

### **At the 41st IAEE International Conference**

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From June 10 through 13, the International Association for Energy Economics (IAEE) held the 41st IAEE International Conference in Groningen of the Netherlands. The IAEE is an international academic society functioning as a platform to analyze and consider energy and environmental issues from the main viewpoint of economy and others including politics, geopolitics, technology, society, etc. Its annual International Conferences have been held at various sites in the world, including Groningen for the latest one. Although I had frequently attended these meetings, my participation in the latest one was the first in recent years. Next, the IAEE International Conference is scheduled to take place in Montreal in 2019, in Paris in 2020 and in Tokyo in 2021.

Under the general theme “Transforming Energy Markets,” the latest IAEE International Conference included three plenary sessions, six round table sessions, six dual plenary sessions and 91 concurrent sessions, attracting 650 people including 450 presenters on a registration basis. In the following, I would like to summarize my comments based on the most impressive points to me at the June 11 and 12 sessions I attended.

First, the fact that the conference took place in Europe, the Netherlands and Groningen might have set the tone for the discussions. In Europe, the Netherlands and Groningen, a great matter of interest involving energy is a low-carbon or decarbonized society. Energy transition toward a low-carbon or decarbonized society has become a keyword. I felt that a major part of the conference demonstrated this matter of interest. Conversely, energy security, a keyword that should have been used in meetings in Japan or the rest of Asia, was impressively absent from titles for major sessions of the conference.

Given that the conference was a meeting of an international academic society on energy issues, participants naturally centered on academicians. However, I felt that academicians’ share of participants in the latest meeting might have been higher than in the past meetings where more government and industry officials participated. As a result, arguments were frequently made from academic angles, giving me stimuli that are different from those at usual international energy conferences. At the same time, I felt that if feedback from policy and business realities were enhanced, the discussions at the meeting would be more significant.

Second, discussions on energy transition initiatives toward a low-carbon or decarbonized society in Europe or the Netherlands were rather optimistic, although various problems were pointed out. European countries have set their respective ambitious GHG emission reduction targets for 2030 and 2050 and are nominally determined to make full efforts to achieve their targets. In Groningen where the latest meeting was held, gas production has been reduced substantially due to an earthquake problem, requiring the Netherlands to replace its mainstay energy source which have made great contribution to the Dutch economy. In this respect, however, no pessimistic views were given on the future course of energy transition in Netherland.

The largest factors behind optimism about energy transition include actual progress in the substantial expansion of renewable energy such as wind and solar photovoltaics and a rapid fall in renewable energy power generation costs that has brought about the expansion. Also supporting the optimism are expectations placed on the diffusion of advanced technologies such as electricity storage systems, and information and communications technologies. The conference included a session focusing on the impact of enhanced climate change countermeasures on international economic and industrial competitiveness. Impressively, a dominant view in the session was that climate change countermeasures should be taken not as a threat to economy or industry but as an increase in business opportunities through the development and diffusion of new technologies. As for employment, I noted a surprisingly optimistic view that job losses in industries declining on energy transition may be covered by newly prospering industries to avoid any serious employment problem.

My personal impression was that these optimistic views reflect excessively optimistic expectations on technological and social advancement in a manner to project present nominal phenomena into the future. Given that time constraints limited discussions, I wanted to learn backup data for analyses of energy transition's effects on economic and industrial competitiveness and employment and how these data were realistic.

In a session on disruptive changes' impacts on the energy industry, a participant interestingly noted that massive renewable energy expansion and the advancement of various technologies have shaken power industry business models amid progress in decarbonization and power and gas market liberalization, throwing the industry into a wave of realignment. Impressively, another explained that the three Ds – decentralization, decarbonization and digitization – have brought about great changes for power and gas companies and that in this context, Germany's largest energy company EON has been forced to change through spinoffs and asset swaps. The explanation indicated that market changes could pose severe and complex problems to an incumbent industry.

In a session on electricity market liberalization and market design as well, interesting arguments were seen. Market liberalization has originally been designed to introduce competition to increase market efficiency and consumer benefits. A hope or belief underlying arguments for market liberalization is that price signals from a fully functioning market would lead to the optimum allocation of resources and the maximization of utility. Dominant arguments in the session were supported by the recognition that market participants should identify the significance of market liberalization, take a positive view of ongoing liberalization initiatives and appreciate market solutions as the best or better than command and control. Interestingly, however, a discussion at the session pointed out that most liberalized markets have failed to reflect costs of "reserve" for supply and demand stabilization with short-term prices determined through competition or to guarantee the security of long-term investment. An impressive notion was that capacity market or capacity mechanisms considered as solutions to the above mentioned problems related to market liberalization have actually brought about mixed results in terms of effectiveness and success, indicating that the mechanism is still in a process of repeated trial and error. Toward the energy transition facing the world, we will be growingly required to analyze and consider expectations, opportunities and challenges in a well-balanced manner.