

Yu Nagai

PROFESSIONAL SUMMARY

An energy policy and systems expert with over a decade of experience in the quantitative evaluation of energy projects and policies for international and national institutions. Proven expertise in assessing the technical and economic viability of decarbonization strategies, evaluating energy infrastructure performance, and developing analytical tools to support evidence-based policymaking. Experienced in advising government ministries and international bodies on strategic energy planning in both developed and developing country contexts.

EDUCATION

Vienna University of Technology, Vienna, Austria

Doctorate, Energy Systems and Electrical Drives, 2017

Dissertation: “Access to clean cooking technologies in Uganda: Model analysis based on empirical data”

The University of Tokyo, Tokyo, Japan

M.S., Graduate School of Frontier Sciences, Advanced Energy, 2009

Georgia Institute of Technology, Atlanta, USA

B.S., Mechanical Engineering, 2006

PROFESSIONAL EXPERIENCE

Central Research Institute of Electric Power Industry, Tokyo, Japan

Research Scientist, Socio-Economic Research Center 2013 - Present

- Evaluated the technical and economic viability of national renewable energy scenarios using geographic information systems to assess their potential contribution to Japan's basic energy plan.
- Conducted performance evaluations of fossil-fuel power plants by modeling their market value and operational stability under high-penetration renewable energy scenarios, informing just transition strategies.
- Led cost-benefit evaluations of grid expansion and generation planning projects to determine optimal investment pathways for long-term renewable energy integration.

International Institute for Applied Systems Analysis, Laxenburg, Austria

Research Scholar, Energy Program 2010 - 2013

- Co-developed the Energy-ENACT tool, a platform for evaluating the costs and benefits of various policy combinations to improve modern energy access in developing countries, directly supporting evidence-based policymaking.
- Conducted ex-post evaluations of household energy access and usage by analyzing national expenditure surveys in Indonesia, India, and Uganda, providing critical data on the real-world impact of energy policies.
- Using the expenditure survey data, I evaluated effectiveness of sustainable energy access policies to accelerate transitioning to clean cooking in developing countries to advise policymakers.

The Institute of Energy Economics Japan, Tokyo, Japan

Research Assistant, New Energy Group 2008 - 2009

- Analyzed and maintained key statistical data to evaluate the effectiveness of training materials for IEEJ's capacity building programs in ASEAN countries.
- Conducted cost-effectiveness analysis for rural solar electrification projects in Africa, providing key findings on the relationship between PV system scale and electricity use patterns.

ADVISORY COMMITTEES

OECD/NEA, Nuclear Development Committee (NDC)

Delegate (Bureau Member) 2019 - Present

Ministry of Economy, Trade and Industry, Advanced Reactor Working Group

Committee member 2022 - Present

PUBLICATIONS

Refereed Journal Articles

- Komatsu, H., H. Kubota, K. Asano, and **Y. Nagai**, 2024. "Effect of information provision by familial nudging on attitudes toward offshore wind power," *PLoS ONE* 19(1): e0297199.
- Obane, H., K. Kazama, H. Hashimoto, **Y. Nagai**, and K. Asano, 2024. "Assessing areas suitable for offshore wind energy considering potential risk to breeding seabirds in northern Japan," *Marine Policy* Volume 160, 105982.
- Shimada, H., K. Asano, **Y. Nagai**, and A. Ozawa, 2022. "Assessing the Impact of Offshore Wind Power Deployment on Fishery: A Synthetic Control Approach," *Environmental and Resource Economics* Volume 83, 791–829.
- Obane, H., **Y. Nagai**, and K. Asano, 2021. "Assessing the potential areas for developing offshore wind energy in Japanese territorial waters considering national zoning and possible social conflicts," *Marine Policy*, Volume 129, 104514.
- Sakamoto, S., **Y. Nagai**, M. Sugiyama, S. Fujimori, E. Kato, R. Komiyama, Y. Matsuo, K. Oshiro, and D. Silva Herran, 2021. "Demand-side decarbonization and electrification: EMF 35 JMIP study," *Sustainability Science*.
- Nakano K., S. Hamgata, **Y. Nagai**, K. Nishio, and N. Tagashira, 2020. "A Survey on Energy Usage and Electrification Potential in Industrial Sectors toward Shaping Future Socio-economic Visions," *Journal of Japan Society of Energy and Resources*, Vol. 41, No. 3.
- Obane, H., **Y. Nagai**, and K. Asano, 2020. "Assessing land use and potential conflict in solar and onshore wind energy in Japan," *Renewable Energy*, Vol. 160, 842-851.
- Lam, N. L., S. Pachauri, P. Purohit, **Y. Nagai**, M. N Bates, C. Cameron, and K. Smith, 2016. "Kerosene subsidies for household lighting in India: what are the impacts?," *Environmental Research Letters*, Vol. 11, 044014.
- McCollum, D. L., V. Krey, P. Kolp, **Y. Nagai**, and K. Riahi, 2014. "Transport electrification: a key element for energy system transformation and climate stabilization," *Climatic Change*, Vol. 123, 651-664.
- McCollum, D. L., **Y. Nagai**, K. Riahi, G. Marangoni, K. Calvin, R. Pietzcker, J. van Vliet, and B. van der Zwaan, 2013. "Energy investments under climate policy: a comparison of global models," *Climate Change Economics*, Vol. 4, No.4, 1340010.
- Pachauri, S., B. J. van Ruijven, **Y. Nagai**, K. Riahi, D. P. van Vuuren, A. Brew-Hammond, and N. Nakicenovic, 2013. "Pathways to achieve universal household access to modern energy by 2030," *Environmental Research Letters*, Vol. 8, 024015.
- Mainali, B., S. Pachauri, and **Y. Nagai**, 2012, "Analyzing cooking fuel and stove choices in China till 2030," *Journal of Renewable and Sustainable Energy*, Vol. 4, 03180501-03180515.
- Narula, K., **Y. Nagai**, and S. Pachauri, 2012, "The role of Decentralized Distributed Generation in achieving universal rural electrification in South Asia by 2030," *Energy Policy*, Vol. 47, 345-357.
- van Vliet, O., V. Krey, D. McCollum, S. Pachauri, **Y. Nagai**, S. Rao, and K. Riahi, 2012, "Synergies in the Asian energy system: Climate change, energy security, energy access and air pollution," *Energy Economics*, Vol. 34, 470-480.
- Nagai, Y.**, H. Yamamoto, and K. Yamaji, 2010, "Constructing low emitting power systems through grid extension in Papua New Guinea (PNG) with rural electrification," *Energy*, Vol. 35, 2309-2316.

