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# **ABOUT US**







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# Why the Oil Prices Went Negative on April 20?

## Barış Sanlı in 💟

My main message is two folds. The first one is how powerful these contracts are and how dangerous they can be. The second one is "the technical details are essential for the hedging instruments.



Commodity Futures Trading Commission (CFTC) has published an interim report on the negative WTI crude oil prices on April 20, 2020. Practically the slide started from 14:08 until 14:30. The report has not satisfied anyone, but it is a good read. I have not been able to correctly decipher all the technical parts. The message I get was, "small investors should not think of oil futures as just another investment."

The biggest question was, who let the prices go negative? The simple answer is lack of liquidity and storage. The report underlines the signals before April 20. They also cite NYMEX

Hedging is not a piece of cake. It may be a very dangerous tool since the biggest determinant is a future no one knows. Mexico's hacienda hedge is world-famous, but the rest is not well known. We are not discussing how much refineries or airlines have lost in these contracts with covid19. We have the most powerful data, computers, and algorithms, but the risk is still a wild beast.





warnings on negative prices. But "animal spirits" of investors thought that they are buying WTI cheap. In China, some of these investors had to pay banks money to settle their accounts.

The negative prices are not unique or not happening the first time. The report references an event at Texas: *"natural gas dropped below zero in March 2019 as increased supply outstripped pipeline capacity near the Waha hub in the Permian Basin of Western Texas."*. In electricity, it cites the European power market.

Sometimes when I talk about oil pricing, I refer to it as a social construct. We define how the price forms, and it is not occurring naturally. The biggest clue we have is "under the NYMEX rule, and the May contract (and all months other than the designated active month of June) would settle on April 20, based upon the VWAP of the accumulated calendar spread transactions occurring between 2:28 p.m. and 2:30 p.m. ET" from the report. That specific time period is the key to settlement for the May contract.

There are circuit brakers, and they were triggered consequently. But there is a technical bit about which contract is coined "active contract." During that transactions, the June contract was the active contract. So circuit breakers didn't halt the non-active contract -May- transactions. The other important parameter is the amount of open interest volume at that time. There were larger than usual OI volumes in the market, that means there were more contracts traded for May, but while approaching settlement there were lots of not a settled-or rolled contract.

The report underlines this fact with the sentence: "May Contract's OI at the start of the April 20 trading session was 108,593 contracts, approximately 69.4% higher than the trailing 12-month average penultimate day OI of 64,101 contracts".

Then comes the most technical part that involves "non-reportable." These are not usual, well-established investors but small investors or their representatives. Nonreportable' position has been discussed in detail with graphs. When liquidity dried, these investors -some do not know that this contract was physically deliveredthink they are buying oil cheap. If they could have stored the oil for one or two months, it will be a very profitable business, depending on storage prices. But storage and the landlocked location of Cushing were not the best place to find storage or transfer during a market panic.

My main message is two folds. The first one is how powerful these contracts are and how dangerous they can be. The second one is "the technical details are essential for the hedging instruments." It was the lowest oil price in years, but many small investors who were thinking "they are buying cheap to sell in the future" have lost money. Oil price looks simple, and we all seem to know what it means. We have to recheck our assumptions.



# Climate Change and Infectious Diseases

### Mihael Gubas in

Although climate change is causing the spread of infectious diseases is publicly and widely available, it is by no means rooted in the perception of the general public. Master students of the Erasmus Mundus International Scholarship conducted a study that had a global impact and showed that 48.9 percent of the surveyed population is not aware of the causality of climate change and infectious diseases.

The spread of certain infectious diseases is being changed by processes related to global warming and environmental anomalies, writes Phys.org: viruses and pathogens." Understanding the impact of climate variability on infectious disease transmission is important for both researchers and the general public. Much work has been done in recent years to raise awareness of climate change. However, they're still a general lack of understanding of the causal relationship between climate change and infectious diseases.

Students researched under the Université de Tours' mentorship, then the University of Alabama at Birmingham (USA) and Hannover Medical School. The peer-reviewed, open-source journal PLOS ONE, where the study was originally published. It was based on a multinational crosssectional survey examining knowledge about the effects of climate change on the occurrence of infectious diseases over a total of 458 participants from around the world.

