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SYNERGY

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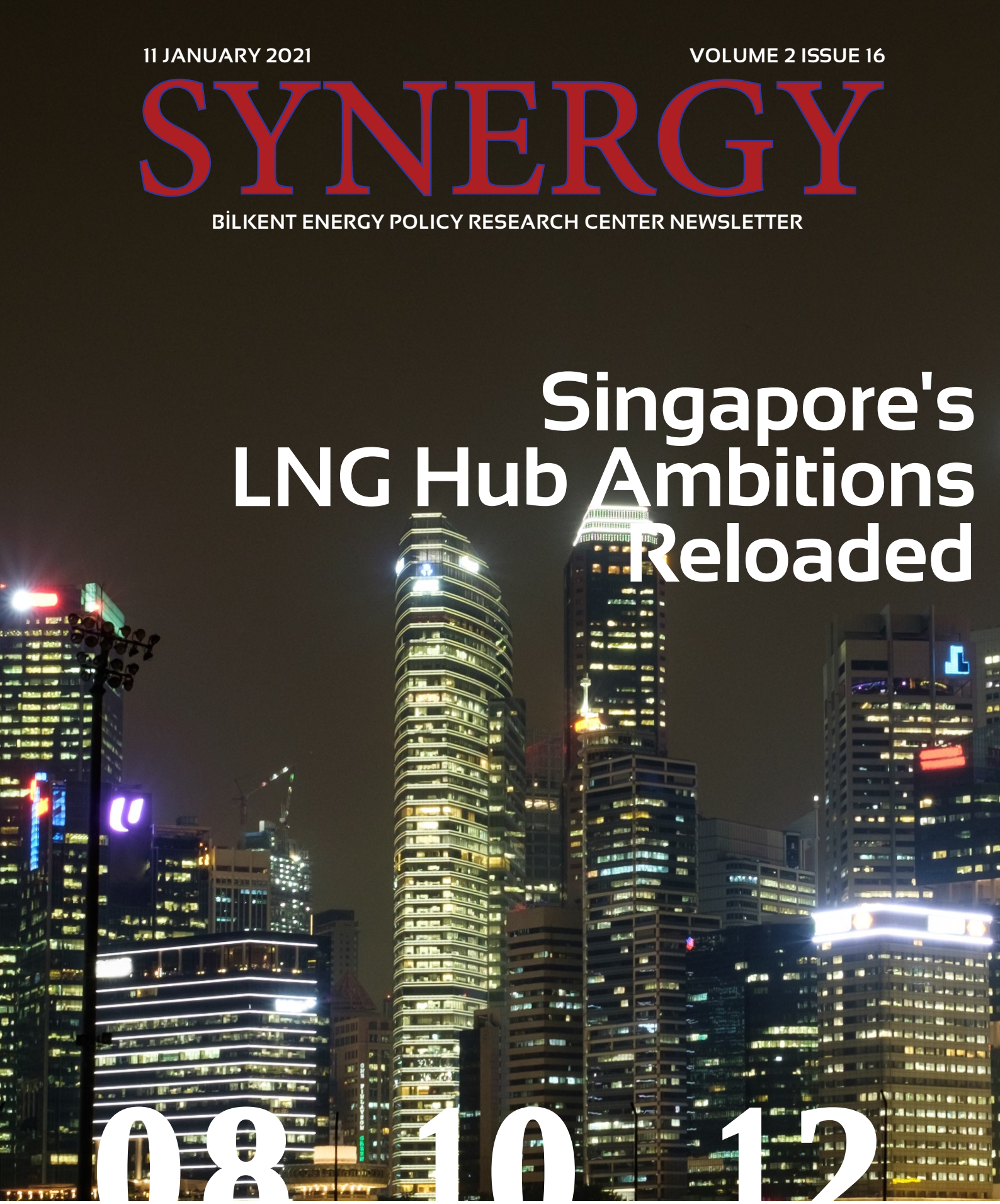

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In This Issue...

BRENT OIL	55.17 $/BL	GASOLINE	7.28 ₺/LT
USD/TRY	7.45	DIESEL	6.64 ₺/LT
EUR/TRY	9.07	FUEL OIL	4.19 ₺

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Energy Policy Research Center

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Singapore's LNG Hub Ambitions Reloaded

Sohbet Karbuz

"Concerned by the long-term reliability of its pipeline imports, Singapore has already been preparing itself to be completely dependent on LNG."

