TECHNICAL PROFILE
GARY P. LARKINS
PRESIDENT – STANDING STONE CORPORATION
DBA ADVANCED POWER SOLUTIONS

EXPERIENCE & QUALIFICATIONS

As a nationally recognized consultant with extensive experience in power quality, reliability, electrical safety and system commissioning, I have over 25 years experience in electrical power systems consulting, testing, troubleshooting, analysis, design, training, estimating and business development. I am a licensed design/build electrical supervisor with experience in working with owners and all professional disciplines and contractors on all phases of a project.

My business experience includes business development, operations, strategic marketing and management. I have successfully lead organizations from startup phase to growth and profitability with full responsibility for business operations and results. I have also provided business turnaround services.

SUMMARY OF TECHNICAL EXPERIENCE

I have successfully completed over 250 projects for utilities, end users and major corporations including; power quality studies, RFP & specification development, system commissioning, safety program development and training. I have developed and provide power quality and electrical safety training seminars and workshops for major utilities and business organizations and have written and published multiple papers and articles, including the following:

- 12 Essential Elements of an Electrical Safety Program – Facility Safety Magazine.
- Power Quality and equipment applications for the IEEE working group on TVSS devices;
- Electrical Transient Voltage Surge Suppression System Design Considerations for the Power Quality Conference; Power Quality System Testing, Analysis, and Design, for the Power Quality Conference;
- Power Quality in Hospitals and Clinics for the Medical Electronics Conference;
- Static UPS System Selection, Application and Installation Considerations for the Power Quality Conference;
- Adjustable Speed Drive Application Guide for PacifiCorp;
- Energy Efficiency, Power Quality and Power Systems Commissioning for the Second National Conference on Building Commissioning; and
- Co-authored articles for Power Quality magazine;

Copies of technical papers are available upon request.

Mr. Larkins has developed and instructed training sessions and seminars for Electrical Construction & Maintenance Magazine, Western Energy Institute, American Institute of Plant Engineers, Metro Electrical Training Trust, Interference Control Technologies, Kaiser Permanente, PacifiCorp, Cincinnati Gas & Electric and Portland General Energy Systems. Classes have been developed and presented to the following groups: electrical contractors, engineers, facilities maintenance personnel, utility engineers, technicians, account representatives and end users.

My technical experience includes the following:

- Electrical Safety Program Development, Safety Training & Consultation
- Power Quality Testing, Troubleshooting and Analysis
- Power Quality Classes and Hands On Lab Courses
- NEC Changes, Oregon Rule and Law and Grounding and Bonding Classes
- Custom Electrical Class Development and Presentation
- Electrical System Commissioning and Acceptance Testing
- Technical Documentation and Training Materials for Electrical System Operation
- Power Quality and Power System Reliability Review and Consultation
- Development of Request for Proposal documents and Performance Specifications for Arc Flash Hazard Analysis Studies, Transient Voltage Surge Suppression, Uninterruptible Power Supplies, Backup Power Systems, Battery Plants, Electrical Gear, Grounding Systems, Fuel Cells, System Maintenance Contracts and Turnkey Projects
- Environmental & Infrastructure Review & Consultation for Data & Telecom Centers
- Technical Project Management and Oversight for all disciplines involved with Data Center Construction and Remodeling
- Failure Analysis
- Feasibility Studies, Economics Analysis & Technical Needs Analysis
- Load Surveys & Harmonic Studies
- Environmental and Electromagnetic Interference Testing and Analysis
- Mitigation Equipment & Equipment Susceptibility Testing
- Electrical System Conceptual Design, Design Review, Specification Development and Consulting
- Technical Staff Management, Project Scheduling, Project Coordination, Technical Report Writing, Technical Training, System Analysis and Design Services
- Development of Electrical System Inspection and Testing Procedures as well as Information Gathering Systems

- Electrical System Testing Procedures and Processes
- Developing and Standardizing Electrical and Environmental Enhanced Power Quality Design Criteria and Specifications
- Evaluating and Selecting Test Instrumentation used for Power Quality, Energy Efficiency and Environmental Testing

REPRESENTATIVE POWER QUALITY PROJECTS

AT&T Wireless Services - National Contract
Review of Mobile Switching Centers and Cell Sites. Development of a Grounding Standard for Lightning Protection. Development of Equipment Performance Specifications for Mitigation Equipment, including Transient Voltage Surge Suppression, Backup Generation and Batteries.

