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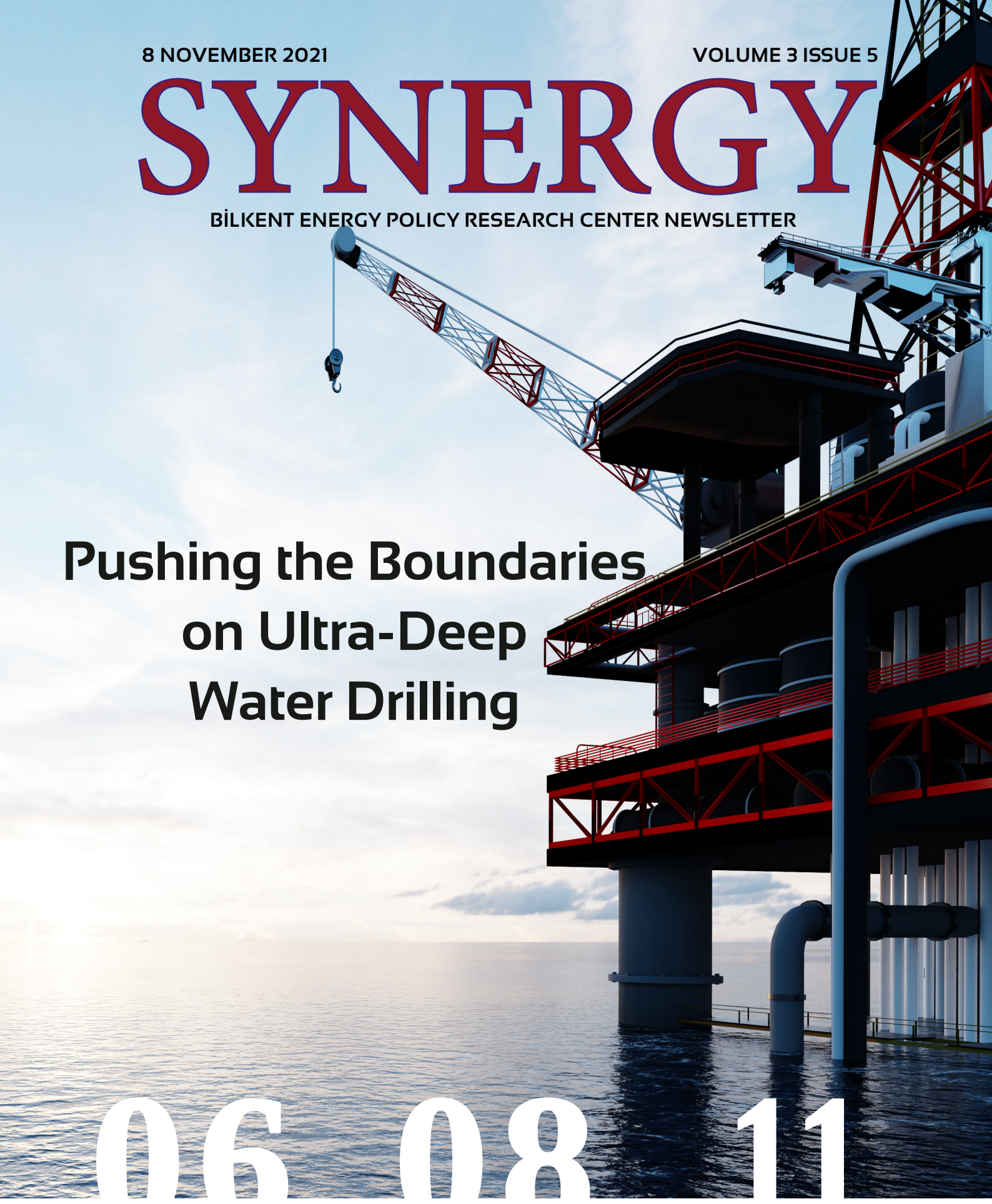

Pushing the Boundaries on Ultra-Deep Water Drilling

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In This Issue...

BRENT OIL	85.17 $/BL	GASOLINE	8.49 ₺/LT
USD/TRY	9.81	DIESEL	8.27 ₺/LT
EUR/TRY	11.35	FUEL OIL	7.40

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Energy Policy Research Center

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Is It Time To Push The Boundaries on Ultra-Deep Water Drilling?

