



Technical
Innovation

Our knowledge + your experience

The value of Technical +
Innovation membership



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We're stronger



together

We are the independent custodians of technical and innovation expertise for the global energy sector – let's show how you can be part of it.





The Energy Institute and where we fit

The Energy Institute (EI) exists to support a safe, secure and sustainable energy system for the benefit of society. As the global energy landscape undergoes profound change, the role of robust technical expertise and purposeful innovation has never been more important. Our Technical + Innovation Programme sits at the heart of this mission.

Through this programme, the EI brings together industry, and practitioners to address the most critical challenges facing the energy system today. From managing legacy infrastructure and improving operational safety, to enabling new technologies and accelerating the low carbon energy transition, our work is grounded in evidence, collaboration and practical impact.

The EI's unique strength lies in its independence and its convening power. We are trusted to oversee the development of high-quality technical guidance, standards and insights that are credible, balanced and globally relevant. At the

same time, we provide a platform for innovation, supporting the development, testing and adoption of new ideas that can deliver real-world solutions at scale.

This prospectus sets out how our Technical and Innovation Programme creates value: by reducing risk, improving performance, and helping organisations navigate complexity with confidence. Whether you are developing emerging technologies, operating critical assets, or shaping future trends, partnership with the EI offers access to expertise, networks and influence that can accelerate progress.

I invite you to explore the opportunities outlined here and to work with us in shaping a secure energy system that is fit for the future.

**Nick Wayth CEng FEI FIMechE,
Chief Executive at the Energy Institute**

The Energy Institute and where our Partners and Members fit

Our Purpose

The Energy Institute (EI) is the chartered professional membership body for people who work across the world of energy. We exist to create a better energy future for our members and society by accelerating a just global energy transition to net zero.

We do this in three ways



1

Developing
the future
energy
workforce

2

Bringing
together
expertise and
advice

3

Supporting
industry
operations



Technical + Innovation membership will help accelerate the energy transition through member collaboration, dialogue with regulators, academia and wider stakeholders. You will benefit from access to a wide range of standards and good practice materials to ensure industry operations are sustainable, efficient and safe.

The memory and heart of our industry

The Energy Institute (EI) is working to create a better energy future. As Chairperson of the EI's Scientific and Technical Advisory Committee (STAC), which governs the EI Technical + Innovation programme, I am delighted to invite and encourage you to join our independent, collaborative, not-for-profit membership organisation. We are dedicated to creating a better energy future for our members and society by accelerating a just global energy transition.

Above all, we are the memory and the heart of our industry. We are funded and supported by technical company members and partners operating in 120 countries. We produce research on health, safety, environment and quality (HSEQ) issues and set standards and good practice in support of safe and responsible generation of energy. Our members and partners from across the energy world benefit hugely from participation in, and access to, our technical and innovation work. Our programme is devised by the industry, for industry, with the purpose of facilitating a safe, sustainable and efficient transition to a low-carbon

