17 MAY 2021

VOLUME 2 ISSUE 31

SYNERGY

BİLKENT ENERGY POLICY RESEARCH CENTER NEWSLETTER

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SYNERGY
17 MAY 2021 **VOLUME 2 ISSUE 31**
#61

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BRENT OIL	69.47 $/BL	GASOLINE	7.15 ₺/LT
USD/TRY	8.32	DIESEL	6.51 ₺/LT
EUR/TRY	10.12	FUEL OIL	5.49

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Energy Policy Research Center

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Japan and Return to Nuclear

Atahan Tümer

Japan is one of the countries that actively use nuclear energy. They have come up on the agenda many times in the past years. The country, which has some projects worldwide, had a nuclear power plant project in Sinop in Turkey. However, this project has been canceled in recent years. After the Fukushima Nuclear Power Plant Disaster, the concerns about nuclear energy in the country had pushed Japan to take a cold approach to nuclear energy for a while. The past years have eliminated this complicated approach. So much so that in the past years, they even planned to put some of their nuclear reactors in the scrapyard. However, today Japan will reopen three nuclear power plants that have served over 40 years.

The reopening of these power plants closed after the Fukushima Nuclear Power Plant Disaster caused by the tsunami after the earthquake in 2011 brought many questions to mind. Because the Nuclear Regulatory Board (NRA), after Fukushima, introduced the principle of operating nationwide reactors for a maximum of 40 years. Although for the reactors mentioned in 2016, the period could be extended if they passed the security audits, the 20-year extension of the life of these reactors caused safety concerns. While the question of what to do with the Fukushima Nuclear Power Plant waste has not been answered yet, this decision caused a great reaction in Japan.

As time passes after the Fukushima Nuclear Reactor Disaster, Japan is returning to nuclear power every year. Nuclear reactors that were shut down every year are put into service again. This attracts the reaction of the Japanese people who still feel the trauma of Fukushima. The region's peoples give the most significant reaction to the reactors that have started to operate again. People do not want their fates to be similar to those in Fukushima.

After the decrease in the use of nuclear energy, the Japanese government turned to other energy sources. However, the problem caused by the use of fossil energy resources in the economy causes Japan to suffer financially. This causes the search for solutions. The government found the answer by turning to nuclear energy. So much so that Japan plans to

obtain a quarter of its electricity needs from nuclear energy by 2030. Although the public strongly opposes this, economic reasons push the government to take such steps.

Unfortunately, the global economic devastation created by the pandemic causes environmental concerns to be ignored. Although the government tries to keep security measures at high levels, people are not convinced of this.

Another reason behind Japan's return to nuclear is that it wants to meet its greenhouse gas emissions target. By moving away from fossil fuels, the country wants to reach a net-zero emission level in 2050. For this, it invests in renewable energy sources and uses nuclear energy. Japan is also giving incentives to reactors operating for more than 40 years to get old reactors back to work. In addition, it should not be forgotten that these reactors will be disabled in the coming years. Unless new ones are built, the failure of these reactors and no investment in other energy resources will cause a difficult time for countries that depend on nuclear energy economically. Unless new investments are made in Japan, it will face this problem.

Although Japan's return to nuclear energy is an issue that has been debated and criticized, the decision of the Japanese government is understandable. We all know that countries today, especially after the pandemic, are experiencing a tremendous economic crisis. It is also normal for them to look for different solutions to solve the problems they encounter. If one considers the benefit of nuclear energy to a country's economy, it can be realized that environmental reactions are insignificant. The picture becomes more apparent when we consider politicians in a democratic country who make these decisions. Nuclear energy is still the healthiest energy source globally as long as the proper measures are taken and safety is considered as the most crucial criterion. Japan's desire to use nuclear energy in order to solve its economic problems may trigger other countries. This may lead to an increase in atomic energy investments, which have declined in recent years. Time will tell us what will happen and how people react to the decisions to be made.

