

MEMORANDUM OF UNDERSTANDING

BETWEEN

THE MINISTRY OF PETROLEUM AND NATURAL GAS

GOVERNMENT OF INDIA

AND THE

THE DEPARTMENT OF STATE

GOVERNMENT OF THE UNITED STATES OF AMERICA

ON

SHALE GAS RESOURCES

SECTION I – SCOPE AND OBJECTIVES

- I. The Ministry of Petroleum and Natural Gas of the Government of India (hereinafter referred to as "MoPNG"), through the Directorate General of Hydrocarbons (DGH), and the U.S. Department of State of the Government of the United States of America (hereinafter referred to as "DOS") dedicate themselves to the pursuit of cooperation in the area of shale gas characterization, assessment and in developing a regulatory framework in India in accordance with this Memorandum of Cooperation (hereinafter "Memorandum").
- II. The purpose of this Memorandum is to provide a framework for the exchange of knowledge and expertise between DOS and MoPNG (hereinafter referred to as the "Participants") in the areas concerning shale gas resource characterization and assessment in India.
- III. The Participants intend to encourage and facilitate, where appropriate, the development of direct contacts and cooperation among government agencies, universities, research centers, institutions, exploration and production companies and other entities.
- IV. Each Participant may, as determined jointly and to the extent permitted by the laws and policies of each Participant's Government, invite other government entities or agencies of India and the United States, and other entities, including scientists, technical experts, governmental agencies and institutions of third countries or international organizations, to participate in activities undertaken pursuant to this Memorandum. Such participation should be in accordance with such terms and conditions as the Participants may specify.

SECTION II – COOPERATIVE ACTIVITIES

I. Subject to the availability of resources, the Participants intend to cooperate on shale gas in areas that include the following:

- a. Shale Gas Resource Assessment: The Participants intend to cooperate in evaluating selected areas of India likely to have significant shale gas resources, utilizing experience gained through shale gas development in the United States.
- b. Technical Studies: The Participants intend to cooperate in technical studies of the production capability, economics and investment potential of shale gas resources in India.
- c. Regulatory Framework Consultation: The Participants intend to undertake a commercial law development program to share best practices on establishing a regulatory framework and safeguard measures for the sustainable development of shale gas.
- d. Investment Promotion: The Participants intend to cooperate in promoting sustainable domestic and foreign investment in shale gas development in India through the exchange of experiences and best practices and through study tours and public-private events.

II. Specific projects and programs included in the areas of cooperation set out in paragraph I of this section are described in a Shale Gas Work Plan that is annexed to this Memorandum (Annex 1).

III. Cooperative activities under this Memorandum are subject to the availability of personnel, resources, and funds. This Memorandum does not impose any legal obligations on either Participant, including with respect to any particular expenditure or commitment of resources, funds or personnel.

IV. Each Participant should designate a principal representative, and these principal representatives, at such times as may be decided jointly by the Participants, should meet to review the activities under this Memorandum, and develop proposals for future activities, as appropriate.

SECTION III – PROPRIETARY INFORMATION

- I. In this Memorandum and any associated Annex the term "Proprietary Information" is defined as unclassified information that contains trade secrets or other privileged or sensitive commercial information (such that the person having the information may derive a commercial benefit from it or may have a commercial advantage over those who do not have it) that the Participants exchange in furtherance of the objectives set forth in this Memorandum
- II. Proprietary Information exchanged under this Memorandum may be disseminated by the receiving Participant, without the prior written consent of the disclosing Participant, to persons employed by the receiving Participant, provided such dissemination is made on a case-by-case basis to individuals having a legitimate need for the Proprietary Information and that Proprietary Information is marked as such.

- III. The receiving Participant should, to the extent consistent with applicable domestic law, not disclose Proprietary Information to anyone other than the employees, contractors, or consultants of the receiving Participant, except with the prior written consent of the disclosing Participant.
- IV. The receiving Participant should, to the extent consistent with applicable domestic law, not use such Proprietary Information otherwise than for the purpose of the project unless such use is specifically authorized in writing by the disclosing Participant.
- V. This Memorandum should not be construed as granting any express or implied rights under patents, copyright, or other form of intellectual property rights belonging to the disclosing Participant in respect of Proprietary Information the ownership of which remains vested in the disclosing Participant at all times.

