

Ministers of World’s Biggest Energy Consumers Met in the IEA Clean Energy Transitions Summit



“What I see clearly is momentum behind sustainable recovery and momentum behind clean energy transitions.”
Dr. Fatih Birol

The International Energy Agency (IEA) held its first Clean Energy Transitions Summit with the participation of ministers from dozens of countries, accounting for over 80% of the world economy on July 9, 2020.

7

6

Sabancı University IICEC and the Energy PMP of the World Federation of Scientists Webinar: “Outlook for Nuclear Power in a Carbon Constrained World”

Thursday, 23 July 2020 13:30-15:00 (GMT) • 16:30-18:00 (Istanbul) • 15:30-17:00 (Paris) • 14:30-16:00 (London)

Dr. Robert J. Budnitz
Staff Scientist (retired),
Lawrence Berkeley National Laboratory

Prof. Carmine Difiglio
Director,
IICEC (Moderator)

Prof. H-Holger Rogner
Emeritus Research Scholar,
International Institute for
Applied Systems Analysis

Dr. Adnan Shihab-Eldin
Director General, Kuwait Foundation
for the Advancement of Sciences

IICEC’s latest webinar on nuclear power’s role in a low-carbon economy was held on July 23

8

POWER

Share of Renewables Reached 49.4% of Turkey’s Total Installed Capacity

9

RENEWABLE

Turkey Launched 1 GW Solar YEKA Tender with TL-based Feed-in Tariff

9

Viewpoint



Dispatchability, Value-Adjusted Costs and Nuclear Power

Prof. Carmine Difiglio

3

Monthly Highlights

Dispatchability, Value-Adjusted Costs and Nuclear Power	3
Ministers of World's Biggest Energy Consumers Met in the IEA Clean Energy Transitions Summit	6
Turkey Launched Renewables-Only Green Tariff Option for Consumers	7
IICEC's latest webinar on nuclear power's role in a low-carbon economy was held on July 23	8
Share of Renewables Reached 49.4% of Turkey's Total Installed Capacity	9
Turkey Launched 1 GW Solar YEKA Tender with TL-based Feed-in Tariff	9
European Leaders Agreed on the Mega 'Green Recovery' Package	10
Fatih Drillship Starts its Long-Awaited Black Sea Mission	11
Oil Prices Cautiously Rose in July as a Second Wave Scenario Shadow Over Fragile Economic Recovery	12



Prof. Carmine DiFiglio

Dispatchability, Value-Adjusted Costs and Nuclear Power

This Viewpoint follows the nuclear power theme of the recent IICEC/WFS¹ Webinar “Outlook for Nuclear Power in a Carbon Constrained World” broadcast on 23 July ([available here](#)). It explores why nuclear power may be more competitive than the commonly used measure of economic cost, LCOE (Levelized Cost of Energy), would suggest.

LCOE has been used by state power companies and regulated utilities for over 75 years to compare the costs of different power technologies. Its singular contribution was to provide a standard for integrating the capital, fuel and operating costs into one measure. However, during the last few decades, power markets around the world have been in a state of flux responding to rapidly changing technology developments, fuel prices and power market structures. These have collectively made LCOE a less reliable guide to comparing costs. Over the last two decades, there has been a remarkable decline in the costs of wind and solar power that has transformed power sectors around the world. Future cost reductions in solar and offshore wind are expected to continue to change the balance of future power generation toward more variable renewables.

The IEA recognized that a better measure was needed because of the effect that non-dispatchable, or variable, power was having in various power markets. With higher levels of variable renewables, it became clear that there was an increased value premium on load following power and a negative value premium for non-dispatchable power. These values were not being incorporated in LCOE.² VALCOE calculations correct this to provide a more accurate cost comparison for actual power markets. In addition, using VALCOE, instead of LCOE, is more consequential in the future

than now as the percentage of variable renewables is expected to significantly rise.

In a recent WFS paper³, I summarized what LCOE estimates say about which power technologies were most competitive in the United States, the EU and China:

- *Gas has become competitive in the EU.*
- *Coal has become relatively expensive in the EU.*
- *Gas is very inexpensive in the United States.*
- *Onshore wind has become cost competitive and solar PV is on track to be cost competitive in the United States, the EU and China.*
- *Nuclear power has become relatively expensive in the United States and EU.*

Moving forward to 2040, we expect that solar and onshore wind will have the lowest LCOEs in the United States followed closely by gas. In the EU, solar, onshore wind and offshore wind will have the lowest LCOEs. In China, solar will have the lowest LCOE with coal, nuclear and onshore wind having similar LCOEs tying for 2nd place.

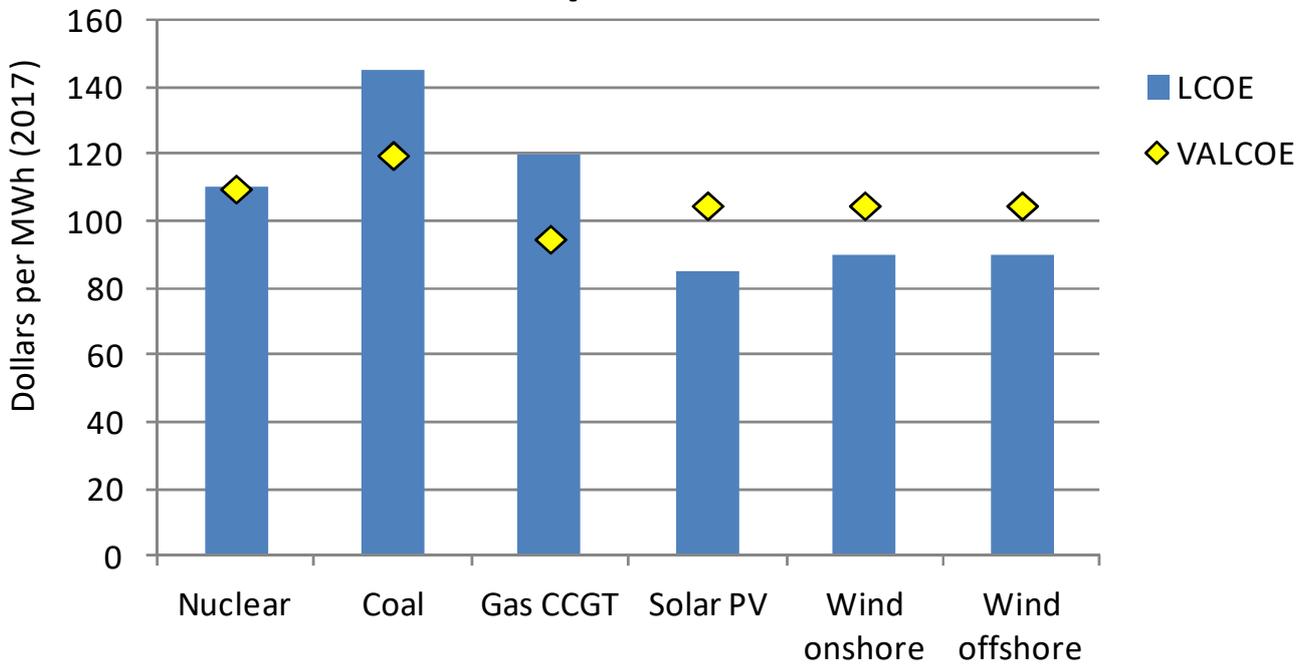
Let’s see how this 2040 picture would change if we used VALCOE to compare technology costs instead of LCOE. With VALCOE, variable renewable power plants have a higher value-adjusted cost of electricity than indicated by LCOE calculations. Load following plants, such as CCGT have a lower value-adjusted cost of electricity than LCOE estimates. The differences between VALCOE and LCOE are typically higher in countries that have a higher share of energy produced from variable renewables as, for example, is projected for the EU by 2040.

