

**APPENDIX A**

**THOMAS L. CAMERON  
10601 GUM TREE COURT  
LAS VEGAS, NEVADA 89144  
702-360-0186**

**SUMMARY**

Mr. Cameron is a principal and Vice President of Mountain View Power, Inc., LLC, principal and Vice President of Summit Vineyard, LLC, Project Manager of Summit Power NW LLC, and President/Managing Director of Cameron & Associates, a power industry consulting firm. Mr. Cameron has 24 years of experience in the power industry and has held positions in a variety of disciplines. Mr. Cameron was Project Director for Blythe Energy, LLC, a 520 MW combined cycle facility using the Siemens V84.3a technology; Project Manager – Blythe Energy Project Phase II, he is also currently Project Director for the Summit Westward Project, a 520 MW Combined Cycle facility using the Siemens V84.3a technology; Vice President and Project Manager for the Bennett Mountain Power Plant, a 160 MW Simple Cycle facility using Siemens 501F technology; Vice President and Project Manager for the Lake Side Power Plant, a 535 MW Combined Cycle facility using Siemens 501 F technology. Prior to this, Mr. Cameron held assignments as Project Manager for Siemens Power Corporation in charge of design, procurement, equipment manufacturing, construction, and commissioning of several large gas turbine power projects, including the 520 MW Bridgeport Energy Project, using the Siemens V84.3a technology. This was the first project of its type using the new Siemens technology in the world. During execution of these projects, Mr. Cameron's responsibilities have included project management, cost and schedule control, technical and commercial contract negotiations, selection and coordination of vendors, engineering firms, and erection contractors, supervision of engineering and site staff, preparation of bid specifications, coordination of construction management, startup coordination and customer interfaces.

**EXPERIENCE**

5/2001 – Present                      President                                              Cameron & Associates  
Las Vegas, Nevada

**Project Manager  
Blythe Energy Project Phase II**

Project Manager responsible for the permitting activities and several other aspects of development of a \$350 million, 520 MW combined cycle power plant located in Southern California. The Project is scheduled for Commercial Operation in Spring 2008.

**Vice President  
Lake Side Power, LLC**

Vice President and Project Manager responsible for all permitting activities associated with a \$300 million, 560 MW combined cycle power plant located in Salt Lake City, Utah. Also responsible managing the EPC Contractor through the design, construction and commissioning of the facility. The Project is scheduled for Commercial Operation in Summer 2007.

**Project Manager  
Summit Westward Project**

Project Director responsible for the development of a \$350 million, 530 MW combined cycle power plant located in Portland, Oregon. The project is scheduled for Commercial Operation in Summer

2008.

**Project Manager**  
**Bennett Mountain Power Plant**

Vice President and Project Manager responsible for all permitting activities associated with a \$50 million, 160 MW simple cycle power plant located in Boise, Idaho. Also responsible managing the EPC Contractor through the design, construction and commissioning of the facility. The Project achieved Commercial Operation in April 2005.

4/99 – 4/2001 **Project Director** Wisconsin Energy  
**Blythe Energy Project** Milwaukee, Wisconsin

Project Director responsible for the development of a \$325 million, 520 MW combined cycle power plant located in Southern California. Duties include commercial/technical oversight and administration of engineering resources, project consultants, equipment suppliers, and EPC contractor. Responsible for development of project costs/proforma, integrated schedule, as well as execution of environmental permitting strategies, electrical interconnection agreements, gas supply, State/Local tax strategies, and all major contract negotiations. Construction is currently on schedule to commence in December 2000. Commercial Operation – December 2003

4/97 – 4/99 **Project Manager** Siemens Power Corporation  
**Bridgeport Energy Project** Milwaukee, WI

EPC Project Manager responsible for permitting support, design, procurement, manufacturing, construction, startup, and commissioning of a 520 MW “Merchant” power plant for Bridgeport Energy, LLC (Duke Energy Power Services). The EPC contract value - approximately \$225,000,000. The Project was “fast-track” and was built in two phases over 23 months. The simple cycle phase was put into operation on schedule in August 1998. The combined cycle phase was completed on schedule in July 1999.

6/95 – 4/97 **Project Manager** Siemens Power Corporation  
**Baytown Cogeneration Project** Milwaukee, WI

Project Manager responsible for the design, procurement, manufacturing, installation, startup, and commissioning of a Siemens V84.2 gas turbine and heat recovery steam generator scope of supply for the 110 MW Exxon/Baytown Cogeneration Project. Contract value was approximately \$30,000,000. The Project was completed within budget and on schedule.

8/95 – 6/96 **Project Manager** Siemens Power Corporation  
**OPPD Sarpy County CT #3 Project** Milwaukee, WI

Project Manager responsible for the design, procurement, manufacturing, installation, startup, and commissioning for the combustion turbine scope of supply for the 105 MW OPPD Sarpy County CT #3 Project. The project was constructed as a simple cycle peaking application and utilized a Siemens V84.2 gas turbine. Contract value was approximately \$26,000,000. The Project is currently operational.

8/93 – 10/95    **Project Manager**  
**Smud/Campbell Soup Project**

Siemens Power Corporation  
Milwaukee, WI

EPC Consortium Project Manager responsible for the design, procurement, manufacturing, installation, startup, and commissioning for a Siemens V84.2 gas turbine, Siemens steam turbine and Heat Recovery Steam Generator scope of supply for the 160 MW SMUD/Campbell Soup Cogeneration Project. Mr. Cameron supported the project throughout the development activities, initial design phases and consortium partner negotiations until the project was delayed for one year. Contract value was approximately \$100,000,000. The Project is operational.

10/92 – 10/94    **Project Manager**  
**Brooklyn Navy Yard Project**

Siemens Power Corporation  
Milwaukee, WI

Project Manager responsible for the design, procurement, manufacturing, installation, startup, and commissioning for the gas turbine and steam turbine scope of supply for the 270 MW Brooklyn Navy Yard Combined Cycle/Cogeneration Project. Two (2) Siemens' V84.2 gas turbines and two (2) Siemens "industrial" steam turbines were utilized. Contract value was approximately \$75,000,000. Mr. Cameron acted as the project manager throughout the project development activities and the 1<sup>st</sup> phase of the project design until it was delayed for one year.

6/90 – 9/92    **Consultant**  
**Nuclear Materials Licensing**

ABB Combustion Engineering  
Windsor, Ct.

Responsibilities included all licensing matters related to the operation of ABB/CE's Hematite Nuclear Fuel Manufacturing Facility. Duties include support of day to day operations, preparation of license amendments related to changes in the facility, interpretation of NRC regulations, interface with the NRC on licensing matters, and various special projects.

3/89 – 5/90    **Project Manager**  
**Cascade Paper Cogeneration Project**

International Systems Inc  
Avon, Ct.

EPC Project Manager responsible for design, construction, and startup of a 20 MW cogeneration facility in Quebec, Canada. Tasks included customer and vendor coordination, customer and contractor commercial negotiations, monitoring of project schedule and budget, hiring and supervision of manpower, site construction management and startup coordination. The project utilized Turbo Power Marine aero-derivative gas turbines. The project was completed on time and within budget. Contract value was approximately \$13,000,000. The Project is operational.

5/87 – 2/89    **Principle Engineer**  
**Nuclear Materials Licensing**

ABB Combustion Engineering  
Windsor, Ct.

Responsibilities included review, resolution, and as appropriate, NRC interface on licensing issues associated with CE's standardized plants in operation at Palo Verde, Korea Nuclear Units 11 & 12 and the Advanced Light Water Reactor Development programs sponsored by the U.S. Dept. of Energy and EPRI.

6/80 – 4/87     **Lead Engineer/Supervisor/Engineer**

Combustion Engineering  
Windsor, Ct.

Supervisor - Process Instrumentation & Controls responsible for technical and administrative supervision of six (6) engineers in the design, procurement, and implementation of process instrumentation and controls for nuclear power applications.

Lead/Project Engineer - Responsible for design & construction of controls and cabinets for a full scope control room simulator. Duties included coordination of vendor, customer, & internal engineering interfaces, manufacturing coordination and control, technical supervision of engineering disciplines, and project cost/schedule control.

Corrective Actions Lead Engineer - Responsible for coordination of engineering, licensing, commercial, and legal reviews to ensure that all issues which could affect power plant safety, reliability and availability are addressed through feedback to utility customers.

Engineer – Responsible for the design and development of a remote radiological monitoring system for post accident monitoring at a nuclear facility. Duties included design, cost & schedule control, testing, installation technical direction, and training of operators.

6/79 – 5/80     **Test Engineer**

United Technologies, Inc.  
East Hartford, Ct.

Responsibilities included the technical supervision of technicians, operation and maintenance of 2 steady state data acquisition systems, and instrumentation design responsibilities for gas turbine “altitude” test facilities.

**ROBERT LOOPER, P.E.**  
**Project Director, Caithness Blythe II, LLC**

Robert Looper, P.E. is the Project Director for the 520 MW Phase II - Blythe Energy Project. Mr. Looper has been the principal developer for the Blythe Energy projects dating to the initial filings with the California Energy Commission in 1998.

Robert has developed energy projects in partnership with companies that include Duke Energy, PP&L Global, Florida Power & Light, Oglethorpe Power Co., Caithness Energy and others. Affiliated companies have been directly involved in the development and construction of over 6,000 MW of new power plants in the past 7 years.

Mr. Looper has over 28 years experience working principally with private industries involved in the development and operation of water, power and general civil projects. Robert is a Civil Engineering graduate with honors from Colorado State University. Past work experience includes seven years with HDR Engineering, four years with AB Energy as Manager of Energy Operations, four years with Consolidated Hydro, Inc. as a Vice President of Development and four years with Summit Energy Group, Ltd.

During the past 10 years, Mr. Looper has managed several water and power projects ranging in size up to \$700 million. Project Management and other consulting responsibilities have in the past included project siting efforts, feasibility studies, engineering design, permitting & licensing, project financing, marketing and negotiation of institutional agreements, construction management, supervision of project operations, review and analysis of existing projects. This balanced background in project development provides the framework for Mr. Looper to provide strategic policy direction and supervision of project development activities.

Recent energy projects include the:

- Bridgeport Energy Project, a 520 MW gas-fired combined cycle power plant;
- Oglethorpe SMARR Project, a 200 MW gas-fired peaking power plant;
- AECI St. Francis I & II, (2) 250 MW one-on-one combined cycle power plant;
- Blythe Energy Project, 520 MW gas-fired combined cycle power plant (under construction)
- Mountain Home Energy Plant, a 175 MW gas fired simple cycle power plant
- Lake Side Power Plant, a 565 MW gas fired combined cycle power plant for

In 1995, Mr. Looper formed Summit Engineering, an energy planning and development company. Mr. Looper has been a Boise resident for 13 years and is an active supporter of Idaho outdoor recreation as a board member of the Bogus Basin Recreation Association and the Idaho Youth Soccer Association.

# *POWER ENGINEERS COLLABORATIVE, LLC*

## **ROBERT E. GAVAHAN, P.E.** Project Engineer

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POSITION IN FIRM: Project Engineer  
TOTAL YEARS OF EXPERIENCE: 22

### **KEY QUALIFICATIONS:**

Mr. Gavahan has over 22 years of experience in project execution, operations, design, and analysis. Demonstrated skills and accomplishments include: team leader, mechanical design, best practices identification, test procedure preparation, operations supervision, proposal preparation, acceptance testing, and maintenance program development.

### **EDUCATION:**

Bachelor of Science, Mechanical Engineering - University of Minnesota, 1982

### **Continuing Education:**

Project Management Seminars, Noise Control for Building and Industry; Siemens Gas Turbine Course; Meeting Management; Finite Element Analysis; Technical Writing; also has solid skills in use of personal computers, e.g., MS Word, MS Excel and MS Projects.

**Professional Societies:** American Society of Mechanical Engineers

**Professional Registration:** Licensed Professional Engineer, State of Wisconsin

### **EXPERIENCE:**

**Power Engineers Collaborative, LLC, Milwaukee, Wisconsin**  
Project Engineer for owner's engineer assignments for combined cycle projects.

**MWH Americas, Inc. - Fossil Power, Milwaukee, Wisconsin**  
Project Engineer and Lead Mechanical Engineer for combustion turbine simple and combined cycle generating station development and construction projects. Established proposed scope of work for projects and developed EPC cost estimates and project schedules and coordinated preliminary engineering activities, e.g., site surveys, permit applications, and environmental evaluations. Led feasibility study for combined cycle power plant.

**Siemens Power Corporation, Milwaukee, Wisconsin**  
Team Leader, who planned, directed, and coordinated activities of engineering team responsible for mechanical components for turnkey 520 MW combined cycle power station. Also initiated methods, schedules, and procedures to ensure that fast track project met ambitious project schedule for material delivery, and managed large budget for mechanical team and prepared budget status reports for management, (1997-1999).

Advanced Engineer, assigned to a wide variety of responsibilities in Plant Engineering Department. Became department's resident expert for noise control questions. Established combustion turbine purchasing specifications for mechanical systems and components; e.g., inlet systems and enclosures, and worked closely with suppliers to reduce costs through design improvements. Selected for 10-

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## *POWER ENGINEERS COLLABORATIVE, LLC*

### **ROBERT E. GAVAHAN, P.E.** Project Engineer

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week assignment with parent company in Germany to participate in combined cycle power station benchmarking program. Team identified best practices in key areas and identified over \$5 million in cost savings opportunities. Reviewed customer requests for proposals for power generating stations and worked with sales department in preparing technical response and cost bases. Conducted contract compliance acoustic testing. Prepared test protocols for customer approval and prepared reports for submittal to customers. Also exceeded key balance of plant cost reduction goals in McKinsey Consulting Project; overall project resulted in several million dollars in savings, (1995-1997).

#### **Technical Resources Inc., Milwaukee, Wisconsin**

Energy Management Engineer responsible for providing technical expertise for utility demand management program. Developed analysis program to quantify energy savings potential of commercial chillers. Directed the technical aspects of demand management program including site evaluation, end use monitoring, and analysis of customer's energy use, (1993-1995).

#### **Newport News Shipbuilding, Brookfield, Wisconsin**

Design Engineer responsible for designing components for reactor servicing and providing site support to reactor services department. Led design effort for complex machinery task from initial proposal to submittal of detailed drawings and design report. Task required five engineers and designers over a two-year period. Design met exceptionally rigorous government structural, environmental, and safety standards. Wrote procedures in team effort to prepare technical and administrative requirements for two year, \$70 million project as part of six-month assignment to National Engineering Laboratory in Idaho. Project Manager's high regard for quality of work led to repeated assignment extensions. Also analyzed component maintenance and operating history in development of comprehensive valve maintenance program. The program included scheduling, records, maintenance procedures, and spare parts for critical power plant components. The project finished 30% ahead of schedule and the customer was exceptionally satisfied with the project results, (1988-1992).

#### **Pearl Harbor Naval Shipyard, Honolulu, Hawaii**

Shift Test Engineer who directed/supervised multi-disciplinary test teams in testing of submarine power plant systems (mechanical, electrical, and hydraulic). Test program accomplished ahead of rigorous scheduling requirements despite difficult working conditions and tight time constraints. Also conducted training for test personnel, (1985-1987).

Assistant Shift Test Engineer who completed intensive two-year training in reactor plant operations. Prepared reactor plant test procedures and assisted in reactor plant test and operations, (1982-1985).

#### **Recent Experience:**

**Summit Westward** - Serving as owner's engineer for this 520 MW combined cycle power plant to be constructed near Clatskanie, OR. Recent activities include analysis of combined cycle performance for CO<sub>2</sub> offset calculations; organizing wetlands delineations and mitigation plans, and evaluating facility EPC contract.

**Lake Side Power Plant** - Owner's engineer for 560 MW combined cycle power plant located in the Town of Vineyard, UT, scheduled for ground breaking in spring of 2005 (project owner is Summit Vineyard). Recent activities include analysis of facility water supply and discharge plans and coordination of well drilling activities (for three 1100 foot deep wells).

*POWER ENGINEERS COLLABORATIVE, LLC*

**ROBERT E. GAVAHAN, P.E.**  
Project Engineer

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**Blythe Energy Phase II** - Serving as owner's engineer for 520 MW combined cycle power plant being permitted for construction in Blythe, CA. Recent activities include analysis of combined cycle performance - including options for dry cooling and inlet chilling, preparation of analyses for submittal California Energy Commission, evaluation of EPC contract, site layout, site noise studies, and wastewater permitting.

## Robert Mooney, P.E.

### Summary of Professional Qualifications

- Over 30 years experience in a broad variety of roles as a consultant to the electric utility industry and as a developer/owner/operator of energy projects.

### Corporate Experience

- Malacha Power Project: 1986 to present  
President of the managing partner for a 32.5 MW hydroelectric project in northern California for permitting, financing, construction and operation.
- Mooney Consulting: 1981 to present  
Owner of energy consulting firm.
- CH2M Hill Consulting Engineers: 1963 - 1981  
Began engineering career as an electrical project manager for this international employee-owned consulting firm which currently employs 6,000+ in all aspects of engineering.

Advanced through various management positions -- Manager Power Systems Projects, Director Electric Utility Services and Director Energy Systems Marketing. Responsible for more than 10 years for corporate planning and marketing of engineering services to the electric utility industry.

### General Professional Experience

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- Consultant to electric utilities -- cooperatively, publicly and privately owned, for:
- Planning, design and operation of transmission and distribution systems
- Power supply planning and operation
- Power contracts
- Rates and financing
- Consultant to a major gas marketer for electricity matters.

### Specific Professional Assignments

- Participated in negotiating and drafting the Ownership and Resale Agreements for the 500 Megawatt Boardman Coal-Fired Plant.
- Supervised preparation of the Engineer's Opinion of the Official Statement for the sale of bonds to construct the \$50 million Idaho Falls Bulb Turbine Hydroelectric Project and negotiated the power sales agreement (first under the N.W. Regional Power Act).
- Supervised preparation of the Engineer's Opinion of the Official Statement for the sale of bonds to construct the \$50 million Idaho Falls Gem State Hydroelectric Project and negotiated the power sales agreements.
- Consultant to 70+ Northwest Electric Utilities for negotiation of various contracts under the Regional Power Act.
- Consultant to Blythe Energy LLC for the development of a 520 MW gas-fired generating project that began operation in May 2003. Assisted in all aspects of interconnection, power sales, power exchanges and negotiations with three utilities which connect electrically.
- Consultant to Caithness Blythe II for the development of a 520 MW gas-fired generating project, currently expected to have construction begin in 2006.
- Project director for the permitting and development of a 118 mile, 500 kV transmission line, currently expected to have construction begin in 2006.

