

Delivering a low carbon future - call for participation

A look at IOGP's planned
low carbon activities in the
next two years – and how
you can participate



We are the global voice of our industry,
pioneering excellence in safe, efficient, and sustainable energy supply
- an enabling partner for a low carbon future



Dear IOGP Members,

Tackling climate change and achieving a low carbon future while meeting global energy demand is one of the greatest challenges of our lifetime.

We all – the industry, governments, and society - have a responsibility to help achieve the Paris Agreement goals.

During the IOGP Strategic Review conducted over the last few months, your feedback has provided us with a clear message: that you wish IOGP to step up as a catalyst and an enabler to help the industry drive the ongoing and future low carbon activities. As the global voice of our industry, we will contribute to a low carbon future, at an even greater pace, and help the world move towards its target.

To meet these goals across the global upstream oil and gas industry there is a **need for**:

- **transformative lower carbon technologies** for new and existing assets
- **rapid adoption, standardization, and repeatability** to enable massive scale up across the whole industry globally
- **optimization of resources, collaboration and co-ordination among the multitude of different players, and targeted initiatives** and efforts in priority areas
- **support and alignment from other sectors and stakeholders** and a cultural shift, requiring an institutionalization of new norms

Whilst IOGP has supported its Members on various greenhouse gas emissions reductions activities over many years, IOGP's Engineering Leadership Council (ELC) decided in November 2019 to lead an initiative, co-sponsored by the IOGP Environment and Standards Committees, to explore how standards and operator sharing and collaboration could contribute towards the Low Carbon Agenda.

This document:

- **provides an overview** of the outcome of the extensive mapping, scoping and opportunity framing activities undertaken over the last 18 months
- **presents IOGP's portfolio of ongoing and planned activities** to support its members and the wider oil and gas industry to deploy transformative technologies to contribute to a low carbon future
- **demonstrates IOGP's experience with standardization** and other key differentiators
- **outlines the value and benefits** to our Members and the wider industry from execution and delivery of this programme
- **invites you to join** and explains how you can play your part

Inclusivity of the multitude of different players active in the low carbon arena was a key goal of ours while we were scoping and framing the activities described in this document. Identifying opportunities for collaboration has been and will continue to be a high priority.

IOGP is uniquely placed to drive collaboration across the industry, including via Standards Developing Organizations, to ensure we can learn and benefit from the knowledge of those at the forefront of these efforts.

There is a need for urgency. We invite you to join this initiative and become part of the collaboration to achieve a low carbon future, which will be led by our new Energy Transition Director, Concetto Fischetti, starting in September 2021.

Please get in contact with **Adri Postema** (Engineering Director, email: ap@iogp.org) and **Concetto Fischetti** (Energy Transition Director, email: cf@iogp.org) to express your interest and get more details on the terms and conditions for participation.

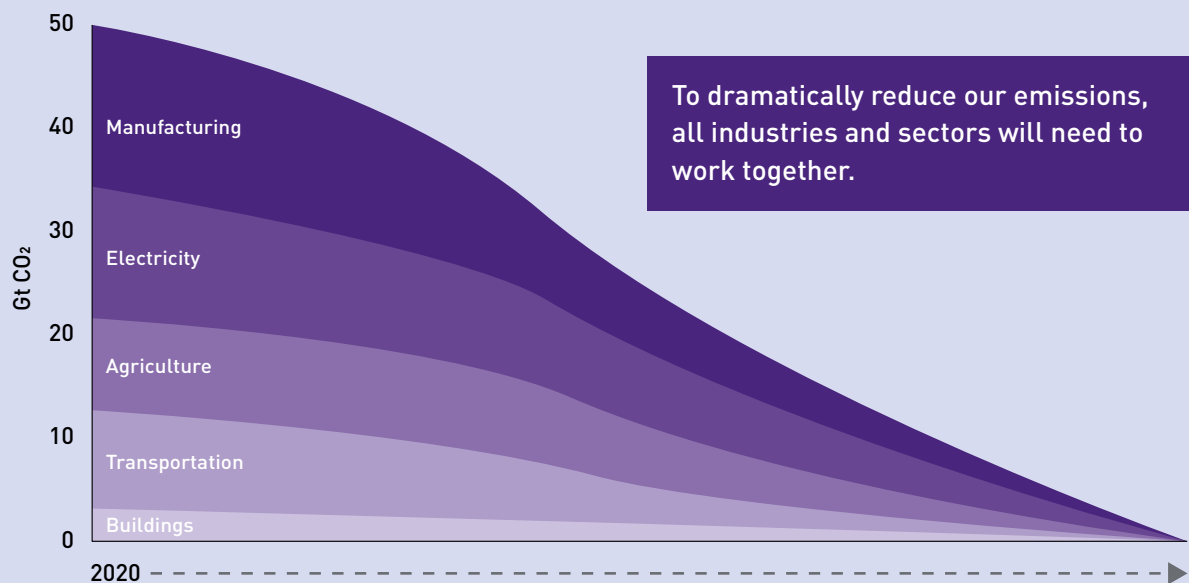
Looking forward to working closely with you and your colleagues.



