

JAMIL FARBES

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Energy consultant focused on electricity sector planning, carbon-constrained wholesale market design and operations, and distributed resource portfolio optimization.

PROFESSIONAL EXPERIENCE

EVOLVED ENERGY RESEARCH, SAN FRANCISCO, CA

Principal, May 2018– Present

- **Rapid Energy Policy Evaluation and Analysis Toolkit, 2021-2023.** As a member of Princeton Zero Lab-led policy analysis project, led macro-energy model of federal climate and energy policy proposals, including predecessors to the Inflation Reduction Act (IRA). Our analysis of IRA was amongst a small group that actively supported senate negotiations prior to the bill becoming law.
- **Advising on Oregon climate policy development, 2021.** Developed decarbonization scenarios of the western US to support the Environmental Defense Fund's efforts to develop positions and comments around proposed climate legislation for the state of Oregon.
- **Marginal Abatement Cost Curves 2.0, 2020-2021.** Led project to develop a novel approach to marginal abatement cost (MAC) curve analysis for net-zero emissions systems for Environmental Defense Fund.
- **Regional Decarbonization Study, 2019-2020.** Lead a Midwest regional decarbonization analysis and whitepaper and supported a Southeast regional analysis and paper on key opportunities and challenges unique to these regions within a broader national deep decarbonization effort. Analysis was based on national modeling in EnergyPATHWAYS and the Regional Investment and Operations (RIO) platform.
- **Net Zero-Carbon System Planning, 2019.** Working with a California investor-owned utility, managed an integrated demand and supply-side scenario analysis to develop least-cost portfolios for the utility under a state-wide net-zero emissions target by 2045 utilizing EnergyPATHWAYS and RIO.
- **Resource Planning, 2018-2019.** Performed least-cost resource investment planning in Japan for a confidential client using RIO to meet national CO2 reduction and energy security goals.
- **Technology Competitiveness, 2018-2019.** Assessed the role and value of Direct Air Capture technologies in a US low carbon economy under a variety of scenarios using RIO for a broader study of Direct Air Capture technologies performed by the Rhodium Group.
- **Infrastructure Deployment, 2018.** Identified critical medium-term infrastructure investments for a least-cost resource portfolio using RIO for the Mexican state of Sonora in the context downscaling national CO2 reduction goals to a sub-national level.
- **Policy Targets, 2018.** Performed least-cost resource investment planning for Mexico as a part of the Deep Decarbonization Pathways in Latin America funded by the Institute for Sustainable Development and International Relations (IDDRI). The least-cost portfolio was used to assess national near-term CO2 reduction goals against trajectories that offer the greatest likelihood of achieving 2050 CO2 emission reduction targets.

ROCKY MOUNTAIN INSTITUTE, BOULDER, CO

Manager, September 2016 – April 2018

- Led development of RMI's 'clean portfolios' analysis, which constructs jurisdiction-specific, least-cost portfolios of utility-scale renewables, energy storage, and distributed energy resources (DERs) that can offer the same key services as proposed natural gas power plants at lower total cost.
- Facilitated and structured RMI's role collaborating with Duke Energy, the city of Asheville, NC, and the surrounding county to identify potential clean alternatives to a proposed natural-gas peaker plant in the western North Carolina area and developing a plan to defer the plant. Led the analytical work, in close coordination with Duke, to develop a techno-economic analysis for the region and identified key demand-management approaches to mitigate winter peaking.
- Structured and led an outside-in rate analysis of one of the largest, and most emissions-intensive, generation & transmission (G&T) co-operatives in the US. Scenarios examined potential participation in a future organized market, as well as opportunities to lower rates and restructure operations by taking advantage of community-scale DER deployments that can provide value to the broader G&T system, along with significant declines in renewable prices.
- At eLab Summit 2017, co-facilitated a break out group of 30 industry-leaders around the topic of Distributed Grid Infrastructure—portfolios of clean technologies that can complement, defer, or avoid traditional utility grid investments.

