COMMONWEALTH OF KENTUCKY
BEFORE THE KENTUCKY STATE BOARD
ON ELECTRIC GENERATION AND TRANSMISSION SITING

In the Matter of:	)	
	)	
In the Matter of the Application of Summer Shade Solar, LLC for a Certificate of Construction for an approximately 106-Megawatt Merchant Electric Solar Generating Facility in Metcalfe County, Kentucky pursuant to KRS 278.700, et seq., and 807 KAR 5:110	)	**Case No. 2025-00064**

WITNESS LIST

Summer Shade Solar LLC, by counsel, pursuant to 807 KAR 5:110, Section 6 and other applicable law, does hereby give notice of its intent to make the following individuals available to provide fact and expert testimony at the hearing for this matter which is scheduled to begin at 9:00 a.m. on Tuesday, September 9, 2025. Summary biographical information and curriculum vitae are attached.

Richard Kirkland will be available to provide testimony regarding the Property Value Impact Study he performed for the Project. Kirkland will be able to provide testimony about the project's impact on neighboring property values. Kirkland will also be able to testify regarding any impact the transmission line could have on neighboring property values. A copy of Kirkland's report was filed with the Application in this matter. Kirkland has nearly 30 years of experience in appraisals and is a State Certified General Appraiser in North Carolina. He founded Kirkland Appraisals in 2003. Kirkland has submitted numerous property-value reports associated with solar-energy generating facilities that support projects approved by the Siting Board. Kirkland graduated from the University of North Carolina at Chapel Hill in 1993 with a bachelor's degree in English.

Dr. Paul Coomes will be available to provide testimony on the economic impact that the Project will have on Metcalfe County and the surrounding region. Furthermore, Dr. Coomes will also be able to provide testimony about the project investment and associated costs, the tax impact of the project, and the economic impacts over the project's lifetime. He will also testify about any spin-off jobs and employment related to lease payments the project may bring. He has sponsored responses to requests for information and his revised report, which have been filed in this matter. Dr. Coomes is an Emeritus Professor at the College of Business, University of Louisville, where he first started teaching in 1985. Dr. Coomes has provided services to multiple renewable-energy projects submitted to the Siting Board. Dr. Coomes has a Ph.D. in Economics from the University of Texas along with a bachelor's degree from Brescia University and a master's degree from Indiana University.

Aubree Muse will be available to provide testimony regarding a broad range of issues, including general matters relating to the project; site selection; planning; design; permitting; project schedule; operation; management; environmental surveys; mitigation measures; and communications with local officials and members of the public. She has sponsored several responses to requests for information that have been filed in this matter. Muse is also adopting information and can respond to questions related to compliance with local ordinances and regulations that was provided in the application for which James Cook was identified as the "person responsible." She is also adopting information and can respond to questions related to site control and leases, for which Matt Kiehlmeier was identified as a sponsoring witness in the responses to the requests for information.

Muse is native of Hardin County, Kentucky, and obtained a Bachelor of Arts in Environmental Science and Public Policy with a Focus Field in Energy Systems from Harvard

University. She serves as the lead project manager for Summer Shade and has assisted in the development of numerous solar projects since 2022.

Alfonso Tovar will be available to provide testimony regarding construction activities. He is a Technical Director with Candela Renewables, LLC. Tovar received his Masters in Science from the University of California, Merced, and has been professionally involved in the solar industry since 2001.

Shane Kelley will be available to provide testimony on the project layout; viewshed; stormwater pollution prevention plan; other environmental questions; landscaping plan; and the decommissioning plan prepared for the project. He has sponsored several responses to requests for information and reports which have been filed in this matter. Kelley is employed by Stantec as the Team Lead of Stantec's Kentucky Natural Resources Team. Kelley has worked on 16 renewable energy projects within the state of Kentucky; while on those projects, Kelley has served as both a project manager and a technical lead. Kelley graduated from the University of Kentucky in 2014 with a Bachelor of Science in Natural Resource and Environmental Science.

Jacob Poling will be available to provide testimony regarding the Project's noise analysis studies, including noise generation from construction and operation. Poling is a Senior Acoustician with Stantec. He received his Bachelor of Arts in Audio Arts and Acoustics with an Acoustics Concentration in 2009 from Columbia College Chicago. He has served as a noise consultant for nearly 15 years.

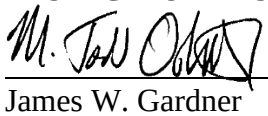
Louis De Rosa will be available to provide testimony regarding environmental analysis including topics such as endangered species, air quality, water quality, traffic, visual resources, cultural resources, and paleontological resources. He is also adopting information and can respond to questions on Summer Shade's clean record on compliance with environmental laws and regulations that was provided in the application for which Roy Skinner was identified as the

"person responsible." He is a senior director of siting and permitting for Candela Renewables, LLC. De Rosa has over a decade of experience in environmental analysis, environmental engineering, permitting, and government affairs in the utility-scale solar industry. He received his Bachelor of Science in Chemistry from Haverford College and a Masters of Science in Environmental Engineering and Science from Stanford University.

Mark Carney will be available to provide testimony on topics for which he sponsored responses to requests for information, including issues related to vegetative clearing and coordination with county and state transportation departments. He is the managing director at e3rm, llc, an environmental consulting firm focused on environmental permitting/management and sustainability systems in the power generation industry. Carney has an undergraduate degree in Chemistry and a Masters of Science degree in Atmospheric Science from Colorado State University.

Jim Woodruff will be available, if necessary, to provide testimony regarding governmental affairs and community engagement. He is the Senior Vice President of Public Affairs for Candela Renewables, LLC. Woodruff has a Bachelors of Arts from Yale University and a Juris Doctorate from the UCLA School of Law.

RESPECTFULLY SUBMITTED,



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Richard C. Kirkland, Jr., MAI
9408 Northfield Court
Raleigh, North Carolina 27603
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Professional Experience

Kirkland Appraisals, LLC, Raleigh, N.C. — 2003 – Present
Commercial appraiser

Hester & Company, Raleigh, N.C.
Commercial appraiser — 1996 – 2003

Professional Affiliations

MAI (Member, Appraisal Institute) designation #11796 — 2001
NC State Certified General Appraiser # A4359 — 1999
VA State Certified General Appraiser # 4001017291
SC State Certified General Appraiser # 6209
KY State Certified General Appraiser # 5522
TN State Certified General Appraiser # 6240
FL State Certified General Appraiser # RZ3950
GA State Certified General Appraiser # 321885
MI State Certified General Appraiser # 1201076620
PA State Certified General Appraiser # GA004598
OH State Certified General Appraiser # 2021008689
IN State Certified General Appraiser # CG42100052
IL State Certified General Appraiser # 553.002633
LA State Certified General Appraiser # APR.05049-CGA
TX State Certified General Appraiser # 1380528 G

