Hydrogen Europe:
European Hydrogen & Fuel cell Project Database

Project HAWL

Large scale demonstration of substitution of battery electric forklifts by hydrogen fuel cell forklifts in logistics warehouses.

HAWL project aims at demonstrating competitiveness, technical maturity and user acceptance of hydrogen fuel cell powered forklift trucks fleets in a logistics warehouse environment in Europe, as an alternative to battery powered trucks operation. Electric forklift trucks have gained popularity in Europe due to efficiency of engines, absence of noise and of emissions at point of use. The main issue they have to address is battery management. Limited autonomy of batteries and voltage drops at end of discharge lead to complex battery swapping, and recharge processes. A few fuel cell initiatives have started in Europe in the material handling segment, however nearly all operators use a mix of forklift trucks of different types and no fuel cell vendor has yet proposed a wide enough range of products to allow a full warehouse fleet conversion, necessary to suppress battery operations and obtain the benefits expected from the technology. The new generation of fuel cell products and refuelling infrastructure that HyPulsion, Air Liquide and OEMs intend to develop in the frame of the HAWL project, are expected to bring productivity gains for the end users, due to faster and simpler refuelling and longer expected autonomy, while reaching the cost and performance targets needed for wide commercialization. The HAWL consortium, which gathers major companies in the field of fuel cells, forklift trucks, hydrogen distribution and dispensing and warehouse logistics, will undertake to prove productivity gains and reach or exceed economic breakeven in operations, using the technology on full fleets. The consortium within a 4-year time frame will: - solve relevant safety and acceptance issues, - pass required certification steps, - obtain necessary operating permits, - deploy and operate 200 Class 1, Class 2 and Class 3 trucks, as well as refuelling systems in multiple warehouses, - jointly measure, assess and demonstrate the actual productivity; The consortium has set up a funding scheme where the grants for technology providers are used to accelerate product development, while the grants for end-users are used to limit deployment risks by helping finance local work and maintenance for the duration of the demonstration. All individual members of the consortium have a direct interest in further development of the technology, no commercial restriction is agreed between the partners and a specific communication effort is undertaken within the program. These characteristics combined with the market audience of the consortium as a whole should maximize the dissemination potential of any positive result of the HAWL demonstration program. The HAWL project is a unique opportunity for the consortium members and for the European industry to start the first full size deployments of fuel cells technology in the material handling vehicle segment.

Project Information

Type of project : Demonstration
Timing : 01/09/2013 > 31/08/2017
Project website: http://https://hawlproject.eu/en
Project Budget : 9.018.435 €

Project partners

Coordinator :
Air Liquide
Partners :
Plug Power - HyPulsion
Toyota Material Handling Europe AB
AIR LIQUIDE ADVANCED TECHNOLOGIES SA
CROWN GABELSTAPLER GMBH & CO KG
FM POLSKA SP ZOO
DIAGMA SA
BT PRODUCTS AB
TOYOTA MATERIAL HANDLING MANUFACTURING ITALY SPA
FM France SAS
FM LOGISTIC CORPORATE

Sub project(s)

Sub project 1

Country: France
Address:
RUE COGNACQ-JAY 6 75007 PARIS
Sub project categories
Demonstration

Project Id: 983
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