

SYNERGY

Bilkent Energy Policy Research Center Newsletter



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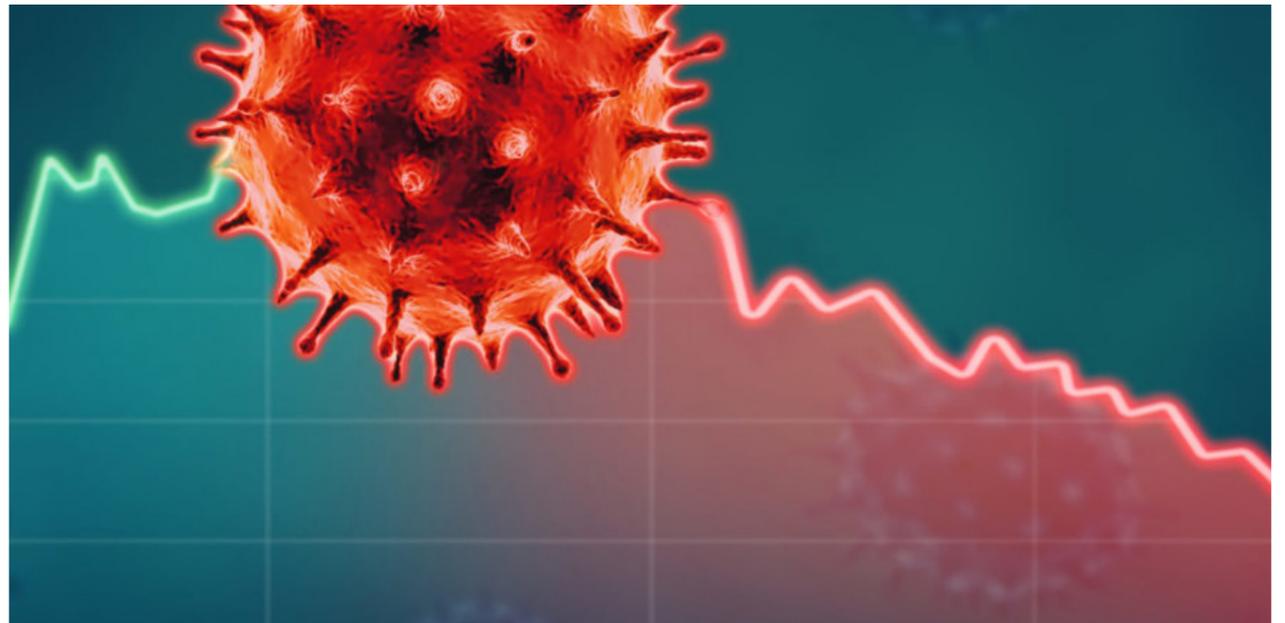
Another Kind of Beast

Every crisis is different. This saying is also true for the current turmoil. There are similar things compared to the past, but unique dynamics are developing within this crisis. How it will shape the energy landscape is not certain yet, but economies will not prosper from it.

The first question is regarding the demand. It is two folds. The first one is whether demand is like a light bulb; you can just switch it on or off. The alternative is whether demand has inertia like a big truck. Demand takes time to slow down, and it takes time to ramp up. The consumer side may hit the brake, but the slowing down is not an instantaneous event but a process. This process will probably create new kinds of behaviors and attitudes on the consumer side. It will take time for the consumer to forget this trauma-induced learned behaviors.

The second question is the definition. That is not a financial crisis or a banking crisis. But it may have elements borrowed from both. At the most basic level, the building tensions point to a "cash flow crisis." If there is no certainty in cash flow, consumer confidence will be hurt dearly. The whole problem is a pandemic induced government-controlled economic suppression that may lead to a cash flow crisis. Whether the oil price war was triggered by the fear of an upcoming demand drop or not is a question demanding an answer.

The third question is the status of expertise. You can watch and



read all sorts of experts, but they can not help themselves, and the best idea that may come out of them is not something new. Experts are the experts of a particular domain. During disruptive events like these, they can not extend their domain knowledge easily or say something other than what they studied in the past. If we concur that these crises are something different, experts are also victims of these crises. In layman terms, their expertise collapses.