Education

Bachelor of Arts in English, University of North Carolina, Chapel Hill — 1993

Continuing Education

Uniform Standards of Professional Appraisal Practice Update	2024
ASFMRA Integrated Approaches to Value (A360)	2024
ASFMRA Best in Business Ethics	2023
Appraising Natural Resources Series – Oil, Gas & Minerals	2023
Appraisal of Industrial and Flex Buildings	2023
Commercial Land Valuation	2023
Fair Housing, Bias and Discrimination	2023
Pennsylvania State Mandated Law for Appraisers	2023
What NOT to Do (NCDOT Course)	2023
The Income Approach – A Scope of Work Decision	2023
Valuation of Residential Solar	2022
Residential Property Measurement and ANSI	2022
Business Practices and Ethics	2022
Uniform Standards of Professional Appraisal Practice Update	2022

Sexual Harassment Prevention Training	2021
Appraisal of Land Subject to Ground Leases	2021
Michigan Appraisal Law	2020
Uniform Standards of Professional Appraisal Practice Update	2020
Uniform Appraisal Standards for Federal Land Acquisitions (Yellow Book)	2019
The Cost Approach	2019
Income Approach Case Studies for Commercial Appraisers	2018
Introduction to Expert Witness Testimony for Appraisers	2018
Appraising Small Apartment Properties	2018
Florida Appraisal Laws and Regulations	2018
Uniform Standards of Professional Appraisal Practice Update	2018
Appraisal of REO and Foreclosure Properties	2017
Appraisal of Self Storage Facilities	2017
Land and Site Valuation	2017
NCDOT Appraisal Principles and Procedures	2017
Uniform Standards of Professional Appraisal Practice Update	2016
Forecasting Revenue	2015
Wind Turbine Effect on Value	2015
Supervisor/Trainee Class	2015
Business Practices and Ethics	2014
Subdivision Valuation	2014
Uniform Standards of Professional Appraisal Practice Update	2014
Introduction to Vineyard and Winery Valuation	2013
Appraising Rural Residential Properties	2012
Uniform Standards of Professional Appraisal Practice Update	2012
Supervisors/Trainees	2011
Rates and Ratios: Making sense of GIMs, OARs, and DCFs	2011
Advanced Internet Search Strategies	2011
Analyzing Distressed Real Estate	2011
Uniform Standards of Professional Appraisal Practice Update	2011
Business Practices and Ethics	2011
Appraisal Curriculum Overview (2 Days – General)	2009
Appraisal Review - General	2009
Uniform Standards of Professional Appraisal Practice Update	2008
Subdivision Valuation: A Comprehensive Guide	2008
Office Building Valuation: A Contemporary Perspective	2008
Valuation of Detrimental Conditions in Real Estate	2007
The Appraisal of Small Subdivisions	2007
Uniform Standards of Professional Appraisal Practice Update	2006
Evaluating Commercial Construction	2005
Conservation Easements	2005
Uniform Standards of Professional Appraisal Practice Update	2004
Condemnation Appraising	2004
Land Valuation Adjustment Procedures	2004
Supporting Capitalization Rates	2004
Uniform Standards of Professional Appraisal Practice, C	2002
Wells and Septic Systems and Wastewater Irrigation Systems	2002
Appraisals 2002	2002
Analyzing Commercial Lease Clauses	2002
Conservation Easements	2000
Preparation for Litigation	2000
Appraisal of Nonconforming Uses	2000
Advanced Applications	2000
Highest and Best Use and Market Analysis	1999
Advanced Sales Comparison and Cost Approaches	1999
Advanced Income Capitalization	1998

Valuation of Detrimental Conditions in Real Estate	1999
Report Writing and Valuation Analysis	1999
Property Tax Values and Appeals	1997
Uniform Standards of Professional Appraisal Practice, A & B	1997
Basic Income Capitalization	1996

Biographical Information

Paul A. Coomes, Ph.D.
Emeritus Professor of Economics, University of Louisville
3604 Trail Ridge Road, Louisville KY 40241
paul.coomes@louisville.edu *coomes.economics@gmail.com*

Paul Coomes is Emeritus Professor of Economics at the University of Louisville. He is a graduate of Brescia College (BA), Indiana University (MS), and the University of Texas (Ph.D.). Professor Coomes came to the University of Louisville from Texas in 1985. He has taught courses in urban economics, forecasting, microeconomics and macroeconomics. Most of his research concerns regional and urban economics, economic development, and measurement problems.

His scholarly research has appeared in many journals, including the *Journal of Labor Economics*, *Entrepreneurship Theory and Practice*, *Real Estate Economics*, *Journal of Urban Economics*, *Journal of Regional Science, Environment and Planning A, Urban Studies, Economic Development Quarterly*, and the *Journal of Economic and Social Measurement*.

He has had university-based contract research arrangements with most of the large organizations in the region, including UPS, General Electric, Amazon, Churchill Downs, LG&E, Louisville Water Company, Brown-Forman, Humana, Kentucky Distillers Association, Kentucky Fair Board, Kentucky Hospital Association, Jewish Hospital, several state government cabinets, and many others. He has also consulted for several major aluminum and steel companies, including TimkenSteel, Warren Steel, RioTinto, Alcan, Ormet, and Noranda; as well as many solar energy companies. He continues to produce research reports for the Kentucky Distillers' Association and the Kentucky Wine and Spirits Wholesale Association. He recently completed a research for the Elizabethtown KY area, where they are preparing for the impacts of a huge SK/Ford battery plant for electric vehicles. He served for many years as a consultant to the Kentucky Chamber of Commerce.

Coomes is past chair of the Economics department at Louisville, past president of the Kentucky Economic Association, and was the 2014 Distinguished Economist of that organization. Professor Coomes has completed several major projects that impact local economic development policy, including the macro performance measuring system that became the analytical basis behind the Boyle Report and the creation of Greater Louisville, Inc, Louisville's Chamber of Commerce. He also developed many regional economic impact models used by private and public groups to evaluate industrial developments. After retiring from the university, he served for a year as Executive Director of the Office Health Policy, Kentucky state government.

Contact:
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Aubree F. Muse

Enthusiastic utility-scale solar developer in the renewable energy industry. Skilled problem solver with a multidisciplinary background well-suited to project management and leadership.

EXPERIENCE

Candela Renewables, Remote - San Francisco, CA — *Manager, Development*

October 2024 - Present

Developer working primarily in the PJM market as lead of all project efforts with the support of subject matter experts. Lead of all dual-land use initiatives in the company to develop dual-use solar farms where land is kept in agricultural use.

- Experience and exposure to full-suite project management - including leading teams of diverse subject matter experts across multiple projects at once, leading portfolio-wide agrivoltaic initiatives, and leading frequent reporting to upper management and partnering investors
- Responsibilities include managing project schedule and budget, assisting project finance modeling efforts, forming and holding relationships with consultants, state and federal agencies, local decision makers and stakeholders, tracking relevant policy changes, day-to-day problem solving and proactive planning to de-risk each stage of development
- Constantly monitoring and reassessing projects to manage the risk profile, and deliver projects with meaningful benefits to the communities we work with
- M&A experience as a member of our internal deal team, including successfully running a project sale in as little as 6 weeks without investment banking assistance

Cordelio Power, Remote - Toronto, ON — *Manager, Development*

July 2024 - October 2024

Lead NYISO developer reporting directly to the VP of Development. Gained experience leading a portfolio of 10 late stage projects in NY state to finalize all agreements and entitlements necessary to begin construction. Lead representation of the company to local and state decision-making bodies. Coordinated with utility companies to negotiate crossing agreements needed to construct utility scale solar projects.

