

VICTORIA A. EVANS

Education

MS – Natural Resource Policy and Administration, University of Michigan
 BS – Natural Resource Management, University of Michigan



Specialty Certifications

ENV SP, Envision (Sustainable Infrastructure Certification, 2019-2022)
 Verifier, Compliance Carbon Offset Projects (Certified by the California Air Resources Board [CARB], 2012)
 Lead Certifier Trained, GHG Inventory Reporting, California Climate Action Reserve (2006)
 Mediator Certification, State of California (2002)

Professional Affiliations

Member, BACWA (Bay Area Clean Water Agencies), Air Quality Committee
 Board Member, Air & Waste Management Association (A&WMA); Golden West Section (2008–2020);
 Mother Lode Chapter (2007–2008)

Professional Experience

Ms. Evans has over 45 years of professional experience in greenhouse gas emissions (GHG), energy, air quality, and environmental science, working in consulting, R&D, academia, and the federal government. As the current and prior lead for GHG services at major consulting firms, she gained over 25 years of experience in climate and GHG management. She has directed or performed over 300 GHG studies for a diverse set of U.S. and global corporations and governmental organizations, including Vantage, 3M, Comcast, Dow, National Grid, the U.S. Postal Service, Chevron, Tucson Water, and Edwards Air Force Base. This work involved developing both voluntary and mandatory GHG inventories, reporting, California Cap-and-Trade compliance strategies, carbon reduction roadmaps, and life cycle analyses. She also led regulatory and legislative analyses involving carbon and energy for landmark initiatives, as well as advised on development of GHG reporting rules, and protocols for carbon offset projects. Her early career experience included environmental impact analysis and air permit support for over 50 facilities, including coal, natural gas, biogas and biomass-fueled electricity generation and coal syngas facilities. While at the Electric Power Research Institute (EPRI, R&D), she developed environmental, air quality, and climate research projects with electric utilities in Taiwan, South Africa, Italy, and England, and collaborated with utilities in Finland, Sweden, the Philippines, Italy, Scotland, and France. Her experience includes the following practices and projects:

Project Experience

Greenhouse Gas

City of Tucson, Carbon Footprint Analysis, Performance Metrics and GHG Reduction Measures, One Water 2100 Master Plan, Tucson Water (TW), Tucson, AZ. Task Leader to develop a carbon footprint for the Utility's operations, including evaluation of the GHG emissions from TW's existing supply chain, such as the chemicals used in operations. Performance metrics for water supply were used and compared for carbon reductions to date. Sankey graphics to depict energy use and GHG

emissions were developed. A reference table of GHG emission equivalents for various types of carbon reductions by TW was prepared and recommendations developed for additional potential carbon reduction measures. This effort included a review of the prior GHG inventory by both Pima County and the City of Tucson; and consideration of water conservation and GHG reducing measures undertaken to date by Central Arizona Project. An LCA-based carbon footprint for the OneWater Plan 2100 alternatives was also prepared to help inform selection of an optimal alternative.

Delta Diablo Sanitation District, East County Bioenergy Project, Owner's Advisor Services, Antioch, CA. GHG technical lead for a screening-level analysis to evaluate alternative bioenergy options for biogas resulting from co-digestion of biosolids and food waste (organics) from a wastewater treatment plant. This project was under a public-private partnership with Mt. Diablo Resource Recovery (local waste hauler) and Anaergia, Inc. (technology provider). This project would divert approximately organic waste from local landfills to an on-site anaerobic digester. Options for alternative uses of biogas evaluated included Renewable Electricity, Renewable Natural Gas (pipeline injection), CNG vehicle fuel and EV electricity supply. Also evaluated the pathways for biogas to biomethane/Renewable Natural Gas (RNG) to transportation fuels, CNG and EV supply to qualify for California Low Carbon Fuel Standard (LCFS) credits and federal Renewable Fuel Standard credits (D5 and D3 RINs). Estimated the volume and revenue potential and the regulatory and market barriers.

