



MEMORANDUM OF UNDERSTANDING

AMONG

**THE UNITED STATES DEPARTMENT OF ENERGY/
NATIONAL ENERGY TECHNOLOGY LABORATORY**

AND

THE CENTRAL MINING INSTITUTE

AND

**THE INSTITUTE FOR CHEMICAL PROCESSING OF COAL
FOR COOPERATION IN THE AREA OF FOSSIL FUELS**

The U.S. Department of Energy National Energy Technology Laboratory (NETL), and Główny Instytut Górnictwa (the Central Mining Institute, CMI), and Instytut Chemicznej Przeróbki Węgla (the Institute for Chemical Processing of Coal, ICPC) of Poland, collectively herein the "Participants":

NOTING the Memorandum of Understanding for Cooperation in the Area of Fossil Fuels between the U.S. Department of Energy National Energy Technology Laboratory and Poland's Central Mining Institute and Poland's Institute for Chemical Processing of Coal of June 23, 2008 (hereinafter the "2008 Memorandum") ;

NOTING FURTHER the mutual benefit of their cooperation under the 2008 Memorandum, and

DESIRING to continue and expand their cooperation,

Have reached the following understanding:

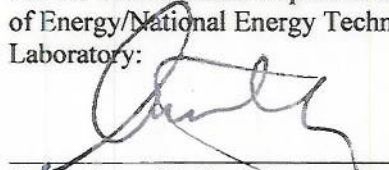
1. Areas of cooperation under this Memorandum of Understanding (MOU) may include:

- a) Gasification
 - b) Carbon management, especially storage technologies
 - c) Chemical looping
 - d) Oxy-Combustion
 - e) Multi-phase flow processes, including fluidization
 - f) Other areas of cooperation may be added by the Participants' mutual written consent.
2. The forms of cooperation under this MOU 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 transfers, such exchanges to be subject to the conclusion of appropriate written agreement(s) therefor between the sending and receiving institutions
 - c) Jointly funded research and development activities in which NETL, CMI, and ICPC share the cost of performance in accordance with appropriate written agreement(s) therefor. Each such agreement should include, among other relevant matters, appropriate provisions concerning the management and funding of the planned collaborative activities, the protection of any business-proprietary information to be transferred, and the protection and allocation of intellectual property arising from collaborative activities conducted under the agreement.
3. Each Participant should designate a Lead Coordinator to supervise its activities under this MOU.
4. Each Participant is to be responsible for the costs it incurs in participating in the cooperative activities conducted under this MOU.
5. Participation in the conduct of activities contemplated by this MOU is subject to the availability of funding, personnel, and other resources.
6. This MOU does not create any legally binding obligations.
7. Each Participant should conduct the activities contemplated by this MOU in accordance with applicable laws and regulations to which it is subject, and international agreements to which its government is party.

8. Cooperation under this MOU may commence upon signature and continue for 5 years. It may be modified by the Participants' mutual consent in writing.
9. This MOU may be discontinued by the Participants' mutual consent in writing. Alternatively, a Participant that wishes to discontinue its participation in this MOU should endeavor to provide at least 90 days advance notice in writing to the other Participants.
10. Upon signature, this MOU supersedes and replaces the 2008 Memorandum.

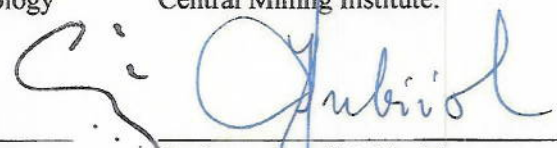
Signed in triplicate.

For the United States Department
of Energy/National Energy Technology
Laboratory:


Dr. Anthony V. Cugini
Director


Place: Pittsburgh, PA
Date: 3-8-13

For Główny Instytut Górnictwa/
Central Mining Institute:


Professor Jozef Dubinski
Director General

Place: KATOWICE
Date: 8th March 2013

For Instytut Chemicznej Przeróbki Węgla/
Institute for Chemical Processing of Coal:


Dr. Marek Świążko
Director

Place: ZABRZE
Date: 8th March 2013