Iman Hill
Executive Director

The Challenge: a low carbon future

We live in a world where 51 billion tons of greenhouse gases are added to the atmosphere every year. As society moves towards a low carbon future, our industry will still be responsible for meeting the planet's basic energy needs and creating a world where everyone has access to clean, reliable, and affordable energy.



How the oil and gas industry contributes to a low carbon future

There is no single pathway to a low carbon future.

The oil and gas industry contributes in many ways to achieving the goals of the Paris Agreement.



**REDUCE
EMISSIONS
IN OPERATIONS**



**REDUCE
FLARING**



**COAL TO
GAS SWITCH**



**INVESTMENT IN
RENEWABLES**



**CARBON
CAPTURE
(UTILIZATION)
AND STORAGE**



**CLEAN
HYDROGEN**

Why IOGP?

8 key strengths and differentiators

1 Global voice of the upstream industry

IOGP speaks on behalf of a global membership with around 80 of the world's leading publicly traded, private, and state-owned oil and gas companies, as well as industry associations and major upstream service companies representing nearly half of global oil and gas production.

IOGP aims to enhance the understanding of the contribution oil and gas make (to meet global energy demand and as feedstock for the industry) as well as the critical role the oil and gas industry plays in the energy transition to a low carbon future.

2 Engineering Leadership Council

The ELC brings together the heads of engineering from 12 major operator companies to lead and drive a collaborative engineering agenda across the industry. This is supported by the World Economic Forum's Capital Value Complexity work stream. The ELC has an advisory position reporting to the IOGP Management Committee and meets at least three times per year.

3 Engineering standardization experience

The IOGP Standards Committee promotes and enables the creation of a single set of international standards that can be recognized globally and used locally worldwide.

IOGP's Joint Industry Programme 33: Standardizing Procurement Specifications, established in 2016, develops standardized specifications that enable the industry supply chain to become better, cheaper, and faster. More than 40 specifications have been published to date and are already delivering benefits for users worldwide and are making a step-change improvement in the specification, procurement, and delivery of equipment for the oil and gas industry.

4 Liaisons with Standards Developing Organizations

IOGP liaises with key Standards Developing Organizations relevant to the upstream industry such as the International Organization for Standardization ISO (ISO/TC 67, ISO/TC 147, ISO/TC 35), the European Committee for Standardization CEN (CEN/TC12), and the International Electrotechnical Commission IEC (IEC/TC 18, IEC/TC 65).

IOGP also has a Memorandum of Understanding (MoU) with the American Petroleum Institute (API) and an agreement to use API content in the development of new standards under the IOGP Standards Solution umbrella.

5 Access to industry experts in full range of upstream disciplines

For over 47 years, IOGP has served the upstream industry as a unique forum to share know-how and good practices. We work with around 2000 experts from our Member Organizations in 11 committees covering a range of upstream disciplines including safety, health, environment, security, geomatics, metocean, well control, decommissioning, subsea and engineering standards, and advisory councils for communications and legal.

6 Connect with supply chain and other strategic partnerships

Through JIP33, IOGP has established efficient working relationships with major Engineering Procurement Contractors (EPCs) and other supply chain partners to coordinate efforts to develop and continuously improve specifications. User experience is shared and discussed to improve sector-wide value generation from the program.

7 Global and regional advocacy

We advocate on behalf of the industry engaging in a variety of global and regional bodies including UN agencies, the World Bank, the ISO, the International Regulators' Forum, regional seas conventions such as OSPAR, Barcelona, and Abidjan, as well as the European Union and its policymakers.