Alpcan Gencer

The fiscal year of 2020 was certainly rough on the financials of energy companies, specifically those of oil&gas firms. The unexpected fall in the oil prices and duration the prices stayed at those levels had numerous negative effects on energy firms' fiscal balances and future business plans. One of the most attractive aspects of oil firms was the generous dividends that attracted institutional and retail investors seeking a good return on their investments. Naturally, the high demand for the stock also led to content shareholders. However, 2020 led these firms to follow different approaches to their dividend strategies. Some went the way of cutting their dividends to promote internal financial discipline, while some went the way of modest increases on their dividends that were not on par with expectations. Of course, investor sentiment to both of these strategies varied greatly as turbulent as those times were.

Adding the environmental, social and corporate governance (ESG) concerns on top of financial constraints, the $80+ barrel combined with a recovering global economy gives the energy firms a golden opportunity to win back investor sentiment and reshape their operations. Naturally, to tweak their earnings-per-share statistics, the producers will focus on profiting off the lowest cost barrels and creating a comeback story. Most retail investors do not care whether the profit is coming from the world's deepest well or the shallowest one; they focus on one thing- the return on their investments. Against this backdrop, there seems to be a global producer consensus forming to keep barrels at reasonably high levels for some time. On a different note, technology is progressing faster than most can adopt, and previously unviable reserves can now be drilled into and be brought onto the market. So when might the next record-breaking ultra-deepwater well-becoming?

Engineering-wise, ultra-deepwater wells are extremely complex operations. It's also not unusual to see producers of subsea equipment also utilizing military-grade technology. Considering this, one can easily imagine that the cost of the equipment utilized is of immense amounts. Logistics are also another hurdle that companies have to deal with, adding the geographically remote and harsh nature of ultra-deepwater well locations globally. Increased lead times that lead to prolonged downtimes and the establishment of

intricate logistical hubs at such spots add up to create one giant enterprise. The expenses to be undertaken and the job to be accomplished is generally greater when compared to shallow water projects. As most of the fields at such depth are untouched, some gems of fields are probably out there to be discovered, and the prospects of ultra-deepwater drilling projects serve to create long-term value for these energy firms. But, to take such liability of engaging in these projects, the energy firms must determine that the oil prices will be staying stable at such levels for the foreseeable future. Additionally, the cash flows must have balanced out by then to weather any possible fluctuations in the prices.

Looking at it from another perspective, the recent push for climate-friendly development scenarios and activist investor pressure at the energy firms have had vastly visible effects. Not only are individual companies finding it harder to raise cash through banks and financial institutions, but even some of the major names of the private equity industry have also had tough luck raising capital for their hydrocarbon energy businesses lately. But on a different note, there has been a rise in private investors funding such business. Of course, the names are usually High Net Worth Individuals and prefer to remain confidential. The expansion of shale drilling in the U.S. has even caused discomfort in some local towns, and tax rates for the domestic drilling projects have been on the increase recently. Offshore projects are usually out of anyone's sight, and the developing nations in their vicinities are usually highly welcoming of such projects. Another point to note would be the experience gained in offshore drilling projects also led to easier transformation to offshore wind projects, as had been the case in the U.K. A considerable part of the logistics are similar to one another, and given that some of the oil majors have resorted to offshore wind energy as part of their decarbonization plans, offshore operations will likely be favored in the future. So when can we expect to see these projects back on the agenda again? Probably not any time soon, but the conditions are certainly coming back together to set the stage for them.

Ahead of the US-Iran Negotiations:
An Attempt to Revive JCPOA

Ali Berk Bilir

Since the Iranian Revolution of 1979, Iran has been repeatedly targeted by US-led sanctions. Sanctions imposed by the US in 1979, 1987, and 2005 aimed to damage Iran's economy and its stance in world politics, especially in the Middle East. Yet, Iran is rich in terms of natural resources. It has the second-biggest natural gas reserves and its fourth-biggest oil reserves in the World. Iran's riches allow it to lessen the damage caused by the sanction to some extent, but sanctions still hurt the economy in Iran and its citizens. United States's objection to Iran's nuclear program was/is a prominent reason for sanctions.