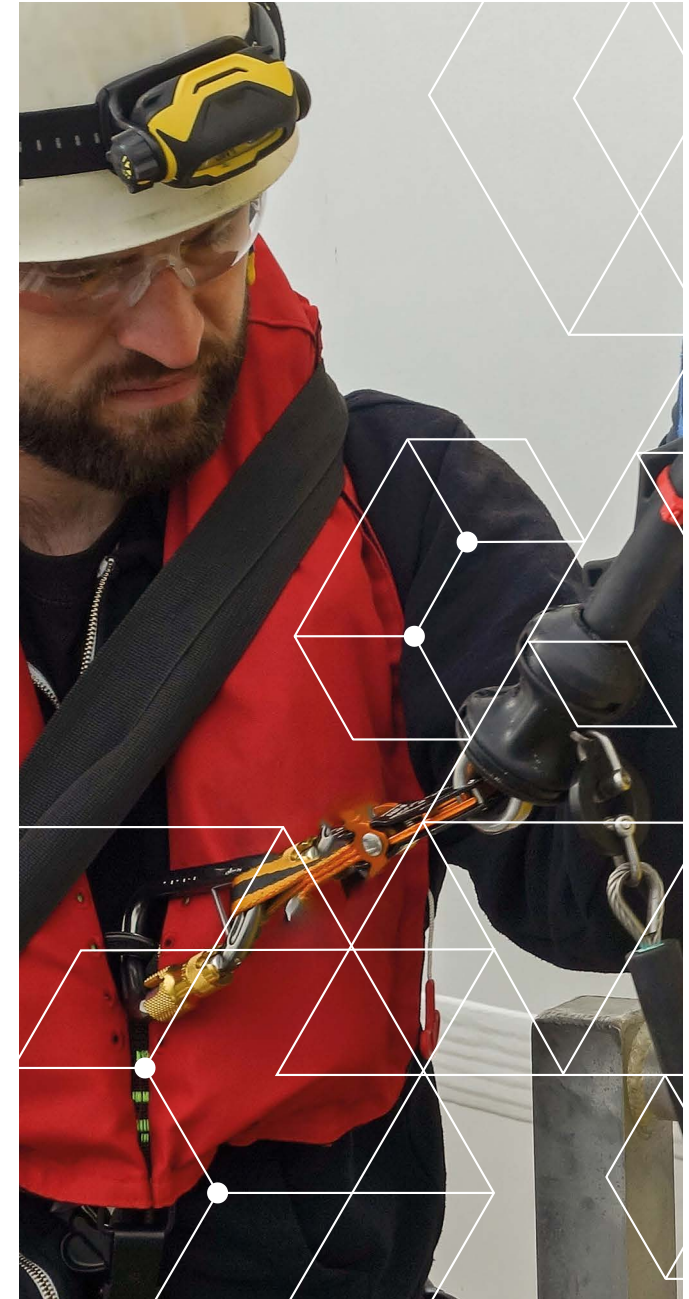
world. Independent auditing shows that for every £1, \$1 or ¥ 1 invested in EI membership, 50 comes back in added-value impact.

This prospectus has been designed to help you understand the benefits for your organisation. As a Technical Partner or Technical Company Member, you can demonstrate your commitment to high standards, access extensive resources to improve your business performance and have a real voice in the future of our sector.

Join us. As much as our members value the EI, we value their membership. Only through collaboration can we fulfil our purpose as an organisation, accelerate the global energy transition and ensure security of the energy system.



Lisa Rebora FEI, STAC
Chairperson and Senior Vice
President of Emerging and
Future Business, Equinor



Technical + Innovation, what we do...

We are the independent custodians of technical and innovation expertise for the global energy sector. Our aim is to help our rapidly changing sector move towards a safer, lower carbon future.

As a membership organisation, we are the memory and the heart of our industry. Through technical collaboration we not only set standards and good practice, we also generate and share objective, authoritative and trusted guidance and resources that strengthen our members' licence to operate and organisational performance.

How we do this:

- \$2.5M in technical research funding every year
- Over 30 new projects each year
- Funded by 60+ Technical Partners and Technical Company Members
- 70+ industry standards and good practice documents and other resources published each year
- Work delivered collaboratively by bringing together Technical Partners and Technical Company Members, industry, regulators, trade associations and academia
- 1,000+ representatives from industry, working together through 100+ committees and working groups



What makes us different?

- We are an independent, not-for-profit, trusted partner, facilitating open and collaborative dialogue between members, regulators and wider industry stakeholders
- Our work is based on technical evidence and broad consensus, and because of that is accepted as representing the industry benchmark, both by the industry itself, and regulators
- We work across the breadth and depth of the energy sector, from oil and gas to renewables, upstream to downstream
- We operate globally, bringing representatives together from across the world to tackle issues that affect everyone

Our Technical Partners and Technical Company Members



In numbers

One



dedicated team supporting the global energy industry

A portfolio of **750+**



titles, with 100,000+ wider industry resources via the EI Knowledge Service

Funding



\$2.5M

in technical research every year

Over



1,900+

industry representatives

120



countries in which Technical Partners and Technical Company members are using EI technical content

Over

70+



technical resources published each year

Over

130,000

different users of toolbox LFI App each year



Supported by almost

100

Technical Partners



Why become a member?

