

Jack Gregory, PhD

Energy Analyst & Lead Modeler

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KEY SKILLS

■ Summary

Energy economist who combines economic analysis, energy-system modelling and data science to answer complex questions and translate technical results into policy, investment and strategic insights.

■ Knowledge Areas

Energy economics; Electricity markets; Renewable and flexible energy technologies; Climate change; Policy analysis; Utility regulation, including electricity, gas & water.

■ Modelling

- Inferential analysis → econometrics including timeseries and panel data
- Predictive analysis → machine learning
- Linear programming → linear and non-linear optimization, esp. power market models
- Composite indicators

■ Coding

- Significant experience with statistical languages (R & Stata), RDBMS (SQL), and versioning (Git)
- Working knowledge of Python (incl. PyPSA), Plexos and optimization software (Julia/JuMP)
- Experience with cloud computing (AWS incl. EC2, S3 & RDS), publishing software (MS Office, $\LaTeX$ & Markdown), reproducible reporting (Rmarkdown, Quarto & Jupyter), and dashboards (Shiny & Streamlit)

■ Languages

- English: Native
- French: Intermediate (speaking, reading & writing)

EDUCATION

University of California, Davis, Davis, CA, USA

2014 – 2021

Doctor of Philosophy (Ph.D.) in Agricultural & Resource Economics

- Dissertation: Essays on Electricity Economics – Three essays discussing (1) the impacts of COVID restrictions and federal assistance on business activity in Southern California; (2) how government ownership and market power intersect in the Queensland regional electricity market; and, (3) the effects of the Clean Air Act's grandfathering provisions.
- Advisers: Prof James Bushnell, Prof Katrina Jessoe, Prof Kevin Novan and Prof Erich Muehlegger
- Through my research, it was necessary to develop a data scraping, organisation, and analysis workflow; R and Python were used to collect the data and perform the analysis, Julia/JuMP was used to build an economic electricity dispatch model, while MySQL was used to organize hundreds of millions of data points. The analysis incorporated sophisticated panel regressions and machine learning to identify causal relationships.

Australian National University, Canberra, ACT, Australia

2010 – 2011

Master of Environmental & Resource Economics (MERE)

- Attended the *Crawford School of Public Policy*
- Thesis: Fuel Choices in Rural Maharashtra – Analysed energy choice in rural India from a unique data set, hypothesised a model and applied econometric techniques with STATA to discern its validity
- Adviser: Prof David Stern

Queen's University, Kingston, ON, Canada

2003 – 2008

Bachelor of Science (B.Sc.)

- Major in Physics, minor in Economics
- Graduated with Honours

- **Primary responsibility:** Managing a team of electricity modelers and providing expert advice on energy economics, electricity markets and regulation.
- **Chapter Lead – *Electricity Market Design: Complementary Mechanisms***
 - Subject matter lead on capacity remuneration and decarbonisation mechanisms and provided expert economic guidance on both short- and long-term electricity markets.
 - The report provides a cross-regional assessment of how wholesale electricity markets and their complementary policy mechanisms are performing today highlighting that coherent evolution is essential to maintain secure, affordable and sustainable electricity systems.
 - Communicated findings to policymakers providing a broad framework and recommendations upon which to approach market design challenges.
- **Project Manager – *Europe Bidding Zone Model***
 - Leading the development of a PyPSA-EUR model at the bidding zone level to expand the team’s modelling capabilities with respect to open-source tools as well as regional scope.
 - Key outputs include an analysis of the removal of carbon and transportation costs on gas generators in Italy, showing that the policy would lower Italian wholesale prices but create inefficiencies in terms of market optimisation and carbon emissions and result in policy leakage by subsidising electricity customers in neighbouring countries.
 - Managed and guided junior staff through model development, validation, analysis and maintenance phases.
- **Other responsibilities**
 - Led the development of a lightweight methodology to estimate electricity system integration costs robustly extending standard levelised cost of electricity measures; coordinated ongoing implementation through several Plexos power market models.
 - Led the modelling associated with *The Value of Demand Flexibility*, a major deliverable for Phase II of the Digital Demand-Driven Electricity Networks (3DEN) Initiative.
 - Served as the regional expert on electricity market and policy developments for Canada and the United States, including the support of relevant Agency outputs and stakeholder engagement activities.
 - Contributed as a subject matter expert on electricity systems and markets to the Canadian Energy Policy Review 2026.
 - Led a call-for-tenders to procure a major license for power market modelling software delivering on-time and within budget.

