John D. Towler, P. Eng
B. Sc., CFEI

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Professional Mechanical Engineer with over 30 years of diverse experience in the Oil and Gas, Power Generation, Electrical Manufacturing, Aerospace, and Insurance industries, with emphasis on high speed rotating machinery, in particular gas turbines. Strong analytical, people and project management skills, with the ability to effectively communicate and negotiate with all levels of staff and external clients. Led small and large multi-disciplined teams, in small companies and large corporations, in the development and manufacturing of innovative products, using Six Sigma and Lean techniques. Managed many small and multi-million dollar projects in the Oil and Gas and Power Generation sectors, established as a consultant in the fields of Project Management and Forensic Engineering.

PROFESSIONAL EXPERIENCE

Independent Engineering Consultant, Calgary, AB **2011 - Present**

Continuing to operate as an independent consultant in the forensic engineering field for the insurance industry and legal clients, specializing in industrial gas and steam turbines, compressors and generators. Notable projects have included:

- Assisted the manufacturer of remote power generation systems to identify the causes of a sudden rash of field failures on one particular generator model. Identified the root cause as being the susceptibility of this particular model to high wind environments. Resulted in the manufacturer introducing features to reduce the effects of high crosswinds.
- The investigation of the unusual failure of a General Electric LM600 generator owned by a provincial power company. Used aero engine experience to determine that the root cause was the ingestion of ice into the inlet.
- Performed a review of the events leading up to and the causes of a toxic hydrocarbon leak which occurred on the start up of a natural gas compressor heat recovery pre-heater vessel. Showed that the leak was due to the inadequate design of the original vessel flange seals, coupled with poor assembly practices.
- Investigated the catastrophic failures of two GE LM6000 gas turbine generators operated by a South American power utility. Through extensive visual and metallurgical analysis, and a review of operational practices, several contributory factors were identified, including inadequate maintenance practices, poor inlet filtration which permitted severe gas path component erosion by dust produced by a nearby concrete plant, and operation of the Sprint water injection system beyond the manufacturer's recommended limits.
- Investigation of the failures of two power generators serving a small resort town in the Rocky Mountains. On one, the failure was identified as being most likely due to internal corrosion in the 38-year old dual-fuel Waukesha L7042. The second, to an ex-locomotive conversion 16-cylinder Electro-Motive Diesel stand-by generator of similar vintage, was not determined. In both cases, repair cost quotes submitted by local suppliers were reviewed and compared with the costs for full engine replacement in order to derive the best financial solution for the insurance company and owner.
- Investigated the failure of a Cummins diesel generator, one of two which provided power for a northern Manitoba mining company. Visual and laboratory analysis of the failed engine components indicated that the failure was due to incorrect generator alignment following the field replacement of an oil seal.
- Investigated the cause of the failure of a natural gas compressor which resulted in a severe explosion and fire in a northern Alberta gas plant. Much of the evidence had been compromised during prior investigations by the owner and other agencies, but after a thorough review of all available documentation and photos it was concluded that the compressor failed after ingesting liquids from an upstream scrubber vessel, after the high level shut-down had been improperly disabled.

Also applying his extensive project management experience on a contractual basis to:

- **Global ThermoElectric (now Gentherm)**, a manufacturer of customized remote power systems in Calgary, AB. Managed the engineering, procurement, and integration of power generation projects ranging in value from $25,000 to $3MM for on-shore and off-shore applications worldwide.
- **SeaNG**, a compressed natural gas (CNG) transportation system provider in Calgary, AB. Assisted in the development of a pre-FEED proposal for a major energy company.

Calgary Airport Authority (YYC), Calgary, AB **2015 - 2017**

Project Manager, Mechanical Systems, International Facility Project
Based in the Authorities' PMO, managing mechanical aspects of the construction of the new $2 billion International Terminal airport extension project, including new construction, change management, commissioning, troubleshooting and remediation of non-performing assets, prior to and following the opening of the new terminal building.

Enerflex Systems Limited, Calgary, AB **2013 - 2014**

Project Manager, Compression and Process
Managed the engineering, procurement and production of customized natural gas compression and process packages for a variety of North American energy companies.

