

IAEE ENERGY FORUM

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PRESIDENT'S MESSAGE

Dear IAEE members,

I am impressed by the diligence of our members during these challenging times with COVID-19 and would like to thank you for your continued support. I truly hope you are all keeping safe. Despite the "no hugs and handshakes", please keep in touch, though, we need to hear from you.

I recall writing in my first message this year that IAEE is like a ship constantly navigating in uncharted open waters. Energy economics combined with environmental issues are redefining the boundaries of social acceptance rather than simply optimizing or minimizing. Well, the economic waves caused by COVID-19 are far bigger than anticipated and it feels as if we have reached the middle of the rogue wave, or tsunami. This is one of the most challenging tests of resilience for humanity. How and when will the world recover, how will the society be back to normal and how will we work in the future are still unknown. One thing is for certain, keeping ideas to yourselves and isolated is not the solution but maintaining an open channel of communications and information exchange for creative solutions is indispensable to tackle this global challenge.

We made the very difficult decisions to postpone most of our planned conferences for 2020. Paris and Austin conferences are postponed from 2020 to 2021 while Tokyo will move to 2022, followed by Riyadh to 2023. Please stay tuned for renewed dates which will be posted on our website. I hope the IAEE community will keep our debate and exchange of ideas active and lively during this hard time until we meet in person. Here is how:

Our association, with its 3800 members worldwide, is best positioned to develop and provide the important service of concentrating information on energy economics. We are the International Association for Energy Economics and we have a role to play. The pandemic is forcing us to search for opportunities and to explore new ways to be effective.

For example, IAEE's response to inform and keep our energy community together has been to produce non-stop webinars and podcasts. As many of you already know, IAEE is already attracting and working with the best academics, practitioners, industrialists and research institutes in the world and many more are invited to join in this effort of providing and sharing information. In the weeks and months ahead IAEE will be working with the best research institutions in the world to collaborate and engage participation from industry/business and governmental organizations in a series of webinars that will keep our energy economics committed well informed and engaged. For you, our members, I encourage you to reach out and be engaged in this lively discussion. Reach out to IAEE's staff at iaee@iaee.org should you wish to organize an IAEE webinar or podcast to reach our membership.



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President's Message (continued)

IAEE is very grateful to our Executive Director, David Williams, for what I would call predetermining the impact of COVID-19 and lining up a special issue of the Energy Forum and how COVID-19 is or will affect the energy industries as they face major demand drops, supply-side shocks, facilities shut downs or even new patterns of electricity demand. The energy industries have been rocked hard. I am grateful to David and his incredible staff for producing this issue on such a short notice.

We have received over 30 articles for this special issue

and the replies are overwhelming with the strongest show of interest IAEE has ever had for Energy Forum. I sincerely hope that such a passion will contribute to the creation of wisdom for the energy industries and energy users. And I hope that IAEE will continue to serve our members as an influential community in the field. Before closing, I strongly wish our IAEE family safe during this difficult time of COVID-19 turmoil. In one way or another, we have all been touched by this virus, so please stay safe. In the end, we will come out of this a stronger and better informed society

Yukari Yamashita

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IAEE MISSION STATEMENT

The International Association for Energy Economics is an independent, non-profit, global membership organisation for business, government, academic and other professionals concerned with energy and related issues in the international community. We advance the knowledge, understanding and application of economics across all aspects of energy and foster communication amongst energy concerned professionals.

WE FACILITATE:

- Worldwide information flow and exchange of ideas on energy issues
- High quality research
- Development and education of students and energy professionals

WE ACCOMPLISH THIS THROUGH:

- Providing leading edge publications and electronic media
- Organizing international and regional conferences
- Building networks of energy concerned professionals

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IAEE is a 501(c)(6) corporation and neither takes any position on any political issue nor endorses any candidates, parties, or public policy proposals. IAEE officers, staff, and members may not represent that any policy position is supported by the IAEE nor claim to represent the IAEE in advocating any political objective. However, issues involving energy policy inherently involve questions of energy economics. Economic analysis of energy topics provides critical input to energy policy decisions. IAEE encourages its members to consider and explore the policy implications of their work as a means of maximizing the value of their work. IAEE is therefore pleased to offer its members a neutral and wholly non-partisan forum in its conferences and web-sites for its members to analyze such policy implications and to engage in dialogue about them, including advocacy by members of certain policies or positions, provided that such members do so with full respect of IAEE's need to maintain its own strict political neutrality. Any policy endorsed or advocated in any IAEE conference, document, publication, or web-site posting should therefore be understood to be the position of its individual author or authors, and not that of the IAEE nor its members as a group. Authors are requested to include in a speech or writing advocating a policy position a statement that it represents the author's own views and not necessarily those of the IAEE or any other members. Any member who willfully violates IAEE's political neutrality may be censured or removed from membership.

