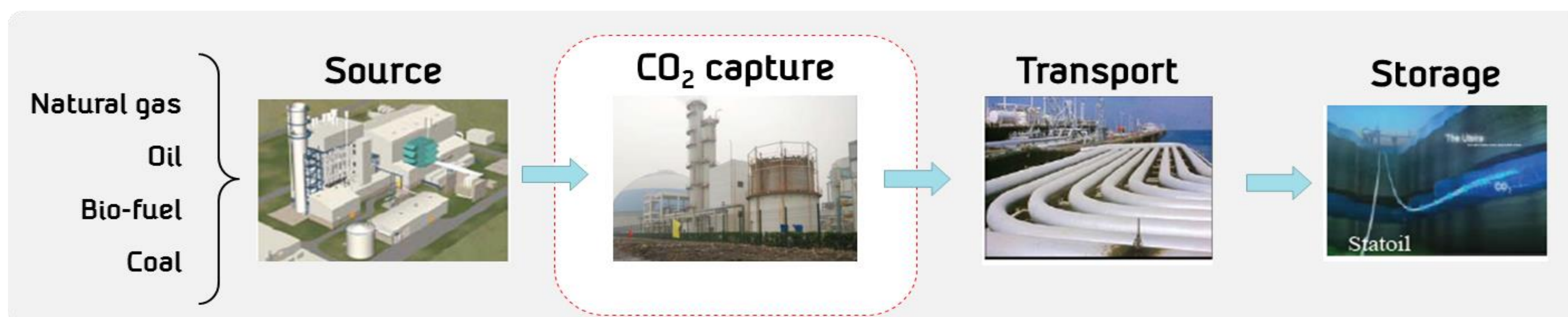


# A new FP7 project for development and assessment of new and emerging post-combustion CO<sub>2</sub> capture technologies

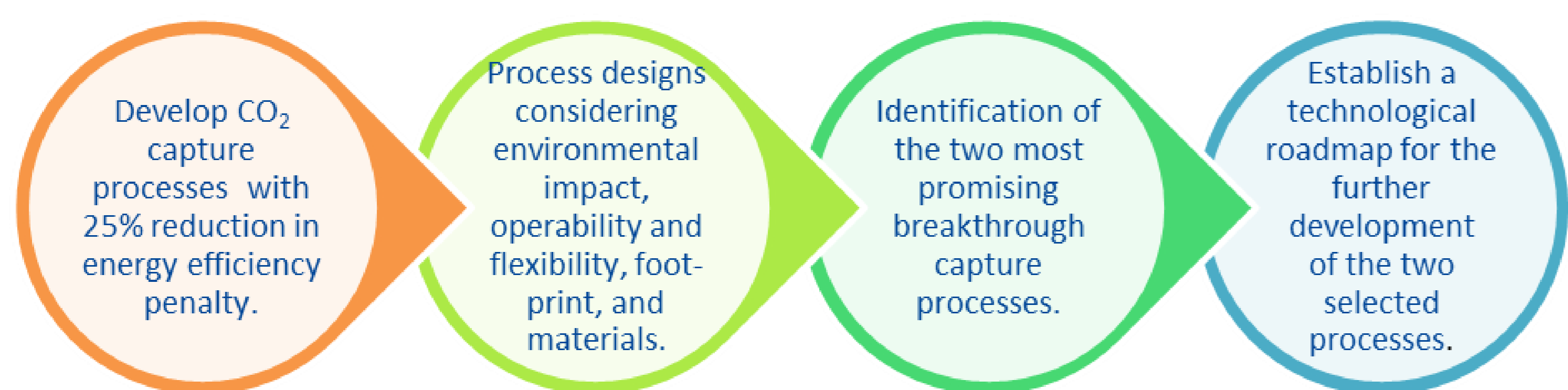
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### Key aspects