Candela Renewables, Remote - San Francisco, CA — *Associate, Development*

January 2022 - July 2024

Began as an intern before rising to an Associate Developer, reporting directly to the Chief Development Officer. Lead of multiple teams, and bearing responsibility for all aspects of utility-scale solar photovoltaic projects from greenfield siting to start of construction.

SKILLS

Project Management

Public Relations

Microsoft Office

Timeline Software

Critical Problem Solver

Team Leader

Policy Analysis

Financial Analysis

Effective Communicator

INTERESTS

Regenerative Agriculture

Energy Policy & Security

Sustainable Tech

Decarbonization Strategy

Power Marketing

M&A Strategy

RTO policy

Transmission Planning

Contact:
Cell: (270) 501-0552 **Email: muse.aubree@gmail.com**

EDUCATION

Harvard University, Cambridge, MA — High Honors, *B.A. in Environmental Science and Public Policy, Focus Field in Energy Systems*

September 2017 - December 2021

Graduated with high honors from one of the University's best multidisciplinary degree programs preparing graduates for energy and environmental careers at the intersection of STEM and policy.

Completed an undergraduate thesis titled, "Cost and Risk Allocation of Climate Change's Destabilization of the Electric Utility Industry: A Case Study of the California Camp Fire and Pacific Gas & Electric Bankruptcy", Used the California Camp Fire tragedy and subsequent Pacific Gas and Electric bankruptcy as a lens to assess utility risk, wildfire cost allocation, and relevant regulations impacting the utility landscape in California. Offered technical and policy solutions to stabilize the industry as climate change continues to impact utility operations and customer safety. This thesis was a 2021-2022 Thomas T. Hoopes prize nominee and a 2022 James J. McCarthy prize recipient, awarded to the best senior thesis in Environmental Science & Public Policy.

Harvard Varsity softball player from 2017 - 2019, held multi-year leadership positions with various organizations including the Harvard National Model United Nations, Harvard University Native American Program, and the Kali Praxi - a co-ed social club

Contact

Denver, CO
alfonso-tovar@outlook.com

www.linkedin.com/in/alfonsotovar (LinkedIn)

Top Skills

Solar Energy
Photovoltaics
Renewable Energy

Languages

Spanish (Native or Bilingual)
English (Full Professional)

Publications

Project Development in the Solar Industry

Alfonso Tovar

Renewable Energy Professional
Denver, Colorado, United States

Summary

Senior Project Manager and Business executive with over 15 years of solar engineering, project management, technical advising, and business development experience in the solar industry in the United States and Mexico.

Alfonso's core competencies include utility-scale engineering and design; site assessment; plant design optimization; equipment selection and innovation; project costs review; EPC selection, contract review and negotiation; construction schedule evaluation; operation and maintenance budgets' assessment; O&M contract review and negotiation; construction monitoring and commissioning witnessing.

He is an effective team leader of multidisciplinary and international teams to provide technical, strategic, policy and economic advice on project and transactional risks in the solar energy sector.

Alfonso is a graduate from the University of California - Merced, where he received a Master's in Environmental Systems with a focus on solar engineering.

Experience

Candela Renewables, LLC

Technical Director
March 2021 - Present (4 years 6 months)
Denver, Colorado, United States

As a member of the EPC team, Alfonso leads planning, design and optimization of photovoltaic and storage-integrated utility-scale projects from green field to "shovel ready". Alfonso contributes and supports Candela's project development focusing on the technical aspects of site risk assessment, easements, permitting and interconnection support, cost estimates, technology evaluation, equipment and construction bids, and pre-construction activities.

Leidos

Senior Solar Consultant

August 2020 - February 2021 (7 months)

Denver, Colorado, United States

Solaris PV

Founder / Managing Director

September 2013 - July 2020 (6 years 11 months)

Mexico City Area, Mexico

For the period 2018 – 2020, secured services for several utility and DG projects. Key projects include:

OE for two projects totaling 60 MW in México.

o Technical advisor with Goldman Sachs for their solar portfolio.

o Technical advisor for a 230 MW plant located in Chile.

o Technical advisor for a 140 MW plant located in México.

o Technical advisor to Developers and EPCs in areas such as production estimates; design optimization; equipment selection; EPC & O&M cost analyses; contract and technical exhibits review.

o Project development support for Developers in areas such as site prospection; permitting; complementary studies; financial analysis; preliminary design and engineering; subcontractor management; EPC bid management.

RINA

Country Manager

September 2016 - June 2018 (1 year 10 months)

Mexico City Area, Mexico

o Supported growth of Independent Engineering, Owner's Engineering and Technical Advisory services in Mexico. Target markets were utility scale renewable energy projects, mainly solar PV and wind. Target customers included lenders, investors, developers, and pure play technology manufacturers.

o Secured OE services for the 110 MW Guajiro PV Plant in Mexico.

o Participated as principal consultant and project manager in technical reports on behalf of the Lender's advisor, supported construction monitoring activities, technical analysis, proposal preparation, customer relationship and internal team coordination.

Hanergy de Mexico

Country Manager

April 2014 - August 2015 (1 year 5 months)

Mexico City Area, Mexico

o Steered the project development effort for a thin-film based, 40 MW PV plant; the second largest project to be built in Mexico at the time.
o Coordinated interdisciplinary in-house and external teams (legal, financial, lenders, engineering, and developer) to define tasks, evaluate project risks and assess economic and technical project feasibility.
o Led initial feasibility analysis of project and module sales opportunities within the current electricity/solar market context, ensuring that opportunities met the revenue parameters set by the company with a clear understanding of the potential technical, economic and legal risks.
o Led initial analysis of importation processes and transportation logistics to supply a:Si modules in Mexico.
o Responsible for managing engineering, construction and permitting activities for the development and construction of commercial and utility scale solar projects in Mexico and Latin America.

Black & Veatch
Solar Engineer
June 2009 - August 2013 (4 years 3 months)
San Francisco Bay Area

o Contributed to over 180 projects, totaling over 6,000 MW.
o Supported system design, equipment selection, project costs review for utility scale systems and EPC contract review.
o Led system design review, equipment review and recommendations, operation and maintenance budgets' assessments, and construction schedules review. Supported evaluation of performance guarantees, energy production modeling, project economics review, financial pro-forma review, site assessment, construction monitoring and commissioning witnessing.
o Led technology due diligences and bankability reports for inverters, CPV systems, trackers and thin-film modules. Provided training courses on system design and modeling.
o Performed solar feasibility studies including solar resource selection, conceptual design, energy production modeling, evaluation of capital and operational costs, and economic analysis of PV plants.
o Participated in EPC bids review, training on photovoltaic systems, strategic planning studies and proposal preparation.

Q-Cells International
Consultant
January 2009 - April 2009 (4 months)

o Reviewed electrical design, construction procedures, regulatory requirements and cost analyses of utility scale PV systems developed in Germany and Europe and adapted for North American standards and specific requirements of projects based in the United States and Canada.
o Developed templates for electrical design; PV system drawings, descriptions and definitions; preliminary project schedules and expected production tables to support completion of utility scale photovoltaic power plant proposals.
o Served as technical liaison between customers, partners and the German engineering team.

