



Job Taminiau, Ph.D.

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Research Director at the Foundation for Renewable Energy & Environment (FREE) leading interdisciplinary and international research teams focusing on transformative change, urban sustainable energy strategies, community solar, carbon markets, solar markets, climate change policy, and renewable energy policy.

Professional Experience

Research Director

Foundation for Renewable Energy & Environment (FREE)

New York, NY

March 2023–Present

Lead researcher on collaborative, multi-agency, interdisciplinary energy and climate policy research projects to investigate local, regional, and international 'best practices' and innovative solutions in fields as energy efficiency policy, green technology investment, climate-sensitive economic development, and energy conservation awareness.

Senior Research Principal

Foundation for Renewable Energy & Environment (FREE)

New York, NY

July 2018–2023

Lead researcher on collaborative, multi-agency, interdisciplinary energy and climate policy research projects to investigate local, regional, and international 'best practices' and innovative solutions in fields as energy efficiency policy, green technology investment, climate-sensitive economic development, and energy conservation awareness.

Associate Editor

WIREs Energy and Environment Journal

Newark, DE

September 2015–June 2018

Postdoctoral Researcher

Center for Energy & Environmental Policy (CEEP)

Newark, DE

September 2015–June 2018

Lead researcher on multiple collaborative research teams on energy efficiency, energy and climate finance, research & development, and climate policy innovation.

Graduate Research Assistant

Center for Energy & Environmental Policy (CEEP)

Newark, DE

September 2011 - August 2015

Assistant researcher on collaborative research teams for energy and climate policy solutions.

Research Analyst
Joint Implementation Network (JIN)
Conduct research for a nonprofit international knowledge and advisory unit concerning climate change policy issues, technology transfer, energy policy, sustainable development, and mechanisms related to the carbon market.

Groningen, The Netherlands
June 2010 - August 2011

Intern U.S. Renewable Energy Policy
Climate Connect Limited
Conduct research for a news, data, and research company based in London and New Delhi. Investigated U.S. states’ financial incentives, approval process and main agencies and institutions regarding renewable energy policy.

London, United Kingdom
July 2010 - September 2010

Other Experience

President
Energy and Environmental Policy Student Association
.
President
Student Union - University of Groningen
.

Newark, DE
September 2012 - May 2013

Groningen, The Netherlands
September 2005 - August 2006

Education

Center for Energy and Environmental Policy, Ph.D.
University of Delaware
Energy and Environmental Sciences, MSc.
University of Groningen
Biology, BSc.
University of Groningen

Newark, DE
2011–2015

Groningen, The Netherlands
2007–2010

Groningen, The Netherlands
2004–2008

Technical Skills

Programming Languages: Python (commonly used packages: Pandas, Geopandas, Eppy, Numpy, Scikit-image, Scikit-learn, GeomEppy, Plotly, Matplotlib, Selenium), SQL, Wordpress, HTML, and R.

Analytical Skills: Geospatial analysis; 3D models; Light Detection and Ranging (LIDAR) data analysis; Economic assessment; Monte Carlo assessment; Urban energy modeling; Building energy models, Data visualization.

Industry Software Skills: NREL System Advisor Model (SAM), Helioscope, JupyterLab, Jupyter Notebooks, AWS EC2, AWS S3, AWS Sagemaker, PyCharm, ArcGIS Pro, Overleaf, KNIME Data Analytics, Asana Project Management, MS Office product suite, WordPress, Energy Plus, jEplus, Google Colab.

Publications

Taminiau, J (2025). Community Choice Energy: Bridging the Gap Between Sustainability and Affordability in Electricity Supply. *Energy Policy*. doi: <http://dx.doi.org/10.1016/j.enpol.2024.114489>

Byrne, J., **Taminiau, J.**. (submitted for review). Community Energy Governance Reasserted: An Emerging Political Economy of Polycentric Energy Transformation. In: *Urban Energy Transition (Third Edition)*.

Editor: Peter Droege.

Taminiau, J., Byrne, J., Benson, T. (submitted for review). Empirical Analysis of Local Government Efforts in the U.S. to Drive the Urban Energy Transition. In: Urban Energy Transition (Third Edition). Editor: Peter Droege.

