

Academic Background

Ph. D. in Energy and Resources, 2003, University of California, Berkeley, CA. Dissertation: *The Ends of Uncertainty: Air Quality Science and Planning in California's Central Valley*

M. S. in Energy and Resources, 1998, University of California, Berkeley, CA. Thesis: *Using Tradable Particulate Emissions Permits to Improve Air Quality in California's Central Valley*

Wharton School of Business, University of Pennsylvania, Philadelphia, PA

B. S. in Economics, 1989. University of California, Berkeley, CA.

Professional Experience

SENIOR ASSOCIATE, M.CUBED

2024- present

- Estimated the costs and benefits of water supply infrastructure and dam improvements.
- Prepare benefit-cost analysis for seismic hazards for water storage facilities submitted for grant funding
- Provided expert testimony in public utility proceedings on electricity rate designs, cost recovery for infrastructure to support data centers, and credits for self-generation using rooftop solar PV.
- Identified and compared estimates of generation costs for new fossil fuel and renewable generation in the Pacific Northwest to support valuation of existing utility-owned assets.

LEAD SENIOR ECONOMIST, Environmental Defense Fund

2007 – 2024

- Led research and analysis to support U.S. heavy-duty vehicle advocacy, producing fact sheets and reports comparing benefits and costs of diesel, electric, CNG, propane and hydrogen options.
- Provided expert testimony for Public Utility Commission proceedings on climate policy, residential and electric vehicle tariffs, grid modernization, storage and clean energy mandates, distribution system planning, integrated resource planning, and demand response programs.
- Developed policy analyses to evaluate the potential impacts of policies and regulations.
- Hosted research fellows and interns.
- Supervised analysts and collaborated with experts to support regulatory and policy advocacy, stakeholder engagement, fundraising and communications campaigns.

BOARD MEMBER, West Oakland Environmental Indicators Project,

2005-Present

- Coordinating Team Member
- Co-Chairing (with EPA) of West Oakland Toxics Reduction Collaborative Alternative Fuels Team
- Cal-EPA grantee to be Technical Advisor to West Oakland community in goods movement planning

SENIOR VISITING ADVISOR, OhmConnect, Inc.,

2019

- Evaluated successes & gaps in disadvantaged communities
- Developed and pitched proposal for multi-year, multi-million-dollar jobs initiative

COMMITTEE MEMBER, Smart Grid Advisory Committee, National Institute of Standards & Technology

2017 – 2019

ASSISTANT & ADJUNCT PROFESSOR, Univ. of SF, Dept Env. Science & Studies, 2003 - 2007

- Teach graduate courses in the Master of Science in Environmental Management program
- Teach undergraduate courses in Environmental Science and Environmental Studies majors

INDEPENDENT CONTRACTOR, ENVAIR & M.CUBED, 1994 - 2007

Energy Economics Modeling

- Compared the costs of decommissioning or relicensing the Klamath Dam complex.
- Forecasted energy demand and production/delivery capacity for the City of San Francisco.

Air Quality and Transportation

- Analyzed the costs incurred by the construction industry to comply with the off-road diesel vehicle emissions reduction rule proposed by the California Air Resources Board.
- Calculated public revenues and expenditures associated with surface transportation (state highways, local roadways, mass transit service) in the six counties encompassing Chicago.
- Wrote a technical report about nitrogen oxides pollution that surveys existing legislation and regulation, analyzes issues that may lead to further emissions controls, lists emissions sources, and identifies future research needs
- Conducted research for an economic impact analysis of the California Air Resources Board's State Implementation Plan for attainment of national ambient air quality standards

Water Quality and Water Rights Economics

- Evaluated the potential for implementing a tradable discharge permit program to reduce nonpoint sources of water pollution in the Oregon's Deschutes River Basin
- Estimated the fair market value of a farmer's water right to facilitate its acquisition by federal agents to augment river flows for fish habitat

MEMBER, Cumulative Air Risk Evaluation Community Task Force, 2005- 2012

- Member of Task Force convened by the Bay Area Air Quality Management District
- Conducting community-based participatory research on diesel particulate emissions in West Oakland to inform the second phase of the BAAQMD's toxic air emissions estimates. USF students are conducting research on questions posed by community members about the CARE study. Research topics include truck driver socioeconomic surveys, truck traffic activity observations, and forecasting construction-related emissions.

RESEARCHER, Lawrence Berkeley National Lab, Atmospheric Sciences Program, 1999 - 2003

Ozone Air Quality Modeling and Planning

- For dissertation research, reviewed methods to estimate photochemical air quality simulation model uncertainties and evaluated the potential utility of uncertainty information for use in policymaking.
- Interviewed agency planners, modeling technicians, and stakeholder representatives to describe modeling practice and document an air quality planning process for California's San Joaquin Valley

RESEARCHER, LSA Associates, Inc., Resource Policy and Economics Group, 1991 - 1994

Fiscal and Economic Impacts

- Compared fiscal impacts of six land use alternatives for redevelopment of a blighted portion of the City of Orange.
- Analyzed the fiscal impacts to the Town of Colma of proposed annexation and subsequent development of a 52-acre area of San Mateo County, which included a BART station.
- Performed a fiscal impact analysis of a 800-unit development in Alameda County.
- Calculated the economic impacts associated with development of commercial, industrial, hospitality and golf uses on a 1,900-acre parcel near the Sacramento Airport.
- Performed socioeconomic, cost effectiveness, public services, land use, and air quality impact analyses to satisfy state (CEQA) and federal (NEPA) requirements for environmental review