EI Solutions
Design Manager
August 2007 - June 2008 (11 months)
San Francisco Bay Area

o Designed and reviewed code compliant electrical systems for large scale rooftop-, carport-, and ground-mounted PV projects.
o Coordinated and defined the scope of work for structural, civil and electrical engineer consultants, geotechnical and topographic surveyors, professional engineers and other specialized consultants as needed.
o Defined the site-specific requirements for PV monitoring systems, mounting racks, and electrical equipment to be addressed by supply-side designers. Conducted site visits to request, verify or collect information for plan installations.
o Prepared and maintained CAD drawing packages and submitted to authorities.
o Reviewed, updated and reported on the development of projects to Project Managers, Customers, Sales Executives and other project participants. Provided engineering support to Construction and Project Managers during implementation.

University of California, Merced
Graduate Student Researcher
September 2006 - May 2007 (9 months)
Merced, California

o Supported testing of CPV prototypes and data acquisition systems
o Conducted research on concentrating solar thermal using non-imaging CPC concentrators and evacuated tubes. Conducted thermal modeling of solar collector unit designed to operate at 400˚F.
o Authored energy policy essays on the Kyoto Protocol and the California Solar Initiative.

SolarQuest - rMeter

Project Engineer

August 2001 - August 2005 (4 years 1 month)

Santa Cruz, California

o Designed and implemented small scale PV systems (less than 10 KW).

o Designed data acquisition systems based on LabVIEW software and National Instruments hardware.

o Performed energy audits in commercial buildings.

o Helped to build human capacity in San Cristóbal Island (Galápagos) in preparation for the wind electrification project funded by the e8 (www.e8.org and www.galapagoswind.org).

Education

University of California, Merced

Master of Science (M.Sc.), Environmental Systems - Solar Engineering · (2005 - 2007)

Shane Kelley TN-QHP

Natural Resources Team Lead, Project Manager, Senior Biologist

11 years of experience · Louisville, Kentucky

Shane serves as the Natural Resources Team Lead for the Kentucky natural resources team. He has eleven years of experience in the natural resources field conducting work in multiple areas with a particular focus on USACE Section 404 permitting, Section 7 protected species consultation, Phase I ESAs, hazardous materials surveys, and various ecological and biological field surveys. He is a Qualified Hydrologic Professional (QHP) in the state of Tennessee and has personally conducted thousands of acres of stream and wetland delineations throughout the southeast. Additionally, he is a federally permitted bat biologist permitted for Indiana bats (Myotis sodalis), northern long-eared bats (Myotis septentrionalis), gray bats (Myotis grisescens), and Virginia big-eared bats (Corynorhinus townsendii virginianus).

EDUCATION

BS, Natural Resource and Environmental Science, University of Kentucky, Lexington, Kentucky, United States, 2014

PROJECT EXPERIENCE

RENEWABLE ENERGY

Song Sparrow Solar | Clearway Energy | Ballard County, KY, USA | 2023-Present | Project Manager; Field Lead

Served as the Project Manager and guided the client through the Kentucky Siting Board process for a 104-megawatt utility scale solar farm located in Ballard County, Kentucky. Attended public meetings and the siting board hearing and managed the completion of all the studies required for siting board approval (noise, decommissioning, traffic, etc.) as well as assisting in drafting the siting board application. Was the acting technical lead for wetlands, T&E, and the Phase I ESA and led teams to complete the field surveys and provide technical reports as well as a jurisdictional determination with USACE.

Dogwood Corners Solar | Oriden Power | Christian County, KY, USA | 2023-Present | Project Manager

Served as the Project Manager and assisted in preparation of the Kentucky Siting Board application for the 125-megawatt utility scale solar and 25-megawatt BESS located in Christian County, Kentucky within the TVA service region. Managed the completion of technical reports required for the siting board application including a limited noise assessment, traffic assessment, and decommissioning plan. Additionally, attended the public meeting and acted as an expert witness at the siting board hearing.

Northern Bobwhite Solar | EDF Renewables | Marion County, KY, USA | 2023-Present | Project Manager

Served as the Project Manager and assisted the client with environmental studies and technical studies required for the state siting board application for a 96-megawatt utility scale solar development located in Marion County, Kentucky. Managed production of a traffic assessment, limited noise assessment, Phase I ESA, and permit matrix detailing federal, state, and local permits that may be required in the development of the site. Additionally, assisted in conducting threatened and endangered species surveys for the Indiana bat (Myotis sodalis) and northern long-eared bat (Myotis septentrionalis). No currently listed bat species were captured during the surveys.

Summer Shade Solar | Candela Renewables | Metcalf County, KY, USA | 2021-Present | Project Manager

Served as the Project Manager and assisted the client with environmental studies and technical studies required for the state siting board application for a 104-megawatt utility scale solar development located in Metcalf County, Kentucky. Additionally, Stantec conducted all the background environmental surveys for the project including wetland delineations, cultural surveys, Phase I ESA, and threatened and endangered species surveys for the Indiana bat (Myotis sodalis) and northern long-eared bat (Myotis septentrionalis). No currently listed bat species were captured during the surveys.

Bluegrass Green Solar | Confidential Client | Ohio County, Kentucky, USA | 2023-2024 | Project Manager

Acted as the Project Manager for assistance in the development of a utility scale solar project located in Ohio County, Kentucky. Managed and provided technical review of a Critical Issues Analysis (CIA), Phase I ESA, permit matrix covering any federal, state, or local permits that may be required to develop the project, and limited wetland delineation on approximately 3,200 acres or reclaimed coal mine.

Stonefield Solar Project | Naturgy Candela | Hardin County, KY, USA | 2021-Present | Project Manager; Wetlands Technical Lead

Currently serving as the Project Manager assisting in the development of a utility scale solar project located in Hardin County, Kentucky. Lead field surveys for the entire site including wetland delineation, T&E habitat assessments, and Phase I ESA. Stantec also conducted T&E presence/absence surveys for listed bat species for the project. Several federally endangered Indiana bats (Myotis sodalis) were captured during the surveys. Shane is leading coordination with USFWS to determine mitigation measures for the bats captured onsite. Additionally, will assist the client in navigating the state siting board process and will produce all of the background studies required for the state permitting process (noise, traffic, decommissioning, etc.).

Confidential Project | Confidential Client | Kentucky, USA | 2023-Present | Project Manager

Serving as the Project Manager for a utility scale energy park including wind, solar, and BESS in Kentucky. Managing all the background environmental studies including eagle nest surveys, raptor surveys, bat presence/absence surveys, and acoustics. Additionally, will assist the client in navigating the state siting board process and will produce all of the background studies required for the state permitting process (noise, traffic, decommissioning, etc.).

Flat Top Solar | Confidential Client | Kentucky, USA | 2021-Present | Technical Lead

Stantec was retained to conduct field surveys and technical reports for environmental surveys on an approximate 450-acre utility scale solar development located in Kentucky. Shane served as the field lead for conducting stream and wetland surveys for use in coordination with USACE. While on site a threatened and endangered species habitat assessment was conducted to determine the potential for any listed species to be present on the site. Additionally, he served as the primary author for the technical reports produced from these surveys. He will assist the client in the management and submittal of the state siting board application.