Bringing people together⁺

Measuring value

- Make your voice heard
- Access 100+ years of industry knowledge and experience
- Lead the energy transition
- Develop your talent



Why become a member?

Making your voice heard

The EI's Technical + Innovation programme is for the industry, by the industry, and that means members have a real voice in the future of the global energy sector.

Technical + Innovation membership allows you to actively participate in our work programme so your organisation doesn't get left behind:

- Help set the industry standard
- Learn from and share with your peers
- Forge relationships with other leading organisations

With technical membership you will:

- Influence our strategic priorities
- Help define our yearly projects
- Ensure common industry working practices are optimum and effective for your organisation's needs
- Feed into government consultations through EI industry-wide responses
- Ensure your organisational interests are fully represented



Why become a member?

Access 100⁺ years of industry knowledge and experience

We offer a practical hub of technical excellence for our industry. We develop and share comprehensive, objective and authoritative resources that ensure the highest standards of health, safety, environmental protection, sustainability and operational efficiency are met.

Our resources are used by frontline workers, subject matter experts, technicians, engineers, HSE managers and facility managers in a wide range of organisations across the full breadth of the energy sector.

Technical Partners and Technical Company Members can benefit from:

- Global, unrestricted, free access up to 750+ standards and good practice resources for all staff in your organisation, developed by the industry's leading experts
- Direct and participate in our Technical + Innovation work programme
- Learn from the Toolbox safety app – our easy-to-use app delivers lessons from health and safety incidents shared by global energy companies
- Access to the EI Statistical Review of World Energy, the globally respected source of energy production, consumption, trade and emissions data
- Involvement in International Energy Week, the EI-hosted annual event convening leaders and influencers from across industry, governments, NGOs and academia
- Keep up to date with the weekly digital magazine *New Energy World*, providing members with an unrivalled window on the world of energy
- Access mentoring and training to support the professional development of your staff – the EI is a Royal Chartered professional membership organisation

Why become a member?

Help drive change

The energy transition is the biggest challenge of our time and it can only be realised by working together

In an uncertain and challenging time of fundamental change, the EI is playing a proactive and leading technical role in accelerating the energy transition to net zero.

No one organisation or specialist trade body can understand the necessary technology, capabilities and broader supply-chain integrations we need to transition to new sources of energy.

By bringing together industry expertise, we are developing the knowledge and building the capabilities our industry and society need in order to change quickly, safely and in a just way.

With technical membership you will:

- Share your challenges
- Benefit from this evolving expertise
- Play a key role in generating solutions
- Build your internal capabilities



Why become a member?

Shaping the talent transition

As a global leader in energy training we give Technical + Innovation members access to expert knowledge, training and tools that can hugely benefit their employees, both professionally and personally.

We offer:

- Career-enhancing professional membership and registrations, including CEng, IEng, EngTech, Chartered Energy Manager and Chartered Environmentalist
- EI Academy offering classroom and online training courses, from energy management to health and safety and risk management
- Accredited courses in universities and other educational establishments around the world
- Access to EI Connect, our mentoring service designed to connect you with other energy professionals to share knowledge and experience
- Recognition through the prestigious annual International Energy Awards



Why become a member?

Join us

Membership can be tailored so that it is right for you and your organisation. There are two tiers of membership:

Membership packages

	Technical Partner	Technical Company Member
Govern our T+I work programme by participating in our Scientific and Technical Advisory Committee	Yes	No
Participate in specific development projects undertaken by committees on a collaborative basis	Yes	Selected work areas only
Free access to 750+ EI standards and good practice resources	Yes	Selected work areas only
Access to our professional membership services for your staff	Yes	Yes
Discounts on our training courses and events	Yes	Yes
Access to EI <i>New Energy World</i> digital magazine	Yes	Yes
Price per year	From £60,000	From £10,000 to £35,000 depending on topic area

Why become a member?