In 1891, M. Samuel & Co. (later Shell Transport & Trading) decided to use Singapore as a base for the import and distribution of kerosene from Russia. For this purpose, a fuel depot was built on the island of Pulau Bukom, located 5.5 km southwest of mainland Singapore. The depot opened on 16 September 1892 when its first shipment of kerosene arrived on board the SS Murex, the world's first bulk-oil tanker to pass through the Suez Canal. Today, the city-state Singapore is one of the world's largest refining and petrochemical complexes, the world's busiest bunkering port, and Asia's leading oil pricing and oil trading hub.

Capitalizing on its location as an established centre of finance and trade, its considerable infrastructure in place, its pool of highly skilled human capital in a multi-lingual environment, its internationally recognized legal, regulatory, and tax frameworks, and attractive fiscal policies, Singapore also aims to become a regional hub for liquefied natural gas (LNG) trading, major LNG bunkering supplier too.

Singapore and LNG

Singapore generates 96% of its electricity from natural gas. Over 85% of natural gas is used in electricity generation. And all the natural gas consumed in the country is imported. This is why the security of the energy supply has always been a major concern for Singapore.

ALL THE NATURAL GAS CONSUMED IN THE COUNTRY IS IMPORTED.

In 2019, Singapore imported 11 billion cubic meters of gas. Indonesia and Malaysia provided 71% of imports via pipeline, with the remaining 29% coming from elsewhere via LNG.

Gas flow from Indonesia is expected to cease in 2023 (when the 20-year contract will expire), and the future of gas imports from Malaysia is uncertain. Both countries will need their own gas due to rising demand. Concerned by the long-term reliability of its pipeline imports, Singapore has already been preparing itself to be completely dependent on LNG.

Singapore built an LNG import terminal

(Singapore LNG, or SLNG) on Jurong Island with a capacity of 3.5 Mtpa. SLNG commissioned its inaugural LNG cargo in March 2013 from Qatar, and the terminal has begun commercial operations on 7 May 2013. With capacity and storage expansions, SLNG's Jurong terminal now boasts 11 Mtpa regasification capacity and four storage tanks. There are plans for further expansion to bring the total capacity to 15 Mtpa. Further expansion in the form of second LNG terminals at a different site (a floating terminal) is being explored to become operational after 2025. This is more than enough to meet the country's gas demand.

There are four main reasons for expansion in LNG regasification and storage capacity:

First, to secure supplies for Singapore's growing gas demand.

Second, to transform into an LNG bunkering hub. Singapore's annual LNG bunkering capacity, which is expected to hit 1 Mt by 2021, is estimated to increase in the future further. In January 2021, Keppel Offshore & Marine Ltd has delivered Singapore's first LNG bunkering vessel, FueLNG Bellina, to FueLNG, a joint venture between Keppel Offshore & Marine and Shell Eastern Petroleum. The vessel will provide LNG bunker to LNG-powered vessels that call at the Port of Singapore.

> THROUGH SMALL SCALE LNG TRADE, A LARGE LNG CARGO WILL BE PHYSICALLY IMPORTED INTO SINGAPORE AND THEN RE-TRADED THROUGH SMALLER PARCELS DISTRIBUTED THROUGH SOUTHEAST ASIA

Third, to increase its small-scale LNG capability. The modifications to jetties are done to allow reloading of small-scale LNG carriers. The substantial storage capacity will enable buyers to purchase a wide range of cargo sizes so that Singapore can act as a small-scale LNG distribution center. The motive for this is the development of the small-scale LNG market in Southeast Asia. Through small scale LNG trade, a large LNG cargo will be physically imported into Singapore and then re-traded through smaller parcels distributed through Southeast Asia.

And finally, to position Singapore as an emerging LNG trading hub, a place for price discovery. The motivation for that was the fact that despite being the world's largest consumer of LNG, Asia does not have a trading hub for LNG. Historically, long-term contracts linked to oil pricing kept import prices high for the buyers in the region, and gas to gas competitions could not develop.

Path to become an LNG hub

In 2015, the Energy Market Authority (EMA), a statutory board under the Ministry of Trade and Industry in Singapore, announced that it is considering setting up a Secondary Gas Trading Market which will allow gas buyers and sellers to trade gas within Singapore, enabling domestic gas price discovery that reflects Singapore's demand and supply conditions.