### Education and Professional Registration

- M.S. Electrical Engineering, Oregon State University, 1969
- B.S. Electrical Engineering, University of Idaho, 1963
- Registered Professional Engineer, Oregon

### Membership in Organizations

- National Society of Professional Engineers
- Western Electric Coordinating Council (WECC)

## **MARK L. ETHERTON, P.E.**

B.S. in Electrical Engineering, Power Option  
New Mexico State University

Registered Professional Engineer, Arizona

Mr. Etherton is an associate with K.R. Saline and Associates, PLC. He has twenty-one years of electric utility and consulting experience with responsibilities ranging from system planning and analysis, protective relaying, substation design and communications systems, including approximately nine years in utility supervision and management. Mr. Etherton has been actively involved with the Southwest Transmission Expansion Plan (STEP), Southwest Area Transmission (SWAT), and Central Arizona Transmission Study (CATS) committees responsible for planning EHV facilities with local and regional utilities, independent power producers and the state regulatory commissions. Mr. Etherton also has extensive background and experience in transmission system planning, Navajo and Palo Verde Operation Studies, WSCC Seasonal Nomogram Studies, substation design, communications and protective relaying systems and developing operating procedures for system operations.

### **ELECTRIC TRANSMISSION AND DISTRIBUTION EXPERIENCE**

**Client:** Electrical District  
**Project:** System Impact Study  
**Project Description:** Mr. Etherton performed the required analysis to interconnect a new power plant to the district system. The analysis included the power flow and dynamic stability analysis to evaluate the addition of facility and associated impacts to the regional system.

**Client:** Electrical District  
**Project:** Feasibility Analysis  
**Project Description:** Mr. Etherton is the lead Transmission Consultant for the review of over 2000MW of new geothermal resources to be delivered to the regional transmission system at the district delivery points. Mr. Etherton is responsible for the power flow and transient stability analysis, and manages the external dealings with the regional energy commission facilitator and the regional utility planners participating in the study effort.

**Client:** Competitive Power Plant Developer  
**Project:** Feasibility Analysis  
**Project Description:** Mr. Etherton performed the power flow analysis to evaluate the feasibility of a new power plant project in Arizona. This included developing the power flow model, working with local utilities to verify the model and performing the contingency analysis to determine the feasible plant capacity and interconnection requirements. Also, Mr. Etherton worked with the SWAT committee, on behalf of this same client, to determine the impact of adding approximately 8000MWs of new generation to Central Arizona (multiple IPPs) and the facilities required (EHV) to meet the objectives of the CATS and the interconnected system between Phoenix and Tucson.

Client: **Competitive Power Plant Developer**  
Project: Feasibility Analysis  
Project Description: Mr. Etherton performed the power flow analysis to evaluate the feasibility of a new power plant project in the Four Corners area. This included developing the power flow model, working with local utilities to verify the model and performing the contingency analysis to determine the feasible plant capacity and interconnection requirements.

Client: **Competitive Power Plant Developer**  
Project: Transmission Alternatives Analysis  
Project Description: Mr. Etherton performed the power flow analysis to evaluate various transmission alternatives to a proposed 500kV line project. This included developing the power flow models, performing the contingency analysis, high level cost estimates, and overall performance evaluation factors to determine the feasible alternatives under certain conditions and assumptions.

Client: **Competitive Power Plant Developer**  
Project: Feasibility Analysis  
Project Description: Mr. Etherton performed the power flow analysis to evaluate the feasibility of a new wind project in the Kingman, AZ area. This included developing the power flow model, working with local utilities to verify the model and performing the contingency analysis to determine the feasible plant capacity and interconnection requirements.

Client: **Electrical District**  
Project: System Impacts and Other Transmission Studies  
Project Description: Mr. Etherton is the lead Transmission Consultant for this District. Many Projects are currently in progress that affects the transmission system owned by the District, including approximately 2000MW of new generation to the east and south of the District. Mr. Etherton manages the external dealings with the generation projects to ensure that the interests and protections of the District are communicated. Extensive amounts of project management, power flow analysis, presentations and recommendations to the District are required.

Client: **Electrical District**  
Project: Distribution Analysis and Voltage Drop Studies  
Project Description: Mr. Etherton modeled and performed the radial flow analysis to evaluate the addition of new pumping load. This included field verification, updating distribution maps, developing the model and performing the voltage drop analysis to determine the facilities required to add the new pumping load and finalize the requirements in a report to the Board.

Client: **Electrical District**  
Project: Distribution Analysis and Preventative Maintenance Plan  
Project Description: Mr. Etherton modeled and performed the radial flow analysis to evaluate the condition of the existing system. This included field inspections, historical data (loads, age, etc.), updating distribution maps, developing the model and performing the voltage drop analysis to determine the electrical characteristics of the system. He prepared a priority list of items that were required to improve the reliability of the system and worked with a

contractor to phase in the construction of new poles, service drops, new crossarms and guy wires to meet the reliability objectives. Mr. Etherton also prepared PowerPoint presentations for status to the District Board including plans, photos and updated GIS/mapping configuration of the distribution system.

**Client:** **Electrical District**  
**Project:** **Transmission and Subtransmission Planning**  
**Project Description:** Mr. Etherton modeled and performed the power flow analysis to evaluate the 69kV system over a five-year time frame. This included preparing the Loads and Resource requirements, field verification (substation and 69kV system), updating maps, developing the models, performing the power flow analysis (GE PSLF program), developing alternatives for overloads or other violations to planning criteria guidelines and preparing the five-year capital budget for the subtransmission system. Mr. Etherton is also a active participant and leads two subgroups of the Southwest Area Transmission (SWAT) planning effort to assist with the long-term transmission planning requirements of the District.

**Project:** **Working for Salt River Project –Manager, Communications Engineering (11/94-05/01)**  
**Project Description:** Mr. Etherton was responsible for SRP’s communication system, including constructing 450 miles of fiber optic cable, managing over 200 facilities (substation and work locations) on the interconnected network, multiple radio and microwave facilities, long-range capital plans (approximately \$40M over a 6-year period) and direct supervision of 20 engineers and technicians. He was also responsible for implementing (design and construction) the SRP Telecom objectives to lease excess communications facilities (excess fiber and cellular tower sites) to outside carriers. The SRP Telecom venture involved dealing with multiple contractors, cities, Bureau of Land Management and contracts with 10 outside communications providers.

**Project:** **Working for Salt River Project- Supervisor Substation Design (06/92-11/94)**  
**Project Description:** Mr. Etherton was responsible for SRP’s substation design group, which ranged from 69kV to 500kV substation projects. Key projects that he directly supervised included the design and project management activity for the second Kyrene 500/230kV transformer and a 500kV breaker replacement at the Coronado 500kV switchyard. Mr. Etherton was also responsible for leading the annual capital budget process for Transmission and Substation budgets, which totaled approximately \$20M per year. Mr. Etherton directly supervised 16 engineers, designers and drafters to accomplish the goals of substation design for SRP.

**Project:** **Working for Salt River Project- Senior Engineer, Power System Protection (02/90-05/92)**  
**Project Description:** Mr. Etherton was responsible for applying protective relaying systems for SRP’s 12kV - 69kV system. This included pilot schemes via fiber optic communication systems, transmission line short circuit modeling, field check-out and field fault simulations to test protective relay systems. He also conducted evaluations for new protective equipment to standardize relay systems for a two-year period to reduce costs and provide stability for

the substation design group. Mr. Etherton was also responsible for support for Power Operations in analyzing faults that occurred on the distribution and transmission systems for proper relay operation, primarily via fault detection and recorder data.

**Project:** Working for Salt River Project- Senior Engineer, Power System Analysis (06/86-1/90)

**Project Description:** Mr. Etherton was responsible for HV and EHV planning studies and was primarily responsible for the start-up of the Palo Verde transmission system and integrating into the Navajo-Palo Verde Operating Studies. This involved quite a bit of field-work, modeling and power flow/stability studies. Mr. Etherton was also responsible for the six-year planning effort for the growth within SRP's service territory and input to the Capital Plan process.

**Other related:** Working for Salt River Project- Engineering Program, (05/84-06/86)

**Project Description:** Mr. Etherton was a participant in the Salt River Project Engineering Program for a period of two years. This program consisted of four rotations for a period of six months each. The four rotations and the specific area of responsibility included:

- Power System Analysis – Developed 6-year plans for power system additions.
- Bulk Transmission Planning – Worked on Wheeling agreements with Public Service of New Mexico and Tucson Electric Power.
- Distribution Station Design – Led design of Kay 69/12kV substation.
- Power Operations – Developed operating procedures and construction outages.

## CHUCK CADIENTE, P.E.

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**POSITION:** PROJECT ENGINEER/PROJECT MANAGER

**EDUCATION:** B.S., Electrical Engineering, Gonzaga University, 1989

**REGISTRATION:** Arizona(32747), California(E14645), Colorado(31054), Idaho(7387)

**EXPERIENCE:** Mr. Cadiente's experience covers all phases of substation/transmission projects, from overall managerial duties including scheduling and coordination between all parties involved, to detailed technical design and field work such as testing and energizing. He has worked on many high profile substation/transmission projects, many of which have required extensive organizational and managerial responsibilities. Mr. Cadiente has been responsible for the technical design of new stations and the upgrade of existing station projects. Responsibilities have included design of new substation facilities, feeder bay installations, relaying schemes, transformer installations, breaker change-outs and installations, AC and DC station service load requirements, SCADA, and metering. Specific project experience includes the following:

□ **Blythe Energy 230kV Switchyard and Transmission Line Rearrangements Project, California**

Project Engineer responsible for the 230kV switchyard/transmission interconnection to support a new merchant generation plant in Blythe California. The Plant was connected to the Western Area Power Administration, SCE, and IID 161/230kV systems through a 230kV Breaker and a half switchyard. Responsible for oversight, design review, schedule and budget coordination with the Owner, Western Area Power Administration, SCE, and IID.

□ **PPL Global, Inc., Sundance 230kV Switchyard and Transmission System Enhancements Project, Arizona**

Project Engineer responsible for the design review and material procurement to support a new merchant peaking plant in Pinal County Arizona. The plant will be connected to the Western Area Power Administration transmission system through a ring bus (expandable to a breaker and a half) switchyard. New 230kV lines will be extended to the switchyard and a new fiber optic communication system will be installed on the new lines and retrofitted to several existing lines. Responsible for schedule and budget oversight and procurement of material to support the construction.

□ **Griffith Energy Project, Transmission System Design and Oversight, 230kV and 345kV Lines and Substations, Arizona**

Project Engineer responsible for the transmission system additions to support a new merchant plant 600MW generating station located near Kingman, Arizona. The project included a 230kV switchyard, 230 to 345kV substation, modifications to a 230kV substation, two new 230kV lines, and modifications to Western Area Power Administration's (Western's) 230kV system. Responsible for the design of the 230kV switchyard and coordination of all Western's design, procurement and construction activities.

□ **Caithness Energy, Big Sandy 500kV Substation and Transmission Line Design and Oversight Project, Arizona**

Project Engineer responsible for the 500kV switchyard addition to support a new merchant generation plant in Mohave County Arizona. The Plant will be connected to the Mead - Phoenix 500kV transmission line through a 500kV Breaker and a half switchyard. Responsible for design review and schedule and budget coordination with the Owner and Western Area Power Administration.

□ **Northern States Power, Dakota County Long Range Transmission Project, Minnesota**

Project Coordinator for a long range, \$38 million system upgrade. Working with NSP staff, identified more than 60 individual upgrade projects to be completed. Identified design scope, established budgets, and determined construction sequencing and the overall upgrade schedule. Because of the magnitude of the project, construction sequencing was a crucial aspect of the project to minimize outages, especially for industrial loads. A major load in the service area is a 100 MW oil refinery plant.

□ **Entergy, McAdams 500 kV Substation Upgrade, Mississippi**

As Project Engineer, coordinated producing complete design packages for three substation upgrades; McAdams 500 kV Substation, Bowling Green 115 kV Substation, and Kosciusko 115 kV Substation. A new bay and all associated equipment was installed at the McAdams Substation, 2 new bays and associated equipment were installed at the Kosciusko Substation, and disconnect switches and other miscellaneous equipment were upgraded at the Bowling Green Substation. His responsibilities included coordinating the design process with Entergy, dividing and managing the various design aspects among Power employees, control & relaying design, and physical design of the McAdams upgrade.

□ **Phelps Dodge Mining Company, Greenlee AEPCO Substation, Arizona**

Substation Engineer responsible for the control and relaying for this substation expansion at the Phelps Dodge Morenci mining operation. The project included the installation of an additional 345/230kV, 120/160/200 MVA transformer, 345kV circuit breakers, 230kV circuit breakers, relaying, structures bus, and grounding. Significant space limitations in the 345kV area necessitated innovative layout configurations to accommodate the required equipment. The project was on an aggressive schedule because time was of the essence.

ρ **PG&E National Energy Group, Harquahala-Palo Verde 500kV Line and Switchyard, Arizona**

Project Engineer responsible for the Engineer-Procure-Construct (EPC) specifications required for this five-breaker ring bus switchyard for the proposed Harquahala power plant near Phoenix. Responsibilities include routing and siting, technical support during permitting and licensing, preparation of technical drawings and preparation and evaluation of material and construction specifications. Other responsibilities included coordination with the owner, Southern California Edison, and Salt River Project.

Below are a list of various projects that Mr. Cadiente has been involved in from Project Engineering, Coordination, Project Management, Design, and Testing/Commissioning:

Morenci Water & Electric, Frisco 230kV Substation, Arizona  
Morenci Water & Electric, Copper Verde 345-230kV Substation, Arizona  
New Century Energies, 69/13.8kV Mosca Substation, Colorado  
New Century Energies, Saguache Substation Upgrade, Colorado  
TU Electric Services, 138-25kV Terrell South Substation, Texas  
TU Electric Services, Substations Capacitor Bank Additions, Texas  
TU Electric Services, Substations Fault Locator Relay Additions, Texas  
New Century Energies, Dillon Substation Structural Evaluation, Colorado  
Citizens Utilities Company (CUC), Black Mesa and Hilltop 230-69kV Substation Expansions, Arizona  
City of Anaheim, Southwest and Fairmont Substation Expansion Projects, California  
Colorado Springs Utilities, 115-12.47kV Woodmen Substation, Colorado  
Colorado Springs Utilities, 115/34.5-12.47kV Rampart Substation, Colorado  
Northern California Power Agency, 230kV Substation, California  
Colorado Springs Utilities, ATMEL 115-34.5kV Substation, Colorado  
General Electric / Bonneville Power Administration (BPA), Malin 500kV Series Capacitor Banks, Oregon  
City of Austin, Eastwood 138kV Substation, Texas  
City of Austin, Seaholm 138-69kV Substation, Texas  
City of Austin, Burleson 138kV Substation, Texas  
Northern States Power, West Hastings 115-69kV Substation, Minnesota  
Northern States Power, Lone Oak 69-13.8kV Substation, Minnesota  
Northern States Power, Air Lake Substation Design Guide, Minnesota  
Northern States Power, Rogers Lake 115-13.8kV Substation, Minnesota  
Northern States Power, Marshall Lake 115kV Substation, Minnesota  
Northern States Power, Eau Claire 169kV Substation, Minnesota  
Northern States Power, Salida Substation Design Guide, Minnesota  
Northern States Power, Riverside Substation Design Guide, Minnesota  
Northern States Power, Oil Containment Standards, Evaluation & Assessment, Minnesota  
Idaho Power Company, Substation Oil Containment Project, Idaho, Oregon  
Western Area Power Administration, Flaming Gorge Substation, Utah  
Bonneville Power Administration, Burntwoods 23-115kV Substation, Washington  
City of Boulder City 69-12.5kV Number Four Substation, Nevada  
Homer Electric Association, Marathon 69/115-25.9kV Substation, Alaska  
BPA/GE 500kV Series Capacitors, Third AC Intertie Project, Oregon  
Rabbit Creek Mining, Pit 120-4.16kV Substation, Bay 2 Addition, Nevada  
Shasta Dam PUD, Central Valley 115-12.47kV, Substation Bay 2 Addition, California  
TransAlta Utilities, Chappice Lake 138-24.9kV Substation, Canada  
City of Anaheim, Fairmont 69-12.47kV Substation Bay 2 Addition, California  
Citizens Utilities Company, Highgate 46kV Substation Addition, Vermont  
Citizens Utilities Company, 120-46kV Northern Substation Expansion Project, Vermont  
Douglas County Public Utility District, Terry 115-13.8kV Substation Addition, Washington  
Ormat, Soda Lake and Stillwater Relay and Meter Testing, Nevada  
Barrick Goldstrike Mine, Portable and Skid Mounted Substation and Relay Testing, Nevada  
Echo Bay 24.9-4.16kV Portal – Cove Substations, Nevada  
City of Lodi, Industrial 60kV Substation, California  
Ormat, Soda Lake Geothermal #2 69-13.8kV Substation, Nevada  
Pacific Power Troutdale-Cully Substation Upgrades, Oregon  
Plumas-Sierra Rural Electric Coop., Quincy 69-12.47kV Station, California  
Bonneville Power Administration, Mountain Home 115-138kV Substation, Idaho  
Bonneville Power Administration, Raver 500kV Substation, Oregon

## **JEFFREY G. HARVEY**

5233 Butterwood Circle  
Orangevale, California 95662  
(916) 989-2637 (office)  
(916) 799-6065 (mobile)

### **Education**

#### **Ph.D. in Geography, 1994**

University of California, Los Angeles. Emphasis in Hydrology and Water Resources, Environmental Law and Policy, Natural Resources Management, and Impact Assessment.

