ENABLing cryogenic Hydrogen based CO2 free air transport (ENABLEH2)

Results

| Project Information |  |
|---------------------|---|
| **ENABLEH2**        |  |
| Grant agreement ID: 769241 |  |
| DOI                 | 10.3030/769241 |
| **Funded under**    |  |
| H2020-EU.3.4.       |  |
| **Overall budget**  |  |
| € 3 987 680,75      |  |
| **EU contribution** |  |
| € 3 987 680,75      |  |
| **Start date**      |  |
| 1 September 2018    |  |
| **End date**        |  |
| 30 November 2022    |  |

Coordinated by CRANFIELD UNIVERSITY United Kingdom

This project is featured in...

RESEARCH*EU MAGAZINE
The future of aviation: The only way is up

NO. 99, FEBRUARY 2021
Deliverables

Documents, reports (1)

Detailed Communication plan
Establish an initial communication plan which will be further updated throughout the project.

Open Research Data Pilot (1)

Data management plan
Develop a detailed data management plan based on the EC template and as outlined in Section 2.2.2

Publications

Conference proceedings (25)

Combined Hazard Analyses to Explore the Impact of Liquid Hydrogen Fuel on the Civil Aviation Industry
Author(s): C. M. Benson, P. G. Holborn, A. M. Rolt, J. M. Ingram, E. Alexander
Published in: Volume 3: Ceramics; Coal, Biomass, Hydrogen, and Alternative Fuels, Vol 3. 09/2020, 2020, ISBN 978-0-7918-8411-9
Publisher: American Society of Mechanical Engineers
DOI: 10.1115/gt2020-14977

Cryogenic fuel storage modelling and optimisation for aircraft applications
Feasibility Study of a Radical Vane-Integrated Heat Exchanger for Turbofan Engine Applications

Author(s): Pavlos Rompokos, Andrew Rolt, Devaiah Nalianda, Thierry Sibilli, Claire Benson
Published in: June 7–11, 2021, 2021
Publisher: ASME
DOI: 10.1115/gt2021-58595

Design of Chalmers new low-pressure compressor test facility for low-speed testing of cryo-engine applications

Author(s): Isak Jonsson, Carlos Xisto, Hamidreza Abedi, Tomas Grönstedt, Marcus Lejon
Published in: Volume 7C: Heat Transfer, 2020, ISBN 978-0-7918-8418-8
Publisher: American Society of Mechanical Engineers
DOI: 10.1115/gt2020-15243

Conceptual Design of a Compressor Vane-HEX for LH2 Aircraft Engine Applications

Author(s): Carlos Xisto, Isak Jonsson, Tomas Grönstedt
Published in: Proceedings of 14th European Conference on Turbomachinery Fluid dynamics & Thermodynamics, 2021
Publisher: ETC

An Analysis of Civil Aviation Industry Safety Needs for the Introduction of Liquid Hydrogen Propulsion Technology

Author(s): C. M. Benson, J. M. Ingram, P. N. Battersby, D. Mba, V. Sethi, A. M. Rolt
Published in: Volume 3: Coal, Biomass, Hydrogen, and Alternative Fuels; Cycle Innovations; Electric Power; Industrial and Cogeneration; Organic Rankine Cycle Power Systems, 2019, ISBN 978-0-7918-5860-8
Publisher: American Society of Mechanical Engineers
DOI: 10.1115/gt2019-90453

Comparison of Hydrogen Micromix Flame Transfer Functions Determined Using RANS and LES

Author(s): Jonathan McClure, David Abbott, Parash Agarwal, Xiaoxiao Sun, Giulia Babazzi, Vishal Sethi, Pierre Gauthier
Published in: Volume 3: Coal, Biomass, Hydrogen, and Alternative Fuels; Cycle Innovations; Electric Power; Industrial and Cogeneration; Organic Rankine Cycle Power Systems, 2019, ISBN 978-0-7918-5860-8
Injector Design Space Exploration for an Ultra-Low NOx Hydrogen Micromix Combustion System

Author(s): Parash Agarwal, Xiaoxiao Sun, Pierre Q. Gauthier, Vishal Sethi
Published in: Volume 3: Coal, Biomass, Hydrogen, and Alternative Fuels; Cycle Innovations; Electric Power; Industrial and Cogeneration; Organic Rankine Cycle Power Systems, 2019, ISBN 978-0-7918-5860-8
Publisher: American Society of Mechanical Engineers
DOI: 10.1115/gt2019-90538

Combined Hazard Analyses to Explore the Impact of Liquid Hydrogen Fuel on the Civil Aviation Industry

Author(s): Benson, C, Holborn, P, Ingram, J, Rolt, A and Alexander, E
Published in: 2020
Publisher: American Society of Mechanical Engineers

NOx Emissions Predictions for a Hydrogen Micromix Combustion System

Author(s): Giulia Babazzi, Pierre Q. Gauthier, Parash Agarwal, Jonathan McClure, Vishal Sethi
Published in: Volume 3: Coal, Biomass, Hydrogen, and Alternative Fuels; Cycle Innovations; Electric Power; Industrial and Cogeneration; Organic Rankine Cycle Power Systems, 2019, ISBN 978-0-7918-5860-8
Publisher: American Society of Mechanical Engineers
DOI: 10.1115/gt2019-90532