Technical + Innovation

at a glance...

The Technical + Innovation work programme can be broadly split into three overlapping areas:



The energy transition

Carbon capture, usage and storage

Hydrogen

Power systems

Onshore wind

Offshore wind



Health, safety and environment

Health

Human and organisational factors

Process safety

Asset integrity and life extension

Environment and sustainability



Fuel quality and management

Aviation fuel handling

Fuels distribution

Hydrocarbon management

Test methods standardisation

The energy transition

The energy transition is integrated into all of our work streams, and is core to the EI's purpose. However, we also have dedicated committees focusing on key energy transition topics:

- Carbon capture, utilisation and storage
- Hydrogen
- Power systems
- Offshore wind
- Onshore wind



CCUS (carbon capture usage and storage)

Facilitating the expansion of carbon capture and storage operations

Industry predicts fossil fuel production will continue into the 2070s. Carbon capture, usage and storage (CCUS) will be key to mitigate the impact of continued usage of fossil fuels (as well as energy from waste) during the energy transition.

The CCUS work programme addresses technical challenges to ensure the safe deployment of the technology globally, including updating guidance on hazard analysis, validating equation of state models, and developing good practices in plant design and operations, measurement of CO₂ stream impurities, and material degradation and asset integrity.

Example resources published by the EI

- Review of equations of state and available experimental data for carbon capture and storage fluids
- Repurposing and design guidelines for carbon dioxide pipelines
- Good plant design and operation for onshore and offshore carbon capture installations and pipelines
- Hazard analysis for onshore and offshore carbon capture installations and pipelines
- Good plant design for CO₂ stream impurity measurement

For more detail please visit

→ publishing.energyinst.org/topics/ccus

Hydrogen

Supporting a safe and sustainable energy future through clean, reliable, accessible and affordable hydrogen solutions.

Focussing on the key themes of sustainable business case development, successful project development and managing safety and technical risk.

Addressing challenges in the hard to abate sectors in which hydrogen, its derivatives and e-fuels can play a significant role.

Addressing technical, safety, sustainability and regulatory issues, to de-risk and enable market roll-out including policy alignment, finance, insurance, project development and support streamlining of planning and consenting processes, supply-chain and skills.

Ensuring that the composition of the programme is representative of the sector for 2030 and 2050, targeting production, transport and logistics, and large consumers.

Example resources published by the EI

- Research report: Literature review of asset integrity in repurposing existing natural gas infrastructure for hydrogen
- Guidance: Guidance for UK hydrogen safety case development- onshore and offshore.
- Research report: Landscape review of skills needed for an emerging hydrogen-based economy.
- Research Report: Gas Compressors for 100% Hydrogen Duty

For more detail please visit

→ publishing.energyinst.org/topics/hydrogen

Power systems

Working with global stakeholders to facilitate the transition to a low-carbon power system

Effective management of health, safety, environment and quality (HSEQ) are key to providing a secure power generation industry. The Power Systems Committee (PSC) is a cross-industry group dedicated to improving HSEQ in the power generation sector. It focuses on cross-sectoral issues, such as electrical safety, safe systems of work and contractor management, as well as sector-specific issues, including:

- Thermal power generation (including natural gas, biomass and hydrogen)
- Energy storage (including lithium-ion batteries)
- Solar
- Electrical safety, from Ex equipment selection through to risk assessing operations

Example resources published by the EI

- Guidance on green and low-carbon hydrogen production
- Safe systems of work principles for the power generation sector
- Managing the replant of a CCGT power plant
- Guidance on co-location of battery energy storage system (BESS) with power generation plant
- Guidance on large-scale solar photovoltaic (PV) system design, development and operation
- Guidelines for managing ignition risk by inspection of ex-electrical equipment in hazardous areas (including support of IEC 60079-17)
- Safe handling and storage of biomass in thermal power stations

For more detail please visit

→ publishing.energyinst.org/topics/power-generation

Onshore wind

Leadership in health and safety for a dynamic and innovative onshore wind industry

SafetyOn is the health and safety organisation for the onshore wind industry, providing advice, sharing good industry practice, promoting innovation, and creating positive change in the UK and Ireland's onshore wind industry.

