

Accreditation: Delivering confidence in the provision of energy



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What are the issues?

Is the provision of energy clean and environmentally safe? Is the energy safe for public use? Are emission levels safe and at the level claimed?

Can we trust the quality and quantity of fuel that we put in our car? Are measurements accurate so that consumers receive what they pay for, and governments receive the appropriate duty and taxation revenues?

Do renewable energy products provide value for money and the levels of output? Are micro-generation products installed safely and effectively to generate energy?

Can we trust energy efficiency claims made by industry?

The demand for energy increases each year, as does pressure on industry to cut emissions and to introduce energy efficiency measures. Governments and the private sector face the challenge of determining how to provide more energy for more people, while at the same time, cutting greenhouse gases (GHG) and pollution.

The provision of energy involves complex supply chains and processes, often involving cross-border trade and the distribution of volatile substances. Alternative renewable sources of energy need to be environmentally friendly and demonstrate value in terms of cost, reliability, durability and performance.

Raw materials, samples, products, services, management systems, personnel, processes and claims can be evaluated against specified requirements by testing and calibration laboratories, certification bodies, inspection bodies and validation/verification bodies (collectively known as conformity assessment bodies). Conformity assessment is used to check that products are fit and safe for use against a standard, a code of practice or regulatory requirements that bring confidence to the marketplace.

Conformity assessment services therefore provide a means for preventing unsafe, unhealthy or environmentally harmful products from entering the marketplace. Regulators can set overall policy requirements or detailed technical requirements and rely on laboratories, inspection bodies, certification bodies or validation/verification bodies to check for compliance.



What is the role of accreditation?

Accreditation is the independent evaluation by an authoritative body of conformity assessment bodies, based on recognised national and international standards, to carry out specific activities, in order to ensure their integrity, impartiality and competence. As a result of this process, governments, private sector procurers and consumers can have confidence in the calibration and test results, inspection reports, certifications, and validation/verification statements provided in the provision of energy.

Fuel Testing

Accredited laboratories carry out a wide range of testing on fuels and oils in order to ensure that they meet the specifications for their intended purpose. These range from chemical tests such as determination of sulphur content and water solubility tests to determine the presence of water soluble additives in fuels, or microbiological tests such as the determination of the presence of bacterial contaminants or fuel degradation levels, to physical tests such as the determination of relative density of fuel samples.



Accreditation bodies are established in many countries with the primary purpose of ensuring that conformity assessment bodies are subject to oversight by a competent and authoritative body.

Laboratories, inspection bodies, certification bodies and validation/verification bodies play a key role throughout the energy supply chain, in both the provision of traditional energy sources as well as the development of renewables. Energy providers rely on accurate testing and calibration to monitor a range of areas from measuring flow and pressure to production output levels. Inspections are carried out to ensure that installations are safe. Certification demonstrates that providers have the appropriate processes and procedures in place to deliver the products and services. Validation can be used to confirm the accuracy of simulation models and prototypes of energy systems, and verification can confirm whether energy systems meet performance requirements.

Accreditation bodies, which have been evaluated by peers as competent, sign arrangements that enhance the acceptance of products and services across international borders, thereby creating a framework to support trade regulatory approval processes, and confidence in the marketplace.

These arrangements are managed by the International Accreditation Forum (IAF) in the fields of validation/verification and certification of management systems, products, services, processes and persons, and by ILAC in the areas of laboratory and inspection body accreditation. Both organizations work together across international borders and coordinate their efforts to enhance accreditation and conformity assessment services worldwide.

What benefit does accreditation provide?

For National Authorities and Regulators:

Regulators can set policy requirements or detailed technical requirements and rely on accredited laboratories, inspection bodies, certification bodies or validation/verification bodies to verify compliance with those requirements. Regulators are therefore able to reduce costs by reducing their in-house personnel and targeting their inspections more reliably and effectively. The use of accredited services can also moderate the need for additional legislation, as well as reducing the risk of unintended consequences. In the oil and gas sector, accredited testing can also be used in the accurate calculation of taxation revenue.

International accreditation arrangements provide regulators with a robust and credible framework to accept test results,

inspection reports, certifications, and validation/verification statements from multiple foreign service providers that have been accredited by the signatories to the IAF and ILAC arrangements, with an equivalent level of confidence as if they had been carried out in the local economy. Accreditation ultimately provides a reliable monitoring tool to support the industries and economies exploring renewable energy sources.

Accreditation can also support the achievement of the United Nations' Sustainable Development Goals #7 (Affordable and Clean Energy) and #13 (Climate Action).

Case studies to highlight the benefits in the energy sector can be found on Public Sector Assurance –

www.publicsectorassurance.org/topic-areas/energy.

Accreditation in action: Gas Safety

Gas operatives demonstrate competence at assessment centres approved by accredited certification bodies. Registration provides a 'license to trade', minimising the need for government inspectors or licencing programmes.



Accreditation in action: Inspection of Nuclear Facilities

In response to the needs of the nuclear industry, the accreditation of inspection bodies and inspection agencies demonstrates that components supplied to nuclear plants are designed, constructed and tested in accordance with the applicable technical specifications.