Byrne, J., Lund, P. and **Taminiau, J.** (2024). Solar City: Promise and Challenges. Wiley Special Collection. Available at: [https://wires.onlinelibrary.wiley.com/doi/toc/10.1002/\(ISSN\)2041-840X.promise-and-challenges](https://wires.onlinelibrary.wiley.com/doi/toc/10.1002/(ISSN)2041-840X.promise-and-challenges)

Byrne, J. and **Taminiau, J.** (2024). Who Benefits? Rethinking the Distribution of Harms and Benefits in the U.S. Energy Transition (submitted for review to SSRN).

Esfandi, S., Tayebi, S., Byrne, J., **Taminiau, J.**, Giyachi, G. (2024). Smart Cities and Urban Energy Planning: An Advanced Review of Promises and Challenges. Smart Cities. doi: <https://doi.org/10.3390/smartcities7010016>

Byrne, J. and **Taminiau, J.** (2023). Too much research on the climate-society nexus is looking in the wrong direction for responses and modelling the wrong problem [symposium presentation]. NowThen2023 Research Symposium “Anticipating future sustainability crises while coping with the current one”, Helsinki, Finland.

Taminiau, J., Byrne, J. Kim, J., Kim, M-H, Seo, J. (2022). Inferential- and measurement-based methods to estimate rooftop “solar city” potential in megacity Seoul, South Korea. WIREs Energy Environ. doi: <https://doi.org/10.1002/wene.438>

Byrne, J. Lund, P., **Taminiau, J.** (2022). Rapid climate transformation requires transformative policy and science thinking—An editorial essay. WIREs Energy Environ. doi: <https://doi.org/10.1002/wene.428>

Byrne, J., **Taminiau, J.**, Nyangon, J. (2022). American policy conflict in the hothouse: Exploring the politics of climate inaction and polycentric rebellion. Energy Research and Social Science, 89: 102551. doi: <https://doi.org/10.1016/j.erss.2022.102551>

Taminiau, J., Byrne, J. Kim, J. Kim, M, Seo, J. (2021). Infrastructure-scale sustainable energy planning in the cityscape: Transforming urban energy metabolism in East Asia. WIREs Energy Environ. doi: [10.1002/wene.397](https://doi.org/10.1002/wene.397)

Taminiau, J., Carretero, D.S., Byrne, J., Shin, S., Xu, J. (2021). Risk Mitigation in Energy Efficiency Retrofit Projects using Automated Performance Control. In J. Nyangon, & J. Byrne (Eds.), Sustainable energy investment: Technical, market and policy innovations to address risk. London, UK: IntechOpen.

Taminiau, J., Byrne, J. (2020). City-scale urban sustainability: Spatiotemporal mapping of distributed solar power for New York City. WIREs Energy Environ; 9:e374. <https://doi.org/10.1002/wene.374>

Taminiau, J., Banks, J.P., Bleviss, D., Byrne, J. (2019). Advancing transformative sustainability: A comparative analysis of electricity service and supply innovators in the United States. WIREs Energy Environ. doi: [10.1002/wene.337](https://doi.org/10.1002/wene.337)

Byrne, J., **Taminiau, J.**, Kim, K.N., Lee, J. and Seo, J. (2019). Multivariate Analysis of Solar City Economics. In Advances in Energy Systems (eds P.D. Lund, J. Byrne, R. Haas and D. Flynn). <https://doi.org/10.1002/9781119508311.ch29>

Fischedick, M., Byrne, J., Hermwille, L., **Taminiau, J.**, Luhmann, H-J., Stelzer, F., & Vallentin, D. (2018). Reflections on the State of Climate Change Policy – From COP21 to Cities. In S. Lele, E. S. Brondizio, J. Byrne, G. M. Mace, & J. Martinez-Alier (Eds.), Rethinking Environmentalism – Linking Justice, Sustainability, and Diversity (Strüngmann Forum Reports). MIT Press.

Byrne, J., & **Taminiau, J.** (2018). Utilizing the urban fabric as the solar power plant of the future. In: Urban Energy Transition (Second Edition), p. 31-49. Editor: Peter Droege. doi: 10.1016/B978-0-08-102074-6.00016-4.

