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# SYNERGY

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BRENT OIL

92.57 \$/BL

GASOLINE

14.56 ₺/LT

USD/TRY

13.55

DIESEL

14.74 ₺/LT

EUR/TRY

14.52

FUEL OIL

10.70



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# Composeit: A New Scope of Green Marketing

Gülce Özdilekcan

Whenever we read the news, we see people pointing out climate and sustainability issues, seeking new ways of ensuring a sustainable future. We often see huge factories polluting the water, the air, the soil, etc. Companies produce so many products with huge amounts of plastic that they attract criticism from consumers. Therefore, we always try to seek problems that we have created ourselves. A few days back, it caught my attention that, in Europe, companies must prepare a detailed report on sustainability and their achievements. According to the legislation, they should include their sustainability numbers and further efforts in the financial report, which can be publicly read. Also, even though there are legislations for eco-sustainability, companies have to make their products more sustainable and eco-friendlier.

In accordance with all these, companies want to step up their game by showing themselves as eco-friendly and using green marketing. Green marketing has emerged first in the 1970s as environmental issues have been started to emerge. It was first founded “to include environmental principles in marketing processes, to identify environmentally friendly consumers who want to buy environmentally friendly products, and to make best efforts to create an ethos of recycling to direct industrial societies towards adopting

modes of behavior that do not ultimately result in any harm to the environment.” When this sentence is first read, it looks like there are a lot of things to digest. In other words, one aspect of the marketing world is to both produce green products and encourage consumers to consume these goods and create awareness on the consumer to not harm the environment. Even though we may not particularly see green marketing around, we may kind of realize that we have this awareness to some extent and be influenced by the green marketing strategies.

However, to what extent do we think we can change our consumption to a sustainable one? From now and then, we often hear things like, “It is only two pieces of paper, would it really matter? Am I going to be the one who will be held responsible for sustainability?” Even if two pieces of paper wouldn't change the overall result, individuals themselves should be aware of this fact. A few days back, I came across a startup project that could add a new aspect to sustainability on an individual level, which is called “Composeit”. It made me think that maybe all those international firms are using Green Marketing, however it is possible to change the aspect of sustainability and make the consumer feel like they are part of this act and can change the way they perceive their “useless trash”.





### What is Composeit?

Composeit was first founded in 2017 by a few high school students. I had the chance to talk with Gökçenaz Uzun, founder of this startup. I have also benefited from the interview she had with İklim Gazetesi. Composeit's main product is called Bokashi. Bokashi is a method that was found long ago by Far East Asians. This method can be defined by fermentation of the ecological household wastes. Their main customers are the households, in other words, individuals. They sell these Bokashi bags and the other necessary tools to turn ecological waste into compost that will increase the variety of the microbiological organisms in the soil, which will cause the soil to be more efficient.

They have sold many Bokashi products, and they have collected data out of their sales. They have realized that their customers consisted of the city people and more on the village side because this product has given them a new solution to one of the huge problems in agricultural production, which is affordable and organic (non-chemical) fertilizers.

### How has Composeit changed the way consumers see their waste?

As we have mentioned in the Green Marketing idea, we can

see how the producer and consumer have changed their idea on sustainability on an individual basis. Think of a banana peel that you would hold in your hand. The first thing that you would think of would be to toss it into the trash can. However, if you have a Bokashi bag, you will happily put it in there to recycle it as a fertilizer which will turn into a portion of food for your plants later. Surprisingly, when they have first came up with the idea, they thought that the product would be sold mostly to the city people since they have thought that the sustainability idea would attract them the most. However, this shows that we, as city people, are less aware of the potential of our wastes.

What we see as waste may be a treasure for others, as it is well known. Therefore, products like Bokashi bags are the perfect way of creating awareness. The reason why I love the idea of Composeit is that it shows that sustainability, being eco-friendly, is not all about the big factories and producers. If we change the way we see our waste and start acting that even a piece of paper that we see as useless will matter, we will see a huge difference in the following years. Also, Composeit gives me hope about how we can emerge Green Marketing into our consumption behavior, and I am hoping that this kind of startup will be widely spread in the following years.