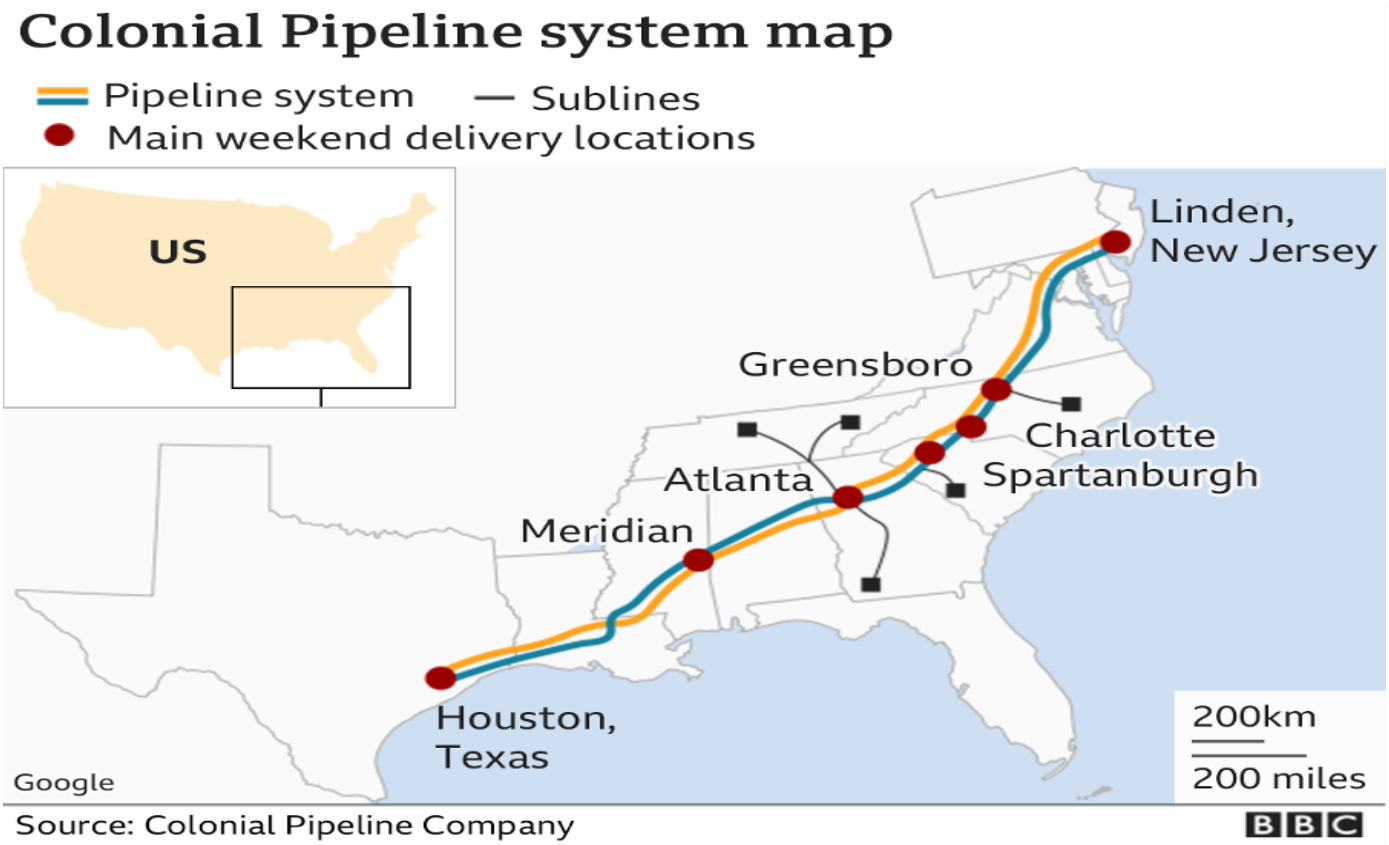
Hacking the Internet of Energy

Onurcan Mısır

Last week, one of the biggest gasoline and jet fuel pipelines in the US was forced to shut down due to a cyber attack. The attack on Colonial Pipeline is currently seen as one of the most significant ransomware attacks on crucial infrastructure, for it forced the operator to close almost 5,500 miles of pipeline providing about 45% of Eastern states' gasoline supplies, creating major disruptions in the supply line and panic among the customers. The attackers were proved to be successful as the Colonial Pipeline accepted to make ransom payment worth $5m in an effort to prevent further damage. Now that the imminent danger is gone, the companies are expected to come up with solutions that will fix the vulnerabilities. To understand the possible solutions, one has to examine the nature of the internet, which many countries' energy infrastructure is connected to today.

The internet of energy connects the energy industry to the worlds of digitization, optimization, reliability, and scalability, opening up vast opportunities for a more easily controllable and beneficial energy governance. Our energy sources and transportation depend on many different parts that have to work simultaneously, such as resource extracting facilities, refineries, interconnectors, pipelines, and in the latest case, gas stations. Connecting and overseeing all of these facilities, which have thousands of workers and customers as a whole, is a long and exhausting process when it is conducted manually. Engineers, workers, and accountants at all levels have to measure things carefully and report to the central facility with clarity so that energy transportation is enabled to continue with no problems. With the creation of the internet, and more specifically, 'The Internet of Things' as an idea, these processes that involve systems on a large scale are becoming easier and cheaper to govern. Instead of overseeing the economy and status of facilities part by part, one can oversee and control all flows with one glance using the internet to connect them. These connected, intelligent energy devices collect a massive amount of data, revealing trends and insights that help drive power generation, distribution, and consumption cycle. Thus, now the distribution of power is more about a matter of generation and storage of big data, instead of power sources themselves.

This situation which seems to bring huge benefits to the energy sector may also be its biggest vulnerability, as demonstrated by the last week's events. Colonial Pipeline's