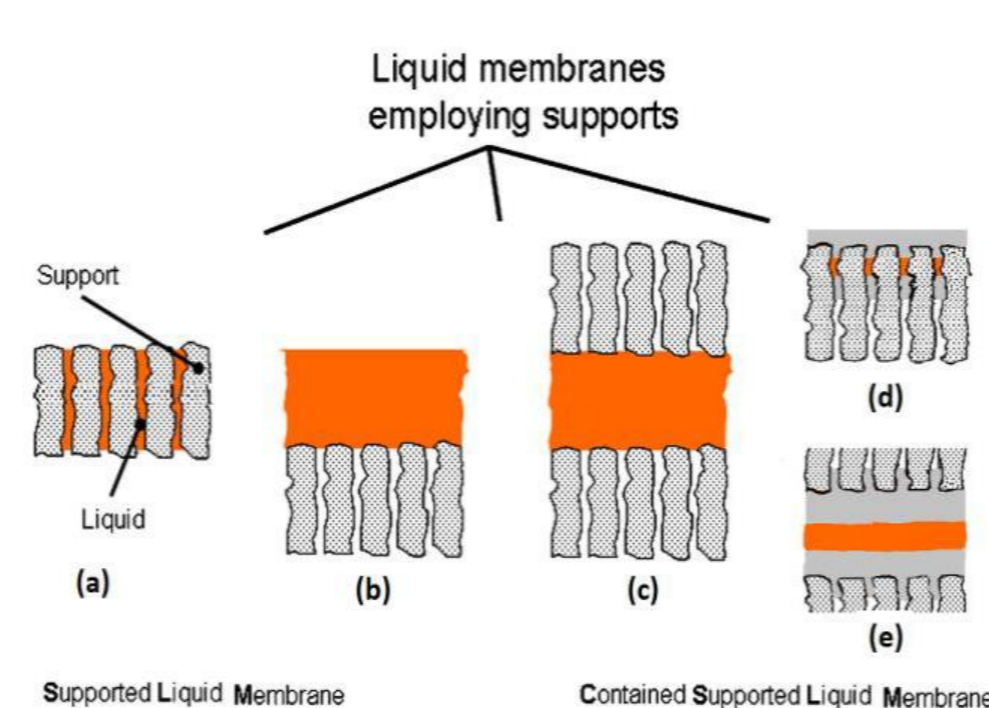
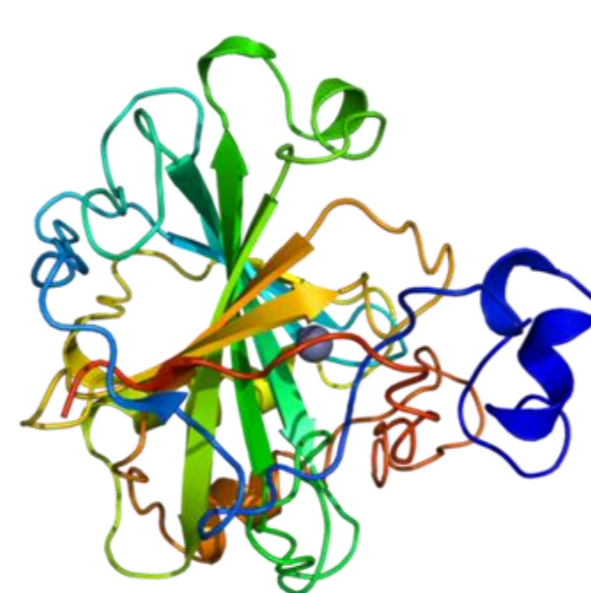
- Project period: Jan 2014 – Dec 2017
- Total budget: 7.7 million Euro
- Partners: 16 (13 from 7 EU and associated member states, 1 from Russia, 1 from Canada, 1 from Australia)
- Coordinator: SINTEF
- Web page: www.sintef.no/hipercap