In January 2016, the Singapore Exchange (SGX) launched a mix of financial instruments to allow more flexibility on the contracts for LNG. These contracts, based on a price index created in Singapore, were expected to become a physical delivery mechanism in Asia and hence a new benchmark for LNG pricing in Asia. Sling spot price indices for LNG (SLInG, short for SGX LNG Index Group, is also Singapore's most famous drink), was developed jointly by Energy Market Company of Singapore and SGX.

As a small country and a much smaller market for LNG, it could be difficult to create sufficient liquidity in a spot LNG market in Singapore, compared to the much larger potential Asian hubs, such as Shanghai or Japan. But although it handles much larger volumes of pipeline gas and LNG, the Shanghai hub is not really a hub because of its heavily regulated nature, including regulated pricing, whereas Singapore has been planned to be created as a true liquid LNG trading hub.

THE SHANGHAI HUB IS NOT REALLY A HUB BECAUSE OF ITS HEAVILY REGULATED NATURE, WHEREAS SINGAPORE HAS BEEN PLANNED TO BE CREATED AS A TRUE LIQUID LNG TRADING HUB.

Unfortunately, reality did not meet expectations. Singapore Exchange stopped producing and publishing its spot price indices for LNG in 2019, less than four years after its launch, dashing the hopes of becoming Asia's pricing hub for LNG.

There were several reasons. The limited size of Singapore's market did not generate enough liquidity to provide a transparent and legitimate price signal for wider Asian LNG markets. Despite its competitive advantage compared to other Asian nations, competition from more established pricing agencies (such as S&P Global Platts' Japan Korea Marker (JKM) was fierce. Moreover, Singapore lacks physical connectivity to larger gas markets in the region, and the existing connections (from Malaysia and Indonesia) do not have the reverse capability. It is argued that Singapore's capacity to establish an LNG hub is limited due to monopolization and state strategies surrounding market development in neighboring countries that are contradictory to the financialization of natural gas trading.

There are still hopes

Singapore government remains committed to developing Singapore as an LNG trading hub. With the opening of LNG plants in Mozambique and

Tanzania, Singapore could be a trading and distribution bridge between the sellers in East Africa to buyers in Asia, and hence play an intermediary step between suppliers and buyers. In addition to East African LNG, Singapore could also serve as Qatar's hub for LNG in Southeast Asia, at minimum as a storage hub.

Singapore has a world-class trading infrastructure already in place, and it has excellent institutions, it offers low geopolitical risk, it is situated in an ideal geographic location with deep and liquid financial and capital markets, it has an attractive tax and regulatory regime. Besides, currently, over 50 companies with LNG trading or business development have a presence in Singapore.

Another important issue is the increasing likelihood of becoming a new financial, equity, and commodity trading center in Asia, especially following the imposition of China's new National Security law for Hong Kong on 30 June 2020.

Note that Hong Kong was handed over to China by Britain in 1997 (after a century and a half of British colonial rule) under a "one country, two systems" framework valid until 2047, with Hong Kong existing as a special administrative region. Hong Kong would be self-governing in domestic affairs, enjoying a "high degree of autonomy." But by imposing the national security legislation in June 2020, China has granted itself the power to intervene in Hong Kong in any matter that China's government deems relevant to national security. The law has allowed the establishment of entirely new security infrastructure in Hong Kong. Since then, the developments in Hong Kong are not encouraging. There are building expectations that Singapore will eventually replace Hong Kong as Asia's preeminent financial center in a decade.

Finally, another recent development may also help facilitate Singapore to reach its goal of becoming an LNG hub: the creation of an LNG exchange (Abaxx Exchange) offering standardized LNG contracts, something lacking in the LNG business. In September 2020, the Singaporean authorities granted Abaxx Exchange to launch of an LNG exchange in the first half of 2021 (based in Singapore) that utilizes Abaxx Technologies Corporation software application, which might revolutionize commodity trading by leveraging Ethereum based smart contracts on an Ethereum-based distributed ledger. Final approval is expected to be received in early 2021. If major trading houses such as Glencore, Trafigura, or ICE are involved in this exchange, the likelihood of its success will increase tremendously.

In short, Singapore has not yet given up its ambition to become an LNG hub. Perhaps, the proponents of Singapore LNG hub will shout the lyrics of the song titled "I'm not giving up" louder: "even when nobody else believes, I'm not going down that easily, so don't give up on me."

