SESKO Clean Energy Webinar, 17 September 2024.

Mr Chris AGIUS

Executive Secretary

IECEx + IECQ

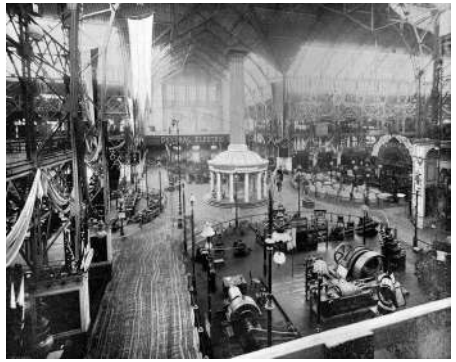
IEC: the beginning……
St. Louis 1904: palace of electricity

Lord Kelvin – 1st IEC President

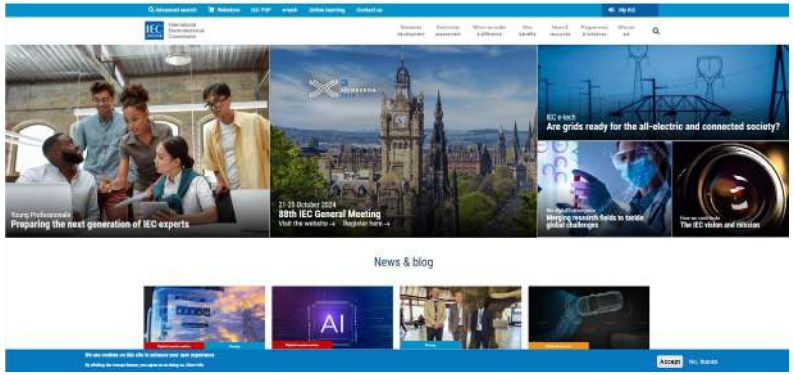
- **International Electrotechnical Commission** (IEC) – Swiss incorporated Not For profit Organisation
- Officially formed in 1906 – ***Lord Kelvin*** the first IEC President
- Formed to serve needs of industry
- Continues to evolve to the needs of industry and global community

Jo Cops – Current IEC President

www.iec.ch



During the 1904 Convention of Scientists, it was felt that a need exists to "*Standardise on Terminology*" when discussing Electrotechnology, thereby planting the seed for IEC. In **1906** IEC was formed with TC 1 "Terminology" the first Committee of IEC and still exists today.



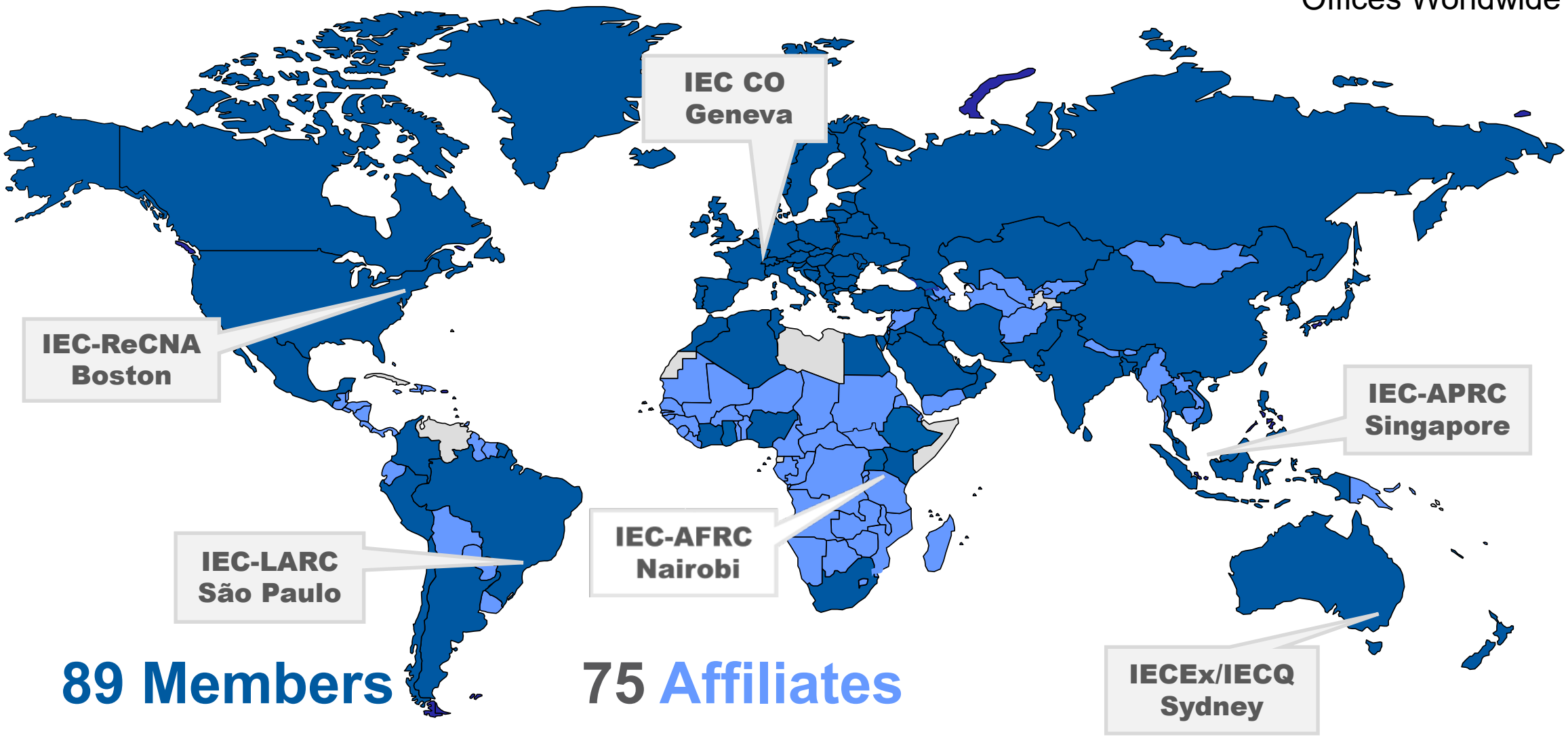
In 1947, at the instigation of IEC General Secretary, Charles Le Maistre, ISA (International Federation of the National Standardising Associations) expanded its field of activity and changed its name to ISO.

IEC and ISO continue to collaborate, eg ISO/IEC Directives, Joint JTC1 + ISO/IEC 17XXX + More

IEC's Global reach: 164 countries

30,000 experts cooperating on the IEC global platform

Offices Worldwide



89 Members

75 Affiliates

The **IEC – Strategic Business Plan**

Vision — IEC everywhere for a safer, more efficient world.

Mission — Our mission is to achieve worldwide use of IEC International Standards *and Conformity Assessment Systems* to ensure the safety, efficiency, reliability and interoperability of electrical, electronic and information technologies, to enhance international trade, facilitate broad electricity access and enable a more sustainable world.

3 Strategic Themes supported by 9 Strategic Goals

- *Enabling a digital and all-electric society*
- *Fostering a sustainable world*
- *Leading on Trust, inclusion and collaboration*

https://www.iec.ch/strategic-plan

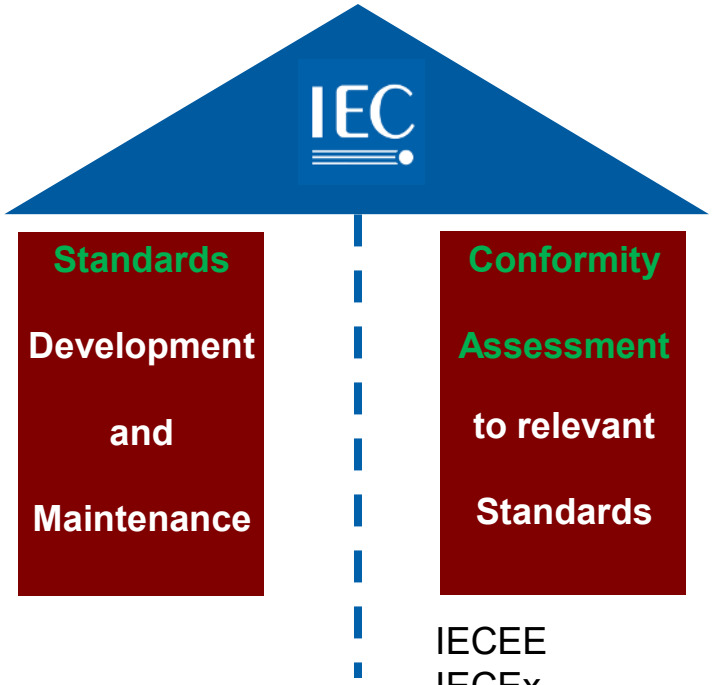
IEC: A Standardization Organization

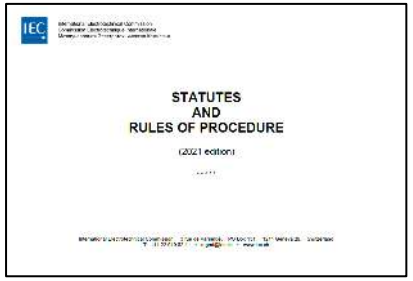
With 2 sides to the IEC house

Over 100 years

200+ Committees

30,000+ Experts





E.g.,
IEC TC 31
IEC TC 105, 107

IECEE
IECEx
IECQ
IECRE

IEC Standards set out "**Standardised Requirements**"

