

SERA Energy Resumes

LISA A. SKUMATZ, Ph.D., Principal, SERA, Inc.

303-494-118
762 Eldorado Dr., Superior CO 80027
Skumatz Economic Research Associates, Inc
skumatz@serainc.com
www.serainc.com

SUMMARY

Dr. Skumatz is Principal of SERA, Inc. and manages the firm's practice in energy-related research. She is an experienced economist with more than 35 years of experience in non-energy benefits, program evaluation and attribution, measure lifetimes, behavioral programs, and market research / assessment. Dr. Skumatz holds a Ph.D. in econometric modeling. Her interests include both quantitative and policy analysis for utilities, and she is most known for using innovative approaches to measure hard-to-measure effects. She has extensive experience in directing / managing, and designing and conducting evaluation projects, from questionnaire design, conducting detailed commercial and residential program stakeholder interviews (she has conducted many hundreds), and developing evaluation results and reports.



EDUCATION

Ph.D., M.A. **Economics**, The Johns Hopkins University, Baltimore, Maryland, 1978, 1987.
B.A. **Economics**, The University of Wisconsin, Madison, Wisconsin, 1975.
Certification **Sustainability Leadership and Implementation Certification**, University of Denver and **Natural Capitalism**, 2011

EXPERIENCE

1994- Principal, Skumatz Economic Research Associates (SERA, Inc.)
1998- President, The Econservation Institute (non-profit)
2014 Faculty, Graduate Department, University of Colorado, Denver
1990-94 Vice President, Pacific Northwest Division, Synergic Resources Corporation.
1987-90 Rates Economist, City of Seattle.
1985-87 Energy Research Analyst, Pacific Gas and Electric Company.
1980-85 Research Economist, Battelle Pacific Northwest Laboratories.
1978-80 Research Economist, U.S. Bureau of Labor Statistics.
1977-78 Economist, U.S. Department of Health, Education, and Welfare.
Previous - Teaching Assistant and Research Assistant, The Johns Hopkins University, Baltimore
Paid Intern - Ralph Nader's Public Interest Research Group, Washington DC
Other - Town Trustee, Town of Superior, CO 2004-2014
2014-5 – Graduate school faculty, University of Colorado-Denver, Public Affairs

EXPERIENCE HIGHLIGHTS

Best Practices Methods and Advisory Assignments: Dr. Skumatz has conducted nationwide “best practices” research in four key evaluation topics (NEBs, Impact Evaluation, NTG, and EULs), and she has

provided expert witness testimony or documents for regulatory purposes in Maryland, Colorado, California, Connecticut and elsewhere. For the State of Connecticut, Dr. Skumatz is responsible for peer review and oversight of all energy efficiency evaluation work conducted in support of State gas and electric company programs. She serves as an independent evaluation advisor on a portfolio evaluation, and is conducting work coordinating the market assessment / characterization, and attribution work for the portfolio evaluation.

These assignments were designed to ensure that the evaluation approach, data collection instruments, analysis, and reporting are efficient, effective, internally consistent, and up to the highest industry standards. This independent evaluation work ensuring that the project undergoes substantial internal scrutiny and review and that the evaluations meet the highest external standards and rigor. In another western state, she is the expert reviewer for all process evaluation and M&V reports, providing expertise on best practices, methods, and analysis. Dr. Skumatz has conducted “best industry practices” work in all the key evaluation topics, including multiple projects on impact evaluation (including dynamic baselines and other topics), attribution / net-to-gross, non-energy benefits (multiple projects), measure lifetimes (multiple projects), and evaluations of behavioral programs (multiple projects). This includes work for the State (the “Framework...” Study), and for the CIEE / CPUC.

Dr. Skumatz conducted a detailed evaluation of alternative structures for utility shareholder earnings formulae, and proposals for best practices. She conducted an extensive review of the performance of four IOUs for four program years, assessing the shareholder earnings that should be awarded, a project that addressed tens of millions of dollars of earnings. She led a detailed review of the best practices for measure life studies, examining more than 100 reports, and provided feedback to the regulators on studies not conforming to best practices or protocols. She served as an advisor to an ALJ on a host of follow-up issues around a regulatory proceeding. Dr. Skumatz is also responsible for developing the non-energy benefits methods and modeling work used for low income and other programs by the utilities across the State of California.