SECTION IV – REORGANIZATION

Should any Participant named in this Memorandum be the subject of merger or any other form of reorganization, the Participants expect that the successor to such Participant to reaffirm the terms of this Memorandum.

SECTION V – GENERAL PROVISIONS

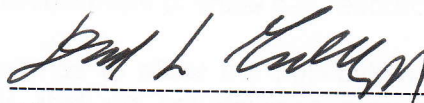
- I. Cooperation under this Memorandum may commence upon signature. The Memorandum and any associated Annex may be revised at any time in writing by mutual consent of the Participants.
- II. This Memorandum may be discontinued at any time by either Participant. If a Participant desires to discontinue its participation, it should endeavor to provide at least 90 days notice in writing to the other Participant.
- III. This Memorandum is not intended to, and does not give rise to any legal rights or obligations.
- IV. Each Participant should conduct the activities contemplated by this Memorandum in accordance with the applicable laws and regulations to which it is subject.



FOR THE MINISTRY OF
PETROLEUM AND NATURAL GAS:

DATE: November 6, 2010

PLACE: New Delhi



FOR THE U.S. DEPARTMENT OF STATE:

DATE: November 1, 2010

PLACE: U.S. Department of State, Washington, DC

ANNEX 1

SHALE GAS WORK PLAN

This Annex describes the Work Plan under which the U.S. Department of State (DOS) and the Ministry of Petroleum and Natural Gas (MoPNG) (hereinafter the "Participants") intend to engage in cooperative activities covered by and set forth in the U.S.-India Shale Gas Resource Memorandum of Understanding. This Work Plan does not limit the possibility of conducting additional activities as may be decided by DOS and MoPNG. The U.S. Geological Survey (USGS), working with DOS, plans to engage in a range of cooperative activities concerning shale gas, including training Indian Nationals in resource assessment methodology and unconventional resource characterization in order to understand the Shale Gas Resource potential of India. The Directorate General of Hydrocarbons (DGH), under MoPNG, intends to be an equal partner in this initiative and plans to work in a joint and cooperative manner with the USGS, within time frames to be determined through bilateral consultations.

U.S. Declarations:

- I. DOS intends to fund the USGS in activities including assessment of India's shale gas resource potential in a select number of areas/basins as determined jointly by the Participants.
- II. The USGS intends to train Indian Nationals in areas including shale gas resource assessment methodology, characterization of shale gas resource quality and quantity in order to better understand its resource and production potential. The United States intends to cover the U.S. costs of arranging and holding such trainings.
- III. The USGS intends to publish the results of technical studies/assessments conducted under this Work Plan at the Assessment Unit and Basin level. The USGS assessment will be a standalone publication containing only USGS analysis and conclusions.

Indian Declarations:

- I. DGH, acting on behalf of MoPNG, intends to share with the USGS all relevant geo-scientific data and other information concerning the areas/basins of India that are selected jointly by the Participants for assessment of shale gas resources.
- II. DGH, acting on behalf of MoPNG, intends to allow the publication of results of any technical study or geological models that do not disclose proprietary data. The Government of India intends to allow the USGS to publish the results of its shale gas resource assessment work in India done at the Assessment Unit and Basin level.
- III. In the event of any disagreement between the Participants over the interpretation of data collected under this Work Plan, MoPNG and DGH may each publish and freely disseminate, separately from the USGS assessment, any alternative conclusions that they may reach based on such differing interpretations of the data.

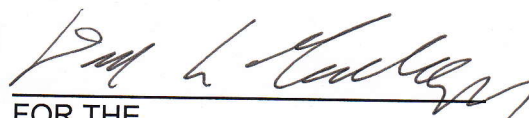
- IV. With respect to the participation of Indian personnel in training, workshops, seminars organized by U.S. Government entities, MoPNG intends to provide funding for technical experts to travel to such events that occur in the United States, and to cover the costs of arranging and holding such training events that are conducted in India.



FOR THE MINISTRY OF
PETROLEUM & NATURAL GAS:

DATE: *November 6, 2010*

PLACE: *New Delhi*



FOR THE
DEPARTMENT OF STATE:

DATE: *November 1, 2010*

PLACE: *U.S. Department of State, Washington, DC*