The fourth question is how responsibilities shift. The modern state is a beast in between a scapegoat and leviathan. Nevertheless, it is a collective mechanism that provides and carries the responsibility to provide essential services or to assure basic services are provided. It can handle extreme events. This intense event is way beyond a state's carrying capacity, whether it is China, the US, or Italy. So it calls the citizens to take their responsibilities to run current carrying capacity without collapsing basic services effectively. Contrary to the sentiment of state dominance, coordination and enforcement

become the significant issues.

The fifth question is the need for coordination and resolving information asymmetries. In all crises, the most common pattern is the need for information. In fact, in most of the past energy crises, we see the creation of new information or statistical data warehouses or processes. Since a crisis hits all sides of civilization and responsibilities fall back to the people, everyone has to have the same information to act effectively. States' information awareness is not enough; everyone should be informed.

The six questions are the complexity of the solution at first glance. Since expertise collapse and information vacuums had to be filled, a new kind of expertise and knowledge has to be built quickly. Even with the urgency, it always takes time to find solutions. The system that the crises shook is tuned for years of studies and intensive testing to come up with a solution. So there is the inertia of "information building." Therefore quick and easy expectations are nothing more than a mirage.



The seventh question is the dynamics of extreme events. Like the double pendulum in physics, this is chaotic. Extreme events generate chaotic futures.

The oscillation of economy changes. Human activity attached to economic changes. The expectations attached to human activity changes. All three arms of this global pendulum are now oscillating detached from past patterns. So future projections need a different vision and methodology like more risk management than risk forecasting.

As there may be more questions, the reader needs answers too. I am not an expert on the whole economy, and even if I am an expert on something, this writing may have taught you that my expertise is also no use for the current event.

Energy demand slump globally will persist for some time. The inertia of energy demand is significant, and it takes time to stop. This energy crisis -or energy industry crisis - is a mixture of past events, but cash flow is also an essential part of the energy industry, which is very capital intensive. So if

this a global cash flow crisis, oil and gas sectors will be hit hard, more cash injections, if done by government programs, may mean fewer markets. The market brutality, as seen from the collapse of OPEC+ is severe, and there will be a call and push for regulation or regulatory mechanism.

Oil crises created emergency stocks for OECD countries, and these crises may create a different kind of obligatory stock -maybe cash or renewable equipment?- for an emergency because emergency and stock planning are brothers in arms.

New kinds of institutions like OPEC+Texas may not look like a possibility, but there are always different paths to the same results. Public expectations from renewables and clean technologies will change. To become mainstream, they have to carry as much weight as the fossil fuel industry. So we will probably see maturation in clean energy.

The energy events to follow Covid19 may continue for 3-5 years. Examining past events, such extreme situations generally trigger different things

in different parts of the world, and they happen with random delays. If an oil market regulation comes before these events, we may be safe to talk about a price band. Otherwise, there are no limits to imagination.

Most importantly, a new energy landscape is formed. The biggest question for me is whether a "Green Development" plan is more feasible or less likely. Employment wise these crises strengthen the position of coal. The fear factor in all crises makes it harder to move forward initially despite the increased urgency for new policies. The solutions for a green future has to adapt to the Covid19, and that will take time. Because priorities will shift from "closing" or "shutting down" to "increasing employment," the narratives of the past may fall on deaf ears. If effective roadmaps and innovative policies find their ways to the parliaments around the world, not in the short run but the long term, another energy transition will be gaining more steam than pre Covid19 world.

Bariş Sanlı

BRENT OIL	26.62 \$/BL	GASOLINE	5.31 ₺/LT
USD/TRY	6.50	DIESEL	5.40 ₺/LT
EUR/TRY	7.20	FUEL OIL	2.40 ₺

Saudi Arabia, the United States and the Oil Price War

The remarks made by Russia and the United States last week regarding the increased dialogue with Saudi Arabia highlighted a new reality. In the current mix of the oil price war, Saudi Arabia has emerged as the most effective player that has extensive influence on which path the contentions will follow. The U.S.'s added pressure on Saudi Arabia by the reiteration of its calls for slashing output has been so far ignored by the Saudi's, and with the condition the U.S. is in right now considering the COVID-19 outbreak, U.S. has little room to leverage its position.

So long as the outbreak insists on growing at its current rate in the U.S., the U.S. will most likely not be able to mobilize the financial resources to aid its energy sector while following a protectionist path and instead utilize the lowered energy costs for supporting its real economy during the current turbulent times. The rumored intended protective measures can only go so far in being effective for our scenario.

