show how we can control the carbon emissions with the technologies we already have today before 2040. These technologies include micro-scale solar panels, automated cars, agricultural methods, permaculture, and education policies.

AFTER THE INDUSTRIAL REVOLUTION, CARBON RELEASED INTO THE ATMOSPHERE INCREASED BY 40%.

Today, many developing countries try to implement energy transition policies in developed countries, yet they are not

becoming successful. One of the main reasons for this failure is that developed countries have a strong infrastructure to provide primary services such as electricity, water, transportation, etc. However, in developing countries, these services are available in limited areas. Many of them are vulnerable to natural disasters and create a major burden on the budget. A possible solution in this situation comes from the micro solar grids where each home has a small solar panel on its roof. With the help of a machine, houses are becoming able to make electricity

trade with each other. Without connecting to the country's central grid system, they are enjoying the benefits



of having electricity. The documentary shows a village in Bangladesh and how the society benefited from producing their electricity and sharing it. Besides having a reliable energy source, it helps improve health, education, trade, and communication sectors, where each is discussed in the documentary. Since the money allocated to electricity consumption remains within the community, it directly contributes to the region's development.

Another problem we can overcome for healing nature comes from changing our perception about cars. Today, having a car is still a symbol of status in most

cultures, and it causes a massive inefficiency in terms of usages. The documentary states that 96% of the time, personal cars are not being used. Instead, they are offering on-demand vehicle cars, where you continuously rent them when you need them. With the development of automated driver technologies, this can be the future

SINCE THE MONEY ALLOCATED TO ELECTRICITY CONSUMPTION REMAINS WITHIN THE COMMUNITY, IT DIRECTLY CONTRIBUTES TO THE REGION'S DEVELOPMENT.

of commuting. We can save billions of dollars and land and reallocate those

resources for a better environment. Today many different companies are working on these technologies, and even though it seems impossible, we can have a transition in that area. Since humans are the main reason for the traffic jams by unnecessarily changing lanes or using breaks, we might have less traffic with the same number of cars in the city with automated technologies.

Alongside reducing our carbon emissions, we also need to find ways to store them for a healthy environment. The best

storage area for that is the soil. With better agricultural policies,

we can manage to do that, and the documentary shows some of the possible methods that are already working.

Today, the problems we have on this matter comes from several areas. One of them is that we are overusing our agricultural lands and increasing carbon emissions. The second one is that using chemicals on the land makes soil absorbing less water, and it creates pollution and floods. Finally, we are restricting our animals to move freely on the ground and closing, feeding them with industrial crops that use a significant number of agricultural lands. Since the animals do not interact with the soil properly, they cannot contribute to the natural process, and we cause distortions in our lands. The documentary shows how we can overcome these problems by providing real examples.

Finally, the documentary introduces us to marine permaculture for the oceans, where you build seaweed farms that use carbon sources to grow. Interestingly, the former studies show that they have a huge impact on restoring sea life. The fishes come back, and acid levels due to carbon dioxide decline in the region. While the seaweed farms heal the oceans, it becomes useful for humans in many different areas discussed in the documentary.

Overall, the 2040 documentary claims that we have everything we need to control the climate change problem and restore the damage we caused to our planet. It gives the viewers an optimistic feeling that with the change



SEAWEEDS HAVE HUGE IMPACT ON RESTORING SEA LIFE. THE FISHES COME BACK, ACID LEVELS DUE TO CARBON DIOXIDE DECLINE IN THE REGION.



USING CHEMICALS
ON THE LAND MAKES SOIL ABSORBING
LESS WATER, AND IT CREATES
POLLUTION AND FLOODS:

in our habits, we can transform our lifestyle into a healthier one. Despite not all of the solutions offered are perfect, I believe discussing these issues in a utopic way and start implementing small changes benefits our improvement. The idea behind SpaceX or Tesla was unachievable for many at the time, yet the results show the otherwise. We can test these new ideas for energy transition and better agricultural policies and start to think differently about our priorities. It may not be easy for the older generations, but future generations can adapt to necessary changes with the improvements in our education policies. In Turkey, the documentary is available at Bein Connect. To have more details about the policies I discussed in this article, you can watch it from there.

