

**Key note presentation to
International Standards Workshop,
Veracruz, Mexico, 18-19 September 2006**

**Moving towards global
standards for the benefit of
the oil and gas industry**



**Alf Reidar Johansen,
Hydro, Norway
Chairman, OGP Standards Committee**



What is OGP?

The International Association of Oil & Gas Producers
formed in 1974.

OGP members include the world's leading private and state-owned oil and gas companies, their national and regional associations and major upstream contractors and suppliers.

Members produce more than half of the world's oil
and about one third of its gas.



Offices in London and Brussels

Base region of Members

North America

Amerada Hess	Halliburton
API	IADC
Anadarko	IAGC
Baker Hughes	Marathon
Chevron	MI SWACO
ConocoPhillips	Occidental
Devon Energy	Pemex
ExxonMobil	PetroCanada

24 members active in region

Europe

AMI	Hydro
BG Group	OLF
BP	OMV
DONG	Perenco
Denerco	Repsol-YPF
Energy Institute	Schlumberger
ENI	Shell
Hellenic	Statoil
IOOA	Total
IPIECA	Tullow Oil
Maersk	UKOOA
NOGEPa	WEG

31 members active in region

Russia & Caspian region

AgipKCO
TNK-BP

21 members active in region

Asia & Australasia

BHP Billiton	Petronas Carigali
Cairn Energy	Premier Oil
CNOOC	PTT EP
JOGMEC	Woodside
Papuan Oil Search	

