

High Potential for Investment into Power Plant Sector to Cover by Joint Initiative of Business, Reserach and Politics

Summary of Workshop

"Fossil Power For Europe - Options for Sustainable Power Generation"

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The Potential to Invest

According to recent energy outlook of the European Commission until the year 2030 (WETO; DG RTD 2003) the world electricity production will annually increase at an average rate of 3%,. the share of fossil based energy in power generation will remain at today's level of about 60%, and - despite the Kyoto objectives - CO2 emissions are expected to increase annually by 2,1% due to the fossil fuel reliance - especially of countries like China and India.

Today two thirds of all installed fossil power plants (PP) in the EU are older than 20 years and need to be replaced in foreseeable future. The replacement and additional capacity needs will sum up to 300.000 MW within the next decade from 2010 onwards.

Therefore, the modernisation path for the aging European PP fleet must be entered immediately. This is the more important in order to deploy necessary references of low emission technologies for dissemination to growing markets in China and India.

Employment and leading engineering expertise could be saved in European companies by complying to this investment potential.

The Competition Framework

The US Industry is set to take the lead on low-to-zero emission technologies with regional networks already established. The industry clearly benefits from US DOE and other support, as there are

- Clean Coal Plant Improvement programme: 2bn US\$ over next decade;
- US Carbon Sequestration Leadership Forum (with 13 countries invited including UK, Italy and the EC);
- FutureGen Project launched with 1b US\$, 80% from US DOE for deployment of a electricity and hydrogen plant with CO2 sequestration;
- CO2 Capture and Storage budget for 2004 requested at 60mn US\$ from a `zero` position less than 5 years ago.

Against this background it is vital that Europe responds in an effective way:

- critical mass initiative to ensure that Europe can compete on world markets;
- sector wide initiative bringing together industry, academia and governments;
- combination of national Member State and EC RTDD Programmes with industry and research community;
- thrust towards a consistent carbon management strategy for power generation with fossil and associated fuels.

The Initiatives of EU-Industry

The EU power plant industry designed an adequate strategy to comply with the challenges:

- An integrated single major initiative ("**Power 21**") is aimed at a deployment of low emission power plant from 2020 on. It comprises a wide technical scope, like
 - Pre- combustion CO₂ capture,
 - High efficient gas- and steam turbines,
 - High efficient power plants,
 - Post- combustion CO₂ capture,
 - CO₂ geological storage.
- "Power 21" is not meant to replace ongoing projects but could serve as an "umbrella" for them. It should give additional incentives to continue related projects like **Thermie AD 700** up to technology deployment. The testing of materials and components in an existing plant by the end of this decade could give valuable reference for further low emission technology development by 2020.
- **Co-Use of biomass and coal** with a range of available technologies is considered to be a relatively inexpensive, high efficient alternative for CO₂ reduction which retains advantages of central power plant for security of supplies and secure fuel base.
- In the development and deployment of clean fossil energy the industry takes into account the emissions of **CO₂, SO_x, NO_x** and **particulates**, as well.

Required Backing by the Politics

A critical mass initiative for successfully competing on world markets requires a reliable framework of the EU energy market and the combination of national Member State and EC RTDD Programmes with industry and research community:

- Clarity of **emission trading mechanisms** has to be reached at short term in order to activate private investment capital. The **planned "Linking Directive"** to harmonise the EU regime with the Kyoto Flexible Mechanisms will be appropriate to the sustainable development target only if it encourages investment in growing markets by transparent, non-discriminating administrative regulations.
- The mechanism under **EC FP6 ERANET** scheme must be used in a two stage approach:
 - Specific Supported Action (SSA) followed by a Concerted Action (CA) will be initiated by government organisations of Member States: A respective initiative of Germany and UK authorities (Clean Fossil Energy Coalition - **FENCO**) are gaining increasing support from Greece, Portugal, Austria and Denmark.

By defining future content and structure of a Concerted Action in a series of studies and workshops, FENCO would give the appropriate impulse for an unified approach to fossil fuel power generation technology in Europe.
 - The actions need to be linked to industry and national aims and objectives ("Power 21").
- Existing singular **projects need to be integrated** into the planned single major initiative in order to gain from synergies of different research approaches and to secure the critical mass for success in global competition.