Although the Joint Comprehensive Plan of Action (JCPOA) relieved some of the pain caused by the sanctions in 2015, President Trump's criticism of the agreement led to his eventual withdrawal from the agreement in 2018. The US embraced Trump's "maximum pressure" approach and put sanctions on Iran once again. Although other signatories criticized the decision of withdrawal, its repercussions for Iran were real and visible. However, Joe Biden promised to revive the JCPOA during his campaign, which has not been realized yet. The negotiation table broke off time and time again for 1.5 years, and Iran now has a "hardline" incumbent President. Regardless, the talks began once again on November 29.

Iranian President Ebrahim Raisi stated in his UN speech that he remains open to negotiations on the nuclear accord if sanctions are to be lifted. Biden also gave his remarks to support negotiations but also stated that “the US is committed to preventing Iran from getting a nuclear weapon.” Yet, Raisi and Foreign Ministry officials said that they would adopt a "smart engagement" approach. They also suggested that the US should be more "realistic" in order to reach an agreement. It has been known that Raisi and his team were not satisfied with earlier negotiations. Therefore, it would make sense to see a tougher Iranian stance in November 29 talks. Regardless of Iran's more tough stance, the Biden administration did not seem impressed by them. US officials believe that the “seventh round would pick off where the sixth round left off.” They also warned Iran that they should seize the opportunity to solve this issue diplomatically. However, Iran passed a law in December 2020 mandated to produce 120 kilograms of uranium enriched to 20 percent every year. The then-president Rouhani even criticized this law, stating that it would narrow the space for diplomacy, which it did eventually. Regardless, the Supreme Leader of Iran, Ali Khamenei, stated that Iran would comply with the US if sanctions could be lifted. Furthermore, the law itself says that the required actions can be suspended if "certain sanctions relief envisioned by the nuclear deal is granted," wrote Kevin Davenport from Arms Control Association. Coming to November 29, both the US and Iran aims to accomplish their goals. For Iran, this would be lifting the sanctions, while for the US, it would be reviving the JCPOA

and do not allow Iran to enhance its nuclear capabilities that, or even worse, build a nuclear missile.

President Trump's sanction to Iran caused a recession in Iran's economy, increased inflation, limited foreign investment, and, overall, created unrest inside the country. In May 2021, then oil minister Bijan Zanganeh said that "investments in Iran's energy sector would have been double of what it was last year." In a report written by the Foundation for Defense of Democracies, it is stated that Iran's GDP enjoyed %12.5 growth in 2016 and %3.7 in 2017. However, after the US withdrawal, it saw negative growth of %5.4 in 2018 and %7.6 in 2019. Although GDP grew %1.7 in 2020, the economic condition in Iran is nowhere close to well. President Trump's sanctions aimed to bring Iran oil export's to zero. In 2019, Iran's oil exports fell by 90%, which pushed Iran to sell its oil in a "grey market." In September 2021, new Iranian oil minister Javad Owji said that Iran is determined to increase its oil sanctions and criticized the US for using oil as a political tool. Despite the shock in oil prices caused by the US withdrawal, the oil market is slow to react to a prospect of a deal. Even so that, Goldman Sachs' head of energy, Damien Courvalin, stated that a possible deal would mean higher prices, not lower as it would lift the uncertainty over the market. Ahead of earlier talks where Iran had a moderate government, the experts did not expect much to change, so did the oil market, which remained more-or-less, not affected by the negotiations.

In the upcoming talk, chances for a revival of JCPOA are indeed possible but likely to be delayed to further dates. Although the Iranian economy is suffering under the US sanctions, they are now more cautious with their dealing with the US after President Trump's withdrawal. I believe trusting the US should be hard to explain in domestic politics, even harder for Raisi given his hardline approach to the US. Furthermore, the Iranian side wants all sanctions to be lifted in order to reach an agreement; however, the Biden administration would not be likely to accept that request. Besides, Biden himself faces increasing trouble at home. His "build back better" plan was blocked by Democrat senators Joe Manchin and Kyrsten Sinema. The Biden Administration's handling of Afgan evacuations, rising inflation, and overall bad performance on the economy was also criticized heavily. On top of that, the Democrats suffered defeat on November 2 off-year elections. Therefore, while that much troubled and given Republican Party momentum ahead of 2022 midterms, Biden would less eager to give compromise to Iran.