24 members active in region

Africa

Greater Nile Petroleum
SONATRACH

29 members active in region

Middle East

ADNOC	RasGas
Dolphin Energy	Saudi Aramco
Kuwait Oil	Yemen LNG
Qatar Petroleum	

27 members active in region

South America

ARPEL	PDVSA
Hocol	Petrobras

22 members active in region

★ Standards Workshops

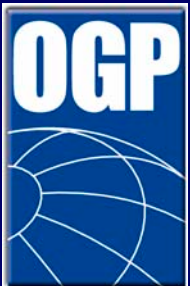


OGP vision

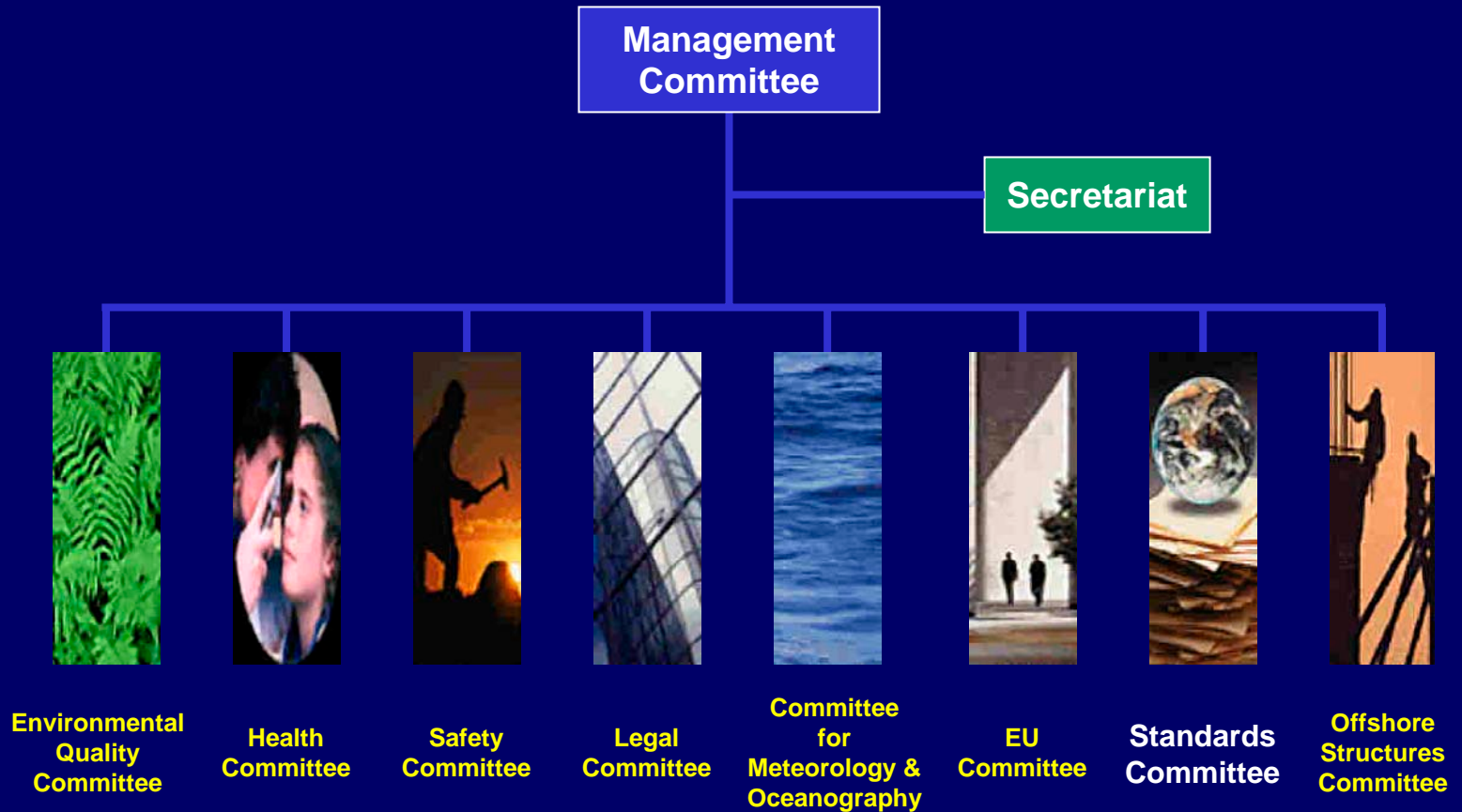
To work on behalf of all the world's upstream companies to promote responsible and profitable operations

OGP mission

- To represent the interests of the upstream industry to international regulatory and legislative bodies
- To achieve continuous improvement in safety, health and environmental performance and in the engineering and operation of upstream ventures
- To promote awareness of Corporate Social Responsibility within the industry and among stakeholders



OGP Organisation



New committee added for Surveying & Positioning

Global experience

- OGP has access to a wealth of technical knowledge and experience with its members operating around the world in many different terrains.
- OGP collate and distil this valuable knowledge into a range of reports and guidelines. Some for general use while others are restricted to OGP members.



Documents at www.ogp.org.uk

OGP Standard Committee membership

Representative ¹⁾	Company	Country	Other functions
Wilson Barbosa de Oliveira	Petrobras	Brazil	
Anatoly Baryshnikov	Eni	Italy	CEN/TC12 AH8 chair
Gail Baxter	Marathon	USA	
Alf Reidar Johansen (Chair)	Hydro	Norway	
Greg Lever	Petro-Canada	Canada	
Alain Loppinet	CEN	France	CEN/TC12 Chair
Martin Maeso	Energy Institute	UK	
David Miller	API	USA	API Std. Progr. dir.
Saif S Al Naimi ⁴⁾	Qatar Petroleum	Qatar	
Nabil Nuaim	Saudi Aramco	Saudi Arabia	
Terry Qin ²⁾	CPSC	China	
Neil Reeve	Shell	Netherlands	IFAN President
Daniel Rioche	Total	France	
Alain Samne	ISO	Switzerland	Technical group mgr.
Cheryl Stark	BP	USA	ISO/TC67 Chair
Mike Swidzinski	ConocoPhillips	UK	
Richard Torgersen ³⁾	ExxonMobil	USA	
Ramon Torra	Repsol	Spain	

Notes: ¹⁾ Plus corresponding members from: BG, Chevron, Marathon, Mærsk and Premier. ²⁾ Alternate: Xiaohong Chen & Du Delin, CPSC ³⁾ Alternate: Nikolaus Gromes, EMI, Germany ⁴⁾ Alternate: Muayyad Ajjawi



Upstream standards history

- Historically, the American organisations API, ANSI, ASME, ASTM & AWS etc. developed the standards frequently used by the upstream world wide oil & gas industry.
- North Sea operating companies developed lots of in-house and project specifications to fit their needs not covered by the American standards.
- Growing EU interest for developing European upstream standards emerged in view of EU's "new approach" for technical standards to support the general safety requirements in the directives.