8 Annual GHG and Environment Performance Indicator benchmarking

IOGP has the largest industry database of safety and environmental performance data. Environmental performance data has been collected from IOGP Member Companies every year since 1999, including gaseous emissions (CO₂, CH₄, GHG, NMVOCs, SO₂, NO_x), energy consumption, and flaring. Data is collected on the basis of a set of definitions, aligned with IPIECA/API/IOGP oil and gas industry reporting guidance, with user guides reviewed and updated regularly. The data series is presented online at <https://data.iogp.org>

Low carbon agenda journey



Ongoing and proposed work plan

Low carbon work program

The most consistent and widespread message arising from the Strategic Review was the call to action from our Members for IOGP to tangibly accelerate our Low Carbon work program, which began in 2020. This is a central pillar of our business plan going forward. The deliverables of this program have been purposefully and deliberately designed and agreed, in an inclusive process with Member SMEs as well as colleagues from other associations, to have the highest impact and value to Members as quickly as possible.

In the following pages, we have highlighted a range of ongoing low carbon work taking place within IOGP, followed by the four prioritized delivery themes.

Increasing value from integration, simplification and efficiency

As we move forward with the implementation of the Strategic Review recommendations, we will be identifying additional opportunities for integration with cross-committee work. Examples of this include delivering integrated products that rely on cross-functional work from the Environment, Subsea, and Geomatics committees. Simplification of our work processes to drive further efficiencies is an imperative. As a Secretariat we see this as a priority that runs alongside the delivery of our business plans.

Agility, foresight, and thought leadership

Recognizing that the rapid pace of external change is not going to slow down, we aim to be an even more flexible and agile organization. We believe it is important to provide our Members with proactive and early input of the issues and challenges that may arise to affect their business. Whenever possible we will ensure that we distil the 'so what?' from our engagements with regulators, governments, and other decision-making stakeholders to aid our Members in mapping out potential future trends.

Digitalization – as a value creator and enabler

Our approach to digitalization is not 'digitalization for digitalization's sake' but rather as the underlying enabler to create business value for our members. Therefore, going forward, this will be a theme running throughout all our work, with each Directorate identifying the opportunities for digitalization as they execute their work programs. The Global Equipment Hub pilot linked to JIP33 exemplifies our approach.

Advocacy

For 47 years, IOGP has been recognized as the global voice of the industry. Our Members confirmed their appreciation for the effectiveness of our engagement with regulators and governments in survey responses and interview answers during the Strategic Review. However, our Members have asked us to do more and to be more global and vocal in our approach. IOGP's strength lies in the fact that our advocacy is based on sound data, science, and facts.

Our team in Brussels works to secure an inclusive and enabling policy framework that allows our industry to continue playing its role in helping reach regulators' and governments' climate objectives.

The most recent example of this is the 'Hydrogen for Europe Study' which has provided a solid factual platform from which we can discuss the important role of blue hydrogen in achieving the European Commission's 2050 targets. We will also shortly release our "Re-Stream" study on the repurposing of European oil and gas pipelines to CO₂ or H₂ transportation pipelines. We are carrying out important regulatory work to ensure low carbon technologies and products can be used in the transition. We are also intensifying our advocacy for the transition role of natural gas and Carbon Capture and Storage (CCS).

Our aim, through the prioritized low carbon themes, is to be able to supply data and deliverables that meet policymakers needs.

On the horizon...

We will continue to be opportunistic where it makes sense to do so to solve an intransigent industry issue without taking our eye off the ball of business plan delivery. Our work in Blue Hydrogen will also ramp up, beginning with a framing of the opportunity, and the setting of priorities.



Iman Hill
Executive Director



Concetto Fischetti
Energy Transition Director

Ongoing low carbon work

Environment

Wendy Brown, Environment Director *[Outgoing]*



Whilst the Environment Committee has supported its Members on various greenhouse gas emissions reductions activities over many years (particularly in the areas of methane, flaring, and energy efficiency), the Environment Committee currently has several significant work items that integrate well into the four priority IOGP Low Carbon themes:

Methane Recommended Practices Task Force (joint between IOGP Environment and Geomatics Committees)

In collaboration with OGCI and IPIECA, we are leading the work on development of Recommended Practices for Methane Emissions Detection to be published in the coming year – this will allow operators to understand how to apply different combinations of detection technologies and should help to improve the robustness of identifying methane emissions, and consequently achieve more effective mitigation action. The next phase will be to develop a Recommended Practices for Methane Emissions Quantification in 2022.

Methane Guiding Principles

IOGP has been a supporting organization to the Methane Guiding Principles since 2018, and is contributing a range of good practice guidance, including guidelines for methane emissions target setting. We're also initiating an ambitious global outreach programme to embed methane management best practices within operations of oil and gas companies worldwide, leveraging the MGP network and other industry organizations to ensure that every oil and gas company worldwide has a Methane Action Plan, as soon as possible.

