

14 MARCH 2022

VOLUME 3 ISSUE 19

SYNERGY

BİLKENT ENERGY POLICY RESEARCH CENTER NEWSLETTER

Why Do Green Transitions Keep Failing?

06 08 10

ANTICIPATED
BREAKTHROUGH AND
PRACTICES IN TURKISH
PETROLEUM INDUSTRY

RUSSIAN OIL
SANCTIONS AND
ELECTRIC VEHICLES

A REVIEW ON NGOS
OPERATING IN
ENVIRONMENT IN
TURKEY

In This Issue...

04 Why Do Green Transitions Keep Failing?

My short answer is that because of materials and engineers. Now I will tell you a long story. It is not the first time the green revolution has failed. So, it is not actually a big deal. Just like the failure of Steve Jobs in "Next" staged the next Mac revolution,...

06 Anticipated Breakthrough and Practices in Turkish

Petroleum Industry

Oil has always been the dominant energy source in Turkish primary energy demand, which has increased steadily from 1965 to date. Throughout the 65 years of the upstream oil sector of Turkey, several national and international oil companies have operated, and more than one billion barrels of crude oil have been produced...

08 Russian Oil Sanctions and Electric Vehicles

Starting from February, the Russian- Ukrainian conflict continues with its total force. Not only has it impacted Ukraine, but it has also affected most of the world. Today, Russia is the third biggest producer of oil globally, and it has the biggest reserve of gas...

10 A Review on NGOs Operating in Environment in Turkey

Did you know that a total of 322,000 non-governmental organizations have been opened in Turkey so far? Currently, about 122 thousand of them are actively working. Professional and solidarity associations come first among non-governmental organizations (38 thousand)...

EDITOR:

GÖKBERK BİLGİN

CONTACT: gokberk.bilgin@bilkent.edu.tr

ABOUT US



Energy
Policy
Research
Center

Synergy is a weekly online newsletter published by volunteers on bilkenteprc.com. It welcomes feedback from readers. Please submit your letters to eeeps@bilkent.edu.tr. The Editorial Board will review the letters and print them as space permits. The contents of this newsletter are the author's sole responsibility. They do not necessarily represent the views of the Bilkent Energy Policy Research Center or any of its Members.

BRENT OIL

101,31 \$/BL

GASOLINE

20.49 ₺/LT

USD/TRY

14.74

DIESEL

20.64 ₺/LT

EUR/TRY

16.16

FUEL OIL

16.19

Why Do Green Transitions Keep Failing?

Bariş Sanlı 

My short answer is that because of materials and engineers. Now I will tell you a long story. It is not the first time the green revolution has failed. So, it is not actually a big deal. Just like the failure of Steve Jobs in "Next" staged the next Mac revolution, failure is an integral part of success and development. You only need to understand why it happens.

The first problem is to understand how this green transition is designed. If we look at the oil transition, it started with engineers. They analyzed, invented, and designed systems. In gas and LNG, it is the same bottom-up process instead of a top-down one. As far as I know, only one transition happened top-down: France's Messmer Plan for nuclear. In that case, the engineering capacity was there, and the plan created the scale of the project. However, it still took lots of debt and years to switch one resource.

The current "mega transition" is mostly designed by economists, politicians, lawyers. They decided that all four energy resources (oil, coal, gas, and nuclear) should be out of the picture. On the other hand, some of these people were also associated with certain NGOs (Non-Governmental Organizations). These NGOs' incomes were mostly sourced from environmental or climate projects. Hence, a conflict of interest occurred when pushing more for these policies led

to increasing rent and income. This eventually caused new policies that lacked public support. In some cases, the public was the only one who did not need to change, transform, and suffer from the adverse effects of transition.

If people need more evidence to be convinced, one can calculate a high enough pollution price that justifies everything for the short, medium, and long term. But at the end of the day, these policies affect people's lives, and their implementations are feedbacked by the harm or benefit of the people's experience. A politician can warn people about the urgent danger, but the near-term benefits outweigh the long-term harms.