¹ World Federation of Scientists.

² IICEC has also employed the VALCOE approach in its forthcoming Turkey Energy Outlook.

³ C. DiFiglio, “Nuclear Power vs. Competing Power Sector Investments”, International Seminar on Nuclear War and Planetary Emergencies, 52nd Session, 2019, World Scientific Publishing Co., forthcoming.

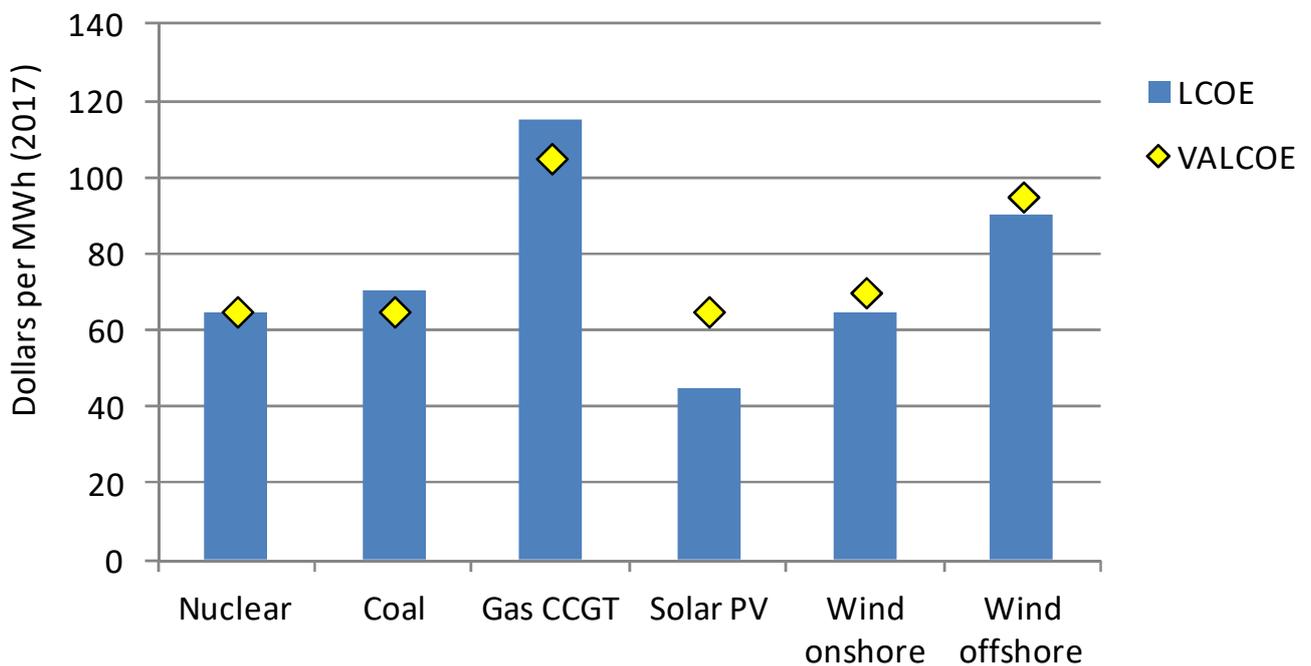
European Union



At just under 40% wind and solar in the EU, projected for 2040, the impact of using VALCOE instead of LCOE is significant. Instead of three cost leaders, solar PV, onshore and offshore wind, we see the value-adjusted cost of renewables increase and the value-adjusted cost of gas decrease. This produces fairly

similar VALCOEs for gas, solar PV, onshore wind and offshore wind, each being close to \$100/MWh. Nuclear is also in the mix as its VALCOE is less than \$10/MWh higher than the three renewable sources. In China, we see a similar impact of considering VALCOE.

China



“ The future role of nuclear will depend on a great variety of factors. It will have a small impact certainly compared to renewable energy. Nonetheless, achieving a low carbon future globally will require other pieces to fall into place besides renewable energy and energy efficiency and, in that context, keeping nuclear in the picture could be important.