Cogeneration Technology and Alternatives Analysis, Union Sanitary District, CA. GHG technical lead for a screening level to evaluate the GHG implications, air quality constraints, and associated issues of biogas and natural gas fueled alternatives. In addition, other currently known biogas related constraints were noted, along with related requirements for gas HHV (RNG) and thresholds for gas safety (on site).

City of Palo Alto, Climate Protection Plan: Cost/Benefit Analysis of the GHG Reduction Measures, CA. Project Manager of team to first support screening of alternative GHG emissions reduction options and refinement to develop specific measures to reduce GHG. Led team to evaluate the benefits and costs associated with GHG reductions from approximately 25 transportation, waste, and green building measures proposed in the City's Climate Protection Plan.

City of Riverside, Climate Action Plan: GHG Mitigation GHG Inventory, Future Projections and Reduction Measures, CA. Technical advisor to team that developed a baseline Community Level GHG Inventory, and updated the City's Municipal Operations GHG Inventory. Also advised on the development of example GHG emission reduction measures for the City to consider implementing to meet emission reduction goals.

GHG Emissions Inventory, University of California, Davis: Davis and Four Locations, CA. Co-director of the first UC Davis GHG emissions inventory for all facilities. Led University operations staff to collect and document inventory data. The inventory was third-party verified and filed with the predecessor to The Climate Registry. The inventory included offices, classrooms, laboratories, veterinary hospital, medical hospital, livestock and dairy cattle operations, a bus system, a wastewater treatment plant, and a landfill (both LFG flaring/co-firing). UCD serves almost 30,000 students and 26,500 UCD staff, and operates five major teaching and research facilities off site. Served on an internal task force to discuss potential GHG reductions from energy and fuel measures.

Edwards Air Force Base, Comprehensive GHG Inventory and Recommended Reductions., CA. Technical Advisor to provide advice and guidance in preparation of a comprehensive GHG inventory for the Base. The GHG inventory was verifiable by a third party under protocols established by the CARB, the U.S. EPA, and the predecessor to The Climate Registry. Supported recommendations for compliance with state and federal regulations while identifying cost-saving and other streamlining

measures. Provided technical advice during evaluation of potential Energy Conservation Measures for energy savings, GHG reductions, appropriateness, cost, impact on facility operations, and return-on-investment.

U.S. Postal Service (USPS), National GHG Inventory, Reporting, and Carbon Footprint Analysis.

Project Manager for a team to compile the GHG emissions inventory for the operations of the U.S. Postal Service nationwide. The inventory was verified by a third party and reported to The Climate Registry and under Executive Order 13514. USPS operates facilities totaling 311.6 million square feet in over 38,000 buildings, and has the world's largest fleet of over 200,000 vehicles. They utilize trucks, airplanes, and boats for transportation with a mix of fuel types.

Data Visualization of Energy Flows Using Sankey Mapping. Chevron, San Joaquin Valley, CA.

Project Manager and technical support for a study to characterize energy use and losses using Sankey mapping (data visualization of energy flows) for a Chevron oil production site in the San Joaquin Valley. An energy mapping software tool was utilized to depict energy flows in a Sankey diagram. Also included in this pilot study were graphical comparisons to standard energy metric benchmarks and review of a Sankey diagram for the Richmond Refinery.

Sacramento Municipal Utility District, Biogas/biomass Project Opportunities for GHG Gas Offsets, CA.

Technical advisor to develop generic GHG emission inventory profiles and an analytical tool for evaluating 14 potential GHG offset projects to develop verifiable GHG reduction projects for the creation of credits and sale, primarily for voluntary reductions. These project types included cogeneration and electricity generation fueled by multiple types of biogas and biomass.

Alameda Point Outpatient Clinic Project, U.S. Department of Veterans Affairs (NEPA), Carbon Sequestration and GHG Benefits Analysis of Wetlands Enhancement, Alameda, CA.

GHG Advisor for Administrative Draft SEA. Using accepted estimation methods, quantified the GHG benefits of carbon sequestration in project wetlands mitigation resulting from proposed wetland improvements and purchased wetland credits, to offset traffic GHG.

CalAg Aggregator LLC, Seller's Valuation of Carbon Offset Credits from Biomethane Reduction.

