

# Triennial Work Programme 2012-2015

## Study Group 1.1: Technological Advances in the Exploration & Production of Natural Gas

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SG 1.1 Leader



**KEY SCOPE:** To investigate and compile the most recent technological advances in the exploration and production of natural gas, and share with the International Gas Community, the availability and applicability of the technological advances

The technological advances will be sourced from published papers and technology providers, without being specific to certain proprietary technologies to avoid the IGU being used as a commercial platform.

Research from academia and commercial research centres towards the advancement of new technology for exploration and production of natural gas could also be highlighted

Based on specific projects in certain areas, such as Deepwater Brazil, Arctic Shelf, Tight Gas in China, and CO<sub>2</sub> in Malaysia

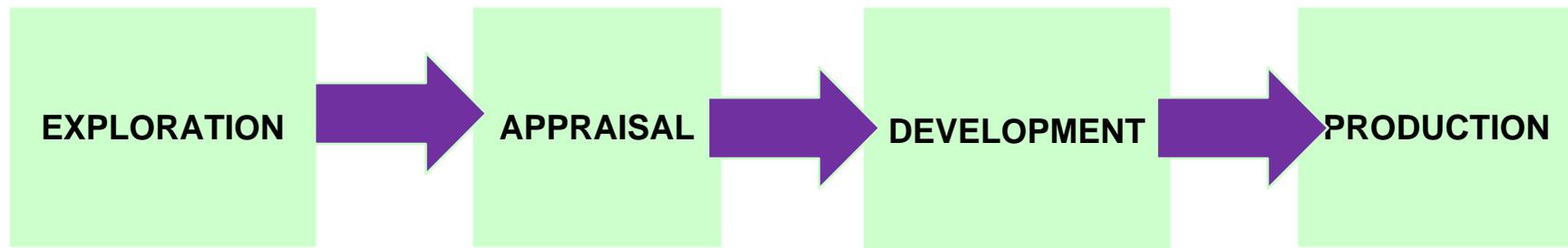
Addressed several technologies such as:

- Management of CO<sub>2</sub> (disposal/sequestration)
- Subsea systems
- Removal of H<sub>2</sub>S
- Unconventionals
  - Reservoir characterization technologies such as amplitude variation with angle and azimuth (AVAZ), microseismic monitoring, digital rock physics and customized drilling technologies (refer previous triennium report)
  - SG1.2 also addressed in detail 4 types of unconv:
    - Tight sands gas
    - Shale gas
    - Coalbed Methane
    - Methane Hydrates



Build on list of technologies that the previous triennium has started; elaborating more on those technologies that have become widely used, and introducing newer technologies that have emerged (via R&D)

Presentation of the technologies according to the life cycle of E&P:



**In each of these stages, what are the new technological advances that the industry can employ?**

SG1.1 shall compile on the most pertinent technologies for use by IGU members

### **EXPLORATION PERIOD:**

- DHI, AVO, CSEM
- Multi-azimuth seismic
- New areas of exploration (continuity from previous triennium)

### **DEVELOPMENT PERIOD:**

- Advancement in development of stranded gas
- Development in remote conditions, and environmentally sensitive areas (deep water, arctic, deep formation/pre-salt, French shale gas?)
- CO2 processing and sequestration
- Multi-stage fracturing (with new frac technology)
- Shallow gas development

### **PRODUCTION PERIOD:**

- Gas utilization/ elimination of flaring (together with SG 1.2)
- Rejuvenation to increase recovery factor
- Water shut-offs (more breakthrough in chemicals?)

### **PGC-A:**

- Advancement of Carbon Capture and Storage (CCS) in developing high CO<sub>2</sub> fields
- Environmental impact of fracturing to develop shale gas and tight gas



### **PGC-D:**

- How advancement in LNG will drive the development of stranded gas
  - Remote LNG, Small Scale LNG, Floating LNG



### **PGC-F:**

- R&D that affects/leads to advancement in technology in the E&P sector for gas



### **WOC-2:**

- Gas storage as a means to promote development of gas in stranded/seasonal areas



FURTHER DISCUSSIONS TO ELABORATE/EXPAND ON THURSDAY 27/9 SESSION

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**A mailing list will be created once members have been confirmed and discussions can take place through emails as necessary**