- Clients include NV Energy, Connecticut Energy Efficiency Board (Statewide oversight), CPUC / CIEE, PG&E / Statewide, CPUC, NRDC, State of Maryland, State of Maine, EO Colorado, Ameren, State of Illinois, State of Rhode Island, State of NY.

Non-energy benefits (NEB) and Utility Benefit-Cost Tests: Dr. Skumatz is the leading researcher in the nation in the area of Non-Energy Benefits, or monetizing the omitted positive and negative effects attributable to program interventions. She has conducted state-of-the-art work in NEB of DSM programs in the US and internationally, developing quantitative estimates of over 3 dozen categories of direct and indirect benefits from the customer, utility, and societal perspectives (each valued using appropriate methodologies). She has more than 40 widely-cited publications in the area, and has pioneered much of the measurement work being conducted in participant-side NEBs. Lisa has prepared testimony and work papers for proceedings on NEBs and benefit-costs tests in multiple states, including California, Illinois, Maryland, and elsewhere.

She has analyzed NEBs for more than 50 programs across the US and internationally. SERA completed an exhaustive study for the California Utilities to estimate the array of NEBs for low-income weatherization programs, and reviewed more than 350 articles and publications to develop estimation methods, review secondary and default values, and develop an integrated model of NEBs. Lisa has written white papers and manuals on best practices in NEBs estimation, addressing survey methods, and approaches for addressing negative NEBs, overlap, and other NEB calculation elements. In projects in four different states, she used NEB and input-output models to demonstrate differences in societal economic multipliers depending on program type and region. She has also conducted extensive work on emissions-related and health-related NEBs. Lisa developed a pioneering model for computing NEBs that

was used in official filings in the State of California for over a decade. She has conducted work measuring NEBs for statewide portfolios of energy efficiency programs, and the wide range of residential, commercial, commissioning, real-time pricing, renewables, and other programs. She conducted early and continuing work on policy, best practices, and recommended values for incorporating NEBs in cost-effectiveness tests. Her work has been used in regulatory proceedings and in refining program cost-effectiveness tests. Lisa has been selected to advise many agencies on NEBs, including regulatory agencies, EPA, ACEEE and many others. Lisa is actively involved in international work and committees on NEBs, and is co-chair of the “Multiple Benefits Evidence” committee for the IEA’s work on Multiple Benefits. She has written white papers and other documents in this role. She has published NEBs work in refereed journals and presented at academic and environmental, as well as trade, conferences. **Specific NEB project descriptions for Dr. Skumatz are provided at the end of this resume (before the publications).**

- These projects were conducted for NGRID, NRDC, IEA, PG&E, SCE, SDG&E, SoCalGas, NYSERDA, Energy Trust of Oregon, Seattle City Light, Northeast Utilities, Energy Center of Wisconsin, BCHydro, NGRID, NU, and many others in the US and internationally, including work in the EU, Denmark, Canada, and New Zealand.

Retention / Measure Lifetime Analyses. Dr. Skumatz has conducted a number of residential and commercial measure retention studies, and recently conducted a detailed evaluation of “best practices” for retention work for the CPUC. She conducted the major early EUL studies for Bonneville (BPA), developing the analysis method that has become industry standard. She conducted cutting edge work in measure lifetimes, developing the methods currently considered state of the art in the field, and conducting the most recent and comprehensive study of more than 100 measure life studies to update the measure lifetimes used in the State of California for planning and regulatory purposes, and for the DEER database. She has conducted work to compare EULs used nationally, tracked the origins of the EULs being used across the nation, and identified those without strong foundations to prioritize research needs. She has conducted recent measure lifetime projects in IL, RI, CA, and NY.

- She has conducted measure life studies for BPA, NorthWest’s Regional Technical Forum (RTF), SCE, NGRID, NRDC IL, RI, CA, NY, CPUC, PG&E, PSE, CCIG, NU, States of CA, NY, ME, IL, RI, VT, and other clients across the nation.