– **A change in developing oil & gas standards & specifications was required**



ISO initiative & OGP support

- OGP supported the ISO initiative in 1987 to reactivate ISO / TC67 to develop ISO standards for the upstream – the petroleum & natural gas - industry.
- This created a global arena for standards development, where all ISO members and nations concerned have a role to play.
- ANSI, USA were offered and accepted responsibility for the ISO / TC67 secretariat.
- First meeting of ISO / TC67 in Paris 1989.
- A new era in the global upstream industry standardisation had started.



Why make global ISO and IEC standards?

- To facilitate global trade.
- Create common understanding.
- Accelerate product development and delivery.
- Global competition will reduce cost.
- ISO & IEC offer a global arena for standards work and global experts networking possibilities.
- Fair directives for the work.



Why make global ISO and IEC standards?

- Open meetings, voluntary participation
- Transfer international experience
- Maintain best practices, for improved solutions
- Voluntary use of ISO & IEC standards
- Reduce need for company & corporate specifications
- Can support national regulations

TC67 made for & made by the upstream industry

Therefore OGP takes an interest in standards





**International
Association
of Oil & Gas
Producers**

International Standards Bulletin

EXECUTIVE SUMMARY

A set of International Standards for a wide selection of vital oil and gas industry materials, equipment and offshore structures is emerging from the International Standards Organization, ISO. These standards are primarily the responsibility of ISO Technical Committee 67 (ISO TC67). They are developed using a consensus process that includes more than a thousand oil and gas industry experts from around the globe and an international review and approval process.

116 ISO standards have now been issued, including 13 revisions or new publications in 2005. A further 16 are planned for publication this year. The international oil and gas industry and national standardization

organizations support these standards for worldwide application. North and South American, Chinese, European and other standards bodies are now adopting them for regional and national use. For industry, they will reduce costs and delivery time, and facilitate trade across national borders. For regulators, they offer support for goal-setting and functional regulations, while achieving higher levels of safety through better design.

These standards are now being implemented widely in oil and gas provinces around the world, replacing existing industry, regional and national standards and eliminating or reducing the need for company-specific specifications.



<http://info.ogp.org.uk/standards/>

For details on standards available from ISO TC67, see the wall-chart inside.

ISO Standards for use in the oil & gas industry

ISO 10418 Basic surface safety systems
 ISO 10423 Wellhead & christmas tree equipment
 ISO 13333 Drilling equipment (BOP)
 ISO 13334 Hoisting equipment - control panel
 ISO 13335 Hoisting equipment - specification
 ISO 13626 Drilling and wellservicing structures
 ISO 13702 Control & mitigation of fire & explosion
 ISO 13703 Offshore piping systems
 ISO 14224 Reliability/maintenance data (Rev)
 ISO 14692 O&G piping, Parts 1-4
 ISO 14693 Drilling equipment

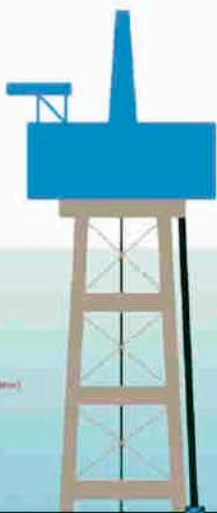
ISO 15156-1 Selection of cracking resistant materials for use in H₂S environments
 ISO 15156-2 Cracking-resistant steels and cast irons for use in H₂S environments
 ISO 15156-3 Cracking-resistant alloys for use in H₂S environments
 ISO 15138 HNAIC offshore
 ISO 15344 Emergency response
 ISO 15663 Life cycle costing, Parts 1-3
 ISO 17776 Assessment of hazardous situations
 ISO/TS 29001 Sector-specific quality management system

