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MANAGEMENT CONSULTANTS

Resume of:
Luke Martin
Partner

Summary

Luke Martin is a partner and a leader in ScottMadden's energy practice. He has more than 18 years of management consulting experience focused on the energy, utility, and clean tech industries. He helps design and implement digital transformation strategies rooted in real-world field and plant experience in digital, training, and cyber security domains for leading grid operators in transmission & distribution and power producers in generation, helping them to transform their operations and be well positioned for the clean energy future. Luke received an M.B.A., with an emphasis on energy and the environment, from Duke University's Fuqua School of Business Cross Continent program. He also holds a B.S. in computer engineering and electrical engineering from North Carolina State University.

Areas of Specialization

- Transmission and Distribution
- Generation
- Nuclear Generation
- Natural Gas
- Information Technology
- Security

Solutions and Capabilities

- Cyber Security
- NXT GEN® Training
- Program and Project Management
- Risk and Compliance
- Technology Enablement
- Utility Operations and Technology

Recent Assignments

Operational Technology and Cyber Security

- Established a new cyber security and Operational Technology (OT) security program for a large generation fleet. Used a risk-informed approach to identify which controls apply to each generation asset and prepared OT security playbooks for each critical station. Prepared recommendations and road map for detailed implementation, including work management integration
- Supported the enterprise IT-OT initiative of a top U.S. utility to improve cyber resilience. Work included evaluation of asset identification tools and process mapping/integration of workload to be transferred to operational business units
- Managed a NERC compliance assessment for a battery storage generation company. Identified changes to physical security design prior to construction to secure BES cyber assets and save future costs on physical security controls. Delivered a road map for how to develop and build a scalable NERC compliance program
- Performed an assessment for a large, multiregional transmission organization focused on implementation of cyber security and NERC Critical Infrastructure Protection (CIP) standards. Assessment identified areas for improvement based on training observations and field visits. Recommendations identified enhancement opportunities for procedures, work management, and training
- Led a cyber security and NERC CIP compliance program recovery effort for a large utility focused on improving technical program and procedure documentation, educating and training the workforce, enhancing work management tools to track NERC-related activities, and developing dashboards and reporting tools to make CIP activities more visible across the organization. Implemented program recovery for selected Operations and Planning (O&P) and all NERC CIP standards. Results of this turnaround effort yielded a clean NERC CIP audit
- Supported a NERC compliance assessment for the transmission function of one of the nation's 10 largest investor-owned electric utilities. Reviewed existing compliance documentation and compared against leading practices for O&P and CIP reliability standards. Identified gaps and developed an implementation plan to address deficiencies

Plant Modernization and Digital Transformation

- Partnered with national laboratory organization to perform a comprehensive business case analysis effort for a plant-wide digital infrastructure modernization for both safety-related and non-safety systems for a two-unit U.S. nuclear plant. Mined historical parts and labor costs to demonstrate positive case for a $200+ million digital instrumentation and control capital investment
- Co-led efforts to develop a plant modernization business case tool for an industry research organization to review several asset management-related initiatives: installation of IoT sensors for key components, Monitoring and Diagnostic (M&D) programs, thermal performance monitoring/cycle isolation, and M&D to support condition-based maintenance

Supported the nuclear plant modernization program team of a leading research institute to perform business case analyses on emerging technologies to help generation plants reduce operating costs. Captured cost and workload data and operating experience from multiple utility members and synthesized technical research to identify technologies which can have an immediate impact of reducing direct costs for generation operators. Innovation topics analyzed included drones, robotics/crawlers, electronic work packages, risk-informed in-service inspections, virtual, non-destructive examination simulators, emergency planning field monitoring technologies, automated chemistry skids, and improved training methods

- Managed research effort to perform a cost-benefit analysis of M&D programs using IoT sensors. Analysis was performed to understand impacts of M&D to routine preventive maintenance activities, deferring major component maintenance, as well as to understand impact of avoided costs of component failures by key component types in large U.S. nuclear plants (e.g., turbine, motors, transformers)
- Directed engagement to analyze multiple business process automation methods to streamline and automate work management and scheduling activities in generation, AI/automation for work request screening, auto-assisted planning, and auto-scheduling, yielding significant process and workload efficiencies
- Managed implementation of the $8 million post-Fukushima capital project to enhance offsite radiological monitoring for the largest nuclear generator in the world. Monitoring enhancements included network design, procurement of radiological monitors, and development/deployment of analytic engine software and system implementation. Led efforts to seek regulatory approval from provincial and federal entities, trained staff on new software and process changes, authored equipment and construction RFPs, and supported gated capital project management reporting requirements
- Benchmarked practices of fossil and nuclear utility operators against a global pulp and paper leader to identify best practices in digital innovation, IoT/process automation, analytics, and cyber security
- Led effort to develop nuclear industry research in collaboration with a leading national laboratory, identifying the top plant modernization work-reduction opportunities, associated infrastructure, and tools required to move to an integrated, remote-supported operating model for the U.S. nuclear fleet
- Partnered with a two-unit nuclear operator and national laboratory to generate a business model transformation plan using the research and learnings derived from the integrated operations for nuclear model
- Identified commercially available software and tools to support realization of digital transformation program objectives, supporting a national laboratory research initiative. Tools and integrated methods were identified for the following focus areas: advanced training technologies, automated planning and scheduling, drones and robotics, AI condition report analysis, and condition-based monitoring
- Along with an energy research institute, developed a common digital transformation (DX) framework with input from generation, nuclear, transmission and distribution utility stakeholders. This foundational project served as the basis for a cross-sector DX member research initiative

Safety and Training

- Led effort to perform an assessment of transmission safety program and procedures against global leading practices for a Middle Eastern electric utility. Performed field observations of four regional areas to assess control room operations, substation maintenance, and field safety practices in the field. Lessons learned were used to update company procedures and training
- Developed integrated, end-to-end switching and tagging program and procedures for a large transmission organization. Prepared role-based NXT GEN® video-based training to accompany program implementation
- Implemented safety management system for large, vertically integrated electric utility. Partnered with transmission business unit to align enterprise standards with procedures and work methods
- Conducted safety field observations for field crews in five regions of a major electric and gas infrastructure contractor, following a major safety incident. Collaborated with safety and training leadership to establish assessment criteria, conducted paired observations, and evaluated crew performance. Identified improvement areas and developed recommendations and a detailed multi-year road map. Modernized the training program using NXT GEN® video-based training for enhanced crew and supervisor performance
- Led effort to evaluate high-risk tool program, safety hazards, and risk mitigation for a large transmission organization. Developed an enterprise utility safety program, revised high-risk tool procedures, and developed NXT GEN® immersive training for field workers to embed safety guidance into work practices
- Led a safety-focused audit on electrical testing performed by transmission and generation crews for a large U.S. utility. Reported results from more than 25 field visits to executive management