Market Research, Survey Design, Sampling, and Statistical Modeling / Analysis: Dr. Skumatz has extensive experience in all phases of detailed survey design and analysis for research and program evaluation purposes, including impact / behavioral / demographic / retention surveys and detailed non-energy benefits surveys, appliance saturation and characteristics surveys for residential and commercial customers; NEB research, measure lifetime work, “wants and needs” surveys; attitudinal surveys; self-efficacy, contingent valuation and WTP surveys, ordered logit (for market share analyses); and in-depth interview work. For both the residential and commercial sectors, she has conducted and analyzed validation surveys, determining the accuracy and consistency of phone, on-site, and mail surveys for particular types of questions.

Dr. Skumatz has extensive experience in sampling work for energy efficiency evaluation assignments, including process and impact evaluation, load research, net-to-gross studies, residential and commercial saturation surveys, and other evaluation work. She has taught survey sampling and analysis in numerous workshops, and has published on bias reduction techniques for surveys. Dr. Skumatz has used sophisticated methods to identify bias and to impute missing data in surveys. She has conducted statistical and modeling work for energy efficiency projects, including conditional demand analyses, multiple regression analysis, principal components, logit, hazard analyses / measure lifetime analyses, and many other statistical modeling assignments. She integrated ordered logit methods and card rankings into surveys to assess the impact of alternative program interventions on market shares for

new technologies. For program evaluation projects, she used surveys to collect data on behaviors, decision-making, and attribution of changes to programs and educational efforts. She used surveys and adaptations of conditional demand techniques to measure the impact of education on behavior changes and program impacts.

- Clients include PG&E, WWP, SCL, Puget Sound Energy, BPA, SCE, and many others discussed elsewhere in these qualifications and project listings (process, impact, NEB, retention, and behavioral studies).

Behavioral and Social Marketing Programs; Outreach / Education Studies: Dr. Skumatz has conducted cutting edge work in social marketing and evaluation / measurement of behavioral programs. She has implemented more than 40 social marketing programs, evaluated more than 50, has written a “how to” toolkit on social marketing, a “state of the art / best practices” report on evaluation of behavioral programs, and conducted social marketing workshops across Canada and the US. Her work identified two key gaps in social marketing measurement – cost-effectiveness and retention. She designed and conducted a cutting-edge experiment / program that provided reliable estimates of both these factors, which she placed in the context of other types of traditional energy efficiency programs. She analyzed retention of impacts as well. She designed, conducted, and is evaluating a social marketing program addressing energy and recycling in the Northeast. Her social marketing evaluation work includes military programs, schools-based programs, and numerous residential initiatives. Dr. Skumatz also conducted studies measuring the impacts of outreach and education studies, including projects assessing the relative impacts of various outreach methods.

- Clients include CIEE / CPUC, State of Colorado, NYSERDA, Military client, Curb Your Carbon, Canadian MOE, and many others.

Process Evaluation and Market Transformation Tracking: Dr. Skumatz has extensive experience conducting process evaluations for programs across the country. Her process evaluation work goes beyond the standard, incorporating innovative practices for examining program barriers and remedies using techniques that provides specific, implementable recommendations for program staff – including tailored strategies for getting potential participants past barriers to indifference or preference for energy efficient equipment. She developed and published innovative methods for tracking market progress indicators – including and beyond hard-to-measure market share estimates – for energy efficiency equipment. This includes work in market characterization, and measuring market progress and tracking indicators (for residential, commercial, and renewables programs). She has conducted process evaluation work for the residential, C&I, and agricultural sector. Her work on market assessments includes assignments on market adoption of residential and C&I air conditioner equipment, on premise laundry facilities, commercial warewashing equipment, and other technologies. She has conducted focus groups with stakeholders at many levels, including vendors, C&I managers, contractors, and participants / non-participants in residential and commercial programs.

- Clients include BPA, PG&E, SCE, NYSERDA’s portfolio, O&R, ConEd, Xcel Energy, and others.