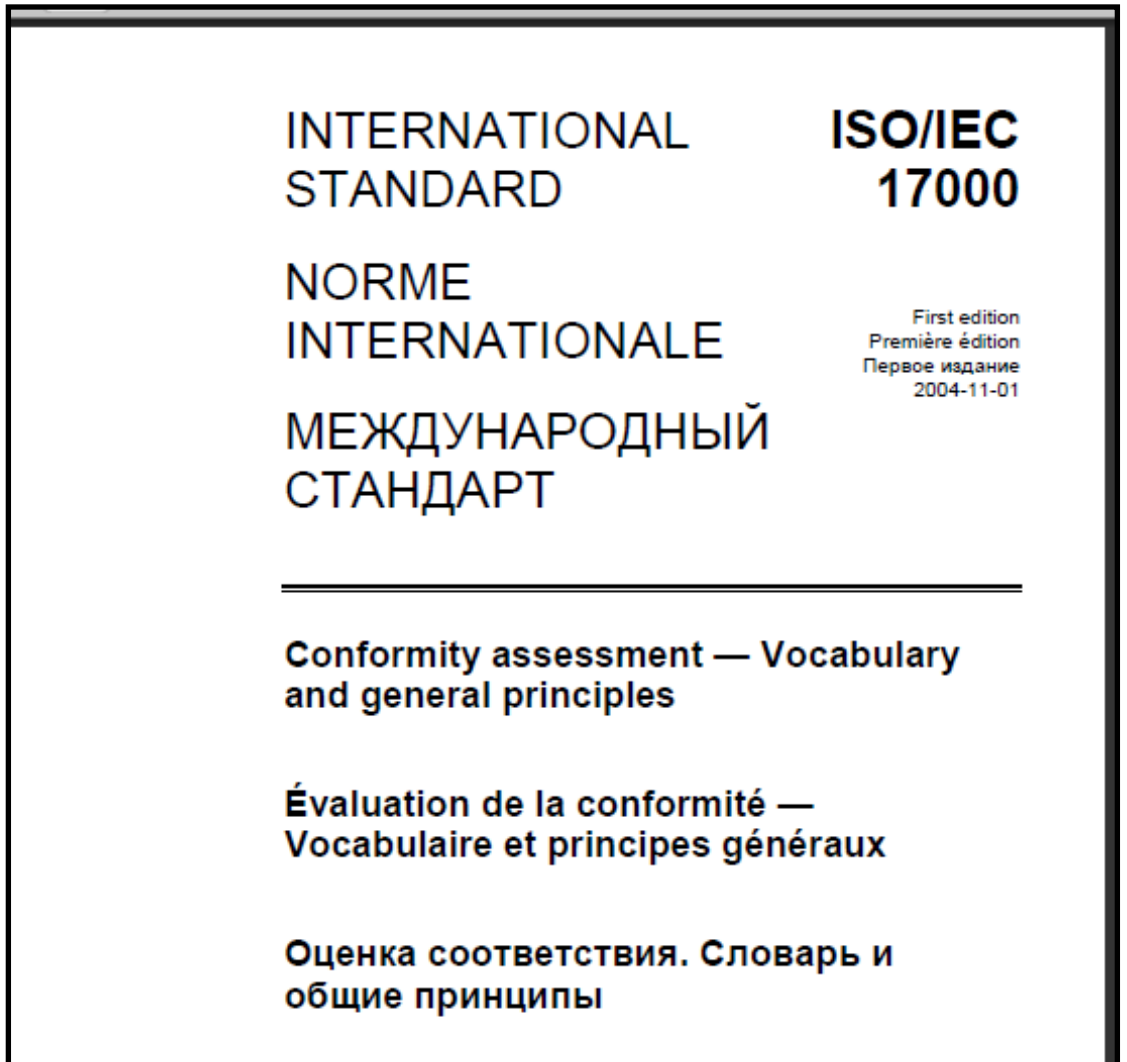
IEC CA Systems set out **Standardised way of doing testing, certification and inspection**

The 2 Sides to the House of IEC: Standards Development + Conformity Assessment

IEC Compliance activities – referred to as:

"CONFORMITY ASSESSMENT"

-Accreditation
-Certification
-Testing
-Audit
-Attestation
-Inspection
-Approval
-Declaration
-Surveillance
- First Party Conformity Assessment
-Second Party Conformity Assessment
-Third Party Conformity Assessment
-Peer Assessment
-Others



INTERNATIONAL STANDARD

NORME INTERNATIONALE

МЕЖДУНАРОДНЫЙ СТАНДАРТ

ISO/IEC 17000

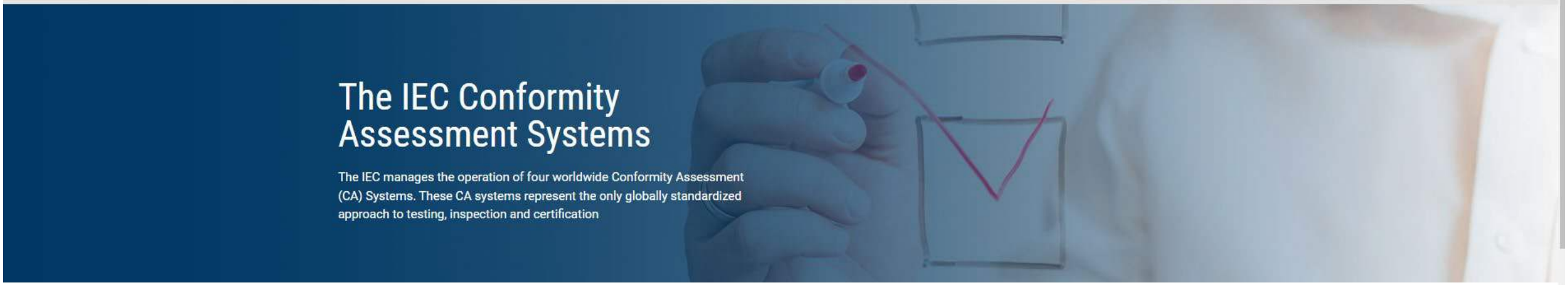
First edition
Première édition
Первое издание
2004-11-01

Conformity assessment — Vocabulary and general principles

Évaluation de la conformité — Vocabulaire et principes généraux

Оценка соответствия. Словарь и общие принципы

IEC – Conformity Assessment Systems https://www.iec.ch/conformity-assessment/ca-systems



The IEC Conformity Assessment Systems

The IEC manages the operation of four worldwide Conformity Assessment (CA) Systems. These CA systems represent the only globally standardized approach to testing, inspection and certification

The CAB does not manage the day-to-day work of the CA Systems operated by the IEC, but the Systems report regularly to the CAB, which approves their basic rules. The Systems are governed by management committees composed of representatives of their members. The participants in the Systems are themselves responsible for the tests they carry out and the certificates and marks that they issue under an IEC CA Scheme.

Relevant CAB policy and procedural documents can be found on the Standing Documents page.

IECEE

IECEE is the IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components.

Contact us

Visit IECEE website

IECRE

IECRE is the IEC System for Certification to Standards Relating to Equipment for Use in Renewable Energy Applications.

Contact us

Visit IECRE website

IECEx

IECEx is the IEC System for Certification to Standards Relating to Equipment for Use in Explosive Atmospheres.

Contact us

Visit IECEx website

IECQ

IECQ is the IEC Quality Assessment System for Electronic Components.

Contact us

Visit IECQ website

Why have Conformity Assessment Services in IEC?

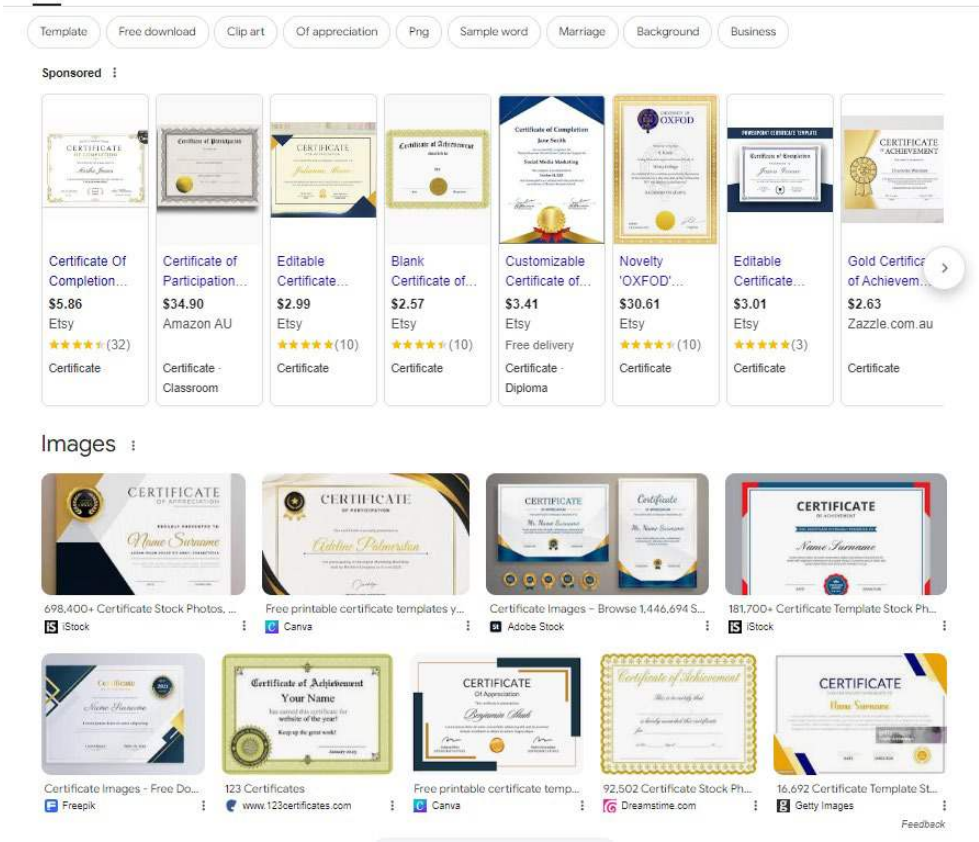
Problem – Certificates used outside the IEC Framework

- Word **"Certificate"** loosely used, eg
  - Certificate of "*Achievement*"
  - Certificate of "*Recognition*"
  - Certificate of "*Attendance*"
  - Certificate of "*Completion*"
  - Certificate of "*Conformity*"
  - Certificate of "*Compliance*" *and so on*

- What are the credentials for those issuing Certificates? YES there is national accreditation is available but DOES NOT ensure same *procedures*, same *reporting* same *certificate information* etc

- What is the process? Is it consistent with others?
- Are International ISO/IEC 17XXX Standards followed?

Google search for "Certificates"

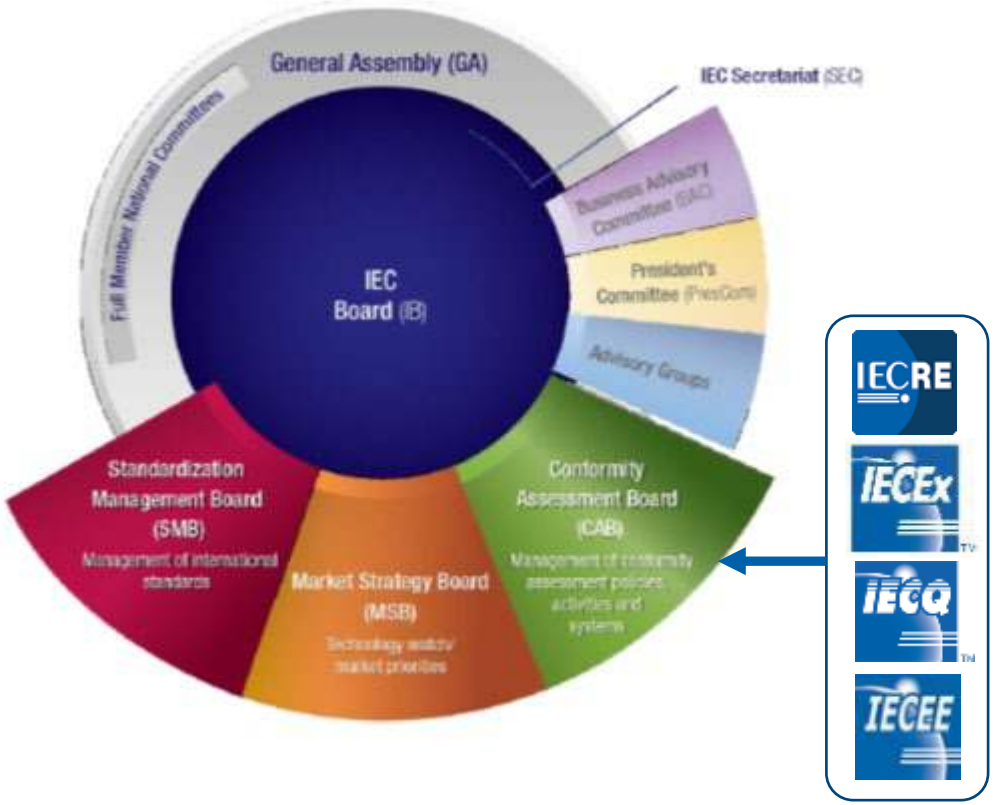


Why have Conformity Assessment Services in IEC?