Sunflower Prairie Solar | Confidential Client | Kentucky, USA | 2021-Present | Technical Lead

Stantec was retained to conduct field surveys and technical reports for environmental surveys on an approximate 800-acre utility scale solar development located in Kentucky. Shane served as the field lead for conducting stream and wetland surveys for use in coordination with USACE. While on site a threatened and endangered species habitat assessment was conducted to determine the potential for any listed species to be present on the site. Additionally, he served as the primary author for the technical reports produced from these surveys. He also conducted bat surveys to determine the presence/absence of listed bat species within the project. He will assist the client in the management and submittal of the state siting board application.

Ashwood Solar | RWE Renewables | Lyon County, KY, USA | 2020-Present | Project Manager

Served as the Project Manager and guided the client through the Kentucky Siting Board process for a utility-scale solar farm located in Lyon County, Kentucky. Attended public meetings and the siting board hearing and managed the completion of all the studies required for siting board approval (noise, decommissioning, traffic, etc.) as well as assisting in drafting the siting board application. Was the acting technical lead for wetlands, T&E, and the Phase I ESA and led teams to complete the field surveys and provide technical reports as well as a jurisdictional determination with USACE.

Martin County Solar I | Savion | Martin County, KY, USA | 2020-Present | Project Manager

Lead a 10-day wetland delineation on an approximately 1,200-acre site in Eastern Kentucky to assist in the development of a utility scale solar farm. Wetland delineations were conducted according to the standard methods set forth in the U.S. Army Corps of Engineers (USACE) Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0). In total, 53 wetlands were identified totaling 6.8 acres and 40 streams totaling almost six miles. Also assisted another team in completing a habitat assessment for the Indiana bat (Myotis sodalis) and northern long-eared bat (Myotis septentrionalis) on the site while conducting delineations. Additionally, assisted in conducting presence/absence surveys for listed bat species on the site over three days. Later serving as the project manager Shane assisted in preparation of several of the documents required for siting board approval. The project has since been approved by the Kentucky Siting Board.

Martin County Solar II | Savion | Martin County, KY, USA | 2020-Present | Project Manager

Lead a 6-day wetland delineation on an approximately 800-acre site in Eastern Kentucky to assist in the development of a utility scale solar farm. Wetland delineations were conducted according to the standard methods set forth in the U.S. Army Corps of Engineers (USACE) Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0). In total, 53 wetlands were identified totaling 6.8 acres and 40 streams totaling almost six miles. Also assisted another team in completing a habitat assessment for the Indiana bat (Myotis sodalis) and northern long-eared bat (Myotis septentrionalis) on the site while conducting delineations. Additionally, assisted in conducting presence/absence surveys for listed bat species on the site over three days. Later serving as the project manager Shane assisted in preparation of several of the documents required for siting board approval. The project has since been approved by the Kentucky Siting Board.

Preston Solar | Energix | Bath County, KY, USA | 2023 | Project Manager

Served as the Project Manager for the development of a utility scale solar development located in Bath County, Kentucky. Stantec conducted a wetland delineation, habitat assessment, and desktop cultural resources assessment to assist in identifying any constraints that would be a potential hinderance to solar farm development and inform design on the site.

Clinton Solar | Confidential Client | Clinton County, KY, USA | 2023-Present | Project Manager

Served as the Project Manager for the development of a utility scale solar development located in Clinton County, Kentucky. Stantec conducted a wetland delineation, habitat assessment, and desktop cultural resources assessment to assist in identifying any constraints that would be a potential hinderance to solar farm development and inform design on the site. Additionally, Stantec is conducting presence/absence bat surveys for the project.

Bluegrass Plains Solar | EKPC | Fayette County, KY, USA | 2023-2024 | Technical Lead

Served as the technical lead for the development of a utility scale solar development located in Fayette County, Kentucky. Stantec conducted a wetland delineation, habitat assessment, and Biological Assessment to assist in identifying any constraints that would be a potential hinderance to solar farm development and inform design on the site. Additionally, Stantec conducted presence/absence bat surveys for the project.

Solar Coops 4-7 | EKPC | Kentucky, USA | 2024-Present | Technical Lead

Served as the technical lead for the development of four utility scale solar developments located throughout Kentucky. Shane lead the development of the Site Assessment Reports and supporting studies (noise, decommissioning plan, vegetative screening plan, glare study, property value assessment, etc.) in support of a siting board application. Additionally, he is leading the background environmental studies on one of the four projects where Stantec is conducting a wetland delineation, habitat assessment, cultural resources surveys, and Biological Assessment to assist in identifying any constraints that would be a potential hinderance to solar farm development and inform design on the site.

Jacob Poling INCE Board Certified

Senior Acoustician

15 years of experience

Jacob Poling is a Senior Acoustician specializing in acoustics and noise control and leads Stantec's U.S. Environmental Acoustics and Noise practice. Jacob is Board Certified by the Institute of Noise Control Engineering (INCE) and has 15 years of professional experience in noise assessments for renewable energy, power generation, industrial, transportation, construction, and buildings projects. Jacob also has experience with vibration analysis for construction and rail projects, soundscape studies in national parks, and underwater acoustic measurement and modeling.

Jacob's experience spans the full project lifecycle from preliminary engineering and planning to final design and construction. He has testified in support of project permit applications at zoning and planning board hearings and supported clients in the legal process with expert review and depositions. Jacob's technical capabilities include noise and vibration measurements and monitoring, analysis and post-processing of measurement data, detailed acoustical modeling, design and analysis of noise mitigation measures, and preparation of technical reports.

EDUCATION

Bachelor of Arts, Acoustics, Columbia College Chicago, Chicago, IL

REGISTRATIONS

Board Certified Noise Control Engineer, Institute of Noise Control Engineering of the USA

PROJECT EXPERIENCE

Ritter Station Solar | Fayette, Ohio | Acoustical Engineer

Task lead of pre-construction operational sound study for a 200-megawatt solar energy facility. Role included coordination with field team for ambient noise survey, review of measured sound levels and facility sound level modeling, assessment of compliance with Ohio Power Siting Board (OPSB) regulations, and development of the pre-construction sound study report.

Scioto Ridge Solar | RWE Clean Energy | Hardin County, Ohio, OH, USA | Acoustical Engineer

Task lead for pre-construction noise study for 110 MW solar energy facility with a 20 MW battery energy storage system. Task included ambient sound measurements, acoustical modeling, compliance assessment, and noise mitigation design. The noise study was prepared to meet requirements of the Ohio Power Siting Board (OPSB).

Prairie Flyer Energy Storage | Jupiter Power LLC | Vandalia, Ohio | Acoustical Engineer

Task lead of pre-construction operational sound study for an 85-megawatt battery energy storage facility. Role included processing of measured ambient sound levels, modeling of facility sound levels using CadnaA software, assessment of compliance with Ohio Power Siting Board (OPSB) regulations, and development of the pre-construction sound study report.

Merrillville Solar | Lightsource Renewable Energy | Merrillville, Indiana | Acoustical Engineer

Task lead of pre-construction operational sound study for a 50-megawatt solar energy facility. Role included review of identified noise sensitive areas, equipment noise emission calculations, review of facility sound level modeling, assessment of compliance with City of Merrillville noise regulations, and development of the pre-construction sound study report.

