PETER PEREZ, PH.D.

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ENERGY TECHNOLOGY & R&D LEADER | FUELS, SPECIALTY CHEMICALS & ENERGY TRANSITION

PROFESSIONAL SUMMARY

Energy technology and R&D leader with a Ph.D. in Fuel Science, an M.S. in Engineering Management, and 20+ years of experience across fuels, combustion, oil and gas, refining, gas turbines, production chemistry, and specialty chemicals. Proven success leading scientific teams, developing and commercializing technologies, connecting research with manufacturing and field applications, and using data and digital tools to improve technical decisions. Brings transferable capabilities for the energy transition in advanced fuel evaluation, combustion and emissions, asset reliability, chemical efficiency, formulation, materials compatibility, product scale up, and industrial innovation. Seeking senior R&D, innovation, technical applications, or product technology leadership opportunities supporting cleaner, more efficient, and reliable energy systems.

CORE ENERGY & LEADERSHIP EXPERTISE

Energy Technology R&D | Fuels, Combustion & Emissions | Refining & Hydrocarbon Processing | Gas Turbine Fuel Performance | Production Chemistry | Specialty Chemical Formulation | Advanced and Alternative Fuel Evaluation | Energy Efficiency & Asset Reliability | Technical Applications & Customer Support | Innovation Strategy & Product Commercialization | Research Portfolio & Stage Gate Execution | Scale Up & Manufacturing Transfer | Team Leadership & Talent Development | DOE, Six Sigma & Advanced Analytics | Machine Learning, Computer Vision, R & Python | EHS Leadership | Global Matrix Collaboration | Bilingual English/Spanish

PROFESSIONAL EXPERIENCE

Halliburton Multi-Chem | Houston, TX **Jan 2022 - Jun 2026**

Team Lead - Phase Separation (Upstream & Downstream)

- Led a multidisciplinary team of six technical professionals developing and supporting specialty chemicals for upstream production and downstream hydrocarbon processing across North America, Latin America, and the Middle East.
- Set technology priorities and managed product, application, technical support, and sustaining project pipelines in collaboration with Product Management, Sales, Marketing, Manufacturing, Supply Chain, and regional teams.
- Led development of a high throughput testing platform using computer vision that reduced bottle test time by at least 50%, accelerating formulation development and demonstrating practical use of AI in industrial research.
- Applied DOE, JMP, R, and Python to optimize chemical formulations and solvents, delivering 30%–40% cost reductions while maintaining or improving application performance.
- Developed regional product portfolios and directed Synthesis priorities for technologies needed in North America, Latin America, and the Middle East.
- Worked with pilot and commercial manufacturing of resin intermediates, connecting laboratory development, application performance, product strategy, and production readiness.
- Hired eight subject matter experts in one year, including four Ph.D./M.S. scientists, and sustained four years with zero laboratory incidents through proactive EHS leadership.

SUEZ Water Technologies & Solutions | Tomball, TX **Feb 2017 - Jan 2022**

Senior Researcher / Phase Separation Team Lead (Downstream & Refining)

- Led application development and technical support for refinery phase separation, flow assurance, foam control, and related specialty chemical programs supporting reliable hydrocarbon processing operations.
- Developed patented technologies for improved refinery desalter brine quality and removal of amines, translating operational challenges into differentiated formulations and application recommendations.
- Implemented interfacial tension and pendant drop tensiometry methods to advance understanding of crude oil and water interfaces and improve product and application development.
- Used R to develop a machine learning model predicting demulsification performance from crude oil properties and operating conditions; the model became part of the proprietary CrudePLUS platform.
- Applied principal component analysis to improve paraffin inhibitor selection and assess wax formation tendencies, contributing to patented technology in the United States, Europe, and Canada.
- Worked with technical, commercial, product, and customer stakeholders to convert complex data into recommendations, training, product positioning, and commercial treatment programs.

GE Global Research | Niskayuna, NY **Jan 2011 - Jan 2017**
Senior Research Engineer / Lead Research Engineer

- Developed energy technologies for aviation fuel stability, gas turbine fuel suitability, heavy hydrocarbon processing, flow assurance, deposition control, and corrosion mitigation.
- Helped launch the ProSolv flow assurance product line through formulation, method development, performance validation, competitive benchmarking, and collaboration with business and engineering teams.
- Supported combustion engineers by characterizing complex and ash bearing fuels for F class gas turbine programs and translating fuel properties into performance and reliability recommendations.
- Used Six Sigma methods to optimize synthesis of overbased magnesium additives in Parr reactors, achieving more than 90% inhibition of vanadium corrosion in gas turbines.
- Developed chemistry based strategies and ASTM methods for controlling and evaluating aviation fuel thermal stability.

The Pennsylvania State University | University Park, PA **Jan 2004 - Dec 2010**
Graduate Research Assistant - Fuel Science

- Developed gasoline formulations for homogeneous charge compression ignition engines, linking fuel chemistry with combustion performance and efficiency.
- Evaluated oxygen enriched diesel combustion under simulated high altitude conditions and identified solid film lubricant formulations for reducing engine oil consumption.
- Designed engine, combustion, fuel, lubricant, and emissions experiments; analyzed complex data and published results in technical journals.

PDVSA INTEVEP | Los Teques, Venezuela **Oct 1997 - Dec 2002**
Fuel Chemist

- Advised refineries on gasoline and diesel quality, ASTM specifications, additive performance, and corrective actions supporting reliable fuel production and market supply.
- Supported the national phase out of leaded gasoline, introduction of detergent additives, gasoline grade rationalization, and exhaust emissions evaluations.
- Led fuel quality activities during development of an environmentally oriented water emulsion in diesel and supported chassis dynamometer and application testing.

EDUCATION & PROFESSIONAL DEVELOPMENT

Ph.D., Fuel Science - The Pennsylvania State University
M.S., Fuel Science - The Pennsylvania State University
M.S., Engineering Management - Universidad Metropolitana
B.S., Chemistry - Universidad Central de Venezuela

Certifications: Six Sigma Black Belt (GE) | Project Management (Google / BlackBox Partners) | TRIZ Levels I & II (GE)

TRANSFERABLE ENERGY TRANSITION CAPABILITIES

- Evaluate new fuels, blends, and additives through formulation, stability, combustion, engine, emissions, materials compatibility, and ASTM testing.
- Develop chemical and digital solutions that improve energy asset reliability, research efficiency, formulation economics, and technical decision speed.
- Lead multidisciplinary teams and connect established energy expertise with new technologies, manufacturing requirements, customer applications, and commercial deployment.

SELECTED TOOLS & TECHNICAL PLATFORMS

Power BI | Microsoft Excel, PowerPoint, Word | JMP | R | Python | DOE | Six Sigma | Microsoft Project | Microsoft Planner | Microsoft Teams
Machine learning | Computer vision | Portfolio and pipeline management | ASTM fuel testing | Engine and emissions testing | JFTOT | Interfacial tension | Pendant drop tensiometry | Parr reactor synthesis | Formulation & application testing | Pilot & commercial manufacturing

SELECTED INTELLECTUAL PROPERTY & PUBLICATIONS

Coinventor of patented technologies for advanced analytics in wax assessment and mitigation, improved refinery desalter brine quality, and removal and conversion of amines. Author or coauthor of 11 technical publications and conference papers spanning fuels, combustion, lubricants, interfacial science, demulsification, and flow assurance.