Attribution / Net to Gross (NTG), Tracking, Measurement and Evaluation Methods: Dr. Skumatz has conducted state-of-the-art work in attribution and net-to-gross assessments for utilities including work on the wide range of residential, low income, and commercial/ industrial and renewable energy efficiency programs including market transformation, direct install, rebate, and other designs. She has conducted cutting-edge work in free ridership, spillover, and net-to-gross (NTG). She has used specialized techniques to achieve consistency and “bounded” results for NTG and its components (free ridership, spillover), and employs interviews with multiple decision-makers along the chain to program entry to more fully assess attributable program effects. She has “written the manual” (co-author) of the California “Framework...” report on methods for evaluating market transformation and other energy efficiency programs. She conducted a review of techniques for attributing causality in energy

conservation / DSM / MT programs, and applied enhanced methods to more than a dozen residential, commercial, and renewable programs. She was responsible for co-writing the impact / baseline, and tracking evaluation sections of the California's Framework study.

- Clients include PG&E, NYSERDA, CPUC, CIEE, and many others.

Rate Design Support: Dr. Skumatz has conducted work on a number of projects supporting development and analysis of electric rates. She has conducted detailed modeling and sensitivity analysis work using household and business saturation surveys to identify the customer impacts of alternative revenue-neutral rate designs, including work focused on sensitive customer classes. She has gathered market data, conducting surveys, interviews, and literature review comparing tariffs for specific customer classes in target market areas. She has developed sampling plans for load research applications. She has conducted literature review on rate design alternatives, and a variety of special topics. Lisa has also completed dozens of evaluation studies and have conducted work using specialized survey approaches for choice modeling work to estimate uptake and preferences for rates, rebates, and program options. Lisa has assisted in preparing working papers and developing responses to requests for information.

- She has conducted projects for Pacific Gas and Electric Company, Puget Sound Energy, Seattle City Light, Private client.

HONORS, MEMBERSHIPS, PRESENTATIONS, AND PUBLICATIONS

Lectures and Honors: Dr. Skumatz has been an invited guest lecturer at Brown University, Yale University, Keio University (Tokyo), University of Wisconsin, University of Washington, and elsewhere. She has been presented with lifetime achievement awards at the national level from two sustainability organizations.

Professional Memberships: Dr. Skumatz served as a member of the Technical Advisory Committee (TAC) for the CBEE, and is a member of the Association of Energy Service Professionals (and its Program Evaluation subcommittee, previous Board member), AEA, WEA, Association of Environmental and Resource Economists, and other professional associations. She serves on the Board of three non-profit organizations.

Presentations: She has been a regular speaker (usually with more than one paper presented) at the ACEEE Summer Study (each session since 1986), the Evaluation Conference (IEPEC), AESP, Affordable Comfort, international conferences (EEDAL, ECEEE, IEPPEC), and other energy and environmental conferences (EUEC, WEA, AERE, etc.). She has been keynote speaker at a number of conferences in the US and internationally.

Publications: Dr. Skumatz has more than 125 articles and papers (beyond reports) in trade journals, conference proceedings, refereed journals and other publications on her work in NEBs, evaluation techniques, measure lifetimes, surveys and bias reduction, program evaluation results, evaluation methods for education programs, self-efficacy, advanced baseline / impact evaluation methods, conditional demand, and other topics. She has another 150 publications (not including reports) in resource economics / recycling / sustainability.

DANA D'SOUZA

Senior Energy Consultant and Project Manager, SERA

Skumatz Economic Research Associates, (SERA)
762 Eldorado Drive, Superior, CO 80027
dsouza@serainc.com; 303/494-1178

SUMMARY

Ms. D'Souza has conducted both quantitative surveys and detailed case study research for energy utility, regulator, city / county, and other private clients. She has conducted NEB analysis, process evaluations, market progress research, NTG / Free Rider and Spillover, best practices projects for clients across North America and internationally. Her work includes detailed literature reviews on evaluation topics, as well as surveys and detailed telephone interviews with participants, non-participants, and an array of stakeholders for residential and non-residential programs (including homeowners, low income, MF owners, businesses, agricultural customers, and builders / developers, vendors, lenders, associations, property managers and others). She is a skilled interviewer, with excellent capabilities obtaining cooperation with participants and non-participants alike for a wide range of program evaluation projects. She is also a skilled facilitator of stakeholder focus groups. Her strengths include an understanding of how the information will be used, which helps make sure she conducts appropriate follow-up on complex analytical issues



