MISTI: MIT-Germany Program

Internship Description
« Analysis of the Market Potentials of Hydrogen Produced from Photovoltaic Energy Sources in the Context of H2-Mobility »

Duration: 6 month funded internship
This opportunity is open to current MIT students or recent graduates. If interested please email Katie O’Connell (kconn@mit.edu) with resume.

Context:
• Global: Reduction of CO2 emissions from terrestrial transport, specifically passenger vehicles and captive fleets. Future deployment in Germany of Fuel Cell vehicles and the hydrogen distribution infrastructure required to fuel these vehicles.

• Specific : Creation of the H2 Mobility JV beginning of 2015 by industrial partners from 3 different sectors (Oil & Gas companies, technical gas and equipment suppliers, OEMs) aiming at the development of a hydrogen distribution network in Germany linked to the market development of Fuel Cell vehicles.

Objective:
Total Deutschland is a shareholder of H2 Mobility with the support of Total MS/SMR/PROD and whishes to further develop its understanding of the market potentials linked to this activity through scientific analyses regarding H2 production pathways from renewable sources, including the aspects of energy storage.

Tasks and expected results:
Based on existing models, the following tasks shall be completed during the internship:
• Familiarization with the existing economic and technical models that have been developed internally and externally in the context of H2 Mobility.
• Integration and adaptation of the existing models in order to allow the extension to hydrogen production options based on the photovoltaic product portfolio of Sunpower, a subsidiary of TOTAL.
• Simulation of market potentials linked to the entire H2 production chain as well as aspects linked to energy storage, including sensitivity analyses.
• Synthesis of the modeling results.

Required competencies:
• Knowledge of basic economic principles,
- Knowledge of thermo-dynamical, physical and chemical aspects linked to energy applications,
- German and/or French preferred.