style of operation is an example of digital governance explained above: The important devices that enable the transportation of gasoline are interconnected, and they are all connected to a central system that oversees all actions. Even though it is hard to get into the interconnected device part of the transportation process, the administrative staff, such as important engineers, accountants, and office workers, have significant access to the data gathered by production and transportation devices. Since they are the ones who make the decisions centrally, a breach of their computers might mean that the whole system is under attack.

It is clear that it would not be a wise call to go back to the pre-internet era in which all systems were operated manually for the internet brings a lot of benefits. However, it is also clear that the damage given by such an attack on the digital system can reach amounts that far overweigh the benefits brought by the digital system. The vulnerabilities are clearly not about firewalls, defense systems, etc. For how strong a system one company builds, some decisions will be taken, and the risk that these decisions are imminent to be penetrated will not disappear in a digital world. Instead, companies must, and most probably will, strive to make the decision-making processes more decentralized, for the decentralized parts of the system are less likely to fall into the risk of ransomware. The system, in general, must be established in such a way that even if one device or facility is damaged, the rest should continue operating. This can only happen if all the decisions are not given by those who are on the top, and the decisions given by them are not transmitted using the internet but manual methods.

In short, since it is almost an impossible effort to prevent such attacks, the best course of action would be to prevent the system from falling apart even if an attack occurs. Thus, instead of focusing and spending huge amounts of money on establishing cybersecurity measures, the government and companies should invest in decentralizing decision-making processes. A properly functioning systems management under such a decentralization will prevent such attacks and make them futile and unprofitable for attackers.

US Climate Policy: Carbon Pricing vs. Clean Energy Standard

Selin Kumbaracı

Currently, about 20% of worldwide emissions are subject to a form of carbon pricing, such as a carbon tax or a cap-and-trade scheme, whereby a price is attached to carbon pollution with the aim of lowering emissions and fostering investment in cleaner alternatives. Notable examples include the EU's Emissions Trading Scheme (ETS), the position of which as the world's largest trading scheme will be overtaken by China's own scheme, which is to be launched within this year.