EDUCATION

1991 **B.A. International Business**, San Diego State University
Emphasis: Business- (Accounting, Finance, Marketing, Management); European Studies; French

WORK EXPERIENCE

2008-present **SERA**, Senior Energy Consultant and Project Manager
2010-2014 **Econservation Institute**, Superior, CO- Grant Compliance- Financial & Contractual Compliance
2004-2010 **Board of Trustees**, Town of Superior, CO – Approval / Oversight of Municipal and Utility Funds, Budgets & Departmental Planning, Land Purchases, Contracts, Community Programs, Capital Investment Projects, and Housing and Facility Development Planning.
1998-1999 **Roche Pharmaceuticals**, Boulder, CO- Accounting assistant- Capital Projects
1991 **National Pen Corporation**, San Diego, CA- Accounts Receivable for national sales
1990 **International Trade Administration**, San Diego, CA- Financial Trade Internship- International Letters of Credit

PROJECT EXPERIENCE HIGHLIGHTS

Market Studies, Process Evaluations, and Social Marketing Research:

- *Energy Efficiency Process / market assessment for agricultural sectors in California*: Ms. D'Souza interviewed numerous actors in 8 sectors of the agricultural market collected detail information for a statewide assessment and energy potential study for several IOUs. Topics included awareness, program uptake, program strengths and barriers, current and upcoming market conditions,

operational cost information, regulatory issues / barriers, program interest, and other topics. The production process and regulations were assessed for their effects on energy usage.

- *New York Large Commercial Customer Interviews:* Ms. D’Souza conducted an evaluation of a large commercial and industrial energy efficiency rebate program for Con-Edison and Orange and Rockland including participant, non-participant, and trade ally surveys. These interviews were used to identify market barriers, messaging and outreach improvements, and ways to attract non-participants. The project provided the utilities with recommendations on project delivery improvements and refinements for future years.
- *Trade Ally Existing Homes Program, Oregon:* Ms. D’Souza gathered and analyzed data from participants and non-participants to assess outreach, practicality, and satisfaction levels for the program. Determined if there was sufficient “buy in” from contractors for effective program promotion and participation. Recommendations for the program were discussed with participants and most efficient means of communication and program outreach to non-participants.
- *PACE Programs – Property Tax Energy Efficiency & Renewables Programs:* Ms. D’Souza conducted detailed interviews with four of the major jurisdictions with APCE programs in place, including Berkeley, Boulder County, and two others. She gathered information on the source of funds, measures included, eligibility and administration, participants, and impacts. She compared and contrasted the programs, describing strengths and weaknesses, and cost of impacts across the four designs. She presented this work at ACEEE and AESP conferences.
- *Mercury Thermostats in Existing Buildings- CA, NY, ME, RI, and IL.* For these complex (peer-reviewed) statistical projects, initial information was gathered from HVAC experts, thermostat manufacturers and distributors as a baseline for mercury potential in various style thermostats. Ms. D’Souza conducted hundreds of interviews with businesses and households across these States (in 5 different projects) to gather data on the number, types, age, and removal of thermostats in their businesses or homes. These data were combined with data on the percent of thermostats of different types that contain mercury and used to compute the flow of thermostats available for recycling for each of the next 20 years. The data were used by the thermostat industry and the State’s regulators set goals for product stewardship legislative requirement to establish goals for recycling of mercury thermostats. She also facilitated digital validation of self-reported thermostats for each subgroup.
- *Market Progress Tracking / Price Decomposition.* Ms. D’Souza conducted “mystery shopper” work, gathering extensive data on prices and features for an array of Energy Star® and non-Energy Star® appliances for a project for on-going tracking of the market progress of an Energy Star® outreach / appliance incentive program. The work involved in-store and other research to gather information on sales price, promotions, and an array of features for lighting and household appliances. Analyses of these data were used to quantify the price differential, or the “premium” associated with the Energy Star® feature to examine reflected market share progress, “exit” timing, and develop estimates of any needed rebates.
- *Market Assessment and Evaluation of On-Premise Laundry Efficiency Program:* Ms. D’Souza conducted research and detailed interviews to support a California Utility sponsored market research initiative. She interviews with engineering directors, program managers, and stakeholders to ascertain the efficiency of recycled wastewater technologies. The interviews included information on decision

