Gas & Oil Technologies
Implementing Agreement

Rice University
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Paul Doucette, GE O&G
Operating Agent

For More Information Contact
Paul Doucette, Operating Agent – paul.doucette@ge.com (001-713-647-2227)
Created in 1973; currently 28 Members

Goals:
- energy security
- environmental protection
- economic growth

Activities:
- co-ordinates efforts to ensure energy security
- compiles energy statistics
- conducts policy analysis
- reviews energy policies & programs
- convenes, mobilizes science & technology experts
Chairman
Mr. Jostein Dahl Karlsen
Norway
Vice-Chairman
(Vacant)
Vice-Chairman
Dr. Hubert H. Hoewener, Germany
Vice-Chairman
Open-Jin Park
Korea
Secretary
Dr. Keith Burnard

IEA Governing Board

Committee on Energy Research and Technology (CERT)

Working Party on Fossil Fuels
Working Party on Renewable Energy Technologies
Working Party on Energy End-Use Technologies
Fusion Power Coordinating Committee

International Technology Collaboration (Implementing Agreements, IAs)

Clean Coal Sciences
Clean Coal Centre
Enhanced Oil Recovery
Fluidised Bed Conversion of Fuels
GHG R&D Programme
Multiphase Flow Sciences

Oil and Gas Implementing Agreement

IEA Gas and Oil Technologies Implementing Agreement GOTIA.

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Rules for a Golden Age
Require Efficient Technologies

Golden Age
- accelerate investments

OGT Technologies
- accelerate deployment

Golden Rules
- accelerate innovation

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Technology & Environmental

E & P activities & “Licence to Operate”

Unconventional HC exploitation  Post Macondo/Montara  Pristine/Arctic

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A Unique Global Dialogue

- Governments
  - contracting parties

Industry
  (NOCs & IOCs)

Research/
Academia &
NGOs

A strategic vision for technologies and the policy and regulatory drivers for their adoption

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GOT IA Executive Committee

GOT Operating Agent (GE)

Task Area 1
Task Area 2
Task Area 3
Task Area 4
Task Area 5

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GOT IA Organization

IEA GOT IA EXECUTIVE COMMITTEE (ExCo)

Lead Parties, examples

Management of Tasks

Candidates ...

- TA1: Subsurface, Enhanced Recovery, Exploration
- TA2: Cost Effective Drilling, Wells, Intervention
- TA3: Production, Processing, Transport
- TA4: Safe and Clean Hydrocarbons
- TA5: Role of Technology to determine Gas in Energy Mix

Co-ordination/facilitation of Tasks

Operating Agent

Lead Parties, examples
Technology Target Areas

BUSINESS CASES

Finding and recovering more oil & gas
• More efficient exploration
• Increase recovery of mobile and immobile oil
• Max recovery in new fields
• Increase recovery of conventional and unconventional gas

More efficient drilling, downhole and intervention technology
• Faster, less expensive drilling
• Well placement and design
• Well quality, integrity, productivity
• Better completion & intervention
• Safer drilling operations

Safer and more efficient oil & gas development and operations
• Enable deepwater, remote, arctic
• Explore options for gas to market, transport options, supply routes
• Reduced footprint through more efficient field development
• Extend field life with longer stepouts and tiebacks

Ensure licence to operate
• Safe operations
• Industry readiness and licence to operate
• Energy efficient technology
• Decarbonization

Examining the role of gas in the Energy Mix (from well to wheel)
• Expand role of natural gas in the energy system
• Develop applications for future use of gas in industry
• Enhance exploitation of onshore unconventional gas
• Smart gas grid development
• Gas in transportation

GAPS

Basin & play scale integrated geological process and modelling
Geophysical acquisition, processing, imaging and interpretation
Assessment of recoverable resources
Deepwater & Arctic exploration
Volumetric sweep, reservoir & fluid characterization
New EOR well design
Release and transport of imobile oil
EOR technology for chalk & carbonate fields

Reduced cost & risk by automation
Faster Ext Reach Drilling
Novel drilling concepts
Smart well completions
Robust well monitoring & control
More low-cost drainage points
Better reservoir characterization (geomechanical, stress-field)
Enhanced hydraulic fracturing, green fluids, fraccing alternatives
Reliable zone isolation
Simulation of well response
Prevent coning by reservoir monitoring
Integrated drilling operations

New field development concepts
Increased production efficiency
Subsea and in-well processing
Gas processing and LNG
Subsea power supply and distribution
Multiphase technology and flow assurance
Unmanned facilities
Condition monitoring and sensing
Integrity management
FLNG for gas and condensate fields
Arctic maritime operations
Water management, hydrate and sand production

Leakage detection & prevention
Oil spill response
Remote bio-sensing
Ecosystem impact modelling
Elimination of gas flaring
Risk reduction by secondary containment & integrity monitoring
Intervention capabilities by contingency capping system
Low emission gas processing and conversion technologies

Gas in power & Power in gas
Small scale LNG as vehicle fuel
Gas and Hydrogen
Carbon negative systems (Bio+Gas)
Gas from pore to production
New materials & processes for EGR
Unlock stranded gas & undepleted gas pockets
LNG and emissions to air

Lead Party Examples:

Selected Lead Party Candidates in IEA Consultation, examples:

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GE Oil & Gas technology for conventional and unconventional development

Operating in 100+ countries

37,000+ employees

Revenue '12: ~$15B

Aftermarket services & asset integrity

Announced acquisition of Lufkin and Salof in April

Source: GE Oil & Gas analysis based on Barclays, Spears, CERA, Douglas-Westwood

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GE’s global research presence

New O&G Center announced for Oklahoma City
Thank you