# Johnathon de Villier

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**ENERGY AND ENVIRONMENTAL ECONOMICS, INC.**                    San Francisco, CA
*Senior Consultant*

John de Villier joined E3 in 2021 as a member of the Climate Pathways and Electrification group in San Francisco. His most recent work investigates questions surrounding large-scaled building electrification and fuel switching, from its role in achieving emissions reduction and clean energy policy goals to its subsequent impacts on resource needs and customer economics in the power sector. John's interest in the impacts of climate change and its potential solutions motivated his previous roles as a consultant and subject matter expert covering emerging technologies in the energy industry, and, earlier still, as a biological field researcher; he brings experience and expertise from each of these areas to his work at E3.

Select E3 projects include:

**California Wildfire Risk Analysis (2023-2024).** Supported a major California utility in a technical review of wildfire risk assessment modeling frameworks to support statewide electric sector planning.

**Xcel Clean Heat Utility Decarbonization Study (2023-2024).** Developed a modeling framework to model cost-optimal portfolios of demand- and supply-side decarbonization strategies that achieve Colorado's Clean Heat greenhouse gas reduction targets.

**Multi-State Scope 3 Emissions Reduction Feasibility Analysis (2023).** Led a feasibility study to evaluate the costs and system impacts of scope 3 emissions reduction targets for a major Midwest utility.

**Washington Utility Decarbonization Analysis (2023).** Supported a major Washington utility in analyzing the cost, system, and infrastructure impacts of large-scale building and transportation electrification consistent with the Washington State Energy Strategy.

**California Targeted Building Electrification Study (2022-2023).** Supported a major California utility in evaluating the relative costs and benefits of targeted building decarbonization strategies in the state and resulting impacts on customer costs and bills.

**California Title 24 Building Standards (2022-2023).** Modeled future renewable resource development and regional load forecasts to support the California Energy Commission in its 2025 Title 24 Codes and Standards update cycle.

**Inflation Reduction Act Impacts on Heat Pump Adoption (2022-2023)**. Worked with a heat pump manufacturer to model the expected impact of key programs in H.R. 5376 (Inflation Reduction Act of 2022) on heat pump adoption for space and water heating by region across the United States.

**California Air Quality Modeling (2022).** In partnership with an air quality regulator in California, modeled the expected impacts of proposed emissions reduction standards on for space and water heating appliances on electric system infrastructure requirements and associated land use impact.

**CalFlexHub Flexible Load Technology Modeling (2022).** Worked with Lawrence Berkley National Laboratory to develop a modeling framework based on E3 RESTORE to evaluate the customer economics of emerging flexible load technologies under a range of potential rate regimes.

**Xcel Energy Future of Gas Building Electrification Study (2021-2022).** Supported Xcel Energy in modeling pathways to building electrification across several service territories. Modeling considered differing levels and rates of building adoption and its effect on future load, emissions, customer and electric system costs, and the role of renewable fuels as part of the gas transition.

**Washington Dept. of Commerce Building Electrification (2021-2022).** Supported the Washington State Department of Commerce in assessing the marginal costs and benefits and potential system impacts of building electrification across customer-owned utilities in the state. Focused on consumer and ratepayer cost impacts and emissions reductions associated with all-electric new construction, electrification of space and water heating, and retrofits of existing buildings.

**Maryland Building Decarbonization (2021).** Worked with the state of Maryland to identify pathways to deep decarbonization the buildings sector. Built and used a combination of purpose-built and in-house tools to model rapid adoption of heat pumps and other building electrification measures and quantify their associated equipment, system, and fuel costs.

**WRI Building Electrification and Cost-Effectiveness (2021).** Evaluated customer costs and bill impacts associated with the adoption of heat pumps and other building electrification measures, with a focus on first costs as a barrier to adoption, potential lifetime bill savings for renters and low-income households, and policy actions that could accelerate adoption to levels consistent with a nationwide net zero emissions trajectory.

**United States Climate Alliance Decarbonization Scenarios (2021).** Supported modeling efforts using E3's PATHWAYS model to quantify economy-wide greenhouse gas emissions reductions achievable through collective policy action among members in the United States Climate Alliance, with and without Federal climate action.

**NYSERDA Future of Solar (2021).** Worked with the New York State Energy Research and Development Authority (NYSERDA) to model policy and market mechanisms drive the adoption of solar projects in New York State. The model assessed the lifetime costs and expected revenues from solar projects throughout New York to determine incentive levels necessary to drive adoption to meet local policy targets.

**SMUD Net Energy Metering Successor Tariff (2021).** Leveraged E3's RESTORE toolkit to model cost shifts from a series of proposed rate programs governing compensation for behind the meter solar and energy storage within the Sacramento Municipal Utility District's service area. Analysis compared system avoided costs, customer bill impacts, equipment adoption payback periods, and other metrics to identify a successor to NEM 1.0 in Sacramento.

## GUIDEHOUSE (formerly Navigant Consulting)       Washington, DC
*Research Analyst & Senior Consultant, Guidehouse Insights*       2017-2021

- o Worked with small teams to deliver customized market research and supports consulting engagements for a global client base
- o Deep subject matter expertise in emerging technologies, including microgrids, blockchain, e-mobility, and smart buildings
- o Authored reports and recommendations to guide energy and power sector clients through the clean energy transformation

*Founding Member, Data Insights Team*

- o Led product design and development from white board to delivery for a team focused on quantitative research offerings
- o Built interactive dashboards to visualize key cleantech technology markets in the energy and power sectors
- o Developed R scripts to automate data cleaning, double analyst efficiency, and reduce time-to-publish from weeks to minutes

*Business Development and Thought Leadership*

- o Built and maintained expert relationships to gather market insights and generate business development opportunities
- o Frequently represented Guidehouse Insights as an invited conference speaker, panelist, and moderator
- o Authored blogs, white papers, and contributed articles (Forbes, Automotive World, Smart Energy World etc.)

## NEW YORK POWER AUTHORITY       White Plains, NY
*Co-manager, Graduate Capstone Consultant*       January – May 2017

- o Authored a technical report and executive brief on microgrid implementation under New York's REV Initiative
- o Coordinated a team of 10 graduate students to execute research, publish findings, and present to NYPA's executive board
- o Analyzed policy and technology barriers and identified opportunities for NYPA to explore new business models

## US DEPARTMENT OF AGRICULTURE       Western US
*Biological Field Research Technician, US Forest Service*       2014 - 2016

- o Managed long-term collaborative research projects across dozens of field sites and six states in the western United States
- o Led all stages of research projects, from experimental design and data collection to analysis and publication
- o Research informed strategies to promote forest resilience in the face of wildfire, insect pests, and a changing climate

## Education

Columbia University                                        New York, NY
*M.P.A., Environmental Science and Policy*                         2017

Bowdoin College                                            Brunswick, ME
*B.A. (Honors), Biology and Classics*                              2014