KTH Energy Platform in cooperation with Biorecro

BECCS in climate change mitigation

What role does Bio-Energy with Carbon Capture and Storage (BECCS) have in climate change mitigation? How large is the potential? What are the obstacles?

June 11th 2012, 13:30 - 17:00

Lecture hall E1, Lindstedtsv. 3
Royal Institute of Technology KTH, Stockholm, Sweden

13:30-13:40	**Welcome and introducing the KTH Energy Platform** Professor Ramon Wyss, Director of the Energy Platform, KTH
13:40-14:05	**Environmental and social safeguards for negative emissions with BECCS to play a role** Dr Stephan Singer, Director Global Energy Policy at WWF International
14:05-14:30	**BECCS at the IEA: the way forward** Dr Wolf Heidug, Senior Analyst at the CCS Unit of the International Energy Agency (IEA)
14:30-14:55	**Global BECCS deployment** Henrik Karlsson, President and CEO Biorecro
14:55-15:15	**Refreshments**
15:15-15:40	**Bioenergy – modern option with multiple benefits.** Professor Semida Silveira, Head of the division of Energy and Climate Studies at KTH
15:40-16:30	**Q&A all speakers**
16:30-17:00	**Mingle in Ljusgården**

Background to BECCS

Since the onset of the industrial revolution, the carbon dioxide concentration in the atmosphere has risen from 280 parts per million (ppm) to above 392 ppm in May 2012. This level increases with 2 ppm per year because of current global CO2 emissions. Moreover, the *rate* of emissions is increasing, accelerating the amount of CO2 being added to the atmosphere. To avoid dangerous climate change, a conservative target of stabilising concentrations

at 350 ppm has been suggested, as well as less conservative targets of 450 ppm and a temperature based 2-degree target of warming.

The 350 ppm, 450 ppm and the 2 degree targets all have in common that they require not only deep cuts in global emissions, but also negative emissions. This means that CO2 will need to be removed permanently in large quantities from the atmosphere to reach these targets. This is especially true in the light of the little progress being made in the international climate negotiations to date.

The most promising technology for negative CO2 emissions is BECCS, Bio-Energy with Carbon Capture and Storage, which builds on the integration of biomass with CCS, carbon capture and storage. Through photosynthesis, CO2 is absorbed in biomass during growth. When the biomass is combusted or processed in industries such as pulp mills, ethanol plants and power plants, the released CO2 is captured, compressed into liquid form and injected into subsurface geologic formations at thousands of meters of depth.

After being introduced in the literature more than a decade ago, the academic interest in negative emissions has increased substantially during the last couple of years. The First International Workshop on BECCS was held in Orléans in November 2010, with a second conference in Cardiff in 2011, and a number of research groups have initiated preliminary studies. However, there are still no research networks or established formal bodies for studying BECCS, as opposed to the extensive research efforts on other key technologies which are needed to meet climate change mitigation targets.

The first field trials with a pilot of the BECCS technology were performed during the 00-s by the University of Kansas. Since November 2011, there is a demonstration plant in operation in Illinois in the US. To meet global mitigation targets, it has been put forward that more than 30 million tons in BECCS capacity is needed already by 2020, and more than 2 billion tonnes annually will be needed by the year 2050.

Organisers

The organisers want to express their gratitute towards the guest speakers