#### **M.A. in Geography, 1983, with Distinction**

California State University, Chico. Emphasis in Environmental Planning, Water Resources Development, and Impact Analysis.

#### **B.A. in Geography, 1981**

California State University, Chico. Emphasis in Physical Geography; minor concentrations in Anthropology and Geology.

### **Professional Experience**

2005: *Harvey Consulting Group, LLC (HCG, LLC)*

**Principal and Senior Scientist**, private consulting practice providing professional services to local, state, and federal agencies, and private developers. *Water Transfer Program Consultant* to the San Diego County Water Authority, and environmental advisor for the Coachella Canal Lining Project, All American Canal Lining Project, Salton Sea Restoration Program, Lower Colorado River Multi-Species Conservation Program, desalination projects, and related water supply issues. Primary specialties included environmental impact assessment and mitigation, community and regional land use planning, project planning, and land and water resources policy and management strategies.

1994 to 2005: *Greystone Environmental Consultants, Inc.*

**California General Manager**, responsible for general management of California Office in Sacramento (for a company headquartered in Denver, Colorado); administrative and personnel management, business development, project management, client and public agency liaison. Technical expertise in environmental impact analysis and mitigation pursuant to the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), natural resources policy and management strategies. Tasks also include proposal preparation, coordination of staff task assignments, special report preparation, and quality assurance/quality control. Primary practice areas include water resources, energy development, and mining.

1985 to 1994: *Research Associates*

**Principal and Project Manager**, private consulting practice providing professional services to local, state, and federal agencies, nonprofit environmental groups, and private developers. Primary specialties included environmental impact assessment and mitigation, community and regional land use planning, project planning, and land and water resources policy and management strategies.

1981 to 1985: *Eco-Analysts*

**Project Manager**: Project manager and environmental analyst for environmental impact reports and community planning studies for local land development; special studies in hydrology and drainage.

## Overview

Dr. Harvey has 24 years experience as a consultant in project planning and professional reporting for local, state, and federal government agencies, nonprofit environmental groups, and private resource developers. Dr. Harvey has organized and managed more than 250 projects, leading multi-disciplinary teams of scientists, engineers, lawyers, economists, and planners. Projects have included environmental reports and assessments, and special resource analyses for a variety of proposals including water and energy development, mining, policy analysis of state-wide water resources and energy systems management problems, large mixed land use developments, public infrastructure projects, aggregate mining, and recreation resorts. As Project Manager, he is responsible for client liaison, team coordination and task assignments, and for keeping projects on schedule and within budget. He also performs the primary quality assurance / quality control function for the team.

As team leader, special emphasis has been placed on client representation, active coordination with agency staff and government decision-makers, and effective presentations and public testimony. Dr. Harvey also specializes in development of public involvement programs and consensus building through education, information management, and negotiations. He has conducted briefings and made special presentations to State and federal agencies including the California Public Utilities Commission, California Energy Commission, California Air Pollution Control Officers Association, Department of Water Resources, State Mining and Geology Board, California Integrated Waste Management Board, Federal Energy Regulatory Commission, Bureau of Reclamation, and Bureau of Land Management.

In managing planning and document preparation, Dr. Harvey has streamlined the reporting and regulatory process through development of detailed project objectives and focused identification of issues; effective consultation and liaison with regulatory agency staff and the applicant's representatives; and preparation of concise, organized, and readable reports. He has developed cost-effective mitigation strategies to resolve regulatory issues without impairing project goals, and has prepared long term monitoring criteria to measure successful project implementation.

Dr. Harvey has worked on western water, energy and related natural resources policy issues since 1983, including power plant and hydroelectric power development, water development, management, and planning, and analyses of land and agricultural water use practices and conservation. From 1989 to 1992 he worked with the Natural Heritage Institute (NHI) on the San Joaquin Valley Drainage Program conducting resource management and policy studies of irrigated agriculture for the purpose of reducing

toxic levels of selenium in drainage water, and to improve water use efficiency and water supply through improved on-farm water management. As a consultant to the NHI in 1993-1994 he also prepared initial hydrological investigations and inventory of groundwater basins and resources for development of a state-wide conjunctive water use plan. In 1996-1997 he was Project Manager for preparation of the Environmental Report for the California Public Utilities Commission to address state-wide policy and environmental issues related to restructuring the electric utility industry. He was also Project Manager for the preparation of an environmental report on the Sand Hollow Reservoir Project in southwest Utah, including comprehensive analysis of hydrology and aquatic habitat effects on the Virgin River, a tributary to the Colorado River.

## **Representative Projects**

This partial listing of projects for which Jeff Harvey was Principal Investigator and/or Project Manager is provided to demonstrate the range and scope of projects undertaken during recent years. Most work has involved studies in natural resources policy and management, preparation of environmental impact assessments, and environmental education programs.

### **Natural Resources Policy & Management**

#### **CEQA and NEPA Compliance and Related ESA Permitting: Water Transfer (300,000 Acre-Feet) Agreement Between Imperial Irrigation District and San Diego County Water Authority; San Diego, California, SDCWA**

Transfer Program Consultant to SDCWA providing strategy guidance, technical analyses, and policy support for compliance with NEPA, CEQA, and State and federal endangered species acts; and implementation of the Lower Colorado River (LCR) Basin Quantification Settlement Agreement (QSA). Tasks include definition of analytical scope, assist with scoping and public involvement, agency coordination and consultation, technical review and critique of impact analyses, definition of mitigation requirements and assignment of responsibilities for mitigation, and production of legally defensible draft and final documents. Lead role for SDCWA negotiations with the USFWS on Section 7 consultation for the Lower Colorado River, and with CDFG on related California Endangered Species Act consultation. A final major task included comprehensive cost analysis (net present value) for implementation of all required mitigation measures over the 45 year contract term, and additional 30 year extension term. Ongoing tasks include QSA mitigation implementation, canal lining projects for water conservation, implementation of the Lower Colorado River MSCP, completion of the Habitat Conservation Plan and natural Communities Conservation Plan (HCP/NCCP) for the Imperial Valley, participation in the advisory committees for the Salton Sea Restoration Program, and related water supply programs.

#### **Program Environmental Impact Report for Regional Water Facilities Master Plan, San Diego County Water Authority**

Senior Project Manager for the Program Environmental Impact Report for the Water Authority's *Regional Water Facilities Master Plan* (Master Plan). The purpose of the Master Plan is to evaluate the ability of the Water Authority to continue to meet its goals for current plans for water supply and facility improvements, and to recommend new facilities or improvements to existing facilities needed to meet water demands through 2030. The Plan included 35 facilities ranging from pipelines, water tanks, and pumps, to water treatment plants, storage reservoirs, and seawater desalination plants. Additional special assessments included water conservation, wastewater recycling, groundwater management, and the relationship between water supply planning and land development planning.

**CALFED Bay-Delta Planning Program: Potential Effects on Federal Hydropower Generation:** Analyses undertaken for the Western Area Power Administration, Sierra Nevada Region, including review of: 1) the *Phase II Alternative Descriptions; Alternatives Appendices*; and comment letters submitted by the U.S. Bureau of Reclamation, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and California Department of Fish and Game; and 2) the draft Ecosystem Restoration Program Plan (Volumes I, II, and III). 1997.

**Restructuring the Electric Utility Industry in California:** Analysis of state and federal policy goals for electric restructuring, and examination of changes in energy systems and related environmental effects that can be expected through the transition to the new market-based system. The primary purpose of the report is to examine the relationships between the electric energy system and the environment, and assess changed environmental conditions under the new market-based system. Air quality, an issue of particular concern, was evaluated using detailed simulation modeling of the electric system in California and the entire western grid. Other issues evaluated include energy efficiency and conservation; electric system reliability; public health (electromagnetic fields); and effects on land, water, and biological resources. 1996-1997.

**Conjunctive Water Use Management Study:** Hydrologic, operational, and environmental constraints analysis of combined surface and ground water management strategies for improved water supply and environmental restoration in California; Natural Heritage Institute; 1993 - 1994.

**San Joaquin Valley Drainage Program,** Institutional and policy analysis of agricultural water use practices, conservation potential, and environmental mitigation opportunities in the San Joaquin Valley of California; for Natural Heritage Institute; 1990 - 1992.

**Land Ownership Analysis, Alternative Reservoir Sites** for Metropolitan Water District, County of Riverside, (under contract to EIP Associates), comprehensive inventory of land ownership based upon tax assessors rolls in Los Angeles and Riverside counties for nine alternative reservoir sites, from which the Dominigoni Reservoir site was ultimately selected; 1987-1988.

**Water Management Plan** for the Thermalito Irrigation District, (for submittal to the Department of Water Resources), Oroville, documenting urban and agricultural water use, land use, water conservation measures, and 20-year projected water supply demands; 1985-1986.

## **Representative Environmental Impact Analyses**

**CEQA and NEPA Compliance and Related ESA Permitting: Water Transfer (300,000 Acre-Feet) Agreement Between Imperial Irrigation District and San Diego County Water Authority; San Diego, California, SDCWA**

Transfer Program Consultant to SDCWA providing strategy guidance, technical analyses, and policy support for compliance with NEPA, CEQA, and State and federal endangered species acts; and implementation of the Lower Colorado River (LCR) Basin Quantification Settlement Agreement (QSA). Tasks described in preceding section.

**Program Environmental Impact Report for Regional Water Facilities Master Plan, San Diego County Water Authority**

Senior Project Manager for the Program Environmental Impact Report for the Water Authority's Regional Water Facilities Master Plan (Master Plan). Described in preceding section.

**Blythe Energy Project and Blythe Energy Project II**, Project Manager for *Application for Certification and Related Permitting*, January 1998 to 2004. Comprehensive analyses and report preparation for permitting a two 520 MW merchant power plants in southern California. In addition to coordination of technical teams, Dr. Harvey managed and assisted in air permitting (including emission reduction credits), development of a water conservation offset program, gas pipeline routing, wastewater management plans, and land annexation to the City of Blythe.

**Mining Impact and Reclamation Study**, Impact Analysis, Environmental Planning and Policy Development, City of Irwindale, March 1998- April 1999. Project Manager for comprehensive analyses of mining activities within jurisdiction of the City of Irwindale, including evaluation of environmental and economic conditions, and options for reclamation and long-term economic development. A comprehensive two-volume report was prepared including analysis of existing mining operations for compliance with the state Surface Mining and Reclamation Act (SMARA), physical and environmental effects of mining within the City, and development of reclamation policies to guide long-term land use planning and economic development. The study covered 14 open-pit mines ranging from 80 to 500 acres in surface area, and minimum 100-feet to more than 200-feet deep. Of the 14 total sites, seven are active mines, four are implementing landfill reclamation, and three are inactive mines. Follow-up tasks have involved support in proceedings with the State Mining and Geology Board, assistance in development and promotion of legislative proposals to amend SMARA, technical review of reclamation plans and related environmental documents, and development of a revised financial assurances program for the City.

**Mining Assessment for the City of Azusa**

Senior Project Manager for a project involving an assessment of the existing Vulcan Materials mining operations to assist the City of Azusa in determining the nature and extent of existing minerals resource extraction entitlements under CEQA and SMARA and to identify required additional entitlements necessary to allow for an expansion of operations to include an 80-acre parcel contiguous to the existing 270-acre mine. Greystone is preparing a market assessment of existing materials mined by Vulcan, a geologic assessment to determine future resource extraction value potential for the proposed new 80-acre mine and future reclamation options and an analysis of current measurement and reporting methodologies. Greystone will provide Azusa with an implementation strategy to improve reclamation planning and identify opportunities and actions for ensuring Vulcan complies with all applicable City plans, policies and ordinances, SMARA and CEQA requirements.

**United Rock Products Quarry and Reclamation Plan EIR for the City of Irwindale**

Senior Project Manager for preparation of an EIR for a quarry expansion project that involved 3 quarry locations, reclamation activities and post - reclamation land development projects. Key issues for the project included air quality related emissions of fugitive dust, geotechnical and slope concerns, groundwater exposure and contamination and underwater dredge activities. The impact analysis focused on current and future activities to the approximate horizon year of 2100 due to the protracted rate of

quarry reclamation activities. This was a fast track project completed in five months after another consulting firm had failed to perform, leaving the City in a schedule bind and facing litigation. The EIR was successfully completed on the accelerated schedule, and litigation was avoided.

#### **Goat Ranch Quarry EIR Review for the City of Shasta Lake**

Greystone was retained the City of Shasta Lake, a Responsible Agency under CEQA, to conduct a comprehensive review of the adequacy of an EIR prepared for a proposed aggregate mine and asphalt production plant located in the unincorporated portion of Shasta County, California. The proposed Goat Ranch Quarry project also included a Reclamation Plan proposed to be implemented after the useful life of the quarry was exhausted, estimated to occur after a period of approximately 30 years. Key environmental issues for the project included land use incompatibility, roadway based truck traffic, onsite use of explosives and related noise and vibration impacts, fire hazard and emergency response plans and air quality impacts. Greystone provided an extensive technical report to the City of Shasta Lake identifying fundamental shortcomings in the technical analysis and adequacy of supporting documentation on which project effects and impact conclusions were based.

#### **Vineyard Lake Estates EIR, Nevada County, California**

Senior Project Manager for an Environmental Impact Report (EIR) for a residential subdivision built surrounding three ponds at the Vineyard Lake Estates development in Nevada County, California. The report identified and analyzed potential hydrologic impacts of maintaining the ponds adjacent to a wine vineyard and determined the significance of potential seepage impacts on vine growth. The project was controversial because of the valuable and expanding wine-making industry in Nevada County. The technical approach included comparing pre- and post-construction surface water and groundwater hydrology, examining existing groundwater elevation data from on-site wells, preparing cross-sections of the ponds and neighboring areas to depict water elevations and potential impacts, and observing the site during different weather and hydrologic conditions to identify potential impact areas. Alternatives that were analyzed included various options for the ponds with mitigating measures, as well as the "No Project" Alternative. The Final EIR demonstrated that local topography and hydrologic flow characteristics precluded impacts to the vineyard, and a simple cut-off trench was included as a mitigation measure to relieve the dispute between the neighboring landowners.

**Sand Hollow Reservoir and Land Exchange, *Environmental Impact Statement***, Analysis of environmental conditions with operation of an off-channel reservoir, including diversion of flows from the Virgin River, and groundwater recharge and recovery from the underlying Navajo aquifer. Water quality, an issue of particular concern, was evaluated using detailed simulation modeling of the Virgin River and Navajo Aquifer. Other issues evaluated include water supply demands, water conservation planning, aesthetic, recreation, and effects on land, water, and biological resources. Originally started as an Environmental Impact Statement (EIS) for the Bureau of Land Management (BLM), the report was completed as a Project Environmental Report after the land exchange and reservoir development project was legislatively approved as a part of the Omnibus Parks and Public Lands Management Act of 1996 (HR 4236). 1996-1997.

**California Public Utilities Commission Preferred Policy for Restructuring the Electric Utility Industry In California**, *Environmental Impact Report*, Analysis of California's electric system and the elements of that system that are changing in response to both federal and state mandates. Primary issues evaluated include energy efficiency and conservation; electric system reliability; air quality; public health (electromagnetic fields); and effects on land, water, and biological resources. The CPUC terminated the EIR process after the legislature adopted a modified version of its restructuring plan and negated the Commission's discretion under CEQA. The CPUC subsequently directed Greystone to convert the EIR into an Informational Report for use by the public and responsible agencies. 1996-1997.

**Enloe Property Land Use Plan and Hospital Expansion Project**, *Environmental Impact Report and Mitigation Implementation Plan*: Mixed-use urban development and health care complex - rare and endangered species protection, wetlands, riparian corridor and recreation greenbelt, historic cultural resources; City of Chico, 1994.

**Prairie City Center Specific Plan**, *Supplemental Environmental Impact Report and Mitigation Implementation Plan*: Mixed residential and recreation use development plan, Sierra foothills region - wetlands, riparian corridor and recreation greenbelt, rare and endangered species, upland oak forest habitat, mining tailings; City of Folsom; 1993.

**Hallwood Aggregate Mine**, *Surface Mining Reclamation Plan*: aggregate mining in former gold mine dredger tailings within Yuba River corridor; Yuba County; 1992.

**North Arboga Study Area**, *Master Environmental Assessment, Environmental Impact Report, and Mitigation Implementation Plan*: Mixed industrial / commercial / residential land use plan in valley floor region - flood plain and riparian corridors of Sacramento River and Yuba River, abandoned railroad corridor, wetlands, winter feeding habitat for migratory waterfowl, urban land use constraints (existing airport, active railroad lines, sewage treatment plant, airport industrial park); Yuba County; 1992.

**Browns Valley Planned Unit Development**, *Environmental Impact Report and Mitigation Implementation Plan*: Mixed residential and public facilities development plan, Sierra foothill region of Yuba County - wetlands, riparian corridor, rare and endangered species, upland oak forest habitat, deer herd migration corridor, prehistoric cultural resources, seismic hazards; Yuba County; 1991.

**Galt Solid Waste Transfer and Resource Recovery Facility**, *Environmental Impact Report and Mitigation Implementation Plan*: Municipal solid waste reduction, recycling, and materials recovery center; City of Galt; 1991.

**Wastewater Treatment Plant Expansion Project**, *Environmental Impact Report and Mitigation Implementation Plan*: Sanitary waste treatment and wetlands preservation; City of Galt; 1990 and 2002.

## **Publications, Presentations, and Invited Speaking**

*California Mining: Community Issues, SMARA Compliance, and State-of-the-Art Reclamation Planning*; California Chapter of the American Planning Association, Yosemite National Park, California, October 2005 (pending)

*Water Supply Planning and CEQA Review: Impact Assessment Strategies*; California Chapter of the American Planning Association, Palm Springs, California 2004.