Solution – Harmonization via single IEC System

- Word **"Certificate"** loosely used, eg
  - *Consistent Terminology via ISO/IEC 17000*
- All Certification Bodies and Test Labs – same credentials and assessed via Peer Assessment
- Single **Harmonised Process** – Same Scheme rules + Standard Operating Procedures **adopted by all**.
- Alignment with International ISO/IEC 17XXX
- Use of IEC On-Line Centralised Certificate system and database – All certificate information in the **1 place**
- Management oversight by Single International Management Committee, supported by dedicated Technical Secretariat

IEC's Standards + Conformity Assessment Services - Governance



40+ years Operating

More than 1 Million Certificates issued

Electrical + Mechanical Products

Electrical + Mechanical Components

Electronic Components and assemblies

Process Certification

Personal Competence

Sector Specific, e.g. Avionics

Self Financed – sets annual budgets

Standards used for IEC CA Activities

Others:
- Regulations
- Specifications

IEC CA Systems work closely with Standards Technical Committees, eg

- **IECEx ➡ IEC TC 31, IEC TC 105, ISO TC 197**
- **IECQ ➡ IEC TC 107, IEC TC 111**
- **IECRE ➡ IEC TC 82, IEC TC 88, IEC TC 114**

All 17 UN SDGs supported – confirmed by IEC Conformity Assessment Board Decision 52/16

SUSTAINABLE DEVELOPMENT GOALS

adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership

CAB Decision 52/16 — *Report from TF SDGs*

The CAB, noting the report in document CAB/2268A/R, the comments received in CAB/2268B/CC, the verbal update by the convenors, Mr Rajeev Vagdia and Mr Pierre Selva, and the discussion during the meeting, endorsed the report and approved the generic statement given in recommendation A.1. to be used by IEC during events, conferences etc. CAB further requested that this generic statement (as below) be given to the IEC Comms department for appropriate use.

"***The IEC Conformity Assessment Board conducted a thorough analysis of the four IEC Conformity Assessment Systems and concluded that all 17 UN SDGs are supported by way of the IEC Conformity Assessment principles, the development, structure, and operation of the Systems, with each System having differing levels of impact on the UN SDGs."***

The 4 IEC Conformity Assessment Systems

IECEE in brief

- **23** product categories ranging from Information Technology and electronic equipment, household, medical equipment, lighting to EMC, and Photovoltaics but 60% of activity is concentrated in these three areas:
  - Household appliances
  - Office & IT equipment
  - Electronics / entertainment

- Electrical Safety
- EMC
- Energy efficiency
- Performance
- Cybersecurity
- Functional Safety

IECEE

What is the IECRE?

IECRE is the abbreviation for IEC System for Certification to Standards Relating to Equipment for Use in Renewable Energy Applications - "IECRE System"

- IECRE operates a single, global certification system addressing 3 sectors
  - Solar photovoltaic (PV) power
  - Wind power
  - Marine energy

IECRE

23

IECEE

IECRE

IECEx

IECQ

IEC's System for Certification to Standards relating to Equipment for use in Explosive atmospheres, IECEx

www.iecex.com

IECEx

IECEx Value Proposition – 1 of the IEC CA Systems

Provides Assurance to Industry, Commerce, Regulators and Consumers that operations and activities involving flammable and combustible materials can continue safely and reliably, by providing an Internationally Standardized Approach to Testing and Certification, regardless which IECEx Approved Certification Body is used.

Industries that use flammable/combustible materials include:

- Production, Storage, Dispensing and use of flammable liquids and Gases, such as Hydrogen, including GH2
- Transport, eg cars / plans / ships / trucks (Passenger + Freight)
- Fueling stations and storage facilities
- Oil and gas exploration and processing
- Coal mining
- Food manufacture and processing
- Grain handling/storage/transportation
- Pharmaceutical manufacturing
- Textiles, fabrics and clothing
- Paint and surface coatings
- Medical applications, eg hospitals
- Furniture manufacturing
- Sewerage treatment plants
- Underground car parks
- Others

IEC's Quality Assessment System, IECQ

www.iecq.org

IECQ

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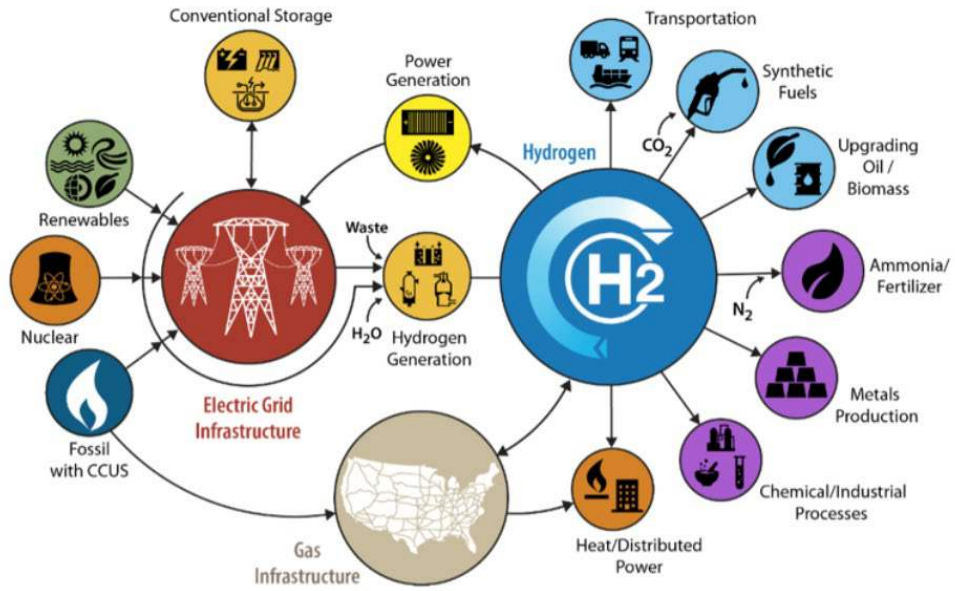
Hydrogen Production

Various methods at producing Hydrogen

Main are:-
- Steam-Methane Reforming
- Electrolysis emerging as supporting low carbon (low emission) and aligns with use of renewable energy technologies

US Energy Information Administration (EIA)

Conceptual H2@scale (hydrogen at scale) energy system



Source: U.S. Department of Energy, *Hydrogen Program Plan*, Figure 3, November 2020
Note: CCUS is carbon capture, utilization, and storage.

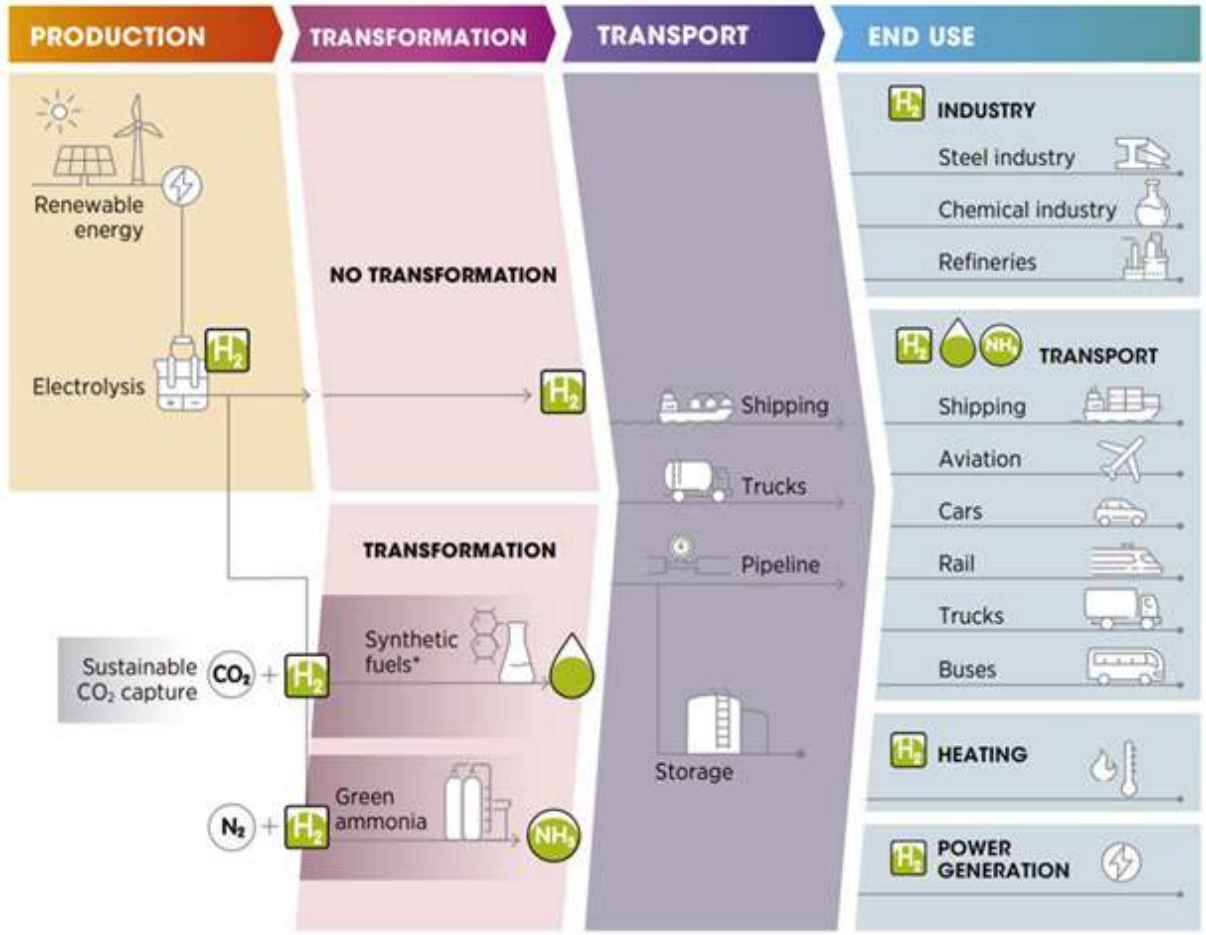
Some discussions refer to colour coding of the Production Source **BUT** can create confusion

