

Bellona Fact Sheet

The European Technology Platform on Zero Emission Fossil Fuel Power Plants –ZEP

Bellona, June 2007

The European Technology Platform on Zero Emission Fossil Fuel Power Plants – ZEP – is a project gathering more than 200 experts on Carbon Capture and Storage (CCS). The aim of ZEP is to establish gas- and coal power plants with no CO₂ emissions.

ZEP was commenced by the European Commission in 2005 and is one of EUs [technology platforms](#). There are approximately 30 such platforms, consisting of experts within a large range of special fields. ZEP is between 2005 and 2012 laying down the foundation for EU CCS policies and priorities in the 7th Framework Programme for research and technological development (7FP). ZEP will also provide input to EU institutions and EU countries on measures to promote CCS. Thus, the ZEP is of significant importance for the EU strategy of reducing CO₂ emissions.

ZEPs work is a result of a wide reaching collaboration between several different actors, within and outside the platform. Examples include energy suppliers, technology providers, research institutions, environmental Non-Governmental Organisations (NGOs) and governments/public authorities. Together, these actors are working to establish strategies on how to implement zero emission gas- and coal power plants.

Vision and strategy

The ZEP vision is to enable European fossil fuel power plants to have zero CO₂ emissions by 2020.

A portfolio of CCS solutions shall be identified; ZEP will also stimulate the development, demonstration and implementation of these solutions. Both existing and new emissions will be included.

In addition to solutions on CO₂ capture from fossil fuel based power production, other solutions for industrial sources and for emissions linked to use of biomass and hydrogen production should be included.

Actions and measures suggested will be based on estimates concerning time, financials, environmental factors, as well as public acceptance and necessary economical and legal frameworks.

The CCS potential in the EU is 30 Giga ton captured by 2050. This would entail the introduction of CCS technologies not only in power production plants, but also within the process industry. In effect, more than half of EU CO₂-emissions can be removed through the use of CCS.

Organisational structure

The ZEP organisational structure (reorganized March 2007) is shown in the box below.

The ZEP managing body is the *Advisory Council* (AC). The AC consists of 23 top managers and specialists from the private sector, research institutions and environmental NGOs from EU countries and Norway. Frederic Hauge, the founder of the Bellona Foundation, is Vice President of the AC.



ZEP model, please click for larger version.

Figure 1. Organisational structure of ZEP July 2007

A *Government Coordination Group* (GCG) ensures a continuous dialog between the AC and EU governments. It is also the responsibility of GCG to make sure political recommendations from the ZEP are followed up in the EU countries. The GCG has representatives from governments (EU and Norway), and Norwegian representatives are from The Council for Research of Norway as well as the Ministry of Petroleum and Energy

To reach the ZEP target of zero emission fossil fuel power plants by 2020, significant amount of knowledge on the different technologies, market mechanisms and infrastructure needs to be generated. To increase knowledge levels, several Taskforces have been established to assist the AC. All communication between these groups and the AC is coordinated by a separate *Coordination Group*, where Bellona is represented by Paal Frisvold from Bellona Europa.

The ZEP Taskforces

The ZEP Taskforces have the following responsibilities:

- The *Taskforce on Policy and Regulations* is working towards the EC and EU countries, suggesting the necessary framework needed to ensure broad implementation of CCS projects.
- The *Taskforce on Demonstration and Implementation* is working to promote the commencement of 10-12 demonstration plants by 2015. The group defines the selection criteria for these projects and technologies, in addition to making a financial evaluation.
- The *Taskforce on Technology* is working to speed up technological development, to ensure commercial availability of CCS technologies by 2020.
- The *Taskforce on Public Communication* is working to promote CCS general acceptance, which is a prerequisite for the successful implementation of CCS. Preparation of an information campaign is one of the main tasks.

Bellona is represented in all four taskforces: Paal Frisvold is one of three co-leads in the Policy and Regulations Taskforce; Beate Kristiansen is one of two co-leads of the Public communication Taskforce; Frederic Hauge is, in addition to the position as the Vice President of AC, also a member of the Taskforce on Demonstration and Implementation. Lastly, Aage Stangeland is our representative in the Taskforce on Technology.

The Taskforce structure is dynamic; meaning they are re-organised if needed to ensure a continuous optimal structure for the ZEP tasks. The structure was last re-organised in March 2007.

Achievements

During its first phase, ZEPs main task was to draw up recommendations on research and framework necessary to achieve zero emission fossil fuel plants in Europe. This target was achieved following the publication of two documents at ZEP general assembly in September 2006; the *Strategic Research Agenda* ([SRA](#)) and *Strategic Deployment Document* ([SDD](#)).

The conclusions from the SRA and the SDD include descriptions of research gaps, frameworks that should be established and financial incentives necessary to promote the establishment of zero emission fossil fuel power plants by 2020. In addition, the documents conclude that 10-12 full scale CCS demonstration plants should be established. Both documents have been summarized in the publication *Strategic Overview*, and can be downloaded from the [ZEP homepage](#).

In January 2007, the 7th Framework Programme for research and technological development (7FP) was launched by the EU. The research on CCS in the 7FP is based on SRA and SDD recommendations. In addition, the political recommendations from ZEP have, to a large extent, made the basis for the EC Energy and Climate package publicised January 10th, 2007, and The European Council endorsed this package the 8th of March 2007.

The ZEP Phase Two commenced in January 2007. ZEP will during this phase work to make sure recommendations from the first phase are carried out by the EC.

Participants

The Norwegian representatives in ZEP are Statoil, The Norwegian University of Technology and Science, The Foundation for Scientific and Industrial Research (SINTEF), and Bellona.

The following actors are represented in the *Advisory Council*; Air Liquide, Alstom, Ansaldo Energia, Bellona, BP, British Geological Survey, CAN Europe, CIRCE, Central mining Institute, EDF, Endesa, Energi E2, ENEL, E.ON, Foster Wheeler, Geological Survey of Denmark and Greenland, Institut français du pétrole, Mitsui Babcock, RWE Power, Schlumberger, Shell, Siemens, Statoil, Total, Vattenfall, and The WWF.

In addition to the above mentioned, several other companies, organisations and institutions are represented in the four taskforces.

The Shadow group

Bellona has established a shadow group to ensure flow of information to Norwegian actors and to promote use of Norwegian competence on CCS. This is an open forum, designed for

Norwegian corporates and political authorities. Information is continuously exchanged through seminars, meetings and emails, which allow various stakeholders to give inputs on the current ZEP projects and agenda.

Links:

ZEP homepage: <http://www.zero-emissionplatform.eu/website/index.html>

CCS factsheet: <http://www.bellona.no/artikler/CO2-haandtering>

CO₂-capture factsheet: <http://www.bellona.no/artikler/CO2-fangst>