Byrne, J., **Taminiau, J.**, Kim, K., Lee, J., & Seo, J. (2017). Multivariate analysis of solar city economics: impact of energy prices, policy, finance, and cost on urban photovoltaic power plant implementation. WIREs Energy Environ, 6(4), e241. doi:10.1002/wene.241

Taminiau, J., Nyangon, J., Lewis, A.S., Byrne, J. (2017). Sustainable business model innovation: Using poly-centric and creative climate change governance. In: Collective Creativity for Responsible and Sustainable Business Practice (pp. 140-159). Hershey, PA: IGI Global. Editor: Ziska Fields. doi: 10.4018/978-1-5225-1823-5.

Byrne, J., **Taminiau, J.**, Seo, J., Lee, J., Shin, S. (2017). Are solar cities feasible? A review of current research. International Journal of Urban Sciences. doi: 10.1080/12265934.2017.1331750

Nyangon, J., Byrne, J., **Taminiau, J.** (2017). An assessment of price convergence between natural gas and solar photovoltaic in the U.S. electricity market. WIREs Energy Environ. 6(3). doi: 10.1002/wene.238

Byrne, J., **Taminiau, J.**, Kim, K., Seo, J., Lee, J. (2016). A solar city strategy applied to six municipalities: integrating market, finance, and policy factors for infrastructure-scale photovoltaic development in Amsterdam, London, Munich, New York, Seoul, and Tokyo. WIREs Energy Environ. doi: 10.1002/wene.182

Taminiau, J., Byrne, J. (2016). Reconsidering growth in the greenhouse: the Sustainable Energy Utility (SEU) as a practical strategy for the twenty-first century. In Green Growth, Dale, Mathai and Puppim de Oliveira (eds). London: Zed Books: pp. 233-252 and 306-309. doi: 10.5040/9781350220553.ch-011

Byrne, J., **Taminiau, J.** (2015). A Review of sustainable energy utility and energy service utility concepts and applications: Realizing ecological and social sustainability with a community utility. WIREs Energy Environ, doi: 10.1002/wene.171.

Byrne, J., **Taminiau, J.**, Kurdgelashvili, L., Kim, K. (2015). A review of the solar city concept and methods to assess rooftop solar electric potential, with an illustrative application to the city of Seoul. Renewable and Sustainable Energy Reviews, Vol. 41, 830–844.

Taminiau, J., Wang, Y-D., Byrne, J. (2014). Drivers for Change. In Green Energy Economies: The Search for Clean and Renewable Energy, J. Byrne and Y-D. Wang eds. Pp. 349-358.

Byrne, J., Kurdgelashvili, L., **Taminiau, J.** (2012). Social change to avert further climate change: Defining the scale of change and principles to guide a new strategy. WIREs Energy and Environment Vol. 1, No. 1, pp. 17-40.

Taminiau, J., Byrne, J. (2012). A reformulation of ‘success’ in the climate change negotiations. Joint Implementation Quarterly (JIQ) Vol. 18, No. 1, pp. 11-14. Full magazine can found at: jiqweb.org

Preprints

Taminiau, J., Byrne, J. (preprint). California’s Community Choice Movement and a Future of Public Energy Governance. Preprint submitted to Energy Policy for consideration. doi: 10.13140/RG.2.2.27527.71843

Industry Briefings

U.S. State Senator (Delaware)
Prepared joint policy briefing

Dover, DE
March 2021

Joint policy briefing on community solar, community choice aggregation (CCA), and solar market development options for Delaware.

U.S. State Senator (Delaware)

Prepared joint policy briefing

Dover, DE

January 2021

Joint policy briefing on community solar, community choice aggregation (CCA), and solar market development options for Delaware.

Bipartisan U.S. Senate Climate Solutions Caucus

Prepared joint policy briefing

Washington, DC

June 2018

Joint policy briefing on green infrastructure finance, including green banks, property assessed clean energy finance (PACE), and other innovations.

FREE Policy Brief Series

Energy and climate policy briefs

New York, NY

2015 - Present

Lead author on policy brief series on interdisciplinary energy and climate policy topics such as green banks, sustainable energy utility, and others.

