

Objective

Provide *best-in-class solutions* that deliver validated energy savings and improved facility efficiency programs using proven technologies, "intelligent building" applications and energy management best practices. Integrate site data with "cloud based" applications to support a scalable extensible menu of sustainable applications increasing value at less cost.

Qualifications

Mr. Clement has thirty-two years of energy services subject matter expertise in the design, deployment and evaluation of energy saving programs across a broad spectrum of commercial and industrial facilities. His "hands on" knowledge of facility operations and ability to resolve challenges from the "site edge" to the "cloud platform" and all points between, contribute to successful execution of the customer value proposition. He formulates business decisions utilizing the depth and scope of skills and experience.

Programs encompass a diverse platform of technologies and strategies to reduce utility and operating costs and can be transitioned into an enterprise based ongoing "Managed Services" business offering. His unique skill set was gained from professional achievements as an executive, consultant, sales engineer, program manager and technologist for "leading edge" energy services organizations. Qualifications include:

- Energy Engineering
- Enterprise Managed Services
- Technical Sales
- Program Director / Team Leader
- Analytics / Business Intelligence
- Utility Demand Side Management (DSM) Programs

Skills and Experience

Energy Engineering

- Engineer energy savings projects including energy accounting, rate analysis energy surveys, design, proposals, specifications, and measurement and verification (M&V) technical services. Projects were installed in government, office, hospital, supermarket, retail, educational, data center and industrial end use facilities. Energy savings technologies specified encompass lighting, HVAC, refrigeration, process and control system retrofits, upgrades or new system installations.
- Direct and supervise the engineering team supporting ESCO growth from four to forty-five employees in four years. The Team provided engineering services and deliverables including; utility accounting, energy surveys, rate analysis, savings projections, proposals, budgets, specifications, work scope, construction "as-builts" and Utility (M&V) reports.
- Develop, design, build and validate savings for over one-hundred Energy Services Company (ESCO) performance or shared energy savings based projects for governmental, hospital, office, retail and industrial facilities to subscribe five northeastern Utility Demand Side Management Incentive contracts totaling 20 MW involving over \$ 25.2 MM in capital.
- Oversee a \$3.1 MM Class A Office 40 story up-fit project for Trizec Office Properties; responsible for design, technical specifications, construction management, Schedule of Values, and commissioning over a two year period. Project included new airside distribution modifications, modular penthouse VSD AHUs enabling DCV per floor, cooling tower replacement, PFHX, VSD chiller, pumps, chilled water distribution modifications, and a new control system installation.
- Refine an energy usage to weather correlation normalization tool with greater accuracy compared to "standard industry" practice. Weather normalized validated electrical savings of \$19.4 million per year (10.6%) for the 3,850 sites transitioned from local to enterprise based control resulted in a Return-On-Investment > 35%.
- Perform ESCO technical sales, project engineer, construction management and M&V roles to fulfill two year Duke Power Utility DSM contract; including a 600 kW Hospital lighting retrofit in Chapel Hill and a 40 story office high rise lighting, and central plant upgrade in Charlotte saving 1.45 MW. Central plant project included chillers, pumps and water distribution.
- Implement system to compile, evaluate, track and "map" prototype design criteria of national geographically dispersed clients to the unique new construction and retrofit rebate requirements for over 250 Utility incentive programs; qualifying thousands of rebate transactions annually. Qualify REIT office facilities for CA Retro-Commissioning Program eligibility.
- Evaluate multi-year ESCO projects with financial proforma prerequisite to finalizing project terms and savings % offering. Format energy savings Client proposals to highlight more accurate Net Present Value (NPV) analysis, in addition to traditional Return on Investment. Translate energy savings project value into increased property asset value.

Programs

- Own and operate Custom Energy Solutions, providing Architectural / Engineering owner representative project management, facility energy services, and consulting services.
- Create the first comprehensive Commercial Retrofit, New Construction and Thermal Storage DSM Programs for Austin Energy. Manage teams of engineers, customer reps, programmers, admin support and interns. Qualify technologies, project savings, marketing, surveys, database design, Benefit to Cost analysis, M&V, processes, forms and internal control work scope.
- Deliver an enterprise based ADR program of ~ 1,100 sites with an average 8 kW reduction per site totaling 8.8 MW of dispatchable load (~ 12% kW reduction). Common area RTU set-points are raised during the five hour ADR event eliminating the "call for cooling". Units are allowed automatically opt out of the ADR event should temperatures exceed Client guidelines.
- Design a simplified Air Side Modification energy savings program for hundreds of legacy Tele-Com "office" sites; using information from a walk through audit correlated to utility bills. Main program components encompassed OA damper modifications, space partitioning, VFD, power metering, enterprise connectivity, and savings validation.
- Improve processes, procedures and templated forms to create a "best in practice" success fee based rebate administration start-up company; increasing efficiencies and accuracy while reducing Customer resource and time requirements. Architect and implement "status" and "next touch" application work order tracking system to assist in accountability.
- Research the feasibility of creating an enterprise based Utility DSM customer centric program that delivers validated ADR and on-peak energy savings, while also providing Customers with system visibility and energy savings tools. The program could enhance the Utility - Customer relationship by providing "trusted energy advisor" services.
- Standardize an expedited lighting inventory surveying process for a nationally based supermarket and discount retailer chain at sites ranging from 8,000 sf to 240,000 sf to comply with Utility rebate and Client lighting retrofit design criteria. Successfully complete 120 plus energy surveys for national accounts under an expedited time critical deadline.