# An Emerging Trend: Energy Storage Technologies

Büşra Öztürk 

As the world is facing energy outages with rising demand, the importance of finding and developing alternative energy sources has been increased. Alternative energy is shortly defined as energy production from any source other than fossil fuels. Undoubtedly, another reason for the tendency to use renewable energy sources has been to remain loyal to the Paris Climate Agreement and reduce carbon emissions. However, since renewable energy sources cannot always meet the energy needs due to weather conditions, etc., they are not considered reliable sources. Therefore, investments in renewable energy resources do not take up as much as fossil fuels. To increase the reliability of renewable energy sources and reduce dependence on fossil fuels, initiatives are attempted to develop energy storage systems technology.

Energy storage is simply gathering energy at one moment and storing it for later use. With energy storage technology, energy can be stored in various forms (chemical, kinetic, or thermal) and then converted back to useable forms of energy like electricity. While the amount of energy generated must be equal to the amount of energy consumed conventionally, energy storage enables us to alter the old system by its property of mediating between variable sources and

variable loads. Also, energy storage is a tool to improve the stability of transmission and distribution of energy, which is another serious challenge of supplying energy for all in a sustainable way.

Energy storage technologies have many benefits, such as reducing imbalances between energy demand and production increasing the possibility of supplying and reaching energy whenever or who needed. Furthermore, it increases the reliability and flexibility of renewables. As renewable energy sources are used more, it implicitly helps in remedying environmental impacts. Another advantage of energy storage technologies is potentially integrating diverse energy sources. The storage of energies produced from different sources will enable different energy production methods to support each other. This is an important step to increase efficiency in energy generation. A drawback or open question side of the energy storage technologies is whether they supply sustainability and cost-effectiveness fully or not. That could be answered with long-term plan analyses, and the analyses vary by energy storage methods. Nowadays, a variety of energy storage technologies, such as pumped hydroelectric storage and battery systems, are already in use. Pumped hydro accounts for nearly all present





energy storage capacity and stores energy as gravitational energy when water is pumped from low elevations to higher elevations. To generate electricity, water is run down through hydroelectric turbines. While pumped hydro is capable of storing high energy and power capacity, it requires special locations and is expensive to build.

Batteries are another storage technologies that store energy chemically. The deployment of battery systems is quickly increasing with the benefits of flexibility and convenient sizing. However, they may not be ideal for environmental sensitivity and are appropriate for applications that need quick energy discharge and absorption.

Another type of energy storage technology is compressed air energy storage which compresses air and then stores it, usually in an underground cavern. To generate electricity, compressed air is released and utilized to power a turbine. On the one hand, the system features a high power-rating, plenty of storage, and a long lifespan; on the other hand, it requires special underground locations and a high investment amount to build and maintain them. Flywheels, supercapacitors, thermal energy storage, and hydrogen are the other storage technologies at the demonstration or pre-

commercial stages.

The development of storage technologies is rapidly gaining importance all over the world. European Commission underlines the key role of developing energy storage technologies by showing a fact from a German study that today's one-hour inaccuracy in forecasting oncoming wind causes an additional demand for 5 to 7 GW of electricity. The commission expresses the goal to be achieved as follows: "While gas power plants will be able to produce demanded electricity within an hour or two, energy storage has to deliver during this gap of time." According to Energy Storage News, the United States also has been revived potential motivations for future support of storage technologies. Mostly, the energy storage bonus (a kind of cash grant) and investment tax credits have been provided as subsidies. In Turkey, at the beginning of 2022, Kontrolmatik Technology has invested in lithium battery cells and energy storage systems, which will reach a total capacity of 1,000 MW hours when completed. We will certainly hear more about such initiatives in energy storage systems technologies in the near future, both in our country and globally.