State of Utah, Division of Information Technology - Critical Power System Upgrade – Salt Lake City, Utah
Development of a Request for Proposal (RFP) for a turnkey critical power system upgrade project to replace the existing 500 kVa UPS system with a new redundant system. This project includes technical consultation, testing, technical research, conceptual design, specification and contract development.

Utah Power Dispatch Center - Critical Power System Upgrade – Salt Lake City, Utah
Provided design services for the critical power system upgrade, including a parallel 300 kVa, UPS System. Services provided include feasibility study, design consultation, system loading study and project management services.

Major Copper Mine - Salt Lake City, Utah
Power Quality investigation of utility transmission and distribution system, facility distribution system, and facility equipment. The facility has been experiencing tripping of 16,000HP and 12,000HP critical drives and equipment. Services provided include: comprehensive review of electrical distribution systems configurations; investigation and review of equipment specifications and tolerances; Power Quality monitoring; evaluation of mitigation options at multiple levels from utility to power supply control circuits; recommendations for implementation of mitigation steps.

State of Oregon Department of Transportation/Revenue Building - Critical Power System Upgrade for IBM Corporation - Salem, Oregon
Provided design services for the critical power system upgrade, including a 1500 kW Engine Generator System and a 375 kVa, UPS System. Services provided include Enhanced Power Quality Design Consultation, System Loading and Harmonics Study, Fault Current Study and Project Management Services.

SAIF Corporation – Salem, Oregon
Electrical Safety Program Review, Safety Program Development and Safety Training Services.

Major Brokerage Firm – New York City, New York
Power Quality, Environmental and Infrastructure review, analysis and report. Identifying issues that may compromise the reliability and performance of the communications and data processing systems.

Major Refinery - Salt Lake City, Utah
Feasibility study for improving power system reliability and availability. Study included Medium Voltage systems.

Major National Trucking Company Dispatch Center – Portland, Oregon
Power Quality, Environmental and Infrastructure review, analysis and report. Identifying issues that may compromise the reliability and performance of the communications and data processing systems.

Major Chip Manufacturer - Hillsboro, Oregon
Failure Analysis of UPS System Serving Critical Gas controls for Manufacturing Plant. Recommendations for system modifications.

Advanced Silicon Materials - Washougal, Washington
Special Testing of Silicon Rod Pulling Equipment

FAA ASR-9 Radar Site - Seattle, Washington
Special Testing of Existing Electrical System Serving the ASR-9 Radar for Sea-Tac Airport.

Hanna Anderson - Mail Order Clothing - Portland, Oregon
Special Testing of Existing Electrical System, Design, Installation Supervision, and Acceptance Testing of New Electrical System to Serve Sensitive Electronic Loads.

JC Penney Regional Credit Center - Autodialer Phone System - Milwaukie, Oregon
Special Testing of Existing Electrical System, Design, Installation Supervision, and Acceptance Testing of New Electrical System to Serve Sensitive Electronic Loads.

Multnomah County Information Services Division - Electrical System Conceptual Design, Project Management and Acceptance Testing, - Portland, Oregon
Provided design services for the critical power system upgrade, including a 300 kVA, UPS System. Services provided included: power quality design consultation, fault current study, project management services and system acceptance testing services.

Western Family Foods - Computer Room - Tigard, Oregon
Special Testing of Existing Electrical System, Design, Installation Supervision, and Acceptance Testing of New Electrical System to Serve Sensitive Electronic Loads.

