

2014-2019

RagingWire Data Centers

Data center design and operational technical support

2014

Partner Energy

Energy analyses; energy modeling; commissioning; troubleshooting; specification of energy efficiency improvements; Reports to regulatory agencies

1998 – 2014

Professional Engineer, Private Practice

Heating, ventilation, and air conditioning design; energy studies, water source heat pump system design; plumbing design; mechanical shop design; cogeneration design; custom process design. Fuel Cell Engineering, Research, and Communications

Sacramento Municipal Utility District

1992 – 1997

Advanced & Renewable Technology Program Supervisor

Advanced & Renewable Technology Development Program, 1993 budget of \$10.6 Million.

1990 – 1992

Generation Planning Supervisor

New generation system planning. Acquisition of ~1000 MW of new generation. Advanced Technologies Program, hydroelectric planning, cogeneration planning, natural gas forecasts.

1987 – 1990

Mechanical Systems Performance Manager, Plant Technical Support Superintendent

Power plant management, engineering, and technical support. ASNT TC-1A certification as a Level II Test Engineer.

1976 – 1987

Power Plant Systems Engineer

Robert P. Wichert, P.Eng. LEED AP BD&C

Robert P Wichert Professional Engineering, Inc.

6342 Parkcreek Circle
Citrus Heights, California 95621
916-966 9060 FAX 916-966 9068

robert@wichert.org

wichert@fuelcells.com

Summary of qualifications

Registered Professional Engineer in California, Virginia, Texas and Illinois.

Building Commissioning Agent

Former Master's Degree Candidate in Communication Studies with emphasis in Mass Communications, Inter-Cultural Communications and Issue Management.

Full member of ASME, IEEE, NFPA, USGBC, ASHRAE and SAE.

Member of NFPA Power Plant Fire Safety Committee and Hydrogen Safety Committee

Data Center Engineer with expertise in HVAC, materials and failure analysis, system testing, controls, performance monitoring and testing, energy analysis, fluid flow, metrology, uncertainty analysis, CAD, project management, economic analysis, CPM, piping, turbines, pumps, motors, compressors, chillers, chemical engineering, fire protection engineering, and systems engineering.

Preparation of bid documents; issuance and responses to RFPs, RFQs, and RFIs; contract preparation and negotiation; contract management.

California electric utility experience: solar and PV applications, wind applications, renewable energy sales, advanced energy efficiency, resource demonstrations, fuel cell applications, project management, national and international technical transfer, resource procurements.

Technical Support Engineering: failure analysis, scheduling, routine and special tests, energy planning, generation planning, generation operations, power plant licensing and regulation.

Completed Senior Nuclear Reactor Operator License Training

California Div. of Industrial Safety Certified Crane Inspector

ASNT TC-1A certified Level 2 Test Engineer with experience in system and component testing of mechanical, electrical, fluid, and vehicle systems

Member of IEC Technical Committee 105 – Fuel Cells

Member of ISO Technical Committee 197 – Hydrogen

Education

University of California, San Diego

University of California, Berkeley

California State University, Sacramento, B.S.M.E. 1977

California State University, Sacramento, Communication Studies

Professional experience

Representative Projects

900 Megawatt Nuclear Power Plant Performance Manager

Responsible for performance analysis and metrics, regulatory reporting, root cause analysis, environmental licenses, and industry collaboration.

California Tax Credit Allocation Committee Project Analysis, Design and Verification

Performed existing building energy modeling, proposed and negotiated Energy Efficiency Measures (EEMs) with owners and contractors, performed proposed building energy modeling, provided modeling information and required reports to the California Tax Credit Allocation Committee and oversaw installation of the EEMs. Verified proper installation, performed as-built building energy modeling and submitted required Placed-In-Service reports.

26 Megawatt Confidential Data Center in Sacramento, California

First assignment was to correct design deficiencies that threatened Air-Side Economization, humidity control, and particulate contamination. In collaboration with custom fabricators, implemented a rugged solution immediately that continues to work perfectly four years after the changes. Subsequent assignments include control changes to avoid total loss of chilled water cooling scenarios, control changes to restore economization, and higher power rack cooling.