Nagorno-Karabakh Deal In Terms of Energy Geopolitics

Can Arihan 

The Nagorno-Karabakh (or Dağlık Karabağ in Azerbaijani Turkish) Armistice, which was brokered by Russia, came after six weeks of bloody fighting between belligerent parties, namely Azerbaijan and Armenia. Armenia, which de facto controlled the region since the war in the early 90s, was benefiting from the status quo ante because ethnic Armenians were ruling a region that was internationally recognized as Azerbaijani territory. On the other hand, since the loss of the Nagorno-Karabakh region to Armenians after the collapse of the Soviet Union, the liberation of Karabakh was a national cause in Azerbaijan.

The conflict in Nagorno-Karabakh is heavily intertwined with energy geopolitics. With natural resources of the Caspian Sea transmitted through giant projects like Trans-Anatolian Natural Gas Pipeline (TANAP) and Baku-Tbilisi-Ceyhan Oil Pipeline (BTC) to Turkey and also Europe, the wider

Caucasus region and the conflict in Nagorno-Karabakh that separated two neighbors for almost three decades came into prominence in terms of energy geopolitics. The numbers also easily prove this claim: BTC carried

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above 600.000 barrels per day (bpd) last year, and TANAP can carry 16 billion cubic meters of natural gas.

Knowing very well that Azerbaijan's main strength came from its natural resources and its ability to sell the oil and natural gas in the world energy markets, Armenia targeted Tovuz in July 2020. Tovuz is not within the disputed Nagorno-Karabakh region. However, it is at the crossroads of the above-mentioned energy pipelines and also the strategic Baku-Tbilisi-Kars

railway. This incident did not lead to an all-out conflict but further complicated an already strained relationship.

The main clashes came after September 27, 2020. Both sides blame each other for the escalation; the two neighbors clashed with all their military strength, one to keep Nagorno-Karabakh, others to regain it. Having strengthened their military capabilities with the revenues from the sales of the energy

resources, Azerbaijani forces swiftly overwhelmed the Armenian forces. Unmanned drones that were bought from Turkey significantly sustained the Azerbaijani superiority. Although it is seen from its name (Nagorno means mountainous in Russian and Dağlık means the same in Azerbaijani Turkish), the terrain was not perfect for a military campaign. Azerbaijani soldiers steadily marched into the heart of the occupied territories at a rapid pace.



The armistice came after the liberation of Shusha on November 8, 2020. (This day will be celebrated as Victory Day in Azerbaijan.) Russia, the main power that controlled the whole Caucasus region in the Soviet era, brokered the deal and brought together the belligerent parties to form a ceasefire agreement. The agreement gave Azerbaijan the authority to keep the lands it had liberated in its campaign that took six weeks and obliged Armenia to cede large swathes of territory in the disputed Nagorno-Karabakh region.

This ceasefire agreement of November 9, 2020, is highly significant in terms of energy geopolitics. As was mentioned above, Azerbaijan exports a considerable amount of natural gas and oil via pipelines (e.g., South Caucasus Pipeline, which carries natural gas first to Turkey, then TANAP transmits the gas Europe and BTC pipeline) that lie near the Armenian

border. If the main dispute between Azerbaijan and Armenia (that is to say, Nagorno-Karabakh conflict) is to be settled following this agreement, energy markets (especially Turkish and European markets) will certainly benefit from this result. Given that it has proved its military superiority over Armenia, Azerbaijan can securely supply Turkey and Europe with energy resources without the fear of attacks like the attack on Tovuz last July.

Of course, the main supplier of natural gas to Europe and Turkey (i.e., Russia) does not benefit from the guaranteed presence of competing Azerbaijani gas in Turkish and European energy markets. But certainly, Russia made huge gains from the ceasefire agreement of November 9, 2020. In a scene that resembles the Soviet era, Russian boots (approximately 2000 soldiers as a peacekeeping force) will be on the ground in Nagorno-

Karabakh to monitor the agreement's implementation. Although this gain of Russia does little to overshadow the Azerbaijani gains and the secured transmission of natural resources, Russian soldiers' presence will give Russia important leverage that could be used in later negotiations regarding the energy issues.

Turkey will also send its forces to the region to monitor the implementation of the ceasefire agreement. Still, there are opposing claims about the size and the position of these Turkish peacekeeping forces. Regardless of their size or place of positioning, these Turkish forces will certainly strengthen Turkey's position where vital Turkish energy interests are at stake. We shall wait and see what the time will bring regarding this minor complication and the wider geopolitical dispute, which is of high importance for the secure supply of energy to Europe and Turkey.



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