OHSU Hospital Information Systems - Computer Room - Portland, Oregon
Design, Installation Supervision, and Acceptance Testing of New Electrical System to Serve

Sensitive Electronic Loads.

Washington County - Public Services Building - Hillsboro, Oregon
Investigate Existing Electrical System for National Electrical Code Violations, System Loading, and Enhanced Power Quality Considerations.

G-Tech - Communications System - Eugene, Oregon
Design, Installation Supervision, and Acceptance Testing of New Electrical System to Serve Sensitive Electronic Loads.

SAIF Corporation - Computer Room - Salem, Oregon
Feasibility Study for Future Emergency Power System. Provided Technical Project Management, Enhanced Power Quality Design Consultation, Installation Supervision, and Acceptance Testing of New Electrical System Serving Sensitive Electronic Loads.

Naumes - Cold Storage Facility - Medford, Oregon
Technical Consultation on Motor Winding Failures due to Wiring System Installation and Adjustable Speed Drives.

REPRESENTATIVE HOSPITAL EXPERIENCE

Providence St. Vincent Medical Center – Emergency Generator & SCADA System Commissioning – Portland, Oregon
Provided extensive system testing and commissioning services for hospital emergency generators and complex SCADA system (7 Gen / 4 Bus with Auto Ring/Tie Breaker System).

Kaiser Permanente NW, Bess Kaiser Medical Center - Lab - Portland, Oregon
Special Testing of Electrical System and Environment to determine cause of equipment malfunction.

Kaiser Permanente NW, Bess Kaiser Medical Center – Lab - Portland, Oregon
Consulting to design new electrical system for lab. Provided Installation Supervision, and Acceptance Testing of New Electrical System Serving Sensitive Electronic Loads.

Kaiser Sunnyside Hospital - Addition Design Review - Clackamas, Oregon
Plan review services for the Kaiser Sunnyside Medical Center Addition. Plans were reviewed to determine if the electrical systems were adequate to serve the MRI, X-ray and other sensitive Medical Electronic Equipment. Plans and specifications were modified to meet these needs. Specifications were developed for Transient Voltage Surge Suppression (TVSS) devices. TVSS products were reviewed and selected for the hospital.

Kaiser Sunnyside Medical Center - South Addition - Clackamas, Oregon
Special Electrical Testing and Plan Review Services for the Kaiser Sunnyside Medical Center South Addition. Plans were reviewed to determine if the electrical systems were adequate to

serve the sensitive Medical Electronic Equipment. Plans and specifications were modified to meet the equipment requirements. Specifications were developed for Transient Voltage Surge Suppression devices. TVSS products were reviewed and selected for the Hospital.

Kaiser Sunnyside Medical Center - Emergency, Surgery, Labor and Delivery Addition - Clackamas, Oregon
Electrical Plan Review Services for the Kaiser Sunnyside Medical Center South Addition. Plans were reviewed to determine if the electrical systems were adequate to serve the sensitive Medical Electronic Equipment. Plans and specifications were modified to meet the equipment requirements.

Kaiser Sunnyside Medical Center - Addition of second MRI - Clackamas, Oregon
Electrical Plan Review Services for the Kaiser Sunnyside Medical Center MRI Addition. Plans were reviewed to determine if the electrical systems were adequate to serve the sensitive MRI equipment. Plans and specifications were modified to meet the equipment requirements.

Kaiser Sunnyside Medical Center South Addition, Angio and Cath Lab Installation - Clackamas, Oregon
Electrical Plan Review Services for the Kaiser Sunnyside Medical Center Angio and Cath Lab Additions. Plans were reviewed to determine if the electrical systems were adequate to serve the sensitive X-ray equipment. Plans and specifications were modified to meet the equipment requirements.

Bess Kaiser Medical Center - Imaging System - Portland, Oregon
Power Quality Testing and Monitoring of Existing Electrical System, Data Analysis and Recommendations for solution options.