*Regional Water Supply Planning: Does securing a water supply induce growth?*; American Water Resources Association, Santa Barbara, California 2003

*The Ocean on Tap: Desalination of Seawater and the "No Project Alternative"*; California Chapter of the American Planning Association, Santa Barbara, California 2003

*Restructuring the Electric Utility Industry: Environmental Realities and Opportunities*; Proceedings of the Edison Electric Institute, Natural Resources Subcommittee, Mobile, Alabama, 1997

*Environmental Planning for Statewide Electric Utility Industry Restructuring*, National Association of Environmental Professionals, Utilities Working Group, Orlando Florida, 1997

*Theory and Practice of Environmental Impact Analysis*: California State University, Chico: Advanced Community and Regional Planning Seminar, 1996

*Wilderness Management Issues: Government, Industry, Urban, and Activist Perspectives*; panel moderator, Workshop on Wilderness; Portland, Oregon, 1994

*Wilderness Preservation: Goals and Conflicts*: National Geographic Society, National Council on Geographic Education Annual Meeting; Lexington, Kentucky, 1994

*Water Labyrinth: Policy Reforms for Reallocation of California's Water Resources*; (Abstract and dissertation) Proceedings of the Association of American Geographers, Washington, D.C., 1994.

*Water Labyrinth: Policy Reform for Reallocation of California Water*: Association of American Geographers Annual Meetings, San Francisco, California 1994

*California Water: Problems and Opportunities*: University of California, Los Angeles: Geography Awareness Week Water Forum, 1993

*Environmental Law and Policy and the Science of Impact Analysis in a Free Market Democracy*: California State University, Chico: Advanced Community and Regional Planning Seminar, 1993

*Teaching the Hydrologic Cycle as a Scientific Model*: National Geographic Society, National Council on Geographic Education Annual Meeting; Halifax, Nova Scotia, 1993

*Western Water Law and Policy*: California State University, Chico: Department of Geography, Water Resources Seminar, 1992

*Investigation of Water Supply Agencies & Institutions: Institutional Analysis for the San Joaquin Valley Drainage Program*, Natural Heritage Institute, San Francisco, California, 1991.

*The Role of Water in Environmental Planning*: California State University, Chico: Department of Geography, Water Resources Seminar, 1991

*Los Angeles Water Supply, Current and Future Problems*: University of California, Los Angeles: Geography Awareness Week Urban Issues Forum, 1990

*Special representative* for the Department of Geography for conference on United States / Mexico water resources management issues: University of California, Los Angeles, 1989

## **Certifications / Continuing Education**

- *Law of the Colorado River*, CLE International, April 2005
- *Law of the Colorado River*, CLE International, May 2004
- *Law of the Colorado River*, CLE International, May 2003
- *Law of the Colorado River*, CLE International, May 2002
- *California Water Law*, CLE International, April 2002
- *Law of the Colorado River*, CLE International, May 2001
- *Law of the Colorado River*, CLE International, May 2000
- *Law of the Colorado River*, CLE International, May 1999
- *Western Water Law*, CLE International, March 1999
- *California Water Law*, CLE International, April 1997
- *Watershed Planning, The Water and Land Use Nexus*, California Water Policy Conference, November 1995
- *Groundwater Hydrology*; USGS and McLaren Engineering, UC Davis Extension; 1989
- *Expert Witness Techniques*; U.S. Fish and Wildlife Service Training Program; 1985
- *Field Techniques for Stream Habitat Analysis*; U.S. Fish and Wildlife Service Training Program; 1982
- *Instructor Credential (#283860, lifetime), The California Community Colleges. Earth Sciences, including Geography, Geology, and Geophysics*; 1984

## **Environmental Education**

**Director, National Geographic Society Workshop On Wilderness**, 1994. Director of curriculum development and content sessions and field studies for special environmental instruction program for 108 top science and geography teachers in the United States, grade levels kindergarten through high school. The national two-week workshop is a catalyst for Geography Awareness Week in November to promote geography education in America's schools. Theme for 1994 - "Keeping Wilderness In Sight".

**Co-Director, National Geographic Society Workshop on Water, 1992 and 1993, Geography Education Program.** Co-Director of curriculum development and leader of content sessions and field studies for special environmental instruction program for United States teachers, grade levels kindergarten through high school in two national two-week workshops. Theme for 1992 - "Reflections on Water"; theme for 1993 - "Water Matters, Every Day, Every Way, Everywhere".

**Technical Advisor, *Geography Awareness Week Education Packet, 1994*, National Geographic Society, Geography Education Program.** Special advisor for geography content and wilderness concepts for education packet sent to over 200,000 teachers throughout the United States.

### **Summary of University Teaching**

(UCLA 1987-1989; Santa Monica College 1988; CSU Chico 1985-1987; Butte College 1981-1987)

#### **Water Resources Management:**

Analysis of the role of water in environmental planning, including basic hydrologic systems, water uses and competing demands, legal and political institutions, economics of scarce resources, and impact analysis.

#### **Hydrology:**

Analysis of the hydrologic cycle and water systems including field measurement and quantitative techniques related to precipitation, infiltration, evaporation and transpiration, soil moisture, runoff, floods and flood reduction, forest hydrology, snow hydrology, groundwater, and water quality.

#### **Physical Geography:**

Comprehensive survey of physical systems of the Earth, including weather and climate, hydrology and water resources, biogeography, and geomorphology.

#### **Biogeography:**

Analysis of global ecological systems, including evolutionary theory, dispersal, speciation and extinction, species distribution, and community ecology.

#### **Environmental Issues:**

Global analysis of major environmental issues, including population growth, food supply, resource use, energy development, water and air pollution, and climate change, with emphasis on critical analysis of scientific forecasting methods and identification of practical remedies.

#### **Geography and World Affairs:**

Fundamental world regional geography with primary emphasis on international relations, current events, and the United States involvement in foreign affairs.

**World Regional Geography:**

Systematic regional survey of physical systems and cultural patterns, including coverage of geomorphic, climatic, economic, social, and political regions.

**Cultural Geography:**

Introduction to human geography, including population dynamics, food supply, religion, language, settlement, political organization, and cultural conflicts.

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**Summary:**    14 years experience in the power generation industry

**Management - Currently Managing a Group of 14 Engineers**

**S4 Management Development Graduate**

**Advanced Systems Development**

**Project Management Experience**

**Contract Management Experience**

**Sales and Marketing Experience**

**Systems and Cycle Design Expertise**

**Plant Performance Testing Expertise**

**Expertise with application of combustion turbines, steam turbines, electrical generators, in simple cycle, combined cycle and conventional cycle.**

**Experience:**    **Siemens Westinghouse Power Corporation**  
2001 -            **Manager of Thermal Cycle Engineering, Post Award**

Currently responsible for cycle design and performance acceptance testing of all combined cycle plants in the Americas region for Siemens Power Generation. This involves managing a group of 14 professional engineers, a yearly group operating budget in excess of 2.5 million dollars and test activities in excess of 10 million.

Primary Technical responsibilities include:

- Leading design activities to establish plant thermal operating characteristics in accordance with performance guarantees, equipment design limits and site ambient range.
- Development of innovative cycle design
- Establishing strategies to maximize profit potential through utilization of standardized designs
- Establishing design strategies to mitigate performance risks

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- Leading efforts to reach agreement on test procedures and results between clients, banks engineers and third party observers
- Ensuring that test procedures are established in accordance with ASME-PTC 46, PTC -22 and contact requirements.
- Leading efforts on troubleshooting plant performance issues to mitigate potential commercial impacts
- Directing personnel in their day to day activities

**1999 - 2001 Siemens Westinghouse Power Corporation  
Manager of Thermal Cycle Engineering, Pre Award**

Responsible for establishing contractual plant performance guarantees and initial cycle design for all combined cycle power project negotiations in the Americas region. This involved managing a group of 11 professional engineers and a yearly operating budget in excess of 1.1 million dollars.

Primary responsibilities included:

- Establishing and approving guaranteed performance levels for all new-unit combined cycle and re-powering projects in the Americas
- Establishing cost levels for all thermal cycle equipment
- Implementation of statistical risk analysis program to evaluate potential commercial impacts for a given guaranteed performance level
- Leading development efforts to incorporate competitive enhancements into the plant cycle design and development of new cycles
- Establishing strategies to maximize replication of design in order to capitalize on vendor multiple purchase agreements
- Directing personnel in their day to day activities

**1997 - 1999 Siemens - Westinghouse Power Corporation  
Project Engineering Manager**

Responsible for the successful completion of a \$230 million dollar turnkey contract to engineer, procure and construct a 700 Megawatt combined cycle power plant located in Chonburi, Thailand. This involved providing the overall technical

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direction of the Architect Engineer and Siemens Westinghouse design groups. Responsibilities included: interfacing with the client as the prime technical contact, establishing project procedures, establishing and managing an integrated engineering, commissioning and construction schedule, negotiating and managing engineering contracts with an Architect Engineer, negotiating and managing prime and subcontract claims, providing technical coordination between the field and home office, ensuring compliance with technical contracts and engineering specifications, managing contract growth and reaching resolution of contractual conflicts with the client and Architect Engineer .

### 1996 - 1997 **Westinghouse Electric Corporation (Senior Project Engineer)**

Provided the primary interface between the field and engineering for power projects. Job responsibilities included: home office management and coordination of mechanical electrical and civil contractors, interpretation of contracts, preparation and presentation of claim settlements, preparation and negotiation of contract changes. Worked on Merida III, a \$163 million dollar turnkey contract for a 480 megawatt combined cycle power plant. Worked from contract negotiation through startup on Las Flores III, a \$57 million dollar turnkey contract for a simple cycle 'F' class combustion turbine plant, located in Baranquillia, Colombia.

### 1995 - 1996 **Westinghouse Electric Corporation (Applications Engineer)**

Provided the lead technical representation on EPC contract negotiations for combined cycle power plants. Responsibilities included: presentation of technical issues to clients, preparation of technical guarantees, preparation and presentation of risk analysis to upper management, preparation of heat and material balances, preparation of engineering flow schematics, development of thermal cycle designs, specification of power equipment, technical bid evaluations, preparation of computer aided thermal cycle simulations, preparation of technical contracts and review of technical specifications, RFQs and contracts.

### 1994 - 1995 **Frensch Technology Services, Inc. (Technical Manager)**

FTS is a consulting firm specializing in custom business accounting software and computer hardware for a range of clients including: Pebble's restaurants, Planet Hollywood and AmSouth bank. Job responsibilities included: managing large scale projects, direction of technical personnel, design and programming of application software, design and specification of computer networks, implementation of computer networks, preparation of software specifications, profit management and the overall day to day management of technical issues.

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1992 -1994    **Kemco Industries, Engineering Department (Sales Engineer)**

Kemco Industries is a manufacturer of control panels and relay systems for the utility industry. Job responsibilities included: solely managing Kemco's largest single account, interfacing exclusively with the client, managing production of components, specifying fabrication techniques, development of product pricing, job cost analysis, cost containment, writing custom project management and accounting software, interpreting blueprints and specifications, preparation of fabrication drawings, utilizing CAD and CAM software, estimating, writing proposals, system design and general engineering.

1990 - 1992    **Florida Power and Light, Technical Department (Project Engineer)**

Job responsibilities included: testing and performance analysis of critical equipment, plant equipment economic and statistical analysis, providing performance based equipment maintenance recommendations, design and programming of equipment performance evaluation software, design of performance test equipment, computer modeling of boiler and turbine thermodynamic cycles, vibration testing and analysis, heat rate testing and unit performance evaluation. Worked during the Orimulsion test burn at Sanford Unit 4 as a test engineer. Involved from design through installation of an annunciator system implementing PLC architecture and generated all required prints using AutoCad.

**Skills:            Analytical Troubleshooting, Simulation, Computers**

Trained in Kepner -Trego Analytical Problem Solving Techniques and Led multiple K-T teams, Trained in Six Sigma Business Excellence program. Extensive experience with PEPSE and Gate Cycle (Thermodynamic Modeling Tools), AutoCAD, Lotus Notes, Excel, Microsoft Word, MS Access, Power Point, MathCAD. Experience with several programming languages including: FORTRAN, C++, ANSI C, FoxPro, and Visual Basic.

**Education:        University of Central Florida**

B.S. in Electrical Engineering  
Certified EIT State of Florida (10/91)  
Kappa Sigma fraternity (Officer)

## **DOUGLAS O. PROCTOR**

D. Proctor Engineering, Inc.  
8861 Alford Way  
Fair Oaks, CA 95628  
(916) 967-8861  
fax 967-8864  
e-mail [douglas@proctor.net](mailto:douglas@proctor.net)

Mr. Proctor, president of D. Proctor Engineering, Inc. has over 30 years of engineering, project management, and construction management experience on transmission, substation, and distribution projects throughout the United States and overseas. Mr. Proctor has been responsible for initial project planning and layout, preliminary design, routing alignment, substation site selection, right-of-way acquisition, project evaluation and development, environmental coordination, transmission and substation design, microwave and fiber optic communication systems, and construction management services. He is experienced in all aspects of transmission and substation projects at voltages ranging from 7.2-kV to 500-kV including environmental services, land acquisition services, engineering, contract administration, construction management, and project management. Mr. Proctor is a registered professional engineer in California. His area of expertise is project engineering on overhead transmission projects encompassing engineering and design, environmental support associated with transmission line routing and substation site selection, pre-engineering studies to assess feasibility of options, structure design and selection, right of way acquisition, clearance requirements, cost estimates, preparation of contracts, contract administration, scheduling, establishing budgets and work plans, and construction management. Mr. Proctor is familiar with a full range of software including AutoCAD, Microsoft Project, Microsoft Access and Excel, Sag10, PLSCAD, TLCADD, and many others.

### **EDUCATION**

M.S. Engineering  
University of Colorado, Boulder

B.S.E.E. Electrical Engineering  
University of Illinois, Champaign-Urbana

### **EXPERIENCE SUMMARY**

- Director of Engineering on the California - Oregon Transmission Line. Responsible for managing engineering, design, land acquisition, and construction efforts for 500-kV transmission lines, substations, and microwave communication systems. Administered up to 20 contracts as Agency Representative to the Transmission Agency of Northern California and to the Western Area Power Administration for engineering services, land acquisition services, material acquisition, and construction.
- Contractor to TANC to assist in the re-routing of the microwave and fiber optic communication facilities for the 500-kV California-Oregon Transmission Project in cooperation with SMUD via Rancho Seco and Elverta Substation.
- Engineering Coordinator for the Desert Southwest Transmission Project to construct

a new transmission line facility to deliver energy generated at new Blythe Power Plant to the California over Imperial Irrigation District's system via WAPA's Blythe and Buck Boulevard Substations. Responsible for environmental support to Greystone Environmental Consultants to support the development of both draft and final EIS/EIR documents to meet NEPA and CEQA requirements.

- Consultant to IID for the Buck Switchyard interconnection with WAPA. Duties included assistance to the project owners in evaluating pre-construction and post-construction EMF levels; acquiring field measurements for electric and magnetic fields; and the preparation of EMF reports.
- System Design Engineer of Platte River Power Authority responsible for all aspects of 230-kV transmission line design, right of way acquisition, materials procurement, construction, and testing to complete the development of a 230-kV network interconnecting the Platte River Power Authority system with Western Area Power Administration and Public Service of Colorado.
- Engineering Coordinator for the BN-BS 161-kV Transmission Line Project for the Imperial Irrigation District in the development of designs and documents needed to prepare an environmental assessment. Work included the preparation of structure layouts, determination of work force requirements, and assessment of construction impacts and assistance with the preparation of the project's mitigation plans and construction documents
- Consultant to the Imperial Irrigation District for the relocation of transmission and distribution facilities in conjunction with CalTrans for the construction of State Highway 111 bypass near Brawley, California.
- Consultant to Boyle Engineers for the Salton Sea Power Project for the Imperial Irrigation District located in Imperial County, CA to plan, design, and coordinate construction of 31 miles of 161-kV transmission lines.
- Consultant to the Imperial Irrigation District for the design of steel pole transmission structures at various locations in Imperial Valley and Riverside County.
- Consultant to Power Development Associates for the Blythe power plant located in the California desert near Blythe, CA and Westlake power plant located in rural Kentucky. Duties included assistance to the project owners in evaluating pre-construction and post-construction EMF levels; acquiring field measurements for electric and magnetic fields; preparation of EMF reports; and by providing general engineering support for conducting system studies to assess impacts to the power grid.
- Consultant to Calpine Energy for the Yuba City Energy Center. Duties included assistance to the project owners in evaluating pre-construction and post-construction EMF levels; acquiring field measurements for electric and magnetic fields; preparation of EMF reports for the California Energy Commission.
- Engineering design and support to Greene Engineers for the AMAT 60-kV transmission line extension from Silicon Valley Power's Central Substation to the new AMAT Scott Campus Substation in Santa Clara.

- Construction Manager for the City of Roseville's Fiddymont Substation 230 kV / 60 kV substation. Responsible for environmental mitigation enforcement and the coordination of design and construction efforts between the construction contractor, design engineer, Western Area Power Administration, and the Roseville Electric.
- Project Coordinator for the City of Roseville's Waste Water Treatment Plant Fiber Optics Project. Responsible for coordination of design, material acquisition, construction, testing, and contract administration for the installation of combined overhead and underground 12 and 36 fiber ADSS cable systems.
- Project Coordinator for the City of Roseville's 60-kV Fiber Optics Project. Responsible for coordination of design, contractor selection, construction, testing, and contract administration for the installation of combined overhead and underground 72 and 24 fiber ADSS cable systems.
- Project leader for PG&E's Field Switch Evaluation Project encompassing the evaluation of approximately 1600 transmission line field switches in the PG&E system and preparing a system wide switch database for incorporation into the GIS mapping system.
- Engineering and design support for the installation of new and replacement transmission line field switches on the PG&E transmission system.
- Conducted a lecture series in Project Management for training staff members of the California Independent System Operator at its headquarter facilities in Folsom, California.
- Project development and support to California Independent System Operator managers and directors.
- Transmission Service upgrades and power system reliability evaluation for the USS POSCO Steel Mill in Pittsburg, California.
- Directed and coordinated engineering on transmission and substation projects, and lead project teams in the contracting, routing, siting, design, procurement, land acquisition, construction, and start-up efforts.
- Responsible for overall engineering management, technical, cost, and schedule requirements for development and administration of major projects in the Western United States.
- Contract administrator for engineering design agreements, land acquisition service agreements, material procurement contracts, and construction contracts.
- Expert witness services on various cases in California, Oregon and Florida involving transmission and substation facility design and operation,
- Overall technical responsibility for the development of high voltage transmission systems.
- Project Engineer on electrical transmission and distribution projects for the Navy and Air Force.