# Bunch of Thumb Rules for Energy Crisis

Bariş Sanlı 

Energy crises are very rare events. When Bilkent University first approached me for a course on energy, I said straight-ahead, "Energy Crises." We start from 19th century England and see how different crises transform the modern world during that course.

Why are crises important? They focus public interest on a particular subject and educate them. This forces, sometimes, an informed public discussion about what to do. Then the next 10-20 years are shaped by that crisis. Therefore they are the key critical points at the energy transformations.

What makes a crisis? For finding an answer, we start from the biggest crises. In the pre-20th century period, timber crises are important. In the 20th century, the oil crises of 73-74 and 79-80 were monumental. Then there are crises named by officials like Ukraine-Russia spats. When you say unexpected, some may claim they are anticipated. But since they are rare, most of the time, we forget them. They are outliers, not the norm. Unfortunately, they happen.

The main underlying reason is my operating point stickiness theory. The energy system is huge and capital intensive. Generally, this system tries to converge to the most efficient and manageable operating point. This becomes modus

operandi, and the workforce is educated this way. Strategy reports demand forecasts are all based on the usual mode of operation with a few alternative scenarios. The crises generally exceed alternative scenarios.

But when an event occurs, the workforce or the mental structure designed and worked efficiently for 20 years first thinks that it is a transitional glitch. Then as the picture becomes clearer, everyone tries to do something. Just like everything in life, the remedy comes after some trial and error. It is probably the same across the globe.

Therefore, I will very briefly explain part of what I learned so far in those crises?

**1. Crisis is a cascade event, no silver bullets for its solution:** A big crisis exceeding anyone's alternative scenarios is most probably a cascade event. That is to say, and it happened because so many things went wrong. So the solution is never a one-sentence answer. Most of the time, the real answer lies in the very minute technical details.

**2. Prioritize:** You can not save everything in an energy crisis. In the previous oil crisis, the western world tried to save everything but was lost in political turmoil and financial stagnations. Prioritization is a key question in every crisis. What is our first three priority? Everyone will be unhappy





in an energy price crisis, but only energy-poor defined by energy expenditures in household income should be saved temporarily.

**3. Use maths and measure whatever possible:** In constructing, what has happened forces people to come up with verifiable numbers. There is a very good book on the "Expectation Effect." People and experts may fall into the "expectation effect." "We told you so" guys are most probably wrong since they just keep saying the same narratives, whatever the crisis is. Numbers guys are critical to understanding crisis.

**4. Communication is the key:** If the current situation has exceeded the alternative scenario, never be optimistic. Start communicating with numbers and (without request) in regular intervals like every hour, day. The public is focused on the event, trying to build a mental model of the event. Help them by telling the scale of events.

**5. Always watch weather:** Generally, there should be a trigger point if there are cascade risks. In the energy sector, it is most probably weather events. Weather is the core business of security of supply. Even reserving some staff for weather events and high resolution (minute) weather station data is critical for understanding problems.

**6. Learn, document, and teach:** I tried to interview people with first-hand knowledge from the previous crisis in my

podcasts and my writings. I checked the reports. In my Sabancı University lectures, I made the student read a report on an electricity crisis, find key points, and draw maps. Because history is a starting point for what needs to be done. Inventing the wheel again may cost you very precious time.

**7. Public pressure is a negative factor:** In the previous global crises, public pressure misguided most efforts and let the politicians lose time. You should be attentive to the complaints and be responsive. But, in an emergency landing of a plane, you trust the technical guy called the pilot, not the passenger, even if he sits at the business class or loud voice. Otherwise, the trouble deepens. There are various examples of public pressure interrupting the technical scenario and messing up everything—for example, Jimmy Carter's synthetic fuel policy and planting more trees to mitigate the timber crisis.

There are others, too. But the modern world is constructed on the generations and generations of accumulated knowledge. Everyone should contribute according to his experiences. That is my part for others to verify, invalidate or improve.

