

Shutaro Takeda, Ph.D.

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Nationality: Japan | Male | DOB: May 6, 1989

PROFILE

- Accomplished academic career in development studies: published 16 journal papers, one patent, four books, three policy recommendation reports, and 50+ academic presentations in **sustainable energy development**.
- Proven commitment and passion for international development: awarded **the 2018 International Young Energy Professional of the Year Award** by AEE for his outstanding dedication to sustainable energy development in Southeast Asia.

EDUCATION

Ph.D. in Energy Science 2018
Kyoto University Graduate School of Energy Science Kyoto, Japan

Social Acceptance of Energy Development / Energy Economics / Power Plant Engineering

Dissertation Title: Acceptance of the Hydrogen Fusion Energy on Future Electricity Markets

Master of Liberal Arts in Sustainability 2019
Harvard University Extension School Cambridge, MA

Energy Sustainability / Environmental Management / Energy Scenario Analysis

Thesis Title: Biomass Energy Carbon Capture and Sequestration with Nuclear Fusion: A Promising Option for Future Energy Sustainability?

Master's Degree Equiv. in Energy Economics 2016
Kyoto University Graduate School of Human Survivability Kyoto, Japan

Bachelor of Engineering 2014
Kyoto University Faculty of Engineering Kyoto, Japan

EXPERIENCE

International Atomic Energy Agency Vienna, Austria
Associate Project Officer (P2), Department of Sciences and Applications 2020 – Present

- **Support Member States to meet their sustainable development needs** through nuclear science, technology and innovation **as a scientific program officer**.
- **Analyze socio-economics of non-energy programs**, including agricultural and epidemiological applications.
- Draft policy recommendations, technical documents and reports for Member States.
- **Successfully launched a new Private-Public partnership initiative at the IAEA** toward sustainable energy development in the field of hydrogen fusion energy.

Kyoto University

Kyoto, Japan

Assistant Professor, Graduate School of Human Survivability

2018 – 2019

Research Fellow, Institute of Advanced Energy

2016 – 2018

- Supervised **seven graduate students and two research staffs** as a faculty member.
- **Directed an international development research project**, “Renewable Development Strategy for ASEAN 2040: A Dynamic Multilateral Scenario Analysis,” toward the expanded electricity access in the region with the total budget of 181,000 USD as a **Research Director**.
- **Successfully administered a JICA-funded research**, “A Socio-economic Research on Sustainable Development of Renewable Energy Sources in Developing Countries,” with the total budget of 272,000 USD as a **Principal Investigator**.
- Published 16 academic papers in *Sustainability*, *Journal of Development Policy and Practice*, *IEEE Transactions on Plasma Science*, and *Power Plants in the Industry*, among others.
- Presented at 50+ academic conferences, including *the World Energy Engineering Congress*, *42nd International Association of Energy Economists International Conference*, among others.
- **Awarded a number of international and national level awards**, including the International Young Energy Professional of the Year Award by the Association of Energy Engineers (AEE) in recognition for my achievements in energy development in Southeast Asia.

Kyoto Fusioneering Ltd.

Kyoto, Japan

Co-founder

2019 (part-time)

- **Founded a tech social enterprise that facilitates global sustainable energy development.** Raised more than 700,000 USD from venture capitals.

Tokamak Energy

Oxford, UK

Consultant

2019 (part-time)

- **Drafted a report to the UK Government** on hydrogen fusion energy development strategies.
- Successfully organized an international conference on public-private partnership in fusion energy industry at University of Cambridge, UK, with EPSRC JUNO Network funding.

Institute of Applied Energy

Tokyo, Japan

Panel Member, Hydrogen Development Committee

2019 (part-time)

- Provided academic analysis on macro-economic effect of hydrogen supply chain development.

Bangladesh Rural Development Board

Dhaka, Bangladesh

Japan Overseas Cooperation Volunteer, JICA

2015

- Advised the Bangladeshi government on rural development projects as part of Japanese ODA with the budget of ~362,000 USD.
- **Led a team of 16 researchers in rural Bangladesh and successfully accomplished the project goals within the short timeframe.**
- **Presented the project findings directly to the Director General** and other officials concerned at the Bangladesh Rural Development Board as the lead investigator.
- **Our findings led to the implementation of a national-level rural development project** named “*Participatory Rural Development Project Phase-3 (PRDP-3)*.”
 - The Bangladeshi government highly praised the findings, and is currently targeting to implement our model in 324,000 villages nation-wide.