Reports

Taminiau, J., Byrne, J., Grover, D., Esfandi, S. (2023). Strategies to broaden employment opportunities in the green energy economy: Estimated job and public health impacts of the Inflation Reduction Act and Bipartisan Infrastructure Law. FREE Report 2023, Available at SSRN: <https://ssrn.com/abstract=4749282> or <http://dx.doi.org/10.2139/ssrn.4749282>

Taminiau, J., Byrne, J., Grover, D., Esfandi, S. (2023). The Social Geography of the Solar Renewable Energy Credit (SREC) Market. Research report by the Foundation for Renewable Energy and Environment (FREE). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4749039

Taminiau, J., Byrne, J., Cristinzio, D., Grover, D., Sanchez Carretero, D. (2022). Low-carbon planning for Delaware's solar energy future. Research report by the Foundation for Renewable Energy and Environment (FREE) and the Center for Energy and Environmental Policy (CEEP), University of Delaware.

Byrne, J., **Taminiau, J.**, Cristinzio, D., Grover, D., Carretero, D.S. (2022). Environmental Justice Challenges in the Pursuit of a Low-Carbon Energy Future. SSRN Electronic Journal. Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4237862

Byrne, J., **Taminiau, J.**, Sanchez Carretero, D., Shin, S. (2021). Developing a building-by-building estimate of city-wide electricity savings potential: An early trial for the City of Wilmington, Delaware. Research report by the Foundation for Renewable Energy and Environment (FREE) and the Center for Energy and Environmental Policy (CEEP). doi: <http://dx.doi.org/10.2139/ssrn.3914143>

Byrne, J., **Taminiau, J.**, Nyangon, J., Benson, T., Cristinzio, D., Ddamulira, R. (2021). Community solar governance: Institutional design and collective choice options: Implications for U.S. markets. Research report by the Foundation for Renewable Energy and Environment (FREE) and the Center for Energy and Environmental Policy (CEEP). doi: <http://dx.doi.org/10.2139/ssrn.3914111>

Byrne, J., Nyangon, J., Hegedus, S., **Taminiau, J.**, Li, P., de Paz, O., Redhead, K. (2020). Navigating the Changing Landscape of Community Solar in Delaware: Policy Designs and Governance Frameworks to Support Community-Owned Sustainable Energy. SSRN Electronic Journal, doi: 10.13140/RG.2.2.33958.55369

Byrne, J., Nyangon, J., Deblauwe, H., Oster, C., Shin, S., Xu, J., **Taminiau, J.**, and Chajes, M. (2017). Measuring Urban Sustainability Through Common Indicators and Peer City Benchmarking: Assessing

Sustainability Assets for Performance Improvement and Economic and Environmental Progress in Delaware. Center for Energy and Environmental Policy Report. <https://ssrn.com/abstract=3102488>

Taminiau, J., Byrne, J. (2015). A Polycentric Response to the Climate Change Challenge: Relying on Creativity, Innovation, and Leadership. Position paper prepared for the Twenty-first Session of the Conference of Parties (COP-21), held in Paris, under the UN Framework Convention on Climate Change. Newark, DE: Center for Energy and Environmental Policy, University of Delaware.

Wang, Y-D., Byrne, J., Kurdgelashvili, L., Brehm, C., Saul, K., Kramer, G., Argyriou, I., Gopal, S., Kim, H., Lamprey, L., Uturkar, M., Bae, H-Y., Cho, S., Ha, Y-H., Kim, J., **Taminiau, J.**, and Wei, Y. (2013). International energy policy in the aftermath of the Fukushima nuclear disaster: An analysis of energy policies of the U.S., U.K., Germany, France, Japan, China and Korea. Newark, DE: Center for Energy and Environmental Policy.

Guest Lectures

Green School Project Lecture Series <i>Graduate class at 600 level</i>	Seoul, Korea <i>December 2024</i>
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Green School Project Lecture Series <i>Graduate class at 600 level</i>	Seoul, Korea <i>November 2023</i>
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Climate Change Science, Policy, and Political Economy <i>Graduate class at 600 level</i>	Newark, DE <i>Jan-June 2023</i>
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Guest lecturer of multiple lectures on climate change policy architectures, emerging solutions, political economy considerations. Assisted in drafting of the syllabus.