The other problem is the paradox of material requirements. You need to have more copper, aluminum, steel, glass, cement for the same amount of TWh/year generation. To meet the demand, you must mine at least some of them. All these operations require huge amounts of energy, whether green or not. In the end, you either choose to consume this energy to produce more materials for renewable systems or not.

The current transition aimed to close all oil, gas, coal production in 30 years by replacing them with more solar and



wind. Empirically, renewable investments surge during low oil and gas prices. Since it is cheaper to produce materials and economic activity is generally higher during low energy price periods. It is counterintuitive, but renewable transition speeds up during low energy prices. Thus, closing all fossil investments also increases renewable system costs.

Demand is another big issue. The energy density we consume is huge. A liter of diesel is 10 kWh of energy. You can carry it store it; in the worst-case scenario, you can burn it. However, renewable energy is sparse intermittent. Fossil fuels are like a pond, and renewables are like water harvesting devices from ambient humid air. Still, we need the reservoirs for our water needs. Water harvesting cannot feed our thirst for water. Still, it is very useful.

Another problem is fatalism. Yes, there is urgency but constantly alarming everyone will lower their risk threshold. It is basic PR. You do not need to read any doomsday news nowadays. The plot is simple, we are all doomed and will die, but our experience shows that you need to make people focus on a few things instead of the whole issue in times of urgency. One step at a time is the best way for stable progress. So, we should also increase renewables as much as possible.

Frankly, we do not have enough economic, mature technology options other than solar and wind due to huge energy systems from cars to factories, electric systems to refineries, gas, electric grid systems. Up to now, oil supply chains are the most complicated machines humans have ever created. The technology of renewable energy systems requires innovation. This takes roughly 20 years, from labs to markets when planned seriously. Talking the talk is cheap but walking the walk needs a lot of effort. R&D budget commitments should surpass other R&D budgets if we perceive the transition as urgent.

We should go back to the drawing board to do all these transitions. We should try to chew one piece at a time. This stability will foster more confidence and create a snowball effect. Ambition is a poison; soberness is the way forward. Yet we should remember that this is a transition to be achieved by engineers. From designs to digital systems, materials to mining, power systems to hydrogen, energy efficiency to nuclear, you either have it or not. As always, their transformation will determine the speed of transition.

Anticipated Breakthrough and Practices in Turkish Petroleum Industry

İzzet Hoşgör 

Oil has always been the dominant energy source in Turkish primary energy demand, which has increased steadily from 1965 to date. Throughout the 65 years of the upstream oil sector of Turkey, several national and international oil companies have operated, and more than one billion barrels of crude oil have been produced. The number of small-tiny fields is so numerous and scattered throughout the southeast region of Turkey due to several geological challenges. It is worth explicitly noting that the subsurface is extremely complex, and the occurrence of petroleum fluids is difficult to predict and describe. Technically robust and comprehensive definitions are the first necessary step in ensuring consistency of subsurface evaluations.

Exploration and production work in the Diyarbakır province of the south-eastern Anatolian Region has, for the most part, centered on Palaeozoic and Cretaceous petroleum systems. Over the past decade, national and foreign companies have considered the Diyarbakır province a high-return market with huge potential in exploration license areas, including the Palaeozoic conventional petroleum system, offering remarkable opportunities in Turkey.

Although the discovered accumulations have been smaller by size than most of the similar fields in the Middle East, about 80% of the petroleum in southeast Turkey is produced from Upper Cretaceous carbonates. In other parts of southeast Turkey, within the Diyarbakır region, the early Silurian sequence includes important source horizons, and oil discoveries have been made in Upper Ordovician sandstone (Palaeozoic petroleum system).