# Oil Rallies in Recent Weeks

İbrahim Halil Aslan 

In this article, I want to touch on the reasons behind oil's rallies in the recent weeks. First, let's introduce the oil market and what happened in December. Approximately two months ago, we saw oil prices depreciate madly in the market due to the emergence of a new concern, called "Omicron". We followed the World Health Organization and Organization of Petroleum Exporting Countries, OPEC, the decision about the production level of oil. Then, especially for the last few weeks, we have observed that oil prices have gained substantially of its loss, for Brent Oil from 68 dollars to 93 dollars; for West Texas Intermediate (WTI) from 65 dollars to 91 dollars. They have been appreciated like approximately 40 percent in approximately eight weeks at a single glance. This increase is worth writing about it.

Firstly, I should specify that the increase arises from the fact that the new concern, Omicron, giving-fear as it is supposed to be. According to studies, the new variant is more transmissible: however, early data suggests that it causes a milder level of illness. Also, American company Moderna turned out that an extra one dose vaccine over

two doses boosters the protection to Omicron variant. In addition, Pfizer-BioNTech had given almost the same explanation and had claimed a third dose neutralizes the effect of the new variant. This positive news has emerged the hope of continuing economic recovery and supporting the oil market.

It is surely important that how central banks see this variant and its effect on economic development should be considered. We also followed the attitude of central banks, whether they are taking this new variant into account when deciding on the interest rate level. The central bank of the United States, Federal Reserve (Fed), has declared that it has taken some tight policy and gone for the fact that it reduces asset-purchasing at a double pace in December and forecasts the three interest rate hike in both 2022 and 2023. Also, Federal Reserve expected to increase interest rate in March. Apart from Fed, the Bank of England, BoE, has also announced its decision about interest rate level. The BoE takes a much tighter policy than Fed and uses its interest rate weapon to deal with inflation surging. The BoE





said in its Monetary Policy Summary in the meeting that "The Omicron variant poses downside risks to activity in early 2022, although the balance of its effects on demand and supply, and hence on medium-term global inflationary pressures, is unclear. The impact of the Omicron variant will push down on GDP in December and in 2022 Q1." It can be clearly understood from this expression that the Bank of England is aware of Omicron and its effect on the economy. However, Omicron is somewhat ignored against surging inflation. Giles Coghlan, the Chief Analyst at London-based Forex and CFD Provider firm HYCM, told Anadolu Agency via email that "Clearly, inflation won the day." European Central Bank, ECB, has also declared its decision of interest rate. Although they did not choose to increase the interest rate, they decided that they would end asset-purchasing by the end of March, which can be commented as taking a little much tighter action concerning the previous meetings. As we look at the decisions of major central banks, Fed, Bank of England, ECB, they have gone for tightening their monetary policies despite the Omicron variant.

As of 5 February 2022, the Brent Oil and WTI are trading at above 90 dollars. This seems to approve to come true that some companies such as Goldman Sachs, which Brent Oil can pass 100 dollars in upcoming days. In recent days, we have other specific reasons supporting the increase in oil prices. One is about Russia and Ukraine. We have started hearing about a new war that can be occurred these two countries. However, the fact that the war will be only between these two countries doesn't exactly seem to be true. There are other countries, US and Europe, maybe China. The tension among these countries makes the price of oil climb above 90 dollars. The second is because of the wave of freezing air in Texas. This affected some production facilities.

# The New Generation Energy Storage System

F. Yaren Öztürk 

New generation energy storage technologies gain significance day by day. It is a fact that lithium-ion batteries are not environmentally friendly, and due to the fires that happened in the past years, doubts have also arisen regarding the safety of lithium-ion batteries. On the other side, a large amount of hydrogen energy is produced from fossil fuels, and its efficiency is insufficient. So, in terms of a sustainable world and getting more efficiency from renewable energy sources, the success of energy storage systems has become an essential issue.

Energy storing means that energy can be used anytime when wanted or needed by switching between energy forms. Advanced high-scale energy storage systems that are unaffected by harsh weather conditions are required to make wind and solar technologies more renewable and increase their efficiency. With the achievement of advanced high-scale energy storage systems, it may be possible to argue that wind and solar energy can be real competitors to fossil fuels. Recently, there has been a significant development by the Swiss-based company Energy Vault: They have successfully commercialised their innovative

energy storage technology.

