

## **MEMORANDUM OF UNDERSTANDING**

**Between**

**THE U.S. DEPARTMENT OF ENERGY  
NATIONAL ENERGY TECHNOLOGY LABORATORY**

**and**

**THE BRAZILIAN COAL ASSOCIATION**

### **I. PURPOSE**

This Memorandum of Understanding (MOU) reflects a mutual interest on the part of the U S Department of Energy's National Energy Technology Laboratory (NETL) and the Brazilian Coal Association (BCA) to pursue collaborative work to advance the technical, environmental, and cost performance of fossil energy technologies.

### **II. AREAS OF COOPERATION**

Cooperative activities may include, but are not limited to, research on base and enabling technologies and assessments of technology options and economics. Cooperative topics may include:

- a. Development of clean coal technologies applicable to Brazilian coals, including integrated gasification combined cycle (IGCC) systems.
- b. Development and assessment of sequestration options for carbon dioxide (CO<sub>2</sub>) and other greenhouse gases from fossil fuel-based systems, including capture, storage, and utilization.
- c. Development and assessment of technologies to recover coal bed and coal mine methane, including options to sequester CO<sub>2</sub> from fossil fuel-based systems.
- d. Development and assessment of technologies for coal-to-liquids production.
- e. Other environmental technologies for assessment, control, and remediation of ground water and soils, including acid mine drainage, affected by fossil fuel production and use.

- f. Other related technologies, such as minimization and utilization technologies for wastes resulting from fossil fuel production and use (e.g., coal combustion byproducts).

Other areas of cooperation may be added by mutual written agreement of each Party's Lead Coordinator.

### **III. FORMS OF COOPERATION**

Specific cooperative projects will be defined in supplemental agreements between the Parties. Cooperation may include:

- a. Exchange of information, publications, reports, technical data, samples, materials, and instruments.
- b. Exchange of scientists, engineers and other specialists for participation in training, project definition activities, research, and technology transfer. Each Party agrees to abide by the other's safety and security requirements
- c. Technical assistance in specific projects, such as the development of BAC's Clean Coal Technology Road Map and establishment of the Carbon Capture and Clean Coal Technology Center (CCT/CCS Center) in Criciúma, Santa Catarina.
- c. Jointly funded activities in which NETL and BCA share the cost of performance

### **V. LEAD COORDINATOR**

Each Party shall designate a Lead Coordinator who shall serve as that Party's principle representative for activities under this MOU.

### **VI. FINANCIAL COMMITMENTS**

NETL's commitments in furtherance of this MOU are contingent on the availability of funds appropriated by the Congress of the United States. The BAC's commitments in furtherance of this MOU are contingent on the availability of funds to pursue collaborative activities. Unless otherwise agreed by the Parties, each Party shall be responsible for its own costs incurred in furtherance of this MOU.

### **VII. INTELLECTUAL PROPERTY**

Each Party will retain rights to its own background intellectual property. The allocation of rights to newly generated intellectual property will be determined on a project by project basis.

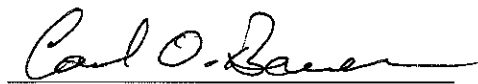
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## VIII. EFFECTIVE DATE, AMENDMENT AND TERMINATION

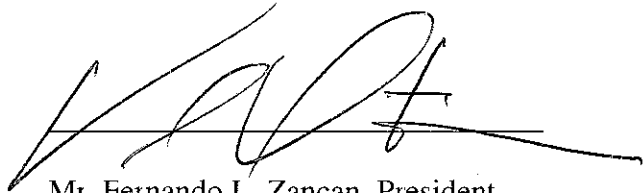
This MOU is effective upon the date of the last signature by the Parties and shall remain effective for a 5-year period unless terminated in accordance with the terms set forth herein. The MOU may be modified by mutual consent of the Parties.

Either Party may terminate this MOU by providing written notice to the other Party at least 90 calendar days in advance.

## SIGNATORIES

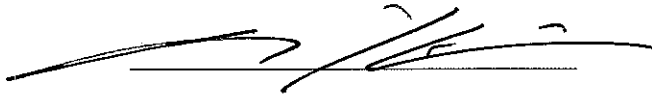


Mr. Carl O. Bauer, Director  
National Energy Technology Laboratory  
U.S. Department of Energy



Mr. Fernando L. Zancan, President  
Brazilian Coal Association

Witnessed by:



The Honorable Luiz Henrique da Silveira  
Governor of Santa Catarina

Signed this 28<sup>th</sup> day of November of 2007 in Florianópolis, Santa Catarina, Brazil