A Clean Fuel: “Ultra-low NOx Hydrogen Micromix Combustion Systems for LH2-fuelled aircraft”

Author(s): X. Sun
Published in: 9th EASN Conference on Innovation in Aviation and Space, 3rd – 6th September 2019, 2019
Publisher: EASN

Benefits of ENABLEH2 Numerical and Experimental Hydrogen Micromix Combustion Research for the Stationary Gas Turbine Industry

Author(s): P. Q. Gauthier
Published in: 9th EASN Conference on Innovation in Aviation and Space, 3rd – 6th September 2019, 2019
Publisher: EASN

Integration of cryogenic hydrogen and propulsion system for commercial aviation
Enabling Cryogenic Hydrogen-Based CO2-free Air Transport (ENABLEH2)

Author(s): C. Xisto, H. Abedi, I. Jonsson, T. Gronstedt
Published in: 9th EASN Conference on Innovation in Aviation and Space, 3rd - 6th September 2019, 2019
Publisher: EASN

Enabling Cryogenic Hydrogen-Based CO2-free Air Transport (ENABLEH2)

Author(s): V. Sethi
Published in: 9th EASN Conference on Innovation in Aviation and Space, 3rd - 6th September 2019, 2019
Publisher: EASN

Hydrogen – A Technically Feasible and Sustainable Fuel: Technology Evaluation of LH2-Fuelled Aircraft

Author(s): A. T. Isikveren
Published in: 9th EASN Conference on Innovation in Aviation and Space, 3rd - 6th September 2019, 2019
Publisher: EASN

Safety Challenges and Opportunities for LH2-fuelled aircraft and Supporting Infrastructure

Author(s): C. Benson
Published in: 9th EASN Conference on Innovation in Aviation and Space, 3rd - 6th September 2019, 2019
Publisher: EASN

Enabling Cryogenic Hydrogen-Based CO2-free Air Transport (ENABLEH2)

Author(s): D. Nalianda
Published in: AEROSPACE EUROPE CONFERENCE – AEC2020, 25 to 28 February 2020
Publisher: AEC2020

Enabling Cryogenic Hydrogen-Based CO2-free Air Transport (ENABLEH2)

Author(s): V. Sethi
Published in: Aviation and the Environment Conference 2019, 28th - 29th November, 2019
Publisher: Cranfield University
Enabling Cryogenic Hydrogen-Based CO2-free Air Transport (ENABLEH2) - Micromix Combustion Research

**Author(s):** X. Sun and V. Sethi  
**Published in:** Aviation and the Environment Conference 2019, 28th - 29th November, 2019  
**Publisher:** Cranfield University

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Conceptual Design of a Compressor Vane-HEX for LH2 Aircraft Engine Applications

**Author(s):** Carlos Xisto, Isak Jonsson, Tomas Grönstedt  
**Published in:** 3rd ECATS conference, 2020  
**Publisher:** 3rd ECATS conference

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Design and Pre-Test Evaluation of a Low-Pressure Compressor Test Facility for Cryogenic Hydrogen Fuel Integration

**Author(s):** Isak Jonsson, Carlos Xisto, Marcus Lejon, Anders Dahl, Tomas Grönstedt  
**Published in:** Volume 2A: Turbomachinery — Axial Flow Fan and Compressor Aerodynamics, 2021, ISBN 978-0-7918-8490-4  
**Publisher:** American Society of Mechanical Engineers  
**DOI:** 10.1115/gt2021-58946

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Synergistic Technology Combinations for Future Commercial Aircraft Using Liquid Hydrogen

**Author(s):** Pavlos Rompokos, Andrew Rolt, Devaiah Nalianda, Askin T. Isikveren, Capucine Senné, Tomas Grönstedt, Hamidreza Abedi  
**Published in:** Volume 3: Ceramics; Coal, Biomass, Hydrogen, and Alternative Fuels, 2020, ISBN 978-0-7918-8411-9  
**Publisher:** American Society of Mechanical Engineers  
**DOI:** 10.1115/gt2020-15694
Enabling Cryogenic Hydrogen-Based CO2-Free Air Transport

Author(s): Sethi, Bobby
Published in: 1, 2020
Publisher: RAeS
DOI: 10.5281/zenodo.4747806

Peer reviewed articles (2)

Synergistic Technology Combinations for Future Commercial Aircraft Using Liquid Hydrogen

Author(s): Pavlos Rompokos, Andrew Rolt, Devaiah Nalianda, Askin T. Isikveren, Capucine Senné, Tomas Gronstedt, Hamidreza Abedi
Published in: Journal of Engineering for Gas Turbines and Power, 143/7, 2021, ISSN 0742-4795
Publisher: American Society of Mechanical Engineers
DOI: 10.1115/1.4049694

Modelling hazardous distances for large-scale liquid hydrogen pool releases

Author(s): P.G. Holborn, C.M. Benson, J.M. Ingram
Published in: International Journal of Hydrogen Energy, 45/43, 2020, Page(s) 23851-23871, ISSN 0360-3199
Publisher: Pergamon Press Ltd.
DOI: 10.1016/j.ijhydene.2020.06.131

Other (1)

Hydrogen safety for ENABLEH2
Author(s): C. Benson
Published in: 2019
Publisher: London South Bank University

Last update: 13 April 2022
Record number: 216008

Permalink: https://cordis.europa.eu/project/id/769241/results

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