

**ANNEX I
FOR COOPERATION IN THE
FIELD OF COAL AND POWER SYSTEMS**

DOE and MME, as Executing Bodies, have a mutual interest in exchanging experience and views on coal and power systems, which includes clean coal research, development, and demonstration technologies, and in pursuing general collaboration in these areas.

The Parties recognize the contributions of fossil fuel technologies, including advanced power systems technology development, to fuel diversity, enhancing mutual environmental protection and energy security, and expanding opportunities for international trade.

The Parties will mutually benefit from collaboration in the deployment and use of coal and power systems.

MANAGEMENT

1. Each Executing Body shall designate one Program Coordinator for this Annex; these Program Coordinators shall provide technical management and coordinate activities under this Annex. Each task undertaken under this Annex shall be covered by a work plan that is approved by both of the Coordinators, each of whom shall then designate a Co-Project Officer for that specific task.

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SCOPE

2. The Executing Bodies agree to cooperate in a manner that will facilitate joint activities and market deployment of fossil energy technologies in an environmentally responsible way. Pursuant to Article II of the Implementing Arrangement, these joint activities may include, but need not be limited to:

- A. Consultations by senior program officials to permit joint planning of cooperative projects for which the participating organizations agree to share the tasks, the costs, or both; (B) Joint technical evaluation of fossil energy technologies. In recognition of the important role of coal in the Brazilian fuel mix, the Parties shall cooperate to facilitate the application of these technologies to resolve issues concerning coal use;
- B. Joint technical evaluation of fossil energy technologies. In recognition of the important role of coal in the Brazilian fuel mix, the Parties shall cooperate to facilitate the application of these technologies to resolve issues concerning coal use;
- C. Exchange of technical and economic data, including clean coal data regarding power systems, fuel

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upgrading, and environmental control options, and co-sponsorship of conferences and seminars specifically related to:

- Advanced power systems, combustion technologies, and developmental components and sub-systems, such as air-blown gasification, pressurized fluidized-bed combustion, externally fired combined-cycle systems, hot-gas cleanup, and the combustion of coal-water mixtures;
- Advanced coal preparation, conversion and utilization technologies, such as the manufacture of ultraclean coal-water mixtures, coal-water slurry transport systems, and direct and indirect coal liquefaction processes;
- Environmental control technologies, such as wet and dry SO₂ scrubbers, NO_x reduction processes, including low NO_x burners and reburning technologies, combined SO₂ and NO_x control systems, selective catalytic and non-catalytic reduction (SCR and SNCR), high-efficiency particulate removal systems, and processes for by-product and ash utilization and/or waste management;

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- Environmental monitoring technologies, including continuous emission monitors, and computer modeling and assessment techniques for determining potential impacts, and alternative pollution prevention and control and waste minimization opportunities supportive of sustainable development and economic growth;
 - Exchange information on environmental legislative approaches and standards consistent with and supportive of coal use and environmental protection;
 - Environmental improvements with regard to coal production, handling, and transportation, including efficiency enhancement and cost-effective modern analytical devices and mechanisms for decision making and operational infrastructures.
- D. Exchange of information including operating experience regarding fuel cells and gas turbines, and co-sponsorship of conferences and seminars specifically related to:
- The distributed power applications of fuel cells

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while decreasing the emissions of carbon dioxide, a greenhouse gas; and reducing other pollutants;

Conducting studies on the capability of Advanced Turbine Systems to minimize pollution and increase performance through high efficiency over other conventional power options.

- E. Joint review of appropriate research and development projects, both those in progress in the United States and Brazil and those that are deemed meritorious for initiation to benefit the enhanced use of coal in Brazil, followed by an agreed-upon plan to implement the findings and recommendations culminating from the review;
- F. Exchange visits to mutually agreed-upon United States and Brazilian coal mining and equipment organizations, commercial and clean coal technology research, development, and demonstration program facilities pertaining to the technical areas and issues described above;
- F. Training and internship program support for personnel in the aforementioned coal and power system technologies to strengthen related human resources and institutional government, university, and industry

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laboratory infrastructure, and to facilitate joint government and industry activities;

- H. Joint development of technical programs to facilitate industrial partnerships between coal and power systems industries of the United States and Brazil.

EXPENSES

3. Except when otherwise specifically agreed in writing, all costs resulting from cooperation under this Annex shall be borne by the Party that incurs them.

GENERAL PROVISIONS

4. Cooperation under this Annex shall be subject to the Implementing Arrangement.
5. This Annex shall remain in effect for five (5) years or until termination of the Implementing Arrangement, whichever occurs first. This Annex may be amended or extended by mutual written agreement of the Executing Bodies.
6. At the discretion of either Executing Body, this Annex may

be terminated upon six (6) months advance notice in writing by
the other Executing Body.