Flaring Management Guidance

In collaboration with IPIECA and the World Bank's Global Gas Flaring Reduction (GGFR) Partnership, we will be publishing an updated Flaring Management Guideline in 2021 that will be relevant for government and regulatory bodies, as well as the oil and gas industry to help them achieve Zero Routine Flaring by 2030.

Energy Efficiency Indicator Task Force

Established in 2018, the objective of this Task Force was to develop an upstream EE and GHG Indicator to enable identification of energy efficiency improvement opportunities. Following an initial workshop conducted with Task Force Members to share experience and practice in energy benchmarking and indicators, a pilot exercise was conducted with Task Force Members and 3 external benchmarking providers (Juran/KBC, McKinsey, Solomon) to understand data requirements and normalizing 'index' methodologies and their approaches to upstream energy benchmarking. Close-out workshops with providers have been completed and a further TF workshop is planned to determine next steps.

CCS Monitoring Task Force (joint between IOGP Environment, Geomatics and Metocean Committees)

We have recently kicked off work to develop an industry Guideline for seabed and overburden integrity monitoring for marine CO₂ storage projects, with goal to allow operators to build technical specifications for the conduct of near surface site characterization/baseline and risk-based monitoring of CO₂ storage. Publication will be in 2022.

Decommissioning

The Decommissioning Committee will continue to actively participate in the regional seas convention meetings where Decommissioning is becoming a focus topic. The Committee will continue to work closely with IOGP Environment to support advocacy for policies that support asset repurpose as an option for decommissioning, including for CCS and H₂, reaching out to technical expertise within the Committee to address any concerns. It will continue to monitor and share decommissioning technologies that enable energy efficient execution.

Metocean

The technical work of the Metocean Committee (including the output of the externally managed Metocean JIPs) is adaptable for use with activities in the renewables sector, such as offshore wind. For more information, see the Extreme and Normal Offshore Wind (ENOW) Joint Industry Programme (JIP) - <https://www.oceananalysis.com/enow>.

Ongoing low carbon work

Engineering

Adri Postema, Engineering Director & JIP33 Project Director



Standards

Standards subcommittees support IOGP's energy transition activities. The JIP33 Standardization Programme operating under the Standards Committee prioritizes equipment topics relevant to energy transition.

Geomatics

Geomatics Committee standards, guidelines, and data models are easily adaptable for use in other energy industries, CCUS activities, and CO₂ reduction. In 2021, Geomatics will host a webinar titled '[Geomatics in a low carbon future: emerging technologies for deepwater surveys and geospatial operations](#)'.

Subsea

Following a workshop in April 2021 on CO₂-reduction and remote inspection with Members and the vendor community, the Subsea Committee determined that its priority focus should be providing support in the CCS space, and understanding that space's equipment, standards, and specifications requirements. A further workshop is planned for October 2021.

Safety

Olav Skår, Health, Safety, Security & Wells Director



Wells

Feedback from the Low Carbon scoping exercise identified the potential opportunity for reduction of GHG emissions from drilling activities, for instance from the hybridisation or electrification of drilling rigs and the reduction of flaring during well testing or completions of new wells. It was concluded that whilst multiple operators are already focussing on these improvement opportunities, that a more co-ordinated approach would have greater impact on progress with third party drilling contractors. Therefore, a future activity is planned to involve IOGP member company

Drilling and Completions experts, together with relevant industry groups e.g., International Association of Drilling Contractors (IADC), and their members, to develop a framework for a Drilling Low Carbon work group.

As CCUS uptake increases, the industry will inevitably encounter well control issues, and will require equipment that is designed for CO₂. The WEC will investigate likely paths for next generation reliability improvements in well control systems.

Energy Transition

Concetto Fischetti, Energy Transition Director (*Incoming as of September 2021*)



While the precise structure of the new Energy Transition Directorate is still being fine-tuned, the low carbon prioritized opportunities that have been framed during the Strategic Review, and which are detailed in the following pages, will be within its remit.

It was established that there is a need for a cultural shift across not just design engineering disciplines, but also operator organizational departments to consider the low carbon agenda

in their routine activities. This would involve sharing experiences and raising awareness of existing resources / tools to formulate best practices to achieve this cultural shift in energy culture across all activities within the oil and gas industry.