Impact of Celebrities on COP26

Başak Bozoğlu

Last week, the United Nations' 26th Climate Change Conference (COP) was held in Glasgow, Scotland. In the conference, 120 countries were attended to discuss climate change and to answer how countries will fight climate change. The conference, attended by world leaders, negotiators, journalists, campaigners, activists, and business people, greatly impacted the media. The remarkable point was that celebrities and famous business people often attracted more attention in the press than politicians.

David Attenborough, who is mostly known for the documentary series 'Our Planet,' and 'David Attenborough a Life on Our Planet' and former BCC chief, attended the COP26 to raise awareness about climate change. The 95-year-old Attenborough has informed people about many issues such as global warming, deterioration of ecosystems, and reduction of biodiversity with the documentaries he has made. Attenborough has worked with all his knowledge on producing new content to inform people. In COP26, Attenborough made seven minutes speech and said that “people were the greatest problem solvers to have ever existed on Earth." He also called leaders to consider the younger generation to find solutions, using media effectively for funding, creating projects that governments can use to address climate change.

Leonardo DiCaprio as a U.N. climate change representative attended the Kew Carbon Garden exhibition in COP26. As a worldwide known Hollywood star, DiCaprio uses his media power to draw the attention of his fans to the conference. The actor tweeted that “The climate crisis is here. #COP26 must be a turning point to protect people and the planet. Leaders, the world is watching and urging you to rise to this moment. There’s no time to lose. #ActNow.” An Academy Award-winning actor also made a speech for defending climate change as the most urgent threat facing enter species at the 2016 Oscars. Thus, The Leonardo DiCaprio Foundation worked on public campaigns and found funding through media attention to protect diversity and ocean and forest life since 1998. The foundation's aim is to support projects all around the world to restore balance to the ecosystem, protect wildlife and climate resiliency. Foundation, which has funded over 200 projects and supported 132 organizations, continues its activities in 50 countries.

Furthermore, Stella McCartney, who is a world-known fashion designer, joined COP26. McCartney's company, a brand value of more than 250 million dollars per year, is one of the first fashion giants to implement sustainability in the fashion industry. The most crucial move of the brand is to remove all animal-based resources such as leather and fur from its collections. Being aware of the fashion industry's impact on the environment and climate change and trying to act for the industry's transformation, McCartney held the 'Future of Fashion: Stella McCartney' exhibition at COP26 as part of the Prince Charles Sustainable Markets Initiative (SMI). McCartney said, "I want to show my industry that you can have a business model working in a cleaner, more sustainable way. You don't have to kill and don't have to cut down rainforests, and you can have a sexy, well-designed, lasting, beautiful bag. I'm here to show that you can still make money." McCartney is a successful example to show how one person impacts the massive industry with her actions and voice.

During the conferences, world-renowned and productive people took part in various events, but these celebrities were not talked about as much as a single name; Greta Thunberg. Thunberg is a young Swedish activist who first started protests on climate change-related issues in August 2018. Thunberg, who first caught media attention with her "School strike for climate," has been seen as a climate activist ever since. The aim of her strike in 2018 was for the Swedish government to reduce carbon emissions by the Paris Agreement, so Thunberg decided not to go to school until the Swedish general election. More than 20,000 students participated in the strike in 270 cities. After her recognition with the increasing number of followers on social media, Thunberg participated in the climate protests in Europe. Then, Thunberg became a worldwide known public figure with her speech at the plenary session at the COP24 conference held on 12 December 2018. Greta Thunberg's most significant breakout happened at the U.N. Climate Summit in front of the world leaders angrily by saying, 'how dare you, you stole my childhood.' Thunberg, who turned from a media figure to a climate activist at 15, has 13.5 million followers on her social media account today. Over the years, Thunberg has been nominated for the Nobel Peace Prize three times.

So, is Greta a climate activist or just a public figure? Seeing

the COP26 as a colossal failure, Greta said, "What more does it take for world leaders to wake up?" again with her aggressive statement. She described the U.N. climate change summit as a "two-week-long celebration of business." Greta said that “net-zero by 2050. Blah, blah, blah. Net-zero. Blah, blah, blah. Climate-neutral. Blah, blah, blah. This is all we hear from our so-called leaders. Words that sound great but so far have led to no action.” Greta argues that world leaders participate in a public relations event with their beautiful but non-sense speeches to make promises and announce goals about climate. However, one of the research demonstrates that there has been no research to show how Greta Thunberg impacts climate activism in motivating collective action on climate change. Until now, Greta does not talk about any constructive solution and what needs to be done, she only says we are the solution to the issue, but she does not produce or attend any solution or project. Greta's aggressive actions only depend on her speech in front of public speeches, but she avoided getting into the detail of what action should be taken, saying, "it is nothing to do with me." Therefore, Greta has nothing to say about solutions for climate actions while she encourages people to organize protests.

