The Mounting Energy Problems Climate Change vs. Energy Security

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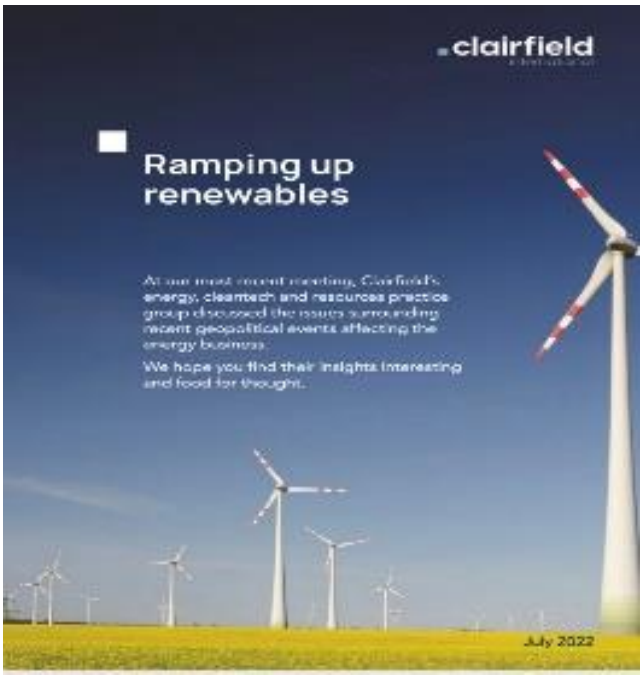
The mounting energy problems - World has been getting hotter because of human-caused CLIMATE CHANGE while ENERGY SECURITY has become alarming.

Yet Dr. Fatih Birol, President of International Energy Agency (re-appointed 3rd time in a row), indicates that the world does not need to choose between solving the energy security crisis and the climate crisis since there are available technologies and policies to solve both at once.

Record temperatures recorded globally, but especially in UK, France, Spain and Portugal in June and July. According to NASA data, global temperatures were around 2 degrees Fahrenheit higher than the average June in late 1800s. European Commission Joint Research Centre (EC-JRC) has warned that the current drought could be the worst in 500 years.

"In the midst of every crisis, lies great opportunity." (Albert Einstein)

Though we are in a global energy crisis, disruption in the energy markets is not new. The energy crises in the early '70s, the '80s and the early 2000s were all challenging in their own ways, but other current emergencies, namely climate change, global pandemic and the Russia – Ukraine war, make things much more difficult. On top of all, many emerging countries are expected to face political and economic stability problems, including balance of payments bottlenecks. This critical topic was discussed in Clairfield's energy, cleantech and resources practice group within the context of current issues surrounding recent geopolitical events affecting energy business under the heading "*Ramping up renewables*" (as published on July 15th in the link: https://www.clairfield.com/ramping-up-renewables/). Discussions in the article include solar versus nuclear power as well as the use of hydrogen, which can store vast amounts of energy, replace natural gas in industrial processes, and power fuel cells in vehicles; opinions of related energy sector heads and respective country developments in Italy, Australia, Spain, Czech Republic, and Germany, can be read in the article.



Having mentioned about Clairfield, I also would like to note that the **2nd Clairfield Partners' Meeting of 2022 was held in June, in one of the World's Greenest Buildings in Prague, at Clairfield Czech. This office building is an innovative ecological one with high environmental efficiency and moreover with beehives on the garden rooftop.** It is the 1st building in the city to be LEED Platinum pre-certified with LEED categories of sustainable sites, water efficiency, and indoor environmental quality. Such certification has been granted based on features including complex lighting system employing daylight sensors, high-efficiency fixtures, green roof, efficient irrigation system and closed atrium utilizing natural ventilation. The building's energy efficiency is not only due to low energy usage, but also due to min. potable water consumption and usage of rainwater for building technologies.

Recent Serious / Dangerous Incidents Related to Climate Change:

Organizations, like IMF, World Bank, OECD, and WTO under the leadership of International Energy Agency (IEA), have to look carefully at what's going to happen over the next couple of months, especially the upcoming winter. Reminding some recent incidents;

- On August 10th, the European Commission Joint Research Centre (EC-JRC) has warned that the current drought could be the worst in 500 years and has also predicted that severe drought will worsen in Europe, potentially reaching 47% of the continent.

