Foresight

Connect 2 **Saipem**

February 2019 - Ongoing

Challenge:

Identify mid to large-scale deployable technologies that Saipem can leverage to support a low carbon economy.

- Focus area 1: Fully decarbonized hydrogen production
- Focus area 2: Hydrogen storage and transportation
- Focus area 3: Hydrogen utilization

Challenge Sponsor: Saipem
Challenge Facilitators: Foresight & Trade Commissioner Service of Canada
Budget: $50,000 EUR for internal engineering talent only
Finalist: H2M (Hydrogen in Motion)

Semi-Finalists:

G4 Insights Inc., *PyroCatalytic Hydrogenation (PHC)*:
- Hydrogen production from forestry biomass, using a proprietary process which uses fast pyrolysis rather than gasification of the biomass

Ionomr:
- Aemion™ enables efficient PGM-free water electrolysis, for more cost-efficient production of hydrogen ($2/kg), using advanced ion-exchange materials

H2M (Hydrogen in Motion)
- A safe, cost-efficient, and multipurpose hydrogen storage technology that uses a proprietary nanomaterial solution

Environmental Benefits:

- Decrease fuel costs from $12 or $6/kg, to $4/kg, making hydrogen competitive with gas and battery electric vehicles
- Reduce hydrogen production costs by 25-60%, which will enable greater production of green hydrogen

Outcomes:

H2M was selected by Saipem as the finalist, since their technology removes the need for energy-intensive equipment, high pressure, and high temperature for hydrogen storage, while improving safety and capacity at a lower cost.

Cost Savings

25-60%
Reduction in hydrogen production costs

Conclusion:

Even despite a low Technology Readiness Level, Saipem decided to further explore the techno-economic attractiveness of H2M's technology for a variety of use cases. Upon more detailed analysis, Saipem may participate in the development of H2M's technology, with an estimated timeline of two to three years until full commercial readiness.