

ENERGY AND ENVIRONMENTAL ECONOMICS, INC.
Managing Consultant

San Francisco, CA

Zach Ming leads the development of energy models and communicates the findings on behalf of utilities, regulatory agencies, and trade groups. He combines technical acumen with a talent for providing clear results that translate into action. Recent projects include modeling policy and technology-change scenarios for a large utility to support its strategic planning process, preparing testimony regarding the rate design for a natural gas pipeline, and calculating the contribution of wind and solar resources toward system capacity for multiple utilities. He also constructed a model to evaluate the economics of rooftop solar policy in California, Nevada, Oregon, and New York.

Zach enjoys being on the front lines of the most interesting topics in the industry and analyzing the rapid transformation of the electricity sector. He is passionate about creating an electricity system that is economically efficient and environmentally sustainable.

- Led development of a model to calculate the reliability of renewable + storage replacement of dispatchable natural gas generation for a large municipal utility
- Managed the cost-effectiveness analysis of a residential zero net energy policy in California
- Led an integrated resource study for a mid-size utility that was considering the decision to retire coal from their portfolio
- Modeled policy and technology-change scenarios for a large U.S utility as part of their strategy planning process
- Developed a model to evaluate potential changes to California rooftop solar policy and the resulting impact on both solar adoption and customer economics on behalf of the California Public Utilities Commission
- Calculated the optimal capacity planning reserve margin under a range of conditions on behalf of El Paso Electric utility
- Performed financial analysis on the impact of the renewable net energy metering program on behalf of multiple state utility commissions
- Developed testimony regarding rate design of natural gas pipelines and the implications to both producers and broader energy markets
- Studied the contribution of solar and wind resources toward system capacity for multiple utilities
- Studied the interactions and effects on the natural gas pipeline system in the western U.S. related to ongoing changes in the electric sector: namely the expansion of natural gas generating facilities and increased variability in gas generation due to increased renewable energy penetration

GENERAL ELECTRIC
Renewable Energy Development Program (REDP) Intern

Schenectady, New York
Summer 2012

- Developed new acceptance test for the WindBOOST product used by technicians in the field during product installation
- Created a long-term validation tool to ensure the WindBOOST product continues to perform as expected after installation

CITIGROUP

Houston, Texas

Commodities Summer Analyst

Summer 2011

- Modeled new EPA air pollution regulations (CSAPR) on the impact to coal and natural gas prices and power generation
- Developed pricing tool used by natural gas traders to compare historical basis spreads in the eastern U.S.
- Created an automated daily report on incremental gas production in the Marcellus Shale
- Analyzed weather vendor and in-house temperature predictions to increase accuracy of natural gas pricing models

OGE ENERGY CORP (Enogex)

Oklahoma City, Oklahoma

Capacity Management Intern

Summer 2010

- Managed natural gas interruptible transportation (IT) capacity on 2300 miles of pipe (full time position)
- Transacted and negotiated transportation and storage sales of 125+ million cubic feet of gas per day
- Conducted data research on developing unconventional supply areas near gas gathering assets

MAP ROYALTY

Oklahoma City, Oklahoma

Engineering Intern

Summer 2009

- Researched production data of horizontal gas drilling in the Granite Wash play in western Oklahoma and Texas panhandle
- Created geological and stratigraphic cross sectional maps through well log analysis to visually depict the new gas reserves
- Synthesized above findings in a report that aided company leadership in pricing and acquisition of mineral rights

Education

Stanford University

Stanford, California

M.S. Management Science and Engineering – Energy and Environment track

June 2013

Selected coursework: linear optimization, decision analysis I&II, accounting, energy policy, utility planning methods, environmental economics, energy system optimization, and organizational behavior

Stanford University

Stanford, California

B.S. Civil and Environmental Engineering - Atmosphere and Energy

June 2012

Minor in Economics

Selected coursework: renewable electric energy, engineering economy, greenhouse gas mitigation, energy and environmental policy, solar cells, energy efficient buildings, environmental economics, and China energy systems

*Author of cover article for Fall 2012 **Stanford Energy Journal** titled "Perspectives on U.S. Natural Gas Resources"*

Citizenship

United States