Enterprise Platform, Services and Analytics

- Contribute as a Vice President of Analytics and the Energy Engineer SME to Corporate Team discussions regarding enterprise platform architecture, GUI, features, site integration, application integration, pricing, and Client Managed Services offerings.
- Design, pilot and continuously evolve a "*best of breed*" Enterprise Energy Management Platform (EEMP) over a six year period supporting custom applications and dashboards. Resolve hardware, data integration, software, architecture and data quality challenges, while on-boarding and integrating to 5,100+ multi-Client retail sites.
- Develop a scalable enterprise of applications; a result of integrating disparate data information and site control systems to a common data integration abstraction on the Enterprise Platform. Data tagging standards simplify and expedite deployment of Client Automatic Demand Response (ADR), Fault Detection & Diagnostic (FDD) and global control sequence applications.
- Direct development of the software team to architect an "in-house" tool "Event Management Tool" to integrate Fault Detection & Diagnostics events, loss in Site connectivity, building automation system (BAS) alarming and Work Order Systems into a single event tracking application enabling prioritization of resources toward resolution of concurrent site issues.
- Work with Portfolio Graphic User Interfaces (GUI) supporting thousands of sites:
 - *Geo Map* Navigation GUI to display site meta data, demographics, KPIs with URL "links" to BAS and FDD applications;
 - Executive Energy KPI Correlation Dashboard with customized scatterplot, historical trends graphics and reporting based on user selected variables, filters and time periods;
 - *ZoHo* GUI that provides portfolio project management tracking and Service Center Ticket reporting demographics.
- Develop and deploy EEMP supported "Managed Services" including:
 - 24-7 Technical Support Center Services, Monitoring, Alarming Event Management;
 - Fault Detection and Diagnostics Event Management, Continuous Commissioning;
 - Energy Saving Analytics and Validation, Compliance with Corporate Governance Standards;
 - Automated Demand Response, Global Control, Control Sequence Upgrade Deployment Platform;
 - Preventative Maintenance Program Validation / LEED Certification Validation.

- Incorporate analytics into services to identify, dollarize, validate and continuously commission initiatives. Improve portfolio O&M and energy key performance indicators (KPIs). Weight multiple KPIs resulting in one metric to prioritize limited Client resources.
- Deploy automatic global set-point or schedule change scripts across the portfolio via site gateways to HVAC and lighting controllers, reducing Client costs and likelihood of human error associated with a labor intensive site by site, unit by unit update.
- Customize Fault Detection & Diagnostic (FDD) rules that scaled across the multi-Client enterprise platform. Automate reporting to parse and prioritize "fault events" from a library of 70 "exception rules" per Customer. Incorporate FDD dashboard into *Technical Service Support Center* due diligence troubleshooting process.
- Collaborate with consultants on the architecture and processes required to host software and applications supported by the EEM "Big Data" platform. The Platform was built in a *DataStax Enterprise* built on Apache Cassandra, designed to be non-proprietary and "future proofed" to support undefined data feed third party and in-house applications yet to be created.
- Formulate scripts to proactively identify data gaps, loss in connectivity, bottlenecks and "out of range" data encountered in the data integration of over > 60 MM data values/day uploaded from 5,100 multi-Client sites as the data traveled from site devices through hardware and software gateways to the "big data" platform that "data fed" downstream applications.

Additional

- Provide legislative and regulatory advocacy services to Texas Retail Electric Providers (REPs), service and technology providers in the Texas deregulated electric market. Consult on utility demand and supply side load management, business development, PUC regulatory policy, efficiency strategies and programs in support of clients.
- Develop and lead a two week training to Austin Energy Customer Service Representatives on ESCO qualifying, technical, business development and financial analysis operations. Energy services training at Annual KMC Controls Conference. Create Energy Star Portfolio Manager Training to educate Retail Estate Investment Trust managers
- Evaluate an Electric Cooperative Sustainable Grid initiative; including evaluating market potential, cost effectiveness, applicable technologies, and Home Area Network / Smart Grid options. Research the cost effectiveness and deployment parameters associated with an Utility DSM Residential enterprise based Demand Response program..
- Present at 2013 Haystack Connect Conference with topic "Scaling an Enterprise". Conference Participant on "Automated Demand Response Opportunities" Panel Discussion. Multiple DSM Program presentations to trade groups and end users including BOMA, ASHRAE, AEE, IFMA, Chamber of Commerce, apartment associations, etc..

Work Engagements

- Consultant Services, GPG Advisers / Custom Energy Solutions, Austin, Texas; January 2015 to Present.
- Vice President of Analytics, Facility Solutions Group-Energy, Austin, Texas; September 2009 to December 2014.
- Senior Project Manager, Good Company Associates, Austin, Texas; October 2007 to September 2009.
- Director of Engineering, RealWinWin, Inc., Austin, Texas; January 2004 to September 2007.
- President, Custom Energy Solutions, Inc., Austin, Texas; July 1998 to December 2003.
- Senior Project Manager, EUA Cogenex Corporation, NY and Austin, Texas; June 1990 to July 1998.
- Senior Project Engineer, Environmental & Conservation Services, City of Austin, Texas; September 1982 to May 1990.

Education and Affiliations

- University of Texas, Austin; BS Architectural Engineering; Environmental / Mechanical Systems Focus; 1982.
- National Society of Professional Engineers; Fundamentals of Engineering, Engineer in Training Certification.
- Association of Energy Engineers (AEE) Member.

References Available Upon Request.