The Schizophrenia of Energy Systems

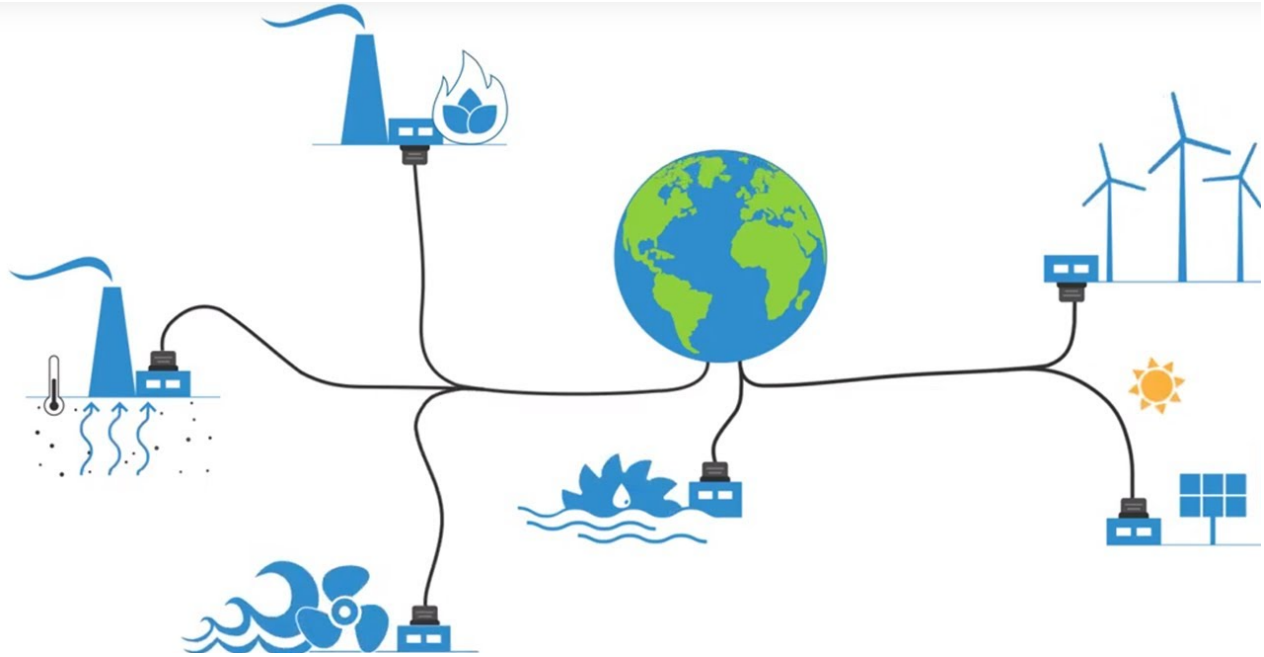
Barış Sanlı

The energy system is a mirror of human activity and livelihood. These tides have created disturbances in investment, protectionist policies, change in the status quo.

Commodities are having a bull year. My concern, as I previously stated, is the food prices. High food prices and low oil prices do not mix well in the Middle East. But we were not contemplating a pre-2008 like bull run either. Now the central banks are printing money like never seen before, and China is growing like 2005-2007 as if there are no covid related problems. So there are two diverging, very diverging trends. This generally collapses.

As we talked about Black Lives Matter movements and ramifications, we have seen the Capitol raid by white supremacists. A world in balance is

The "schizophrenia of electricity prices" was a term coined in one of the power economics texts. It was a very interesting phenomenon to have very low prices for months and suddenly experienced very high prices. It is as if electricity prices have bipolar mood swings. This winter, this analogy can be applied to LNG, grids, coal, and other commodities.



a very rare thing. One imbalance triggers another one, and that one triggers another one. Covid, unemployment, Trump all created a new dynamically erratic order. It is not likely to settle soon. Out of nowhere, we have seen Whatsapp assaulting individual freedoms nearly overnight. It seems like the end of an era.

The energy system is a mirror of human activity and livelihood. These tides have created disturbances in investment, protectionist policies, change in the status quo. China blocking Australian coal exports caused power outages in China, and coal price hikes around the world. Gas prices suddenly increased due to other problems. LNG prices have seen an unprecedented 30+$/mmbtu. Japan has panicked, Europe is about to undergo a cold period.

Last Friday, a split system event in Europe was even a more disturbing thing. The demand is not as strong before. The covid wounds are not healed yet. My fear is the underinvestment of electricity generators due to collapsing prices. This may create system risks that can not be predicted easily.