Example resources published by the EI

- Annual SafetyOn Incident data report
- SafetyOn hand injury campaign
- SafetyOn and G+ manual handling campaign
- Analytical modelling for life extension of wind turbine generators
- Goof practice guidelines on welfare in the onshore wind industry
- Wind turbine safety rules

For more detail please visit
→ [safetyon.com](https://www.safetyon.com)

Offshore wind

Driving world-class health and safety performance in offshore wind

G+ is the Global Offshore Wind Health and Safety Organisation that brings together the offshore wind industry to pursue shared goals and outcomes. It is run in partnership with the EI, which provides the secretariat and supports its work.

The G+ publishes yearly incident data to establish the industry risk profile and determine where efforts should be focused to improve health and safety performance. From this, Good Practice Guidance is developed and Good Practice workshops held.

Example resources published by the EI

- Annual G+ Global Offshore Wind Organisation incident data report
- Working at height in the offshore wind industry
- G+ Offshore wind farm transfer
- Standard and good practice guidelines for safe helicopter operations in support of the global offshore wind industry
- G+ Floating offshore wind hazard identification (HAZID)
- Wind turbine safety rules (WTSR)

For more detail please visit
→ gplusoffshorewind.com

Health, safety and environment

Management of health, safety and environment is at the heart of every work area. However, we also have dedicated health, safety and environment committees developing cutting-edge, cross-industry resources:

- Health
- Human and organisational factors
- Process safety
- Asset integrity and life extension
- Environment and sustainability



Health

Protecting worker health

The Health Technical Committee (HTC) advises industry on all health issues relevant to the international energy sector. This includes the health aspects of employees, customers and the public who may be impacted by the activities and products of the industry.

HTC members are generally registered medical practitioners, certified occupational hygienists or senior medical professionals within their organisation.

Key areas covered by the HTC's work programmes include:

- Industry medical issues
- Occupational health and hygiene
- Physical fitness and capability
- Air quality and emissions

Example resources published by the EI

- Good practice guidance for controlling noise on offshore installations
- Guidance on health surveillance
- A recommended fitness standard for the oil and gas industry
- Legionellosis risk management and *Legionella* control. Guidance for oil and gas facilities, offshore platforms and refineries
- The influence of climatic factors on work performance in the oil and gas industry
- A literature review on the ageing workforce
- Medical fitness assessment for wind turbine workers

For more detail please visit

→ publishing.energyinst.org/topics/health

Human and organisational factors

Managing risk by supporting human performance

Human and organisational factors are key to understanding and improving occupational and process safety performance. The EI has one of the largest collections of human and organisational factors resources available in the world.

The EI Human and Organisational Factors Committee (HOFCOM) engages industry and stakeholders by commissioning studies, sharing knowledge and providing human factors tools. Its sub-committees, and associated groups such as the Stichting Tripod Foundation, focus on topics such as:

- Human factors training
- Safety culture
- Fatigue management
- Risk assessment
- Accident investigation
- Workforce involvement

Example resources published by the EI

- Human factors briefing notes
- Guidance on human factors safety critical task analysis
- Guidance on ensuring safe staffing levels
- Hearts and Minds Safety Culture Toolkit
- Report 454: Human Factors Engineering in Projects
- Tripod lite: a 'lite' tool for investigating simple incidents, events and near misses
- Guidance on human factors in task-based risk assessment

For more detail please visit

→ publishing.energyinst.org/topics/human-and-organisational-factors

Process safety

The control of major accident hazards

Major accident hazards include those substances which offer substantial threats to worker and public safety, physical assets and the environment, typically as a result of fires, explosions, or toxic releases. Process safety seeks to both prevent the loss of containment of major accident hazards and to mitigate the consequences of that loss.