Color	Production source
Green	In most definitions, renewable electricity via electrolysis of water. Less frequently, definitions of *green hydrogen* include hydrogen produced from other low-emission sources such as biomass.
Turquoise	Thermal splitting of methane
Blue	Hydrocarbons with carbon capture and storage
Gray	Fossil hydrocarbons, mainly steam reforming of natural gas
Brown or black	Fossil hydrocarbons: brown (lignite) or black coal
Red, pink or purple	Nuclear power
Yellow	Sometimes understood to mean solar photovoltaics
Gold or white	Hydrogen that occurs naturally deep within the Earth's crust

For IEC Conformity Assessment we do not use colour coding but refer to:

Low Carbon or Low Emission Hydrogen

Hydrogen Production from Renewables – Production to End use



Source: IRENA

** The term synthetic fuels refers here to a range of hydrogen-based fuels produced through chemical processes with a carbon source (CO and CO_2 captured from emission streams, biogenic sources or directly from the air). They include methanol, jet fuels, methane and other hydrocarbons. The main advantage of these fuels is that they can be used to replace their fossil fuel-based counterparts and in many cases be used as direct replacements – that is, as drop-in fuels. Synthetic fuels produce carbon emissions when combusted, but if their production process consumes the same amount of CO_2, in principle it allows them to have net-zero carbon emissions.*

Commercial H2 production today Equivalent to 3% of global energy demand

- 47% from natural gas
- 27% from coal
- 22% from oil
- 4% from electrolysis (1% production from renewable energies)

Source IRENA

Hydrogen momentum continues to accelerate

- 1,418 hydrogen projects announced globally of which 1,011 plan full or part deployment by 2030

- USD 570 billion committed in direct investments

Source Hydrogen Council full report available from https://hydrogencouncil.com

Some characteristics of Gaseous Hydrogen to deal with

- H2 as a gas when released in air is an explosive / flammable mixture
- 14 times lighter than air
- Has a very broad flammability Range 4% to 75% Vol
- Very low ignition energy over a wide concentration below 10^2 µJ
- Very low viscosity hence high flow rate if leaking thru porous areas of seals etc

Airtight does not mean hydrogen tight

Hydrogen is NOT new – Many International standards available

Participation within Established partnerships – *The Effective vehicle*

Global SDOs & Regulators

Key Strategic Partners

- **WP.6**
- **H2 Task Force Sustainable Energy**

Community + Stakeholders

IECEx: 30,000> Certificates issued to date covering H2:
- Equipment
- Services
- Personnel Cert.

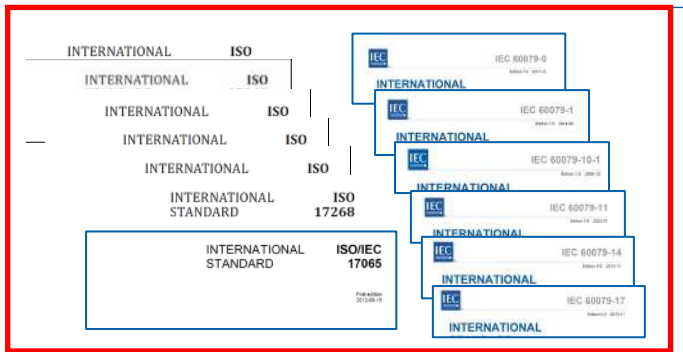
Over 100 Certification Bodies participate

International Approach ensures **Safety**, Performance + **Sustainability** are fully addressed ***for the Global Community***

Single International Approach instils ***Regulatory + Market Confidence***

Use of **Existing International Standards (and others coming) + International Certification/Verification** and working with existing International Organizations, for any additional needs, prevents wasteful duplication, thereby

- **Saves time**,
- **Keeps costs down**
- **Facilitates Global Trade + Innovation**



International IECEx Certificates of Conformity Schemes – Well Suited for Hydrogen Technical Field

In cooperation with Global partners

Equipment | Assemblies | Services | Personnel

Ex Equipment, Components + Systems + Mechanical Equipment

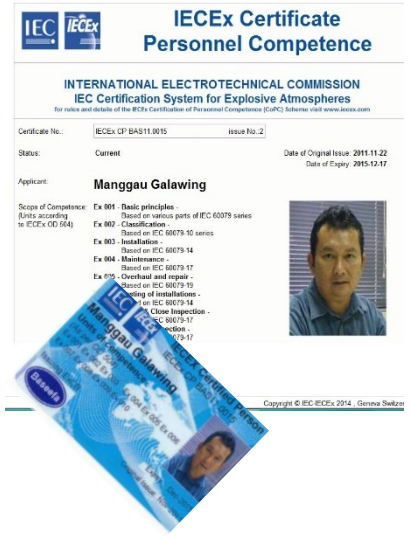
Product testing + initial factory inspection + surveillance

Ex Equipment Unit Verification e.g. "Assemblies"

Ex Services, e.g. Repair + Overhaul

Installation

Inspection



Ex Competent Person, with Photo ID Card

Started **1996**

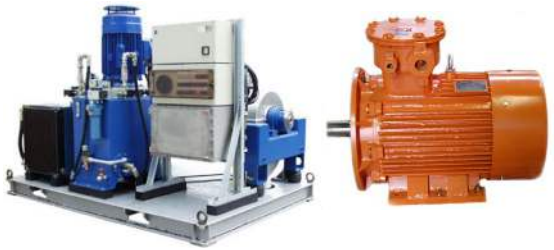
Currently **over 100** IECEx Certification Bodies offer IECEx Certification **>160,000** Certificates + Reports issued including over 30,000 Certificates covering H2:
- Equipment
- Services
- Personnel Cert.

https://www.iecex.com

IECEx Certificates issued in 90+ Countries

Summary of IECEx (3 separate Certification Schemes)

IEC System for Certification to Standards relating to Equipment used for Explosive Atmospheres, Ex



Certified Equipment Scheme Ex Equipment, Components and Assemblies

Certified Services Scheme Ex Services, e.g Ex Repair Workshops

Personal Certification Certification of Competence

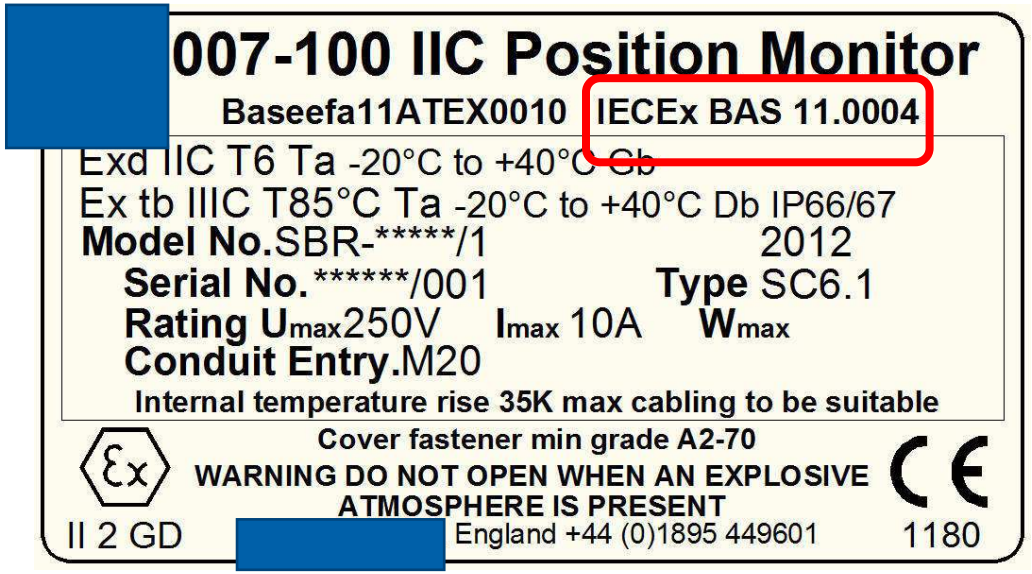
Certifies Products, (inc Components, Assemblies), Services and Persons to IEC and ISO International Standards. Initial and on-going audits required (eg factory inspections)

Full public access to all issued IECEx Certificates – On-Line version the master and controlled version, in real-time.

Mutual Recognition of Test Reports and Factory audit Reports applicable only to IECEx Certified Equipment Scheme.

