



NTU-KU Joint Funding

Final Report

Section 1

NTU principle investigator	
Name (last name, first name)	Lin, Tze-Luen
Position	Associate Professor
Faculty/Department	Political Science

KU principle investigator	
Name (last name, first name)	Mori, Akihisa
Position	Associate Professor
Faculty/Department	Global Environmental Studies
Visiting ECR*	
Name (last name, first name)	Lee, Yi-Ching
Position	PhD
Faculty/Department	Political Science

*Please complete this section if the KU principal investigators hosted ECRs from NTU.

Host researcher*	
Name (last name, first name)	
Position	
Faculty/Department	

*Please complete this section if the host researcher is different from the KU principal investigator.

Section 2

Project title
Geopolitical and geopolitical implications of sustainable energy transition: The case of Taiwan (and Japan)

Section 3

Period of project	
From dd/mm/yy to dd/mm/yy	01/04/2022~31/12/2022

Section 4

Summary of the project (approx. 100 words)
*KU PIs are required to submit a summary of the project in Japanese in addition to the English summary (approx. 200–300 characters).

(Please enter the summary of the project)

The Paris Climate Agreement and pledges to the net-zero emission targets have accelerated electricity system transitions from fossil fuel-based toward renewable energy sourced-system. The transitions favor renewable energy and grid technology exporting countries such as the PRC at the cost of fossil fuel exporting countries such as Russia and the Middle East and increase energy dependence of energy importing countries on renewable energy and grid technology exporting countries. The extent depends on how importing countries reconfigure electricity systems. Energy dependence becomes significant in countries that import most of the renewable energy and grid technologies and increases connectivity through super grids. Conversely, the dependence can be kept marginal in those enhancing the distributed smart grid system. Alternatively, countries may choose the flexible grid paradigm that is located between the two extremes. The flexible paradigm offers easier transition options because it accepts flexible and dispatchable fossil fuel generation capacity such as gas power to stabilize grid systems.

Against this backdrop, we explore which grid paradigm Japan and Taiwan adopt to advance electricity system transitions, to what extent, and why. We employ the elements of complementarity in electricity systems (Mori, 2020; 2022) to explore the co-evolution between power generation and grid systems. Then we make a document analysis and conduct interviews to explore how incumbent vertically-integrated and (regionally) monopolized power companies resist and adapt to the transitions in the grid system.

Section 5 (Please complete this section if ECRs from NTU participated in collaborative research at KU)

Achievements and Outcomes of ECRs' Stay (approx. 100–250 words)
*This section should be filled by each of the ECR(s) (one paragraph per ECR) based on his/her experience of staying in Japan.

(Please enter the achievements and outcomes for each of the ECR(s).)

During the 10 days-visit to Kyoto, in addition to giving a lecture at Kyoto University, Dr. Yi-Ching Lee also completed **three meetings** and discussions on the topic of sustainable energy transition with the assistance of Kyoto University:

- 1) At first, the meeting with **Prof. Dr. Kiyoshi Nishimura**, the senior researcher of **Kansai Electric Power Company (KEPCO)**, was regarding the challenges of Japanese electricity industry for carbon neutrality, especially in grid management and the development of virtual power plant (VPP) for the local flexibility.
- 2) On the other hand, the online-meeting with **Dr. Mitsuhiko Aoyama, Japan Research Institute (JRI)**, was regarding the role of local governments as retailers in the Japanese renewable electricity market, including the factors affecting their retail businesses.
- 3) Also, the meeting with **Prof. Gregory Trencher**, the associate professor from **Kyoto**

University Graduate School of Global Environmental Studies, was focused on the challenges of coal phase-out tasks and the development of green hydrogen in Japan.

In the lecture entitled "**On the road to net zero: Taiwan response**" at the Sustainable Transition Seminar in Kyoto University, Dr. Lee gave an overview of global discussion about "Net-Zero (emission) Transition" and the policy responses of Taiwan Government in this context. Dr. Lee also highlighted the city and local perspective with examples on how the local government and community in Taiwan concern and response to this issue.

Section 6

Photographs with captions

*Please submit digital files (such as JPEG or GIF files) of the photographs used in your report as attachments. The size of each image should be at least 4MB, so that it can be used for printed materials. Please ensure that none of the photographs submitted will cause any issues relating to portrait rights.



2022.11.02 Prof. Akihisa MORI - The Net Zero Carbon Strategy in Japan: Policy and Business Responses (speech at National Taiwan University)



2022.11.02 Sophia Cheng (Chief Investment Officer, Cathay Financial Holdings)(國泰金融控股股份有限公司程淑芬投資長) interact with Prof. Akihisa MORI.



