Mechanical Engineering Director

Tulum Energy is an early-stage technology company developing an innovative Turquoise Hydrogen pyrolysis solution for clean and inexpensive hydrogen production. Our platform technology will have a major impact in our world's attempt to decarbonize by reducing greenhouse gas emissions. As we race towards this critical goal, we are building a team of world class individuals that are comfortable working at a start-up company, are innovators and have a passion for climate change.

We are currently looking for a **Mechanical Engineer Director** to help develop Tulum's current and future Methane Pyrolysis Systems. In this role you will work directly with the Chief Technical Officer and R&D Team, to design, develop and build subscale models, a Pilot Plant and Commercial Units in our efforts to validate, commercialize and deploy the technology. Specific details are below.

Primary Responsibilities:

- Lead the Mechanical Team to design, manufacture and assembly of a Pilot scale, proof of concept thermal reactor system based on Plasma Physics
- Execute overall layout and fabrication prints as need in SolidWorks or the like
- Develop component and system requirements and specification documents
- Develop bills of materials (BOMs) and engineering design packages for bid
- Work directly with vendors and/or suppliers to specify, order, procure and track equipment purchases
- Perform detailed static and dynamic stress analyses (mechanical and thermal), mass and energy balance analyses and calculations
- Ensure all engineering and design activities are in full compliance with governing regulations, codes, standards and guidelines
- Work with the existing team to assemble, build, commission and operate the prototype reactor(s) and eventually, the Pilot Plant
- Manage a small team of junior design engineers

Minimum Experience:

- Masters Level Mechanical Engineer Degree (or equivalent) with 12+ years relevant experience in the design of thermal, reacting and fluids systems including, but not limited to, thermal reactors/oxidizers, gas turbine combustion systems (land based or commercial), boiler burners, process heaters, automotive, etc.
- Expert level experience with commercially available CAD and FEA packages such as CATIA, Solid Works, AutoCAD 3D, CREO, ANSYS or the like and associated GD&T standards
- Prior experience designing and building thermal/combustion/reacting and pressurized systems including Turquoise Hydrogen Systems
- Solid understanding of Methane Pyrolysis, specifically Turquoise Hydrogen Production and Plasma Physics
- Experience in the design and specification of Carbon Black Management systems including, but not limited to, Bag Houses/Filters, gas separation strategies (PSA, Membranes, etc.), Material Handling systems, pelletizers, syngas, compressors, etc.
- Ability to read and generate P&IDs, PFD, Electrical One Line Diagrams
- Mechanical aptitude, hands on, and the desire and capability to help build entire process systems
- Thorough understanding of thermodynamics and reacting and non-reacting fluid dynamic flows including plasma physics
- Exceptional communication skills both written and verbal; ability to present results in front of a group of piers
- Support other members of the R&D team in product design and development activities
- Ensure that product design and performance meets technical and functional requirements
- Ability to work independently and as part of a team
- Mechanical aptitude, hands on, and a self starter

Additional Experience Desired:

- Experience with both high and low speed instrumentation (dynamic pressure and temperature sensors), flow meters, regulators, etc.
- Experience with process control system hardware and DAQ software (DCS, HMI, PLC, National Instruments),

- Experience using and operating with high pressure flammable gases
- Experience with both high and low speed instrumentation (dynamic pressure and temperature sensors), flow meters, heat Flux Gauges, etc.
- Experience with process control system hardware and DAQ software (DCS, HMI, PLC, National Instruments),
- Experience in un-steady, high temperature, high-pressure systems a plus,
- Experience in combustion and hydrogen systems a plus

Location

The position is preferably based in Milan Italy, but some remote working arrangements will be considered with periodic visits to Milan as needed.

Tulum Energy

Tulum Energy is an early stage and dynamic Start-up Company. Our Standard employment package includes a base salary, Stock Options, Vacation and Health Insurance. For the current opening:

- Salary Range: $80,000-$120,000
- Permanent Full-Time Position