IECEx Certificate number Appears on product

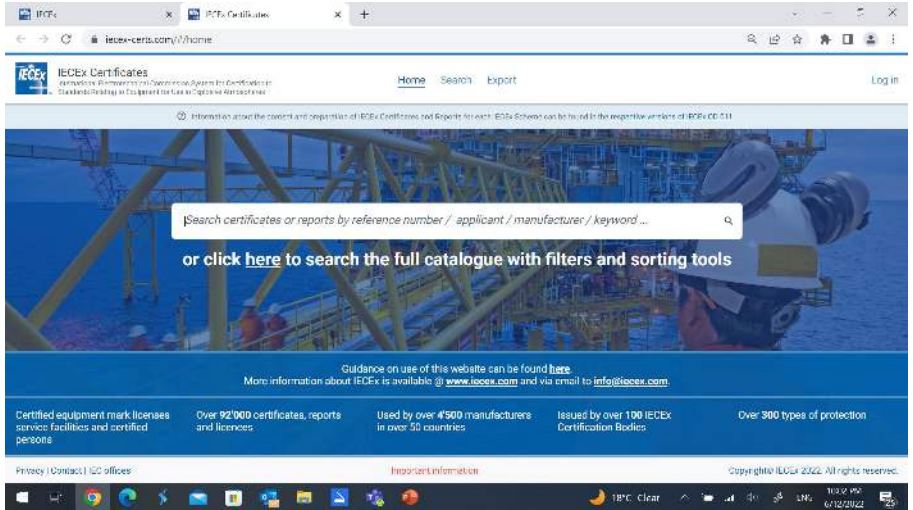
– Example: IECEx BAS 11.0004



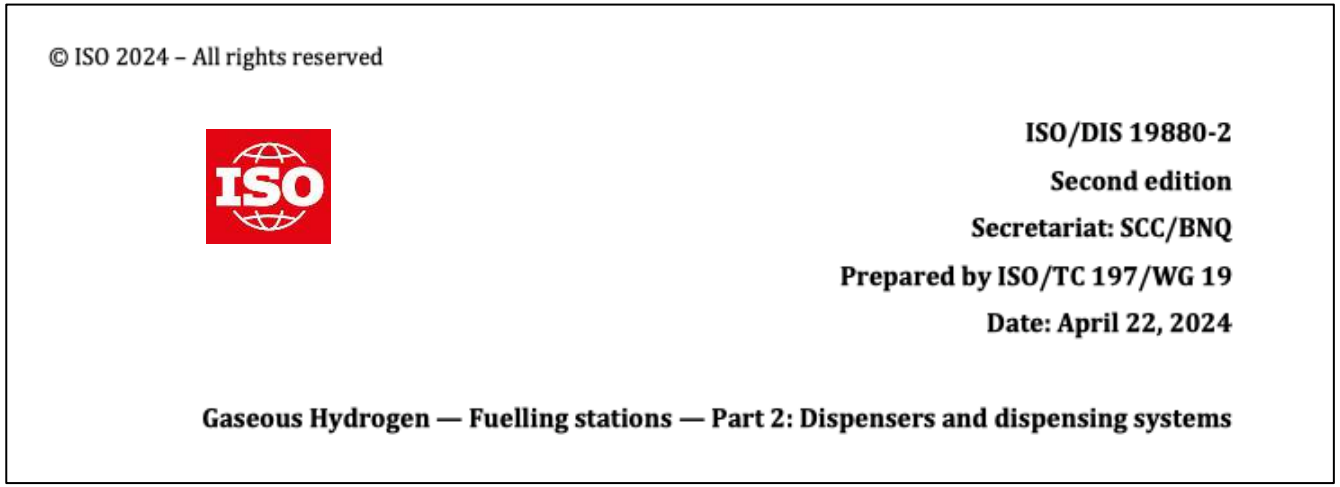
https://www.iecex-certs.com/#/deliverables/CERT/3339/view

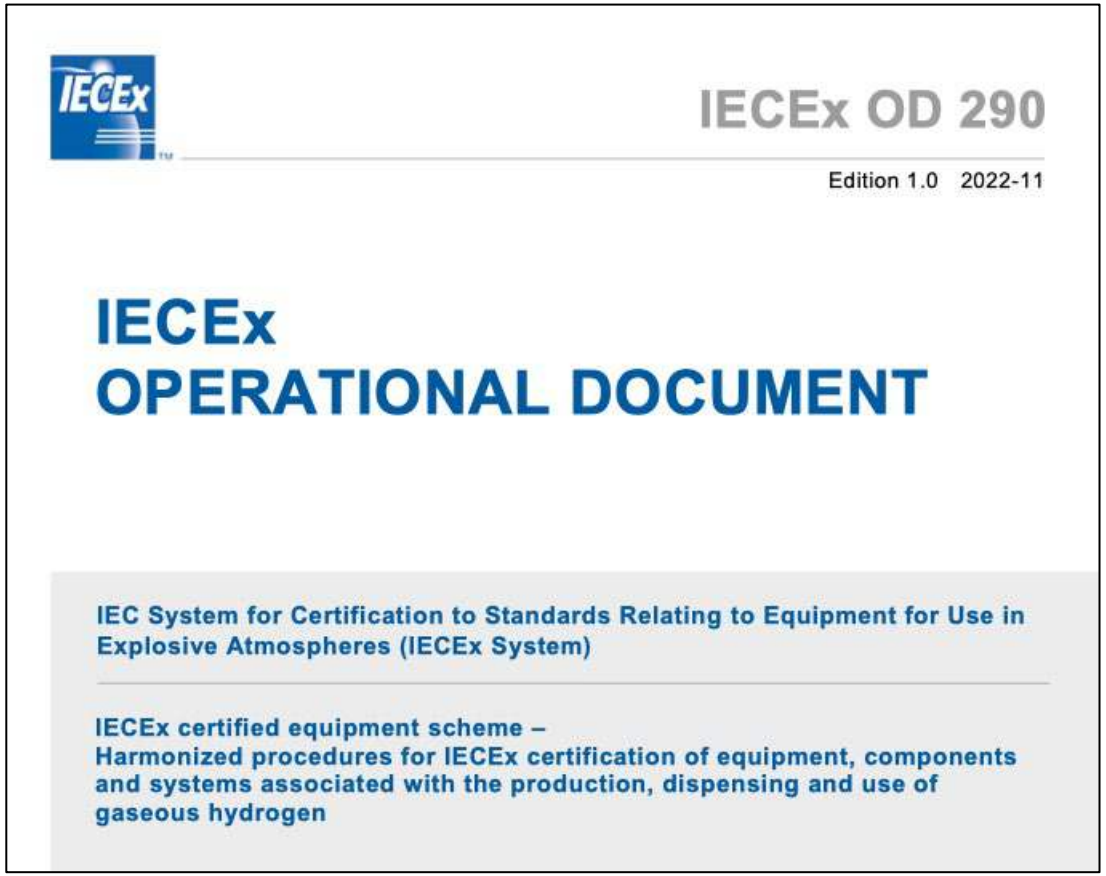
Under the IECEx Certified Equipment Scheme, the IECEx Certificate number displayed on the product matches the Certificate Number as shown on the Master version on the website – provides instant verification of claims of IECEx Certification

IECEx On-Line Certificate System, in real-time, helps prevent fraudulent claims



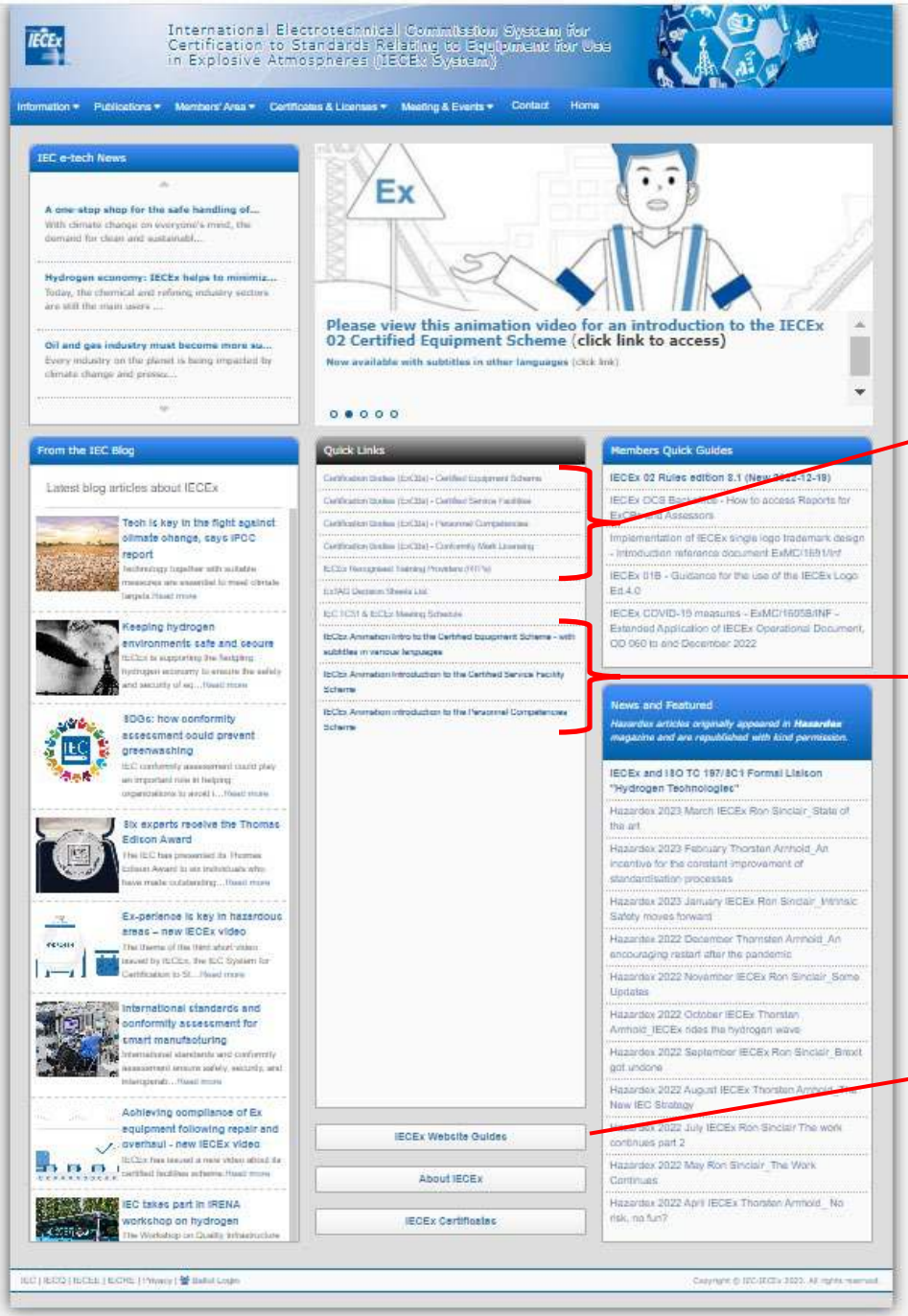
Pioneering Approach to Certification of H2 Dispensers (via IECEx Operational Document OD 290)





- ❑ IECEx OD 290 is NOT a specification, rather it is a scheme document to ensure consistency among aa test Houses and Certification Bodies when certifying H2 Dispensers
- ❑ OD 290 developed in close cooperation and input from ISO/TC 197 experts, and used in conjunction with IEC/TS 60079-46 *Equipment Assemblies*, until ISO 19880-2 is published
- ❑ Annex A "*Qualification and Routine Tests*" prided by ISO/TC 197 experts to align with DIS 19880-2.
- ❑ Satisfies immediate industry need to facilitate deployment and regulatory approvals of HRS.

