PROJECT ANNEX II (CLEAN COAL AND CARBON SEQUESTRATION)

TO THE AGREEMENT BETWEEN THE DEPARTMENT OF ENERGY OF THE UNITED STATES OF AMERICA AND THE MINISTRY OF ECONOMIC DEVELOPMENT OF THE ITALIAN REPUBLIC

IN THE FIELD OF ENERGY RESEARCH AND DEVELOPMENT

The Department of Energy of the United States of America and the Ministry of Economic Development of the Italian Republic (hereinafter the "Parties"),

ACTING pursuant to Article IV, paragraph 2 of the Agreement between the Department of Energy of the United States of America and the Ministry of Economic Development of the Italian Republic in the Field of Energy Research and Development of November 13, 2007 (hereinafter the "Agreement"), and

DESIRING to cooperate with each other and facilitate joint activities of common interest in the field of clean coal and carbon sequestration,

Hereby agree as follows:

Section 1

Scope

- 1. The Parties have identified a number of aspects of Clean Coal Technology and Carbon Capture and Sequestration techniques, as well as possible institutions in the two countries to be involved in an exchange of researchers.
- 2. This Project Annex is subject to and governed by the Agreement.

Section 2 Collaborative Activities

- 1. In each area of cooperation, the Parties may carry out the following activities:
 - periodic exchange of information on strategic guidelines, activities, and general results;
 - assessment of new technologies, and the conduct of projects, initiatives of common interest, and specific R&D projects;
 - coordination and monitoring of joint projects;
 - exchange of researchers among laboratories and universities
 - Coal Research Facility in Sardinia
 - CRS4 Research Center in Italy
 - ENEA Research Centers
 - CESI RICERCA Research Center, Milan, Italy
 - Counterpart U.S. laboratories and universities to be identified
- 2. Potential joint activities include but are not limited to:
 - a) CO2 Capture and Sequestration Processes
 - Post-combustion CO2 capture (innovative CO2 capture technologies: including solid absorbants but excluding CO2 dense selective membranes)
 - Oxy-combustion technology (simulation models and advanced technologies for oxygen production)
 - Characterization of Subsurface Carbon Sequestration Potential
 - Improved understanding of subsurface features and geology
 - Improved understanding of impacts of long-term CO2 storage
 - Tools and methods for planning a carbon sequestration system

- Systems Modeling and Simulation of Reservoirs for Carbon Capture and Storage
 - Modeling underground fate and transport of CO2 over thousands of years
 - Development of simulation models for geologic storage of CO2
 - Validation of models based on field tests, including tests under the U.S. Regional Carbon Sequestration Partnership Program
- Siting Requirements for Carbon Sequestration
 - Technical limitations on where carbon can be injected underground
 - Political and socioeconomic restrictions on where carbon can be injected underground
 - Sharing of data on practical sites for carbon sequestration
- Public Outreach and Education on Carbon Sequestration
 - Cost implications of carbon capture and storage for electricity bills
 - Collaboration on strategies of public outreach and education to increase public acceptance of and confidence in carbon capture and storage
- b) Clean Coal Technologies
 - Technology and/or systems to reduce the environmental footprint of coal-fired power systems
 - Technology and/or systems to improve the performance/ efficiency in the generation of electricity
 - Advanced Coal Gasification Technologies
 - Experimental activities and modeling of coal hydrogasification process
 - Innovative high temperature gas cleaning technologies
 - Experimental and modeling activities of syngas and hydrogen combustion in gas turbines
 - High-Performance Modeling and Power System Simulation
 - Optimization of high efficiency zero emission power cycle
 - Multiphase models development for gasification and CO2 absorption technologies
 - High-performance computing for syngas combustion studies, especially in unstable conditions

Section 3

Entry into Force, Amendment, Termination

1. This Project Annex shall enter into force upon signature and remain in force (subject to paragraph 3 of this Section) for the duration of the Agreement.

- This Project Annex may be amended at any time by written agreement of the 2. Parties, so long as the Agreement remains in force.
- 3. Either Party may terminate this Project Annex by giving 90 days advance written notice to the other Party.

DONE at Rome, in duplicate, on the 23 cd day of May, 2009.

FOR THE DEPARTMENT OF ENERGY OF THE UNITED STATES OF AMERICA:

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FOR THE MINISTRY OF ECONOMIC DEVELOPMENT OF THE ITALIAN **REPUBLIC:**