- Construction Manager on transmission and substation projects.
- Conducted bid openings and negotiated contracts with consultants, vendors, and construction contractors.
- Owner's representative on various committees and prepared reports to management.
- Coordinated permit acquisition efforts on several projects.
- Prepared bid documents for transmission, substation, and distribution projects.
- Conducted substation start-up testing, schematic, and wiring verification.
- Conducted seminars on distribution design and project management
- Worked on the design of transmission, distribution, and substation projects in the following areas:

Project Estimating	Structure Design
Preliminary Engineering and Evaluation	Insulation Coordination
Environmental Documentation	Environmental Mitigation Support
Material and Equipment Selection	Insulator and hardware selection
System Protection	Foundations
Conductor Selection	Single line diagrams
Sag and Tension Calculations	Wiring diagrams and schematics
Wood, steel, and concrete structures	Site plans Grounding
Contract Administration	EMF Measurements
Construction Management	Fiber Optic Design and Installation

- Hands on experience and familiarity with a multitude of software packages including AutoCAD, Microsoft Word, Excel, Access, and Power Point; Corel Draw, PLSCAD, TLCADD, and many others.

<b>EMPLOYMENT HISTORY</b>	
11/97 to Present	<b>President</b> Proctor Engineering, Inc.
4/85 to 11/97	<b>Senior Project Manager</b> Resource Management International, Inc.
2/80 to 4/85	<b>System Design Engineer</b> Plate River Power Authority
1/76 to 2/80	<b>Chief Transmission Engineer</b> Miner & Miner Engineers
10/73 to 1/76	<b>Transmission Engineer</b> Fluor Power Corporation
6/68 to 10/73	<b>Design Engineer</b> Sargent & Lundy Engineers



***PROJECTS WITH TECHNICAL AND/OR MANAGEMENT ROLE***

<u>YEAR</u>	<u>JOB TITLE</u>	<u>PROJECT</u>	<u>CLIENT</u>
2004	Consultant	General Engineering Support	Imperial Irrigation District
2004	Consultant	COTP Communications Upgrades	TANC
2003 – 2004	Consultant	Brawley Bypass Project	Imperial Irrigation District
2003 - 2004	Consultant	Salton Sea Unit 6 Power Project	Boyle Engineers
2002 – 2003	Consultant	Blyhte Power Plant - Unit 1	Power Development Associates
2002 – 2004	Consultant	Desert Southwest Transmission Project	Desert Southwest Project Management, IIC
2002	Consultant	BN-BS 161-kV Transmission Lone	Imperial Irrigation District
2001	Consultant	Blythe II Power Plant Interconnection Agreement Support	Blythe Energy
2001	Consultant	Sutter Power Plant EMF Measurement	Calpine Energy
2001	Consultant	BN-BS Line EIS/EIR support	Greystone Environmental
2001	Consultant	BN-BS Line routing and layout	Boyle Engineering
2001	Consultant	Wakefield 60-kV Project (Kaseberg Sewer)	Roseville Electric
2000 - 2001	Consultant	Waste Water Treatment Fiber Optic Project	Roseville Electric
2001	Consultant	Transmission Line Switch Replacement	Pacific Gas and Electric
2001	Consultant	Delta Energy Center Transmission Line Upgrades	Pacific Gas and Electric
2000	Consultant	Project Management Training Series	California Independent System Operator

1999	Consultant	Project Management Support Services	California Independent System Operator
1999	Consultant	Project Management Training	California Independent System Operator
1998 to 1999	Consultant	Field Switch Evaluation Project	Pacific Gas and Electric
1997	Consultant	Philippines Transmission System Evaluation	Resource Management International
1997	Construction Manager	Fiddymont 230/60 kV Substation	City of Roseville
1996	Senior Engineer	Aquatia Project, Peru	Illinova
1995	Senior Engineer	Aquatia Project, Peru	Enserch
1993 to 1995	Project Representative	Westley -Tracy 230 kV Double Circuit Transmission Line	Modesto Irrigation District
1985 to 1993	Director of Engineering	California - Oregon 500 kV Transmission Project	COTP/TANC/WAPA
1985 to 1993	Agency Representative	California - Oregon Transmission Line Contract Administration	COTP/TANC/WAPA
1985 to 1990	Agency Representative and Committee Secretary	California & Oregon Transmission Project & Engineering/Technical Committee, Routing Review Group	COTP/TANC/WAPA
1982 to 1983	System Design Engineer	Longmont Southwest 230 kV Transmission Line	Platte River Power Authority
1982 to 1983	System Design Engineer	LaPorte to Poudre and Timberline to Poudre 230 kV Transmission Lines	Platte River Power Authority
1980 to 1982	System Design Engineer	Timberline to Rawhide 230 kV Transmission Line	Platte River Power Authority
1979 to 1980	Chief Transmission Engineer	Marathon to Key West 138 kV Transmission Line	City of Key West
1978 to 1979	Chief Transmission Engineer	Glennallen to Valdez 138 kV Transmission Line	Copper Valley Electric Cooperative
1978	Chief Transmission Engineer	Vandenberg AFB Space Launch Complex 6 69-kV Transmission System Protection Improvements	USAF
1978	Chief Transmission Engineer	Island Hardening 115 kV Upgrades	Government of Guam US Navy
1978	Chief Transmission	Jackson to Alpine 115 kV Transmission Line	Lower Valley Power and Light

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1977	Engineer Chief Transmission Engineer	Jackson Hole 115 kV Transmission Line	Lower Valley Power and Light
1977	Instructor	Distribution Staking School	Wheatland REA
1976 to 1977	Transmission Engineer	Sioux City to Ft. Dodge 345 kV Transmission Line	Iowa Power and Light
1975 to 1976	Transmission Engineer	Ames to DesMoines 345 kV Transmission Line	Iowa Power and Light
1974	Transmission Engineer	138 kV Transmission Upgrades	Louisville Gas and Electric
1973	Field Engineer	Huntley Power Plant Precipitators	Niagara Mohawk
1972	Field Engineer	Columbia Power Plant Cooling Lake	Wisconsin Power and Light
1971	Field Engineer	Weirton 345 kV Substation	West Penn Power Company
1970	Field Engineer	345 kV Transmission Re- conductoring	Northern Indiana Public Service
1967 to 1969	Field Engineer	APS 500 kV Transmission Intertie	Potomac Edison, Monongahela Power Company

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## Professional References

Charles Cunha  
Manager of Engineering  
Roseville Electric  
(916) 774-5604

James Feider  
Director Electric Department  
City of Redding  
(530) 245-7400

Rob Holt  
Vice President  
Holt Group, The  
(760) 922-4658

Bob Oswald  
Senior Engineer  
Power Engineers  
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Tom Radnoti  
President  
TOR Engineers  
(602) 437-1676

Ken Simpson  
Director of Transmission Engineering  
Sargent & Lundy  
(312) 269-7792

Trent Carlson  
Reliant Energy  
(713) 207-4386

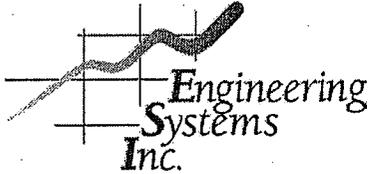
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Senior Vice President  
Navigant Consulting  
(916) 852-1300

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President  
RCP Engineers  
(610) 775-2003

Randy Hopkins  
Manager of Transmission Engineering  
PG&E  
(510) 874-2218

Hilda Romo  
Imperial Irrigation District  
760 339-9101



**STEVEN L. MORRIS, Ph.D.  
SENIOR CONSULTANT  
COLORADO OFFICE**

Dr. Morris is an aeronautical/mechanical engineer and senior staff consultant for Engineering Systems Inc. (ESI), a professional engineering consulting firm and laboratory headquartered in Aurora, Illinois. ESI is a multi-disciplinary company, which provides professional engineering services to industrial, legal and insurance firms, government agencies and trade organizations and acts as consultants to other engineering firms. The laboratory capabilities are supplemented by cooperative agreements with other recognized facilities to provide a wide range of technical support capabilities, including metallurgical, materials, aeronautical, mechanical, structural, electrical, safety, automotive and audio/visual services. Projects ranging from simple failure investigations to complex engineering studies are undertaken.

Dr. Morris has 29 years of experience in aeronautical and mechanical engineering, including theoretical, computational, and experimental investigations. Dr. Morris' consulting work has included the determination of aircraft maneuvers and performance characteristics from recorded radar data; accident reconstruction; flight data recorder analysis; static, dynamic, and aerodynamic performance of vehicles and fixed objects; load estimation; aircraft ice accretion predictions; and other aeronautical engineering analyses. Dr. Morris served as an officer in the U.S. Air Force for over 24 years with duties including teaching and directing a wide variety of courses in aeronautics and engineering design at the US Air Force Academy. He is an Associate Fellow of the American Institute of Aeronautics and Astronautics (AIAA). He has taught and published 18 papers and reports and has co-authored a book titled An Introduction to Aircraft Flight Mechanics that is currently being used as a textbook at the U.S. Air Force Academy.

**Areas of Specialization**

Aircraft design, Flight dynamics and simulation  
Flight Path Reconstruction  
Aerodynamics, Experimental and Computational Fluid Dynamics  
Thermodynamics and lasers  
Space-based navigational systems  
Aircraft icing

**Education**

Ph.D., Aerospace Engineering  
Texas A & M University, 1989

M.S., Aeronautical Engineering  
AF Institute of Technology, 1980

B.S., Engineering Sciences  
USAFA, 1975

**Licensed Professional Engineer (P.E.)**

TX (91646)

January 2005

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## Professional Affiliations/Honors

### American Institute of Aeronautics and Astronautics (AIAA)

Associate Fellow

### Society of Automotive Engineers (SAE)

Member

Outstanding Young Men in America (1981)

USAF Academy's 1991 Outstanding Military Educator in Aeronautics

"Robert L. Wenning Outstanding Academic Instructor Award," USAF Test School Class 91B (1992)

"Robert L. Wenning Outstanding Academic Instructor Award," USAF Test School Class 92B (1993)

"Daniel H. Daley Award" for Outstanding Member of the Department of Aeronautics, USAF Academy (1994)

AIAA Sustained Service Award (2005)

Marquis' "Who's Who in the West"

Marquis' "Who's Who in America"

Marquis' "Who's Who in the World"

Marquis' "Who's Who in Science and Engineering"

Strathmore's Who's Who Registry

International Who's Who

Tau Beta Pi

Sigma Gamma Tau

## Positions Held

### Engineering Systems Inc., Colorado Springs, Colorado

November 2000-present Senior Consultant

### SRS Technologies, Colorado Springs, Colorado

August 1999 – November 2000 Engineering Specialist

### Department of Aeronautics, USAF Academy, Colorado

July 1996 – August 1999 Associate Professor and Deputy for Plans and Programs

### HQ U.S. Space Command, Colorado Springs, Colorado

August 1994-July 1996 Chief, Force Enhancement Branch Plans Directorate

### Department of Aeronautics, USAF Academy, Colorado

August 1989 – August 1994 Associate Professor and Deputy for Operations

### Department of Aeronautics, USAF Academy, Colorado

May 1984 – August 1986 Assistant Professor and Resource Manager

USAF Weapons Laboratory, Kirtland AFB,  
March 1980 – May 1984 Chief, Chemical Laser Weapons Systems Group

USAF 6585<sup>th</sup> Test Group,  
March 1976 – May 1978 Group Test Engineer

### Books

Yechout, T.R., Morris, S.L., Bossert, D.E., and Hallgren, W.F., “Introduction to Aircraft Flight Mechanics: Performance, Static Stability, Dynamic Stability, and Classical Feedback Control” ISBN: 1-56347-577-4, May 2003.

### Papers

Morris, S.L., and Ward, D.T., “Space Shuttle Hatch Jettison Wind Tunnel Study,” Poster Board Session, 11<sup>th</sup> Annual American Astronautical Society (AAS) Guidance and Control Conference, Jan-Feb 88.

Morris, S.L., and Ward, D.T., “Vortex Flow Tests,” Poster Board Session, 11<sup>th</sup> Annual American Astronautical Society (AAS) Guidance and Control Conference, Jan-Feb 88.

Morris, S.L., Ward, D.T., Macolm, G.N., and Lewis, L.C., “Nonintrusive Measurements of Vortex Flows on Delta Wings in a Water Tunnel,” AIAA Paper 88-2595CP, presented at AIAA 6<sup>th</sup> Applied Aerodynamics Conference, Aug 1988.

Morris, S.L. and Ward, D.T., “A Video-Based Experimental Investigation of Wing Rock,” AIAA Paper 89-3349CP, presented at the AIAA Atmospheric Flight Mechanics Conference. Aug 1989.

Morris, S.L., “Use of Projects and Demonstrations in the Flight Mechanics Curriculum at the USAF Academy,” presented at the AIAA Atmospheric Flight Mechanics Conference, Aug 1993.

Morris, S.L. and Hallgren, W.F., “The Air Force Academy’s Use of Flight Simulator in its Aeronautics Curriculum,” Session 0402, ASEE 1994 Annual Conference, Edmonton, Alberta, Canada, Jun 1994.

Stiles, R.J., Hallgren, W.F., Morris, S.L. Smith, M.L. and Gilliam, F.T., “Thriving on Change at the Air Force Academy,” Session 1202, ASEE 1994 Annual Conference, Edmonton, Alberta, Canada, Jun 1994.

Yechout, T.R. and Morris, S.L., “Flight Simulation and Aeronautical Education – Ten Years of Experience,” SAE/AIAA Technical Paper 975635, 1997 SAE/AIAA World Aviation Congress, Anaheim, CA, Oct 1997.

Yechout, T.R. and Morris, S.L., "One Approach to Developing a 'Hands On' Flight Mechanics Program," ASEE Technical Paper, 1998 ASEE Rocky Mountain Section Conference, Denver, CO, Apr 98.

Winn, R.C., Slane, J.H., and Morris, S.L., "Assessment of the Accuracy of Flight Path Reconstruction from ATC Radar Data Using Various Smoothing and Reconstruction Techniques," AIAA 2002-0391, Reno, NV, January 2002.

Winn, R.C. and Morris, S.L., "Compensating for the Lag in Flammable Vapor Concentration Meters," 1<sup>st</sup> International Energy Conversion Engineering Conference, Portsmouth, VA, August 2003.

Winn, R.C., Slane, J. H., and Morris, S.L., "Aerodynamic Effects in the Milwaukee Baseball Stadium Heavy-Lift Crane Collapse," AIAA 2005-24272, Reno NV, January 2005.

### Reports

Morris, S.L., "A Diagnostic Study of Flow in the Wake of a Disk Using a Photon Correlation Laser Velocimeter," Masters Degree Thesis, Air Force Institute of Technology, 1980.

Morris, S.L., Ward, D.T., and Pham, L., "Final Report: Space Shuttle Hatch Jettison Wind Tunnel Study," AERO TR-88-6, Texas A&M University, 1988.

Macolm, G.N., Lewis, L.C. Ward, D.T., and Morris, S.L., "An Innovative Approach to Nonintrusive Qualitative Measurements of Vortex Flows," Eidetics TR 88-101, 1988.

Morris, S.L., "A Video-Based Experimental Investigation of Wing Rock," Ph.D. Dissertation, Texas A&M University, 1989.

Winn, R.C. and Morris, S.L., "Ice Accretion Analysis on a UAV Wing," Israel Aircraft Industries Report 8454C, December 2000.

Winn, R.C. and Morris, S.L., "Ice Accretion Analysis on a UAV Wing – Part 4," Israel Aircraft Industries Report 8454C-4, May 2001.

Winn, R.C. and Morris, S.L., "Ice Accretion Analysis on a UAV Wing – Part 3," Israel Aircraft Industries Report 8454C-3, March 2001.

Winn, R.C. and Morris, S.L., "Ice Accretion Analysis on a UAV Wing – Part 2," Israel Aircraft Industries Report 8454C-2, March 2001.

Winn, R.W. and Morris, S.L., "Analysis of the Ice Accretion on the Ejector of the Really Quiet Hush Kit for the Gulfstream II and III," REALLY Quiet LLC, Report No. 10719C-1, December 2001.

## **Kennard F. Kosky, M.S., P.E.**

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- Education** M.S., Environmental Engineering, University of Central Florida, 1976  
B.S.E., Ocean Engineering, Florida Atlantic University, 1970  
Completed coursework (1.5 years) for Ph.D. in Environmental Engineering,  
University of Florida, 1982
- Affiliations** Registered Professional Engineer, State of Florida, No. 14996  
Air and Waste Management Association, National and Florida
- Experience**
- 1996 to Date **Golder Associates** **Gainesville, FL**  
*Principal*  
Principal Engineer, Project Director, and Project Manager for Permitting and Environmental Impact Assessments. Specializes in power plants, industrial facilities, and agricultural activities involving air quality. Provides oversight on permitting and licensing activities including emissions estimates and impact analyses. Provides expert testimony on pollution control quality issues and noise for a variety of electrical power, industrial, and mining activities. Note: KBN merged with Golder Associates in 1996.
- 1985 - 1996 **KBN Engineering and Applied Sciences (KBN)** **Gainesville, FL**  
*President and Principal Engineer*  
Responsible for administration of a 100-person environmental consulting firm generating about \$8 million per year in revenues. Principal Engineer, Project Director, and Project Manager for Permitting and Environmental Impact Assessments for electric power and industrial facilities. Provided expert testimony on pollution control and quality issues for a variety of industrial activities.
- 1980 - 1985 **Environmental Science and Engineering, Inc. (ESE),  
Energy and Power Programs,  
Project Operations Department** **Gainesville, FL**  
*Vice President/Director*  
Directed Power Programs group that included a wide diversity of services to the power industry. Project Manager of the \$3 million Florida Acid Deposition Study. Project Director and Manager for a variety of permitting and licensing projects. Provided expert testimony on a variety of projects.
- 1978 - 1980 **ESE** **Gainesville, FL**  
*Director, Air Science Division*  
Responsible for all corporate air resource activities including stack testing, permitting dispersion modeling, ambient monitoring, noise monitoring, and industrial hygiene. Staff consisted of 25 professionals in three groups: Source Testing, Ambient Monitoring, and Permitting. Project Manager for multidisciplinary power projects.
- 1974 - 1978 **ESE** **Gainesville, FL**  
*Group Leader, Air Quality Management, Air Sciences Division*  
Responsible for staff involved with ambient air monitoring, dispersion modeling, and air permitting. Project Manager for multidisciplinary power projects.