IECEx Website www.iecex.com Home page Info + Videos



List of the IECEx approved Certification Bodies that can issue IECEx Certification and Recognised Training Providers (RTPs) :-

1. Certified Equipment Scheme
2. Certified Services Scheme
3. Certified Persons Scheme

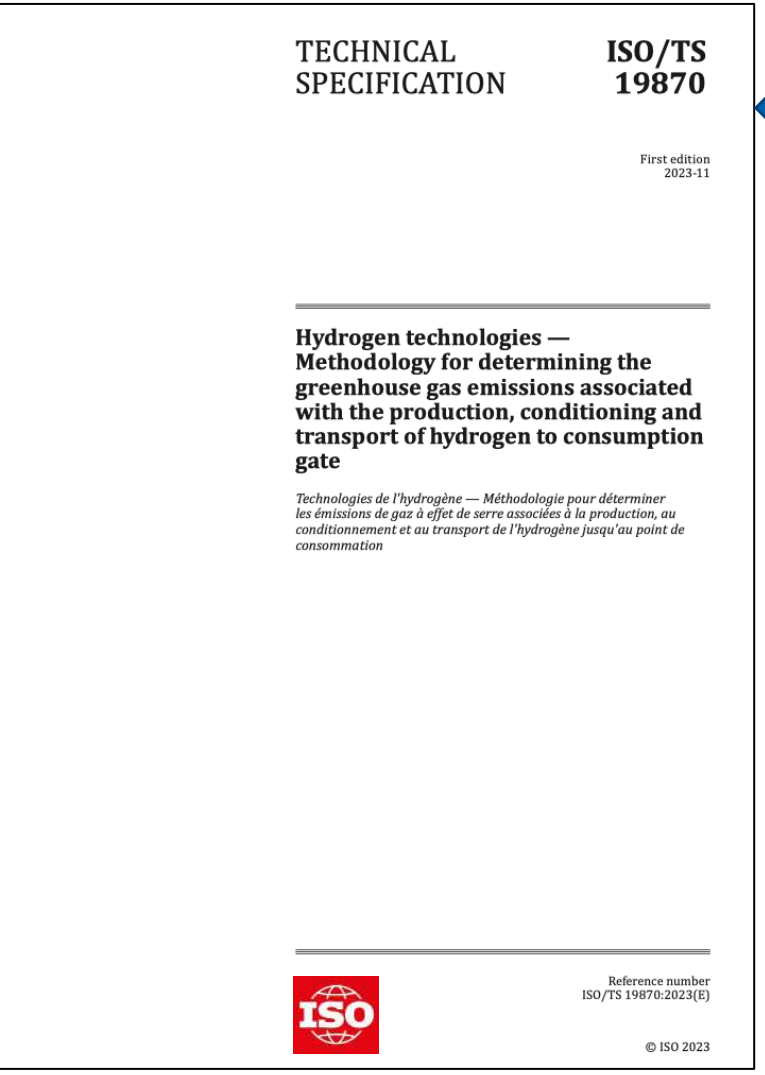
Direct access to 3 separate IECEx Animated Videos (also accessible from YouTube):-

1. Certified Equipment Scheme
2. Certified Services Scheme
3. Certified Persons Scheme

IECEx Website Video Guides on how to use/navigate:

1. The IECEx Website (intended for everyone)
2. The On-Line Certificate System (aimed at those seeking to look up certificates)
3. The On-Line Certificate System – Back Office (mainly for ExCB Staff – how to create/issue CoCs)

Similar Approach Fits into H2 Product Certification Scheme (via IECQ CFP claims verification scheme)



TECHNICAL SPECIFICATION

ISO/TS 19870

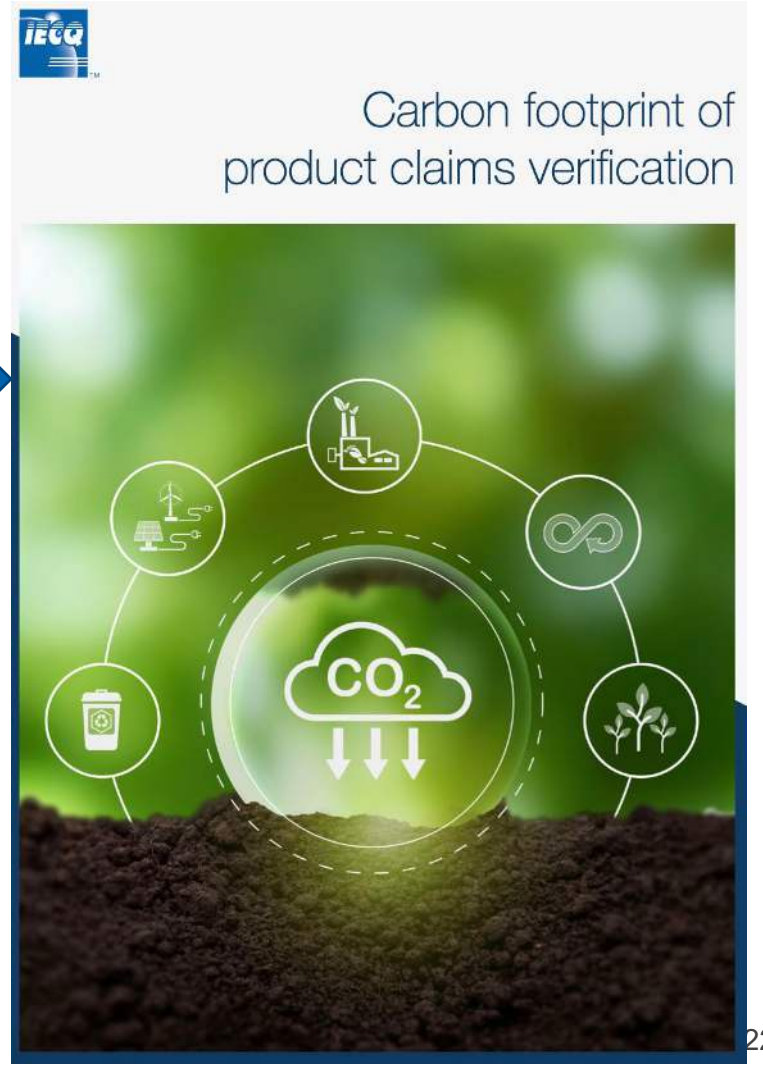
First edition
2023-11

Hydrogen technologies — Methodology for determining the greenhouse gas emissions associated with the production, conditioning and transport of hydrogen to consumption gate

Technologies de l'hydrogène — Méthodologie pour déterminer les émissions de gaz à effet de serre associées à la production, au conditionnement et au transport de l'hydrogène jusqu'au point de consommation

Reference number
ISO/TS 19870:2023(E)

- ISO/TS 19870:2023 is based on ISO 14067 for CFP and ISO 14040 and 14044 for LCA.
- Based on ISO 14067, IECQ has launched a new service under its approved process (AP) scheme: the issuing of an IECQ carbon footprint of product claims verification.



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Electrical Safety
EMC
Energy efficiency
Performance
Cybersecurity
Functional Safety

IECEE

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  - **Wind power**
  - **Marine energy**

IECRE

23

IECEE
IECRE
IECEx
IECQ

IEC's System for Certification to Standards relating to Equipment for use in Explosive atmospheres, IECEx

www.iecex.com

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- Textiles, fabrics and clothing
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- Medical applications, eg hospitals
- Furniture manufacturing
- Sewerage treatment plants
- Underground car parks
- Others

IEC's Quality Assessment System, IECQ

www.iecq.org

IECQ

12

IEC Quality Assessment System, IECQ:

Covering: Environmental Claims Ecodesign, Carbon Footprint Verification Electronic Component supply chains

Currently 26 IECQ Certification Bodies offer IECQ Certification

IECQ Value Proposition

IECQ instils trust by providing confidence of Environmental and Technical Claims made by Organizations

Originally formed in 1970s to cover *Electronic Component supply chain*

2023 Expanded to provide Environmental CA Services to be offered as a Horizontal Service Offering to all industries.

IEC Quality Assessment System, IECQ

(**IEC Quality Assessment System**) a worldwide approval, certification and **verification** system providing an Internationally harmonized approach to:

- **Environmental services to support a circular economy** ***(Available to all industries)***;
  - **Hazardous Substances** (existing HSPM Scheme)
  - **Ecodesign certification** to IEC 62430
  - **Carbon Footprint Verification** according to ISO 14067

- **Quality assessment of electronic components, assemblies and related materials and processes** ***(Electronic Component Supply Chain Services)***
  - Approved Component Schemes, eg Traditional, Avionics, Automotive
  - Approved Process Schemes, eg Nuclear Supply Chain, Information Security Management Systems

IEC Environmental CA Services delivered by its IECQ

Environmental Services supporting a Circular Economy

Hazardous Substances


IEC QUALITY ASSESSMENT SYSTEM (IECQ)
IECQ Certificate of Conformity
Hazardous Substance Process Management
Chongqing Yunai Technology Co., Ltd.
intertek

Ecodesign IEC 62430


IEC QUALITY ASSESSMENT SYSTEM (IECQ)
IECQ Certificate of Conformity
Environmentally Conscious Design (Ecodesign)
Sample

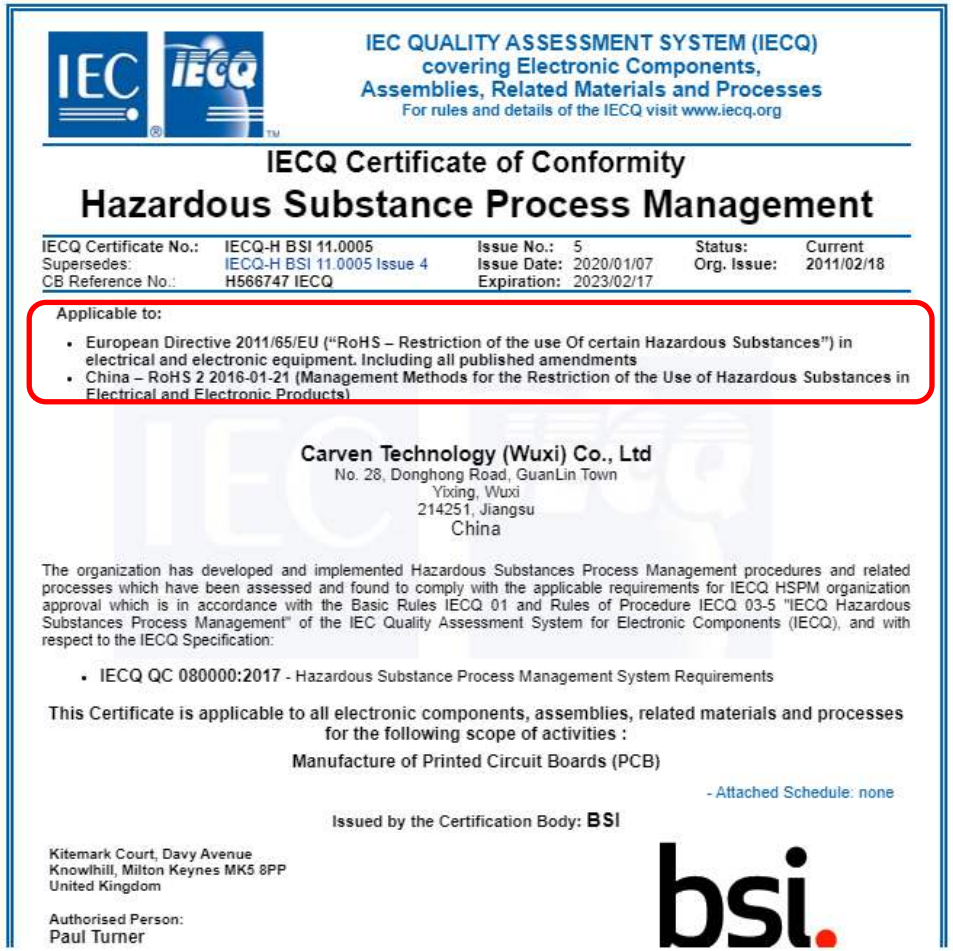
Carbon Footprint Verification


IEC QUALITY ASSESSMENT SYSTEM (IECQ)
IECQ Verification Statement
Carbon Footprint of Product
Sample

IECQ Environmental CA Services being offered to **All Industries** not just electronic components.