For a long time, petroleum exploration and oil production in the Diyarbakır Basin focused mainly on the northern Diyarbakır area, foothill belt, and eastern Batman area in the foreland basin whereas the middle and southern Diyarbakır Basin remained little known. Aladdin Middle East ("AME") has been the only company engaging in an exploration of hydrocarbons in the foreland Diyarbakır basin since the early 70'ies that resulted in the discovery of the Molla-Yasince Oil field in 1972 that produces Silurian sourced oil from a Cretaceous reservoir. A second foreland discovery was followed by Kastel that was drilled initially by Gulf Oil in 60'ies but thought to be dry; however, in 1990 Shell TPAO JV drilled a second well to make Kastel a discovery North of Molla-Yasince field. In 2008, an AME-led consortium discovered oil in Arpatepe, the first commercially viable Palaeozoic oilfield discovered in SE Turkey. While most current Palaeozoic aged oil comes from Molla-Bismil fields, the biggest prospects for future production growth are from other Diyarbakır Basin fields, which are still relatively underdeveloped or unexplored.

The long-term picture that emerges from these exploration efforts includes a number of important achievements. Until the late 2007s, the prevailing view was that Upper Ordovician reservoir plays were restricted to small prospect fields in the southern foreland area. Exploration of Upper Ordovician reservoirs was ignited by discovering the Arpatepe Field by AME-led consortium in the southern Diyarbakır Basin in early 2008.



In south-eastern Turkey, national and independent companies have understood Palaeozoic plays in the Diyarbakır Basin. Despite the challenge of limited well and seismic datasets, evidence is growing for the Molla-Bismil region Ordovician-Silurian plays. Arpatepe, Bahar, Yeniev, and South Çalıktepe oilfields are some of the discoveries in this region. The notable first example was the oil discovered in the Bedinan sandstones by exploration well Arpatepe-1 in 2008. AME-led consortium proved that the oil was discovered in the uppermost Bedinan Formation in the Molla-Bismil area in Arpatepe-1 well, tested oil in the approximately 35 m, upper Bedinan quartz-rich sandstone member (upper B4), producing 350 stbopd (stock tank barrels oil per day) of a 40.90 degree API oil by natural flow. Another notable example was the oil discovered in the Bedinan sandstones by exploration well Bahar-1 in 2012 by Transatlantic Petroleum Company. Subsequently, several successful exploration wells (such as Altınakar wells, South Çalıktepe wells, Yeniev wells, and Çöltepe-1) were drilled to collect the required information to evaluate the commerciality and development feasibility of the field.

TPAO also has drilled several wells with positive results in the vicinity of Arpatepe discovery. The most recent is the Kılavuztepe-1 and Bağyaka-1 wells completed as oil producers in the Bedinan reservoir.

Another recent promising development in exploration license numbered M45-B with Salat-1 discovery. Announced by Çalık Petrol in February 2022, the well had hit a gross oil-bearing pay zone from the Bedinan Formation and flowed

light, 42 degrees API oil of 1200 boepd.

These significant developments reveal that the deep-wells in the Molla-Bismil area is a Palaeozoic petroleum system. The exploration breakthrough in the Palaeozoic petroleum system, especially the Upper Ordovician-Silurian petroleum system in the Molla-Bismil oilfield, is inspirational for petroleum exploration in other provinces of south-eastern Turkey.

In a new exploration, the Upper Ordovician Bedinan-4 clastic reservoir on the Diyarbakır Basin plays great importance in the Molla-Bismil area. The discovery of significant oil fields in the northern and southern Molla-Bismil oilfields greatly enhances the petroleum potential of the Diyarbakır Basin exploration licenses with the approach of the new oil-producing fields and old oil-bearing pay zone (Bedinan sandstones). From the beginning of the first outstanding Paleozoic targeted studies by Aladdin Middle East Ltd. to the present become an important replacement of deep petroleum exploration potential in south-eastern Turkey. However, after more than 20 years of exploration, these sandstones are being penetrated by relatively deep wells. Reservoir quality, however, is variable and its prediction of importance for economic field development. Consequently, Turkey will increasingly rely on indigenous oil supplies from that region, at least until non-conventional oil enters the market in big volumes.