A few months ago, we talked about negative oil prices, never to rise again LNG price levels—no final investment decisions in LNG projects due to low prices. France is rejecting US LNG on the grounds of emissions. OPEC+ blunder that we thought prices would never rise again. Now, Saudi Arabia is unilaterally cutting one mb/d to sustain the OPEC+ agreement. It looks as if the political instabilities and sudden changes are infecting the energy realm.

Wherefrom now on? Growth is a priority, but growth needs predictability. Predictability is lost, and the disturbances started. I do not think volatilities or system problems will end soon. Our fossil energy system was built on the predictability that fossil fuels provide. We have to depart from that. We have to create a new predictable realm based on renewables. Moving from one stable point to another future stable point is mostly chaotic. The energy transition is such a journey.

We have to be ready for more disturbances and have to adapt to this unstable environment. The biggest concern is energy consumption. Yes, markets and systems can act in completely unpredictable moods, but consumers get confused easily and may be harmed. Better to inform and protect the customer about what energy transition and coming age means.

Hydrocarbon Investments in the Arctic

Gökberk Bilgin

"Even the most pro-environment countries' banks play or played an important role in financing drilling activities in the Arctic region, which is facing the damaging consequences of global warming."

The Arctic Region is one of the most important places we witness the impacts of climate change. Increasing temperatures are causing ice to melt, and the geography of the area is changing. With the help of the nuclear-powered ice breakers, new trade routes are establishing by the Russian government.

These new passages are now becoming popular for Chinese tankers and container ships that have to search for the shorter routes.

At the same time, the region has abundant oil and natural gas resources. According to the United States Geological Survey estimates, it consists of 13 percent of the world's undiscovered oil and natural gas sources. However, the data is from 2012, and it may not reflect reality. Up to now, many multinational companies have conducted exploration and established LNG facilities. International banks heavily financed these investments between 2016-2020.

According to the Banking on Climate Change 2020 report JPMorgan Chase, Citibank, and Deutsche Bank were the top three banks lending more than $1 billion for the last five years. Most of the remaining banks are also from the United States, Great Britain, and European countries.

However, starting from April 2020, we see that many of these banks stopped these investments by claiming that they will be committed not to finance the operations that will have a destructive impact on nature. In terms of these countries' climate policy approach, it was the obvious move for these banks, yet many of them decided to go this way after the collapse of oil prices in that period. After the election of Joe Biden, who had strict claims on climate policy, all American banks left financing drilling projects in the Arctic region.

ACCORDING TO THE BANKING ON CLIMATE CHANGE 2020 REPORT JPMORGAN CHASE, CITIBANK, AND DEUTSCHE BANK WERE THE TOP THREE BANKS LENDING MORE THAN $1 BILLION FOR THE LAST FIVE YEARS.

According to studies, different parts of the Arctic region require different oil prices to become profitable. The most expensive areas require $80-85 per barrel. Therefore, declining oil prices in the first half of 2020 may have a role in Western banks' pro-climate stance.

Despite these Western banks' withdrawals, drilling projects in the Arctic continue to find support from other alternatives. Just a week ago, Rosneft's Arctic projects were funded by a Russian bank with a loan of $7 billion. As the largest country with undisputed lands, Russian investments will seem to continue in the upcoming years.

In the Yamal area, national oil and gas companies from China, Japan, South Korea, and multinational oil companies such as Total holds shares in Russian projects.

On the western border of Russia, a similar story is going on. Four major Swedish banks are continuing to support drilling operations in the Arctic, while the remaining are divesting from financing due to climate concerns. Today more than $1,2 billion of the Swedish banks' investments are financed for Arctic projects despite the government and public stance towards climate policies.

In Norway, the government continues to granting licenses for exploration in different regions of the Arctic. In November 2020, they issued 136 new licenses for additional exploration. Their success rate of finding new reserves is not as good as Russian companies, yet they are determined to expand their operations in the region. Meanwhile, Norwegian oil companies won a lawsuit against Greenpeace and other environmental organizations which accused them of violating human rights through the damaging environment.

Overall, even the most pro-environment countries' banks play or played an important role in financing hydrocarbon activities in the Arctic region, which is facing the damaging consequences of global warming. The profitability of these products and possible job creation opportunities continues to play a major role in these government's policies.

