**CARBON CAPTURE & STORAGE [CCS] OPPORTUNITIES IN CHINA**

**PetroChina-Jilin Oil Field**
- **Participants:** Field PetroChina
- Started in 2006, PetroChina has developed the Jilin Oil Field project as a pilot test site for enhanced oil recovery, as well as 10 injection wells for CO$_2$ storage.

**Shenhua-Ordos**
- **Participants:** China Shenhua DCL Co., Ltd. (project lead), U.S. Lawrence Livermore National Laboratory, and West Virginia University
- This first-of-its-kind facility employs a Chinese-developed technology to convert 6,000 tons of coal a day into more than 1 million tons of liquid fuels per year (70% diesel oil and 20% naphtha). The plant sits above a geologic formation that experts say could store more than 4.4 billion tons of CO$_2$. Geologists are currently studying the site, and an experiment that will inject 100,000 tons of CO$_2$ per year is expected to begin in late 2009. The project is sponsored in part by the U.S. DOE.

**GreenGen-Shanghai**
- **Participants:** GreenGen Co., Ltd.
- It is anticipated that this project will capture approximately 100,000 tons of CO$_2$ per year.

**Sichuan Basin-Jiangyou**
- **Participants:** GreenGen Co., Ltd.
- Although this area has a high concentration of large industrial CO$_2$ sources, including power plants, cement kilns, iron and steel foundries, and petrochemical facilities, a detailed feasibility study is needed to assess whether CCS (and associated enhanced gas recovery) would be cost-effective.

**Hubei-Jingangan Basin**
- **Participants:** GreenGen Co., Ltd.
- Ammonia, fertilizer, alcohol, and petrochemical plants are all located near the Jianghan oil field. As such, it stands as one of the more promising near-term CCS opportunities in China.

**GreenGen I & II-Tianjin**
- **Participants:** China Huaneng Group and Australian CSIRO
- The 845 megawatt power plant is the first in China to fully test CO$_2$ capture, and features a full suite of environmental controls. During winter months, steam from the plant is used for district heating, and efficiency can be has high as 84 percent. Engineers estimate the plant uses about 400,000 tons less coal annually than a similarly-sized conventional plant. Eventually, engineers plan to capture 60,000 tons of CO$_2$ per year (equivalent to the annual CO$_2$ consumption (dry ice, food-grade CO$_2$) of Beijing).

**GreenGen Post-combustion Plant, Shanghai**
- **Participants:** GreenGen Co., Ltd.
- It is anticipated that this project will capture approximately 100,000 tons of CO$_2$ per year.

**Shenhua direct Coal liquefaction (DCL), Ordos**
- **Participants:** China Shenhua DCL Co., Ltd. (project lead), U.S. Lawrence Livermore National Laboratory, and West Virginia University
- This first-of-its-kind facility employs a Chinese-developed technology to convert 6,000 tons of coal a day into more than 1 million tons of liquid fuels per year (70% diesel oil and 20% naphtha). The plant sits above a geologic formation that experts say could store more than 4.4 billion tons of CO$_2$. Geologists are currently studying the site, and an experiment that will inject 100,000 tons of CO$_2$ per year is expected to begin in late 2009. The project is sponsored in part by the U.S. DOE.

**Pre-Approval IGCC Projects**
- a. Datang (International)-Shenyang
- b. Datang (International)-Beijing
- c. Datang (International)-Tianjin (under construction)
- d. CPI-Langfang
- e. Jiangsu/CAS-Lianyugang
- f. Guodian-Haimen, Jiangsu
- g. Datang (International)-Dongguan
- h. Datang (International)-Dongguan
- i. Datang (International)-Dongguan
- j. Datang (International)-Dongguan
- k. Datang (International)-Dongguan
- l. Datang (International)-Dongguan

Proposed IGCC projects offer opportunities for capture-ready CO$_2$. Although there are no concrete plans for geologic storage associated with these projects, they represent an important potential.

**Note:** GreenGen Co., Ltd. is a company formed by China Huaneng Group, China Datang Group, China Huadian Corp., China Guodian Corp., China Power Investment Corp., Shenhua Group, State Development & Investment Co., China Coal Group, and Peabody Energy. Huaneng is the largest shareholder.