Clover Creek Solar | EDP Renewables | Hardinsburg, Kentucky | Acoustical Engineer

Task lead of pre-construction sound study for a 100-megawatt solar energy facility. Role included review of noise sensitive receptor locations, equipment sound level calculations, review of facility sound level modeling, modeling of construction sound levels, and development of the pre-construction sound study report.

Mayapple Solar | Lightsource Renewable Energy | Indiana | Acoustical Engineer

Task lead of pre-construction operational sound study for a 224-megawatt solar energy facility. Role included review of identified noise sensitive areas, equipment noise emission calculations, review of facility sound level modeling, assessment of compliance with Pulaski County solar energy regulations, and development of the pre-construction sound study report.

Wood Duck Solar | Geenex Solar | Glasgow, Kentucky | Acoustical Engineer

Task lead of pre-construction sound study for a 100-megawatt solar energy facility. Role included review of noise sensitive receptor locations, equipment sound emission level calculations, review of facility sound level modeling, modeling of construction sound levels, and development of the pre-construction sound study report.

Vista Sands Solar | Doral Renewables | Portage County, WI, USA | Acoustical Engineer

Task lead for pre-construction noise study for 1,182 MW solar energy facility with a 300 MW battery energy storage system. Task included ambient sound measurements, acoustical modeling, compliance assessment, and noise mitigation design. The noise study was prepared to meet requirements of the Public Service Commission of Wisconsin (PSCW).

Porchlight Solar | Savion | Barron County, WI, USA | Acoustical Engineer

Task lead for pre-construction noise study for 168 MW solar energy facility with a 50 MW battery energy storage system. Task included ambient sound measurements, acoustical modeling, and compliance assessment. The noise study was prepared to meet requirements of the Public Service Commission of Wisconsin (PSCW).

Bee Hollow Solar | National Grid Renewables | St. Clair County, IL, USA | Acoustical Engineer

Task lead for pre-construction noise study for 150 MW solar energy facility with a 150 MW battery energy storage system. Task included acoustical modeling, compliance assessment, and noise mitigation design. The noise study was prepared to meet requirements of St. Clair County and the Illinois Pollution Control Board (IPCB).

Buffalo Solar | RWE Solar Development | Grundy County, IL, USA | Acoustical Engineer

Task lead for pre-construction noise study for 116 MW solar energy facility. Task included acoustical modeling and a noise compliance assessment. The noise study was prepared to meet requirements of the Illinois Pollution Control Board (IPCB).

Rhoades Solar | Kruger Energy | Duanesburg, NY, USA | Acoustical Engineer

Task lead for pre-construction noise study for a 4.2 MW solar energy facility. Task included ambient sound measurements, acoustical modeling, and a noise compliance assessment. The noise study was prepared to meet requirements of the Town of Duanesburg and the New York Office of Renewables Energy Siting (NYORES).

Virden Wind | UKA North America | Montgomery County, IL, USA | Acoustical Engineer

Task lead for pre-construction sound study for a 122 MW wind energy facility. Task included acoustical modeling, compliance assessment, determination of required noise reduced operating modes for turbines, and testimony at the public hearing. The sound study was prepared to meet the requirements of the Illinois Pollution Control Board (IPCB).

Onion River Solar | D.E. Shaw Renewable Investments | Sheboygan County, WI, USA | Acoustical Engineer

Task lead for post-construction noise study for 150 MW solar energy facility. Task included completing a sound measurement survey with and without the solar facility equipment operating and a noise compliance assessment. The noise study was prepared to meet requirements of the Public Service Commission of Wisconsin (PSCW). A separate study was also completed to assess noise compliance at a specific residence and to design a noise barrier for the inverter adjacent to the residence.

Crawfish River Solar | D.E. Shaw Renewable Investments | Jefferson County, WI, USA | Acoustical Engineer

Task lead for post-construction noise study for 75 MW solar energy facility. Task included completing a sound measurement survey with and without the solar facility equipment operating and a noise compliance assessment. The noise study was prepared to meet requirements of the Public Service Commission of Wisconsin (PSCW).

PUBLICATIONS & WHITEPAPERS

Pendyala, Sam; Poling, Jacob. Mitigation Assessment of Complex Noise Sources – An Acoustical Camera Approach.. *Proceedings of Noise-Con 2022*, 2022.

Poling, Jacob. Community Noise from a Drone Delivery Distribution Center.. *Proceedings of Inter-Noise and Noise-Con 2021*, 2021.

Poling, Jacob; Noise Assessment and Control for Transit Tunnel Emergency Ventilation Systems. *Proceedings of Noise-Con 2020*, 2020.

Thalheimer, Erich; Poling, Jacob. Fan Manufacturer Sound Power Data - Trust but Verify.” Proceedings of Noise-Con 2016. *Proceedings of Noise-Con 2016*, 2016.

Thalheimer, Erich; Poling, Jacob. Development and implementation of an underwater construction noise program.. *Proceedings of Noise-Con 2014*, 2014.

Thalheimer, Erich; Herzog, Tom; Poling, Jacob. A Simpler and Effective Method to Perform Building Vibration Analyses Consistent with FTA’s Detailed Method.. *Sound & Vibration Magazine, August 2014*, 2014.

Thalheimer, Erich; Poling, Jacob. Construction noise control program for the Clinton Combined Sewer Overflow Tunnel project.. *Proceedings of Noise-Con 2013*, 2013.

Thalheimer, Erich; Poling, Jacob. Protecting MIT’s interests during expansion of the Grand Junction rail line through campus.. *Proceedings of Noise-Con 2012*, 2012.

Poling, Jacob. Community Noise Agreements, Monitoring and Control for Concerts on Boston’s Rose Kennedy Greenway.. *Proceedings of Noise-Con 2011*, 2011.

Betchkal, Davyd; Poling, Jacob. Use of the noise-free interval (NFI) metric to assess the disturbance of vessel noise at Glacier Bay National Park. *Proceedings of Noise-Con 2023*, 2023.

Louis De Rosa, P.E.

Senior Director of Permitting & Environmental Engineer

Louis De Rosa is a senior director of siting and permitting for Candela Renewables based in San Francisco, CA. He has over a decade of experience in environmental analysis, environmental engineering, permitting, and government affairs in the utility-scale solar industry.

Candela Renewables is a utility-scale solar project developer with extensive experience developing and constructing projects nation-wide. Current and past projects include the Summer Shade Solar Project in Kentucky, Rough Hat Clark Solar Project in Nevada, and Grimes Solar Project in Texas. The management team at Candela Renewables is broadly responsible for trailblazing the utility-scale solar industry in the United States and achieved several major milestones including developing and constructing the first solar projects on federally managed land, the first solar projects on tribal lands, and has achieved development of the largest solar projects in the world multiple times.