With the power of the media, every person can become a public figure in today’s world. Greta initially gained a lot of attention but failed to turn it into an active movement. Aggressively attacking world leaders on climate issues that the world needs to find a solution for, such as climate change, is not a solution but creates polarization between the younger generation and the rest of society. If Greta had used the popularity, she gained at a young age and her power to speak in the United Nations to support the projects produced, fundraising, and support the developments in the field of education. Instead of all of her laughing and sarcastic speech in COP26, she can attend and become a part of a real solution to climate change. Then, she could have turned into a young woman who deserved to be nominated for the Nobel Prize.

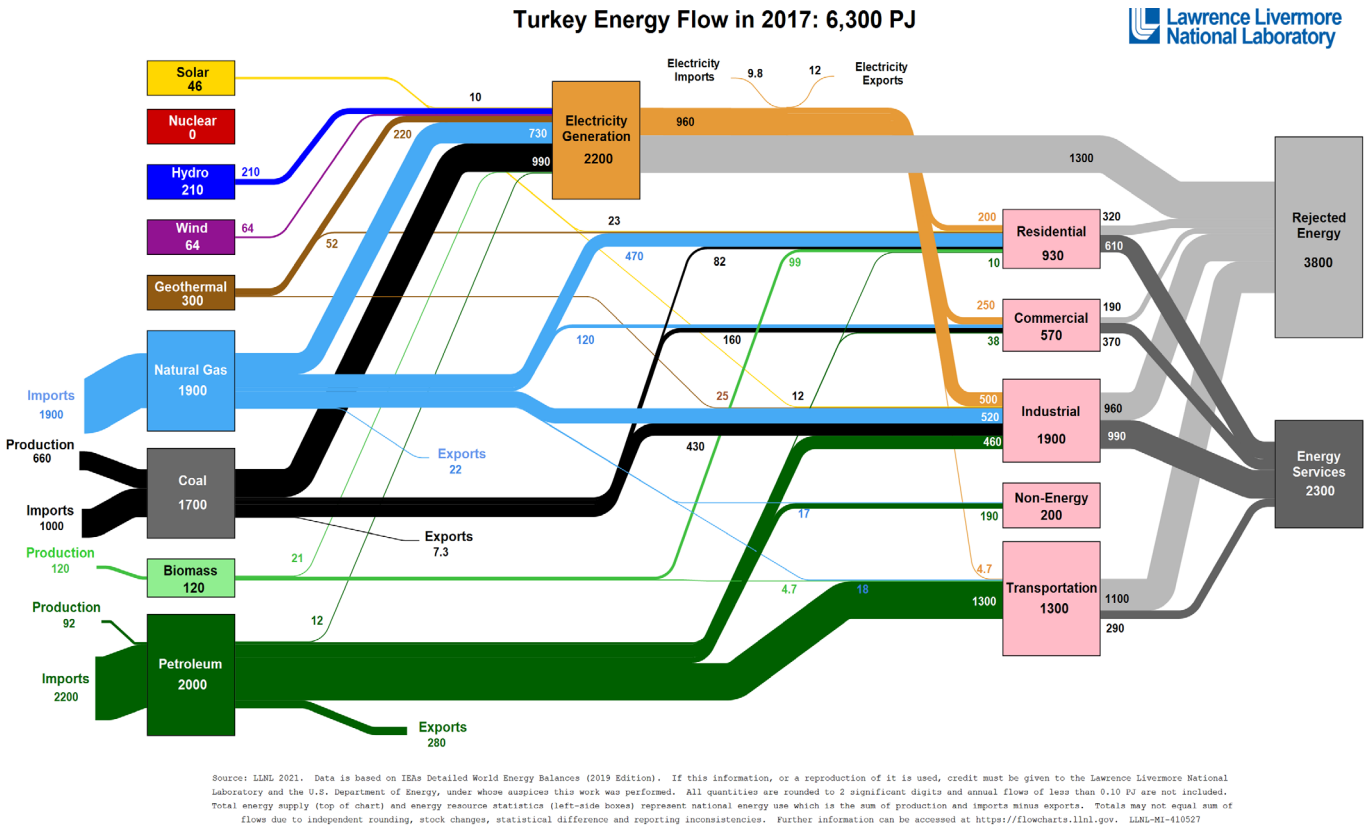
Energy Flow Charts Explained

Halil Öztürk

Every day we use energy to be able to satisfy our "life" necessities like an economy that needs power from energy to produce and consume. Furnishing the energy demand of our bodies with the right amount of energy, which is measured in general by calories, affects our health directly, and correspondingly, our daily lives. Likewise, if we accept the following statement: energy is indispensable to an economy, then analyzing the energy input-output of the economy becomes indispensable to keep it healthy, one of which is using visual energy charts. To make life easy, there are different types of charts chosen based upon however an analyzer wants to investigate; even though some of them may use the same data, their representations are different. To exemplify, some use matrices on which intersection of column and row values give specific values; others simply give line charts, or pie charts, and so forth. It is quite normal that the features of these charts may change from provider to provider preparing for a specific goal, generally. Governments due to the large scales of the market, firms in the market to maximize their own values, some organizations to analyze the market for specific reasons such as seeing CO2 emission rates, the existing status of natural resources, modeling energy in an economy, etc. can be given as examples to the institutions providing these charts.

Of the importance of these charts, we have already drawn an analogy between human body health and health of an economy based upon energy supply and demand and already accepted the indispensableness of energy to an economy; therefore, energy charts automatically become indispensable as well. To see better, instead of numerical tables, visual charts may help examine the energy market more easily and may help quickly make an approximation for certain situations.

