

PROJECT

## EC2S

### ENVIRONMENT CONTROL SECONDARY SYSTEM

**Funding:** European (Horizon 2020)

**Duration:** Apr 2019 - Mar 2021

**Status:** Complete

**Total project cost:** €1,769,567

**EU contribution:** €1,397,047



**Call for proposal:** H2020-CS2-CFP08-2018-01

[CORDIS RCN : 221229](#)

#### Objectives:

The Environment control system plays a significant role in guaranteeing air quality and thermal comfort in the aircraft cabin. Nevertheless, standard ECS remains one of the main power consumer function in the aircraft. Our EC2S solution proposes to reduce the need of fresh flow from 70% to a much lower percentage by recycling and treating cabin air, downsizing the ECS system weight, fuel consumption, pollution and costs. Our ambition is to design the first Air Recirculation System (named EC2S Environment Control Secondary System) by integrating the smartest Air treatment processes and Sensors and demonstrate its efficiency and certifiability on the CS2 regional aircraft ground demonstrator.

The Consortium - made of Hutchinson (coordinator, and world leader for ECS solutions in Aeronautic domain), Ecologicsense and Tera Environment (SMEs specialized in sensors and air quality monitoring), and a research centre (CEA, working on indoor air treatment) - presents complementary skills to the success of the project.

This solution is based on four main pillars:

- A multi-technology approach for Air treatment, covering the largest Temperature / air flow conditions
- World class sensors transferred from the automotive industry, ensuring reliability and cost
- A compact EC2S pack that can be easily connected to a "in service" aircraft ECS system
- A common monitoring system to split the ECS function between the primary ECS and the secondary based on the optimization of fuel consumption.

The innovation potential of the project goes beyond the call objectives by providing a more comprehensive on-line monitoring chain of the air quality of the cabin and by its capacity to trap CO/CO2.

The consortium will ensure demonstration of the system both in laboratory and cabin demonstrator and will perform an economic study. The EC2S project has a 1,77 M€ budget. The introduction of this disruptive solution might generate a business over 30 M€ per year.

#### Parent Programmes:

[H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport](#)

**Institute type:** Public institution

**Institute name:** European Commission

**Funding type:** Public (EU)

**Other programmes:** JTI-CS2-2018-CfP08-REG-01-16 Innovative recirculation/air treatment system.

#### Lead Organisation:

Hutchinson Sa

**Address:**

Rue Balzac 2  
75008 Paris  
France

**EU Contribution:** €459,463

**Partner Organisations:****Commissariat A L Energie Atomique Et Aux Energies Alternatives****Address:**

RUE LEBLANC 25  
75015 PARIS 15  
France

**Organisation Website:**

<http://www.cea.fr>

**EU Contribution:** €527,836

**Technologies Expertises Recherches Analytiques En Environnement****Address:**

628 RUE CHARLES DE GAULLE  
38920 CROLLES  
France

**EU Contribution:** €143,641

**Eco Logic Sense Sas****Address:**

605 AVENUE OLIVIER PERROY  
13790 ROUSSET  
France

**EU Contribution:** €266,108

**Technologies:**

Aircraft operations and safety  
Air quality measurements

**Development phase:** Research/Invention

**STRIA Roadmaps:** Vehicle design and manufacturing

**Transport mode:** Air transport

**Transport sectors:** Passenger transport, Freight transport

**Transport policies:** Environmental/Emissions aspects

**Geo-spatial type:** Other