2022.11.02 Group photo - International Seminar on Global Environment and Sustainable Governance

URL at which project outcomes can be viewed (Optional)

*E.g. workshop notifications/programs/reports, evidence of academic papers published or otherwise made available, etc.

2022.11.02

International Seminar on Global Environment and Sustainable Governance:

Prof. Akihisa MORI /

“The Net Zero Carbon Strategy in Japan: Policy and Business Responses”

URL:

https://www.facebook.com/photo?fbid=484266590394803&set=a.457970406357755&locale=zh_TW



2022.11 Graduate School of Global Environmental Studies (GSGES), Kyoto University, Kyoto

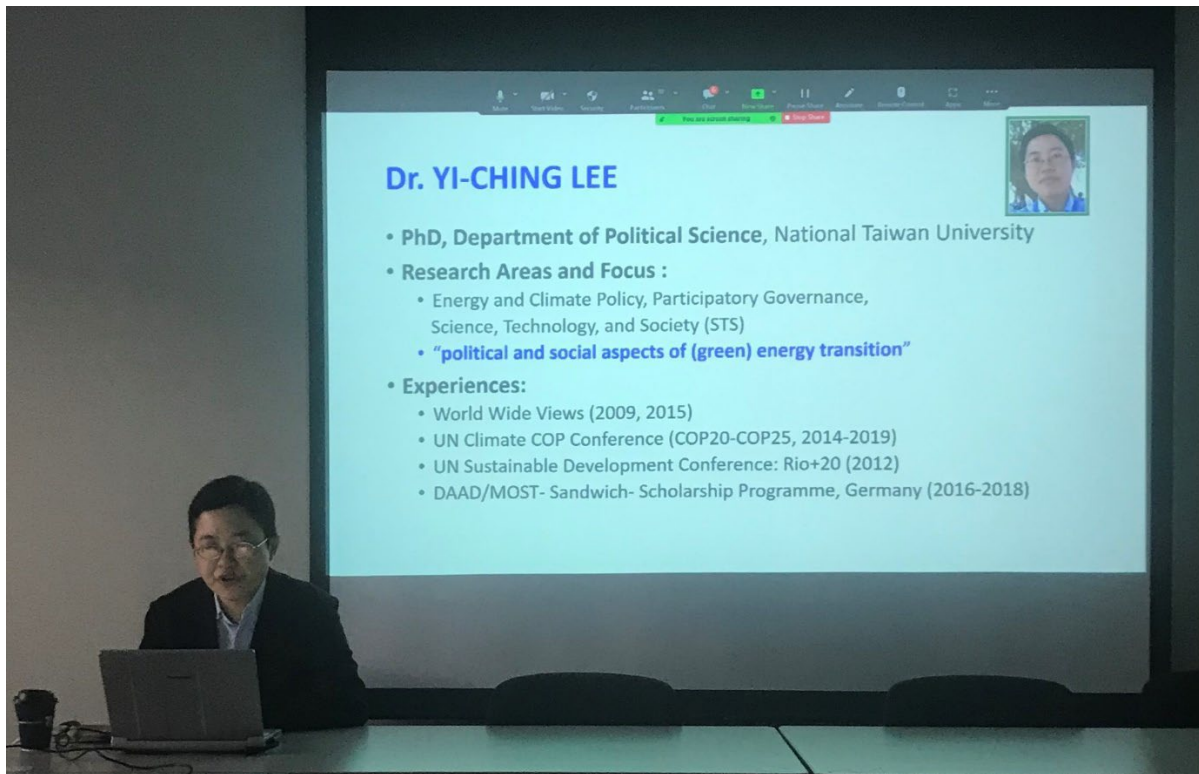


2022.11 Kansai Electric Power Company 'enellege', Osaka



2022.11 Contact Infos of Interviewees (Units)

2022.11.17



**Sustainability Transitions Seminar #22:
Dr. Yi-Ching Lee /
“On the Road to Net-Zero: Taiwan Response”**

URL at which project outcomes can be viewed (Optional)

*E.g. workshop notifications/programs/reports, evidence of academic papers published or otherwise made available, etc.

2022.11.17

Sustainability Transitions Seminar #22:

Dr. Yi-Ching Lee /

“On the Road to Net-Zero: Taiwan Response” (workshop notifications)

URL: https://rurss.iae.kyoto-u.ac.jp/files/RURSS_R4_MTG04.pdf