Sintra Engineering Inc, Calgary, AB **2009 – 2011**

Forensic Engineer
Specialized in the technical investigation of insurance losses for insurers and adjusters, and litigation for law firms, including failure analysis, fire investigations, equipment malfunctions, product liability, as well as the evaluation of engineering reports from other firms. Investigated the failures of several diesel-powered standby generators, gas turbines, HVAC systems, and a multitude of commercial and residential electrical and plumbing failures. Investigated an explosion and fire in a gas compression package which resulted in a multi-million dollar equipment and production loss. Proved that the origin and cause of the event was an operator error, but also identified many shortcomings in the company's maintenance and EH&S processes.

TransAlta Energy Corporation, Calgary, AB **2005 - 2009**

Senior Wind Engineer, TransAlta Wind (2008-2009)
Managed a small group of engineers dedicated to the EPC project management of wind farm construction, operation and technology. Focus is on reliability and operational excellence through adoption of Condition Monitoring tools and processes, and development of the technical capabilities and knowledge of the group through working closely with the major OEM’s. Also assisted in the project management of green field wind-farm construction.

Manager, Plant Engineering, Gas and Hydro (2007-2008)

Following a strategic re-organization, took over management of site-based plant engineering groups providing technical support to the company’s hydro, and combined-cycle and cogen gas power plants in Canada and Mexico, with emphasis on introducing reliability and performance principles into the activities of these groups, and standardized project management methodologies. Led the Root Cause Failure Analysis investigation into the multi-million dollar failure of the generator excitation system on a GE 7EA Gas Turbine unit at the company’s LP/Husky plant in Lloydminster, Sask., identifying both mechanical and human factor contributing factors.

Manager, Corporate Reliability and Performance (2005-2007)
Managed a group of 15+ professional engineers and technicians in the Generation Technology corporate office and distributed throughout the company’s plants, focused on the reliability and performance of all of TransAlta’s power generating assets. Operating from within TransAlta's PMO, the main priority was to

develop common goals and operating standards, for plant-based teams and individuals originating from differing organizational structures.

Eaton Electrical (Cutler-Hammer), Calgary, AB **2000 - 2005**

Engineering Manager, Product Development

Managed a team of 5-7 electrical designers and specialists involved in the development of industry-leading Surge Protection Devices for industrial, commercial and residential applications. As a member of the plant's Leadership Team and corporate PMO, assisted in the application of many corporate initiatives (eg Six Sigma) aimed at improving the operational and financial performance of the business. Led the plant's EH&S activities, establishing scheduled safety inspections and audits, and simulated accident investigations. Co-holder of several US patents relating to electrical surge protection

Enerflex Systems Limited, Calgary, AB **1999 - 2000**

Project Manager, Product Development

Member of a newly formed team of Project and Design engineers involved in the development of innovative, standardized gas compression and power generation equipment.

Pratt & Whitney Canada Inc, Longueuil, Quebec. **1980 - 1999**

Senior Technical Support Engineer, Development Manager, Project Manager, Project Engineer and Senior Project Engineer, of small military and commercial gas turbine aircraft engines.

Rolls-Royce Limited, Derby, UK **1976 - 1980**

Graduate Apprenticeship programme, Development Engineer and Senior Development Engineer, of large military and commercial gas turbine aircraft engines.

FORMAL EDUCATION

University of Manchester, UK, Bachelor of Science, Aeronautical Engineering

LANGUAGES

English and French

PROFESSIONAL DEVELOPMENT

- Leadership in a Global Business Environment
- Herrman Whole Brain
- Kaizen Continuous Improvement Process
- Six Sigma for Design and Development
- Lean Manufacturing
- Fire and Explosions Investigation training.
- Ken Blanchard Legendary Service

ASSOCIATIONS

- APEGA
- National Association of Fire Investigators

PERSONAL INTERESTS

- Re-building, restoring and driving classic British sports cars, curling, skiing, golf, cycling, photography, home re-modeling, regular judge at annual Calgary Youth Science Fair.