Bess Kaiser Medical Center – Lab - Portland, Oregon
- Power Quality Testing and Monitoring of Existing Electrical System, Environmental Testing for ESD and EMI problems, Data Analysis and Recommendations for solution options.
- Design Consultation for new electrical system to serve sensitive electronic lab loads.
- Acceptance Testing of installed systems.

Kaiser Medical Center - Nuclear Medicine - Portland, Oregon
- Power Quality Testing and Monitoring of Existing Electrical System, Data Analysis and Recommendations for solution options.
- Design Consultation for new electrical system to serve Nuclear Medicine Equipment.
- Acceptance Testing of installed systems.

Providence Medical Center - Surgery Room HVAC Controls - Portland, Oregon
- Power Quality Testing and Monitoring of Existing Electrical System, Data Analysis and

Recommendations for solution options.

- Design Consultation for new electrical system to serve HVAC Controls.

St. Peter Hospital - Cath Lab - Olympia, Washington
Power Quality Testing and Monitoring of Existing Electrical System, Data Analysis and Recommendations for solution options.

EXAMPLES OF A SEMINARS, CLASSES AND PRESENTATIONS DEVELOPED AND INSTRUCTED

Portland General Electric
NEC Changes, Arc Flash, OSHA, NFPA 70E® and Electrical Safety, Grounding and Bonding, Electrical Safety Program, Oregon Rule and Law, Custom Power Quality Webinar, and Custom Electrical Safety Webinars

Providence Health Systems
NEC Changes

Intel
NEC Changes, Oregon Rule and Law, Power Quality

US Army Corps of Engineers
Custom Electrical Safety Training

SolarWorld
Custom Electrical Safety Training

Georgia Pacific
Custom Electrical Safety Training, NEC Changes, Oregon Rule and Law, Grounding and Bonding

Weyerhaeuser
Electrical Safety Training, NEC Changes, Grounding and Bonding

Western Pulp and Paper Association
Arc Flash Hazard Analysis and Electrical Safety

SEMI
Introduction to Arc Flash Hazards and Electrical Safety

University of Washington
Electrical Hazards and Personal Protective Equipment

Western Energy Institute – Portland, Oregon – 1994 to present
Develop hands on labs and provide instruction for five day hands on lab Power Quality Course for Utilities and Industrial Clients.

PacifiCorp (large NW Utility) – Oregon, Washington, Utah and Wyoming Seminars for Customers
Course Title: Introduction to Power Quality

Electrical Construction & Maintenance Magazine - Electric East 91 - New York
Course Title: Power Conditioning Alternatives for serving Sensitive Electronic Loads.

Power Quality Conference
Presentation of paper on Transient Voltage Surge Suppression

Energy Resource Center – Portland, Oregon
Power Quality Seminar
Course Title: Monitoring Instruments and Site Surveys

NECA/IBEW - NJATC
Power Quality Fundamentals and the NEC

Interference Control Technologies,
EMI Control In Medical Electronics Conference Presentation of Paper - Avoiding Power Quality and Environmental Problems In Hospitals and Clinics

Oregon Society for Hospital Engineering
Introduction to Power Quality Presentation

Washington Society for Hospital Engineering
Mitigation Equipment and Performance Specifications

Kaiser Permanente Hospital Engineering Staff
Presentation - Introduction to Power Quality

Cincinnati Gas & Electric Co.
Total Solution Approach to Power Quality & Hands on Lab Courses

Federal Aviation Administration
Powerline Disturbance Monitors - Use, Programming and Data Analysis