Willows, CA. Project Manager for a transaction assessment for a rice straw to MDF project (carbon offset evaluation report). Led a seller's study to quantify the avoided GHG and the dollar value of carbon credits for ARB compliance offsets, based upon protocols for implementation of a project to convert rice straw into fiberboard in California (instead of in-field decomposition of rice straw post-harvest). The project resulted in the sale to a hedge fund of over 2M carbon offset credits.

Feasibility and Market Valuation of Carbon Offset Credits, Agricultural Row Crop Proprietary REIT, Multiple Midwestern States.

Chief Scientist in-house at a carbon venture firm for a detailed evaluation of the feasibility and market valuation of California carbon compliance offset credits and voluntary carbon credits for 30,000 cultivated acres in three states. Four offset types were found to be potentially applicable, and estimations were made (in coordination with the Delta Institute). These protocols are nitrogen fertilizer, compost applied to pasturelands, and biochar application. In the future, one additional potential protocol that could be developed and adopted is increasing soil carbon/conservation tillage (through no-till practices).

Biochar, Initial Market Assessment: Feasible Uses, Drivers, Incentives, Market Demand and Market Value for New Mexico Feedstock, Sandoval County, NM.

As principal consultant, evaluated potential biochar applications and their effectiveness as a fertilizer substitute for agricultural productivity, increasing soil carbon/plant uptake, generating carbon offset credits/revenue and water contaminant removal projects. Conducted market research on the potential applications and markets for a potential biochar producer.

East Bay Regional Parks District, Carbon Sequestration Study of District Park Land, Oakland, CA.

As Project Manager and using refined techniques and digital map data, estimated the volume of carbon stored or sequestered in the vegetation and soil on lands and in wetlands (i.e., total sinks) managed by the District. Updated a study conducted in 2008. Assessed the District's 120,536 acres in Alameda and Contra Costa Counties.

Carbon Offset**California Cap-and-Trade Carbon Offsets and Allowances Purchases, Multiple Clients:**

- Dow Chemical Company, Pittsburg, CA.
- USS Posco, Pittsburg, CA.
- US Gypsum, Imperial, CA and Montreal, Quebec.
- Quemetco (Lead smelter/acid battery recycler), City of Industry, CA.

Task Lead to provide California cap-and-trade compliance advisory and strategic support for evaluation and/or purchase of carbon compliance allowances and carbon offsets with a carbon broker.

CalAg Aggregator LLC, Strategies for Carbon Offset Project Credit for Rice Cultivation Practices, Willows, CA.

Project Manager to develop strategies for carbon offset credit for rice cultivation practices. Participated in development of the Air Resources Board (ARB) rice cultivation compliance offset protocol and served on ARB Technical advisory panel.

CalAg Aggregator LLC, Seller's Valuation of Carbon Offset Credits from Biomethane Reduction, Willows, CA.

Project Manager for a transaction assessment for a rice straw-to-MDF project (carbon offset evaluation report) to quantify the avoided GHG and the value of carbon credits for ARB compliance offsets, based upon protocols for implementation of a project to convert rice straw into fiberboard in California (instead of in-field decomposition of rice straw, post-harvest). Resulted in the sale to a hedge fund of over 2M carbon offset credit futures.

Feasibility and Market Valuation of Carbon Offset Credits, Agricultural Row Crop Proprietary REIT, Multiple Midwestern States.

Chief Scientist in-house at a carbon venture firm for a detailed evaluation of the feasibility and market valuation of carbon offset credits for 30,000 cultivated acres in three states. Four offset types were found to be potentially applicable, and estimations made (in coordination with the Delta Institute). These protocols are nitrogen fertilizer, compost applied to pasturelands and biochar application.

East Bay Regional Parks District, Carbon Offset Credit and Carbon Sequestration on District Park Land, Oakland, CA.

Project Manager to evaluate the potential for carbon offset credit, and used current factors for stored carbon in vegetation and digital map data to estimate the volume of carbon stored or sequestered in the vegetation and soil on lands and in wetlands (i.e., total sinks) managed by the Parks District. Updated a study conducted in 2008. Assessed the District's 120,536 acres in Alameda and Contra Costa Counties, and the potential for carbon offset credit.

