News Review

Japan Sets up CO_2 Storage (Accumulation)

Decarbonisation: Storage of greenhouse gas in Tomakomai makes progress. The Japanese government has in recent past revised energy plan upto 2030 based on coal. Tokyo has written down this also with the putting in of newer technologies in the area of carbon capture and storage (CCS or CO_2 sequestration) separation and storage of greenhouse gases.

Tokyo with that writes down a technology which is no more desired company wise. In Germany the focus has been shifted. Away from power-works to energy intensive industries, towards CO_2 sequestration way from storage to further use of greenhouse gas (carbon capture and utilization (CCU). Japan places a big point of view on technique to storage of CO_2 under seabed. In between a clear to cost-effective solution is drawn in the CCS experimental plant in Tomakomai in front of the south coast of Hokkaido.

10 years before Japan established CCS a consortium of more than 30 companies under the management of Japan Petroleum Exploration. It conducts tests on a method by order of the Finance Ministry by which CO_2 is to be pressed into porous sand stone or in leading saline water stone layers so-called aquifers under the sea beds. The plant pumps under high pressure, CO_2 in front of the coast in 1000 and 3000 m depth in corresponding geological layers. Being invested about 270 million € costing Tomakomai plant succeeds in separation of CO_2 at the manufacture of hydrogen (H) situated in the vicinity of Idemitsu Kosan refinery. With the production of hydrogen the CO_2 component (part) of the exhaust gas with 50% specially high and with that offers special for the test objective. In which the excess gas is used for the energy production and the processing heat is reutilized, it is successful to replace in between the cost of energy upto $^2/_3$rd in comparison to other experimental plants.

The capacity of both the storage chambers of Tomakomai is estimated to be 20 million t CO_2. The plant can pump in a year one million ton CO_2 in the earth. Our tests shows that the CO_2 sequestration economically is meaningful by all means emphasizes Chiyoko Suzuki of department for international relationship with Japan CCS.

Tomakomai is a very exciting project. The progress with CCS is so far proceding previously worldwide dragging. Tomakomai belongs to the big ray of hope explains Graham Winkelman, expert for climate change with mining concern BHP Billiton. At present before all the industrial applications are tested, Tomakomai, the project should run in 2020.

Aquifers occur under the pacific and Japanese sea abundantly in big expansion and in sufficient depth. The economic finance minister estimates that in the aquifers around Japan about 150 milliard tons CO_2 can be stored. That corresponds to 4 times the annual CO_2 emission of the country. Japan researches already since long on new technologies in order to neutralize $CO_2$with energy production and works in this area closely together with Australians in these types of cooperation. The Japanese are before all interested while the Japanese concerns engage with green technologies for the sale of powerworks and with that specially want to force the exports of bigger industrial plants.

The Japanese state invests at present in total about 20 million US $ in CO_2 storage project. The big portion of investments concentrate with the storage of those CO_2s, that with the burning of fossil energy as coal or oil or as for example also with the steel production. However, it has in the past years given a number of setbacks and few projects would rather be totally commissioned. [A photograph is given in the back cover]

Ref: VDI nachrrichten, 3 August 2018,
Nr. 31/32, Seite 23.

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