PACIFIC GAS & ELECTRIC COMPANY (PG&E), SAN FRANCISCO, CA

Expert Analyst, Market Strategy, October 2015 – July 2016

Senior Analyst, Market Strategy, June 2014 – September 2015

- Core responsibilities included identifying and addressing issues related to future wholesale electricity markets, including strategic planning for the electric portfolio, assessing and resolving commercial and institutional considerations for renewable integration, and influencing market design.
- Directly supported the Vice President of Energy Supply Management and the Director of Market Design and Strategy in addressing internal seams issues related to the market, including led a team to seek additional curtailment flexibility from existing renewable contracts; represented the markets team on the DER Plan working group; engaged a 10-person team to develop content for the markets portion of a Department of Energy hydropower report; conducted outreach to Energy Imbalance Market stakeholders.
- Completed a deal for a 3 MW storage project in PG&E's first Energy Storage Request for Offers; responsibilities included negotiations and assessing the relative chargeability of projects.
- Modeled future energy market activity and consult on the development of energy and capacity forward curves to inform and shape internal policy positions on procurement and market design.
- Managed a cross-functional team of 15 people to create systems and business processes that facilitate the integration of variable energy resources, supporting PG&E's operational efficiency targets and generating more than \$10M in annual savings for customers.
- Led the effort to develop scenarios for PG&E's Long-Term Bundled Electric Portfolio Strategy and presented the scenarios to the leadership of the Energy Policy & Procurement department.
- Led the market design and strategy contract review, which focuses on ensuring contracts work with evolving market structures and protect customers while also serving a diverse set of internal stakeholders.
- Supported a comprehensive effort to assess and improve how contracts are negotiated, bid, scheduled, settled, and administered, including a proposal to restructure and simplify the renewables form contract.

ENERGY & ENVIRONMENTAL ECONOMICS, INC., SAN FRANCISCO, CA

Consultant, July 2011 – May 2014

- Developed the modeling framework and fundamental code infrastructure for the ConEdison Integrated Demand Side Management Potential Model that went on to win a Utility Analytics Innovation Award.
- Built the industrial portions of the US PATHWAYS model and supported the development of the California PATHWAYS model, both of which generate potential paths to 2050 emission targets. Collaborated on scenario development and results for the United Nation's "Pathways to Deep Decarbonization" report.
- Made significant updates to and ran scenarios on the model underlying E3's publication in the journal Science, "The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050: The Pivotal Role of Electricity," to gain insight on 2030 carbon targets for California and support policy discussions with state agencies.
- Developed a dispatch optimization tool for the University of California, San Diego's campus microgrid that integrated several years of campus data to estimate the economics of campus participation in a variety of existing and novel energy markets related to flexible dispatch and renewable integration.
- Performed case studies of utilities in the Western Electricity Coordinating Council focused on the impact of evolving behind-the-meter distributed generation and energy efficiency on the utilities' business models.
- Created a tool to estimate the cost-effectiveness of utility incentive programs for promoting natural gas vehicles; calculations included societal health benefits of reduced criteria pollutants in southern California.
- Integrated estimates of the declining load carrying capacity of renewables for a Southern California 2030 scenario analysis study with Rocky Mountain Institute.

LAWRENCE BERKELEY NATIONAL LABORATORY, DEMAND RESPONSE RESEARCH CENTER, BERKELEY, CA

Graduate Student Researcher, September 2010 – July 2011

- Assisted on the Intermittent Renewable Resource Pilot Project to utilize demand response for ancillary services.
- Independently developed a MATLAB and Excel-based tool to build statistical load summaries for candidate sites, examining the interactions between dispatch control logic and demand response.

NEXT 10 – CLIMATE POLICY RESEARCH COLLABORATION, BERKELEY, CA

Consultant, March 2010 – August 2010

- Researched and suggested priority investments of revenue from California's cap and trade program. Lines of inquiry included justifications for government investment and attempting to operationalize an aggregated social benefit metric—including health, ecological, job, and market impacts—for cost-benefit analysis.

ACADEMIC PUBLICATIONS

- Bistline, et al. (2023). Emissions and Energy Impacts of the Inflation Reduction Act. *Science*, 380(6652): 1324-1327.



- James H. Williams, Ryan A. Jones, Ben Haley, Gabe Kwok, Jeremy Hargreaves, Jamil Farbes, Margaret S. Torn. “Carbon-neutral pathways for the United States.” AGU Advances, March 2021, Volume 2
- Daniel Buira, Jordi Tovilla, Jamil Farbes, Ryan Jones, Ben Haley, Dennis Gastelum, A whole-economy Deep Decarbonization Pathway for Mexico, Energy Strategy Reviews, Volume 33, (2021). <https://doi.org/10.1016/j.esr.2020.100578>
- Priya Sreedharan, Jamil Farbes, Eric Cutter, C.K. Woo and Jianhui Wang. “Microgrid and renewable generation integration: University of California, San Diego.” Applied Energy, May 2016; Volume 169

EDUCATION

University of California – Berkeley, Monterey, CA

Master of Science in Energy & Resources, May 2010

HARVARD UNIVERSITY, Cambridge, MA

Bachelor of Arts in Biochemical Sciences, cum laude, June 2004