



## PROJECT OBJECTIVE

The overarching objective of BIOCON-CO<sub>2</sub> is to reduce greenhouse gas emissions and avoid overexploitation of natural sources. BIOCON-CO<sub>2</sub> aims to develop and validate a platform of flexible and versatile techniques capable of using biological processes to transform raw CO<sub>2</sub> waste from the iron, steel, cement and electric power industries into value-added chemicals and plastics. Exploring novel biotechnological solutions, the project intends to generate new knowledge to develop commercially viable strategies for reducing Europe's dependency on fossil fuel resources. This will lead to the increased sustainability of the chemical industry and provide support for European leadership in CO<sub>2</sub> re-use technologies.

## THE CHALLENGE

Carbon dioxide (CO<sub>2</sub>) is a naturally occurring greenhouse gas present in the Earth's atmosphere. However, human activities have led to an exponential increase in levels of the greenhouse gas through actions such as the burning of fossil fuels for industrial production. CO<sub>2</sub> acts to trap heat in the atmosphere, leading to global warming. Currently CO<sub>2</sub> re-use via biological processes is one of the most promising and valuable technological ways to reduce otherwise harmful CO<sub>2</sub> emissions, potentially making CO<sub>2</sub> a valuable commodity rather than a pollutant. However, research behind full development of CO<sub>2</sub> re-use technologies is in its infancy and several technical issues remain unresolved, including industrial-scale implementation.

## AT A GLANCE

PROGRAMME: Horizon 2020 (BIOTEC-05-2017)

TOTAL BUDGET: €7 million

INSTRUMENT: Research and Innovation Action (RIA)

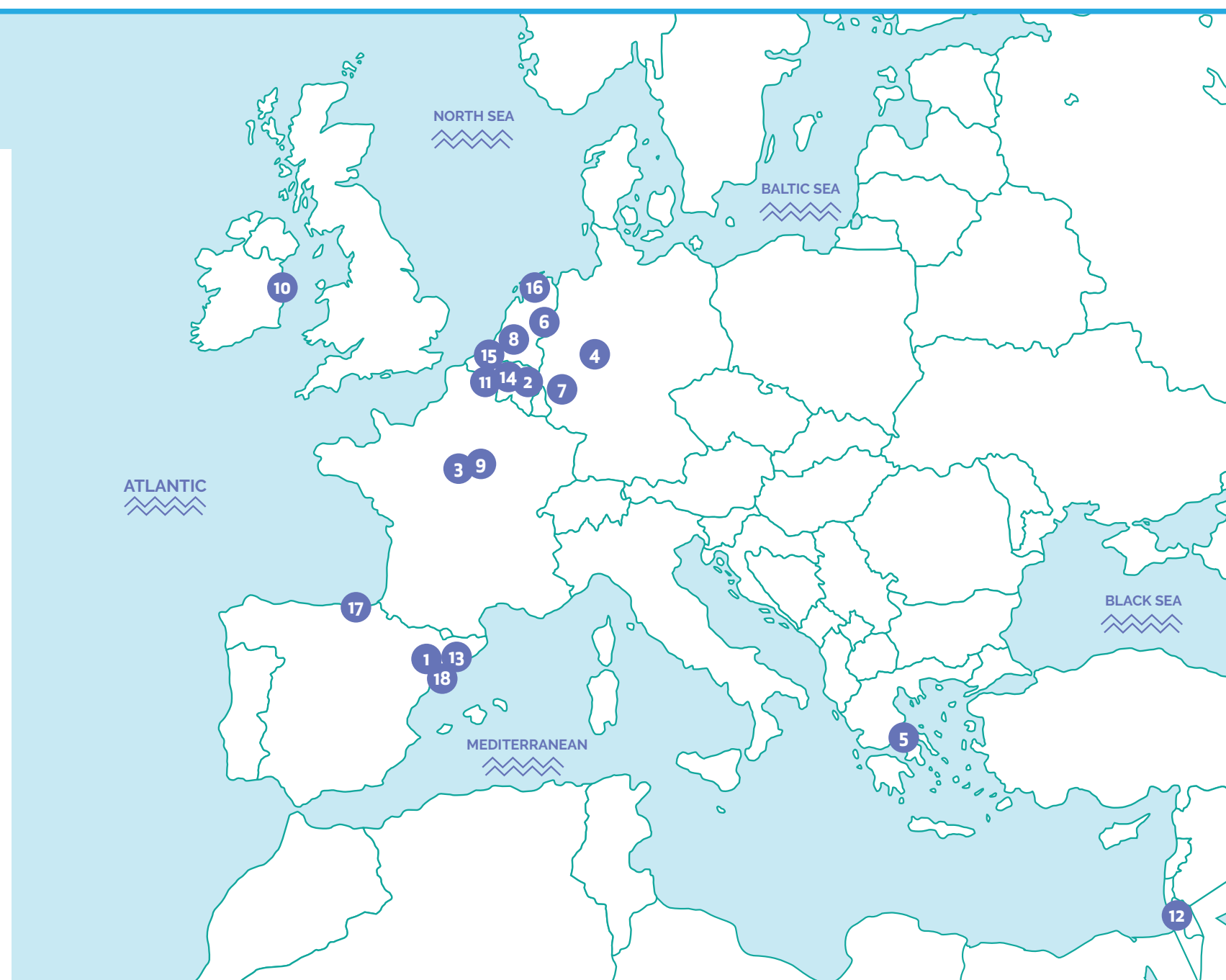
DURATION: January 2018 – December 2021 (48 Months)

