



CESAR (CO₂ Enhanced Separation and Recovery) is an European FP7 project coordinated by TNO.

CESAR aims for a breakthrough in the development of low-cost post-combustion CO₂ capture technology in order to provide an economically feasible solution for both new large scale power plants and the retrofit of existing power plants which are responsible for the majority of all anthropogenic CO₂ emissions (worldwide, approx. 5,000 power plants emit around 11 GtCO₂/year).

With CESAR, we focus on post-combustion capture as it is generally accepted to be the most economically feasible for retrofitting existing power plants. Moreover, analysis of the current R&D projects in Europe shows that there is yet no follow-up to the post-combustion work in the CASTOR project while R&D aimed at other types of carbon capture technologies have been accommodated for.

CESAR aims at breakthroughs via a combination of fundamental research on advanced separation processes, capture process modelling and integration and solvent process validation studies, with long lasting experimental tests in the large (existing) Esbjerg Pilot Plant.

CESAR is in the continuation of the previous FP6 integrated project CASTOR. The consortium is mostly the same and the pilot built in the frame of this previous project will be reused for CESAR.

CESAR will propose completely new activities and add novelties and innovations:

- novel solvent systems,
- new high flux membranes contactors,
- new modeling and integration studies,
- testing of new solvents on Esbjerg pilot plant.

In the Esbjerg Pilot novel technologies are assessed and compared to mainstream techniques with in addition providing a fast track towards further scale-up and demonstration.

CESAR unites the leading organisations within the field of CO₂ capture, covering the whole value chain from research institutes to end-users. The consortium consists of 3 research organizations, 3 universities, 1 solvent supplier, 1 membrane producer (SME), 3 equipment suppliers, 2 oil and gas companies and 8 power generators (see for detail the list hereafter).

Total operated budget is 6 M€ for a European funding of 4 M€

For this project IFP will coordinate the research on advanced separation processes and will be in charge of development of new membrane contactors, development carried out with the SME Polymem and ENSIC-Nancy. Budget operated by IFP will be 712 500 €

Main Contact: Paul Broutin, paul.broutin@ifp.fr, Tel.: +33 4 48 02 26 97

Partners:

23. Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek TNO (The Netherlands Organisation for Applied Scientific Research), more specific TNO Science and Industry, The Netherlands, the Coordinator
24. Alstom Power Sweden AB, Sweden
25. BASF Aktiengesellschaft, Germany
26. DONG Energy Generation A/S, Denmark
27. Doosan Babcock Energy Limited, United Kingdom
28. Electrabel s.a., Belgium
29. ENSIC-Nancy / Centre National de la Recherche Scientifique (CNRS), France
30. E.ON UK PLC, United Kingdom
31. Gaz de France, France
32. IFP, France
33. The Norwegian University of Science and Technology, Norway
34. Polmem, France
35. Public Power Corporation S.A., Greece
36. RWE Power AG, Germany
37. Siemens Aktiengesellschaft, Germany
38. Stiftelsen SINTEF, Norway
39. StatoilHydro ASA, Norway
40. University of Stuttgart - Institute of Thermodynamics and Thermal Process Engineering (ITT), Germany
41. Vattenfall A/S Nordic Generation, Denmark
42. E.ON Engineering GmbH, Germany
43. RWE Npower PLC, United Kingdom
44. Vattenfall R&D, Sweden