

## “Missing knowledge”

### Technical Group presentation:

Ladies and gentlemen,

My name is Svend Soeyland and I work for Bellona USA, the Bellona Foundation branch in the Americas. Thank to the CSLF secretariat for giving me this opportunity to address the technical group and for recognizing environmental groups in this process.

Some brief facts about the Bellona Foundation: We started working on CCS in 1993 because we realized that our preferred choice of energy - renewables – together with energy efficiency measures would not be able to replace carbon intensive energy production soon enough to bring global warming under control. Our early interest in CCS gave us a unique position as a competent stakeholder both in Norway and in Europe.

Bellona’s founder, Mr Frederic Hauge is a member of the Advisory Council of the European Technology Platform for Zero Emission Fossil Fuel Power Plants. Bellona is also represented in three of the five working groups. ZEFFPP is important for three reasons: It sets an ambitious timetable for large reductions of CO<sub>2</sub> emissions in Europe. It will stimulate cost reductions for capture technology, and it allows stakeholders such as Bellona to work on substance from within.

Bellona is a non-governmental organization with a strong interest in and optimism towards technological innovations. Our endorsement of CO<sub>2</sub> for EOR is based on the benefit of establishing an infrastructure for CO<sub>2</sub> transportation and storage that will go beyond the EOR-phase.

We all know what is at stake: Fossil energy - and coal in particular - if not supplied with CCS technology, may lock us into a development of unhealthy carbon emissions.

Since 2003, roughly 6 billion new tons of CO<sub>2</sub> coal powerplants has come on line. On average, China alone is firing up one new coal plant a week, and the rest of the world is providing a similar number of plants. The average lifespan of a plant is 40 years. In only three years we are therefore locked in to growing emissions lifetime emissions. Processing industries in India and China building Gasification Plants that are capture-ready.

The first CCS ready power plants are hopefully in operation around 2012: (Draugen, FutureGen, Petershead, Swarze Pumpe, Carson L.A.) to name a few), but unfortunately, projected growth of carbon intensive power production by far outstrips these isolated gains.

Is this the best we can do as policymakers, researchers, utilities and technology developers? Our short and simple answer is NO.

## **Issues to be adressed in the technology roadmap**

We agree that no technological winner has emerged so far it terms of capture technology. Pre- or postcombustion and oxyfuel all deserves further exploration. We should take aim at all major point of source emitters. We need technology that can both serve as retrofits as well as “ground up new technologies”.

We should not use this period to be complacent and let power plants that are unlikely to fit into de-carbonation be built. Technology should not be an excuse for inaction. CCS from biomass holds an interesting promise as a net capture of carbon.

First: Deepwater ocean storage is not a decent burial of carbons. The latest IPCC report is refreshingly candid: (Slide) It can easily become the stumbling block for a growing public acceptance - before we even gain momentum! If CCS becomes a NIMBY issue, CCS becomes a problem rather than a solution.

Secondly: We would need to know if we have less than hundred or hundreds of years of safe storage at hand. There are many partnerships and initiatives that should pull together. We believe that CSLF technical group could assume a leadership role in coordinating and unrolling what we propose to be a global carbon storage registry. This registry should include realistic assessment of capacities. It should provide universally agreed classification standards, accepted uses and abandonment procedures for geological storage.

Thirdly: We still need more understanding when it comes to potential leakages, especially well bore-issues and the effect of CO<sub>2</sub> mixtures on deposits and possibly affect marine reproduction. This effort should not put storage project projects on hold since some storage solutions are tried and tested. I would like to suggest that CSLF should aim to become a global clearinghouse for best practices when it comes to injection, storage

and monitoring of storage sites. Leakage to groundwater from saline aquifers – realize of toxic substances.

The development of proven equipment in unproven concepts” which CCS really is all about – is not rocket science.

Scaling up prototypes is costly and those who take the risk should expect to get return on their investments. It is therefore understandable that the establishment of the FutureGen Industrial Alliance experienced some delays due to intellectual property concerns. How can we resolve this issue and still make best available technology - globally available?

We should try to strike a balance between recouping development cost and rapid deployment. We may compare it to essential drugs such as AIDS-medicine. CCS technologies are like some drugs - essential and costly – but benefit the health of our planet.

Thank you for your attention,