- **Primary responsibility:** Research, modelling, and analysis for the Dutch and Belgian Power Markets.
- **Project Manager – *Power & Renewables Market Forecast***
 - Led a team of analysts producing quarterly research and modelling for subscription analytics related the Dutch power market, where clients rely on our analysis to make long-term, capital-intensive investment decisions.
 - Directed and coordinated a model calibration project based on historic data aimed at improving forecasts for the Netherlands and Belgium.
 - Initiated a workflow to systematise the extraction, transformation and management of inputs for the Dutch and Belgian power market models.
- **Project Manager – *Client Roundtables***
 - Led two client roundtables in the Netherlands on: (1) grid availability, congestion, and fees; and, (2) innovative solar technologies and their domestic business case.
 - Coordinated a team of analysts to assess and forecast growing network and renewables concerns in the Netherlands, where outputs formed the basis of policy advice to the Dutch Government.
 - Presented our findings to in-person groups of over 30 clients, as well as through a public webinars with over 150 attendees.
- **Other responsibilities**
 - As a subject matter expert, addressed questions and concerns from clients in relation to our Dutch and Belgian power market models.
 - Led and delivered the ‘Understanding Renewables’ introductory course for Europe-based employees.
 - Built an R Shiny web app which performs project quality assurance by querying a remote database and presenting evaluation metrics through a dashboard.

Economic Consultant

- Consulted on the SME Competitiveness Outlook (SMECO)—ITC’s flagship report which provides in-depth analysis and insight on the challenges facing small and medium-sized enterprises around the globe.
- Used geospatial event data from ACLED to develop a set of business-level instability indicators.
- Used ITC survey data on business fragility across eight developing countries to perform a factor analysis and develop a business-level fragility index.

World Intellectual Property Organization (WIPO), Geneva, Switzerland

2021 – 2022

Economist & Data Analyst, Department for Economics and Data Analytics

- Primary responsibility: Data management and analysis for the Global Innovation Index (GII), the preeminent indicator for global innovation benchmarking and WIPO’s flagship report.
- Project Manager – *GII Data Workflow*
 - Developed and implemented a transition to a reproducible GII workflow from data collection through result dissemination primarily in R, SQL and GitHub.
 - Built, maintained and administered a cloud relational database using AWS RDS, MariaDB and R.
 - Managed the development of standardized data collection, cleaning and auditing code in R, Python and Stata.
 - Advised and audited the internal R package built to assemble the GII composite indicator.
 - Led the development of GII data outputs, including but not limited to: economy briefs and presentations generated with Rmarkdown/Quarto; and, economy profiles populated through a bespoke workflow integrating R, XML and Adobe InDesign.
- Other responsibilities
 - Advised national governments on their GII results and potential avenues for improvement through non-technical reports and presentations.
 - Built a relationship with GitHub to develop open source coding metrics relevant to the GII, which up until then lacked measures of digital innovation.

California Independent System Operator (CAISO), Folsom, CA, USA

2016 – 2017

Analyst, Department of Market Monitoring

- Primary responsibility: monitoring the efficiency and effectiveness of the ancillary service, congestion management, and electricity spot markets.
- *Downward flexibility metrics*
 - Analytic work addressed the issue of downward flexibility within the ISO energy markets in order to highlight the main drivers of non-economic bidding and resultant market outcomes.
 - Identified errors and developed a new methodology for determining the percentage of economic downward flexibility by generation type.
 - The revised methodology was adopted as the standard for all similar metrics within the ISO.