The results reveal a lack of knowledge in the general public. A total of 48.9 percent of participants had never previously considered the effects of climate change on infectious diseases. This percentage drops to 38.4 percent among those solid in the natural sciences and rises to 59.2 percent among those working in non-science sectors. Despite the sectoral difference, the research also showed that knowledge and awareness of climate change are not related to participants' educational level, as most respondents had either a bachelor's or master's degree, and given that in recent years the scientific dissemination of environmental topics has greatly increased.

Just over 84 percent of respondents believe that climate change has already caused the damage to human health it can cause, while only 28 percent believe that global warming

"DESPITE THE SECTORAL DIFFERENCE, THE RESEARCH ALSO SHOWED THAT KNOWLEDGE AND AWARENESS OF CLIMATE CHANGE ARE NOT RELATED TO PARTICIPANTS' EDUCATIONAL LEVEL, AS MOST RESPONDENTS HAD EITHER A BACHELOR'S OR MASTER'S DEGREE, AND GIVEN THAT IN RECENT YEARS THE SCIENTIFIC DISSEMINATION OF ENVIRONMENTAL TOPICS HAS GREATLY INCREASED."



has not yet affected people but will in the future. Given the coronavirus and numerous other studies on climate change's health cost, these are devastating numbers. The majority (70 percent) still think that climate change somehow affects infectious diseases, and only 6 percent of them think that it does not affect it in any way. The majority of respondents (75 percent) recognized that weather extremes could encourage the spread of infectious diseases, just as most (80 percent) recognized that floods and other phenomena could encourage the spread of infectious diseases. Therefore, the catch of this research lies in the fact that respondents understand the causes of the spread of disease and the causes of climate change but do not classify floods that cause diseases in the category of "consequences of climate change". Therefore, it is not so much a lack of concrete information, but a lack of comprehensive knowledge, an interpretive framework, i.e., it is a lack of understanding of this dynamic. A lack of information is seen among those 22.9 percent of respondents who said climate change could reduce infectious disease transmission.

The study also found that awareness of climate change is more pronounced in the general public than awareness of infectious diseases. This is interpreted by the presence of both topics in the media. While the damage of climate change has been continuously warned in recent years, we have witnessed that few people in the media were willing to categorize coronavirus's appearance as a direct consequence of climate change. Interestingly, research has shown that the "West" (Europe) has a greater awareness of climate change than infectious diseases, while the "East" (Asia) has the opposite. The US stands between these two continents with roughly equal ignorance in both fields. The difference is explained by cultural distinction. While respondents from "Eastern" countries had less fear of tropical infectious diseases (malaria, mosquitoes, etc.) and greater fear of climate change, those from "Western" countries had a greater fear of tropical diseases and less than climate change. The emergence of this cultural difference, the researchers, explained by different media campaigns topics to raise awareness: in the west about the climate, in the east about infectious diseases transmitted by animals. The material difference found in previous surveys also seems to be interpreted in this study. Data are mentioned that 90 percent of households in Yemen were informed about dengue symptoms, while in Bangladesh, only 19 percent of households had sufficient knowledge about the same disease.

The researchers concluded that it is important to develop knowledge and understanding of these topics in the general population to reduce knowledge gaps in both the general population and health professionals. It is important to develop this understanding to take more seriously both the remediation of climate change and the serious approach to the protection and reduction of the risk of communicable disease transmission.

## Renewable Energy Certificates in a Nutshell: **Turkish Certificate Scheme and Beyond Pt:1**

### Onur Uyanusta in

Renewable energy certificates (REC) are in circulation for more than 20 years the moment. They had helped many companies to show their "green ambitions" until now, but also there are some allegations that they are just

"greenwashing" their carbon footprint. Both sides have valid points strictly speaking, but we must start with a short intro before colliding ideas.

In the context of the matter, electricity can be defined as

a homogenous substance. Think of a bunch of electrons flowing positive to negative. Every electron is the same independent from its origin. In sum, when it is on the grid, there is no way to tell that some electrons came from the coal power plant or solar power plant. In the 20th century, when using renewable energy was not an objective, this physical restraint of non-traceable electricity was not a big issue. When the Kyoto Protocol was signed in 1997, and carbon measurement became a hot topic, the demand rose for renewable energy tracking dramatically. This demand wasn't unexpected because more than half of the carbon emissions came from direct energy production or energy-related works.