## **Kennard F. Kosky, M.S., P.E.**

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- 1970 - 1974      **Florida Dept. of Pollution Control**      **Tallahassee/Orlando, FL**  
*Air Pollutant Engineer*  
Lead engineer in air operations involved in implementing State Implementation Plan (SIP) and air pollution regulations. Performed air permitting for over 200 facilities. Coauthor of the first Florida SIP including conducting emission inventory, ambient monitoring analysis, regulatory analysis, and regulation development.
- 1970      **Schlumberger Well Services**      **Morgan City, LA**  
*Well Logging Engineer*  
Performed geological logging of exploratory wells for oil and/or gas production in the Gulf of Mexico.

# **Kennard F. Kosky, M.S., P.E.**

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## **PROJECT RELATED EXPERIENCE**

Mr. Kosky has performed over 200 projects focusing on a variety of industrial activities. These projects have involved control technology evaluations, regulatory interpretation, monitoring, permitting, impact analyses, and expert testimony. The following overview and project descriptions are examples of Mr. Kosky's experience.

### **Major Project Experience**

### **Multiple Sites**

#### Type of Industrial Activities

Power Plants – 68  
Landfills – 4  
Chemical Plants – 7  
Rubber Manufacturing – 2  
Metal Coil Coating – 3  
Mining – 4  
Pulp & Paper – 7  
Resource Recovery/Incinerator – 9  
Steel Mills – 4  
Printing/Coating – 4  
Food/Agricultural Facilities – 15  
Petroleum Exploration and Refining – 9  
Aerospace – 2  
Fiberglass Boat Manufacturing – 4  
Superfund – 5

#### Type of Projects

Permitting – 92  
Air Pollution Emission Estimates – 67  
Air Impact Analyses – 63  
Air Pollution Control – 75  
Policy and Regulations – 6  
Air Monitoring – 26

### **Domestic Experience**

### **Multiple Sites**

Mr. Kosky has directed and performed projects related to his expertise in the following states:

- Southeastern US: Florida, Georgia, South Carolina, North Carolina, Alabama, Mississippi, Tennessee, Kentucky, Louisiana, and Arkansas
- Mid-Atlantic: Maryland, Virginia, West Virginia, District of Columbia, and New Jersey
- Northeast: Connecticut and New York
- Mid-West: Illinois, Indiana, Missouri, and Iowa
- West: Texas, Nevada, California, Montana, Arizona, Alaska, and Hawaii

### **International Project Experience**

Mr. Kosky has performed a wide variety of international projects—many associated with the Multi-Lateral (e.g., World Bank) and Bi-Lateral (e.g., USAID) organizations. Projects located in the following continents and countries:

- Asia: China, Pakistan, India, Russia, Taiwan, Thailand, and Indonesia
- Africa: Egypt and Mauritius
- Latin America and Caribbean: Guatemala, Honduras, Jamaica, Dominican Republic, Mexico, and Panama
- South America: Brazil and Argentina
- Europe: Italy, Poland, Hungary and Bulgaria, and the Czech Republic
- Middle East: Saudi Arabia

## **Kennard F. Kosky, M.S., P.E.**

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### **PROJECT RELATED EXPERIENCE – DOMESTIC**

#### **Site Certification Application and Licensing of the Turkey Point Expansion Project for Florida Power & Light Company (FPL)**

**Miami-Dade County, FL**

Project Manager for the preparation of licensing documents for the 1,150-megawatt (MW) Turkey Point Expansion Project, Miami-Dade County, Florida. This project involved the licensing of 4-on-1 combined-cycle units using four GE Frame 7FA 170-MW combustion turbines (CTs) with associated heat recovery steam generators (HRSGs), and a 440-MW steam turbine. These units are licensed under Florida's Power Plant Siting Act. Environmental documents prepared include the Site Certification Application (SCA), Federal Aviation Administration (FAA) obstruction to navigation application, U.S. Army Corps of Engineers (USACE) dredge and fill permit application, and air permit application [including prevention of significant deterioration (PSD) application]. Full Governor/Cabinet approval was obtained in February 2005.

#### **Burner Replacement for Gerdau-Ameristeel**

**Baldwin, FL**

Obtained a non-PSD determination from the Florida Department of Environmental Protection (FDEP) for a burner replacement project associated with an electric arc furnace. Project involved site visit, technical support, and discussions with FDEP.

#### **Petroleum Coke Co-Firing at the Cedar Bay Cogeneration Project**

**Jacksonville, FL**

Project Manager and engineer-of-record for the FDEP authorization allowing up to 35 percent petroleum coke to be co-fired with coal. The Cedar Bay facility consists of three 75-MW circulating fluidized bed (CFB) boilers fired with coal and located in Jacksonville, Florida. The authorization allowed co-firing with petroleum coke.

#### **Hines Energy Center Power Block 3 for Progress Energy (formerly Florida Power Corporation)**

**???????**

Project Manager and engineer-of-record for the air construction and PSD permit application for a 530-MW combined-cycle power project located in Polk County, Florida. Directed preparation of SCA sections related to air emission, best available control technology (BACT), air impacts, and noise impacts. Testified on all air quality and noise aspects at the SCA Hearing.

#### **Air Construction Permits for Tropicana Products, Inc.**

**Bradenton, FL**

Project Manager and engineer-of-record for various projects at Tropicana's Bradenton Citrus Processing Plant. The projects involved replacing the GE LM5000 aero-derivative gas turbine with the larger GE LM6000 turbine, like-kind replacement of the duct burner system on the cogeneration facility, and the installation of a stand-by boiler.

#### **Air Construction Permit for Hydro Aluminum of North America**

**St. Augustine, FL**

Project Manager for the preparation of two air construction permits for secondary aluminum foundry. Project involved physical changes to the melting furnace and increasing production limits. Project was able to net out of PSD review.

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### **Site Certification Application and Licensing of Expansion Projects for**

#### **Florida Power & Light Company**

#### **Martin and Manatee Counties, FL**

Project Manager of the preparation of licensing documents for two 1,150-MW Expansion Projects. These projects involved the licensing of 4-on-1 combined-cycle units using four GE Frame 7FA 170-MW CTs with associated HRSGs, and a 440-MW steam turbine. These units were licensed under Florida's Power Plant Siting Act. Environmental documents prepared include the SCA, FAA obstruction to navigation application, and air permit application (including PSD application).

### **Application for Certificate of Public Convenience and Necessity,**

#### **Dickerson Units 4 and 5, Mirant Corporation**

#### **Montgomery County, MD**

Project Manager for the preparation of the Certificate of Public Convenience and Necessity (CPCN) Application for the 1,100-MW Units 4 and 5 Project. This project involved the licensing of two 2-on-1 combined-cycle units using two existing GE Frame 7F 160-MW CTs and adding two GE Frame 7FA 170 MW CTs, four associated HRSGs, and two 220-MW steam turbines. These units are licensed under Maryland's Public Service Commission (PSC). Environmental documents prepared include the CPCN, FAA obstruction to navigation application, USACE dredge and fill permit application, and air permit application (including PSD application).

### **Application for Certificate of Public Convenience and Necessity,**

#### **Chalk Point Units CT7 through CT10, Mirant Corporation**

#### **Charles County, MD**

Project Manager of the preparation of the CPCN Application for the 320-MW CT Project. This project involved the licensing of four GE Frame 7EA 80-MW simple-cycle units. These units are licensed under Maryland's PSC. Environmental documents prepared include the CPCN, FAA obstruction to navigation application, and air permit application (including PSD application).

### **Greenhouse Gas Life-Cycle Analysis for Bitor America Corporation**

#### **???????**

Project Manager for the preparation of a life-cycle analysis of greenhouse gas (GHG) emissions from various fossil fuels and technologies. The life-cycle analysis compared GHG emissions from the use of coal, natural gas, LNG, oil, and Orimulsion. The technologies evaluated included conventional steam generation, Integrated Gasification Combined-Cycle (IGCC), and combined-cycle.

### **Odor Evaluations for Sea Ray Boats, Inc.**

#### **Palm Coast, FL**

Project Manager for the evaluation of odor impacts from styrene emissions associated with an existing fiberglass boat manufacturing facility in Flagler County, Florida. Project involved meteorological monitoring, styrene monitoring using SUMA canisters, air dispersion modeling and conceptual design of exhaust stack. Involved in negotiations with regulatory agency on consent order requirements and made public presentations to citizens group.

### **Odor Evaluations for Sea Ray Boats, Inc.**

#### **Merritt Island, FL**

Project Manager for the evaluation of odor impacts from styrene emissions associated with three co-located fiberglass boat manufacturing plants located in Brevard County, Florida. Project involved air dispersion modeling and conceptual design of exhaust stacks for two facilities. Involved in negotiations with regulatory agency and made public presentations to citizens group.

### **Lone Oak Energy Center for Calpine Eastern Corporation**

#### **Lowndes County, MS**

Project engineer for the air construction and PSD permit application for an 800-MW combined-cycle power project.

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**Calhoun County Peaker Project for FPL Energy** **Calhoun County, AL**  
Project Manager for the air construction and PSD permit applications and environmental permits for a 680-MW simple-cycle power project.

**Hillabee Energy Center for Calpine Eastern Corporation** **Tallapoosa County, AL**  
Project engineer for the air construction and PSD permit applications for a 700-MW combined-cycle power project.

**Auburndale Peaker Project for Calpine Eastern Corporation** **Polk County, FL**  
Project Manager and engineer-of-record for the air construction and PSD permit applications for a 130-MW simple-cycle power project.

**Hines Energy Center Power Block 2 for Florida Power Corporation** **Polk County, FL**  
Project Manager and engineer-of-record for the air construction and PSD permit applications for a 530-MW combined-cycle power project.

**Osprey Energy Center for Calpine Eastern Corporation** **Polk County, FL**  
Project Manager and engineer-of-record for the air construction and PSD permit applications for a 530-MW combined-cycle power project. Provided technical oversight for the preparation of the SCA.

**Simple-Cycle Power Projects for Florida Power & Light Company** **Martin and Ft. Myers, FL**  
Project Manager and engineer-of-record for the air construction and PSD permit applications for two 170-MW simple-cycle units located at the existing FPL Martin and Ft. Myers Power Plant sites. Each project also required an evaluation of the noise impacts. The project at the Martin Plant required a modification of the SCA.

**Shady Hills Generating Station for IPS Avon Park Corporation and El Paso Energy** **Hardee County, FL**  
Project Manager and engineer-of-record for the air construction and PSD permit applications for a 510-MW simple-cycle power project.

**Odor and Air Quality Consulting for the Viera Company** **Brevard County, FL**  
Lead technical consultant in providing oversight on the air permitting of a waste scrap shredder. Project involved specifying procedures and reviewing results of source tests and impact analyses.

**Installation of Citrus Fruit Extractors for Tropicana Products, Inc.** **Ft. Pierce, FL**  
Project manager and engineer-of-record for the air construction and PSD permit applications for the addition of fruit extractors at the Tropicana Plant. Detailed air dispersion modeling was required.

**DeSoto Power Project for IPS Avon Park Corporation and Entergy Power Group** **DeSoto County, FL**  
Project Manager and engineer-of-record for the air construction and PSD permit applications for a 680-MW simple-cycle power project.

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**Air Construction Permit Preparation and Review for Solutia, Inc.**      **Pensacola, FL**  
Preparation of air construction permits for various process additions to the Solutia nylon production plant. This included new adipic acid production intermediates. Assisted Solutia in the review and comments to FDEP on the Title V permit application. Prepared an air permit application for an inlet fogging system for Solutia's cogeneration facility.

**Sea Ray Boats, Inc., Cape Canaveral Plant**      **Brevard County, FL**  
Project Manager for a BACT evaluation and air modeling impact analysis for a new fiberglass boat manufacturing facility. Project involved negotiations with regulatory agency on permit conditions.

**Heard County Power Project for Dynegy, Inc.**      **Hardee County, FL**  
Project engineer for the air construction and PSD permit applications for a 510-MW simple-cycle power project.

**Fogger Installation at Combustion Turbine Sites**      **Jacksonville, FL**  
Project Manager for the preparation of air permit applications for the installation of inlet cooling "foggers" on simple-cycle CTs at Jacksonville Electric Authority's (JEA) Northside and Kennedy Plant sites. Project involved developing strategy for "netting out" of PSD.

**Palmetto Power Project for Dynegy, Inc.**      **Hardee County, FL**  
Project Director and engineer-of-record for the air construction and PSD permit applications for a 510-MW simple-cycle power project.

**Vandolah Power Project for IPS Avon Park Corporation and El Paso Energy**      **Hardee County, FL**  
Project Manager and engineer-of-record for the air construction and PSD permit applications for a 680-MW simple-cycle power project.

**Fogger Installation at Combustion Turbine Sites for Florida Power & Light Company**      **Multiple Sites, FL**  
Project Manager for the preparation of air permit applications for the installation of inlet cooling "foggers" at the Ft. Myers, Putnam, and Martin Plant sites. Project involved developing strategy for "netting out" of PSD.

**Independent Power Projects for Tenaska, Inc.**      **Multiple Sites**  
Project Director and engineer-of-record for the preparation of PSD and air permit applications the following projects: Heard County, Georgia – 850-MW simple-cycle; Autauga County, Alabama, Two Projects – an 800-MW combined-cycle and an 8870-MW combined-cycle project located on adjacent sites; Lakefield, Minnesota – 480-MW simple-cycle (BACT); Coosa County, Alabama Project – 540-MW simple-cycle project.

**Oleander Power Project for Constellation Energy**      **???????**  
Project Manager for the preparation of PSD and Air Permit Applications for the Oleander Power Project. Project consisted of 5 General Electric Frame 7FA simple-cycle CTs (nominal 850 MW). Project involved providing expert testimony.

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### **Repowering Project for Florida Power & Light Company** **Sanford, FL**

Project Manager for the preparation of air permit applications for conversion of two existing steam electric units (Units 4 and 5) at the FPL Sanford Plant to combined cycle using 8 General Electric Frame 7FA CTs. The repowering would produce a nominal 2,200 MW of gas-fired combined-cycle generation. The project involved the preparation of the PSD and Air Permit Applications, noise evaluation, and FAA Notifications.

### **Generation Project for Thermal EcoTek, Corporation** **Lake Worth, FL**

Project Manager for the preparation of the PSD and Air Permit Applications for the Lake Worth Generation Project. Project consisted of the repowering of 2 existing steam units with a nominal capacity of 74 MW using a General Electric Frame 7FA CT (170 MW).

### **Repowering Project Licensing for Florida Power & Light Company** **Ft. Myers, FL**

Project Manager for environmental licensing documents for the conversion of the existing steam electric units (Units 1 and 2) at the FPL Ft. Myers Plant to combined cycle using 6 General Electric Frame 7FA CTs. The repowering would produce a nominal 1,500 MW of gas-fired combined-cycle generation. The project involved the preparation of the PSD and Air Permit Applications, Environmental Resource Permit (ERP) Application, Wastewater Discharge Permit Application (i.e., the SPDES), FAA Notifications, and county applications.

### **Lakeland Electric (City of Lakeland) McIntosh Unit 5** **Lakeland, FL**

Project Manager for the preparation of the PSD and air permit applications for the McIntosh Unit 5 simple-cycle project. Included preparation of the Modification Request to Site Certification for McIntosh Unit 3. Project consisted of the first Westinghouse 501G CT with a nominal capacity of 250 MW.

### **Title V Permit Applications for Eagle-Picher Corporation** **Multiple Sites**

Project Director for the preparation of Title V Permit applications or Federally Enforceable Synthetic Minor Operating Permit applications for 9 facilities in 6 states. The facilities include activities associated with metal coil coating, rubber part manufacturing, and printing. The states where the facilities are located include Connecticut, Florida, Michigan, New Jersey, Pennsylvania, and New York.

### **Odor and Noise Monitoring for North and South Broward Resource Recovery Facilities** **Broward County, FL**

Project director for noise and odor studies at two large municipal waste combustors. The studies were based on ASTM methods to demonstrate conformance with requirements of regulatory approvals.

### **Destin Dome Natural Gas Development Project for Chevron U.S.A. Production Company** **Pensacola, FL**

Project Manager for the OCS air permit application submitted to the U.S. Environmental Protection Agency (EPA) to develop the natural gas reserves in a 33-square-mile area offshore of Pensacola. The projects involved preparation of permit applications including emission estimates of well drilling and production facilities. Air emission sources included two drilling rigs, one central production facility, and 16 satellite production facilities. The project included PSD evaluations to determine BACT and air impact analysis using the OCD air dispersion model.

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### **Title V Permit Applications for Potomac Electric Power Company      Multiple Sites**

Project Manager for the preparation of Title V Permit applications or Federally Enforceable Synthetic Minor Operating (FESOP) Permit applications for 7 facilities in 2 states and 1 jurisdiction. The Title V facilities consist of 6 power plants with coal and oil fossil fuel-fired steam generating units, CTs, and diesel units. The FESOP is for a service facility. The facilities are located in Maryland (3 plants and the service facility), Virginia (1 plant) and the District of Columbia (2 plants).

### **Air Permitting for Destin Dome Blocks 57 and 96, Chevron U.S.A.**

#### **Production Company Outer Continental Shelf      ??????, FL**

Project Manager for the Outer Continental Shelf (OCS) air permits issued by the EPA to conduct well drilling within the U.S. boundary, offshore of Florida. The projects involved preparation of permit applications including emission estimates of well drilling activities. The applications were the first in the Eastern U.S. under 40 Code of Federal Regulation (CFR), Part 55. These regulations were promulgated as a result of the 1990 Amendments of the Clean Air Act (CAA) Amendments. Presented information on the emissions and impacts of the activity at an EPA sponsored public hearing.

