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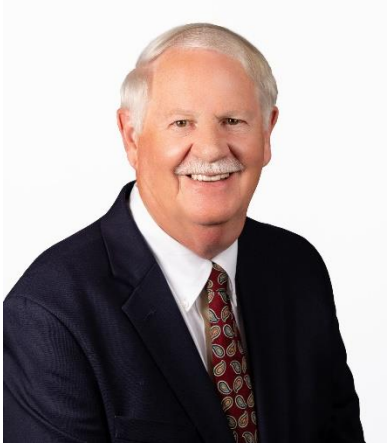

GREG SMITH

Senior Engineer

Mechanical & Drivetrain

EDUCATION & QUALIFICATIONS

B.S. Mechanical Engineering, Rose-Hulman Institute of Technology

MBA, Morehead State University

Six-Sigma Green Belt

AREAS OF EXPERTISE

- Wind Energy Mechanical Systems
- Drivetrain & Gearboxes
- Power Train
- Valves
- Materials & Metallurgic Engineering
- Forensic Engineering

Biography

Greg Smith comes to OCI-USA after 40+ years as a mechanical engineer in industry and the renewable energy space. Prior to joining OCI-USA, Greg worked as a lead design engineer for companies such as General Electric, NextEra Energy Resources Emerson Electric Corp., and Reliance Electric Corp.

Greg's expertise in the mechanical design of wind turbines, gearboxes, general mechanical failure analysis, and materials science testing, is unmatched. Throughout his career, Greg has been at the forefront of gearbox and drivetrain design intricacies, resulting in developing patents to improve technologies in the renewable energy sector.

During his industry tenure, Greg worked closely with the gearbox repair service team to diagnose and formulate solutions to mechanical failures in the field. Greg routinely leveraged his deep knowledge of gearbox design when performing root-cause analyses to recommend a customized design improvement to the existing OEM designs.

Though his focus is primarily related to wind turbine and renewable energy mechanical failures, Greg's expertise in materials science, mechanical design, and fatigue & stress analysis is highly valued by OCI-USA's clients, from insureds, carriers, adjusters, and to legal counsel across the U.S.

Selected Experience

Description
Wind Turbine Mechanical Systems
Gearbox Reliability and Design
Gearbox/Drivetrain Failure Analysis
Bearing Design and Failure Analysis
Mechanical Coupling Analysis
Metallurgical Analysis
Lubrication Systems and Specifications
Mechanical Maintenance Quality
Analysis & Development of Power Train Systems

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NOTABLE EXPERIENCE

RENEWABLE ENERGY

Wind Farm Utility

As the principal engineer for the Wind Turbine Mechanical Systems division for over 10 years, Greg oversaw gearbox design, performed reliability studies, and performed root cause failure analyses. Greg developed a program to aid in the prediction of the remaining useful life for equipment and was appointed as the company representative on the NREL Gear Reliability Committee. His experience and in-depth knowledge culminated in the development of patent no. 9,341,158 Quiet Wind Turbine Blade and a patent application for Wind Turbine Split Main Bearing. Greg also authored a White Paper on Bearing Irregular White Etching.

Wind Turbine Design

Greg designed and developed various gear drive systems for wind turbine and locomotive drive systems.

His role as Senior Engineer also involved the design and analysis of gearing stresses, including microgeometry optimization.

MECHANICAL DESIGN

Drivetrain Technology Manufacturer

Greg led the development of gearing for an all-electric, all-wheel drive and start-stop program for a prominent drivetrain technology manufacturer. Greg also designed gear drives and Continuous Variable Transmissions for hybrid powertrain systems. Greg was awarded patent no. 6,736,228 for Electric Machine with Integrated Wet Clutch and he has three other patents pending for Electro-Mechanical Valve Actuator, Auxiliary Drive for Hybrid Power Train, and Pressure Pulsation Reduction in Gear Pumps Utilizing Asymmetric Gearing.

Industrial Gearbox Design

Greg was the head of the engineering department, and he managed 12 staff engineers & designers responsible for the design of gear reducers from application evaluation through manufacturing. He also oversaw discreet design aspects, such as gear hobbing, grinding, heat treatment, and assembly. During his tenure, Greg accomplished the development and design of a carburized and ground parallel shaft gear reducer product line.

Gearbox Design

Greg managed the engineering aspects of the parallel shaft gear reducer product line including the design manufacturing, and assembly. Greg developed a quantitative means of tracking engineering performance, organized the department for the parametric design of gear reducers, and he further implemented a gear design program utilizing UTS gear design for gear stress and geometry analysis.

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Power Transmissions

Greg designed and developed mechanical power transmission equipment including gear reducers, couplings, and belt drives for wind turbines, conveying systems, and extruder dives applications. He also performed load spectrum analyses to predict the life & reliability of gears & bearings for wind turbine and conveying systems. Greg's work led to the redesign of the variable pitch sheave product line utilizing design for manufacturing and assembly. This redesign resulted in a 10% profit increase and is memorialized in US patent no. 5,304,098 Developed Value Analysis Program for Parallel Shaft Gear Reducer product line.

Mechanical Coupling Design

Greg designed, developed, and tested mechanical couplings and he devised a quality function deployment program for the marketing and development of a new coupling product line. On a separate project, Greg drove the quality assurance program, including developing a QA manual, vendor certification, and the program for statistical process control and gear control.

Link-Belt Chain Design

Appointed as the QA manager, Greg was responsible for the manufacturing plant's quality, specifically the product warranty and field service operations, and he oversaw the metallurgical lab division.

Power Transmission Design

Greg was a design engineer responsible for the application and design of power transmission equipment as required by OEM and customer specifics. He provided technical support to sales and marketing teams, including technical training seminars for the company's customers and field representatives.

PATENTS & PATENT APPLICATIONS

Wind Turbine, Gears & Blades

- 5,304,098 Adjustable Sheave
- 9,341,158 Quiet Wind Turbine Blade
- US201440112606 Roller Bearing for Wind Turbine

Automotive Industry

- 6,736,228 Electric Machine with Integrated Wet Clutch
- US20030116368 Accessory Drive for Vehicle with Hybrid Drive
- US20050001702 Electro-Mechanical Valve Actuator

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EMPLOYMENT HISTORY

2022 – Present	OCI - USA Yulee, FL Senior Consultant – Drivetrain & Mechanical Systems
2009 – 2018	NextEra Energy Resources Principal Engineer
2018 – 2009	General Electric Senior Engineer
2000 – 2008	Visteon Corporation Senior Engineer
1998 – 2000	Nuttall Gear Division, Colfax Corporation Chief Engineer
1996 – 1998	Sumitomo Corporation – Sumitomo Machinery of America Division Manager of Engineering
1991 – 1996	Emerson Electric Corporation – Emerson Power Transmission Division Senior Production Engineer
1990 – 1991	Reliance Electric Corporation Senior Development Engineer
1989 – 1990	Magna Power Corporation – Hydreco Division Quality Assurance Manager
1985 – 1989	P.T. Components Inc. – Link Belt Chain Division Quality Assurance Manager
1978 – 1985	Emerson Electric Corporation – Power Transmission Design Engineer
1976 – 1978	Dresser Industries Inc. – Marion Power Shovel Division Design Engineer