CONSORTIUM: 18 partners in 8 countries

COORDINATOR: Acondicionamiento Tarrasense Asociación (LEITAT), Spain

## CONSORTIUM 18 PARTNERS

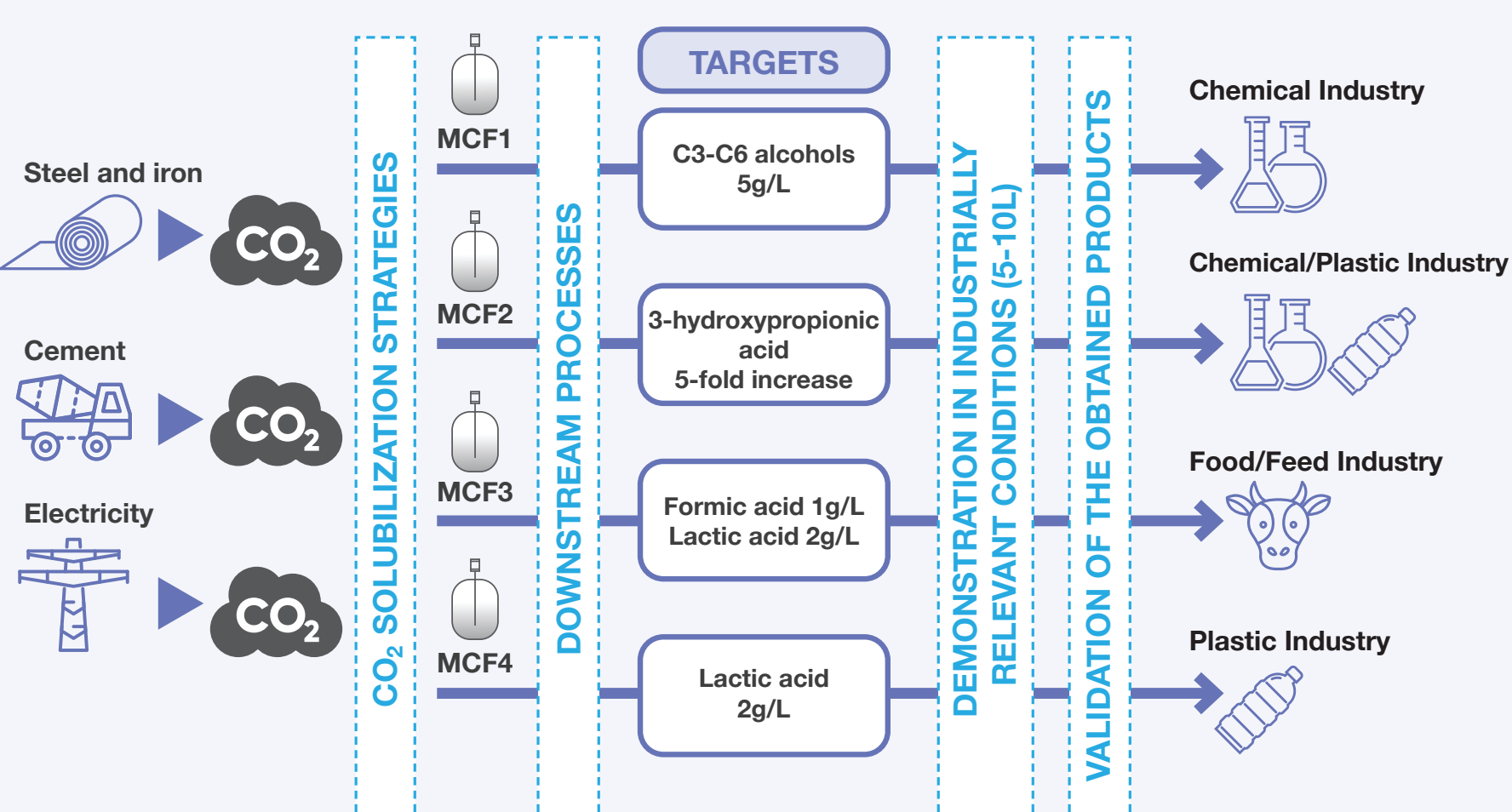
- 1 Acondicionamiento Tarrasense Asociación (LEITAT), Spain
- 2 ArcelorMittal Belgium NV (ARCELOMITTAL), Belgium
- 3 Arkema France (ARKEMA), France
- 4 Fraunhofer-IME (FRAUNHOFER), Germany
- 5 National Technical University of Athens (NTUA), Greece
- 6 Pervatech B.V. (PTECH), Netherlands
- 7 Rheinisch-Westfälische Technische Hochschule Aachen (AVT.BioVT), Germany
- 8 Stichting Wageningen Research (WFBR), Netherlands
- 9 ARTTIC (ARTTIC), France
- 10 AquaTT UETP CLG (AQUATT), Ireland
- 11 Nutrition Sciences N.V. (NS), Belgium
- 12 Neshor Israel Cement Enterprises Ltd (NESHOR), Israel
- 13 Universitat Autònoma de Barcelona (UAB), Spain
- 14 Belgisch Laboratorium van de Elektriciteitsindustrie (ENGIE Laborelec), Belgium
- 15 Bio Base Europe Pilot Plant VZW (BBEPP), Belgium
- 16 Rijksuniversiteit Groningen (RUG), Netherlands
- 17 Fundación Tecnalia Research & Innovation (TECNALIA), Spain
- 18 Artificial Nature, S.L. (DAN'NA), Spain



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## WORKFLOW OF BIOCON-CO<sub>2</sub>

CO<sub>2</sub> CAPTURE GOAL  
Midterm: 1.4 Mtonnes CO<sub>2</sub>/YEAR  
Longterm: 3.5 Mtonnes CO<sub>2</sub>/YEAR



\*MCF = Microbial Cell Factory



## EXPECTED RESULTS

- Assessment and validation of **three low-energy microbial processing systems** capable of converting CO<sub>2</sub> emissions from iron and steel manufacturers into valuable industrial products.
- **Production of four chemical building blocks** that have application in the food/feed, chemical (acrylates, polymers, surfactants) and plastic industries.
- Pilot installation in an industrial setting to demonstrate and validate the effectiveness of four chemical building blocks produced using CO<sub>2</sub> re-use technologies.
- **Improved public perception of CO<sub>2</sub> re-use technologies** through transparent and responsible communication, dissemination, knowledge transfer and exploitation of outcomes of the project.