One notable absence in this field is the United States. Though the setting of a carbon price is not an entirely alien concept within the US policy arena, it can be said that discussion surrounding it has subsided to a large extent following the failure of the Waxman-Markey bill in 2009, which would have (among other things) established a cap-and-trade program in the US.

It should, however, also be noted that even though the political appetite for carbon pricing is quite low at the federal level, there are still initiatives at the state level, such as California's cap-and-trade system, established in 2013.

While some were expecting a change in this aversion to carbon pricing under the Biden administration—which has made ambitious pledges when it comes to fighting climate change—the US has favored a different policy route, specifically for decarbonization of the power sector: namely, a clean electricity standard (CES).

The CES, as currently envisioned in the broader infrastructure bill that has been proposed, mandates that retail power suppliers provide an increasing proportion of clean electricity, starting in 2023. This proportion would be 80% in 2030 and rise to 100% by 2035. This is a key element of the US reaching the climate target that has recently been set by President Biden, wherein emissions are to be halved (relative to 2005 levels) by 2030.

Several business groups, notably the American Petroleum Institute—which had lobbied to reject the Waxman-Markey bill mentioned earlier—are now expressing their support for carbon prices as market-based policy instruments, as opposed to "more command-and-control" methods.

It should be noted though, that much criticism is directed at carbon pricing for being market-based—due to how "imperfect realities" of markets mean that things can go wrong. A frequently cited example is that of the EU ETS when carbon prices were said to be virtually worthless after the price of permits hit their record low of €2.81 per ton in 2013. In contrast, this price is currently over €50 per ton, and some, such as the Bank of England, suggest that it needs to go up to €100/ton by 2030 to keep the rise in global average temperature to less than 2°C, as pledged in the Paris Agreement. In fact, according to the Bank of England, the figure of €100/ton is the case if there is an "orderly transition" and could be even higher if the transition is more abrupt or ambitious.

A different kind of argument presented in favor of carbon pricing has been regarding the staying power of fiscal policy. As Joseph Majkut of the Niskanen Center explains, "Fiscal

policy is something that can be more durable, long term and less subject to legal and administrative challenges and risks (...) it can help, under certain conditions, [to] resolve the political challenges of securing ambitious climate action."

As such, it is posited that the establishment of a carbon price would provide some level of permanency to US climate policy, which can change drastically depending on the prevailing political group in power—perhaps the stark differences in policies pursued by the Trump and Biden administrations is the best example of this. In the words of the Financial Times' Myles McCormick, "the merry-go-round of Democratic and Republican legislatures means that regulation can be torn up and patched back together every few years".

However, regardless of the potential effectiveness of carbon pricing, there seems to be a lack of political will in pushing for its establishment. Indeed, it seems that a clean electricity standard is much more palatable than carbon pricing, especially such pricing in the form of a carbon tax.

"There's something to be said about the political perception of rewarding 'clean' versus taxing 'dirty' resources. Both policies will ultimately lead to similar results but politically speaking, that could be an advantage for a CES," argues Kathryne Cleary, of the think-tank Resources for the Future.

One way in which this preference of a CES over a carbon pricing mechanism could prove challenging is in future trade relations with countries and blocs that have ambitious carbon prices. Divergences in carbon pricing policies create worries that higher carbon prices in one jurisdiction could simply lead to a carbon leakage to another one that does not impose as a high a price, if any, on carbon. There are also concerns that high carbon prices could act as a sort of de facto export subsidy if the way in which the price of carbon not being factored into the cost of such imports works to advantage foreign producers.

One such example of this is the current discussion taking place in the EU regarding the creation of a "green level playing field" through the establishment of a carbon border adjustment mechanism. This can be seen as a tax of sorts for imports from countries that do not have a carbon pricing scheme equivalent to that of the EU—it is not difficult to see how the US might fall under this categorization.

Overall, while there are arguments in favor of and against carbon pricing's effectiveness, it faces significant political challenges. Nonetheless, it is not easy to definitively say that the US will not establish a carbon price anytime soon.

