



Position Paper of the EU Power Plant Suppliers on Knowledge Sharing in the framework of CCS Demonstration

28th April 2009

This paper reflects the view of the leading European CCS equipment suppliers regarding knowledge sharing in the framework of the EU CCS Demonstration initiatives and was also used as an input to the EC enquired ZEP Knowledge Sharing Project.

The EU Demonstration Program on CCS

The European Equipment Manufacturers recognise the critical role of Carbon Capture and Storage (CCS) in tackling the global challenges of climate change and energy security. The EU Demonstration Program on CCS is essential to deploying CCS solutions and this public private partnership will, when properly executed, accelerate technology development, drive costs down and build public confidence – ensuring that CCS is commercialised by 2020. A CCS solution to combating climate change will also boost European industry, create new jobs and promote technology leadership in the European Community, thus supporting the European economical recovery. As with any public private partnership, it is important that all stakeholders have a clear understanding of each other's needs and objectives related to the process. This will ensure the technological and commercial sustainability of this scaling up and of the validation/deployment of CCS solutions.

How Innovation is Motivated and Commercialised

The European Equipment Manufacturers invest in Research and Development (R&D) aimed at developing technologically superior and economically sustainable solutions for our customers. In order to justify this investment, suppliers must have some certainty that newly developed offerings – particularly those individual technology blocks that form the essential elements of CCS solutions – can be further improved and deployed to our customers on commercial terms. Public Funding for CCS is essentially required to accelerate deployment. The CO₂ markets are presently not yet mature enough to make this happen, thus public funding is needed to bridge the gap between R&D and the commercial deployment of the technology. In previous work the ZEP has defined all the "Technology Blocks" part of the CCS value chain needing Demonstration in various fuel and transport/storage integration options. Public Funding is required to validate and hasten the commercial roll-out of those technology blocks, in an effort deployed in parallel on 10-12 large-scale demonstration plants.

Intellectual Property and Knowledge Sharing

Intellectual property (IP) rights are an essential enabling factor to hasten this process as it allows technology owners to define and protect their IP assets. Once these assets are acquired and protected, the inventor can proceed to allow the orderly diffusion of these technologies to ensure their most beneficial use by customers. Patents in particular both protect technology investment and ensure the sharing of technological information through mandatory public disclosure of the protected subject matter. In this manner the patent system hastens technological progress by ensuring that technology owners reap the fruits of their R&D efforts while guaranteeing transparency of technology development to society at large, further enhancing innovation by encouraging development of alternative solutions to those protected by others. Robust IP protection is indispensable to fostering innovation and the development of a competitive market, based on the best and most efficient technologies. Equipment suppliers strongly support the IP protection of CCS technology as it is further improved during its scale up and deployment on the demonstration plants, and subsequent commercialisation.

Knowledge sharing addresses the need for early dispersion of performance information. When administered properly, knowledge sharing can generate significant public benefit by early adoption of best practices, avoiding the usual and slower "trial and error" market learning. It mainly consists of an organised exchange of "data", resulting from actual operation of a specific process, in a given set of operating conditions. It may also consist of an informal exchange of ideas, experience, and perspectives associated with the design, construction and operation of a novel process like CCS. Knowledge sharing ultimately allows for useful comparisons between alternatives and fosters the early development of an educated competitive market where informed actors will be able to make better decisions, earlier. We also recognise the need to encourage the earliest possible deployment of CCS technology into the Emerging Economies. European equipment suppliers commit to this aim through the development of new or existing business relationships with local partners which will accelerate international implementation of CCS.

Essential elements of a successful Knowledge Sharing Policy

- Environmental safety and health data as well as data related to public acceptance should be widely shared. Effective knowledge sharing on these topics is essential in increasing the understanding and trust in CCS technologies.
- Best practices and data relating to overall system performance and development of CCS related regulation should be widely shared to enhance technological understanding and the related regulatory framework.
- Global operational data -- including data relating to the interaction and performance of technology blocks derived from EU Demonstration Projects on CCS -- should be described and published.

- Shared cost information should extend to the aggregate investment and operating cost of the CCS installation. Under conditions to be defined, it may include overall investment and operating costs of some or all of the technology blocks being demonstrated. The sharing of competitive cost information is governed by European and national competition law.
- IP protection rules encourage technology development, improvement and dissemination. Valuable IP and the ability to enforce those rights is a necessary element for the acceleration of CCS technology dissemination. It must therefore be ensured that knowledge sharing does not prejudice potential patent filing.
- Data relating to the internal functions of technology blocks, to the transient operation, or to the parametric operation under variable conditions of part or whole of the CCS chain is background knowledge and remains proprietary. Therefore the protection of IP relating to background knowledge has to relate in a manner appropriate to each category of IP asset:
 - Protection from unauthorised disclosure of background trade secrets and knowledge.
 - Agreement not to infringe or otherwise impair patent or copyright assets.

This position paper has been elaborated by the following companies:

ABB, Alstom; Ansaldo Caldaie; Ansaldo Energia; AE&E Group; BWE; CMI; Doosan-Babcock; Dresser-Rand; Foster-Wheeler; GE Energy; GEA; Hitachi Power Europe; Howden Group; Magaldi Power; MAN Turbo; NEM; Nooter Eriksen; Rolls-Royce; Schlumberger; Siemens; Škoda Power; Solar Turbines; STF; TLT-Turbo.

EPPSA
 80, avenue de l'Opale
 B-1030 Brussels
 Tel: +32 2 743 29 86
www.eppsa.eu

EUTurbines
 Diamant Building
 5th floor North Wing
 Boulevard A. Reyers 80
 B-1030 Brussels
 Tel: +32 2 706 82 11
www.euturbines.eu