Independent Competition & Regulatory Commission, Canberra, ACT, Australia

2011 – 2014

Senior Regulatory Officer, Economics Division

- Primary responsibilities: providing economic advice to the Commission, analysing market competitiveness, and pricing utility services in the ACT.
- Project Manager & Climate Change Subject Expert – *ACT GHG Inventory 2009–10 to 2011–12*
 - Advised the Commission and external stakeholders on highly complex, technical subjects, including: climate change, greenhouse gas emissions, and renewable energy policy.
 - Independently authored an annual report cataloging the changes in Territory emissions and renewable energy consumption and presented it along with the models to both internal and external stakeholders.
- Project Manager – *Franchise Electricity Customers Price Reset 2013–14*
 - Advised the Commissioners and colleagues on highly complex technical issues surrounding the reset, including the effects of the federal price on carbon in financial markets (i.e. spot and futures).
 - Developed and documented a regulated retail price model using Excel Visual Basic for Applications based on a cost build-up approach.
 - Independently authored all external publications, including the Information Paper and Final Report, which required distilling complex electricity issues for a non-technical audience.

PAPERS

- Gregory, J. and D.I. Stern.** 2014. “Fuel choice in rural Maharashtra.” *Biomass & Bioenergy*, 70: 302–314.
- Gregory, J.** 2016. “Amazing Grace: How grace periods influence innovation.” IP Australia Economic Research Paper 06-02.
- Brown, A., Fuller, S. and Gregory, J.** 2019. “State-of-the-Knowledge White Paper Series: How Zero-Emission Vehicle Incentives and Related Policies Affect the Market.” University of California, Davis, Institute of Transportation Working Paper 2018-43.
- Gregory, J.** 2021. “Essays on Electricity Economics.” Dissertation. University of California, Davis.
- Bushnell, J.B. and Gregory, J.** 2023. “Markets with Power: Competitive benchmark model of the Australian National Electricity Market.” *2023 19th International Conference on the European Energy Market*, 1–6.
- Rupiper, A.M., Good, R.T., Ackerman, J., Gregory, J., Jessoe, K.K. and Loge, F.J.** 2024. “AMI water meters deliver end-use water and financial savings in leaky households: experimental evidence from California.” *Environmental Research Letters*, 19(11).
- Bialek, S., Gregory, J., Revesz, R.L. and Pals, B.** 2025. “Still Your Grandfather’s Boiler: Estimating the Effects of the Clean Air Act’s Grandfathering Provisions.” *Journal of the Association of Environmental & Resource Economists*, 12(5).

PRESENTATIONS

- Panel Speaker 2021. “COVID restrictions, federal assistance and small businesses.” **Energy Policy Conference**, Boise, ID, USA.
- Panel Speaker 2022. “COVID restrictions, federal assistance and small businesses.” **Mannheim Conference on Energy and the Environment**, Mannheim, Germany.
- Panel Speaker 2022. “Still your grandfather’s boiler.” **Atlantic Workshop on Energy and Environmental Economics**, A Toxa, Spain.
- Panel Speaker 2023. “Still your grandfather’s boiler.” **AERE@OSWEET**, Online.
- Panel Speaker 2023. “Markets with Power.” **European Energy Market**, Lappeenranta, Finland.
- Presenter 2024. “Grid overload: The impact of the grid on the Dutch energy transition.” **Aurora Energy Research**, Amsterdam, Netherlands.
- Presenter 2024. “Electrification or deindustrialisation? Our outlook on the Belgian power market.” **Aurora Energy Research**, Brussels, Belgium.
- Presenter 2024. “Solar innovation in the Netherlands: Will new technologies power a brighter future.” **Aurora Energy Research**, Amsterdam, Netherlands.
- Panel Speaker 2025. “The Growing Role of Flexibility in Modern Power Systems.” **Wind & Solar Integration Workshop**, Berlin, Germany.
- Presenter 2025. “Capacity remuneration mechanisms: Drivers, mechanisms and challenges.” **IEA Electricity Security Task Force**, Paris, France.
- Presenter 2026. “System Integration Costs.” **International Hydropower Association Workshop**, Online.

REFERENCES

- Available upon request.

[CV compiled on 2026-09-09 for IEA]