IEC's Environmental CA Services: *IECQ Hazardous Substances Certification* – An example of direct use of IEC Conformity Assessment for Regulations - RoHS (**Hazardous Substances**)

Certifies that Regulations covering Hazardous Substances are being met



IEC QUALITY ASSESSMENT SYSTEM (IECQ)
covering Electronic Components,
Assemblies, Related Materials and Processes
For rules and details of the IECQ visit www.iecq.org

IECQ Certificate of Conformity

Hazardous Substance Process Management

IECQ Certificate No.:	IECQ-H BSI 11.0005	Issue No.:	5	Status:	Current
Supersedes:	IECQ-H BSI 11.0005 Issue 4	Issue Date:	2020/01/07	Org. Issue:	2011/02/18
CB Reference No.:	H566747 IECQ	Expiration:	2023/02/17		

Applicable to:

- European Directive 2011/65/EU ("RoHS – Restriction of the use Of certain Hazardous Substances") in electrical and electronic equipment. Including all published amendments
- China – RoHS 2 2016-01-21 (Management Methods for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products)

Carven Technology (Wuxi) Co., Ltd
No. 28, Donghong Road, GuanLin Town
Yixing, Wuxi
214251, Jiangsu
China

The organization has developed and implemented Hazardous Substances Process Management procedures and related processes which have been assessed and found to comply with the applicable requirements for IECQ HSPM organization approval which is in accordance with the Basic Rules IECQ 01 and Rules of Procedure IECQ 03-5 "IECQ Hazardous Substances Process Management" of the IEC Quality Assessment System for Electronic Components (IECQ), and with respect to the IECQ Specification:

- IECQ QC 080000:2017 - Hazardous Substance Process Management System Requirements

This Certificate is applicable to all electronic components, assemblies, related materials and processes for the following scope of activities :

Manufacture of Printed Circuit Boards (PCB)

- Attached Schedule: none

Issued by the Certification Body: **BSI**

Kitemark Court, Davy Avenue
Knowlhill, Milton Keynes MK5 8PP
United Kingdom

Authorised Person:
Paul Turner

bsi.

Origins – 2005 to address Hazardous Substances in electronic component supply – expanded to all sectors

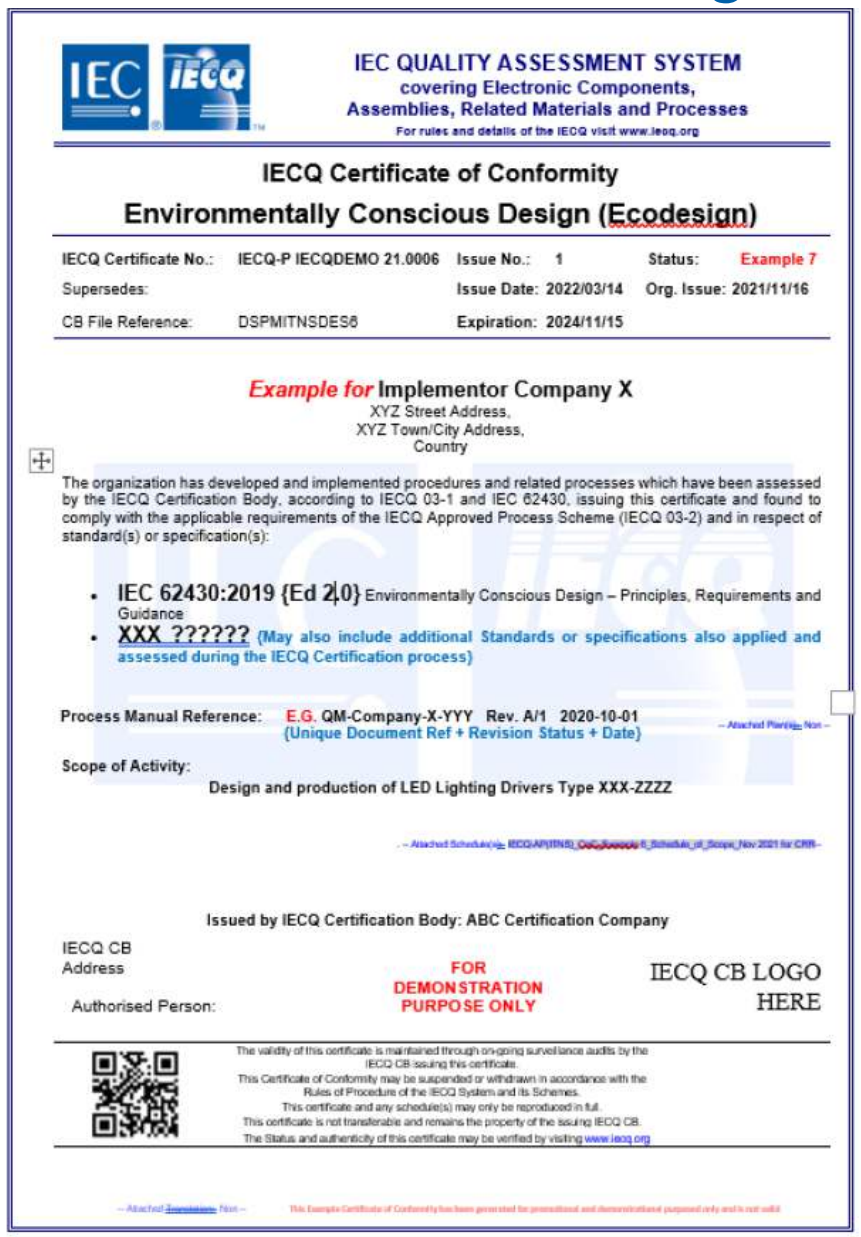
While the original need was to address EU RoHS, IECQ HSPM was developed to cover any Regulations relating to the control of Hazardous Substances associated with electrical/electronic product components.

The example shown here, the IECQ HSPM Certificate, covers both EU RoHS and the China RoHS Regulations.

Ongoing annual surveillance Auditing required – All Locations visited.

Identifies manufacturers that have controls in place to prevent Hazardous Substances entering the manufacturing + supply chain processes.

IEC's Environmental CA Services:
IECQ Ecodesign Certification to IEC 62430



IEC QUALITY ASSESSMENT SYSTEM
covering Electronic Components, Assemblies, Related Materials and Processes
For rules and details of the IECQ visit www.iecq.org

IECQ Certificate of Conformity

Environmental Conscious Design (Ecodesign)

IECQ Certificate No.:	IECQ-P IECQDEMO 21.0006	Issue No.: 1	Status: Example 7
Supersedes:		Issue Date: 2022/03/14	Org. Issue: 2021/11/16
CB File Reference:	DSPMITNSDES8	Expiration: 2024/11/15	

Example for Implementor Company X
XYZ Street Address,
XYZ Town/City Address,
Country

The organization has developed and implemented procedures and related processes which have been assessed by the IECQ Certification Body, according to IECQ 03-1 and IEC 62430, issuing this certificate and found to comply with the applicable requirements of the IECQ Approved Process Scheme (IECQ 03-2) and in respect of standard(s) or specification(s):

- IEC 62430:2019 {Ed 2.0} Environmentally Conscious Design – Principles, Requirements and Guidance
- XXX ?????? (May also include additional Standards or specifications also applied and assessed during the IECQ Certification process)

Process Manual Reference: E.G. QM-Company-X-YYY Rev. A/1 2020-10-01
(Unique Document Ref + Revision Status + Date)

Scope of Activity:
Design and production of LED Lighting Drivers Type XXX-ZZZZ

Issued by IECQ Certification Body: ABC Certification Company

IECQ CB Address

Authorised Person:

FOR DEMONSTRATION PURPOSE ONLY

IECQ CB LOGO HERE

The validity of this certificate is maintained through on-going surveillance audits by the IECQ CB issuing this certificate.
This Certificate of Conformity may be suspended or withdrawn in accordance with the Rules of Procedure of the IECQ System and its Schemes.
This certificate and any schedule(s) may only be reproduced in full.
This certificate is not transferable and remains the property of the issuing IECQ CB.
The Status and authenticity of this certificate may be verified by visiting www.iecq.org

— Certifies that IEC 62430 Environmentally Conscious Design Requirements are being met

Provides International confidence and trust of Organisations that embrace Ecodesign that minimse adverse impact to the environment thru compliance with IEC 62430. Thereby contributing to UN SDGs – ***Prevents Green Washing....***

Developed in close cooperation with IEC/TC 111

IEC ISO

IEC 62430

Edition 2.0 2019-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

HORIZONTAL STANDARD
NORME HORIZONTALE

Environmentally conscious design – Principles, requirements and guidance

Écoconception (ECD) – Principes, exigences et recommandations

1 Scope

This document describes principles, specifies requirements and provides guidance for organizations intending to integrate environmental aspects into the design and development in order to minimize the adverse environmental impacts of their products.

IEC's Environmental CA Services:
IECQ Carbon Footprint Verification –
IECQ WG 14 Green Approach + Collaboration with IEC TC 111

- Now providing **IEC Verification Statements, IECQ** on Carbon Footprint Declarations, using ISO Standards eg 14067

Provides an International Confidence that Carbon Footprint Claims can be Trusted, by ensuring Standards have been applied in the determination

IEC QUALITY ASSESSMENT SYSTEM (IECQ)

For rules and details of the IECQ visit www.iecq.org

IECQ Verification Statement

Carbon Footprint of Product

IECQ Certificate No.: IECQ-V IECQDEMO 23.0001 Issue Date.: 2024/01/24 Expiration: 2027/01/23

CB Reference No.: EXAMPLE - Carbon Footprint of Product

Example for Carbon Footprint Claim Company X
XYZ Street Address,
XYZ Town/City Address.
Australia

The organization has developed and implemented procedures, and related processes which have been assessed by the IECQ Body, according to IECQ 03-1 and ISO/IEC 17029, issuing this statement and found to comply with the applicable requirements of the IECQ Approved Process Scheme (IECQ 03-2) and in respect of standard(s) or specification(s):

- **ISO 14067:2019 {Ed 1.0}** - Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification
- **CFP–PCR, e.g., Climate change** - PCR (Product Category Rules)

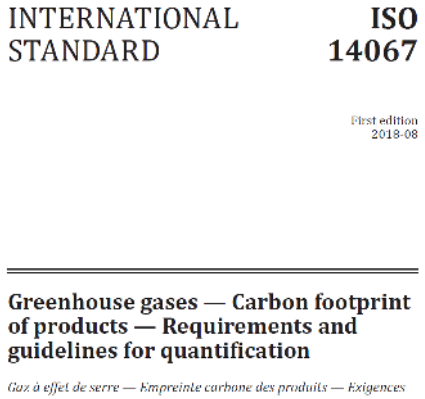
Product/Service:	Description of Product / /Service
Carbon Footprint of Product per Functional Unit:	The CFPP per Function Unit Value
Carbon Footprint Study Report:	Reference to Carbon Footprint Study Report
Additional Information:	Carbon Footprint of Product Additional Information as required.