Mr De Rosa has lead the environmental analysis and permitting for numerous utility-scale solar projects for Candela Renewables and formerly for First Solar. His experience includes projects in California, Nevada, Arizona, Texas, Kentucky, and North Carolina. Most recently, Mr. De Rosa completed major permitting on the Rough Hat Clark Solar Project in Clark County, NV, a 400 megawatt solar project on BLM-administered land with permitting required from the BLM, USFW, US Army Corps of Engineers, FAA, Clark County, NV DOT, and the NV PUCN. Mr. De Rosa has expertise in the environmental analysis of utility-scale solar projects including topics such as endangered species, air quality, water quality, traffic, visual resources, cultural resources, and paleontological resources. Mr. De Rosa has provided expert testimony and information in from of numerous governmental agencies, boards, and individuals including US Senators and Representatives, state representatives of California, Arizona, and Nevada, and boards of commissioners/supervisors in Kentucky, California, Arizona, Nevada, and Texas.

Mr. De Rosa has an undergraduate degree in Chemistry from Haverford College and a Master's of Science in Environmental Engineering from Stanford University. He is a professionally-registered engineer in Environmental Engineering in the state of Arizona.

EXPERIENCE

Candela Renewables – San Francisco, CA

Director of Permitting and Siting **2021-Present**

- Oversees discretionary permitting for utility-scale solar projects nationwide ranging from 40-1,000 MW
- Experienced in NEPA and CEQA and related federal and state programs including Section 106, Section 404/401, Section 7, and California Endangered Species Act
- Company representative in land use issues with federal and state policy-makers
- Technical expertise in air emissions modeling, noise modeling, desert tortoise and endangered species

First Solar – San Francisco, CA

Manager – Permitting and Siting **2018-2021**

- Oversaw discretionary permitting for utility-scale solar projects in California, Nevada, and Arizona ranging from 20 to 500+ MW

Environmental Engineer – EH&S Permit Compliance **2014-2018**

- Oversaw environmental compliance during construction of complex utility-scale solar projects ranging from 40-280 MW on California private and federal lands. Significant work with Tribes, state agencies, and counties.

EDUCATION

Stanford University, Stanford CA

M.S., Environmental Engineering and Science, Civil and Environmental Engineering **June 2014**

Haverford College, Haverford, PA

B.S. with Honors, Chemistry, ACS Certified **May 2011**

Bio for Mark V. Carney

Mark V. Carney is managing director at e3rm, llc, an environmental consulting firm focused on environmental permitting/management and sustainability systems in the power generation industry. He has forty eight years of experience providing environmental support in the development and management of power generation projects. He has permitted coal, natural gas and renewable (solar, wind and waste fuel) energy projects throughout the United States.

He has recently been the lead environmental consultant on numerous solar development projects for a major vertically integrated solar company in Arkansas, Georgia, Kentucky, Ohio, Minnesota, Pennsylvania, New York, North Carolina, South Carolina, Texas and Virginia. He has provided environmental and construction support services for a major solar facility in Maryland. He also was responsible for acquiring all environmental permits for a 1500 ton per day waste to energy facility in Maryland. Mr. Carney has been project manager for numerous critical issues assessments and permitting plans development for renewable energy projects and acquisitions throughout the United States, as well as due diligence support for international development in Europe and China. He has also performed extensive due diligence for the sale and purchase of power generation assets as well as management systems review and implementation including gap analysis, aspect/impact review and management system design.

Mr. Carney has an undergraduate degree in Chemistry and a Master's of Science in Atmospheric Science from Colorado State University. He was also formerly vice president of environmental affairs for National Energy and Gas Transmission, Inc. (formerly known as PG&E National Energy Group, Inc. and US Generating Company). He also serves on the Town of Middletown, Maryland Planning Commission since 2001 and has served as its Chair for the last 22 years.

MARK V. CARNEY
Managing Director
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22 Gray Fox Court
Middletown, Maryland 21769
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(301) 244.0323

PROFESSIONAL EXPERIENCE

Managing Director; e3rm, llc	**2009 – Present**
Senior Program Manager; AMEC Earth & Environmental	**2006 – 2009**
Vice President; TRC Environmental Corporation	**2005 – 2006**
Vice President of Environmental Affairs; National Energy & Gas Transmission, Inc.	**1991 – 2005**

Relevant Experience

Candela Renewables– Mr. Carney has been providing environmental support for numerous solar photovoltaic development projects in numerous states [Kentucky, Ohio, Pennsylvania, New York and North Carolina] since early 2018. He also has provided environmental due diligence for a solar development acquisition as well as providing environmental/construction support for a major solar development in Maryland since 2012.

First Solar Development – Mr. Carney has provided environmental support for numerous solar photovoltaic development projects in numerous states [Arkansas, Georgia, Minnesota, New York, North Carolina, South Carolina, Texas and Virginia] since early 2014. He also has provided environmental due diligence for a solar development acquisition as well as providing environmental/construction support for a major solar development in Maryland since 2012.

Frederick/Carroll County Renewable Waste to Energy – Wheelabrator Technologies, Inc. – From 2009 through 2014, Mr. Carney was a client project manager for environmental/permitting tasks for a 1,500 ton per day municipal solid waste facility in Frederick County, Maryland. [The project received all final environmental permits in February 2014]. Management of the environmental consultants including responsibilities for definition of scope, strategy, schedule and technical review/quality control in the preparation of applications for the air permit, solid waste permits, wastewater discharge permits, wetlands permit and local permits such as the forest restoration, site plan, stormwater permits. Critical important community issues (such as zoning, land use, visual, noise, transportation, and historic/archaeological resources); and other regulatory concerns (including site contamination potential and permitting approvals required for interconnections) were also conducted under Mr. Carney's direction.

Waste to Energy Critical Issues/Permitting Plans/Compliance Support for multiple sites throughout the United States – Wheelabrator Technologies, Inc. – Mr. Carney has been project manager for numerous critical issues assessments and permitting plans development for potential waste to energy sites and acquisitions in more than seven different states in the United States, as well as due diligence support for international development in Europe and China.

These projects involved description and evaluation of existing site settings and key site characteristics (such as existing and historical surrounding land uses), conceptual plant design and layout, undefined design considerations, and key physical features associated with proposed interconnections. Critical natural resource constraints (such as floodplains, coastal zone restrictions, wetlands or protected species habitats) were identified as well as important community issues (such as zoning, land use, visual, noise, transportation, and historic/archaeological resources); and other regulatory concerns (including site contamination potential and permitting approvals required for interconnections). In addition to site visits and regulatory reviews to define permitting requirements and schedules, permit preparation budgetary estimates and project work schedules to complete preparation and submittal of all federal, state and local permit applications.

Due Diligence for Power Generation Asset Acquisitions – Numerous Clients - Mr. Carney has provided environmental due diligence to support the submittal of indicative and binding bids for a number of wind energy, natural gas and coal-fired facilities in New England, Mid-Atlantic, Midwest, Southeast and Western United States as well as western Canada. He has developed a comprehensive emission allowance model that considered future regulatory scenarios for CAIR, CAMR and greenhouse gas regulations. He also evaluated the options for purchase of allowances versus emission control technologies to satisfy these scenarios.

Provided environmental due diligence to support the submittal of a binding bid for a coal-fired facility in Texas. Developed a comprehensive emission allowance model that considered future regulatory scenarios for CAIR, CAMR and greenhouse gas regulations. Evaluated options for purchase of allowances versus emission control technologies to satisfy these scenarios.

Provided air quality support for environmental due diligence to support the submittal of a binding bid for a nuclear facility in Michigan. Provided air quality regulatory and permit review analysis to quantify risk profile.