12.6 Megawatt Confidential Data Center in Sacramento, California

Responded to chiller control lockups in collaboration with the manufacturer to implement upgraded control software to solve the problem permanently. Implemented a system-wide energy use reduction program that saved \$900,000 in less than six months.

16 MW Confidential Data Center #1 in Garland, Texas

Owner's Mechanical Engineering representative and supervised the Owner's Mechanical Section.

14MW Confidential Data Center #2 in Ashburn, Virginia

I developed operating methods that met the functional needs of the Owner within the available facility constraints to recover from commissioning failures. Successfully conceived of non-litigious resolution of the Engineer-of-Record's errors, omissions, and shortcomings; recovering fees without a lawsuit. Implemented emergency humidity control and avoided client contract violations. I subsequently managed a design change to provide additional humidity control and eliminate infiltration.

16MW Confidential Data Center #3 in Ashburn, Virginia

Managed contract engineering firms, Professional Engineers, and engineering resources. Approved Engineering designs, specifications, and contractor submittals. Worked with the Engineer of Record to implement a higher temperature rise design while accounting for operation during failures and transients. Met the demanding requirements of a hyper-scale client to finalize their move-in.

32MW Confidential Data Center #4 in Ashburn, Virginia

Owner's Mechanical Engineering representative and supervised the Owner's Mechanical Section.

16MW Confidential Data Center #5 in Santa Clara, California

Developed modular cooling technologies to support multiple project locations. Managed contract engineering firms, Professional Engineers, and engineering resources.

Operations Support Projects

Energy reductions, failure analysis, design reviews, contract administration, performance monitoring, specification writing and review, engineering management. Commissioning and re-commissioning support. Field surveys. Cooling load calculations. Chiller plant design and operation. Requests for Proposals.

Mechanical Engineering Experience

Data center design and operational technical support
Mechanical Engineering Piping, Plumbing, HVAC and Process Design

Hazardous material transport regulations

Authored and promulgated Fuel Cell Standards

Investment and technology due diligence investigations

Standards application analysis and recommendations for compliance

Electrical Maintenance Superintendent

Power Plant Performance Department Manager

Advanced and Renewable Technology Superintendent

United Nations Sub-Committee of Experts on the Transport of Dangerous Goods Consultative NGO Status

International Civil Aviation Commission Dangerous Goods Panel Participatory Observer Status

US Fuel Cell Council Management – Technical Director

UL Standards Technical Panels

Desert Research Institute advanced energy programs including fuel cell applications in new markets.

Technical Support Engineering: failure analysis, scheduling, routine and special tests, energy planning, generation planning and operations, power plant licensing and regulation.

Electric power experience: fuel cell, solar and PV applications, wind applications, renewable energy sales, advanced energy efficiency, resource demonstrations, economic analyses, project management, national and international technical transfer, procurements.

Engineering project management; multiple simultaneous projects.

Personally responsible for the first Customer-Choice All-Renewable Electrical Energy Option in California – **SMUD Greenergy®**.

Ideation and development of fuel cells for uninterruptible power supply use in utility service.

Publications

What If The Grid Were The Backup? Distributed Fuel Cell Power and Its Implications for Electric Utilities; 1992 DOE Fuel Cell Seminar, co-author, Robert Rose

Valve Leakage Detection; A Case Study, ASME Proceedings

Biogas, Compost and Fuel Cells; BioCycle, August 1994

Carbon Trading & Hydrogen – Possibilities and Pitfalls; Ayres, Rose, Lloyd, Wichert

Affiliations and Awards

International Electrotechnical Commission **1906 Award**

Chairman of ASME PTC 50

ISO TC 197 Tech. Advisory Group

IEEE P1547 Writing Committee

CSUS Alumni Award

NFPA Power Plant Fire Protection Committee

IEC TC 105 Tech. Advisory Group

PVUSA Steering Committee

California Alliance for Distributed Energy Resources