Thanks to the valuable input of our Members, our newest Directorate will be able to coordinate these varied activities to deliver performance improvements within our Membership and the industry at large.

Prioritized delivery themes

1. Carbon Capture and Storage



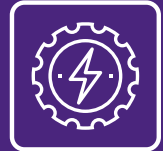
PROJECT MISSION

To enable readiness for widespread, efficient deployment of CCS, including capture, transportation, injection, and storage of carbon dioxide, through shared knowledge, expertise, and standards.

Time-frame	Deliverable	Description
2021	CCS standards and guides	Existing standards relevant to CCS (including capture, treating, transportation, storage, and monitoring) will be reviewed and proposals developed for amendments to existing standards and for new standards needed to support widespread deployment of CCS. This review starts with identifying relevant standards, recommended practices and guides, and considers operators' practical experience, internal specifications, and best practices where available and applicable.
2021/22	Recommended Practice(s) for Measuring, Monitoring and Verification (MMV) Plans	A Recommended Practice(s) for Measuring, Monitoring and Verification (MMV) Plans. This includes cost-effective monitoring post-injection and closure to mitigate long term storage liabilities. It will address differences between storage of CO ₂ in saline aquifers and depleted reservoirs and cover plume migration related to reservoir and seabed storage complexes.
2022	A common methodology to address evaluation of net CO ₂ avoidance to atmosphere	A common methodology to address evaluation of net CO ₂ avoidance to atmosphere based on life-cycle approach (LCA).
2022	Risk Assessment tools/checklists for CCS storage projects	Risk Assessment tools/checklists for CCS storage projects. Provide input to ISO/TC265/WG 5 to drive and steer delivery of CCS standards in this area.
2023	A standard economic methodology to compare different CCS capture technologies	A standard economic methodology to compare different CCS capture technologies (within upstream oil and gas, onshore/offshore scope).

Prioritized delivery themes

2. Electrification



PROJECT MISSION

To unlock potential economic electrification schemes which reduce greenhouse gas emissions for existing and greenfield onshore and offshore/floater oil and gas assets, through shared knowledge, expertise, and standards.

Time-frame	Deliverable	Description
2021	Lessons Learned Report from pre-selected existing operations	Report on the lessons learned from pre-selected existing operations and their identified opportunities, including the review of relevant industry documentation (including operators' internal specifications), and gap analysis in design integration standards, equipment specifications, and operational best practices.
2021/22	Recommended Practices for assessment, development, and delivery of electrification schemes for existing and new assets	One or more Recommended Practices on the approach for the assessment, development and delivery of electrification schemes for existing (brownfield) and new assets (greenfield). This includes the approach to risk and criticality assessment, available supporting tools, etc.
2022	Technology Deployment Catalogue	A catalogue of existing available options/technologies, including design and integration data, with relevant detail coming from operator-use experience, OEMs, suppliers, and technology licensors.
2023	Early Concept Screening Methodology	A methodology for early concept screening (including carbon footprint) in various regional and operational envelopes. Infrastructure options, operating philosophies, and local needs will be considered during an overall high-level project concept screening.
2023	Specific Project Screening Methodology	A methodology for screening lifecycle (capex, opex, carbon) power supply options. This includes the development of screening values based on recent technical, emissions, and economic data benchmarks and standardized definitions (e.g., owner's costs, abatement costs) to enable specific project screening.

Prioritized delivery themes

3. Energy Efficiency



PROJECT MISSION

To drive widespread implementation of energy efficiency/ optimization technologies and practices which reduce greenhouse gas emissions for existing and new offshore and onshore oil and gas facilities, through shared knowledge, expertise, and standards.

Time-frame	Deliverable	Description
2021	Lessons learned from optimization of energy in design and operations	A series of workshops to share recent experiences and lessons learned for optimized design and operations.
2021/22	Compendium of energy and GHG efficient technologies and practices	The existing online IPIECA/IOGP database, comprising 29 solutions, will be updated and deployment experiences incorporated. Other Best Available Technologies will be added.
2022	KPIs and leading/lagging metrics for management of energy efficiency	Appropriate KPIs and metrics will be established, likely including both asset level and system/equipment level, including baselines, e.g., for suction and discharge pressure of compressors, flowrate, recycling, and inlet temperature. This builds on the work of the IOGP Energy Efficiency Indicator Task Force (EEI TF), which included a pilot exercise with third-party benchmarking providers.
2023	Operational Best Practices for energy management and optimization	<p>Practices would include the efficient use of fuel consumption metering and monitoring and energy in gas turbines, compressors, pumps, and cooling and heating.</p> <p>It will also include methodology/guidelines for energy assessment/audit, and for measurement and verification of benefits from energy efficiency projects, with an explicit link with GHG emissions savings, specifically for upstream oil and gas businesses.</p>

Prioritized delivery themes

4. Flares & Vents



PROJECT MISSION

To drive widespread implementation of flaring and venting avoidance or abatement technologies and practices which reduce greenhouse gas emissions for existing and new offshore and onshore oil and gas facilities, through shared knowledge, expertise, and standards.