### Objectives

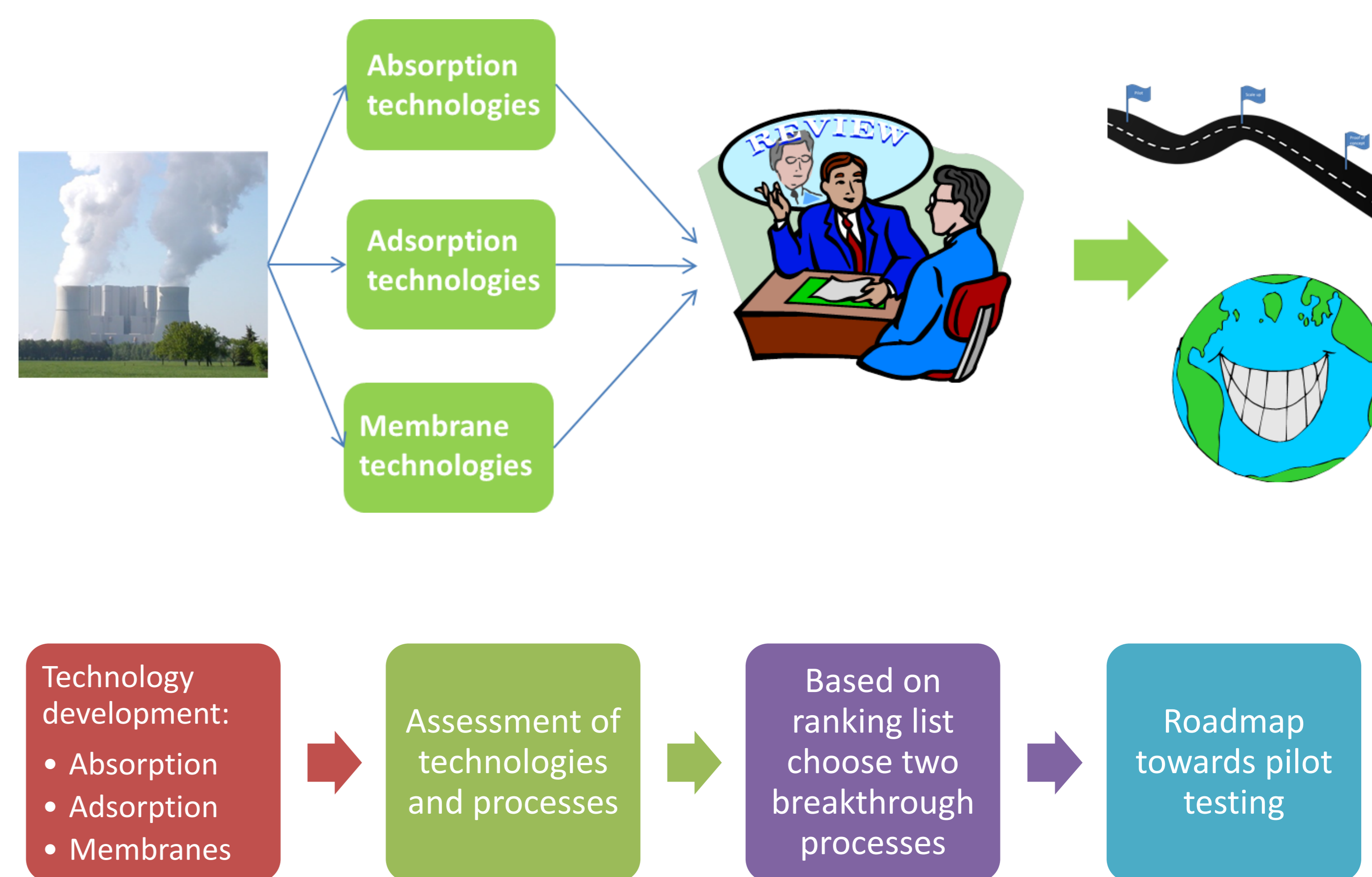


### Technologies

- Focus absorption:** enzyme catalysis, precipitating solvent systems, strong bicarbonate formers and combined CO<sub>2</sub> capture and utilization. The common denominator is the use of bicarbonate formation.
- Focus adsorption:** sorbents applicable for moving bed reactors and structured solid monolith sorbent. Process development with optimized heat-integration and low pressure-drop.
- Focus membranes:** high flux mixed matrix membrane based on incorporation of nanoparticles in a polymer and supported ionic liquid membranes. Process development for highest performance membrane.



### Project structure



### Preliminary results

- A computational model based on quantum chemical calculations and the concept ofisodesmic reactions has been tested. pKa and energies of solvation have been calculated for selected amines and a list of promising amine candidates for experimental testing is proposed.
- Development of carbon based sorbents based on a wide range of precursors including phenolic resins and biomass wastes and under different conformations (beads, granules or monoliths) has started.
- Hybrid membrane manufacturing and gas permeation testing initiated with the aim to establish a reproducible membrane manufacturing, and to provide performance data for the process modelling.
- A methodology to be used to assess the various technologies established. A two stage approach will be used:
  - Qualification of technologies for the assessment based on minimum requirements.
  - Assessment using three Key Performance Criteria (1. Energy, 2. Environment, and 3. Costs)
- An European-Australian workshop is organized in Melbourne in Australia 25<sup>th</sup>-27<sup>th</sup> March 2015. It is open to public.

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 The project receives funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 608555. We gratefully acknowledge the industrial partners who also financially support the project.