Green School Project Lecture Series <i>Graduate class at 600 level</i>	Seoul, Korea <i>November 2022</i>
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Green School Project Lecture Series <i>Graduate class at 600 level</i>	Seoul, Korea <i>November 2021</i>
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Climate Change Science, Policy, and Political Economy <i>Graduate class at 600 level</i>	Newark, DE <i>Jan-June 2021</i>
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Guest lecturer of multiple lectures on climate change policy architectures, emerging solutions, political economy considerations. Assisted in drafting of the syllabus.

Design and Operation of Renewable Energy Microgrids <i>Graduate class at 600 level</i>	Newark, DE <i>October 2020</i>
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Guest lecturer of on microgrid economics, policy, and market status.

Climate Change Science, Policy, and Political Economy <i>Graduate class at 600 level</i>	Newark, DE <i>Jan-June 2019</i>
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Guest lecturer of multiple lectures on climate change policy architectures, emerging solutions, political economy considerations. Assisted in curriculum building.

Design and Operation of Renewable Energy Microgrids <i>Graduate class at 600 level</i>	Newark, DE <i>October 2019</i>
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Guest lecturer of on microgrid economics, policy, and market status.

Climate Change Science, Policy, and Political Economy <i>Graduate class at 600 level</i>	Newark, DE <i>Jan-June 2018</i>
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Guest lecturer of multiple lectures on climate change policy architectures, emerging solutions, political economy considerations. Assisted in curriculum building.

Conferences (Selection)

CCE: Transformative, Equitable, Sustainable

ICNP

Invited Speaker

Groningen, the Netherlands. June 20-21, 2023

Invited speaker and panelist at the Second International Conference on New Pathways for a Just and Inclusive Energy Transition: Connecting Multiple Stakeholders and Levels.

Polycentric Rebellion & US Climate Policy Transformation

ICNP

Invited Speaker

Groningen, the Netherlands. June 20-21, 2023

Invited speaker and panelist at the Second International Conference on New Pathways for a Just and Inclusive Energy Transition: Connecting Multiple Stakeholders and Levels.

Research on climate-society nexus is looking in the wrong direction

WISE & LONGRISK

Invited Speaker

Helsinki, Finland. June 15-16, 2023

Invited speaker and panelist at NowThen2023 conference on "Anticipating future sustainability crises while coping with the current one".

CCEs as Drivers of Renewable Energy Growth

NARUC

Invited Speaker

Washington, D.C. February 13, 2022

Invited speaker and panelist at National Association for of Regulatory Utility Commissioners (NARUC) Winter Policy Summit. Topic: how local governments use community clean energy choice (CCE) authorities to rapidly advance renewable energy, particularly solar energy, deployment.

Building Solar Cities: Rethinking how Cities get their Power

Arizona State University

Invited Speaker

Online. April 2, 2021

Invited speaker at ASU School for the Future of Innovation. Topic: solar cities and case study analysis of New York City.

Solar cities: Municipal opportunity for infrastructure-scale PV development

AESC

Invited Speaker

Hong Kong. July 3, 2019

Invited speaker at Asian Energy Studies Centre (AESC). Topic: solar city case studies and financial assessment.

The 2nd Market Accessibility of Clean Energy Products (MACEP) Workshop

KEEI

Invited Speaker

San Francisco. May, 2016

Invited speaker at MACEP workshop organized by Korea Energy Economics Institute (KEEI)

.

Climate-Sensitive Urban Development: The Case for Solar Cities

UNFCCC

Invited Speaker

Paris. December, 2015

Invited speaker at twenty-first United Nations Framework Convention on Climate Change (UNFCCC) Conference of Parties (COP)

.

Datasets

Taminiau, J.. (2024). California's Community Choice Movement and a Future of Public Energy Governance. Research Output of FREE.

Taminiau, J., Banks, J.P., Bleviss, D., Byrne, J. (2018). Exploring sub-national sustainable energy innovation in the U.S. electricity market: Selection of municipal utility and investor-owned utility innovators. Research Output of FREE & Johns Hopkins University/SAIS Technology, Electricity and Climate Initiative.

References

References available on request.