”

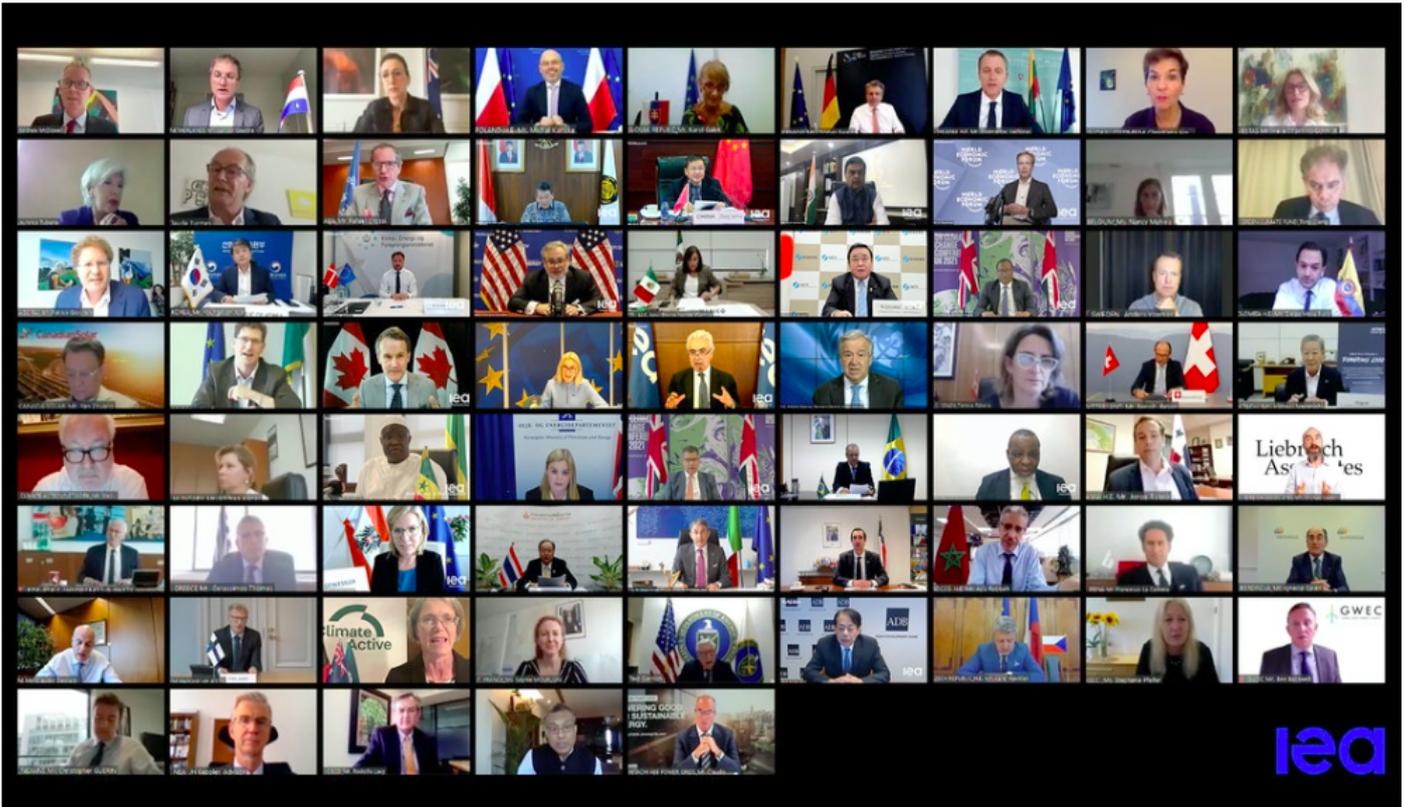
For China in 2040, instead of solar PV being, by far, having the lowest LCOE, we see, with VALCOE, a close parity among nuclear, coal, solar PV and onshore wind. Offshore wind becomes even less cost competitive and while gas becomes more competitive than before, it still remains the most expensive source of electricity in China.

VALCOE estimates show that nuclear power may be a more competitive technology in Europe than the LCOE data indicates. However, in Europe these cost insights may not have much impact. EU public opposition to nuclear power, outside of Eastern Europe, does not depend on economic cost. In the United States, where public opposition is not a major reason nuclear power is declining, VALCOE estimates still indicate that nuclear power remains an expensive long-term power option.

VALCOE is useful to monetize the ability to ramp-up and ramp-down power to respond to changes in supply and demand. VALCOE explicitly accounts for the value of flexibility that is not reflected in LCOE. It should be noted that VALCOE has a consistently neutral effect on nuclear power costs, neither increasing costs as is the case for variable renewables, or reducing costs as is the case for load following thermal power even if nuclear power plants operate in a load following mode. Fossil fuel plants, especially the flexible gas units, have fast ramp rates to adapt to load change.

They also achieve larger fuel cost savings with lower load factors than do nuclear plants as nuclear fuel costs are much lower per KWh than for gas or coal. In addition, the other variable costs of operating a nuclear plant in a load following mode are not reduced as they would be with fossil fuel plants, for example, natural gas plants that can simply be shut down. If anything, operating a nuclear plant in a load following mode requires additional attention by operators and can cause stresses on capital equipment depending on the plant design. For example, some nuclear power plant designs include the maximum number of load cycles and transient types such as the rate and magnitude of the variation in plant output. Nonetheless, nuclear power units have started to operate in load-following modes in many power systems that are incorporating more variable renewables. A more flexible load-following feature has become a more recent nuclear power plant design goal and is frequently featured in several SMR designs under development.

The future role of nuclear will depend on a great variety of factors. It will have a small impact certainly compared to renewable energy. Nonetheless, achieving a low carbon future globally will require other pieces to fall into place besides renewable energy and energy efficiency and, in that context, keeping nuclear in the picture could be important.



Ministers of World's Biggest Energy Consumers Met in the IEA Clean Energy Transitions Summit

The International Energy Agency (IEA) held its first Clean Energy Transitions Summit with the participation of ministers from dozens of countries, accounting for over 80% of the world economy on July 9, 2020. The ministers, the executives of global organizations, energy companies, and think-tanks discussed how to bring about a sustainable and resilient recovery from the Covid-19 crisis and achieve a definitive peak in global carbon emissions, according to IEA's statement on its web site.³ The Summit was live-streamed across IEA digital channels to a worldwide audience that reached over 500,000 viewers.

Ministers participating in the Summit included those from the world's largest energy consumers: Minister

Zhang Jinhua of China, Secretary Dan Brouillette of the United States, Commissioner Kadri Simson of the European Union, Minister R.K. Singh of India, Minister Kajiyama Hiroshi of Japan, Minister Kwasi Kwarteng of the United Kingdom, Minister Bento Albuquerque of Brazil, Minister Seamus O'Regan of Canada, Minister Sergio Costa of Italy, Minister Gwede Mantashe of South Africa, Secretary Rocío Nahle of Mexico, Minister Arifin Tasrif of Indonesia, and Deputy Prime Minister Ribera of Spain.