Select CRIEPI Research Publications

- Mase, T., **Y. Nagai**, and K. Asano, 2025. "An Analysis and Future Outlook of Power Demand Characteristics in Data Centers: Based on the FY2025 OCCTO Supply Plan," SERC Discussion Paper 25001 (in Japanese).
- Mase, T., K. Asano, and **Y. Nagai**, 2022. "Quantitative Validation of the 6th Strategic Energy Plan," SERC Research Document, SE21502 (in Japanese).
- Mase, T., K. Asano, **Y. Nagai**, and Y. Hoshino, 2021. "Evaluation of Japan's Economic, Industrial and Energy Demand Structure Change until 2030," SERC Research Document, Y20506 (in Japanese).
- Obane, H., **Y. Nagai**, and K. Asano, 2019, "Evaluating technical potential of ground-mounted solar and on-shore wind energy in Japan" CRIEPI Report, Y18003 (in Japanese).
- Nishio, K., T. Mukai, **Y. Nagai**, and K. Ofuji, 2018, "Interpretive Issues on Decoupling between Economic Growth and Environmental Burden," CRIEPI Review of Electricity Economics, No. 65 (in Japanese).
- Nagai, Y.**, and K. Okada, 2017, "Resource Adequacy under the Electricity System Reform: Balance of payment analysis of thermal power generation based on the long-term energy supply and demand outlook," CRIEPI Review of Electricity Economics, No. 64 (in Japanese).

- Okada, K., and **Y. Nagai**, 2017, “Development of Regional Transmission Congestion Cost Evaluation Tool” CRIEPI Review of Electricity Economics, No. 64 (in Japanese).
- Hamagata, S., K. Asano, and **Y. Nagai**, 2017. “Assessment of the Economic Impact of Changing Nuclear Share in Power Generation,” SERC Research Document, Y17502 (in Japanese).
- Obane, H., K. Asano, and **Y. Nagai**, 2017, “A study on the future cost of solar and wind power generation up to 2050” CRIEPI Report, Y17501 (in Japanese).
- Furusawa, K., K. Okada, M. Maruyama, K. Asano, and **Y. Nagai**, 2016, “Issues of the tariff design of distribution system usage charge in European countries” CRIEPI Report, Y15024 (in Japanese).
- Asano, K., K. Okada, **Y. Nagai**, and M. Maruyama, 2016, “An Analysis of Renewables Market Integration Policies in the European Liberalized Electricity Market,” CRIEPI Report, Y15022 (in Japanese).
- Nagai, Y.**, H. Yamamoto, K. Okada, Y. Yabe, and Y. Nagata, 2016, “Development of a Power Generation Optimization Model with Bilateral Power Inter-trade,” CRIEPI Report, Y15021 (in Japanese).

SERVICE AND OUTREACH

- Yoshioka, N., Y. Nagai, 2021, “Impact of Cannibalization Effect on Target Cost of Solar Photovoltaics,” Energy and Resources, Vol. 42 No. 3.
- Pachauri, S., Rao, N.D., Nagai, Y., and Riahi, K., 2012, "Access to Modern Energy: Assessment and Outlook for Developing and Emerging Regions," IIASA Report.
- Pachauri, S., Nagai, Y., Kolp, P., Riahi, K., and Schreck, B., 2012, "The IIASA Energy Access Tool (Energy-ENACT)," IIASA Report.
- Global Energy Assessment, 2012, Contributing Author for Chapter 1: Energy Primer, Chapter 17: Energy pathways for Sustainable Development, and Chapter 19: Energy Access for Development.
- IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation, 2011, Contributing Author for Chapter 9: Renewable Energy in the Context of Sustainable Development.

AWARDS AND HONOURS

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| Delegate to the US-Japan Leadership Program, United States-Japan Foundation | 2023 - 2024 |
| Recipient of Monbu-Kagakusho Scholarship | 2009 - 2011 |
| Recipient of HOPE Scholarship at Georgia Institute of Technology | 2001 - 2005 |