In the press release of the Norwegian Ministry of Petroleum and Energy, it states that drilling in the Arctic creates more than 200,000 jobs for the economy, and these operations will be supported for the resource management of the country.

David Attenborough: A Life (Danger) On Our Planet

Başak Bozoğlu

Human beings are known as the most intelligent species in the entire living world, but human error and unsuccessful planning drag the world to an irreversible point. The Chernobyl Nuclear Power Plant explosion that took place on April 26, 1986, is one of the most tragic and major influential examples of human error and bad planning in human history. It is a severe event that causes environmental disaster, but the real disaster is that the decreasing biodiversity in natural areas in the world is dragged human beings into a much bigger disaster than a single event.

David Attenborough is a broadcaster and natural historian since the 1950s. He is a writer, producer, and presenter of worldwide known nature documentaries in history and known for BBC documentaries; Life on Earth, The Living Planet, The Blue Planet. Attenborough traveled more than 256,000 miles with all-natural habits in the world. His latest documentary David Attenborough: A Life on Our Planet, is a Netflix documentary to draw attention to the coming disaster. Attenborough claims that this documentary is his witness statement.

The vital issue is understanding the importance of biodiversity in the world. There are millions of living species on earth, and each species has its own role in the diversity to maintain the resources in the world. Each living being lives in a way to sustain each other's life because each living being actually contributes to the energy cycle. Animals and plants use the sun as a primary source in the universe and contribute to water, food, and carbon chain in their own way. These whole cycles are very sensitive, fragile, and perfectly functioning in themselves. Although human beings' existence is not a threat in itself, but their actions are destroying the existing natural balance and order day by day and causing irreversible damage to the system.

David Attenborough mentions that plant and animal life have an outstanding balance and protect their mechanism. However, the world has been unsuitable for human life since it existed. It went through periods of massive volcanic eruptions, ice ages, and splashes that destroyed living species. With the biodiversity that has existed for the last 10 thousand years, it is experiencing the most stable period of life. Each animal and plant diversity contribute not only to their lives but also contribute a suitable earth for people. But the perfect system is broken, and if people do not change anything, there will be no universe for us to living.

As a consumer living in the modern world, I would like to focus on a few severe truths that we are not even aware of because we often do not see them. Humankind activities and industrialization have bee started the destruction of entire forest habitats.

In the 1950s, Borneo in Southeast Asia was covered three-quarters covered with rainforest. Borneo rainforests had been reduced by half at the end of the 20th century. A rainforest includes millions of species, but with human activities' rainforests have been used for manufacturing oil palm, and it causes the death of the rainforests. When humans benefit from oil palm, they also benefit from the land behind the forest as farmland. With the cutting of trillion trees, the natural habitat of millions of species become extinct. The world loses its half of

the rainforests already because all actions that humankind does unsustainable cause the world to collapse.

In fact, the world is a gigantic but connected system; cutting rainforests destroys animals' extinction, the food chain cannot be completed, the carbon cycle is disrupted, and more carbon particles are emitted into the air. As the weather warms, even a degree of warming at the world's average temperature threatens the oceans' life cycle, along with uncontrolled and unplanned fishing activities. The warming of the oceans opens the door for melting glaciers. Today, the glacier areas that were not accessible in the past can be easily reached by boats.

If there is no stop attempted, what will happen in the next four decades is even more terrifying than any horror movie you have ever seen. But with things that can be done before it is too late for everything, the world can heal itself and continue to be a living space for people.

The sun is the power of all living things and is a great power source like other eternal powers like sunlight, wind, water, geothermal. It should be attempted to change the power sources and work on sustainable and renewable natural energies into practice instead of fossil fuels. For instance, Morocco's energy policies depended on oil and gas at the beginning of the 21st century, but today Morocco produced % 40 of its power from the world's largest solar energy farm. Renewable power plants provide both short-term and long-term benefits. In the short term, the city atmosphere becomes clearer, quieter, more affordable. In the long term, rather than just relying on fossil oil, it could be an exporter of solar energy by 2050. Renewable energies need to be the world's leading source of power, but as Attenborough's statement, it can be the only energy source, and it will never be run out.

The truth is that the world existed before humankind. Even human beings become extinct to live on the earth by destroying the whole system, the world will find its own balance without us, and it is entirely in our hands to make the world more livable. If you want to learn about the dangers and precautions that await us in the coming decades, David Attenborough: A Life on Our Planet is a great starting point.

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