One of the provider institutions, whose charts are the main topic of this paper, is Lawrence Livermore National Laboratory (LLNL) which prepares energy flow charts called Sankey Diagram at times. To talk a bit about LLNL to create a background, LLNL was established in 1952 at the height of the Cold War to meet urgent national security needs by advancing nuclear weapons science and technology. In its facilities, LLNL has worked on laser systems, dark matter, genomics, climate change, and so on with an about $2.206 billion portfolio with 2019 numbers. To talk about LLNL



Source: LLNL 2021. Data is based on IEAs Detailed World Energy Balances (2019 Edition). If this information, or a reproduction of it is used, credit must be given to the Lawrence Livermore National Laboratory and the U.S. Department of Energy, under whose auspices this work was performed. All quantities are rounded to 2 significant digits and annual flows of less than 0.10 PJ are not included. Total energy supply (top of chart) and energy resource statistics (left-side boxes) represent national energy use which is the sum of production and imports minus exports. Totals may not equal sum of flows due to independent rounding, stock changes, statistical difference and reporting inconsistencies. Further information can be accessed at https://flowcharts.llnl.gov. LLNL-MI-410527

energy flow charts, the charts are got ready not only for the United States but sometimes also for many other countries. The data is based on IEA's Extended World Energy Balance editions, and as preparing the charts, the First and Second Law of Thermodynamics are taken into accounts. The First Law states energy is always conserved, and The Second Law states transferring and transforming energy degrade its quality. The charts basically show in an economy, what the sources of energy production are, how the consumers are using energy, and how much energy is wasted.

LLNL Energy Flow Charts, by its easiness, to understand scheme make a difference compared to many other energy flow charts and by its creator's brand name, credibility. Now, time to see how to read these charts; we are going to continue through bullets:

Left Hand-side: the resources the energy comes from, such as Coal, Biomass, Solar, etc.

Right Hand-side: the amount of energy in the parts of the energy system: residential, industrial, transportations, and commercial.

Most Right Hand-side: rejected energy which turns back to the environment and has no economic value (remember the First and Second Laws of Thermodynamic); service energy which is the commodity actually demanded, consumed.

So as to show how to read them well, we can look at an example:
Let us get some points from the chart for Turkey in 2017:
Turkey generated most of its electricity from natural gas and coal.

Although Turkey imported most of her petroleum, natural gas, and coal, she also exported some of the amounts of them.

Industrial and transportation usages were the greatest parts energy went to.

The rejected energy to energy services ratio was 38/23=1.65, and the ratio for transportation was 110/29=3.79.

We can multiply the points, or instead, we can use the chart based on why we use it.

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