### **Kaiser Aluminum-Gramercy and Baton Rouge**

#### **Cogeneration Plants**

**Baton Rouge, LA**

Project Manager for obtaining air permits on two cogeneration facilities. The facilities were required to obtain PSD approval and meet NSPS requirements.

### **PSD Approval for Cogeneration Facility at Borden Chemical      Baton Rouge, LA**

Project Director for an 80-MW cogeneration facility constructed for Borden Chemical. The project involved obtaining PSD approval from the state agency.

### **Site Certification Application for Orimulsion Conversion      Manatee County, FL**

Project Director for the licensing of Orimulsion firing at FPL's Manatee Power Plant. The plant consists of two nominal 800-MW units. Technical activities focused on the preparation of BACT evaluation and air pollution control aspects of the project.

### **Petroleum Coke and Title V Application for**

#### **City of Lakeland Department of Electric and Water Utilities**

**Lakeland, FL**

Project Manager and engineer-of-record for providing technical assistance to obtain approval for co-firing petroleum coke (20 percent) and coal (80 percent) at McIntosh Power Plant, Unit 3. McIntosh Unit 3 is a 364-MW coal-fired facility. Project Manager and engineer-of-record for preparation of Title V applications.

### **Coal and Petroleum Coke Co-firing Permit for**

#### **St. Johns River Power Plant**

**St. Johns County, FL**

Project Manager and engineer-of-record for obtaining approval from the regulatory agencies to co-fire up to 20 percent of petroleum coke by weight with coal in two nominal 700-MW units. Permit application and supporting material prepared. Performed emissions estimates and impact analyses of potentially toxic air emissions (metals). Provided support and presentations to local chapter of Sierra Club who intervened in the permit proceeding. Performed post-test analyses to demonstrate compliance with settlement agreement.

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### **Title V Economic Evaluation for**

#### **Florida Electric Power Coordinating Group**

?????, FL

Performed an economic evaluation for Florida Electric Power Coordinating Group (FCG) on the cost to prepare Title V permits as initially proposed by FDEP and presented the results of the evaluation at the FDEP Title V Workshop. The presentation assisted in modifying the FDEP requirements to more closely follow EPA requirements.

### **Electric Utility Regulatory Requirements for**

#### **Florida Electric Power Coordinating Group**

?????, FL

Lead the effort to prepare a comprehensive list of regulatory requirements specific for the electric utility industry. The list, which includes all applicable and non-applicable requirements, forms the basis for compliance statements required of the responsible official.

### **Title V Permit Recommendations for**

#### **Florida Electric Power Coordinating Group**

?????, FL

Providing recommendations for preparation of Title V permits for the FCG. This includes interfacing with FDEP and providing comments on insignificant activities and application form submittal. Also provided FDEP comments on data input requirements and suggestions that will make the application form easier to develop.

### **Florida Power Corporation Title V Applications**

?????, FL

Project Director and engineer-of-record for Title V applications for 11 facilities. The facilities include coal-, oil-, and gas-fired fossil fuel steam generator units, simple-cycle CT units, combined-cycle unit, and diesel generators. Project involved regulatory requirements, emissions inventories, trivial activity lists and application preparation.

### **Title V Permits for Florida Power & Light Company Facilities**

?????, FL

Assisting FPL in the preparation of Title V permit applications for all facilities. This includes 11 power plants and several minor facilities. Engineer-of-record for the applications, and responsible for overseeing the applications' preparation. Also providing input on regulatory requirements and emissions. Currently, one permit application has been completed in draft form.

### **Title V Permit Implementation Plan for Tennessee Valley Authority Multiple Sites**

Assisted Tennessee Valley Authority (TVA) in developing a comprehensive list of applicable requirements in three states (Tennessee, Kentucky, and Alabama) for 10 facilities. Also performed site visits for four major plants (7,550-MW coal-fired with CTs) to develop a list of major sources and insignificant activities. The result was a comprehensive Title V plan, which is currently being implemented by TVA. Performed reviews of Title V applications for three power facilities.

### **Gulf Power Company Title V Applications**

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Project Manager and engineer-of-record for Title V applications for three coal-fired facilities. Performed site visits for each facility and developed listing of regulatory requirements.

### **Title V Database for Various Clients**

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Developed a Title V database built around the FDEP Title V permit application form. The database is designed to manage the data and print out a form identical to the FDEP form. The database will provide a format suitable for electronic submittal to FDEP.

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### **Emissions Inventory and Title V Applications for Potomac Electric Power Company (PEPCO)**

**???????**

Project Manager for the development of a comprehensive emissions inventory and preparation of Title V applications for all of PEPCO facilities. This includes 6 power plants (4 coal-fired plants, 1 oil/gas plant, and 1 CT plant) located in three regulatory jurisdictions. The inventory will involve the development of an emission inventory management system that will manage the data.

### **Site Certification Application at Hardee Power Station, Seminole Electric Cooperative Incorporated**

**Hardee County, FL**

Project Director for SCA and environmental assessment (EA) for a 660-MW combined-cycle electric-generating plant. Responsible for the technical, budgetary, and scheduling aspects of the project. The permitting documents prepared were designed to fulfill requirements of the PSC and the U.S. Department of Agriculture (USDA) Rural Electrification Administration (REA). Provided expert testimony for the project.

### **Transmission Line Corridor Siting at Hardee Power Station for Seminole Electric Cooperative Incorporated**

**Hardee County, FL**

Project Director for siting and licensing of three 230-kilovolt (kV) transmission lines (total of 78 miles) to connect the Hardee Power Station to the Florida transmission grid. Siting of the transmission line corridors was accomplished using the PC ARC/INFO® geographic information system (GIS). Developed all required information and impact analyses for the Florida SCA to be presented to the Florida Department of Environmental Regulation (FDER) and PSC.

### **Site Certification Application and Licensing of the Lauderdale Repowering Project for**

**Florida Power & Light Company**

**Ft. Lauderdale, FL**

Project Manager for the preparation of licensing documents for the Lauderdale Repowering Project, Broward County, Florida. This project involved replacing two existing steam generators with advanced CTs and HRSGs. The repowered units were designed to have a capacity of approximately 960 MW, approximately 640 MW resulting from the addition of the advanced CTs. Environmental documents prepared include the SCA, National Pollutant Discharge Elimination System (NPDES) application, FAA obstruction to navigation application, USACE dredge and fill permit application, and air permit application (including PSD application).

### **Test Burn of Orimulsion Fuel for Florida Power & Light Company**

**Sanford, FL**

Project Manager for a test burn to discover if Orimulsion fuel had the potential to displace No. 6 fuel oil in steam electric power plants at Sanford Unit 4. Project provided the opportunity to evaluate the technical and operational features associated with burning Orimulsion fuel under utility operating conditions.

### **Air Construction Permit Application for TransPac, Inc.**

**???????**

Project Manager for project requiring permit to construct an air pollutant source. Developed report supplementing the application to construct a minor-source waste storage and treatment facility. The objective of this report was to evaluate the impact of the facility based on a comparison of the proposed facility's impacts to the FDER's proposed toxic air pollutant guidelines.

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### **Air Quality Impacts of Siting 1,050-MW CTs for**

#### **Florida Power Corporation**

**Multiple Sites**

Project Manager of air quality impact analyses performed to evaluate locating CTs at six potential sites in Florida: Intercession City, DeBary, Avon Park, Turner, Bartow, and Anclote. The analyses were undertaken to determine compliance with ambient air quality standards (AAQS) and PSD increments for the maximum proposed plant size (i.e., 1,050 MW).

### **Particulate Matter Air Quality Assessment of**

#### **Helper Cooling Towers for Florida Power Corporation**

**?????, FL**

Project Manager of project to determine the impacts of the proposed cooling towers on ambient particulate matter (PM) levels, considering all PM emissions associated with the CT units, cooling towers, helper cooling towers, and coal- and ash-handlers already existing onsite. Impacts were addressed in regard to allowable PSD increments for PM [as total suspended PM, i.e., PM(TSP)] and AAQS for PM [as particulate with an aerodynamic diameter less than 10 micrometers ( $\mu\text{m}$ ), i.e., PM<sub>10</sub>].

### **Site Evaluation of 1,000-MW CT Project for**

#### **Florida Power Corporation**

**?????, FL**

Project Manager responsible for evaluating the availability of water-supply sources, raw water treatment requirements, and wastewater disposal options at six facilities for the 1,000-MW CT siting project. Water supply sources were evaluated to determine their feasibility for use and included existing permitted groundwater and surface water withdrawals, new groundwater sources, new surface water withdrawals, and secondary effluent from nearby municipal wastewater treatment facilities.

### **CT Site Evaluation and Chalk Point Environmental Assessment for**

#### **Potomac Electric Power Company**

**?????, MD**

Project Manager of project to provide alternative site and environmental information required under the Maryland PSC rules for receiving a CPCN for a new generation facility. The two primary objectives of the report were to identify and evaluate suitable sites for accommodating approximately four CTs and to evaluate the environmental baseline information and potential impacts of locating the CTs at the preferred site.

### **Gator Power Cogeneration Facility PSD**

#### **Review for Florida Power Corporation**

**?????, FL**

Project Manager for PSD review for a cogeneration facility consisting of a CT and HRSG. The report addressed the new source review (NSR) requirements contained in air quality regulations on both the state and federal levels.

### **Fog Visibility Study for Parsons, Brinkerhoff,**

#### **Quade, and Douglas, Inc.**

**Charleston, SC**

Project Manager responsible for study designed to obtain meteorological and fog/visibility data on the I-526 Cooper River Crossing in North Charleston. Objectives of the program were to document the frequency and duration of fog and the meteorological conditions during which it occurs; to identify and differentiate the fog plume created by the cooling towers from that of other sources; and to correlate the data collected with data observed at the National Weather Service (NWS) station in Charleston.

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### **Site-Specific Environmental Evaluation for Potomac Electric Power Company**

**???????**

Project Manager responsible for presenting the methodology and results of a site-specific environmental evaluation. The objective of the site environmental evaluation was to determine the environmental suitability of CT units with projected early 1990s in-service dates. The candidate site environmental evaluation consisted of analyzing candidate sites based on six environmental factors.

### **PSD Permit Application for Environmental Incineration Systems, Inc.**

**Duval County, FL**

Project Manager of permitting activities for proposed municipal solid waste recycling/volume reduction facility. The facility was designed to reduce the amount of solid waste input to landfills in Duval County by up to 175,200 tons per year (TPY). The proposed facility was classified as a "major" source under federal and state air pollution control regulations and was subject to the PSD provisions of the regulations.

### **PSD Permit Application for Cogeneration Project for Tropicana Products, Inc.**

**?????, FL**

Project Manager responsible for permitting a cogeneration facility consisting of a CT, a HRSG, and an associated auxiliary steam generator. The report addressed the NSR requirements contained in the state and federal regulations.

### **Crystal River PSD Analysis for Florida Power Corporation**

**Crystal River, FL**

Project Manager of air dispersion modeling analyses performed to determine the TSP impacts of PM emissions from the cooling towers at FPC's Crystal River facility. A modeling protocol was prepared by KBN and reviewed and commented upon by the EPA.

### **EMSoft II®, Permit Manager for Manatee County Public Health Unit**

**Manatee County, FL**

Designed and developed the EMSOFT II®, a software package for micro-computers designed to assist end users in managing environmental permits and requirements through a relational database capable of generating a series of specific reports.

### **Agrico Chemical Company Mine**

**Hillsborough County, FL**

Project Manager for the EA for a phosphate mine located in eastern Hillsborough County, Florida. The project involved the development of baseline conditions including monitoring of air, water, and ecological conditions. Impact analyses involving various environmental disciplines were conducted using approved regulatory techniques.

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### **PROJECT RELATED EXPERIENCE – INTERNATIONAL**

#### **Best Available Control Technology Assessment and Toxic Air Emission Evaluation for Coleson Cove Refurbishment Project, New Brunswick Power Corporation**

**New Brunswick, Canada**

Senior consulting engineer for developing a best available control technology (BACT) assessment and toxic air emission inventory for the conversion of the 1,050-MW Coleson Cove plant from residual oil to Orimulsion. Project involved a detailed assessment of control equipment for sulfur dioxide (SO<sub>2</sub>), PM, nitrogen oxides (NO<sub>x</sub>) and sulfuric acid mist (SAM). Develop a toxic air emissions inventory. Provided presentations at multi-agency meetings and public hearings.

#### **Combined-Cycle Projects for Southern Energy, Inc.**

**?????, Italy**

Provided technical review and assistance for two 370-MW combined-cycle projects to be located in east central Italy. Reviewed the designs and impact methodologies to provide senior oversight of projects.

#### **Environmental Due Diligence**

**Campeche, Mexico**

Project Director for the environmental due diligence for the Cantarell Nitrogen Project located near Campeche, Mexico. Project is the largest nitrogen plant in the world with an associated 400-MW power complex to provide power for the nitrogen plant. Review licensing reports and documents for conformance with Mexican regulations and "world norms". Review being conducted for international financial institutions.

#### **Environmental Benchmarking of Power Facilities, Worldwide, Confidential Client**

**Multiple Sites**

Project Manager assisting an international energy company in the evaluation of their environmental conformance with international accepted norms of all of their facilities worldwide. This involved evaluating over 10,000 MWs at approximately 12 different power facilities including hydro. These plants were located in Asia, South America, North America, and Europe. Evaluation was to assist with the development of an environmental management system for all of the company's facilities.

#### **Shanghai Municipal Electric Power Company**

##### **Waigaoqiao Environmental Assessment**

**Shanghai, China**

Project Manager for World Bank EA of the addition of two 1,000-MW coal-fired super-critical units to the Waigaoqiao Power Plant site. This was referred to as Phase II, while Phase I, the existing plant, consists of four 300-MW units. The EA also considered the addition of a Phase III which would be identical to Phase II (i.e., another two 1,000-MW units). The EA was prepared to meet World Bank guidelines and involved developing information and performing analyses for Phases I, II, and III.

#### **Baley Gold Mine Project**

**?????, Russia**

Task Manager for the environmental assessments relating to the potential air and noise impacts from a gold mine project located in Eastern Russia. The task involved developing emissions and impact estimates for mining 25 million tonnes of material from an open pit mine. Impacts were determined using EPA dispersion models. Noise impacts from mine activities were determined using the NOISECALC model.

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### **Nickel and Cobalt Mine Project**

**Cupey, Cuba**

Working through Golder's Mississauga Office provided air impact analyses for a nickel and cobalt mine located in Cupey, Cuba. The major emissions from the project were from the ore processing, which contained PM and SO<sub>2</sub>. The EPA dispersion model ISC3ST was used to estimate impacts using a 1-year meteorological data base. Impacts were compared to the World Bank ambient guidelines.

### **Ambient Air Monitoring Laboratories and Training Program for the Electricity Generating Authority of Thailand**

**Bangkok, Thailand**

Project Director responsible for designing and constructing two mobile laboratories as well as providing air quality and meteorological equipment. Equipment will be installed in specialty-designed cubicles, and mounted on a Nino truck chassis. The intensive training program will consist of 2 months training in the United States for three EGAT engineers.

### **Air Resources Studies, Mae Moh Power Plant and Lignite**

**Mine for the Electric Generating Authority of Thailand Mae Moh Valley, Thailand**

General Consultant for Air Quality/Project Manager managing activities within an environmental program for proposed plant and mine development in Mae Moh Valley, Northern Thailand.

### **Environmental Licensing Studies for the Electricity Generating Authority of Thailand**

**Bangkok, Thailand**

Air Resources, Subproject Manager, responsible for studies of coal-fired power plant. Managed air resources investigations as part of overall environmental studies of proposed coal-fired power plant to be located on the Gulf of Thailand, 70 kilometers (km) southeast of Bangkok.

### **Ambient Monitoring Network for the Electricity Generating Authority of Thailand**

**Gulf of Thailand**

Project Director/Air Resources, Subproject Manager, performing environmental licensing studies for a 2400-MW, coal-fired plant.

### **Environmental Assessment of Gas Turbine Electrical Generating Facility, World Bank**

**Hunts Bay, Jamaica**

Air Engineer responsible for developing mitigation and monitoring measures based on the results of air modeling to reduce the impacts from SO<sub>2</sub> and NO<sub>x</sub> in the Hunts Bay area.

### **Development of Air Quality Standards for the Government of Mauritius for the World Bank**

**?????, Mauritius**

Project Manager tasked with assisting the government of Mauritius in developing air quality standards and designing appropriate monitoring programs required for regulatory enforcement.

### **Environmental Assessment for 60-MW Diesel-Powered Facility**

**Rockfort, Jamaica**

Air Engineer responsible for developing mitigation and monitoring measures based on the results of air modeling to reduce the impacts from sulfur dioxide and nitrogen oxides in the Rockfort project area.

### **Environmental Assessment of the Gas/Coal Electrical Generating Facility in Mauritius for the World Bank**

**St. Aubin, Mauritius**

Project Director responsible for conducting all field work for the environmental assessment of a coal- and gas-fired electrical generating facility at St. Aubin in air quality, water quality, and ecology.

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### **Environmental Screening of Four Proposed Power Plant Sites for the World Bank**

?????, Jamaica

Air Engineer responsible for conducting the air quality components of an environmental screening of four potential sites for a 60-MW diesel electrical generating facility.

### **Technical Cooperation Mission for the World Bank**

?????, Bulgaria

Team Member on the World Bank Mission to determine the major environmental problems in Bulgaria and to identify potential areas for World Bank funding. Responsible for portions of the mission involving toxic/hazardous waste and air pollution. Contributed to the mission's Aide Memoire and directed the preparation of an overall report summarizing the state of the environment in Bulgaria.

### **Environmental Strategy Study of Air Quality, World Bank**

?????, Hungary

Team Member on mission providing an overview of key air quality problems in Hungary; a description and assessment of regulatory institutions, regulations, and policy; and identification of initial approaches and investment opportunities for improving air quality. During the mission, discussions were held with relevant governmental organizations, various industries, and environmental interest groups (non-governmental organizations) throughout Hungary. Project focused on preparation of an Aide Memoire and summary report dealing with industrial pollution.