The EI's Process Safety Committee commissions research and provides guidance on process safety issues.

EI process safety publications cover:

- Process safety leadership
- Risk assessment
- Risk management
- Review and improvement

Example resources published by the EI

- High level framework for process safety management
- Guidelines for the management of safety critical elements
- Model code of safe practice Part 15: Area classification for installations handling flammable fluids
- Bow ties in risk management: A concept book for process safety
- Model Code of Safe Practice Part 19: Fire precautions at petroleum refineries and bulk storage installations
- Guidelines for the avoidance of vibration induced fatigue failure in process pipework

For more detail please visit

→ www.energyinst.org/technical/publications/topics/process-safety

Asset integrity and life extension

Championing asset integrity management and age and life extension

Existing and maturing structures, plant, equipment or systems that could either cause, or contribute to, a major accident, should be managed effectively to prevent failure or limit its consequences.

The EI is championing age and life extension and asset integrity management for energy infrastructure, structures and structural components. We support the global industry with a focus on:

- Structures
- Rotating equipment
- The influence of the (extreme) offshore environment
- The negative impacts of climate change
- Corrosion under insulation

Our focus began with offshore oil and gas installations but has now expanded to offshore wind (both fixed and floating), Hydrogen and CCUS.

Example resources published by the EI

- Guidance for corrosion management in oil and gas production and processing
- Guidelines on Corrosion Management & Asset Integrity for Wind Turbine Infrastructure
- Guidance on ALE for offshore structures supporting wind turbines
- Guidelines for Integrity Management of the Splash Zone in Offshore Environments
- Guidelines on Integrity Management for LNG Operations
- Guidance for the structural integrity management of decommissioned offshore structures in 'lighthouse mode'

For more detail please visit

→ publishing.energyinst.org/topics/asset-integrity

Environment and Sustainability

Supporting the transition to a low-carbon and sustainable future for all

The work of the EI's Environment and Sustainability Committee (ESC) focuses on the impact the energy industry has on the environment as well as considering sustainability challenges.

ESC's strategy is to enable the energy industry to operate sustainably, including by reducing methane emissions from oil and gas operations, integrating sustainability principles (e.g. circularity) into the lifecycle of projects, and measuring performance against global benchmarks. The focus is on conventional oil and gas – onshore and offshore – as well as renewables, such as offshore wind.

The technical work of the ESC covers:

- Emissions (air, water and soil)
- Water scarcity
- Circularity
- Waste
- Biodiversity

Example resources published by the EI

- Energy retail stations green guide
- Waste to products – technology and economic assessment
- Embedding circularity into construction and decommissioning of assets
- Guide to predicting environmental recovery durations from major accidents
- Guidance on environmental risk tolerability for COMAH establishments
- Recommended practices for methane detection and quantification

For more detail please visit

→ publishing.energyinst.org/topics/environment

Fuel quality and management

Management of fuel quality, measurement and safe handling has been part of what the EI does for over 100 years. We are the leading organisation providing global standards for aviation fuel handling, standardised analytical test methods and extensive hydrocarbon management resources. There is increasing focus on biofuels, hydrogen and energy carriers such as ammonia and methanol.

- Aviation fuel handling
- Fuels distribution
- Hydrocarbon management
- Test methods standardisation



Aviation fuel handling

Managing aviation fuel – safety, efficiency and quality – from refineries to aircraft worldwide

The work of the EI's Aviation Committee is essential for the safety of over 100,000 air passenger flights globally every day. Standards, guidance, equipment specifications and animations are all produced to assist in the reliable and safe provision of aviation fuel to commercial aircraft.