ISO 3977-5 Gas turbines - procurement
 ISO 10434 Bolted bonnet steel gate valves
 ISO 10437 Special-purpose steam turbines
 ISO 10438 Lubrication, shaftheating and oil-control systems, Parts 1-4
 ISO 10439 Centrifugal compressors
 ISO 10440-1 Rotary PD process compressors (Rev)
 ISO 10440-2 Rotary PD packaged air compressors
 ISO 10441 Flexible couplings - special
 ISO 10442 Integrally geared air compressors
 ISO 13631 Reciprocating gas compressors
 ISO 13691 High speed enclosed gas units
 ISO 13704 Calculation heat tube thickness
 ISO 13705 Feed headers for general service (Rev)

ISO 13706 Allocated heat exchangers (Rev)
 ISO 13707 Reciprocating compressors
 ISO 13709 Centrifugal pumps
 ISO 13710 Reciprocating positive displacement pumps
 ISO 14591 Flexible couplings - general
 ISO 15547-1 Flow & frame type heat exchangers (Rev)
 ISO 15547-2 Brazed aluminium-alloy type heat exchangers (New)
 ISO 15649 Piping
 ISO 15761 Steel valves DIN 100 and smaller
 ISO 15812 Shell & tube heat exchangers (Rev)
 ISO 17292 Metal ball valves
 ISO 21049 Centrifugal well entry pumps shaft sealing
 ISO 21241 Pressure-relieving and depressuring systems (New)
 ISO/TS 24817 Composite repair of pipelines (New)



ISO 13625 Marine drilling steel couplings
 ISO 19901-2 Wellbore integrity systems (New)



ISO 13819-2 Fixed steel offshore structures
 ISO 19900 Offshore structures - general requirements
 ISO 19901-1 Maximum design and operating conditions (New)
 ISO 19901-2 Seismic design
 ISO 19901-4 Geotechnical and foundation design
 ISO 19901-5 Weight control
 ISO 19901 Fixed concrete offshore structures (New)
 ISO 19904 Floating offshore structures (New)



ISO 3183 Uniquip, Parts 1-3
 ISO 13623 Pipeline transportation systems
 ISO 13847 Pipeline welding
 ISO 14313 Pipeline valves
 ISO 14773 Subsea pipeline valves
 ISO 15589-1 Cathodic protection for ground pipelines
 ISO 15589-2 Cathodic protection for offshore pipelines
 ISO 15590-1 Pipeline inductor bands
 ISO 15590-2 Pipeline fittings
 ISO 15590-3 Pipeline flanges
 ISO 15708 Pipeline reliability-based steel plate design (New)
 ISO 21329 Test procedures for pipeline mechanical connectors

ISO 13628-1 Subsea production systems, Part 1
 ISO 13628-2 Subsea tree and gas control (Rev)
 ISO 13628-3 Subsea TV, purpussow systems
 ISO 13628-4 Subsea wellhead & christmas trees
 ISO 13628-5 Subsea control umbilicals

ISO 13628-6 Subsea production controls (Rev)
 ISO 13628-7 Compressor/wellhead steel system (New)
 ISO 13628-8 ROV interfaces
 ISO 13628-9 ROV intervention systems
 ISO 13628-10 Bonded flexible pipe (New)
 ISO 13628-11 Flexible pipe systems for subsea and marine applications (New)