### **Environmental Project for World Bank**

Katewice/Krakow, Poland

Team Member of the World Bank Mission that recommended and defined an environmental project for the Katewice/Krakow area. Interviewed various governmental personnel to determine needs and developed a comprehensive program for a \$7-million loan. Developed request for quotations for various components of the recommended study: The focus of the study was air quality.

### **Multidisciplinary Electric Power Plant Projects for the U.S. Agency for International Development(USAID)**

Multiple Sites, Pakistan

Project Manager for several multidisciplinary projects involving the development of electrical power plants in Pakistan. The projects included the Lakhra Mine and Power Plant EA, the Jamshoro Oil-Fired Power Plant EA, the Guddu Combined-Cycle Expansion Project, the Kalifia Point Private Sector Power Project, and the Environmental Guidelines for Electric Power Development in Pakistan.

### **Private Sector Power Project for USAID**

Multiple Sites, Pakistan

Project Manager responsible for performance of an air quality impact evaluation to investigate a large coal-fired power plant planned by the Government of Pakistan and a 1,200-MW oil-fired power plant proposed by a group of private firms. Determined the air quality effects of each plant, as well as the cumulative effects of both plants, on the area's ambient air quality. Prepared guidelines providing the private sector proposer a framework for preparing an EA from which significant environmental impacts and alternative designs to mitigate them can be determined. Project also included the establishment of a framework for future assessments of the respective plants, a preliminary evaluation of cooling water requirements, and a determination of potential water quality and ecological impacts.

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### **Guddu Environmental and Social Soundness**

#### **Assessment for Gibbs & Hill, Inc.**

#### **Guddu, Pakistan**

Project Manager of an Environmental and Social Soundness Assessment (ESSA) associated with the construction and operation of a proposed 300-MW addition to a 600-MW combined-cycle power plant in Guddu, Pakistan. The ESSA, designed to provide decision makers with a full discussion of significant environmental effects associated with the power plant expansion, included an evaluation of alternatives or mitigating measures.

### **Duri Field EA for Caltex Pacific**

#### **Duri Field, Indonesia**

Project Manager of the air quality assessment of the Duri Field steam-flood project. This project was the largest steam-flood project in the world and involved an assessment of over 300 steam generators using Duri Crude. Directed all activities and presented the results of the study to the newly formed Ministry of Environment.

### **EAs of Electrical Generating Facilities for**

#### **Electricity Generating Authority of Thailand (EGAT)**

#### **Multiple Sites, Thailand**

Project Manager for 8 years of numerous multidisciplinary projects involving EAs of electrical generating facilities in Thailand. The projects included an assessment of a 600-MW coal-fired power plant in Ao Pai; an assessment of constructing 600 MW of additional generation at the Mae Moh site; an assessment of a combined-cycle power plant at Khanom; and a mine and power plant mitigation assessment for the Mae Moh facility.

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## **EXPERT/EXPERT WITNESS TESTIMONY EXPERIENCE**

Mr. Kosky has provided expert testimony in over 50 Cases. He has testified in the following types of proceedings:

- Hearing Officers and Administrative Law Judges (ALJs);
- Public Service Commissions;
- Circuit Court;
- Federal District Court;
- Governor of Florida;
- State and County Environmental Commissions;
- Environmental review Boards;
- County Commissions;
- Land Use Commissions; and
- EPA.

Mr. Kosky has been accepted as an expert in the following areas:

- Air Quality Impact Analyses;
- Air Pollution Control Technology (Design and Engineering);
- Best Available Control Technology;
- Air Pollution Emission Estimates;
- Air Regulation and Compliance; and
- Noise Evaluation and Impact Analyses.

### **Agrico Chemical Company**

**?????, FL**

Florida Department of Environmental Regulation Administrative Hearing. Provided assistance to attorneys at hearing for cross examination of opposing witnesses. Case involved permits for prilled sulfur terminal. 1979.

### **Fugitive Emissions Expertise**

**Alachua County, Florida**

Circuit Court. Provided expert testimony on the impacts of fugitive dust related to highway construction.

### **AstraZeneca**

**Tarpon Springs, FL**

EPA ASTDR. Provided technical support for Stauffer Chemical Company Superfund Site. Technical expertise provided in air monitoring and air impact analyses. 2001 to present.

### **Baltimore Gas and Electric Company**

**Baltimore, MD**

Provided expert testimony for the following:

- Presentation for Maryland PSC staff and hearing examiners on the technical issues related to BACT. 1992.
- Hearing Examiner. Provided direct and supplemental written expert testimony for 800-MW combined-cycle Perryman Project. Testimony required for the PSC CPNC. Testimony focused on air emissions and BACT for the project. 1990 to 1991.

### **Broward County Resource Recovery Office**

**Broward County, FL**

Hearing Examiner. Preparation and presentation of testimony for the North and South Broward County Resource Recovery projects on BACT. Testimony was part of a power plant site certification project. 1985 to 1986.

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### **Calpine Eastern Corporation**

**Auburndale, FL**

Administrative Law Judge. Provided expert testimony on a 500-MW combined-cycle unit located at the Osprey Energy Center in Auburndale, Polk County, Florida. Testimony focused on air emissions, BACT, and noise. 2001.

### **Chevron, Inc.**

**Pensacola, FL**

Presentation before an EPA Region IV panel regarding the air emissions and impacts of drilling rig as part of Outer Continental Shelf Air Permit (40 CFR 55). The project was located in Destin Dome, which is located about 30 miles offshore from Pensacola. Permit was granted.

### **City of Jacksonville**

**Jacksonville, FL**

Circuit Court. Provided technical support for a class certification involving the air quality impacts of incinerators operating from about 1950 to 1970. Provided technical analysis and presented opinions at a deposition. 2004.

### **City of Lakeland Utilities**

**Lakeland, FL**

Provided expertise for the following:

- Administrative Law Judge. Presented expert testimony on the addition of the steam cycle for McIntosh Unit 5. As Project Manager for the project, the testimony covered all environmental disciplines including air emissions, BACT, and general environmental impacts.
- Hearing Examiner. Presented technical information and the results of modeling during hearings on site certification for a new electrical generating plant.

### **Constellation Energy**

**Brevard County, FL**

Administrative Law Judge. Provided expert testimony for the air pollution controls and BACT for an 850-MW simple-cycle power plant to be located in Brevard County.

### **Confidential Clients**

Provided expertise for the following (only partially listed):

- Provided technical expertise in anticipation of litigation for dioxin contamination from a refinery. Performed air impact analysis and assessment.
- Provided expert technical expertise for cases filed against facilities by Justice Department related to EPA's New Source Review regulations. 1998 to present.

### **Del Monte Fresh Produce, Inc. Power & Light Company**

**?????. HI**

Jury Trial. Provided testimony in the United States District Court, District of Hawaii, related to air emission and impacts from pesticides. 2004.

### **Delmarva Power & Light Company**

**Dorchester, MD**

Hearing Examiner. Provided direct and supplemental written and oral testimony for nominal 300-MW coal-fired power plant located in Dorchester, Maryland. Case was part of the CPCN before the Maryland PSC. Testimony was related to the air pollution control technology, Lowest Achievable Emission Rate (LAER) and BACT. 1994.

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### **Florida Department of Environmental Regulation**

**Multiple Sites, FL**

Provided expertise for the following:

- Hearing Examiner. FDER. Provided expert testimony regarding NO<sub>x</sub> emission limits for fossil fuel steam generators. Three hearings involved and ultimately lead to the NO<sub>x</sub> task force. 1973.
- Hearing Examiner. Florida Environmental Regulation Commission (FERC). Administrative Hearing. Testified on impacts of rule change on phosphate rock dryers. Testimony related to air quality impacts and control technology. 1973.
- Hearing Examiner. FDER Administrative Hearing. Prepared testimony on air quality impacts of control strategy for pulp mill. Testimony involved dispersion modeling and control techniques. 1973.
- FERC. Testimony on emergency action plans and compliance schedules for the State Implementation Plan. Testimony given at six locations throughout Florida. 1973.

### **Florida Electric Power Coordinating Group**

**Multiple Site, FL**

Provided expertise for the following:

- FERC and Honorable Bob Graham, Governor of Florida. Two Hearings. Prepared technical information that allowed suspension of emissions for 120 days due to energy emergency. Approval given by all parties. 1979.
- FERC. Prepared report and testimony and presented support of a rule change for three southeast Florida counties. Rule change involved elevating ambient air quality standards. The rules were changed to be consistent with the rest of the state. 1975.
- FERC. Prepared report and testimony presented in support of a rule change that would allow the use of fuel with a higher sulfur content. Project involved approximately 10,000 MW of fossil-fueled steam generators. The rule was changed. 1975.

### **Florida Power Corporation (Progress Energy)**

**Multiple Sites, FL**

Provided expertise for the following:

- Administrative Law Judge. Provided expert testimony on a gas and distillate oil-fired 500-MW combined-cycle unit located at the Hines Energy Center in Polk County, Florida. Testimony focused on air emissions, BACT, air impacts, and noise. Certification issued by Governor and Cabinet. 2001.
- Administrative Law Judge. Provided expert testimony for the use of petroleum coke with coal in two units at the Crystal River Power Plant. Focus of testimony was regulatory applicability of PSD rules to the use of petroleum coke. 1997.
- Hearing Examiner. FDER Administrative Hearing. Presented testimony on environmental impacts of Crystal River Units 4 and 5 (1,400-MW, coal-fired power plant). Permit approved. 1978.

### **Florida Power & Light Company**

**Multiple Sites, FL**

Expert testimony provided for the following:

- Administrative Law Judge. Provided expert testimony for Turkey Point Expansion Project, an 1,100-MW Power Plant located in Miami-Dade County, Florida. Testimony included air emissions (toxics), air quality impacts, and noise. 2004.
- Administrative Law Judge. Provided expert testimony for Manatee Expansion Project, an 1,100-MW Power Plant located in Manatee County, Florida. Testimony included air emissions (toxics), air quality impacts, and noise. 2003.
- Administrative Law Judge. Provided expert testimony for Martin Expansion Project a 1,100-MW Power Plant located in Martin County, Florida. Testimony included air emissions (toxics), air quality impacts, and noise. 2003.

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- Manatee County Planning Commission and Manatee County Board of County Commission. Provided testimony on environmental issues related to land use for the Manatee Combined-Cycle Project. 2002.
- PSC for South Carolina. Provided expert testimony for the Cherokee Falls simple-cycle power project. Testimony covered all environmental matters related to the project. 2002.
- Administrative Law Judge. Provided expert testimony for Manatee Orimulsion Conversion Project. Focus of testimony was BACT and air emissions (including toxics). 1998.
- Administrative Law Judge. Provided expert testimony for Manatee Orimulsion Conversion Project. Focus of testimony was BACT and air emissions (including toxics). 1995.
- Hearing Examiner. Provided expert testimony for the Martin combined-cycle project (1,600-MW combined-cycle coal gasification facility). Provided testimony on air emissions and BACT for Site Certification issued by Governor and Cabinet. 1990.
- Hearing Examiner. Expert testimony provided for the Lauderdale Repowering Project (800-MW combined-cycle facility). Testimony provided on air emissions, BACT, and noise. 1990.
- FDER Official. Expert testimony provided for SIP revision, various PSD aspects of test firing Orimulsion in a 400-MW gas-/oil-fired power plant. Air emissions and impacts presented. 1990.
- Hearing Examiner. Presented expert testimony for FPL to assess impacts from atmospheric downwash at 225-MW oil/natural gas-fired power plant. 1984.
- Broward County Commission. Prepared and presented testimony concerning the air quality impacts of using 2.5-percent sulfur fuel in FPL's 1,200-MW Port Everglades Plant. 1982.
- Dade County Environmental Resource Management Board. Prepared and presented testimony concerning the air quality impact of using 2.5-percent sulfur fuel in FPL's 800-MW Turkey Point Plant. Two hearings were held. The impacts to a PSD Class I area were at issue. 1982.
- Manatee County Commission. Prepared and presented testimony on the air quality impact of using 2.5-percent sulfur fuel in FPL's 1,600-MW Manatee Plant. Two hearings were involved. 1981.
- FDER. Presented testimony related to air quality impacts for particulate variance for FPL's Sanford, Ft. Myers, and Canaveral power plants. Variance extended. 1981.
- FERC. Testified before the FERC concerning the impacts of Sanford Unit 4 firing with coal-oil mixture (COM). FPL's request was for a temporary variance in particulate emissions so that full scale testing of COM could be performed. 1980.
- Dade County Commission. Prepared testimony and presented the results of modeling and technical information in support of a rule change on ambient air quality standards. 1977.
- FERC. Prepared testimony and presented the results of atmospheric dispersion modeling and other technical data at two separate hearings before the FERC in support of the contention that FPL's Manatee Plant was an existing source and thus could burn higher sulfur fuel. Approval given by both state and EPA. 1976.

### **Florida Sugar Cane League**

Expertise provided for the following:

### **Multiple Sites, FL**

- Palm Beach County Commission. Testified in opposition to proposed special emission limits on the sugar cane industry in Palm Beach County. 1976.
- Florida Congressional Representative Paul Rogers. Presented technical information pertaining to CAA Amendments. Presentation in support of the League's position with respect to a proposed rule governing the significant deterioration of air quality. 1976.
- FERC. Presented testimony on the results of modeling and other technical information in support of the SO<sub>2</sub> rule change for three Florida counties. 1975.

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### **Gold Kist**

**???????**

Local district court. Prepared reports, testimony, and interrogatories on case involving air pollution impacts on local car dealer. 1975 to 1979.

### **Lake Worth Utilities**

**Lake Worth, FL**

Hearing Examiner. Presented technical information and the results of modeling during hearings on site certification for a new electrical generating plant. 1977.

### **Maxwell House Division, General Foods Corporation**

**Jacksonville, FL**

District Administrator of the Occupational Safety and Health Administration (OSHA). Testified in support of the noise reduction program at the Maxwell House can plant. 1975.

### **Metropolitan Dade County**

**Dade County, FL**

Provided expert testimony in the following:

- PSC. Provided direct written and oral testimony for an addition to the Metropolitan Dade County Resource Recovery Facility, Florida. Case was part of the Site Certification under Florida's Power Plant Siting Act and ruled before the Governor and Cabinet acting as the Siting Board. In these proceedings, the PSC certifies the need for the project. Testimony was related to the purpose and need for the addition to the facility. This included compliance with state rules and legislative intent related to the project. 1993.
- Hearing Examiner. Presented expert testimony on the environmental impacts of Dade County Resource Recovery Facility consisting of four steam generators and associated turbines generating 77 MW by firing refuse-derived fuel. Permit granted. 1977.

### **Mirant Corporation**

**Multiple Sites, MD**

Provided expert testimony for the following:

- PSC Hearing Officer. Provided testimony on all air-related analyses for the Chalk Point Simple-Cycle Project.
- PSC Hearing Officer. Provided testimony on all air related analyses for the Dickerson Combined-Cycle Project. 2001 and 2002.

### **Montenay Power Corporation**

**Miami-Dade County, FL**

Miami-Dade County Community Zoning Appeals Board. Provided expert testimony on the potential impacts of an existing resource recovery facility on a parcel of land being re-zoned from industrial to residential. Testimony included air quality impacts from fugitive dusts and odors as well as noise.

### **O.K.C. Cement**

**?????, LA**

FDER Administrative Hearing. Testified about the results of atmospheric dispersion modeling and air quality analysis during hearings about significant deterioration. 1977.

**Potomac Electric Power Company** — Provided expert testimony for the following:

- Hearing Examiner. Provided expert testimony for Chalk Point CTs (two 100-MW and two 80-MW). Testimony focused on siting and overall environmental impacts. 1988 to 1989.
- Hearing Examiner. Preparation and presentation of direct and rebuttal testimony on the environmental aspects of siting a coal gasification combined-cycle power plant. Case involved the Maryland Public Service Commission. 1987 to 1988.

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### **Seminole Electric Cooperative Incorporated**

Provided expert testimony for the following:

- Hearing Examiner. Provided direct written and oral testimony for 440-MW combined-cycle power plant located in Hardee County, Florida. Case was part of the Site Certification under Florida's Power Plant Siting Act and ruled before the Governor and Cabinet acting as the Siting Board. Testimony was related to the air pollution control technology, BACT, and noise impacts. 1995.
- Hearing Examiner. Provided expert testimony on air emissions, noise, and BACT for the Hardee Power Station, a 600-MW combined-cycle facility in central Florida. 1990.

### **Tampa Electric Company (TECO)**

**Tampa, FL**

Provided expertise for the following:

- FERC. Prepared testimony based on the results of modeling and other technical data in support of the contention that TECO's Big Bend Unit 3 was an existing source and thus could burn higher sulfur fuel. 1976.
- Fifth Circuit Court of Appeals. Assisted in the preparation of legal briefs for litigation of the EPA's ruling concerning SIP revision. Case involved atmospheric dispersion modeling. 1976.
- Hillsborough County Environmental Regulatory Commission. Prepared reports and testimony on air quality standards and significant deterioration. 1976.
- FDER Administrative Hearing. Prepared testimony in support of TECO's proposed use of high sulfur fuel. Technical information and the results of atmospheric dispersion modeling were presented during hearings on significant deterioration of air quality. 1976.
- EPA Region IV Administrator. Testified in opposition to the Administrator's ruling regarding TECO's proposed use of high sulfur fuel. 1975.

### **TexasGulf, Inc.**

**?????, NC**

Assisted senior counsel in responding to a Notice of Violation from the State of North Carolina. Provided technical expertise and reports for submittal to court. 1981.

### **The Viera Company**

**Brevard County, FL**

Assisted senior counsel in the mediation involving odors and air quality impacts of a revised air pollution permit. Provided technical expertise and review of reports. 1999.

### **Woodward Hall & Primm**

**???????**

Assisted senior counsel in the toxic tort suit involving the Motco Superfund Site. Technical expert for air monitoring and air quality impacts. Provided technical expertise, review of plaintiff's reports, and provided independent reports.

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### **PUBLICATIONS**

Mr. Kosky has authored and coauthored hundreds of reports and permits submitted to regulatory agencies. He has authored and coauthored over a dozen articles related to air pollution topics (i.e., emission estimates, air impacts, and permitting) and licensing power generation facilities.

### **LANGUAGES**

English (Native Speaker)  
Spanish (Read)