

## SERA NON-ENERGY BENEFIT PROJECT EXPERIENCE

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Type of Project	Client	Project
Non-Energy Benefits (NEB), "Hard to Measure" effects	CPUC/CIEE South. Cal Gas South. Cal Gas CPUC	<ul style="list-style-type: none"> <li>▪ White Paper on NEB, NTG / Attribution, Measure Lifetimes</li> <li>▪ NEB analysis of on premise laundry water conservation technology</li> <li>▪ NEB analysis of commercial dishwasher program</li> <li>▪ Integrated model for program evaluation and estimating broad range of program effects – economic, environmental, participant NEBs, utility effects</li> </ul>
	Xcel Energy ASE New Zealand City of San Francisco	<ul style="list-style-type: none"> <li>▪ NEB analysis for SF Lighting program</li> <li>▪ NEBs for green campus program</li> <li>▪ NEBs for water heater wrap and solar design programs</li> <li>▪ NEBs work measuring progress toward sustainability goals including participant, agency, and societal, including substantial work on environmental, job creation/economic, and hardship / equity impacts.</li> </ul>
	Xcel Energy PG&E, Calif Utils	<ul style="list-style-type: none"> <li>▪ NEB analysis for boiler program</li> <li>▪ NEB analysis of statewide SF new construction and remodeling programs (EnergyStar®)</li> </ul>
	New Zealand PG&E, Calif Utils	<ul style="list-style-type: none"> <li>▪ Workshops on NEBs, measurement methods, results, implications</li> <li>▪ NEB analysis of energy smart, low energy, and solar homes programs</li> <li>▪ NEB analysis of statewide MF ENERGY STAR® Homes program</li> <li>▪ NEBs for low income weatherization program including participant, utility, &amp; societal</li> </ul>
	NREL, ECW, Xcel, NWPPC, BCHydro, other	<ul style="list-style-type: none"> <li>▪ NEBs work measuring detailed analysis of economic multiplier and job creation impacts / differentials by state, program, over time</li> </ul>
	Wisconsin DAS	<ul style="list-style-type: none"> <li>▪ NEBs work measuring progress toward sustainability goals including participant, agency, and societal, including substantial work on environmental, job creation/economic, and hardship / equity impacts.</li> </ul>
	Multiple clients	<ul style="list-style-type: none"> <li>▪ Measuring NEBs for new homes and remodeling programs for NYSERDA / EPA</li> </ul>
	Oakland	<ul style="list-style-type: none"> <li>▪ NEBs for commercial and institutional commissioning program</li> <li>▪ Evaluation of NEBs for portfolio of 5 major residential programs – Home Performance with Energy Star®, Energy Star® Homes, Energy Star® appliances, Keep Cool, and Residential CEM program.</li> </ul>
	ACEEE	<ul style="list-style-type: none"> <li>▪ Evaluation of NEBs for portfolio of several R&amp;D programs, including wholesale renewables, retail renewables, DGCHP.</li> <li>▪ Evaluation of NEBs for NYSERDA's portfolio of C&amp;I and mid-market programs, including new construction commercial, Commercial institutional pilot program, technical assistance, smart energy choices, mid-market (HVAC, motors), and others.</li> </ul>
	NW EE Alliance NYSERDA residential programs NYSERDA R&D / renewables NYSERDA C&I portfolio	<ul style="list-style-type: none"> <li>▪ Task force analyzing approaches for NEB analysis for low income weatherization program</li> <li>▪ Detailed analysis of emissions and valuations for assessing environmental and health NEBs for utilities generating using coal, gas, hydro, biomass, nuclear, other</li> </ul>
	ORNL	<ul style="list-style-type: none"> <li>▪ Detailed analysis of direct, indirect, and job creation NEBs for commercial and residential programs.</li> </ul>
	ACEEE, other	<ul style="list-style-type: none"> <li>▪ NEBs of metering program, low income air conditioner program</li> <li>▪ NEBs of lighting program</li> <li>▪ NEBs of Green Campus program – 6 campuses</li> </ul>
	ACEEE, other	<ul style="list-style-type: none"> <li>▪ NEBs of real time pricing program</li> </ul>
	NGRID Rightlights Alliance to Save Energy	<ul style="list-style-type: none"> <li>▪ NEB in residential low energy homes</li> <li>▪ NEB awareness / recognition for HP Commercial decisionmakers; includes</li> </ul>

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	<p>Community Energy Coop New Zealand Energy Ctr Wisc (ECW) PG&amp;E, SCE, SCG, SDG&amp;E</p> <p>Northeast Utilities PG&amp;E, research, SCL PG&amp;E</p> <p>PG&amp;E Sea. City Light</p> <p>PG&amp;E</p> <p>Research Paper Energy &amp; Enviro. Management Calif Utility Alameda County</p>	<p>owners, developers, engineers and architects for office and education bldg</p> <ul style="list-style-type: none"> <li>▪ Comprehensive NEB research and modeling for new PUC low income public purpose test; conducted all research on NEBs (35 categories) and programmed user-friendly model.</li> <li>▪ Estimating NEBs for low income residential weatherization and education program for benefit cost and regulatory use</li> <li>▪ Innovative methods for valuing customer-side benefits of conservation programs (residential and non-residential)</li> <li>▪ Non-energy benefits of 5 residential and multi-family programs; (3 perspectives -- utility, customer, and societal perspective); quantification of customer and environmental benefits; developed flexible program design model</li> <li>▪ NEB estimates for low income bill payment assistance program</li> <li>▪ NEB for commercial/industrial program; included customer-side benefits / efficiencies analysis</li> <li>▪ Comprehensive non-energy benefits scoping, literature search, methodology development, estimation, quantification, model development, and scenario analysis for 2 dozen categories of benefits for low income program (customer, utility, and societal)</li> <li>▪ Analysis of customer-side NEB for residential, commercial, and industrial</li> <li>▪ Article on NEB participant-side benefits for Energy &amp; Environmental Management (EEM) magazine.</li> <li>▪ Detailed analysis of credit and bill payment issues</li> <li>▪ Assessment of non-utility benefits for multi-resource audit program</li> </ul>