WHEN THE KYOTO PROTOCOL WAS SIGNED IN 1997, AND CARBON MEASUREMENT BECAME A HOT TOPIC, THE DEMAND ROSE FOR RENEWABLE ENERGY TRACKING

#### DRAMATICALLY.

Naturally, people started to search to put some label on electricity and track it in some way. Some went directly; they built renewable energy power plants (REPP) and fed their enterprises with them directly. Though it was the simplest and most solid answer to prove the REPP's energy, it was not quite economically effective, especially on a large scale. Stable energy flow was also another issue. Then the optimal solution came as giving RECs for renewable energy production. This plan was also a simple one: If you were a renewable producer, you certainly had a meter to follow your energy production. I, the one who has the auditing power, would measure your meter from time. Regarding your production, I would give you the right to obtain a certificate for every 1 MWh you

> produce if you were willing to pay me the certificate issuing price. After you took this certificate under your name, you could sell it to the traders, customers, retailers, etc. Then the certificates were matched

with the electric consumption and canceled. Energy from REPPs also has a mass equivalent depending on the source, so it could be used if the occasion arises in carbon obligations.

Although the process seems simple, REC systems often require auditing and manpower in accordance. Since the market is going more digitalized day-by-day, the auditing is expected to become more automated than ever. Many attempts are currently made to realize that, including implementing blockchain solutions to REC systems.



In sum, this plan worked quite well. Twenty years after REC went into action, we see that the EU is leading the REC development by issuing nearly 750 TWh in 2019.

Turkey's story for RECs started at the start of 2020. Though many can think it is late, entering late has some advantages, such as implementing the cutting edge system. EMRA has decided to start the initiative before the obligations, which are expected to come from Carbon Border Tax (CST) and the Paris Agreement. This can be considered as a pre-regulation attempt, which is a rare action coming from regulators. We can expect to see those attempts more often in the future from all of the world's regulators since technological advancements are entering and disrupting the energy markets faster than ever.

Before the new REC attempt, renewable energy had already been certified in some way. In the Renewable Energy Law No: 5346 article 5, renewable energy resource document (aka YEK belgesi) was defined. It pointed out certain properties that a modern REC must have, such as tradeable, trackable, resource disclosing certificates, etc. Due to the past requirements, only resource disclosure was used for feedin tariff (aka YEKDEM) payments.

EMRA decided that it was time to step in for the other properties of the "YEK belgesi." So a new national REC system was planned under the name of a renewable energy resource guarantee system (aka YEK-G system), which will comply with the international requirements that a REC must-have. This was necessary because energy production licenses are accepted as "YEK belgesi" in the bylaw for feed-in tariff payments. The energy production licenses cannot be traded as modern RECs. Hence, a brand new document definition was necessary under the name of "YEK Belgesi."

By-law for the YEK-G system was prepared under six months of a collaborative effort from all market participants. The system is expected to be running in June 2021. The system dynamics will be explained thoroughly in the following article.

## Formula 1 Climate Goals and Aramco Partnership

## Başak Bozoğlu in

Formula 1 is the highest level of international auto racing organized by the Fédération Internationale de l'Automobile (FIA). Formula 1 has a history of seventy years, but it has regained its popularity in the last few years like never before. There are ten teams, and each team has two pilots for racing during the racing series. The interesting issue is that Formula One is one of the most expensive sport and Formula One is the fastest regulated car in the world. Millions follow the Championships, drivers' personal lives, team's race, and qualifying in stadiums and the media. The race, which is on the list with everything, draws attention with its technological developments, engines, and sponsorships.

Being the fastest racing car in the world means you need great mechanical power, energy, and a solid engine for this power. The questions start at this point, what effects do such powerful cars have on the environment. In these years, when the damage caused by carbon emissions to nature was reduced by various means and electric cars were started to be produced, how much damage does formula one cars cause to the environment.

Before 2014, Formula 1 cars used much larger short-stroke engines, causing more gasoline in a shorter time. During the years 2006 - 2013, Formula 1 cars had a massive 2.4-liter V8 motor type, producing more traditional production. That is more appropriate for races because it has powerful shrieks and howls, which are more attractive for fans. However, in 2014 the Fédération Internationale de l'Automobile announced that they were looking the new ways to reduce their carbon footprint while still improving efficiency in the races.

Along with technological developments and changes in engines, the event's environmental discussions continued to grow like an avalanche with each passing day. One of the Forbes article state that the average road car emits 4600 of carbon dioxide yearly. By comparison, the average F1 racecar emits a staggering 12,350 kilograms of CO2 per



season. In other words, 3x the amount of a typical car.