Editor's Notes

We're most gratified by the response to our call for articles on Covid-19's impact on the energy economy. Nearly 40 articles were received which has resulted in the largest *Energy Forum* ever. Though there obviously is quite a bit of overlap, we've organized these into three groups: First, articles that look at the global impact, second articles more focused on a country or area. And, finally articles focussing on an energy sector.

Michelle Michot Foss explores expectations formed during the previous recession about energy use and draws some inferences for future pathways.

Sam Van Vactor reviews the economic impact of the novel coronavirus as it relates to energy markets. He surveys the impact of Covid-19 on China, Europe and the United States, and analyzes the nature of the virus and how its characteristics have an unusually powerful impact on economic activity. He explains that energy markets have played a key role in identifying and quantifying the economic impact of Covid-19. In turn, energy demand has responded dramatically to the virus and the policy measures put in place to bring it under control.

Cristian Stet draws a parallel between the recent negative prices in the oil and power markets. Additionally, he shows that while negative oil prices are rare events, in power markets, without policy changes or technology developments, those negative prices could become more frequent.

Tilak Doshi notes that Asian governments now face stark trade-offs, as the needs of an immediate, potentially catastrophic health crisis (and its devastating economic fallout) compete with the policy requirements of what the climate industrial complex deems as an equally threatening existential threat of "climate crisis".

Jeff Combs writes that nuclear energy around the

world has been negatively affected by COVID-19, although uranium prices have increased notably in recent months as the short-term impact on supply has been greater than demand. The negative effect on electricity demand and nuclear power output is likely to continue into the 2021-2025 period.

Ben McWilliams and **Georg Zachmann** note that conventional data used to track economic activity are released relatively slowly in comparison with the speed at which economies have responded to the COVID-19 crisis. Electricity data can offer one almost real-time perspective as to how economies have responded. We shed some light on the issue by comparing 2020 consumption

Anupam Dutta, Elie Bouri, Gazi Salah Uddin and **Muhammad Yahya** examine the heterogeneous and asymmetric impact of crude oil during coronavirus pandemic. Their findings indicate that crude oil responds more asymmetrically, and it may be attributed to demand and supply shock and geopolitical turbulences. Furthermore, the impact significantly increased across all assets with declaration of pandemic from WHO.

Zied Ftiti, Hachmi Ben Ameer and **Wael Louhichi** review the dynamics of the oil markets during the period of the coronavirus disease and then discuss the prospects of the oil industry in the second half of 2020. Interestingly, we highlight that COVID-19 impacted the oil market based on the output and the stock market channels. Then, we have proposed an outlook for the rest of the year through investigating the prospects for oil demand, oil-supply, oil-consumption and the oil industry.

Pao-Yu Oei, Paola Yanguas Parra, and **Christian Hauenstein** posit that the COVID-19 pandemic results in a global recession and consequently a drop in fuel prices and global coal demand. This will exacerbate already existing economic challenges of the coal industry and might accelerate global coal phase-out and just transition efforts, depending on the nature of economic recovery strategies.

ARE YOU INTERESTED IN SUBMITTING AN ARTICLE TO THE ENERGY FORUM?

The IAEE *Energy Forum* is our members' open publication for submissions. If you have an article you would like to have considered for publication, please email us at iaee@iaee.org

Here's what to do:

- Submit a non-technical article, short in nature (750 - 3000 words) in MS Word format.
- Submit any tables/charts/graphics, etc. in four color, following the following specifications:
 - o Greyscale/Color: 266ppi
 - o Combination (tone and text): 500ppi-900ppi
 - o Monochrome: 900ppi+
- Provide a short (30 word) capsule/abstract that overviews your article.
- Include your full name and professional Affiliation.
- Authors are to submit a description of their work for use on the Association's social media accounts (Twitter account @IA4EE / @USA4EE and LinkedIn

<https://www.linkedin.com/groups/3047782/> and

<https://www.linkedin.com/company/usaae>) Please submit 2-3 sentences summarizing your research to iaee@iaee.org.

We hope to receive your submission!

[Steven Percy](#) and [Bruce Mountain](#) examine electrical demand data to assess the impact of Covid-19 social distancing restrictions in Australia, the United States, New Zealand and Great Britain. They also review changes in mobility and find a strong correlation between mobility trends and aggregate electrical demand. While apparently similar social distancing restrictions in all four countries might have been expected to show up in similar electrical demand and mobility reductions, in fact the picture is very different:

[Kenneth Bruninx](#) and [Marten Ovaere](#) estimate that COVID-19 decreased carbon emissions from EU ETS sectors by around 38 MtCO₂ per month, because of lower emissions from electricity (-9 MtCO₂), aviation (-5 MtCO₂) and industry (-24 MtCO₂). This negative demand shock has limited effect on allowances prices and is largely translated into lower cumulative carbon emissions.