Speakers also included United Nations Secretary-General Antonio Guterres, CEOs from across the energy sector, top investors, heads of regional development banks, and other key international organizations, past and present COP Presidents – including

Secretary of State Alok Sharma of the United Kingdom – and leaders from civil society.

Participants discussed the impacts of the Covid-19 pandemic on their energy systems, underscoring the importance of finding ways to support clean energy transitions despite the current challenges at the first-ever IEA Clean Energy Transitions Summit.

Speakers highlighted that the IEA Summit comes at a pivotal moment when the world faces urgent and shared challenges to build back economies, create jobs, and accelerate clean energy transitions. Participants also applauded the IEA's Sustainable Recovery Plan, which sets out 30 actionable, ambitious policy recommendations, and targeted investments. The Plan, developed

³ International Energy Agency (IEA), (July 9, 2020) Ministers of world's biggest energy consumers – including China, US, EU and India – are among high-level participants in the IEA Clean Energy Transitions Summit

in cooperation with the International Monetary Fund, would boost global economic growth by 1.1% per year, save or create 9 million jobs per year, and avoid a rebound in emissions and put them in structural decline.

According to the IEA's Sustainable Recovery Plan, 35% of new jobs could be created through energy efficiency measures and another 25% in power systems, particularly

in wind, solar, and modernizing and strengthening electricity grids. Participants underlined the particular importance of energy efficiency and expressed appreciation for the work of the Global Commission for Urgent Action on Energy Efficiency.

The participants of the IEA Clean Energy Transitions Summit also emphasized the importance of the IEA continuing to lead global clean

energy transitions and further building momentum for sustainable recoveries. They reconfirmed the important role of the IEA to help facilitate the sharing of best practices and learning from others' successes and failures. Participants stressed the need for the IEA to continue tracking progress on clean energy transitions, especially highlighting progress in recovery plans, according to the Chair's Summary published on IEA's website.

"What I see clearly is momentum behind sustainable recovery and momentum behind clean energy transitions." Dr. Fatih Birol



Fatih Birol

"This Summit proves that international dialogue and collaboration can bring great value. It was an opportunity to inform, support, and inspire each other. Now, it is time for all of us to get to work – building back our economies, bringing our citizens back to work, ensuring that 2019 was the definitive peak in emissions and building towards the resilient and sustainable energy systems of the future," said Dr. Fatih Birol, the IEA's Executive Director who chaired the Summit. "What I see clearly is momentum – momentum behind sustainable recovery and momentum behind clean energy transitions." he added.

Turkey Launched Renewables-Only Green Tariff Option for Consumers

Turkey implemented a new tariff regulation to enable commercial and household consumers to purchase electricity generated exclusively from renewables. Consumers, voluntarily seeking to use electricity generated from renewable sources, are allowed to use green tariffs starting from August.

Turkey's Energy Market Regulatory Authority (EMRA) introduced the green tariff as 699.75 TL/MWh for residential consumers. The green tariff, which is above the regular tariff, will be decreased gradually in the future, according to Minister

of Energy and Natural Resources, Fatih Dönmez. The green tariff varies between 792.5 – 914.6 TL/MWh for agricultural watering, street lighting, and other purposes. The current regulated tariff rates range between 365 TL/MWh for households and 537 TL/MWh for commercial consumers.

According to new green tariff regulation, consumers who prefer to use power from renewable sources will sign contracts with the electricity distribution companies. The distribution companies will be required to provide certificates outlining the origin of their supply from renewable

sources. According to EMRA's regulation, the monthly residential bills will be indicated by a specific sign to prove renewable sources' consumption.

Regulator EMRA also initiated public consultation for the Renewable Energy Source Guarantee Certification (YEK-G) regulation, to certify power generated by renewable power plants is green and clean. According to the YEK-G regulation, green electricity producers will be allowed to register in the newly formed YEK-G market on Energy Exchange Istanbul (EXIST), for certificate trade and export.

IICEC's latest webinar on nuclear power's role in a low-carbon economy was held on July 23

As part of its webinar series, IICEC organized its latest event "Outlook for Nuclear Power in a Carbon Constrained World" on July 23 in cooperation with the World Federation of Scientists (WFS) ([available here](#)). WFS energy policy activities include reducing world-wide energy poverty, reducing energy-sector

greenhouse gas emissions, promoting energy efficiency, policies to best utilize low emission technologies such as renewable energy and nuclear power and analyzing oil markets and energy security. IICEC Director Prof. Carmine Difiglio serves as a co-chair of the WFS Permanent Monitoring Panel on Energy.

Moderated by Carmine Difiglio, the webinar hosted three prominent experts: Dr. Robert J. Budnitz, Staff Scientist (retired) of the Lawrence Berkeley National Laboratory, Prof. H-Holger Rogner, Emeritus Research Scholar of the International Institute for Applied Systems Analysis (IIASA) and Dr. Adnan Shihab-Eldin, Director General of the Kuwait Foundation for the Advancement of Sciences.

Briefing about the current outlook of the global nuclear industry, Dr. Budnitz made a presentation titled "Nuclear Power Technology and Safety", pointing out that, despite the likelihood of a core-melt accident is objectively low, deep concerns regarding the nuclear power plants' safety still dominate the public discussion. Based on the serial design and operational improvements

Sabancı University IICEC and the Energy PMP of the World Federation of Scientists Webinar: "Outlook for Nuclear Power in a Carbon Constrained World"

Thursday, 23 July 2020 13:30-15:00 (GMT) • 16:30-18:00 (Istanbul) • 15:30-17:00 (Paris) • 14:30-16:00 (London)

Dr. Robert J. Budnitz
Staff Scientist (retired),
Lawrence Berkeley National Laboratory

Prof. Carmine Difiglio
Director,
IICEC (Moderator)

Prof. H-Holger Rogner
Emeritus Research Scholar,
International Institute for
Applied Systems Analysis

Dr. Adnan Shihab-Eldin
Director General, Kuwait Foundation
for the Advancement of Sciences

thanks to a steep learning curve since the first nuclear power plants many decades ago, he highlighted the data showing much improved safety parameters for current nuclear power plants and why current new and future designs have more inherent safety features. Small Modular Reactors (SMRs) in particular may offer much safer and simpler technologies that will be less dependent on operational circumstances such as the loss of back-up power generation. Budnitz maintained that nuclear waste disposal is not a substantial technical challenge and while the current surface storage of spent fuel and waste is safe, deep underground long-term storage is a priority.