Provided environmental due diligence to support the submittal of a binding bid for wind energy assets throughout the United States. Evaluated permits and construction plans for planned, operating and under construction wind energy farms in Illinois, New York, Oklahoma, Oregon, Minnesota, and Texas.

Comprehensive Permitting for a 100 MW Fossil Fuel-Fired Power Facility in Pennsylvania – First Quality Tissue – Mr. Carney was project manager for a multi-media licensing of a coal and biomass cogeneration unit at an existing tissue manufacturing facility in Pennsylvania. Issues evaluated as part of the licensing process included wetlands, floodplain, water use, air quality and local permit requirements.

Environmental Corporate Governance - AES Corporation – Mr. Carney reviewed the environmental audit program for AES's international fleet of operating power generation facilities. Reviewed audit results, findings and follow-up to Management to determine environmental risks associated with the fleet's operation.

ISO 14001 Management Systems support for national power generation company – confidential client – Mr. Carney was senior management system specialist for ISO 14001 management system design for a national power generation company with plants located throughout the United States. Has performed an overall gap analysis and is developing an aspect/impact implementation program as well as detailed corporate and plant procedures for a management system that will be capable of certification with the ISO 14001:2004 (environmental) standards.

ISO 14001 and OHSAS 18001 Management Systems for Five Combined-Cycle Gas Turbine and Coal-fired Power Plants - International Power America – Mr. Carney was senior management system specialist for design/implementation of two management systems for

six power generation plants located in Massachusetts and Texas. Team member for all work conducted at a coal-fired Texas plant, including comprehensive gap analysis for conformance to the ISO 14001:2004 (environmental) and OHSAS 18001:1999 (health & safety) standards. Assistance was also provided with the development of operational control procedures, work instructions and a long-term implementation schedules. All six facilities achieved registration to both ISO 14001 and OHSAS 18001 in November 2007.

Detailed Professional Experience

e3rm, llc – Managing Director **2009 – present**
Managing director of an environmental consulting firm focused on environmental permitting/management and sustainability systems in the power generation industry. Have provided development permitting, construction oversight and environmental due diligence services for international renewable energy companies as management environmental staff and consultant.

AMEC Earth & Environmental - Senior Program Manager **2006 – 2009**

TRC Environmental Corporation - Vice President **2005 – 2006**

NATIONAL ENERGY & GAS TRANSMISSION, INC., Bethesda, MD **1991 - 2005**
(Formerly PG&E National Energy Group; U.S. Generating Company; PG&E-Bechtel Generating)
Company with more than 7,300 megawatts of generation including a mix of natural gas, coal/oil, hydroelectric, waste coal, and wind power at numerous facilities across the country, and more than 1,350 miles of gas pipelines in the company's Pacific Northwest and Southern California system.

Vice President of Environmental Affairs 1997 - 2005
Corporate officer responsible for environmental compliance and due diligence representation for divestiture of gas, coal, hydroelectric, and gas pipeline assets.

- Managed all areas of environmental risks including operations compliance, corporate environmental risk management, project development support and regulatory policy.
- Initiated ISO 14001 compliant Environmental Management System development and implementation as the company transitioned to an operating and asset management company.
- Managed environmental due diligence in the purchase of 3800 MW portfolio of fossil and hydroelectric generating assets.
- Created first Executive Environmental Steering Committee and Environmental Policy Working Group to review and recommend company regulatory policy positions. Engaged all areas of the business at the senior management level in the process.
- Corporate sponsor for founding membership in the Clean Energy Group, a regulatory policy advocacy group that supports the regulation of greenhouse gases.

Director of Environmental Affairs 1993 - 1997

- Directed the development support organization for licensing and permitting of more than 7000 MWe of combined cycle gas generation.
- Negotiated and procured all emissions allowances for independent power facilities in four states. Directed industry-wide negotiation teams in two states.
- Hired first health and safety operations professional for organization, a position later elevated to Chief Health and Safety Officer.

Manager of Environmental Affairs 1991 - 1993
Managed licensing for multiple coincident development projects with limited in-house resources.

RUST INTERNATIONAL CORPORATION, Birmingham, AL **1987 - 1991**
Staff Environmental Permit Engineer

Managed numerous multi-disciplined permit licensing for waste-to-energy projects throughout the East Coast. Also provided cost budgeting, proposal preparation, and client management activities.

TRC ENVIRONMENTAL CONSULTANTS, Hartford, CT **1985 - 1987**
APPLIED SCIENCES DIVISION
Manager, Applied Sciences

BURNS AND MCDONNELL ENGINEERING COMPANY, Kansas City, MO **1978 - 1985**
Senior Meteorologist

WISCONSIN DEPARTMENT OF NATURAL RESOURCES, Madison, WI **1977 - 1978**
Air Pollution Meteorologist

EDUCATION

MS, Atmospheric Science, Colorado State University, Fort Collins, CO
BS, Chemistry, Kansas Newman College, Wichita, KS

James B. Woodruff

EMPLOYMENT

Candela Renewables, LLC
Senior Vice President Public Affairs October 2023- Present
Vice President Public Affairs December 2022-October 2023
Executive oversight of federal, state and local government affairs, community engagement and corporate and project-level communications

JW Strategies + Solutions
Consultant September 2017 – December 2022
Provide economic, outsourced government and public affairs guidance and leadership to large-scale renewable energy developers. Services include designing and executing an integrated strategy for state and local legislative, regulatory and political matters, community and stakeholder relations, land use and permitting entitlements and media engagement in close coordination with executive management, project teams, subject matter experts, lawyers and consultants to ensure timely project execution.

First Solar, Inc.
Vice President State & Local Government Affairs, June 2010 - September 2017
Managed First Solar's state and local government affairs effort throughout the U.S. Led several successful legislative initiatives resulting in favorable market design, expanded procurement opportunities and tax-advantaged treatment for large-scale solar development. In coordination with project leads, directed technical staff, outside consultants and attorneys in numerous political and community outreach campaigns to ensure timely permitting and construction of Company's development pipeline.

NextLight Renewable Power, LLC
Vice President Government Affairs, March 2008 - June 2010
Led NextLight's federal, state and local governmental affairs, resulting in significant engagement on legislative and regulatory matters in Western states and advocacy in state and federal agencies and commissions. Directing cross-functional teams, initiated and executed political and permitting strategies enabling the successful development, construction and financing of five of the largest PV solar projects in the world, totaling over 1,500 MW of generating capacity. Served as the principal media spokesperson for the Company.

Southern California Edison Company
Manager, Legislative & Regulatory Matters – Renewable & Alternative Power 2004 - 2008
Led Company's legislative and regulatory engagement regarding California's Renewable Portfolio Standard. Acted as a policy witness in legislative and regulatory proceedings.
Attorney, QF Resources Business Unit, 1996 - 2004
Led complex regulatory and litigation matters concerning PURPA, RPS implementation and market manipulation.

Graham & James
Partner, 1989 - 1996
Associate Attorney, 1987 - 1989

Lillick, McHose & Charles 1985 - 1987
Keesal, Young & Logan 1982 - 1985

EDUCATION
UCLA School of Law, JD 1982
Yale University, BA 1978