[Bangzhu Zhu](#) and [Lin Zhang](#) note that the outbreak of coronavirus and its associated quarantine policy have lowered China's carbon emissions by over 184 million tons per month. Such reduction is expected to persist in the long run through structural change of energy mix and the digitalization of its economy.

[Michał Narajewski](#) and [Florian Ziel](#) note the electricity demand shift effects due to COVID-19 shutdowns in various European countries. They utilize high-dimensional regression techniques to exploit the structural breaks in demand profiles due to the shutdowns. Finally they discuss the findings with respect to coronavirus pandemic progress and regulatory measures of the considered countries.

[Giacomo Falchetta](#) and [Michel Noussan](#) note that COVID-19 disease containment policies have locked half of the world population at home. The transportation sector is one of the most immediately and starkly hit. We discuss the potential longer-run, structural impacts on transport demand, the behaviour-induced modal shifts, and the implications for sectoral energy demand and environmental externalities.

[James Carroll](#), [Kenneth Conway](#), [Alastair Shannon](#) and [Eleanor Denny](#) explore how COVID-19 restrictions have influenced electricity demand on the island of Ireland, a single electricity market with different public health restriction dates and intensities. In both areas, more severe "stay at home" restrictions have led to large demand reductions (around 15% reduction in average daily GWh) and changes in the daily load profile, most notably during the morning peak.

[David Benatia](#) notes that the enormous reductions in electricity demand caused by containment measures are only moderately disruptive to electricity markets. He draws insights from New York about the consequences of the lockdown.

[Abdulrasheed Isah](#) and [Gylych Jelilov](#) show that the COVID-19 pandemic has led to supply chain disruptions, declining demand, and falling investments in the Nigerian off-grid renewable energy sector, with

adverse implications energy access (SDG7).

[Kostas Andriosopoulos](#) and [Filippos Ioannidis](#) provide a primary overview of the anticipated consequences of COVID-19 on the Greek economy, by paying special attention to the implications in the Greek energy sector. Aiming to highlight the negative impact they provide a careful comparison between prior and current projections for a list of crucial energy variables.

[Aruna Murthy](#) and [Acharya H. Rajesh](#) investigate the impact of novel corona virus crisis and various sources of oil price shock on Indian stock market. Using weekly data from January 3rd 2020 to April 10th 2020, our Structural VAR (SVAR-X) model shows that shock arising from total COVID 19 confirmed cases had no negative impact on stock returns. But oil export and speculative demand had significant negative impact on stock returns.

[Sylvester Anani Anaba](#) and [Olusanya Elisa Olubusoye](#) discuss how the emergence of COVID-19 in Nigeria has altered the economic, social, religious and political landscape of the country, as the shutdown of industries, prohibition of movement of persons as well as unprecedented decline in crude oil prices cramp the economy. The economy which is at the verge of an imminent recession (due to the fall in crude oil price and the lockdown of businesses), has embarked on quantitative easing techniques as well as other palliative measures to cushion the effect of the fall in oil price and the pangs of COVID-19 on the economy. It is believed that Nigeria will overcome the pandemic if, professional guidance from credible institutions (World Health Organization, and Nigerian Center for Disease Control etc.) are strictly followed.

[Soni Omontese](#) urges that to support a growing Africa's electricity distribution demand, a multi-energy mutually supported electricity market system, centralized large-scale development bases and sustainable growth strategy must be adopted in achieving cross-border, inter-regional and inter-continental interconnections.

[Kakali Mukhopadhyay](#) and [Kriti Jain](#) provide a supply and demand impact analysis of the energy sector in India due to the COVID-19 crisis hitting world markets. They examine the underlying factors influencing the short term and long-term energy security issue for the country and highlight the positive externality generated for the environment.

[Daulet Akhmetov](#) and [Peter Howie](#) report that with COVID-19, Kazakhstan's power industry has experienced minimal short-term supply-side effects and moderate short-term demand-side effects. Additionally, it will experience substantial long-term impacts because of the reassessment of the role of state, energy security, and climate change. Kazakhstan's experiences provide insights to a power industry operating with new global challenges.

[Mamdouh Salameh](#) argues that Saudi Arabia could neither win a price war with Russia nor does it have

the production capacity to flood the global oil market with oil. By continuing the price war the Saudis risk bankruptcy of their economy and a destabilization of their country.

[Dawud Ansari](#) and [Claudia Kemfert](#) present price estimates from simulations of the crude oil market to assess which effect COVID-19 and the initially failed OPEC+ negotiations have had. The numbers allow to reconstruct the price path so far and to discuss which developments can happen from here on.