A proposed tariff on imports of Saudi Oil would depend highly on the rate to be applied, given that Saudi's have almost burned the bridges with their intentions on pushing the U.S. out of the market and could be willing to pay the premium in certain cases. It would be a good time to note that the U.S. has added a significant amount of the excess production glut in the recent years and its consistent pattern of increasing output might have played an important role in sparking the Saudi's current decisions, especially when you consider that the kingdom relies heavily on its oil exports for funding its budget. In the face of such a spiked tariff, the Saudi's can isolate the U.S. market from its export locations but flood the export markets of the U.S. to again withdraw the share of U.S. companies from the international oil market.

Other proposed measures by the American senators have so far ranged from trade restrictions all the way over to sanctions and



the removal of U.S. forces from the kingdom.

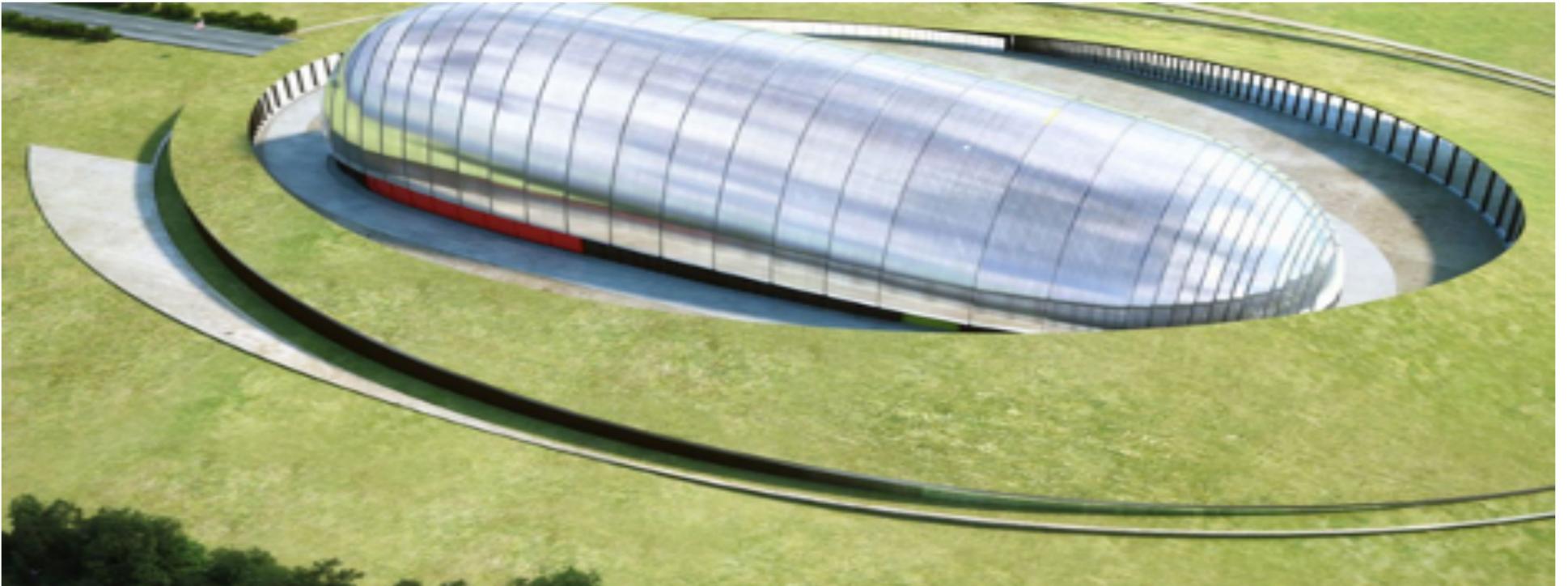
While seemingly rough at first sight, such measures would likely not be implemented in full scale and remain permanent. The strategic location of the kingdom and the current global supply glut and excess production capacity in numerous goods would likely enable Saudi Arabia to quickly offset and replace the measures that might be implemented against itself. This would hold true for goods that have replacement alternatives and would likely not include high-technology goods/services. The strategic location of Saudi Arabia in the Middle East, with its proximity to multiple straits, gives large leverage for the kingdom as a geopolitical factor that can not be replaced.