Biochar, Initial Market Assessment: Feasible Uses, Drivers, Incentives, Market Demand, and Market Value for New Mexico Feedstock, Carbon Offset Credit and Sequestration, Sandoval, NM.

As principal consultant, evaluated potential biochar applications and their effectiveness as a fertilizer substitute for agricultural productivity, increasing soil carbon/plant uptake, generating carbon offset credits/revenue and water contaminant removal projects. Conducted market research on the potential applications and markets for a potential biochar producer.

U.S. Department of Veterans Affairs, Alameda Point Outpatient Clinic Project, Carbon Sequestration and GHG Benefits Analysis of Wetlands Enhancement, Alameda, CA. GHG Advisor for Administrative Draft SEA under NEPA. Using accepted estimation methods from the CARB, quantified the GHG benefits of carbon sequestration in project wetlands mitigation resulting from proposed wetland improvements and purchased wetland credits, to offset traffic GHG.

Bay Area Air Quality Management District (BAAQMD), Carbon Credits and Feasibility of Renewable Hydrogen Production from Landfill Gas in the Bay Area, San Francisco, CA. Project Manager for a grant from BAAQMD for an Advisory study to identify the volume of available landfill gas (LFG) and evaluate the feasibility of producing renewable hydrogen (RH) from over 30 landfills sources for use as transportation fuel for fuel cell vehicles and transit buses. Developed an analytical tool to weigh multiple criteria for evaluating all landfill sites, including LFG volume, available gas cleaning and treatment, reduction in flare combustion emissions, and the proximity to California disadvantaged communities/BAAQMD-designated CARE communities. Identified pathways (or lack thereof) for LFG to transportation fuel (i.e., biogas/LFG-to-renewable natural gas-to-RH) for California LCFS credits and federal Renewable Fuel Standard credits (RINs). Estimated the fuel volume and revenue potential of RINs and LCFS credits. Also Identified were the regulatory and market barriers to RH production and use as an alternative fuel for vehicles and for fuel cells.

City of Tucson, Tucson Water, Carbon Footprint Analysis, Performance Metrics and GHG Reduction Measures, One Water 2100 Master Plan, Tucson, AZ. Task lead to develop a carbon footprint for the Utility's operations, including evaluation of the GHG emissions from TW's existing supply chain, such as the pipes and chemicals used in operations. This effort included a review of the prior GHG inventory by both Pima County and the City of Tucson, and consideration of water conservation and GHG-reducing measures undertaken to date.

Additional project experience includes:

GHG Emissions Inventories, Reporting, Modeling, and Management

- **Assessment of Carbon Impact Models for Products and Services (multiple).** Drawdown Fund, Technical Advisor (2022-2024).
- **Scope 3 Inventory Improvement Demonstration Tool. Meta.** Executive Technical Advisor (2023-2024).
- **Voluntary GHG Inventory Preparation, Reporting, Methodology Reviews,** Accounting for reductions:
 - Amazon, Corporate. Project Advisor (2023).
 - Climate Pledge Arena, Seattle, WA (Amazon). Project Advisor (2023).
 - Vantage Chemicals. Client Manager; Project Advisor (2022-2023).
 - Kilroy Realty. Project Advisor (2023).
 - Blue Shield of California. Project Advisor (2023).
 - Diageo. Project Advisor (2022).
 - Dupont. Project Advisor (2023).
 - Silicon Valley Bank. Technical Advisor (2022).
 - Sallie Mae. Project Advisor (2022).
 - Mayo Clinic. Project Manager (2022).
 - Go Daddy Inc. Project Manager (2022).
 - Tucson Water. Project Manager (2020).
 - Xerox Corporation. Project Manager (2011).