[Lilia García Manrique](#), [Isabel Rodríguez Peña](#) and [Mónica Santillán Vera](#) note that the effects of COVID-19 on the Mexican oil sector are important for the economy of the country. Whereas low oil prices affect fiscal revenues, declining gasoline consumption is impacting the demand side of the sector. In this context, oil hedge funds could play a principal role on the recovering of economic activity.

[Kentaka Aruga](#) and [Honorata Nyga-Lukaszewska](#) use an Auto-Regressive Distributive Lags model to prove that natural gas prices, Jan., 21- March, 30 2020, were COVID-19-immune while WTI and Brent crude oil prices were not

[Marula Tsagkari](#) says it's very probable that the current pandemic of coronavirus will radically change the energy sector as demand shrinks and a new era of digitalization lies ahead. Under these new circumstances the integration of distributed energy resources locally and globally with the implementation of demand side management will become priorities in order to deal with the higher penetration of intermittent renewable energy, the unpredictable demand and the need for energy security under future crises scenarios.

[Philipp Hauser](#), [C-P Anke](#), [J. Gutiérrez López](#), [D. Möst](#), [H. Scharf](#), [D. Schönheit](#), and [S. Schreiber](#) describe short-term price trends in energy commodities—oil, gas, coal, CO₂ and electricity—following the onset of the COVID-19 crisis, compared with the 2008 financial crisis, focusing on Germany. Price trends reveal short-run effects, which may persist longer as the COVID-19 crisis itself in case of a recession.

[Xiaoming Kan](#) notes that due to the outbreak of the coronavirus, economic activity has been slowed worldwide. This has led to a sharp drop in electricity demand and spikes in renewable energy curtailments. This rare phenomenon in the electricity system could offer an opportunity for long-term energy storage to utilize the continuous curtailment in an electricity system with high penetration of renewables.

[Fateh Belaid](#), [Adel Ben Youssef](#), [Benjamin Chaio](#) and [Khaled Guesm](#) use the latest available data, to provide a coherent picture of the gas market during Q1-2020 in the context of the COVID-19 pandemic. We show that the downward trend in LNG prices for non-residents strengthened but there was no change in the price for residents, signaling incomplete deregulation in the downstream markets.

[Bruno Burger](#) and [Claudia Kemfert](#) investigate

the effects of the corona crisis on power generation in Germany. Compared to the previous year, only a slight reduction in power generation could be observed, especially in March 2020 - the month in which the shutdown in Germany began. In the order of about 3 %. However, a decrease in power generation from coal is evident. This has the following reasons: Due to strong winds, the share of wind power generation has risen disproportionately, which has led to a significant reduction in electricity prices on the stock exchange. Comparatively high CO₂ Emission Allowances prices, together with low exchange electricity prices, reduce the profitability of lignite-fired power plants, so that they are less heavily utilized. In addition, comparatively low gas prices have led to the replacement of coal by gas. In addition, exports of electricity from lignite to neighboring countries become unprofitable, as many neighboring countries can produce electricity more cheaply with their own gas-fired power plants at high CO₂ costs. These effects have led to a substantial reduction in CO₂ emissions, which are likely to be significantly higher than the corona effects induced in other sectors, particularly in the transport sector.

[Ranjeeta Mishrab](#) and [Dina Azhgaliyeva](#) note that Exports of solar PV from China to Japan fell by nearly half in February 2020 due to the COVID-19 outbreak. Although this does not challenge energy supply in Japan due to a small share of solar PV in energy mix, it raises a concern for renewable energy development if import of solar PV continues to be disrupted.

Using hourly metered load and weather data, [Dylan Brewer](#), shows that PJM electricity consumption during the COVID-19 period declined 10.6%, leading to poor-performance of load forecasts. The costs of over-purchasing day-ahead generation were likely low in March 2020 due to mild temperatures; however, the costs may increase as summer approaches.

[Eleanor Morrison](#) looks at the uncertain future for independent shale oil producers, in the current low price environment and with scepticism in investor interest to support a cash strapped industry, especially one under a demand side shock, as a result of government response to COVID-19, and a massive accumulation of crude oil in global storage facilities,

Based on the latest available data, [But Dedaj](#), [Adel Ben Youssef](#) and [Adelina Zeqiri](#), provide a coherent picture of the gas market during Q1-2020 in the context of the COVID-19 pandemic. They show that the downward trend in LNG prices for non-residents strengthened but there was no change in the price for residents, signaling incomplete deregulation in the downstream markets.

[Hongbo Duan](#), [Lianbiao Cui](#), [Lei Zhu](#), and [Xiaobing Zhang](#), posit that their analysis indicates dramatic negative shocks of the COVID-19 pandemic to energy consumption on both the global and country level, particularly for oil and oil products. The epidemic may also terminate the over-ten-year increasing trend of the world's total CO₂ emissions, despite limited contribution to mitigate global warming.