

PROJECT

# sCO<sub>2</sub>-FLEX

## Making fossil fuels more flexible and environmentally friendly

sCO<sub>2</sub>-FLEX will contribute to Europe's climate change and energy transition goals by making fossil fuel energy production more capable of supporting a smarter and more flexible energy market.



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PARTNERS

5

COUNTRIES

100

% REDUCTION IN WATER CONSUMPTION IN THE THERMODYNAMIC CYCLE

€5 M

OF TOTAL BUDGET



IN ONE CLICK

Coordinator	Programme	Period
ELECTRICITE DE FRANCE	HORIZON 2020	2018-2020
Sector	Web	
ENERGY	<a href="http://www.sco2-flex.eu/">http://www.sco2-flex.eu/</a>	

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### The Challenge

The aim is to adapt fossil-fuel power plants to the future energy system requirements. Conventional plants could foster the integration of **renewable energy sources** (such as wind and solar) by off-setting their intermittent nature providing fluctuating back-up power and helping stabilize the grid. However, these plants are not currently fit to undergo huge power output fluctuations, as requested in future scenarios with increasingly higher shares of renewables.

02

### Solutions

The sCO<sub>2</sub>-Flex consortium addresses such challenge by developing and validating a scalable/modular design of a 25MWe Brayton cycle using supercritical CO<sub>2</sub> that will enable an increase in the operational flexibility (fast load changes, fast start-ups and shut-downs) and in the **efficiency** of existing and future coal and lignite power plants, this **reducing** their environmental impacts, in line with EU **targets**.

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### Impacts

sCO<sub>2</sub> based technology has the potential to meet EU objectives for highly **flexible and efficient conventional** power plants, while reducing greenhouse gas emissions, residue disposal and, above all, water consumption. The **project aims** at building expertise on sCO<sub>2</sub> for electricity generation and EDF is also interested in investigating its possible application to renewables such as CSP (Concentrated Solar Power) and biomass.