As US climate envoy John Kerry stated a few months ago, "President Biden believes that at some point in time we need to find a way to have a price on carbon that's effective. (...) He hasn't decided or made an announcement about it, but we all know that one of the most effective ways to reduce emissions is putting a price on carbon."

Make Europe Green Again: The Role of Turkey

Salih Efe Kahramaner

There is no doubt that the world is getting worse every day than the day before. The environment gets more contaminated, and carbon emissions are escalating significantly, more water resources are running out, forests are being more destroyed, global warming is increasing, more than eight million species are extinct. However, It may not initially pose a visible danger to humanity, but it may be seen as a sign of a severe situation for the next generations. For this reason, a multi-dimensional approach to the threat of climate change needs to be dealt with with a comprehensive perspective from regional to global scale. The EU -European Union- took a vital step in 2019 by implementing a wide-reaching roadmap to eliminate these environmental problems in the long term.

"Today is the start of a journey. However, this is Europe's 'man on the moon' moment. The European Green Deal is very ambitious, but it will also be cautious in assessing the impact and every single step we are taking."

On 11 December 2019, the President of the European Commission, Von Der Leyen, declared "European Union's Green Deal," which encompasses a strategy that aims to create a more clean, effective, and sustainable competitive economy that will reach zero emissions greenhouses in 2030. As Von Der Leyen stated that "Our goal is to reconcile the economy with our planet, to reconcile the way we produce and the way we consume with our planet and to make it work for our people." All these goals are considering into initiatives to mitigate adverse environmental impact under the "European Union's Green Deal project are making the economy more sustainable and circular to take advantage of the energy resources used in the industry more efficiently. In other words, the European Union is redesigning and restrengthening its economic targets in the direction of climate targets. EU reaffirmed its political pledge by constituting a "European Climate law".

With the enterprising of the EU Green Deal, it can be the undeniable fact that regional and global economic transition is inevitable. In this transformation parallel with long-term global climate goals, Turkey, a significant key player on a global scale, is playing a significant role on a regional level, as an essential strategic partner for the European Union, in terms of multilateral economic relations, trade, refugee crisis and socio-culturally crucial strategic partner.

From a rational perspective, it can be argued that The European Union is the most prominent trade partner for Turkey. That is why economic relations between Turkey and the EU make it compulsory for Turkey to adapt green transformation and take permanent, future-oriented steps. High-level diplomatic contacts between Turkey and the European Union, the main agenda consisted of bilateral relations and European Union's Green Deal that can be developed to deal with environmental degradation and climate change.

A recent visit of the European Commission in Turkey last month, 6 April, President of the European Commission Von Der Leyen emphasized climate change as stated that "Topic number one should be, in a high-level dialogue, the fight against climate change. This is our common concern, and we all sense the danger that we are facing with increasing climate change and the follow-up consequences in our countries. Therefore, this should be one of the major topics in a high-level dialogue" Although climate change mentioned as "topic number one" in the conference, it is completely overshadowed by "sofagate" between Von Der Leyen and her colleagues Charles Michael.

Turning to Turkey, the Turkish business world is beginning to regulate social and commercial regulations. In the first sense, it is evident that this green transition will not be easy and rapid. However, with the increased environmental awareness, preserving biodiversity and re-using resources will lead the economy to sustainable and clean. In this context, with the attempt of the Pioneer Turkish Industry institutions, the Foreign Economic Relations Board of Turkey (DEİK), Turkish Industry and Business Association (Tusiad) started the Project "Green Transformation in the industry."Turkey aims to increase its economic competitiveness and sustainability by modifying policies and regulations according to the climate change targets of the European Union.

Consequently, the economic transition of the European Union with the "EU Green Deal," as declared by Von Der Leyen in 2019, directly affects Turkey's attitudes towards combating climate change and accomplishing sustainable economic purposes. As seen from the high- level diplomatic dialogues between Turkey and the European Commission, Turkey will be a more important actor and partner in the "EU Green Deal".

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