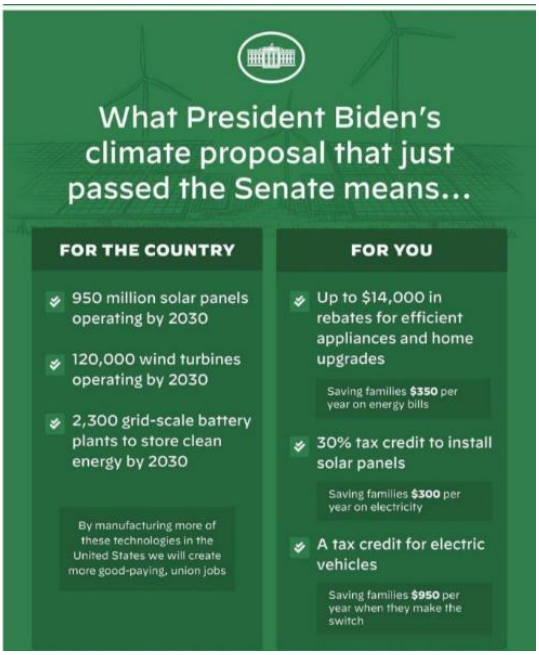
- National Oceanic and Atmospheric Administration (NOAA) reported that average overnight temperatures in July were the hottest in recorded US history; such warmer nights are a sign of climate change. This is extremely dangerous because if human body does not cool down at night, the risk of stroke increases. NOAA also reported that extreme heatwaves at the Alps have transformed the mountains, melting their glaciers one to two months faster than normal and forcing ski resorts to close early. This is worrying because snowpack from mountains delivers up to 90% of water to lowland Europe for drinking, irrigation and hydropower. *(Washington Post, Aug. 11 & 18)*.

- Ministry of Environment in the UK officially announced drought by indicating that the country has been going through the worst drought of last 50 years, having lived its driest summer since 1935. France, living the 4th heatwave of 2022 summer and suffering from vast forest fires, put into effect significant energy saving precautions such as reducing the use of air-conditioning and lighting.

- Dutch farmers were in a long-lasting uproar over the plans of the government to curb animal numbers to cut nitrogen emissions since Netherlands has been seeking such a drastic solution, as announced in June 2022, with pollution breaching legal limits. Although millions of cows, pigs and chickens help to make the Netherlands an agricultural powerhouse, these animals that contribute to €105bn in annual farm exports also generate alarming levels of nitrogen emissions from their waste which became one of the factors of growing pollution problem. Netherlands wants to cut livestock numbers by a third, buying out farmers to close down production as part of its plan to halve emissions by 2030.

- With global warming caused draught; European rivers have revealed shipwrecks and bombs. With too low water of Danube River, wreckage of more than a dozen German warships, sunk in 1944, has resurfaced. In Spain, a four-to-five-millennium-old monument rose near Madrid. Such extreme heat has also strained Europe's ability to create its own energy supply by reducing hydropower in Norway. *(Washington Post, Aug.24)*.

- In the United States, the bill, known as the Inflation Reduction Act (IRA) of 2022, has been secured as the largest-ever investment to tackle climate change, with roughly $370 billion dedicated to curbing harmful emissions and promoting green technology. Along with the bill, also including healthcare related content; revisions to tax laws are being introduced to pay for the spending, including a new minimum tax (15%) on some billion-dollar corporations that now pay nothing to the U.S. government. These investments are foreseen to yield extensive returns since the costs of climate-driven events (wildfires, hurricanes, tornados, and floods) will reduce our standard of living even more than today's inflation will, and they are disproportionately borne by lower-income households, people of color, and future generations.