Dr. Budnitz emphasized the importance of strong institutional frameworks and a culture of safety that is necessary for the safe operation of the world's nuclear reactor fleet. After Dr. Budnitz's presentation Difiglio relayed many questions to Dr. Budnitz and the other panelists about the difference between what Dr. Budnitz claimed and the general impression that the public has about nuclear power safety and, in particular,

questions about the three nuclear power accidents at Three Mile Island, Chernobyl and Fukushima including whether reforms of the International Atomic Energy Agency's (IAEA's) safety authorities are needed. As Dr. Shihab-Eldin once served as acting Secretary General of the IAEA, he was in an excellent position to give an authoritative answer to this question. At about the half-way point, the webinar turned to the economics of nuclear power with an overview from Prof. Rogner who gave a comparative analysis on the competitiveness of nuclear power with other power technologies and how the pricing of carbon emissions would alter nuclear power's cost competitiveness. Again, the SMR emerged as an important new technology that could make nuclear power less costly and less risky to investors as large nuclear power plant construction projects are replaced by the delivery of factory built turn-key reactors. After Professor Rogner's overview, Difiglio relayed a wide variety of questions, many from the webinar audience that kept the panelists busy providing many insights about nuclear power economics and development.

Share of Renewables Reached 49.4% of Turkey's Total Installed Capacity

The share of renewable power plants reached 49.4% of Turkey's total installed capacity with 45.5 GW in the first half of 2020, TEİAŞ's data showed. Turkey's installed capacity increased 978 MW in the first half and hit 92,097 MW by the end of June. The hydroelectric power plants comprised the majority in installed capacity growth by 652 MW while the wind plants contributed 286 MW. The remaining 28 MW is added by the biomass and biogas plants.

Turkey's total installed capacity, including license-exempt solar power plants, is 92,097 MW as of June. The share of renewables is expected to surpass 52% by the end of this year due to ongoing renewable power plant constructions. The share of renewables in the total installed capacity, which was 44.7% in 2018, reached 45.2% at the end of 2019.

On the electricity generation side, Turkey produced 66% of its electricity from local and renewable sources in the first five months of 2020, according to TEİAŞ's data. TEİAŞ's daily reports detailed the share of each source out of the total amount of 66% in which 34.3% was generated from hydroelectricity, 13.8% from local coal, 8.8% from wind, 3.6% from geothermal, 3.5% from solar, 1.8% from biomass and 0.2% from other sources. Turkey's electricity production from local and renewable sources stood at 62% in 2019.

Primary Resource	Installed Capacity (MW)	No of Power Plants
Natural Gas	25.595,40	330
Dam type HEPP	21.265,50	127
Lignite	10.097,30	47
Imported Coal	8.966,90	15
River type HEPP	7.888,60	559
Wind	7.876,90	275
Solar	6.166,60	7.104
Geothermal	1.514,70	54
Biomass	832,1	188
Hard Coal	810,8	4
Asphaltite	405	1
Waste Heat	363,8	84
Fuel-Oil	305,9	11
Naphta	4,7	1
LNG	2	1
Diesel	1	1
Total	92.097,20	8.802

Source: TEİAŞ

Turkey Launched 1 GW Solar YEKA Tender with TL-based Feed-in Tariff

Ministry of Energy and Natural Resources of Turkey launched tender for 1 GW solar power plants in 36 designated provinces across Turkey. According to the tender announcement, the ministry will hold tenders for 74 solar power plants with a size ranging between 10, 15, and 20 MW. The designated provinces for solar power plant constructions are mostly located in central, eastern, and southern Anatolia. The highest capacity allocation is made to the southern coastal city of Antalya, the southeastern provinces of Mardin, Gaziantep, and eastern city Van. The ministry will accept applications between October 19-22, 2020.



The 1 GW solar energy resource areas (YEKA) tender will be the first YEKA tender in which the Ministry of Energy will test the TL based feed-in tariff in renewables. The price cap for each bid will be 300 TL/MWh (~ 43 \$/MWh), and the price will be escalated quarterly by PPI. The license term is set as 30 years by the ministry. The

pre-license periods will be 18 months for solar plants having 10 MW installed capacity and 22 months for 15 MW and 20 MW power plants.

The localization rate for the solar panels that will be used at plants will be at least 70%, and the rate for the inverters and other equipment will be at least 51%.

European Leaders Agreed on the Mega 'Green Recovery' Package

EU leaders agreed on a £1.8 trillion budget, including a £1 trillion budget for 2021-27 and a £750 billion recovery fund, known as the 'Next Generation EU,' to help member countries fight with the economic impact of the pandemic within next three years.



Aiming to become the world's first climate-neutral continent by 2050 under the 'European Green Deal' strategy, the bloc plans to spend 30% of its mega-budget budget towards its climate goals. The main focal points of the decarbonization plan were specified as low-carbon technologies like clean hydrogen, renewables, batteries, and CCS (carbon capture and storage).

After nearly five days of negotiations, all 27 leaders compromised on the 'Just Transition Fund,' European Commission's flagship roadmap to help carbon-intensive European economies ditch fossil fuels. "Europe's recovery will be green, and the new budget will power the European Green Deal," Ursula von der Leyen, President of the European Commission (EC), told reporters at the press conference after the summit.

While the bloc already has an ambitious target of cutting its emissions by at least 40% from 1990 levels by 2030, the EC plans to propose in September increasing this target up to 55%.

EU leaders made several cuts to the EC's proposed £1 trillion budget for 2021-27, including the revision of the £8.7 billion for the energy share of the Connecting Europe Facility down to £5.2 billion.



While leaders kept the total size of the recovery fund as it proposed by the EC, they increased the share within it for the new Recovery and Resilience Facility to £672.50 billion. Member countries can access this fund by submitting national Recovery and Resilience Plans to the EC, showing how they would spend the money to help recover from the pandemic lockdowns, while the EC is expected to evaluate these national plans in line with the bloc's 2030 and 2050 climate targets.

Although the draft proposal stipulated that only countries that have committed to a national target of zeroing out their carbon emissions by 2050 would have access to the Just Transition Fund, that pre-condition was eased as the bloc-wide neutrality target.