Another point to note would be that even if the U.S. does succeed in forcing/convincing Saudi Arabia to decrease its production or call a truce in the current oil war, then it would not change the fact that Saudi Arabia would still remain the world's largest swing producer and still hold the cards in numerous oil-related matters globally. Security-wise, Iran, which remains as the regional rival of Saudi Arabia, is in no condition to confront Saudi Arabia on a meaningful scale due to its domestic COVID-19 outbreak. Additionally, knowing the current oil price war is hurting the

U.S. economy more than a potential disruption in the oil flows out of the straits, Iran would not be pursuing such aggressive behavior, even if it had the chance. So speaking in terms of security in the gulf, the removal of troops does not constitute a valid threat in the short-to-mid term.

Thus, such measures by the United States would not be abruptly implemented and the most logical step the U.S. could follow at the moment would be to extend credit terms with government-backing for its energy companies in the short-term to outlast the COVID-19's most volatile period as the current erratic movements of the financial markets has forced the retreat of the capital markets from providing credit flow across multiple domains to companies. Following up to that with a combination of incentives for technological developments in the oil&gas supply chain and financial support packages that can range from tax breaks to deferred lease payments could gain invaluable breathing room for its firms as the current oil price war is distressing the economies of all of those involved and can only last for a defined period of time before the domestic budget/trade problems start floating in a major scale.

Towards a different future: Small Modular Reactors



Most of the countries try to meet the growing population's energy demand with better use of energy sources, but some strategic changes in the energy mix and the new energy sources' applications should have remained on the list. As a carbon-free energy source, nuclear power has a significant share of worldwide electricity generation. In terms of meeting energy demand; financial advantages in the long-term; quantity and quality of the human capital during the infrastructure phases; and positive contributions to the climate change and energy security, nuclear power is evaluated as a necessity in the energy mix of the countries. Today, there are about 450 nuclear power reactors in operation while the construction of 53 reactors is continuing. However, nuclear power industry has decided to change its conventional methods with the help of advanced Small Modular Reactors (SMRs). The SMRs are recognized as one of the critical parts of the countries which have some goals to develop safer, cleaner, and more affordable nuclear power industry. The SMRs have a variety in terms of size, technology, and deployment, and they offer several advantages to the countries and investors. Being "small" and "modular" brings some significant benefits, such as less commissioning time.

When we make a basic comparison between the SMRs and large

conventional reactor designs, it is seen that the SMRs are modular to be constructed in a factory in easier and faster ways. Moreover, they are designed to be ready for transportation from the factory to the nuclear power plant (NPP) site by boat, truck, or railway. It offers a big opportunity to the manufacturers, transporter companies, and construction site staff. The SMRs have several design characteristics, and this feature gives the advantage to diversify them quickly. Today, there are around 50 SMR designs in more than ten countries either for energy supply or for providing various industrial demands. These miniature reactors' capacity can be in a range between a couple of megawatts and hundreds of megawatts in contrast to the larger conventional ones that generate more than 700 MW(e). However, the SMRs mostly produce less than 300 MW(e). That is the main reason why they are called "small."

From the safety perspective, by using advanced fuels and developed material utilization, the risk of a nuclear accident will be minimized, so the reactors will be less affected when an accident occurs with possible radioactive contamination.

Beyond these, economics and financing of the SMRs emerge as another underlying reason for why we should consider them. Technically speaking, the NPPs' construction and operation costs

are based on how many similar units are likely to be built. The fundamental reason is that when a comparable unit is delivered several times, the "economy of multiples" is happened. Moreover, the economy of multiples is directly related to mass production, which is the case for the SMRs. The plant size, the number of units to be built, the site location, vessel cost, turbine cost, and working hours determine the cost. However, by putting the SMRs into operation, many companies will achieve economies of scale regarding the production and maintenance at a lower cost per megawatt. In brief, an advanced SMR design will result in fewer components and overnight costs, and its modularity will actualize the standardization of components and design while it is setting up a significant substructure for the economies of mass production. Just three days before, the International Atomic Energy Agency (IAEA) has announced that a three-year Coordinated Research Project which focuses on the economics of SMRs. The project participants will do market research and competitive landscape analysis while they are doing the planning, forecasting, and financial valuation.

