

## Innovation for Preserving our World

LIFE 16 CCM/IT/000027

### **An innovative industrial process for production of low-GWP refrigerants for industrial refrigeration and air conditioning**

LIFE-IREPRO pilot project intends to demonstrate the sustainability and efficiency of highly innovative batch process for the production of novel climate-friendly low-GWP gases constituted by hydrocarbons for industrial refrigeration applications, and characterised by much lower Global Warming Potential (GWP) with respect to the state-of-the-art. The project will completely revolutionize the production process of industrial gases by rethinking the distillation step, by turning a traditional high-cost, inflexible production process to a flexible, secure, cost and energy efficient one, i.e. by introducing an innovative separation column and restructuring the blending system to achieve products with > 99% purity. The new process will overcome strong technological barriers that have hitherto limited the uptake of hydrocarbons climate-friendly alternatives, notably process cost and poor versatility, presence of unwanted by-products and safety treatment and manipulation of highly flammable gases.

#### **Project's partners**

Tazzetti is an international group specialising in refrigerants and speciality gases and environmental technologies. The group has a long tradition in research and has combined experience with continuous innovation, developing solutions and advanced technologies for the industry

RISE (Research Institutes of Sweden AB) is a leading international research institute which is fully owned by the Swedish government. RISE employees work in close cooperation with customers to create value and deliver high-quality input to all parts of the innovation chain, thus playing an important part in assisting the competitiveness of industry and its evolution towards a sustainable development. RISE co-operates globally with large and small companies, universities, RTOs and other organisations.

#### **Expected Impacts**

In particular, the LIFE-IREPRO aims to:

- foster substitution of HFCs and alternative gases with novel gases up to 80t/year, in relation to the consortium capabilities and 3.000 t/year if we considered the EU area production. The project indeed aims at reducing HFCs and other fluorinated GHG emissions, by demonstrating the sustainability of novel climate-friendly alternatives in accordance with Reg. 517/2014.
- up to 99% reduction of HFC-GHG emissions (corresponding to >136.800 tCO<sub>2</sub>eq/year, and 4,3MtCO<sub>2</sub>eq/yr if we consider the EU area) thanks to the substitution with novel climate-friendly alternatives.
- up to 66% energy saving (196.416 kWh/yr, >70 tCO<sub>2</sub>eq/yr, and 3.2 GWh/yr if we consider EU area) by completely rethinking and simplifying the industrial process.

#### **Policy Implications**

In particular, the LIFE-IREPRO aims to:

- reducing Hydrofluorocarbons (HFCs) and other fluorinated greenhouse gases emissions, by demonstrating the sustainability of climate-friendly low-GWP alternatives, in accordance with Reg. EU517/2014.
- complies with the EU 2030 Climate and Energy framework and addresses the demonstration of innovative climate change mitigation technologies that are suitable for being replicated, transferred or mainstreamed.
- contributes to the implementation and development of Union policy and legislation on climate change mitigation, updating policies on sustainable development and low-carbon society in accordance with Environment Action Programme to 2020" of the 7th EAP 1386/2013/EU and the "Roadmap 2050".
- contributes to the SEC(2007) 993 directive on Water efficiency and water savings by fostering water efficiency technologies and practices as well as improving knowledge.

For information and update visit website project

[www.life-irepro.eu](http://www.life-irepro.eu)

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