Bricks have a significant role in Energy Vault's energy storage technology. Bricks, each weighing 35 tons, are lifted and converted renewable energy generated from solar and wind energy into gravitational potential energy, which can be kept there until needed. Energy is stored using gravitational potential energy change. This logic comes from the simple laws of physics taught in high school. When the bricks are lifted through the engine, energy is drawn from the grid, and when the bricks are lowered, the energy is transmitted back to the grid. If the number of bricks moved up and down increases, the corresponding amount of energy is stored or released. In conditions where energy can not produce from renewable energy sources, such as reduced wind speed or the absence of sun, electricity transmission to the grid will be possible using this system. Energy Vault uses artificial intelligence technology to prevent the system from being damaged, making the brick's speed and acceleration controllable. It is estimated that the brick, which can reach a height of 100 meters in less than a minute, can store about 10 MWh of electricity.



**Source:** Energy Vault

The new generation energy system has been inspired by the working mechanism of hydroelectric power plants. It has a structure that does not require special land conditions, is not affected by natural disasters such as earthquakes and hurricanes, is resistant to harsh climatic conditions, and does not depend on weather conditions. In its production, international building standards have been considered. It has been designed to prevent performance loss over time, and the risk of chemical fire has been reduced to zero. At the same time, it has higher efficiency and lower cost than the working mechanism of hydroelectric power plants. Bricks were preferred as a storage area in the new generation system instead of water. One of the characteristic features of Energy Vault that distinguishes it from other storage systems and reveals its approach to renewability is the selection of materials that build the bricks.

Energy Vault uses materials science in the construction of bricks and prefers custom-made blocks with environmentally friendly and sustainable materials instead of cement. Sand and soil are included in a high proportion of custom-made bricks, and it is also possible to add a significant amount of

waste material. There are no restrictions on the variety of materials added to bricks, including waste materials from fossil fuels such as coal ash from thermal power plants and waste from mining. In the middle of last year, another step was taken in terms of materials that can be added to bricks to increase sustainability. A strategic partnership has been initiated with the renewable energy company Enel Green Power to recycle end-of-life or decommissioned wind turbine blades and their integration into the new generation energy storage system. The number of wind farms installed to clean energy from the wind is constantly increasing. Although it is a good development in terms of reducing dependence on fossil fuels for a sustainable world, it is a fact that the usage period of wind turbines is about 20 years, and the first wind turbines were installed in 2000. There should be a decision about the future of wind power plants and what will happen to the materials that make up the wind turbines, which are no longer usable. Enel Green Power has been working on the sustainability of all the materials that make up wind turbines for a long time. However, there was a problem with recycling turbine blades that have been used fiberglass, which is more difficult to recycle than





**Source:** Energy Vault

other materials. At this point, the idea of breaking apart and adding the blades of the old wind turbines to the bricks has emerged. This integration brings with it a series of feasibility works such as which wind farms have completed their useful life as part of a cyclical process, the delivery of turbine blades to the fragmentation facilities and their integration into the new generation energy storage system after processing. In addition, the integration is expected to increase the durability and strength of the bricks.

It should be noted that the new generation energy storage technology cannot solve all the issues related to wind and solar energy. For example, it currently cannot replace steel and concrete with another material, which has a large share in constructing wind turbines and solar panels. It is also not possible to extend the life-span of wind turbines and solar panels.

In order to the achievement of goals such as increasing the efficiency of renewable energy sources, decarbonization and reaching net-zero emissions by 2050, it is crucial to reduce the power cuts that occur in the use of wind and

solar energy. In this context, it is essential to develop and effectively use new generation sustainable energy storage technologies. Energy Vault's success which aims to increase the use of sustainable materials in the energy storage system, and adopts a mission to offer innovative solutions by minimizing costs, deserves to be seen and followed.



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