The work is conducted by the following subcommittees: Aviation Fuel Filtration; Equipment; Operations; Hydrant Systems; Supply Chain Fuel Quality and Sustainability.

Example resources published by the EI

- EI/JIG Standard 1530 Quality assurance requirements for the manufacture, storage and distribution of aviation fuel to airports
- EI 1533 Quality assurance requirements for semi-synthetic jet fuel and synthetic blending components (SBC)
- EI 1540 Design, construction, commissioning, maintenance and testing of aviation fuelling facilities
- EI 1550 Handbook on equipment used for the maintenance and delivery of clean aviation fuel
- EI 1560 Recommended practice for the operation, inspection, maintenance and commissioning of aviation fuel hydrant systems and hydrant system extensions
- EI 1581 Specifications and laboratory qualification procedures for aviation fuel filter/water separators

For more detail please visit

→ publishing.energyinst.org/topics/aviation

Fuels distribution

Supporting the fuels value chain

The Fuels Infrastructure and Distribution Committee develops guidance for issues involved in the supply of fuels to customers. This assists in the safe and efficient provision of the petroleum products we need at the right place and at the right time.

Resources primarily cover equipment used and procedures followed for:

- Bulk storage
- Vapour recovery
- Road tanker operations
- Filling stations

Example resources published by the EI

- Model code of safe practice part 2: Guidance on the design, construction and operation of petroleum distribution installations
- Design, construction, modification, maintenance and decommissioning of filling stations
- Model code of safe practice part 16: Guidance on tank cleaning
- Petroleum road tanker design and construction
- Guidance for the management of distribution terminal operations
- Investigation into the risk and impact associated with non-diesel fuel engine vehicles, by type, whilst entering or working within hazardous storage locations

For more detail please visit

→ publishing.energyinst.org/topics/petroleum-product-storage-and-distribution

Hydrocarbon management

Measurement – the essential tool for management

At various stages during the extraction, transportation, refining, storage and distribution of crude oil, petroleum products and biofuels, there are requirements to measure its quantity and quality for allocation, custody transfer and fiscal purposes, as well as for stock control and loss prevention.

To enable the oil industry and regulators to carry out such measurements in a standardised manner, the EI Hydrocarbon Management Committee (HMC) develops and issues guidance documents that reflect current industry good practice. The EI HMC manages the work programme covering:

- Upstream
- Refineries, marketing and distribution
- Cargo inspection
- Bulk oil transportation measurement activities
- Bio-feedstocks

Example resources published by the EI

- HM 25 Guidelines for the assessment of uncertainty in the oil and gas industry
- HM 26 Guide for liquid metering systems
- HM 29 Procedures for petroleum product cargo inspections
- HM 31 Guide to hydrocarbon management in petroleum refinery operations
- HM 50 Guidelines for the cleaning of tanks and lines for marine tank vessels carrying petroleum and refined products
- HM 54 Guidelines for the management of measurement for the upstream oil and gas industry

For more detail please visit

→ publishing.energyinst.org/topics/hydrocarbon-management

Global marine crude oil voyage loss benchmarking

The essential scheme for loss control

As part of our hydrocarbon management activity, we support the HMC-4A Marine Oil Transportation Database Committee, which has been overseeing the collection, anonymised analysis and reporting of worldwide oil shipping data for nearly 30 years. The programme focuses on losses of crude oil shipped by sea-going vessels and river barges. The membership comprises over 20 oil majors and refiners.

Voyage data is submitted in January of the following year. An independent specialist (appointed by HMC-4A) analyses the data. A report of the findings is issued in April, consisting of an anonymised global report and a confidential company-specific report (shared only with the company concerned). The reports include analysis by grade, load port, discharge port and vessel.