The scope of assessment includes inspection of items supplied to new nuclear plants as well as inspection of equipment already in service in existing nuclear plants.

Accreditation means that the bodies carrying out inspections have themselves been assessed against internationally-agreed standards for competence, impartiality and performance capability.



What benefit does accreditation provide?

For Energy Providers:

In a number of areas it is a requirement to obtain accreditation before offering certain services; in others it is a de facto 'licence' to trade in that key purchasers expect it. Accreditation provides market differentiation and objective proof that an organisation complies with best practice. It is the internationally-recognised system that is used to develop and sustain high standards of performance. It is a winning formula for eligibility to tender and for international trade.

Accreditation is gaining increasing recognition from regulators, and so providers can demonstrate compliance through accreditation. In some cases, this can result in reduced levies or audits.

Case studies to demonstrate the value of accredited conformity assessment can be found on www.business-benefits.org

Accreditation in action: Proving new technologies

The quest to develop new energy sources has led to the development of numerous types of systems to extract energy from the wind, the sea and other renewable resources. The accreditation of a purpose-built performance testing facility in Scotland for testing wave and tidal energy conversion systems is an example of accreditation playing a pivotal role in the development phase of renewable energy sources.

The accredited company's role is to show how much power is produced when it tests various wave and tidal energy devices, in a wide variety of sea and weather conditions. This information is crucial to developers as they strive to turn prototype devices into income generating, commercially available technology.



Accreditation in action: Offshore Verification

Accreditation of verification bodies provides confidence for offshore clients in the oil and gas sector who are dependent on the inspection of equipment and rigs operating in harsh conditions.



What benefit does accreditation provide?

For Businesses:

Accreditation is an essential tool for decision-making, risk management, brand recognition and proving claims. Organisations can save time and money by selecting an accredited and therefore competent supplier. Accurate measurements and tests carried out in compliance with best practices limit product failure and downtime thereby helping to control manufacturing costs. The selection of an accredited certification body is more likely to realise the value of implementing an energy management system.

Accreditation in action: ISO 50001 Energy Management

ISO 50001 is an energy management system standard that provides organisations with a systematic approach to achieving continual improvement in energy performance. ISO 50001 aims to help organisations reduce energy use, resulting in a reduction in energy costs and also their carbon footprint.

ISO 50001 establishes a framework for industrial plants, commercial or public sector organisations, as well as governmental agencies to promote energy management best practices and reinforce good energy management behaviours. The standard offers guidance on benchmarking, measuring, documenting and reporting energy improvements and projected greenhouse gas (GHG) reductions.

Accredited certification is used to assess conformity against the standard.



For Consumers:

Consumer confidence is gained from goods or services that are accompanied by a certificate, or report provided by a laboratory, inspection or certification body accredited by a signatory to the international accreditation arrangements managed by IAF and ILAC. From making an informed choice when choosing a company to carry out some energy efficiency work in the home, to the quantity and quality of fuel that we put in our cars, accreditation provides this level of confidence.

Accreditation in action: Microgeneration for the home

Consumers seeking reassurance on the suitability of renewable energy products and installers can take confidence from accreditation. Products such as wind turbines or PPV solar panels are tested in an accredited laboratory to measure performance, durability, safety and environmentally friendly considerations. Installation companies gain accredited certification to demonstrate compliance.



Accreditation provides peace of mind and assurance to both business and consumers that the products and services they are using in daily life have been verified by conformity assessment bodies against national and international standards. The ongoing work of the IAF and ILAC as the appointed authorities to which accreditation bodies comply provides additional reassurance and confidence that transcends frontiers and the subsequent acceptance of accredited conformity assessment in multiple markets, based on one accreditation.



Further information

About ILAC

ILAC is the international authority on laboratory, inspection body, proficiency testing provider, reference material producer and biobank accreditation, with a membership consisting of accreditation bodies and affiliated organisations throughout the world. The website www.ilac.org provides a range of information on these accreditation activities, as well as the location of its members worldwide.

ILAC promotes the increased use and acceptance, by industry as well as by government, of the results from accredited laboratories, inspection bodies, proficiency testing providers and reference material producers including results from accredited organisations in other countries. ILAC liaises with many international bodies and stakeholders to achieve shared objectives.

Further information on the ILAC Mutual Recognition Arrangement (MRA) and a list of Signatories is available from <https://ilac.org/signatory-search/>



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About IAF

IAF is a global association of accreditation bodies, conformity assessment body associations and other organizations involved in conformity assessment in fields including validation/verification and the certification of management systems, products, processes, services and persons.

IAF promotes the worldwide acceptance of certificates of conformity and validation/verification statements issued by conformity assessment bodies accredited by IAF MLA signatories, and seeks to add value for all stakeholders through its activities and programs.

Further information on the IAF Multilateral Recognition Arrangement (MLA) and a list of Signatories is available on the IAF website <https://iaf.nu/en/recognised-abs/>



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