making, characterization, capital improvement projects, performance, and efficiency. The results of these interviews were used to identify technologies impacting a multi-year DSM incentive program.

NEB studies:

- *Evaluation, Process and Attribution Interviews and Analysis – ENERGY STAR® Homes in California:* Ms. D’Souza conducted interviews with multiple program participants and stakeholder groups to identify the share of conservation behavior and actions that are attributable to program interventions. She conducted detailed interviews with builders / contractors, and homeowners about a variety of process, NEB, and impact issues including questions about awareness and understanding of the program, decision-making, program preferences, program impacts, standard practices / baseline issues, free ridership, three kinds of spillover, and other topics. The work was used for a process evaluation, analysis of barriers and market progress, as well as computation of net-to-gross figures to “check” or validate the results of a difference of differences impact analysis for the program.
- *NGRID MF NEB Research:* Ms. D’Souza conducted sampling, survey design, interview work, and NEB computations for this complex study examining NEBs for multifamily programs in Rhode Island. The project addressed NEBs for electric and gas measures, addressed both tenants and building managers, and explored updated techniques for measuring the NEBs. The work was designed to provide updated NEB numbers for NGRID’s TRM.
- *Colorado Low Income Weatherization:* For an evaluation of a set of low-income weatherization and EE assistance programs in Colorado she conducted nearly 100 NEB and process evaluation interviews.
- *Energy Star® Program Stakeholders Project:* This project focused on process evaluation, analysis of barriers and market progress, as well as a detailed computation of net-to-gross and non-energy benefits associated with the program. The work is ultimately used to identify program performance and associate shareholder benefits for utility investments in the program. Ms. D’Souza conducted detailed NEB and NTG interviews with participating and non-participating builders and households for an evaluation of the California Statewide Energy Star® Single Family Homes Program and Home Performance with Energy Star®, as well as the California Statewide Energy Star® Multifamily Homes Program. The topics include awareness and understanding of the program, decision-making, program preferences, program impacts, standard practices / baseline issues, free ridership, three kinds of spillover, and other topics.
- *Non-Energy Benefits for California Low Income Customers:* Ms. D’Souza conducted extensive literature review tasks (web, research and conference papers, and evaluation reports) to assemble data, methods, and best practices on EULs for low weatherization programs. The project was used to identify “state of the art”, gaps, and best interim values to use for NEBs for low income programs in California.
- *BRANZ – New Zealand:* Ms. D’Souza conducted detailed NEB surveys for the Building Research of New Zealand, covering the Zero and Low Energy Homes program (ZALEH), solar water heating, and insulation-related programs. She helped analyze the results for the client.
- *Literature Review and Best Practices in Impact Evaluation, Net-to-Gross, Non-Energy Benefits, and Measure Lifetimes:* Ms. D’Souza conducted a detailed literature review (web, conference papers,

databases, interviews with leading researchers) to assemble papers, reports and research that had been conducted across the US. The project was focused on identifying progress, gaps, best-practices, and patterns in results for these four key evaluation topics. Ms. D'Souza identified and reviewed more than 200 reports and papers to conduct this literature review for CIEE.