Time-frame	Deliverable	Description
2021/22	Recommended Practices for design and operation of flare gas recovery systems	Recommended Practices document that focuses on continuous flaring sources in normal operations (including purge volumes) and will address measures for source recovery and application of flare closure (such as via a seal device or a valve) and flare ignition systems.
2022	Recommended Practices for design and operation to minimize/avoid flaring sources	The 'Flaring Management Guidance' (FMG) document in development by IPIECA, IOGP and GGFR will provide a valuable high level overall framework for gas management. This Recommended Practices will provide further design definition and operational philosophies to benchmark flare management related design concepts and share learnings for the design of and potential retrofit of facilities.
2023	Database with typical venting situations and their possible solutions	A database with typical venting situations, and their possible technology solutions for retrofit and new build assets, including adoption barriers and options to remove these barriers.
2023	Series of guidelines on how to capture vent streams	A series of practical guidelines on how to capture vent streams using existing technology. These process development guidelines cover specific situations, like on cargo tanks on a FPSO. They will present project designers with a list of considerations to be evaluated along with solutions for vent stream capture, such as membranes, hydrocarbon blanketing, and compression.

Call for participation – Benefits to industry and participants

Opportunity to learn from other operators' deployment experiences

Opportunity to collaborate with other sectors, e.g., renewables/electrification

Be part of deep technical discussions and workshops with
other leading oil and gas companies in the world

Learn from sharing operational experiences from pioneering companies

Have early access to draft publications

Reduce GHG emissions

Improve ESG performance

Lower project costs and shorten project timelines

Reduce risks/uncertainties

Opportunity to speed up rapid adoption/upscaling across industry

Join the voice of the industry and be part of the solution

Contribute to an industry-led energy transition

Lead instead of follow

Please get in contact with **Adri Postema** (Engineering Director, email: ap@iogp.org) and **Concetto Fischetti** (Energy Transition Director, email: cf@iogp.org) to express your interest and get more details on the terms and conditions for participation.

Collaboration is an IOGP core value...

IOGP plans to collaborate with the following bodies to ensure standards and regulations relevant to the industry are of the highest quality and drive continuous performance improvement across the industry.

- API (American Petroleum Institute)
- CCAC (Climate and Clean Air Coalition)
- CCSA (Carbon Capture and Storage Association)
- CEN (European Committee for Standardization)
- CSA (Canadian Standards Association)
- DNV
- EDF (Environmental Defense Fund)
- EI (Energy Institute)
- European Commission
- GCCSI (Global Carbon Capture and Storage Institute)
- GGFR (Global Gas Flaring Reduction Partnership)
- GIE (Gas Infrastructure Europe)
- IDRIC (The UK Industrial Decarbonisation Research and Innovation Centre)
- IEA (International Energy Agency)
- IEAGHG (International Energy Agency Greenhouse Gas R&D Programme)
- IEC (International Electrotechnical Commission)
- IPA (Independent Project Analysis, Inc.)
- IPIECA
- ISO (International Organization for Standardization)
- ITRC (Interstate Technology and Regulatory Council)
- Marcogaz (Technical Association of the European Gas Association)
- MGP (Methane Guiding Principles)
- NEA (Norwegian Environment Agency)
- NEN (the Royal Netherlands Standardization Institute Foundation)
- Net Zero Technology Centre
- NFPA (National Fire Protection Association)
- North Sea Energy
- OGCI (Oil and Gas Climate Initiative)
- Oil and Gas Authority, UK
- ONE Future Coalition
- Standards Norway
- TEP (The Environmental Partnership of API)
- UL Standards
- UNECE (UN Economic Commission for Europe)
- UNEP (United Nations Environment Programme)
- US National Academies
- WEF (World Economic Forum)
- ZEP (Zero Emissions Platform)

*If we are together nothing is impossible.
If we are divided all will fail.*

Winston Churchill

IOGP Membership

Members – Upstream Companies



Members – National and Other Associations



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