- Comcast Cable, California Operations, Project Manager (2010).
- U.S. Postal Service, (national) Project Manager (2010-2011).
- UC San Francisco, Project Manager (2010).
- University of California Davis, all locations; Co-sponsor, Technical Advisor (2006–2007).
- **Mandatory GHG Inventory Preparation, Reporting, MRR to US EPA and/or California ARB:**
 - Omaha Public Power District, NB, Technical Advisor (2022).
 - Oil and Gas Production Facilities, CA Chevron Production, Technical Lead (2011-2012).
 - CITGO, 3 Refineries (LA, TX), Project Manager (2009-2011).
 - Dow Chemical Company, California Operations, Project Manager (2008-2011).
 - National Grid. Electricity & Gas. UK, MA, NH, NY, RI, Project Director (2008-2009).
- **Quantification of Avoided GHG From Commute/Shopping Trips by Pedestrians and Bicyclists on Park District Trails.** East Bay Regional Parks District, Project Director (2016).

Carbon Offset Project Feasibility, Credit Quantification, Protocol Development and Market Evaluations

- **Dairy Enteric Methane Carbon Insetting Project Support (SustainCERT), Interfood.** Advisor (2023).
- **Carbon Sequestration of Wetlands Enhancement, U.S. Department of Veterans Affairs.** Task Lead (2019).
- **Biochar, Market Assessment and Offset Potential for New Mexico Feedstock.** Lead (2017).
- **Offset Credit Feasibility and Market Evaluations.** For 16 clients, evaluated potential projects under 8 types of offset protocols. Chief Scientist and Director, Emission Reduction Projects (CVP staff) (2013-2014).
- **Seller's Evaluation of Carbon Offset Credits from Rice Cultivation.** CalAg Aggregator LLC. Project Manager (netted sale of 2M tonnes of pre-project offsets for rice straw to MDF manufacturing) (2012).

Carbon Management, Policy Analysis and Evaluation

- **California Cap-and Trade Compliance Strategy and Purchase of Compliance Allowances/Offsets:**
 - USS POSCO (steel), Task Lead (2017).
 - Quemetco (lead smelter/acid battery recycler), Task Lead (2015-2016).
 - US Gypsum Co. (building materials), Task Lead (2012).
 - Dow Chemical (2010).
 - Edwards Air Force Base, CA. Technical Advisor (2009).
- **GHG, Energy and Spend Data Visualization with Sankey Mapping (oil production with TEOR):**
 - Chevron Production, San Joaquin Valley, CA, Project Manager (2012).

- **Carbon Policy Impact Analysis:** China, Brazil, Thailand, Turkey. 3M, Project Manager (2012).

Reduction Projects, Evaluation of Alternative Fuels

- **SamTrans Bus Fleet Hydrogen Conversion: Metrics and Alternative Fuel Sources.** Task Lead (2022).
- **Alternatives for Digester Biogas Utilization: Motor Vehicle Fuel and Power/Steam Generation, Four Wastewater Management Agencies, San Francisco Bay Area.** Task Lead. Evaluated diverted organic waste to on-site anaerobic digesters for potential co-digestion with biosolids. Alternatives included RNG (pipeline injection), CNG, and hydrogen (2019-2022).
- **Feasibility of Renewable Hydrogen Production from Available Landfill Gas, Bay Area Air Quality Management District (BAAQMD), San Francisco, CA.** Principal Investigator (2018-2019).

Climate Adaptation

- **Sea Level Rise Evaluation and Mitigation Study, Port of San Francisco.** Technical Advisor 2010-2011).
- **Adaptation to Climate Change. Natural Gas Local Distribution Company (LDC) Consortium, NYSEARCH.** Climate Impacts Task Lead (2009-2010).

Publications and Presentations

“CA MRR for Climate Risk and GHG Reporting,” *Podcast*. Anthesis Group: Activating Sustainability, October 2023.

“Enabling a Circular Scope 3,” *Webinar*. Anthesis Group Activator Summit, June 2023

“Overcoming Mixed Signals for Digester Biogas Utilization,” California Water Environment Association, October 2020.

“Mixed Signals for Biogas Utilization in California,” A&WMA Annual Conference, July 2020.

“Sustainable Infrastructure Planning with Envision®,” East Bay Leadership Council, June 2020.

“Envision®: Leading the Evolution for Sustainable Infrastructure,” Cal Water Environ Association, San Francisco Section, May 2020.