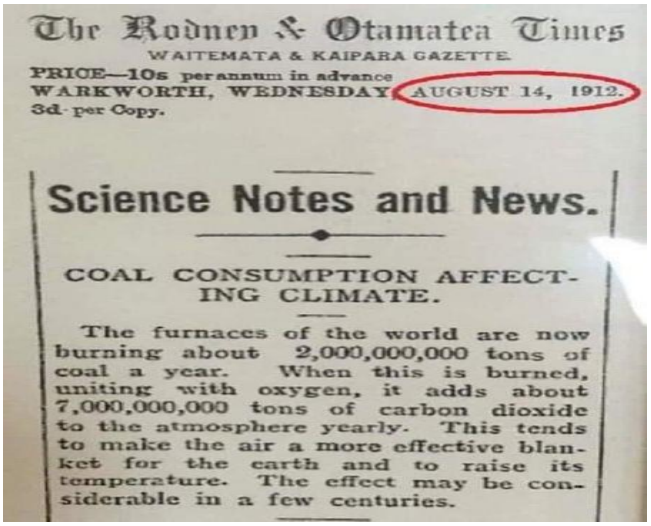
"Success is a journey, not a destination. The doing is often more important than the outcome."
(Arthur Ashe)

Energy Sources & Energy Security & Electric Vehicles:

As underlined by **Prof. Stiglitz,** reminding his warnings of 15 years ago, enhancing energy security has become essential since energy interdependencies come with serious risks as in the case witnessed especially for the European countries through Russia-Ukraine war. Even though weather may be variable, fossil-fuel sources under control of authoritarian leaders are unreliable and dangerous. Within the perspective of establishing new economic-policy paradigms to come over with indicated disruptions at various fields of not only economic but also political and social life; new approaches are required for developing and being productive, but not just imitating the old. **Prof. Dana Rodrig** indicates in his article that if **productivism** is to be successful, it will have to move beyond conventional social protection, industrial policies, and macroeconomic management. He further underlines that the **new framework of economic-policy paradigm, which could replace neoliberalism, gives governments and community organizations greater responsibility to shape investment and production in support of good jobs, the climate transition, and more secure, resilient societies.** *(Prof. Joseph E. Stiglit, Prof. Dana Rodrig, Project Syndicate; Aug 8, 2022)*.

Daniel Yergin, Vice Chairman of S&P Global and the writer of the Pulitzer prize-winning book "The Prize: The Epic Quest For Oil, Money, and Power", discusses the global energy markets in his latest book "The New Map: Energy, Climate and the Clash of Nations" within the context of political economy, economic history, and geopolitics. In spite of the advancements in renewable energy within the past decade and more so recently, dependence on oil & gas and their consumption are growing as well. As **Yergin points out the World still uses about 80% hydrocarbons although wind and solar costs have come down a lot;** they've become competitive only in the last 10 years and there's a lot of government & investor support for them but the world still primarily runs on hydrocarbons.

This newspaper clipping from 1912 explains impact of coal on climate in the most powerful way:



The Rodney & Otamatea Times
WAITEMATA & KAIPARA GAZETTE.
PRICE—10s per annum in advance
WARKWORTH, WEDNESDAY, AUGUST 14, 1912.
3d. per Copy.

Science Notes and News.

COAL CONSUMPTION AFFECTING CLIMATE.

The furnaces of the world are now burning about 2,000,000,000 tons of coal a year. When this is burned, uniting with oxygen, it adds about 7,000,000,000 tons of carbon dioxide to the atmosphere yearly. This tends to make the air a more effective blanket for the earth and to raise its temperature. The effect may be considerable in a few centuries.

Looking at China's position within the global energy equilibrium; China has a big importance as a consumer on overall energy market since it is the largest consumer of energy in the World (though the US still uses more oil, but China is moving up). As indicated by Yergin in his book "The New Map"; that's one reason that China is promoting electric vehicles - it should be noted that half of the electric cars in the world are in China - to reduce its dependence on oil and to cope with the climate crisis. Yergin, moreover, shares his thought that China positioned electric cars as a competitive strength as it could never catch up with the European, US, Japanese and Korean car makers with conventional internal combustion engine cars. It's already exporting electric cars to Europe and sees electric cars as an important export item.