In addition to all these discussions, Formula E was launched in 2014. Formula E is officially connected to the ABB FIA Formula E World Championship, and it is a single-seater motorsport championship that uses only electric cars. As predicted, Formula E never reached the same popularity as Formula 1.

Later, Formula 1 announced that F1 calculated its total carbon emissions at 256,551 tonnes in 2018. And, forty-five percent of that figure came from logistics of shifting, shifting freight around the world by road, air, and sea, and only 0.7 percent came from the emissions of the racing cars themselves. But still, Formula 1's carbon footprint is massive.

With millions of eyes on you and doing a million-dollar sport, it becomes very difficult to remain unresponsive to the world's developments. F1 authorities launched a plan in November to become net carbon neutral by 2030 and to have "sustainable" races by 2025. Chase Carey, the Chairman and CEO of Formula 1, states after Formula 1's launching F1's first-ever sustainability strategy, "we recognize the critical role that all organizations must play in tackling this global issue."

This move is the first time Formula 1 announced that they had a new policy on sustainability. But for many people, this announcement



would not be enough when countries like Norway, Austria, or the European Union are also aiming to become net carbon neutral in the same time frame countrywide.

The interesting news is that seven-time world champion Lewis Hamilton said, "F1 is only implementing it [net carbon neutral status] in 10 years, and I don't fully understand why that doesn't change sooner. These large corporations that have a lot of money and power behind them and can make change happen quicker, but it's not their number one priority" in ESPN.

When Formula 1 continues to increase its popularity, especially the Netflix series, Formula 1: Drive to Survive in 2020. Approximately 471 million viewers watch Formula 1 racing on only global TV. An interesting sponsorship deal was signed at a time when its popularity was so high. This month Saudi Arabian Oil Company Aramco signed a huge global sponsorship deal with Formula 1. Thus, Aramco had officially joined DHL, Emirates, Heineken, Pirelli, and Rolex as one of F1's six global partners in March 2020.

This sponsorship takes huge attention in the media and for most fans. The Aramco's officials stated that they were keen to partner up with Formula 1 for their first global partnership "in recognition of the sport's dynamic appeal and growing global fan base." This kind of sponsorship provides creating rebranding in social media and advertising your company through Formula 1 viewers. The controversial and surprising issue is that Formula 1's announcement about sustainability and agrees with a giant oil company. Generally, sponsorships are done to use each other's audience, gain popularity, bring more voice, support, and provide a mutual win and win situation.

This partnership has prompted questioning of Formula 1's intention and plans for environmental improvement. In Formula 1 news, under the new sponsorship, both companies agreed to work towards sharing information that could aid the advancement of sustainable fuels and engine efficiencies. Chase Carey, the Chairman and CEO of Formula 1, stated, "We are looking forward to sharing our combined expertise and working with Aramco on technological innovation, and we will benefit hugely from its capabilities and expertise in the fuel and energy sector." Will this partnership provide more effective movements for environmental issues in Formula 1, or will they postpone Formula 1's plans for 2030 even further?

## A New, Yet Alarming Stream of Waste: E-Waste Pelin Özgül

"Inadequate treatment or inappropriate disposal of all these items pose considerable threats over air, water, soil pollution and information security."

With an annual growth rate of 3 to 4%, electronic waste (e-waste) is on its way to becoming the fastest-growing toxic waste stream in the world. Although there is no single, uniform definition of e-waste, it mainly refers to the disposal of electronic products that are either unwanted, not working, or at the end of their (useful) lifespan. In its broadest sense, there can be multiple sources constituting e-waste, ranging from household appliances, such as irons, ovens, and fridges to IT and telecommunications equipment, i.e., smartphones, computers and laptops, or from office and medical equipment to toys, leisure, and sports equipment. Inadequate treatment or inappropriate disposal of all these items pose considerable environmental and health risks, rising concerns over the air, water, and soil pollution, as well as information security.