ACADEMIC HONORS, SCHOLARSHIPS AND AWARDS

Awarded a number of **international and national level awards.**

<i>Fellow, Kyushu University Urban Institute</i>	2020
<i>Dean's List of Academic Achievement Award (Harvard University)</i>	2019
<i>International Young Energy Professional of the Year Award</i>	2018
<ul style="list-style-type: none">• A prestigious international award by Association of Energy Engineers. Awarded for my outstanding contributions to sustainable energy development in Southeast Asia.	
<i>Fellow of the Royal Society of Arts</i>	2018
<i>SOFT PhD Poster Prize</i>	2016
<i>AESJ Kansai Region Award</i>	2016
<i>REGI Key Scientific Article Certificate</i>	2016
<i>KU Cross-Disciplinary Research Contest Encouragement Prize</i>	2015
<i>AESJ Best Presentation Award, First Place</i>	2015

Passed **the entrance examination first on the list** for the Graduate School of Energy Science, Kyoto University in 2013.

Received **GSAIS Full Scholarship** between 2014-2016 for academic merit.

Awarded **the Ph.D. degree in two years**, the shortest record to date in Kyoto University Graduate School of Energy Science's history.

PUBLICATIONS

Published 16 Journal Papers, 1 Patent, 4 Books, 3 Policy Recommendation Reports in fields related to the works of the World Bank, primarily in sustainable energy development.

Social Impact of Renewable Energy Development in Developing Nations

- Shutaro Takeda, Alexander Keeley, Shigeki Sakurai, Ryota Managi and Catherine Benoit Norris, "Are renewables as friendly to humans as to the environment?: A social life cycle assessment of renewable electricity." *Sustainability*, 2019, 11 (5): p. 1370.

Rural Development

- Shutaro Takeda et al., "The Success of the Link Model Programme in Rural Bangladesh: An Empirical Analysis." *Journal of Development Policy and Practice*, 2018. 3(2): pp. 191-214.

Energy Economics

- Md Abdullah AL Matin, Shutaro Takeda et al., "LCOE Analysis for Grid-Connected PV Systems of Utility Scale Across Selected ASEAN Countries." *ERIA Discussion Paper Series*, 2019.
- Shutaro Takeda, Shigeki Sakurai and Satoshi Konishi, "Economic Performance of Fusion Power Plant on Future Deregulated Electricity Market." *Preprint of 27th IAEA Fusion Energy Conference*, 2018. IAEA-CN-258/SEE/3-1Rb.

Energy Scenario Analysis

- Shutaro Takeda, Shigeki Sakurai, Yasushi Yamamoto, Ryuta Kasada and Satoshi Konishi, "Limitation of Fusion Power Plant Installation on Future Power Grids under the Effect of Renewable and Nuclear Power Sources." *Fusion Engineering and Design*, 2016. 109-111: pp. 1754-1758.
- Shutaro Takeda, Shigeki Sakurai, Yasushi Yamamoto, Ryuta Kasada and Satoshi Konishi, "Dynamic Simulation-Based Case Study of Fusion on Small-Scale Electrical Grids." *Fusion Science and Technology*, 2017. 68(2): pp. 341-345.

- Shutaro Takeda et al., “Requirements for DEMO from the Aspect of Mitigation of Adverse Effects on the Electrical Grid.” *Plasma and Fusion Research*, 2015. 10: p. 1205070.

Power Plant Engineering

- Shutaro Takeda, Shigeki Sakurai, Ryuta Kasada and Satoshi Konishi, “Plasma Control Requirements for Commercial Fusion Power Plants: A Quantitative Scenario Analysis With a Dynamic Fusion Power Plant Model.” *IEEE Transactions on Plasma Science*, 2018. 46(5): pp. 1205-1210.
- Shutaro Takeda, Shigeki Sakurai, Ryuta Kasada and Satoshi Konishi, “Environmental Life Cycle Assessment of High Temperature Nuclear Fission and Fusion Biomass Gasification Plants.” *Proceedings of 2017 International Congress on Advances in Nuclear Power Plants*, 2017: p. 17582.