"I think the democratization of vehicles and the knowledge of these EVs and charging locations is going to create a meaningful acceleration of electric vehicle adaption."
(Scott Gilbertson, partner, TPG Growth)

It is a fact that **transportation is the major consumer of oil** while gas is used to generate electricity. That is why **electric car sales are certainly increasing significantly**, not only in China, but in Europe and the United States too. That is also why there are a lot of incentives and regulations that are promoting electric cars to protect consumers, governments and countries from high gasoline prices. Governments around the

world are, at the same time, cutting taxation on gasoline for consumers because it's such a problem for average people. Yet with electric cars, there comes the issue of their **high requirement for copper**, namely two and a half to three times as much more copper needed, compared to a conventional car. Similarly, even though wind and solar energy are free, they require enormous amounts of materials to generate them. Hence there comes the conclusion that **demand for minerals is going to be much greater** than people think while, on the other hand, as the International Energy Agency (IEA) says, it takes 16 years to open a new mine. **With 2050 goals for net zero and decarbonization, it becomes apparent that new geopolitics will emerge around minerals**. As mining is an extremely energy intensive activity, Yergin describes in "The New Map" the move from a world of big oil to a world of big shovels for a lot of mining. All these bring us to the need for rebalancing with the growth of wind and solar power which is not the whole answer while the need for oil and gas still goes on.

"Great minds do not think alike. They challenge each other to think again"
(Adam Grant, Organizational psychologist)

Turkish Executive Director of IEA, Dr. Fatih Birol, Addressed World Leaders at G7 Summit in Germany (June 26-28) on Secure, Efficient & Clean Energy Future Requirements:

It should be noted that for the first time in the history of the International Energy Agency (IEA), Dr. Fatih Birol, who has been serving as Executive Director of IEA since 2015, has been reappointed for the third time. At the G7 Summit in Germany from June 26 to 28, the leaders of the G7 countries highlighted the **key role and unique contributions of IEA to shape a more secure and clean energy future, including the route of how to build a more sustainable energy future through enhancing energy security and accelerating clean energy transitions**. Dr. Birol shared his perspectives on global and regional energy and climate challenges by emphasizing that the best response to the current energy crisis is a massive and rapid scaling up of investment in energy efficiency, renewables, and other clean energy technologies. He also indicated that **the world does not need to choose between solving the energy security crisis and the climate crisis since there are available technologies and policies to solve both at once**. https://www.iea.org/news/iea-executive-director-addresses-world-leaders-at-g7-summit-in-germany

The G7 countries have been showing a strong commitment to mitigate any adverse impacts and achieve a secure energy future as global energy markets and energy-supply security are being heavily affected by recent geopolitical developments. G7 leaders indicated that they were **concerned about the burden of energy price increases and energy market instability, which aggravate inequalities** nationally and internationally and threaten our shared prosperity (https://www.iea.org). Recognizing the urgency of moving to a 1.5°C path towards climate neutrality by 2050 at the latest, the G7 leaders noted that currently neither global climate ambition nor its implementation would be sufficient to accomplish the goals of the Paris Agreement. In this context, the G7 leaders released a separate statement to initiate a new Climate Club while also requesting assistance from IEA, OECD, IMF, World Bank and WTO taking into consideration their relevant expertise to make the initiative a success.

Dr. Birol included in his speech to GY leaders the following points: "We had oil crises in the 1970s, but then there was only the oil crisis. Now we are faced with serious problems with oil, natural gas, coal, and electricity. If we look at those oil crises, there was a very serious increase in inflation. Now we can see this again. The second thing is recession. I think we are slowly getting there now. But the **oil crisis of the 1970s didn't just cause recessions and inflation**; new issues such as **energy savings and energy security** came to the fore. It was a reaction that **suddenly changed the entire automotive industry**. The second reaction developed by countries against the oil shocks was the **nuclear industry**. Of the nuclear power plants currently in use around the world, 40% were established in response to those energy crises."

Within the context of crisis actually containing opportunities, it is important to note that significant portion of the regulations and international law as well as most of the multinational institutions, as IMF, World Bank, OECD and such, have been the product of

conflicts not the product of cooperation. In a similar manner, **we might expect the disruptions caused by the pandemic followed by the Russia – Ukraine war to have longer term consequences, especially with respect to health, energy security, trade, supply chain, i.e. the grain and fertilizer supply chain problems, as well as widening inequalities** on several aspects; **but at the same time all these disruptions and crisis effects will be triggering new and practical business models to deliver quicker solutions due to urgent needs which include, most importantly, in relation to CLIMATE CHANGE besides ENERGY SECURITY.**