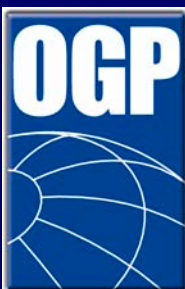
ISO 10405 Control of casing/tubing
 ISO 10407 Drill stem design
 ISO 10414 Field testing of drilling fluids, Part 1-2
 ISO 10416 Drilling fluids - lab testing
 ISO 10417 Subsurface safety valve systems
 ISO 10424 Rotary drill stem elements
 ISO 10425 Threading, gauging and testing of rotary connections (New)
 ISO 10426-1 Well cementing (Rev)
 ISO 10426-2 Testing of well cements (Amendment)
 ISO 10426-3 Testing of deepwater well cement
 ISO 10470-4 Preparation and testing of compressive bonded cement slurries
 ISO 10426-5 Shrinkage and expansion of well cement

ISO 10427-1 Run-in/setting casing centralizers
 ISO 10427-2 Casing air placement and top-order testing
 ISO 10427-3 Performance testing of cement float equipment
 ISO 10432 Subsurface safety valves
 ISO 11960 Coupling and tubing
 ISO 11961 Drilling
 ISO 13501 Drilling fluids (Rev)
 ISO 13501 Drilling fluids processing systems evaluation (New)

ISO 13503-1 Measurement of in-situ properties of completion fluids
 ISO 13503-2 Measurement of properties of brisquips (New)
 ISO 13503-3 Testing of heavy brines (New)
 ISO 13503-4 Measurement of formation & geophysical fluid models (New)
 ISO 13503-5 Measurement of long-term conductivity of geophysical fluids (New)
 ISO 13678 Thread compounds
 ISO 13679 Connection testing
 ISO 13680 CRA stainless tubes for casing and tubing
 ISO 14310 Protectors and bridge plugs
 ISO 15136-1 Progressing cavity pump systems
 ISO 15136-2 Progressing cavity pump systems - drill heads (New)
 ISO 15463 Field inspection of new casing, tubing and pipe and drill pipe
 ISO 15546 Above-ground drilling
 ISO 16070 Lock mandrels and landing nipples (Rev)
 ISO 17078-1 Subsea wellhead



Standards in brown issued in 2005
 Standards in green are a priority for 2006 issue
 Many of these standards are adopted by API, CEN and other recognised standards bodies



- ISO TC67 has published 120 standards.
- API has adopted 48 of these as joint API / ISO standards.
- CEN has adopted 82 of these as joint European EN ISO standards.
- Mexico will hopefully also adopt and use many of these ISO standards.

ISO offers new technology

- Hydro used ISO 13628-series for subsea production installations for the development of the Ormen Lange field (illustration below).
- These ISO standards are developed on the basis of API, NORSOK and other new input.
- API has back-adopted all of the ISO subsea standards.



German DIN survey: Economic benefits of standardization

- Survey of 707 companies in Germany, Austria and Switzerland.
- Strategic benefits of standardization.
- Simplify contractual arrangements.
- Cost reduction.
- Lower accident rates.
- Reducing liability risks.
- Positive influence on innovation.
- Result of macroeconomic analysis show the economic benefit of standardization to be approx. 1% of the gross national product.



COST/BENEFITS FROM ISO STANDARDS

ISO/TC 67 has delivered in the last 5 years over 100 new ISO standards for materials and equipment covering all the main elements of an integrated oil and gas development: from the sub-surface safety valve, through the casing and wellhead, subsea systems, offshore platforms and pipelines to the surface facilities, including pumps, compressors, heat exchangers, valves, piping, etc. These are suitable for E&P, refineries, and petrochemical plants.

These standards will ensure sustainability to the oil and gas industry by providing a means to:

- carry out business efficiently and cost effectively;
- enhance technical integrity, thereby assuring no harm to people, assets or the environment; and
- transfer knowledge and share best practice.

These standards have been developed by, and are being recognized and used in, the 50 member countries of ISO/TC 67. The oil and gas industry spends at least USD 25 billion per year on procurement of materials and equipment covered by ISO standards. Applying common standards saves money in the long haul; saving as little as 1% can save the industry USD 250 million per year. As a global industry trading in international markets - and with international contractors, suppliers and customers, operating in a multitude of different regulatory frameworks - the oil and gas industry deserves International Standards that are relevant to a global market.

