Approaching carbon neutrality in times of crisis

GJETC Outreach Event

9th November 2021, 8:30-11:30 CET / 16:30-19:30 JST (online)

Summary

On Wednesday, November 9th 2022 the German Japanese Energy Transition Council held its first Outreach Event of the fourth term. Speakers of the Council gave an overview of studies conducted in the past term as well as commented on the challenges posed by the current energy crisis, in large parts provoked by the war in Ukraine.

Johanna Schilling from ECOS, the organizational secretariat of the GJETC, startet by giving a warm welcome to all participants and listeners and led through the event. It was then kicked off by Japanese Co-Chair of the Council, Prof. Tatsuya Terazawa giving an overview of the content to be presented and discussed, and German Co-Chair Prof. Peter Hennicke also expressing a warm welcome, while stressing the importance of the work of the GJETC in light of the current crisis.

The first study on the agenda was presented by Stefan Thomas of the Wuppertal Institute (WI) and Toshiya Okamura of the Institute of Energy Economics, Japan (IEEJ). It was concerned with different types of battery systems necessary for the energy transition and the challenges and opportunities each type of technology entails. These types are Grid-Integrated Large Scale Storage (LSS), Building and Industrial Storages (HSS/ISS) and Battery Electric Vehicles (BEV Storage). All technologies have in common its great potential as flexible resources, however so far business cases both in Germany and Japan have been limited. The study concludes, further regulatory framework promoting the adoption of the mentioned technologies is needed.

Next, Yoshikazu Kobayashi from the IEEJ presented the results of the second study, on the Decarbonization of the Steel Industry. Both countries have plans in place to decarbonize their industries, via use of Hydrogen, Electrification and Carbon Capture, Utilization and Storage (CCUS) technologies. A key difference between the countries lies in the expected role of CCUS. Germany's focus further lies with green hydrogen and renewables for electrification while Japan takes a broader stance, also considering nuclear and blue hydrogen for example.
The last study gave an update on Long-Term Scenarios for Decarbonization discussed in both countries, it was presented by Lotte Nawothnig (WI) and Hideaki Obane (IEEJ). The study found that Germany is to date more ambitious in its energy transition goals, aiming for a reduction in energy demand by 50% (Japan 33%), a 100% share of renewables (compared to 40-100%) in electricity generation by 2045 (2050). This is also due to Japan seeing nuclear power as a viable source of energy due to carbon neutrality, with Germany planning on phasing-out of it by early 2024 and Japan planning on making more use of carbon capture technologies for the remaining emissions.

Following the presentation of the studies Carsten Rolle from the Federation of German Industries (BDI) commented on current challenges as seen by the Germany industry. He stressed the extent of the problem the German industry is facing in light of the energy crisis but stated that there is no reason to question climate goals. Key issues to be addressed in the short and mid-term include the management of price development (market design) also on the European level, as well as securing global supply chains for key resources needed to accomplish the transition to green industrial infrastructure. To achieve this international cooperation as well as a close connection between governments and the industry is needed.

The next part of the event was focused on the implications the current war in Ukraine has on the state of the energy transition in Germany and Japan. First, Prof. Tatsuya Terazawa presented the challenges posed by the current crisis from the perspective of Japan. He stressed the dependence on natural gas as the key resource bridging from coal and oil to renewable energy not only in Japan but for all of East Asia. Even though the dependence on Russian gas is smaller compared to Europe, the role it plays as a global supplier cuts a hole into the calculation of Asian countries. This is made further difficult by the escalation of prices on short term markets over the summer. Prof. Terazawa sees no alternative to expanding natural gas investments over the next decades to enable especially East Asian countries to first move away from the most climate damaging energy sources such as coal.

Prof. Peter Hennicke followed up with the German perspective. In the short run, immediately responding to the crisis, Germany is spending a lot on securing energy security, especially through building LNG infrastructure with the potential to be reused for hydrogen in the future. In addition to that, nuclear and coal plants that were scheduled to phase out during the winter have been prolonged until spring. He advocates the German point of view, that in the mid-term no further investment into fossil infrastructure should be made, instead the current crisis emphasizes the need for an “Efficiency Revolution” as well as speeding up of the electrification process by means of renewable energy sources. Prof. Peter Hennicke also listed measures taken by the German government taken to alleviate the hardship of rising energy prices on the German population.

The last point on the agenda were two brief comments by GJETC Council Members Prof. Jun Arima and Dr. Felix Matthes. Prof. Arima began by taking up the difference in the positions shown by Prof. Terazawa and Prof. Hennicke regarding the need for further investment into natural gas infrastructure. In his view, further investment is definitely needed as he argues that from a perspective of the East Asia Summits meeting of Energy Ministers, rising prices for natural gas are the main obstacle in reducing Greenhouse Gas Emissions. Countries in Asia are not planning to fully decarbonize until 2050, as they see this target as unrealistic when taken into consideration the need for development in many Asian Societies. Additionally, Asian infrastructure still heavily relies on coal and oil and cheap supply of natural gas is necessary to enable the transition from these energy sources while maintaining stable economic growth. He also adds that Japan is considering nuclear energy as one way of decreasing the demand for LNG.

In the last comment on the agenda, Dr. Felix Matthes summarized the impact of the energy crisis on German Japanese cooperation as sharpening both the commonalities and differences in perspectives. To him the crisis poses three major challenges. First, the security of the physical supply of natural gas in the short term after inflows from Russia have been completely halted. Second, the price hikes for natural gas. Third, the current shape of the European electricity market design signifies that overall electricity prices are affected by the hikes in gas prices as well. He finished by giving an overview of measures taken by the German government in order to cushion the most extreme implications of rising prices in the next few years. In that, he highlighted the work of the Gas and

Heating Commision of which he has been a part in proposing a price brake mechanism that is currently being further worked out by government ministries.

This GJETC outreach event emphasized the importance of international scientific cooperation in shining a light on the current challenges of the much needed energy transition. It gave experts with different perspectives on the current crisis a platform to exchange their viewpoints, find commonalities and make each other aware of different aspects to consider, that will be useful in reflecting their own positions.