EU leaders also cut the £100 billion proposal for the Horizon Europe research and innovation program, which includes a specific cluster targeting climate, energy, and mobility research, down to £75.9 billion. The current Horizon 2020 research program also supports climate and energy research, with the EC planning to open an estimated £1 billion call after this summer. The 'EU Innovation Fund' will support projects such as floating wind farms, carbon capture

mechanisms, and energy storage, all of which could help clean up sectors such as cement and steelmaking. On July 3, the EC invited projects to bid for £1 billion in grants from the fund, which is fed by EU carbon market revenues. Further funding will follow over the next decade. The fund's size will depend on the EU carbon price, meaning that it would be worth roughly £12 billion at current prices.

The long-term budget agreed during the 5-day summit was just the latest node within a series of legislations in July towards the European Green Deal targets. On July 7, European lawmakers agreed to include international carbon emissions from the maritime sector in the EU carbon market, targeting shipping companies which are not yet included in the EU Emissions Trading System (ETS). The European Parliament called for binding targets for shipping companies to reduce the annual average CO2 emissions of all ships when in operation, by at least 40% by 2030 compared to 2018 levels. The Parliament also called for creating an 'Ocean Fund' from 2023 until 2030, financed by revenues from auctioning allowances under the ETS, to make ships more energy-efficient.

On the following day, the EC unveiled

a strategy to scale up renewable hydrogen projects across polluting sectors from chemicals to steel and push for clean fuels and energy efficiency. While European industry and refineries already use around 8 million tons of 'grey hydrogen' each year, the EC targets to develop 'green hydrogen' and largely deploy it for sectors hard to decarbonize or where electrification is difficult or impossible from 2030 to 2050, following a transition period of 'blue hydrogen'. The EC said that it will follow a 3-phase approach:

- From 2020 to 2024, the Commission's objective is to support the installation of at least 6 gigawatts of renewable hydrogen electrolyzers in the EU, in order to produce up to 1 million tons of

renewable hydrogen.

- From 2025 to 2030, hydrogen needs to become an intrinsic part of Europe's integrated energy system, the Commission says, with at least 40 gigawatts of renewable hydrogen electrolyzers and the production of up to 10 million tons of renewable hydrogen in the EU.
- From 2030 to 2050, the aim is for renewable hydrogen technologies to reach maturity and be deployed at a large scale across all hard-to-decarbonize sectors, such as chemicals and steelmaking.

The EC also unveiled its 'Energy System Integration Strategy', which aims to link different energy carriers, infrastructure, and consumption sectors together in order to boost

renewables and reduce carbon emissions. The strategy aims to achieve deep decarbonization at the lowest possible costs by minimizing waste and using the relative strengths of different energy carriers such as electricity and decarbonized gases.

According to the strategy paper, this integrated energy system would rest on three pillars:

- A more 'circular' energy system, with energy efficiency at its core,
- greater direct electrification of end-use sectors like transport and buildings, and
- using renewable and low-carbon fuels like hydrogen for end-use applications like cement or steelmaking where direct heating or electrification is not feasible.

Fatih Drillship Starts its Long-Awaited Black Sea Mission

Turkey's Fatih drillship will begin drilling in the Tuna-1 location in the Black Sea, Energy and Natural Resources Minister Fatih Dönmez announced on July 20. "We will search every square meter of our seas for Turkey's energy independence," Dönmez wrote on Twitter.

The vessel, which is being used by the state-owned Turkish Petroleum Corporation (TPAO) in drilling activities in both the Mediterranean and the Black Sea, set sail for the Black Sea on May 29 from Istanbul. 103-meter-long towers of the vessel were disassembled in the Haydarpaşa port in Istanbul to enable safe passage of the vessel under the bridges through the Bosphorus before its journey.

TPAO currently owns two seismic and three drilling vessels. While seismic



vessels were named as renowned 16th-century admirals of the Ottoman Navy (Oruc Reis and his younger brother Barbaros Hayrettin), drilling ships were named as the titles of the prominent Ottoman sultans (Fatih -Mehmed the Conqueror-, Yavuz -Selim the Resolute-, and Kanuni -Suleiman the Magnificent-).

The 229-meter-long Fatih drillship, which weighs 5,283 gross tons, is capable of drilling to a maximum depth of 40,000 feet. The Tuna-1 zone is located off the mouth of the Danube block in the crossroads between Bulgarian and Romanian maritime borders with the inland waters of Turkey. Barbaros Hayrettin seismic

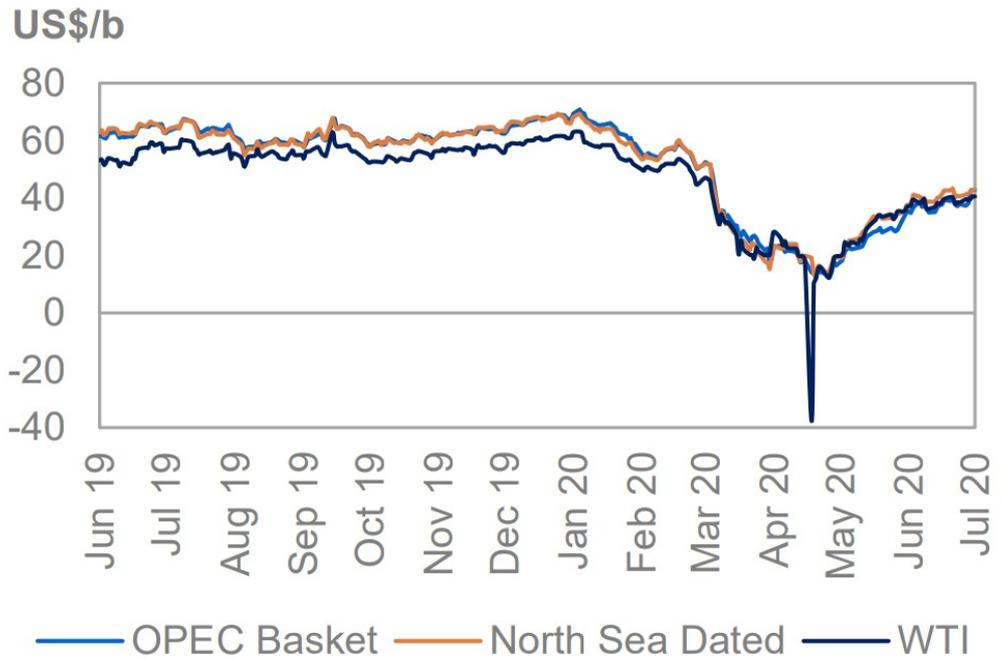
vessel had earlier carried out seismic surveys and identified potential natural gas reserves in the Danube block in the Western Black Sea, where both neighboring countries have been producing oil and gas for many years.

