

1992 – 2011

**Professional Engineer,
Private Practice**

1992-2011

R. P. Wichert, P. Eng.

Heating, ventilation, and air conditioning design; water source heat pump system design; plumbing design; mechanical shop design; cogeneration design; custom process design.

1998-2011

**Engineering, Research,
and Communications**

US Fuel Cell Council
Technical Director, Desert Research Institute fuel cell programs, due-diligence Investigations and consulting on fuel cell technologies

1976 – 1997

**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
Manager, Plant
Performance Manager,
Technical Support
Superintendent**

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

1976 – 1987

Power Plant Engineer

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

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Citrus Heights, California 95621

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Summary of qualifications

Registered Professional Engineer in California (M021652) and Oregon (74040PE).

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

LEED Accredited Professional for Building Design and Construction

Primary Responsible Group Leader -- NFPA 853 – Standard for the Installation of Stationary Fuel Cell Power Systems

Chairman – ASME PTC 50 – Performance Test Code for Fuel Cells

NFPA 2 – Hydrogen Technologies

National Fire Protection Association (NFPA) Power Plant Fire Protection Committee member

IEEE 1547 Standard for Interconnecting Distributed Resources with Electric Power Systems -- Drafting Committee member

Over fifteen years of mechanical systems design experience: Heating Ventilation and Air Conditioning, water loop piping design, plumbing design, cogeneration system design.

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.

Engineer with expertise in HVAC, materials and failure analysis, system testing, performance monitoring and testing, energy analysis, fluid flow, metrology, uncertainty analysis, CAD, project management, economic analysis, CPM, Unix/Linux, piping, turbines, pumps, motors, compressors, 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.

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

Over fifteen years of commercial power plant experience: System design, operations, and maintenance. Start-Up Engineering. Plant Performance. Mechanical Systems Engineering.

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

Former California Div. of Industrial Safety Certified Crane Inspector

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

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

Mechanical Engineering Piping, Plumbing, HVAC and Process Design

Building Commissioning Agent

Energy Analysis

Investment and Technology Due Diligence Investigations

Standards application analysis and recommendations for compliance

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. Responsibilities included up to twelve Working Groups and Task Forces / Focus Groups on fuel cell technologies.

Member of IEC Technical Committee 105 – Fuel Cells

IEC 62282-1 – Nomenclature
IEC 62282-2 – Fuel Cell Module
IEC 62282-3-1 – Stationary Fuel Cells – Safety
IEC 62282-3-2 – Stationary Fuel Cells – Performance
IEC 62282-5-1 – Portable Fuel Cells, **Convener**
IEC 62282-6-1 – Micro Fuel Cells -- Safety, **Former Secretary**
EN 50465 Incorporation – Study Group Leader

Member of ISO Technical Committee 197 – Hydrogen

ISO 16110-1 Hydrogen Generators Using Fuel Processing Technologies Part 1: Safety
ISO 16110-2 Hydrogen Generators Using Fuel Processing Technologies Part 2: Test Method for Performance
ISO 16111 Transportable Gas Storage Devices - Hydrogen Absorbed in Reversible Metal Hydrides
ISO/TR 14687-2 Hydrogen Fuel - Product Specification Part 2: PEM fuel cell applications for road vehicles
ISO 26142 Hydrogen Detector Apparatus
ISO 14687-3 Hydrogen Fuel – Product Specification – Part 3: PEM Fuel Cell Applications for Stationary Appliances

Society of Automotive Engineers (SAE) Fuel Cell Standards Committee past member
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 – budgets up to \$21 million.
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