MEASURE Studies:

- *Measure Lifetimes Research for RTF / Northwest:* This project involved determining the original sources of EUL tables cited in current reports to determine which programs researched and determined their own data or used previous (and often very old) reported data. Ms. D'Souza conducted detailed literature reviews and interviews to support two projects on this topic. First, she gathered data on the tables of EULs being used by utilities across North America, and the sources that were cited. Many sources cited reports whose numbers derived from older reports and dated back decades; for those that were uncited, she conducted interviews to try to identify the sources. She gathered information on a variety of types of primary research used to support existing EUL estimates (statistical EUL studies conducted in various states, ASHRAE tables, manufacturer data, etc). Finally, in a follow-up project, she assembled the "best sources" for EUL data to provide EUL estimates to be used by the Regional Technical forum for more than a dozen residential and commercial measures.
- *Net-To-Gross and Rebound Effects:* For expert witness testimony, Ms. D'Souza conducted extensive literature review on the topics of free ridership, spillover (all types), net-to-gross, realization rates, and rebound effects. The work was used to support testimony for a utility in the Midwest and included sources both regional and national.
- *Biomass Energy Plant Feasibility Analysis, New York:* Ms. D'Souza gathered data on feedstock parameters, risk factors, surrounding markets, regulations, and other topics to conduct a detailed feasibility assessment of a proposed multimillion dollar biomass / gas plant being considered in New York. The client was DOE, the potential granting agency.
- *Commercial Energy Rates Comparisons, Four States:* Ms. D'Souza gathered rates data for key tariff classes from utilities in four states being considered for re-location for a large commercial / industrial customer. This included usage capabilities and rate discount potential.
- *Expert Review of Reports for Connecticut and Nevada:* Ms. D'Souza assisted in the review of process and M&V reports prepared by evaluation consultants in the states of Connecticut and Nevada. This work supported SERA's work as expert peer-review tasks for these studies.
- *Hard-to-Measure Impacts from Sustainability Initiatives:* This was an impact analysis on sustainability measures. This work is being used to construct a model that can be used to more readily measure / compute the broad array of sustainability impacts of municipal sustainability programs, and measure progress toward sustainability goals. Ms. D'Souza conducted interviews on the hard-to-measure impacts from sustainability initiatives for two municipal clients in California. She gathered data on a variety of sustainability initiatives on energy, waste, water, air/emissions, economic development, and health.

EDUCATION – OUTREACH- SOCIAL MARKETING

- *Evaluation of Green Campuses Program:* The Green Campuses Programs worked to increase student awareness of the near and longer-term environmental consequences of their behaviors, and the evaluation examined the impacts of the program on efficiency, technology, energy conservation, and other behaviors. The results of our evaluation were used to make recommendations on program improvements for future years. Ms. D’Souza conducted detailed NEB, NTG, and process evaluation interviews for the Green Campus program, run by Alliance to Save Energy, and active across the State of California. For this student / intern-based multi-campus education-based program, Ms. D’Souza conducted detailed interviews of interns, campus staff, program staff regarding program objectives, strengths and weaknesses, as well as design / cost / impact information on specific elements implemented by the interns (“energy efficiency 101” curricula, residence hall and other efficiency “challenges”, “stairs not elevator” days, fairs, / events, posters, and other initiatives). The work was combined with survey data collected in a series of baseline and end-of-year surveys from 12 college campuses around California to evaluate the success of the “Green Campus” energy-efficiency programs.
- *Social Marketing Evaluation of Military Conservation Behaviors:* This project involved behaviors in energy and water conservation, as well as recycling behavior. Ms. D’Souza conducted program evaluation interviews for a program implemented in military installations in a state. The interviews addressed program awareness and attitudes, behaviors and changes, and other topics used in the evaluation of the program. She also assessed the numbers of proposed behaviors and gave recommendations on project implementation.
- *Market Assessment / Potential for Commercial Dishwashing Program:* Ms. D’Souza conducted interviews and research for a market assessment for a program for energy efficient dishwashers in the commercial sector. Interviews were conducted with cafeterias, restaurants, and other relevant businesses to examine current practices and factors affecting the acceptability of new equipment and practices. The interviews covered decision making, O&M, characterization, capital improvement projects, performance, and efficiency issues.
- *Curb Your Carbon/Cool the Earth.* The Cool the Earth program is a ready-to-run program for K-8 students to educate students and their families about climate change and actions they can take to reduce their impacts. Ms. D’Souza was responsible for collecting information about environmental “equivalencies” to allow translation of survey results to GHG reductions and progress toward program goals. The report included details on program impacts and recommendations for program delivery and evaluation in subsequent years.
- *Social Marketing-The Broadlands Project:* For this grant project, SERA designed and implemented an experimental design to measure the impacts and cost effectiveness of community based social marketing on energy efficiency and recycling behaviors. Control routes were identified through coordination with the local hauler. The project included the use of social norms, new media, incentives, recognition, and multiple other outreach and education tools to increase the adoption of recycling and energy saving actions in a neighborhood of around 1,600 HHs in Colorado. Ms. D’Souza was responsible for literature review (identifying / helping adapt suitable intervention options), baseline measurement efforts (behavioral surveys and weights), delivery and design input of social marketing efforts (posters as well as door-knocking and personal education / “commitment” efforts, and phone calls), and on-going performance measurement (weights and tracking). The project