Verification *according to ISO/IEC 17029*

Use of ISO 14067+ And Other Standards:

Collaboration with IEC TC 111, 105, ISO TC 197+

Caters for future publication of IEC 63372

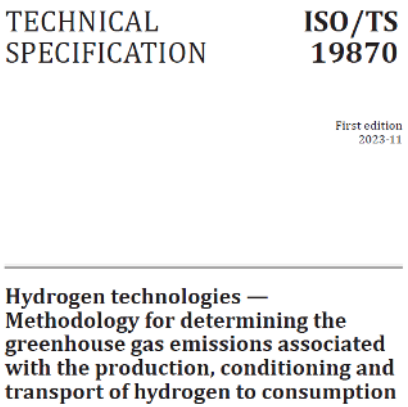


INTERNATIONAL STANDARD **ISO 14067**

First edition 2018-08

Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification

Gaz à effet de serre — Empreinte carbone des produits — Exigences

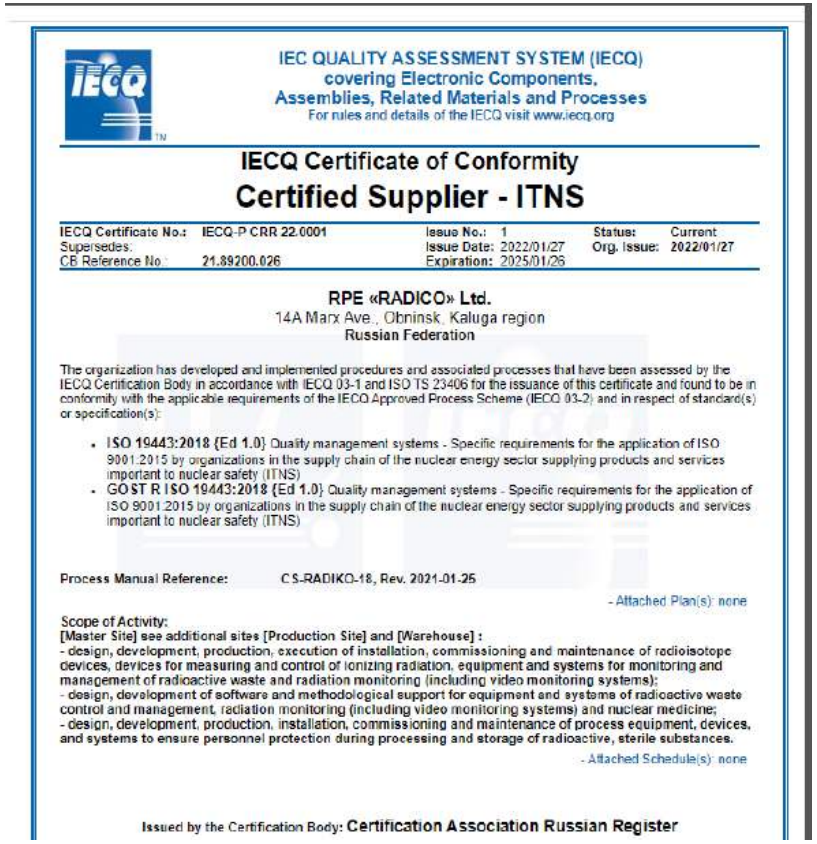


TECHNICAL SPECIFICATION **ISO/TS 19870**

First edition 2023-11

Hydrogen technologies — Methodology for determining the greenhouse gas emissions associated with the production, conditioning and transport of hydrogen to consumption gate

IECQ **Nuclear Supply Chain Certification** Compliance to ISO 19443 – Management System requirements for Organisations supplying goods and services to the Nuclear Industry



IEC QUALITY ASSESSMENT SYSTEM (IECQ)
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IECQ Certificate of Conformity

Certified Supplier - ITNS

IECQ Certificate No.: IECQ-P CRR 22.0001 | Issue No.: 1 | Status: Current
Supersedes: | Issue Date: 2022/01/27 | Org. Issue: 2022/01/27
CB Reference No.: 21.89200.026 | Expiration: 2025/01/26

RPE «RADICO» Ltd.
14A Marx Ave., Obninsk, Kaluga region
Russian Federation

The organization has developed and implemented procedures and associated processes that have been assessed by the IECQ Certification Body in accordance with IECQ 03-1 and ISO TS 23406 for the issuance of this certificate and found to be in conformity with the applicable requirements of the IECQ Approved Process Scheme (IECQ 03-2) and in respect of standard(s) or specification(s):

- **ISO 19443:2018 {Ed 1.0}** Quality management systems - Specific requirements for the application of ISO 9001:2015 by organizations in the supply chain of the nuclear energy sector supplying products and services important to nuclear safety (ITNS)
- **GOST R ISO 19443:2018 {Ed 1.0}** Quality management systems - Specific requirements for the application of ISO 9001:2015 by organizations in the supply chain of the nuclear energy sector supplying products and services important to nuclear safety (ITNS)

Process Manual Reference: CS-RADIKO-18, Rev. 2021-01-25

- Attached Plan(s): none

Scope of Activity:
[Master Site] see additional sites [Production Site] and [Warehouse] :
- design, development, production, execution of installation, commissioning and maintenance of radioisotope devices, devices for measuring and control of ionizing radiation, equipment and systems for monitoring and management of radioactive waste and radiation monitoring (including video monitoring systems);
- design, development of software and methodological support for equipment and systems of radioactive waste control and management, radiation monitoring (including video monitoring systems) and nuclear medicine;
- design, development, production, installation, commissioning and maintenance of process equipment, devices, and systems to ensure personnel protection during processing and storage of radioactive, sterile substances.

- Attached Schedule(s): none

Issued by the Certification Body: **Certification Association Russian Register**

Certifies an Organisations Management System Process with **ISO 19443**

ISO 19443 uses ISO 9001 QMS as a basis

Addresses goods and services that are Important to Nuclear Safety (ITNS)

A new Service of IECQ – First 5 Certificates issued

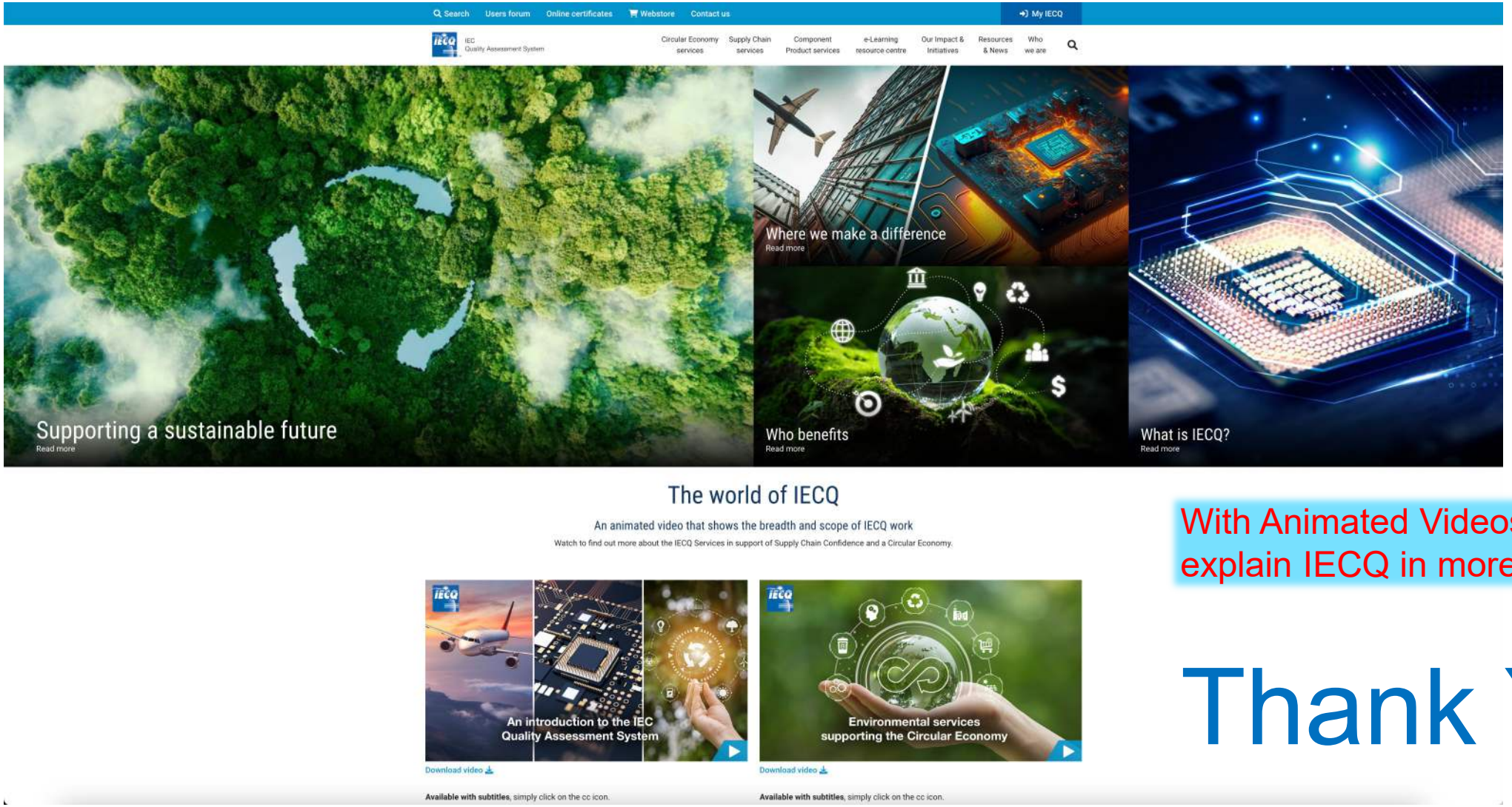
INTERNATIONAL STANDARD

ISO 19443

First edition
2018-05

News Alert: - COP28 reports of the signing of a pledge to triple use of Nuclear Energy by 2050 as part of the replacement of reliance on fossil fuels

New IECQ Website – Essential for the new Environmental CA Services – www.iecq.org



With Animated Videos that explain IECQ in more detail

Thank You