The quantity consumed and the speed of discard for these items have increased rapidly in recent years. According to the UNU, by 2016, the world annually generated 44.7 million metric tons (Mt) of e-waste. This amount is equal in weight to almost 9 Great Pyramids of Giza, or to put it differently, 4500 Eiffel Towers. As a more depressing fact, only 20% of this amount was recycled through appropriate channels. By 2030, this volume is expected almost to double and exceed 74 Mt (Baldé et al., 2017). As global consumer demand and technological innovations continue

Why is e-waste growing at such a high pace? Consumers and manufacturers are the leading actors for this. The electronics industry is one of the fastest-growing industries today, comprising the world's largest market share. Every single day, new products and innovations are introduced into the market. With our increasing dependence on technology combined with downward trends in prices and planned obsolescence on electronics, it eventually becomes inevitable not to purchase new products and toss away the old ones.

## ACCORDING TO THE UNU, BY 2016, THE WORLD ANNUALY GENERATED 44.7 MILLION METRIC TONS OF E-WASTE.

to grow, such e-waste generation does not come as a surprise.

Where does e-waste gets produced, and where does it land? Looking at the global route of e-waste dumping, India



carries the flag as it is considered one of the largest generators. It is then followed by the USA, China, Japan, and Germany. India domestically generates around 3 Mt of e-waste, but there's another side to the story. It also imports a large share from the developed world - approx. 50,000 tonnes. Although there is currently neither a system for

tracking legal (and illegal) waste shipment nor reliable e-waste data at the country level, studies show that developed countries send their obsolete electronics to developing countries, mostly in the name of donation, or

working equipment, a trend known as the transboundary movement of

e-waste. Thus, while the USA, EU, Japan, and South Korea constitute a larger share of e-waste source countries, India, Pakistan, Thailand, and Mexico are considered the main destination countries.

What are the main problems that come with this staggering volume of

producing official e-waste statistics, the global volume of e-waste is unknown, making it very difficult to track its movement or even place global legislation to treat it as a separate waste. It is estimated that the fate of 44.3 Mt (approx. 82.6%) of e-waste generated in 2019 is not known. This amount is likely not formally documented or collected

STUDIES SHOW THAT DEVELOPED COUNTRIES SEND THEIR OBSOLETE ELECTRONICS TO DEVELOPING COUNTRIES, MOSTLY IN THE NAME OF DONATION, OR WORKING EQUIPMENT.

e-waste? First and foremost, e-waste management. With only 41 countries

in an environmentally safe manner, meaning that it is probably mixed with other waste streams, such as plastic or metal waste. This lack of tracing implies that most of the e-waste is managed outside official

collection systems and is indeed part of the transboundary movement,

which leads up to a second, and a more critical issue.

When e-waste lands in developing countries, where waste management infrastructure is not yet fully established, it is mostly processed in informal sectors. This is due to the "urban mine" component of e-waste. When proper extraction processes are used, e-waste can generate large volumes of precious materials. It is estimated that, for every 1 million cell phones that are recycled, 34 kg of gold or 16.000 kg of copper can be recovered. Yet, in the informal sector, e-waste is usually handled using rudimentary techniques such as open burning of wires, manual stripping to remove electronic boards for resale, or even applying acid baths to extract copper, aluminum, and other materials. All these methods are usually performed without following any health and safety measures. When treated inadequately, the above techniques result in the release of hazardous chemicals in e-waste, leading to severe toxic exposure. Improper e-waste treatment also leads to environmental damage in terms of soil, air, and water contamination. Those who work at the recycling sites, who are frequently urban poor, women and children, hit the hardest. Studies show that the potential adverse health effects of exposure to e-waste substances may include changes in lung function, thyroid function, birth outcomes, childhood growth rates, and cognitive development. (Perkins et al., 2014).

E-waste is unavoidable in today's throw-away society and is increasingly

WHEN PROPER EXTRACTION PROCESSES ARE USED, E-WASTE CAN GENERATE LARGE VOLUMES OF PRECIOUS MATERIALS.



BY IMPROVING E-WASTE TRACKING, COLLECTION, AND RECYCLING PRACTICES, COUNTRIES COULD RECOVER A CONSIDERABLE AMOUNT OF SECONDARY RAW MATERIALS AND MANAGE THEIR MATERIAL DEMAND SUSTAINABLY, WITHOUT LEADING TO ADVERSE HEALTH AND ENVIRONMENTAL

DAMAGE.





However, it also carries huge potential and opportunity for a circular economy. By improving e-waste tracking, collection, and recycling practices, countries could recover a considerable amount of secondary raw materials and manage their material demand sustainably, without leading to adverse health and environmental damage. This would increase resource not only conservation but also stimulate job creation and economic return.



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