While Turkey planned to conduct five drills in the Eastern Mediterranean this year according to the Annual Presidential Program, TPAO has already completed six drilling studies, and Yavuz drillship began seventh in the Selcuklu-1 zone. Turkey's latest drillship, Kanuni, also arrived in the Mediterranean coastal city of Mersin on March 15 and will start its operations late this year following its renewal and upgrade studies.

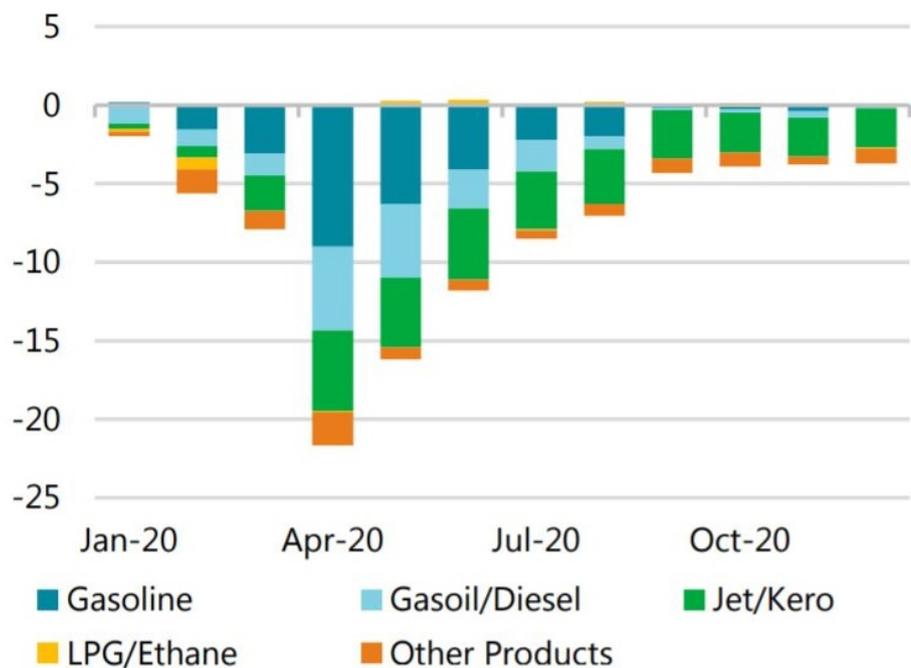
Oil Prices Cautiously Rose in July as a Second Wave Scenario Shadow Over Fragile Economic Recovery

After hitting its 20-year lows in April, oil prices slowed its upward trend and appeared to be trapped in a narrow trading band due to growing concerns over a second global Covid-19 wave (Chart 1). While a gradual recovery was expected thanks to easing the many lockdowns in major economies, oil prices are struggling because of the large cuts in petroleum product demand as shown in Chart 2 through the beginning of July and expected in 2020 by the IEA.

The month of July began with discussions over the revision of the record supply cut of OPEC+. Russian Energy Minister Alexander Novak told the Valdai international discussion club on July 2 that there is no decision to extend the decline in oil production under the OPEC+ deal at the level of May-June, 9.7 million barrels per day (mbpd). According to data from Energy Intelligence, OPEC+ members' respected targets in June. While Iraq, Nigeria, and Angola produced more than their targets, Saudi Arabia achieved a compliance level of 140% with an average production of 7.49



Graphic 1 – Crude oil price movements (June 2019 - July 2020)⁴



Graphic 2 – Annual oil demand change by product (mb/d)⁵

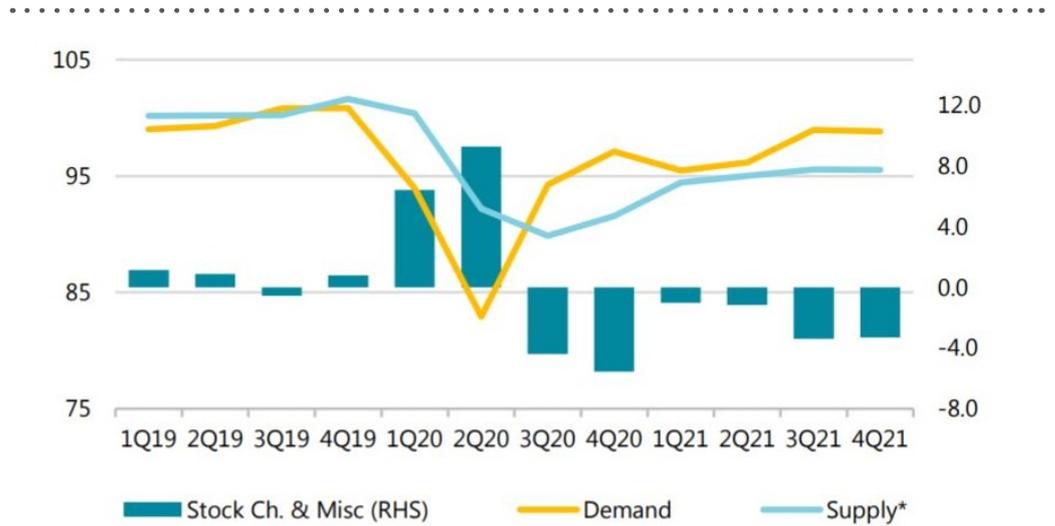
⁴ OPEC, (July 14, 2020) Monthly Oil Market Report - July 2020

⁵ International Energy Agency (IEA), (July 10, 2020) Monthly Oil Market Report

mbpd in June, compared with 12 mbpd in April. The UAE and Kuwait also followed Saudi Arabia in compliance levels with 120% and 112%, respectively.