Cost/benefit

Total worldwide industry expenditure covered by the 30 key ISO/TC 67 standards = US\$25 billion p.a.

If only 1% is saved by the use of the ISO standards, then:

Benefit = US\$250 million p.a.

Investment to achieve this is:

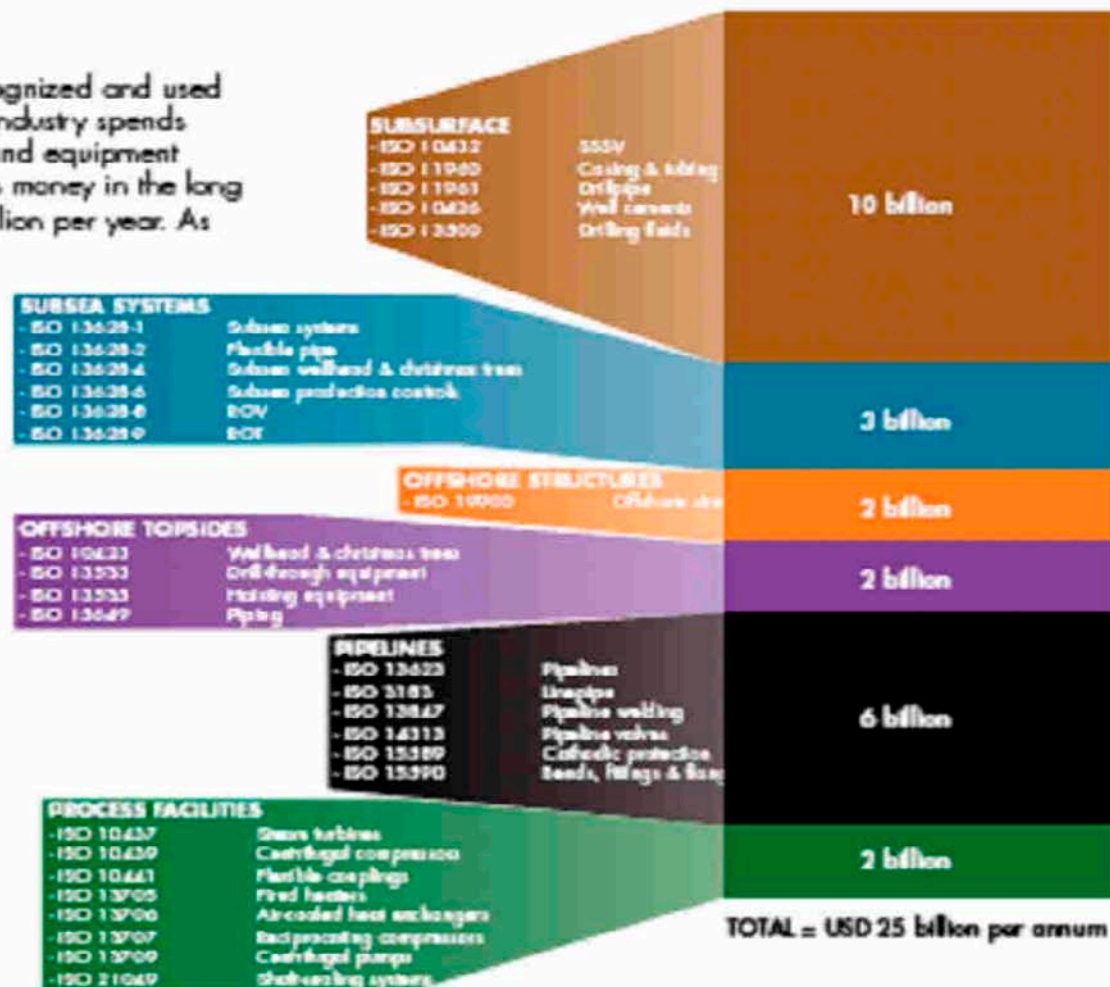
Cost = US\$10 million p.a.

