



HORIZON-CL4-2021-TWIN-
TRANSITION-01-21

FLEXIndustries

Full Title: Digitally-enabled FLEXible Industries for reliable energy grids under high penetration of Variable Renewable Energy Sources (VRES)

Aim:

FLEXIndustries builds on a holistic approach to design and deploy energy efficiency measures and process flexibility methods across 7 sectors of the energy intensive industries (automotive, biofuels, polymers, steel, pulp & paper, pharmaceuticals, cement). The project also aims to ensure these solutions connect seamlessly with electrical and heating networks.

Concept:

FLEXIndustries develops and demonstrates a Dynamic Energy & Process Management Platform to monitor, analyse and optimize the most energy-intensive industrial processes, by managing properly emerging demand response mechanisms and providing plant and process flexibility as well as offering grid services. The unique premise of FLEXIndustries, is the optimal integration of i) innovative energy generation, storage and conversion assets (e.g. BESS and waste heat recovery solutions based on novel HPs, ORC and thermoelectric systems), ii) smart and digital tools for optimised operation and control, all supported by iii) novel business models and market mechanisms for enhanced industrial flexibility. Overall, FLEXIndustries has the potential to save: a) ? 159 GWh/ y of Primary Energy in total, b) ? 6.0 M€/y Life Cycle Costs on demo scale and c) ? 33,111 CO₂-eq/y emissions at project level. Demonstration will take place in 7 industrial facilities in 6 reference countries (Turkey, Greece, Poland, Bulgaria, Germany and Italy) and will feature: a) energy efficiency and operational flexibility along with process redesign/modification, b) increased levels of electrification, digitalisation and automation, c) enhanced user satisfaction and grid flexibility

services, and d) decreased environmental footprint.

Start date:
01/06/2022

End date:
31/05/2026