While many analysts have believed that OPEC+ countries, Saudi Arabia and Russia in particular, aimed to drive the U.S. shale producers out of business with their earlier supply increases, OPEC Secretary-General Mohammad Sanusi Barkindo ruled out these views. “There is no objective whatsoever from us as a group or as individual countries to drive the U.S. shale production out of business. Without the U.S. shale probably, we could have entered into a worse crisis than we are seeing in this pandemic,” Barkindo told IHS Markit on July 9. “The pandemic has proven beyond a reasonable doubt the need to revisit the governance architecture of energy, climate change, and possibly geopolitics,” he added.

The IEA July Monthly Report raised its 2020 forecast to 92.1 mbpd, up 400,000 bpd from its outlook last month, citing a smaller-than-expected second-quarter decline. “While the oil market has undoubtedly made progress, accelerating the number of Covid-19 cases is a disturbing reminder



* Assumes 100% compliance with OPEC+ deal

Graphic 2 – Global oil supply-demand balance 2019-21 (mb/d)⁶

that the pandemic is not under control, and the risk to our market outlook is almost certainly to the downside,” the Paris-based agency said. Oil refining activity in 2020 is set to fall by more than the agency anticipated last month and to grow less in 2021, and the demand in 2021 will likely be 2.6 mbpd below 2019 levels, with kerosene and jet fuel due to a drop in air travel accounting for three-quarters of the shortfall.

The outlook for future oil demand and prices varies widely as they all depend somewhat on making assumptions about the trajectory of the Covid-19 pandemic. According to the Rapidan Energy Group, weekly travel data signals a slower-than-expected recovery. While the congestion in major European cities continues to average 80% of pre-Covid-19 levels, surging cases in many U.S. states caused a stagnation in traffic data. Peak evening congestion measurements for major U.S. cities remain at 40% of last year’s levels. While flight departures in Europe, China, and the rest of Asia showed solid gains in July, Spain and several South Korean airports have approached or exceeded their December departure levels.

Rystad Energy also considers a mild second wave of the Covid-19 pandemic, which will last through February 2021 and consequently revised its base-case scenario. Rystad now sees its base-case calling for oil demand to stay flat through October, before inching slowly up thereafter, but more slowly than it had previously predicted. Rystad announced that it expects oil demand to average 89.7 mbpd in 2020 and 97.1 mbpd in 2021, still below the 2019 average of 99.0 mbpd.

Some agencies are expecting a return to near normal in 2021. OPEC’s July report predicted that global oil demand would soar by a record 7 mbpd in 2021 but still remain below 2019 levels. “This assumes that Covid-19 is contained, especially in major economies, allowing for recovery in private household consumption and investment, supported by the massive stimulus measures undertaken to combat the pandemic,” OPEC said. Meanwhile, the EIA announced that U.S. oil demand is expected to remain below the 2019 average from pre-Covid-19 levels until August 2021. U.S. liquid fuel consumption reached its all-time monthly low in April since the early 1980s at an average of

⁶ International Energy Agency (IEA), (July 10, 2020) Monthly Oil Market Report

14.7 mbpd, according to the EIA’s July report. Following EIA’s report, Barclays Commodities Research released an analysis on 23 July predicting that oil prices could see a near-term correction if a recovery in fuel demand slows further, especially in the United States. The bank also lowered its oil market surplus forecast

for 2020 to an average of 2.5 mbpd from 3.5 mbpd previously.

The broader economic impacts of the collapse of world oil demand continue to reverberate including write-downs among energy majors. These write-downs reflected oil majors’ lower assumptions for future oil prices.

In addition, the IMF said in its latest update on the Middle East and North Africa that the oil price plunge and the production cuts after the pandemic would hit oil exporters in the region hard, with the combined oil income for those countries expected to plummet by \$270 billion in 2020 compared to the last year.

High Frequency Demand Tracker							
			Current Week	Previous Week (7/12 - 7/18)	Pre-Coronavirus	Percent of Pre-COVID Levels	Source
Air Traffic	Commercial Flight Departures*	World	63,831	61,726	110,937	58%	FlightRadar24
	Airport Security Check-Ins	US	657,724	665,040	2,620,709	25%	TSA
Road Transportation	Traffic Congestion**	Beijing	50%	48%	63%	80%	TomTom
		Shanghai	46%	50%	55%	84%	
		Bengaluru	10%	46%	112%	9%	
		Mumbai	30%	35%	107%	28%	
		New Delhi	48%	42%	94%	51%	
		Los Angeles	28%	27%	77%	36%	
		New York	26%	30%	64%	41%	
		Chicago	19%	22%	54%	35%	
		Houston	16%	15%	61%	25%	
		London	41%	40%	62%	67%	
		Paris	50%	21%	67%	74%	
		Moscow	78%	84%	102%	76%	
		Madrid	9%	11%	42%	21%	
		Rome	34%	34%	66%	51%	
		Berlin	51%	46%	57%	89%	
		Hamburg	50%	48%	57%	88%	
Stockholm	25%	31%	60%	41%			
Mexico City	26%	30%	83%	32%			
Buenos Aires	17%	18%	52%	33%			
Sao Paulo	34%	33%	81%	41%			
Rio de Janeiro	39%	39%	77%	50%			

* Measured using 7-day rolling average

** Percentages represent peak evening congestion levels measured by TomTom

Table 1 – Air and road traffic congestion in major cities⁷

⁷ Courtesy of the Rapidan Energy Group. <https://www.rapidanenergy.com>

Publisher

IICEC SABANCI UNIVERSITY ISTANBUL INTERNATIONAL
CENTER FOR ENERGY AND CLIMATE

For any questions and additional information, please contact:

Prof. Dr. Carmine Difiglio

E-mail: carminedifiglio@sabanciuniv.edu

Dr. Mehmet Doğan Üçok

E-mail: mdoganucok@sabanciuniv.edu

CONTACT

Address:

IICEC, Sabanci University Minerva Palace,
Bankalar Cad. No: 2, Karaköy, 34420, Istanbul Turkey

Phone: +90 (212) 292 49 39 / 1114

IICEC’s Energy Market Newsletter is a complimentary newsletter, published on IICEC’s webpage - <https://iicec.sabanciuniv.edu> - and distributed to its mailing list. IICEC and any IICEC Energy Market Newsletter content providers do not accept liability for commercial decisions based on the content of this report as the complimentary IICEC Energy Market Newsletter is not intended to inform commodity market speculation or to provide advice for any business transactions