Russian Oil Sanctions and Electric Vehicles

Gülce Özdilekcan

Starting from February, the Russian- Ukrainian conflict continues with its total force. Not only has it impacted Ukraine, but it has also affected most of the world. Today, Russia is the third biggest producer of oil globally, and it has the biggest reserve of gas. It explains why it has affected most of the world since states import their oil and gas needs. The act against Ukraine has changed the political relationships with Russia for most of the world. Countries have made a public announcement that they will restrict their trade, especially for the energy sector.

Since February, we have heard that both companies and states will restrict or ban their energy relationship with Russia. On February 27th, Reuters reported that "BP is abandoning its stake in Russian oil giant Rosneft in an abrupt and costly end to three decades of operating in the energy-rich country, marking the most significant move yet by a Western company response to Moscow's invasion of Ukraine. As BP is one example, also, like a great move, it has been reported on March 9th that US and UK are restricting their oil imports from Russia. Joe Biden has announced that the US will no longer be involved with Russian oil and gas as a reaction to the Ukraine invasion and deprive Russia's revenue. The UK has also agreed with the US, and the EU

plans to restrict their imports by 2/3 within a year.

Even though there will be endless problems arising with the restriction of the oil and gas restrictions, the question that has aroused in my mind was the gasoline problem, especially used in cars and other motor vehicles. According to US Energy Information Center, 44% of oil products were used as finished motor gasoline, the product that we can easily reach in gas stations, in 2020. It wouldn't be wrong to think that the approximate percentage would be around this number as well around the world.

Now that states and companies have restricted their imports from Russia, countries have responded to this issue differently. For example, Germany has promised that, by 2030, there will be 15 million electric vehicles in the traffic. Also, according to the predictions of the US, more than half of the car sales will consist of electric vehicles. It seems to me that, regarding the shortage of Russian oil products that will reflect the overall market, electric cars will be one of the solutions. However, is it realistic, and can we convert to electric cars? Also, are they eco-friendly as they were promised to be?



Why don't we use electric cars as much as we use gasoline cars today?

Today, it is known that only 1% of the cars in the traffic in the US are Electric Vehicles (EV). There are various reasons why consumers don't prefer EVs instead of gasoline cars. According to a recent study from John Helveston of the Department of Engineering Management and Systems Engineering, George Washington University, and Laura Roberson, the biggest reason why EVs are not preferred is that people are not fully informed about EVs. In their research called "Electric vehicle adoption: can short experiences lead to big change?", they have applied a questionnaire to the subjects, and it turned out that most of them were unable to reply to even basic ones.

Also, initially, EVs were more expensive than gasoline cars. Even though there are fewer expenses to the car in the future, consumers don't want to spend so much money on just the car. On the other hand, there are advantages to the car, like electricity being less than gasoline. Also, its vital parts have a longer life than gasoline cars. In gasoline cars, to run the engine, gasoline is burnt, and with this reaction, heat is created, which in the long term harms the pieces

of the car. However, the mechanism in the EVs creates less heat which enables long-lasting machines.

In fact, thinking on the producer side, short-lasting cars and pieces are advantageous for them. Today, the average productive lifespan of a gasoline car is approximately 12 years and about 200.000 miles. In its total life, inevitably, this car will have issues with its parts and change them, which is economically advantageous for the car fixer and the spare piece producer. Also, after 12 years, the consumer will invest in a new car, which is now advantageous to the car producer. However, according to Tesla, EVs have a longer lifespan, around 20 years. In these 20 years, the car will get broken less, since I have mentioned that there is less friction and heat created in the engine, and it will need fewer spare pieces. Also, the consumer will change his car less frequently. Therefore, I can say that EVs are less advantageous for the producer side, creating a problem in the future. Producers may not want to produce EVs because it may be less profitable in the long term, and there will be fewer EVs in the market than it was initially planned to have.