Energy Policy

- Shutaro Takeda, “Japanese Plutonium Balance Outlook to 2050: A Monte Carlo Approach.” *Transactions of the American Nuclear Society*, 2019, 102 (1): pp. 625-628.
- Shutaro Takeda, Takeshi Sakade and Hideki Iwaki, “A System Dynamics Study on the Prospect of Japanese Plutonium Balance.” *Graduate School of Economics, Discussion Paper*, 2018. No. E-18-002.

(Among others)

Edited and Co-authored four academic books.

Textbooks

- Yuichi Ikeda (ed.), ... Shutaro Takeda et al., “Sustainable Energy in the Context of Human Civilization (in Japanese).” *Integrated Studies in Human Survivability*, 2020. Kyoto University Press: Kyoto.
- Shutaro Takeda and Richard Pearson, “Nuclear Fusion Power Plant.” *Power Plants in Industry*, 2019. IntechOpen: London.

Academic Books

- Shutaro Takeda (Editor), William Nuttall and Satoshi Konishi, “Commercialising Fusion – how small businesses are transforming big science,” 2020. Institute of Physics (IOP): London. (In Press)
- Shutaro Takeda (Editor) and Leon Gautier, “Kishido (in Japanese),” 2020. Chuokoronshinsha: Tokyo.

Authored three policy recommendation reports to be submitted to the government and international organizations.

- *A Policy Recommendation on Sustainable Development of Renewable Energy Sources in Developing Nations*, A research report to Japan International Cooperation Agency (JICA), 2020.
- *Renewable Development Strategy for ASEAN 2040: A Dynamic Multilateral Scenario Analysis*, ERIA Research Project Final Report, 2019.
- *A Policy Recommendation towards a Stable US-JAPAN Nuclear Cooperative Relationship after the Expiration of US-JAPAN 123 Agreements for Peaceful Cooperation*, A Sasakawa Peace Foundation Research, 2019.

LANGUAGE

Japanese – Native

English – Excellent Reading, Writing and Speaking Skills

COMPUTER SKILLS

Earned a **Professional Certificate in Data Science** from Harvard University in 2019.

Expert of **advanced modeling and analytical tools**, including: R, MATLAB/Simulink, Stella Professional, openLCA, Dymola. Proficient in Microsoft Office (Word/PowerPoint/Excel).

PROFESSIONAL ACTIVITIES

Member of a number of academic & professional societies. Among them:

2019 – Present International Association for Energy Economists
2018 – Present Association of Energy Engineers
2018 – Present Japan Society of Energy and Resources
2018 – Present Royal Society of Arts
2017 – Present IEEE Computer Society
2017 – Present IEEE Information Theory Society
2017 – Present Data Science Association
2015 – Present Japan Society of Plasma Science and Nuclear Fusion Research
2014 – Present IEEE Power & Energy Society

Reviewer of multiple academic journals, including *Sustainability*, *Journal of Fusion Energy*, *Global Business Journal*, and *Evolutionary and Institutional Economics Review*.

Presented at 50+ academic conferences, including the *42nd International Association of Energy Economics International Conference*, *World Energy Engineering Congress 2018*, *EcoDesign 2019*, and *5th International Symposium on Human Survivability*.

Hosted multiple public seminars at Kyoto University on climate change, environmental management and social responsibility in energy development.

Delivered several keynote presentations and invited lectures at international organizations and universities. Among them:

- **Keynote presentation at the 13th East Asia Summit Energy Ministers Meeting** on “ASEAN Renewable Energy Development Strategy for 2040” in Bangkok (Sep, 2019).
- **Invited seminar presentation at the Global CCS Institute (GCCSI)** on “An Innovative Solar & Biomass Hybrid CCS Plant Concept” in Tokyo, Japan (June, 2019).
- **Invited presentation at the University of Cambridge, Hughes Hall**, on “Electricity and Non-electricity Generation Pathway for Faster Hydrogen Fusion Commercialization” (June 2019).
- **Invited seminar at Imperial College London** CNE seminar series “Let’s Talk about Fukushima: A Chronology of Japanese Nuclear Research” in London, UK (March 2018).
- **Invited special lecture at the Economic Research Institute for ASEAN and East Asia (ERIA)** on “Sustainable Energy Conversion and resource recycle: A Challenge of Biomass Conversion by Clean Energy” in Jakarta, Indonesia (May 2018).