EDUCATION

- Attended Oregon State University for computer training classes

- Attended Portland Community College for sales, marketing, management, and business administration classes
- Attended Clackamas Community College for pre-engineering classes
- Extensive self training program in Business, Marketing, Sales and Technical subjects
- Safety Training from multiple providers and industry conferences, including IEEE Safety Workshop – 2004 & 2005
- Graduated from the four year NJATC electrical apprenticeship training program and went on to obtain Oregon Electrical Supervisor License (3741S)
- Analysis and correction of power line and environmental disturbance problems from Dranetz Technologies
- Advanced training in analysis and correction of power line and environmental disturbances from Digital Environmental Solution
- Training on end use power line harmonics measurements analysis and correction from BMI
- Training in grounding and shielding of electronic instrumentation from University of Missouri-Rolla
- Advanced National Electrical Code design training
- NEC Grounding and bonding training
- Training on the recognition and troubleshooting of power quality problems from the Power Electronics Application Center testing facility
- Training on UPS and general mitigation equipment operation, application and design from various manufacturer factory engineers
- Training the use of various test instruments by the manufacturers
- Training on mitigation equipment technologies by various equipment manufacturers
- Harmonic system design consideration training through IEEE
- Training in battery system applications, testing and maintenance through Alber Engineering
- Training in load sensitive Electro-Magnetic Interference problems and solutions through Interference Control Technologies
- EMI Control in Medical Electronics through Interference Control Technologies

PROFESSIONAL HISTORY

11/2004 to Present
Owner/President

Advanced Power Solutions – Clackamas, Oregon
Electrical Consulting, Training and Program Development

- Provide safety training, consulting and advisory services.
- Provide NEC training services.
- Provide electrical testing, commissioning, consulting and training services.
- Provide strategic marketing, sales and business development services for technical electrical products.

4/2001 to 8/2005
VP, Director Power Quality Services
ESA NW, Inc. (EasyPower) – Gladstone, Oregon
Electrical Engineering, Training and Software Development

- Provide safety program consulting and advisory services.
- Provide vision & technical guidance for Arc Flash Analysis Software program development.
- Provide electrical testing, consulting and training services.
- Provide strategic marketing, sales and business development services.

9/2000 to 4/2001
VP Marketing/Product Engineering
PQDirect, Inc. – Beaverton, Oregon
Venture Capital Funded Company

- Perform product conceptual design; manage online software analysis and sales tool development. Manage marketing efforts for PQ Direct, Inc, an online solution provider of power quality solutions to the Utility and Industrial market segments.
- Work in conjunction with sales team to identify and target new business opportunities and present product concept to these opportunities.

1999 to 2000:
Director, Business Development & Manager, Power Quality Services
PacifiCorp – Portland, Oregon

1997 to 1999:
Director, Business Development
PacifiCorp Energy Services, an unregulated subsidiary of PacifiCorp – Portland, Oregon

- Responsibility for developing Power Quality business unit, including business plan development, marketing, sales and management within regulated and unregulated business units.

1996 to 1997:
Manager of Power Quality Services
Bentley Engineering (Purchased by Enron Energy Services in 1997) – Portland, Oregon

- Responsibility for developing Power Quality business unit, including business plan development, marketing, sales and management. Enron purchased company and office personnel moved / business units were sold.

1994 to 1996:
Manager, Power Quality Services Business Unit
Christenson Assured Power – a division of Christenson Electric, Inc.

- Full responsibility for developing Power Quality business unit, including business plan development, marketing, sales and management. Company purchased my business in fall of 1994.
- Aggressive sales and marketing resulted in adding 4 new employees to division in less than 1 year while significantly improving profitability.

1991 to 1994:
President and Owner of Advanced Power Solutions, Inc., a power quality and reliability consulting firm.

- Successful business operations purchased by Christenson Electric in 1994. Clients included PacifiCorp, Kaiser Permanente, Intel, IBM, AT&T Wireless, Federal Aviation Administration, SAIF Corporation, etc.

1990 to 1991:
Manager Power Quality Services
Portland General Energy Services – a division of Portland General Electric.

- Co-development of power quality services business unit for Portland General Electric (PGE).

REFERENCES – Contact APS for References as we respect the privacy and time of our clients.