A Review on NGOs Operating in Environment in Turkey

Nur Durmaz

Did you know that a total of 322,000 non-governmental organizations have been opened in Turkey so far? Currently, about 122 thousand of them are actively working. Professional and solidarity associations come first among non-governmental organizations (38 thousand), while environmental, natural life, and animal protection associations constitute 2.1% of them with 2.663 communities. Non-governmental organizations (NGOs) are recognized as third sector actors in many areas of public action. NGOs are best known for two different but often interrelated types of activities: the delivery of services to people in need and the organization of policy advocacy. NGOs are also active in various other specific roles such as democracy building, conflict resolution, human rights work, cultural protection, environmental activism, policy analysis, research, and information provision. When we look at the most known environmental NGOs in Turkey, they differ in content, and the setting for transparency towards people changes.

On the website of TEMA (Turkish Foundation for Combating Soil Erosion), it is possible to see a lot of information. These include financial reports. In the current economic troubles, seeing the income-expenditure table helps investors and donors to understand how loyal they are to those companies or organizations, thanks to the ratios given. It's also a good way to understand where donations go. However, not every

non-governmental organization in Turkey does this. Even if TEMA and TÜRÇEK (Turkish Environmental and Woodland Protection Society) do not do this every year, they do not hesitate to show it to individuals. In contrast, NGOs such as Çevko Foundation (Environmental Protection and Packaging Waste Recovery Foundation) and Doğa Society do not share them. This is one of the obvious examples that their transparency is less than other institutions. WWF-Turkey, namely the World Wildlife Foundation, is a part of a large international organization and maintains its transparency to maintain its sustainability. However, individuals do not need to just look at the financial report to see where their money is going. The projects carried out the size and content of these projects are as important as the openness of institutions to individuals and members.

The NGOs that are about the environment, look for necessary solutions to environmental problems, and to what extent they adhere to the aims of their establishment, even if they do little. Social media and the website offer this resource to people adequately. For example, TEMA and some NGOs continue to work in the legal context. Institutions apply to the necessary channels, not only by protesting but also by suing the necessary places. They aim to give people peace and happiness by resorting to legal means when the state could not afford them when people were victims. In addition to law, NGOs continue to raise awareness by



providing convenience to people with information and news on their internet pages. Many Turkish non-governmental organizations do this. Some NGOs publish magazines and periodically offer them to their readers. There are different methods of raising people's awareness, and in any case, if the issue is to take Turkey and the world one step ahead, sharing news, publishing magazines, and informing people through many other methods should be one of the goals of an NGO.

Some institutions, sticking to their names, were not interested in the environment in general but operates in specific areas. For example, Turkish Marine Environment Protection Association (TURMEPA), even if it is an environmental institution, is specifically interested in the seas and draws its projects accordingly. ÇEKÜL, the Foundation for the Protection and Promotion of Environmental and Cultural Heritage, is an environmental organization that aims to initiate projects related to culture, preserve and maintain the culture, and restore cities. This caused their projects and the news and information works they wrote to look slightly different. But at the same time, it has played a major role in the afforestation of Turkey with the 7 Tree forests program. As the Çevko foundation is an organization that focuses on waste, it has provided people with a map showing where they can recycle with ÇEVKO Waste Collection Points. While doing this, it also obtained

the usage rights of the international Green Point, which is a globalizing project, in Turkey in 2003. The "Green Dot" mark on the packaging indicates that the company or business that puts the product on the market fulfills its legal obligations regarding the environment and packaging recycling. With this project, it is possible to say that the Çevko foundation approached its goals at one point in line with its name. In addition to the internationally working Çevko foundation, there are also the only environment and natural life NGOs that are trying to globalize. Even if NGOs act within the country, solidarity with other countries is very important for a global problem such as the environment. After all, only Turkey does not have this problem and will not have it.

Today, while many people are aware of the international organizations Greenpeace and WWF, they are unaware of the non-governmental organizations in their own country. This situation causes many NGOs to close before they can develop themselves. But for an organization to carry on an activity, even a small one, is a profit for humanity in every way. Environmental problems and the disasters that they will bring are issues that many people should be aware of now. NGOs play a huge role here. For a better world, it is much better for people with the same thought and purposes to meet on common ground and present their thoughts to the public in different ways than to wait for the problems to be solved by themselves.



Energy
Policy
Research
Center

bilkenteprc.com