found significant impacts in energy efficiency and recycling, measured retention of behaviors, and tracked a variety of cost-effectiveness metrics. The project also developed a toolkit of outreach and education best management practices. Ms D'Souza led or assisted on most of these activities on the project including focus groups and project coordination.

PUBLICATIONS, PRESENTATIONS, AND WORKSHOPS

Ms. D'Souza has given presentations and poster sessions on her energy, recycling, and sustainability work at conferences including the Behavioral Energy (BECC) conferences, Colorado Association for Recycling, USCC, and National AESP, and ACEEE conferences. She has authored / co-authored half a dozen papers in the energy field.

MICHAEL SANTULLI

Energy Analyst, SERA

Skumatz Economic Research Associates (SERA)
762 Eldorado Drive, Superior, CO 80027
santulli@serainc.com; 303-494-1178

SUMMARY

Mr. Santulli performs research and data analysis for projects of various nature including studies of best practices and efficiency improvements, cost-effectiveness analysis, survey research, literature review, and statistical analysis. Mr. Santulli has strong statistical and analytical capabilities and has conducted work in surveys, measure lifetimes, non-energy benefits, and estimating job-creation impacts for energy efficiency clients around the country.



EDUCATION

2015 **B.A., Environmental Studies**; Minors in Italian and Geography
Certifications: Peace and Conflict Studies, Eco-social Justice Leadership
Certification: LEED

WORK EXPERIENCE

2015-Present **Research Consultant**, SERA, Superior, CO
2015-2015 **Research Assistant**, CU Environmental Center, Boulder, CO
2014-2015 **iLaunch Marketing and Sustainability Intern**, Spark, Boulder, CO
Other: 2016, Volunteer, Business Sustainability Intern, Boulder county Public Health

PROJECT EXPERIENCE HIGHLIGHTS

- He recently completed work for a Northeastern utility, conducting detailed NEBs estimating both program-wide, and for a variety of specific measures so the updated information can be incorporated into the utility's TRM and benefit-cost equations for the programs.
- For two recent projects, he used a detailed third-party input-output model to estimate the job creation and direct / indirect / induced economic effects for programs in the States of Illinois, Rhode Island, and National impacts.
- He has conducted work on measure lifetimes for measures in multiple states, using survey data on censored failures and retained measures to develop the hazard function and the median lifetime estimates for clients in the Northeast and Midwest.
- For a complex (peer-reviewed) mercury thermostat turnover statistical projects, Mr. Santulli conducted interviews with businesses and to gather data on the number, types, age, and removal of thermostats in their businesses or homes. These data were combined with data on the percent of thermostats of different types that contain mercury and he assisted in the

computations to determine the flow of thermostats available for recycling for each of the next 20 years. The data were used by the thermostat industry and the State's regulators set goals for product stewardship legislative requirement to establish goals for recycling of mercury thermostats.

- He set up and analyzed the clicker / real-time voting results elements for two recent projects, including one with 10 stakeholder meetings. The assignments included setting up Powerpoint™ presentations that included voting questions, and preparing user-friendly summaries of the results for the client and attendees.

PRESENTATIONS AND PUBLICATIONS

Mr. Santulli has presented locally in Colorado and nationally at AESP and EEDAL. He has assisted authorship on numerous papers including those on market saturation.