The reports provide a valuable tool for logistics, operations and loss control teams, and are fed back to trading benches to further inform decision making on, for example future contracts. Or in respect of loss control; members can compare the results for their company against the global figures for each category, to better understand issues and pinpoint the origin of any loss, and drill down further into their data and look to find the origin of the poor performance. This then could result in a change of process or procedure.

The appetite for this global benchmarking is as strong as ever and continues to be a valuable asset for committee members. Membership of this benchmarking scheme is included as part of the EI Technical Partner fee. There is an annual fee for other participants.

Test method standardisation

Standardising low-carbon sustainable fuels analysis

The EI is a world-class leader in analytical test method development, publishing IP test methods for hydrocarbon products and future fuels energy carriers such as hydrogen, methanol and ammonia.

The Test Method Standardization Committee (TMS) works closely with international standards agencies, including CEN, ISO and ASTM. Covering fuels, lubricants, bitumen and crude oil, our standards and test methods underpin product quality requirements which have an impact on safety and the environment, in both shipment and use.

TMS also has oversight responsibility for the EI's Microbiology Committee, which provides technical guidance on microbial issues across the range of energy industry activities.

Example resources published by the EI

- IP 367-5, Precision of measurement and results – Part 5: Statistical assessment of agreement between two different measurement methods that claim to measure the same property.
- IP 440-2, Determination of total contamination - Part 2: Fatty acid methyl esters
- IP 642, Determination of hydrocarbon group types and select hydrocarbon and oxygenate compounds – Gas chromatography with vacuum ultraviolet absorption spectroscopy (GC-VUV) method.
- IP 643, Determination of content of butoxy-benzene in middle distillates – Gas chromatographic method using a flame ionization detector (GC-FID).
- Guidelines for the investigation of the microbial content of liquid fuels and for the implementation of avoidance and remedial strategies
- Guidelines on detecting, controlling and mitigating microbial growth in oils and fuels used at power generation facilities

For more detail please visit
→ [publishing.energyinst.org/
topics/fuel-quality-and-control](https://publishing.energyinst.org/topics/fuel-quality-and-control)

Correlation schemes

Fundamental for quality control

The EI runs a well-established and globally recognised suite of testing schemes, participation in which is critical to optimise operations by correcting biases and drift in analytical measurements.

Engine Correlation Scheme (ECS)

The Engine Correlation Scheme (ECS) is specifically aimed at laboratories determining the Research Octane Number (RON), Motor Octane Number (MON) and Cetane numbers of gasoline and diesel fuels.

These laboratories may be using the traditional single cylinder engines to determine the RON, MON, and Cetane numbers or more modern alternative instruments, the scheme caters for all types.

Over 40 laboratories worldwide receive the same set of fuels to test, distributed on a monthly basis, with their data correlated with other scheme participants by the EI and anonymously reported each month.

The report gives the mean RON, MON and Cetane values for the fuels and tells each laboratory how far they are away from the mean using a Z score metric. This allows them to benchmark against peers.

RON, MON and Cetane number are vital parameters in the trading of fuel, with small biases in their measurement at any location potentially leading to a “giveaway” resulting in significant financial implications for the operator.

The EI Proficiency Testing Scheme (EI PTS)

With over 70 laboratory participants worldwide, the EI PTS is one of the largest such schemes available.

Laboratories receive monthly samples of gasoline, diesel, jet fuel and fuel oil. Participants have the option to take over 90 different tests on these fuels, addressing specifications and important physical and chemical properties.

Each laboratory receives a bespoke report which not only contains the Z score for each test for benchmarking but also other statistical metrics including standard deviation and method reproducibility.

The reports also contain graphs which show long term trends for each test they have conducted allowing, for example, instrument drift to be spotted.





The reports are used to demonstrate to management, customers, and auditors that the laboratory processes are under control and are essential evidence for accreditation to international standards such as ISO 17025.

Analysis of the data generated by the scheme is used by the EI, CEN and ISO standardization bodies to monitor how their standards are performing in all laboratories and over a long period of time.

Let's continue the conversation

get in touch with our team to explore your options.

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