



## Junior Mechanical Engineer

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 **Junior Mechanical Engineer** to help develop Tulum's Alternate Methane Pyrolysis Systems. In this role you will work directly with the Chief Technical Officer and R&D Team, to help design, develop and build Tulum's subscale models and Pilot Plant in our efforts to validate the underlying technology.

### Primary Responsibilities:

- Support the design, assembly and testing 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 under the direction of the Senior Mechanical Design Engineer
- 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 rudimentary static stress, 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

### Minimum Experience:

- Bachelor's Level Mechanical Engineer Degree (or equivalent) with 7+ 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 packages such as CATIA, Solid Works, AutoCAD 3D, CREO or the like and associated GD&T standards
- Ability to read and generate P&IDs, PFDs, Electrical One Line Diagrams, etc.
- Mechanical aptitude, hands on, and the desire and capability to help build subscale mode reactors
- Thorough understanding of thermodynamics and reacting and non reacting fluid dynamic and heat transfer
- Exceptional communication skills both written and verbal; ability to present results in front of a group of peers



- 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:

- Solid understanding of Methane Pyrolysis, specifically Turquoise Hydrogen Production
- 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)
- Versed in such software and programming tools as MATLAB, Python, C++, or the like
- 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: \$50,000-\$75,000
- Permanent Full-Time Position