In general, the nuclear industry faces some main nuclear-specific risk factors such as unstable public support (sometimes contrary public acceptance), risks from the policy and regulatory

body, the uncertain cost of decommissioning, and radioactive waste. All these, naturally, put some pressure on the investors even if nuclear energy is known as advanced and clean technology. But on the bright side, they are designed for a high level of safety in the event of a malfunction. It means the small and modular size and more passive safety features contribute to the countries that have smaller grids and with less experience of nuclear power like Turkey. But, this is incompatible for the large NPPs.

In 2018, the IAEA organized an advisory group as known as Technical Working Group on Small and Medium-Sized or Modular Reactors to discuss the future of SMRs. In addition to these efforts, in 2019, the US Nuclear Regulatory Commission has authorized an early site permit to Tennessee Valley Authority for the possible construction of SMRs; and Saskatchewan and New Brunswick agreed to promote the SMRs and elaborate the economic potential of Canada. It wouldn't be wrong to say that American company Nuscale became the pioneer of the SMR studies when it took first and only design certification review by a regulatory body-the NRC. Moreover, in March 2020, Rolls-Royce and EUAS International ICC have signed a Memorandum of Understanding to carry out a study to evaluate both the technical, economic and legal applicability; and also the possibility of joint production of the SMRs. That is one of the big signs of progress Turkey achieved.

As it is seen, SMR is a new and high-level topic. Still, at the same time, it is an emerging technology that will play an incredible role in the nuclear power industry and meeting increasing global energy demands with cleaner and safer ways. We will see what will happen in the coming years that are shaped by these reactors. Who knows, maybe in the future, all cities will have their SMRs...

Yazgı Nur Akın



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ENERGY CRISIS AND WORLD OF ENERGY

BY BARIŞ SANLI

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bilkenteprc.com
eeps@bilkent.edu.tr

Russian Government Takes Rosneft Shares in Venezuela

While the energy sector was focused on the Oil Price War between Saudi Arabia and Russia, interesting news came from Venezuela.

On February 18, 2020, The United States had imposed sanctions on Rosneft Trading SA to cease the support of the Venezuelan president Nicolas Maduro. The sanctioned company was a subsidiary of Russia's state-controlled oil company Rosneft, and it had a crucial role in trading Venezuelan oil.

On March 28, 2020, the company announced that it had ended its operations in Venezuela. However, what they did was selling their shares to a company that is controlled by the Kremlin.

After the announcement, the newly appointed Moscow's ambassador to Venezuela, Sergey Melik-Begrasarov, tweeted as followed: "Don't worry! This is about a transfer of Rosneft's assets directly to the Russian government."

According to The New York Times, Rosneft employees in Caracas have not been notified of any changes in their job status on Saturday, which also suggest operations may continue as usual.

The Russian government gambled to gain essential advantages. First of all, the government manages to secure the Russian assets from the volatile oil market in Venezuela by acquiring them in an aggressive manner, which would have been created tensions in the typical oil market. Since due to Coronavirus and



Oil Price War, this operation did not receive enough attention. Second of all, sanctions in Venezuela against Russian involvement over Rosneft automatically lifted.

In the future, if the United States decides to impose any further sanctions against Russians, they will have to target the Russian government directly.

On the other hand, the Chair of Atlantic Council Energy Advisory Group, David Goldwyn, has a different opinion. He tweeted as followed: "Now when Putin wants to play that chit, Sechin (Rosneft CEO) doesn't have to pay for it. Russia will hold the upstream assets, but its trading days are over for now. Victory for US Sanctions."

Upcoming days will show us which of the mentioned thoughts are correct. However, for Russia having control of Venezuela's heavy oil reserves remains a vital asset.

In January, Rosneft was accounted for about 440,000 barrels a day of exports, according to Bloomberg data. Last year Rosneft's 57% of trade was between India (to Russian refineries), and 41% was between China. So, it was helping the Venezuelan oil to flow these countries. Furthermore, the Venezuelan government was still owed around \$800 million to Rosneft of the \$6.5 billion loans.

Alongside that, as the most reliable ally to Russia and China among South American countries, Venezuela is a key factor in balancing the power of American hegemony in the region.

Both countries are continuing to support the Maduro government by providing constant humanitarian aid to the country. Recently, a medical team from China also went to Venezuela to help them deal with Coronavirus incidents.

Gökberk Bilgin

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Publisher: Bilkent Energy Policy Research Center

Editor: Gökberk Bilgin

Contact: eeeps@bilkent.edu.tr

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