Hence, as Return = Benefit/Cost:

Return = 250/10 = 25:1

Capture the value added
Make use of well over 120 new ISO standards for your own benefit

30 KEY ITEMS FOR ISO/TC67

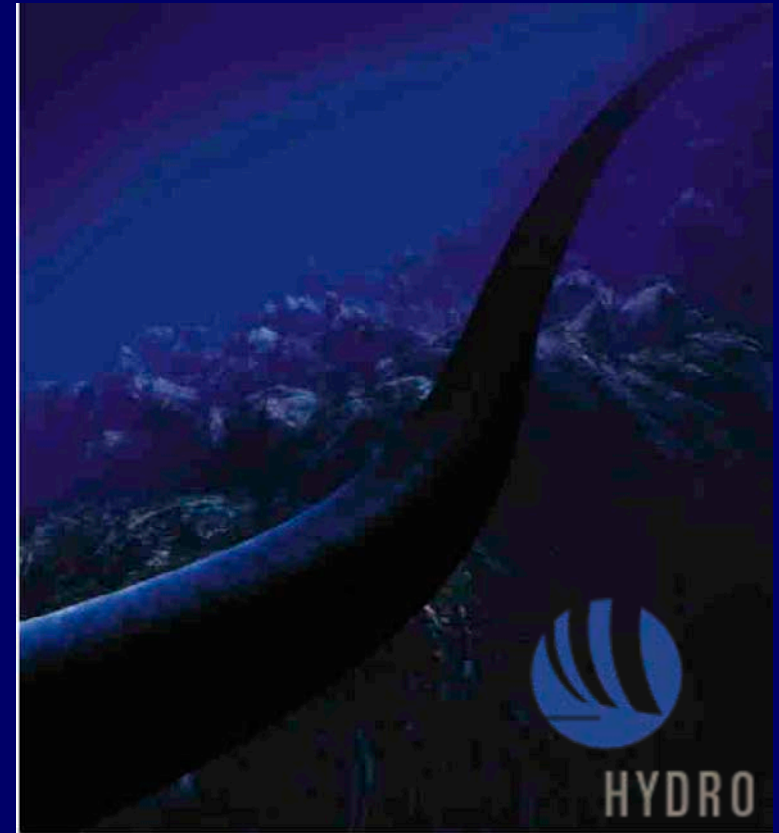
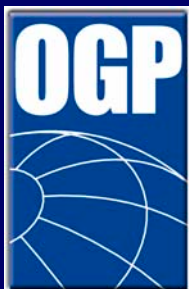


OGP

will hold a session on international standards in conjunction with the International Pipeline Conference to be held in Calgary, Alberta 25 September 2006. The session is being hosted by the ASME and the Canadian Energy Pipeline Association. Invitation is open to all sectors of the oil and gas industry.

ISO offers cost reduction

- ISO 15589-2 for cathodic protection is an example to show that prioritising ISO work offers good results.
- ISO standards developed by international consensus process.
- Use of this ISO standard offers 20 Mill \$ in cost savings in relation to using local Norsok standard M-503 for Hydro's Ormen Lange pipelines.



OGP position on standards

The OGP has been a catalyst for change in industry 's approach to standards and strongly supports the internationalisation of key standards used by the Petroleum and Natural Gas Industries. OGP 's position on standards is:

- development and use of ISO and IEC standards should be promoted
- development of standards should be based on a consensus of need
- “users” should be represented on standards work groups
- duplication of effort should be avoided
- standards should be simple and fit for purpose
- International standards should be used without modification wherever possible
- company specifications should be minimised and written, where possible, as functional requirements.



The adoption of this approach is expected to minimise barriers to trade, enable more efficient worldwide operations, and improve the technical integrity of equipment, materials, and offshore structures used by the Petroleum and Natural Gas Industries.

Key note:

Join the ISO/IEC global standards
work

&

Capture the value added by making
use of the new ISO/IEC standards for
the oil & gas industry

www.iso.org / www.iec.ch





Global
Standards
Used Locally
Worldwide

