



Conformity Assessment 101 - Webinar

US National Committee (USNC) the International Electrotechnical Commission (IEC)



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Presentation Topics



1. **Big Questions**
 - *What is the problem and how is Conformity Assessment the solution?*
2. **The IEC Conformity Assessment Systems**
 - *The four CA Systems and who does what*
3. **Standards and Conformity**
 - *You've done the work, now what?*
4. **A World Without Conformity Assessment**
 - *Looking back, and ahead*



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The Big Question(s)



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The Big Question(s)



- What is Conformity Assessment?
- Why should you care about it?

Standards are great, but...



- How can a customer or consumer verify that a standard has been followed?
- **Conformity Assessment!**
- Any activity to determine, directly or indirectly, that a product, process, or service meets relevant technical standards and fulfills relevant requirements.





The Problem:



Different
Country
Requirements

Different tests,
same product

Countries do not
recognize test
results from other
countries

Doing the same
tests many times

Higher Costs and
Longer Time to
Market

Low Incentive to
Export

Less World Trade

Less Prosperity



The Solution:



- One Test
- One Certificate
- Accepted Everywhere



Key Principles



- **Facilitating trade** by eliminating duplication of conformity assessment tasks and providing market access
- **National adoption and use of IEC standards** (with provision for national differences)
- **Mutual / global acceptance** of IEC System's deliverables
- **Peer assessment** to ensure competence, consistency and mutual confidence

Peer Assessment



- **Confidence is Key**
- Method to verify competence and build confidence among members
 - Develop **confidence** among peer member organizations
 - Verify ability of member laboratories to allow acceptance of testing data **without rework**
 - Further supported by proficiency testing program
 - Foundation for mutual acceptance

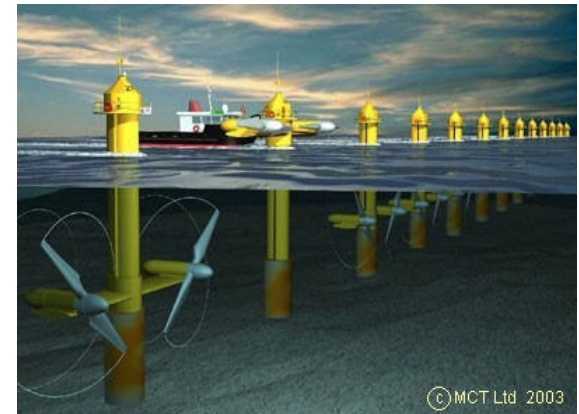


Company “X”



- New sector: **Marine Energy Technology**
 - Absence of industry best practices
 - Lack of transportable 3rd party verification of compliance
 - Need to increase consumer confidence, market confidence, AND increased costs for testing and certifying

- So... how does Conformity Assessment Help?





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The IEC Conformity Assessment Systems



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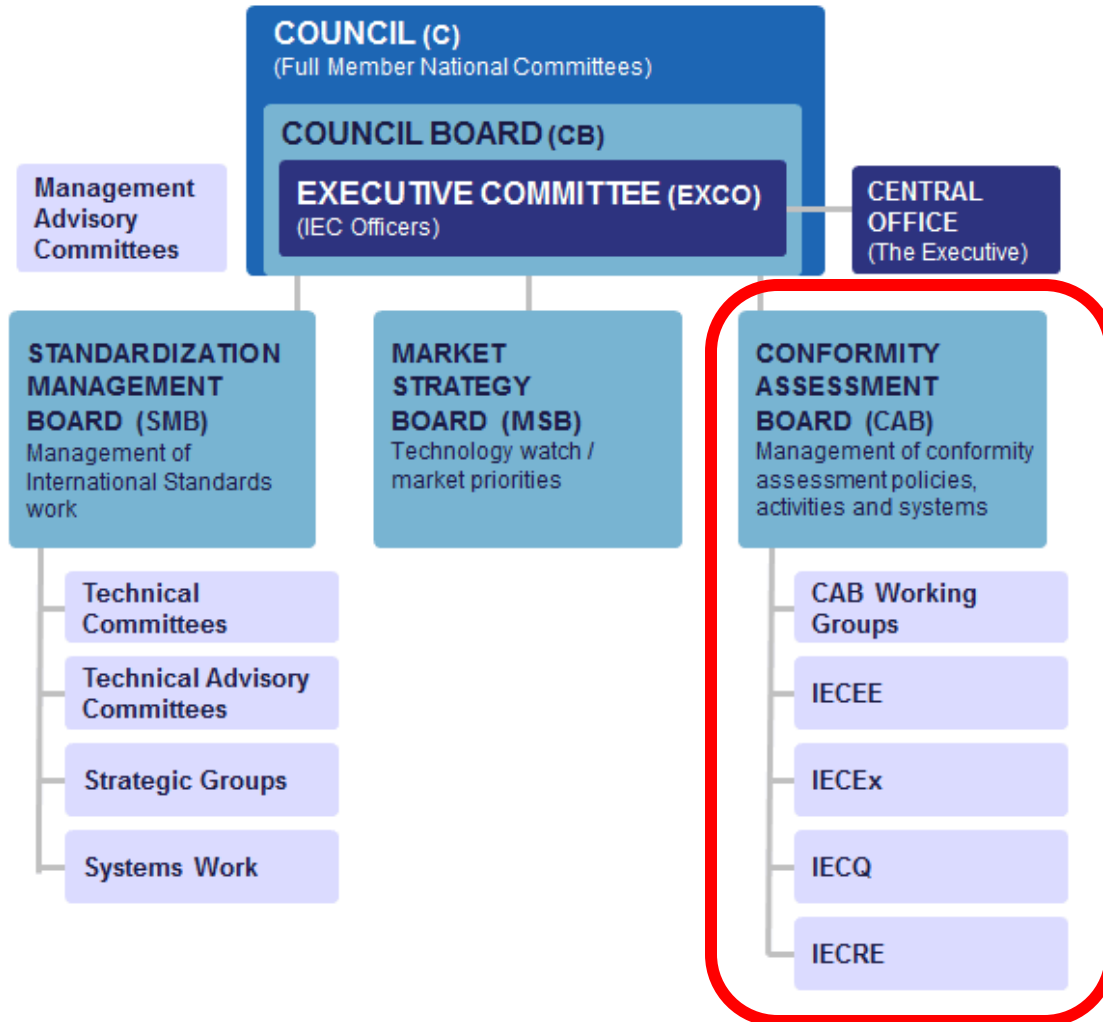
Conformity Assessment Systems



- The IEC Conformity Assessment Systems themselves do not perform conformity assessment (CA) (e.g. testing, certification, etc.)
- Rather, they create an international framework in which commercial CA organizations operate
- Members write the rules, abide by the rules
- One member body per Country
- Participating CBs and TLs write Operational Documents
- Peer-assessment checks skill levels and competencies, and if those Operational Documents are being followed.

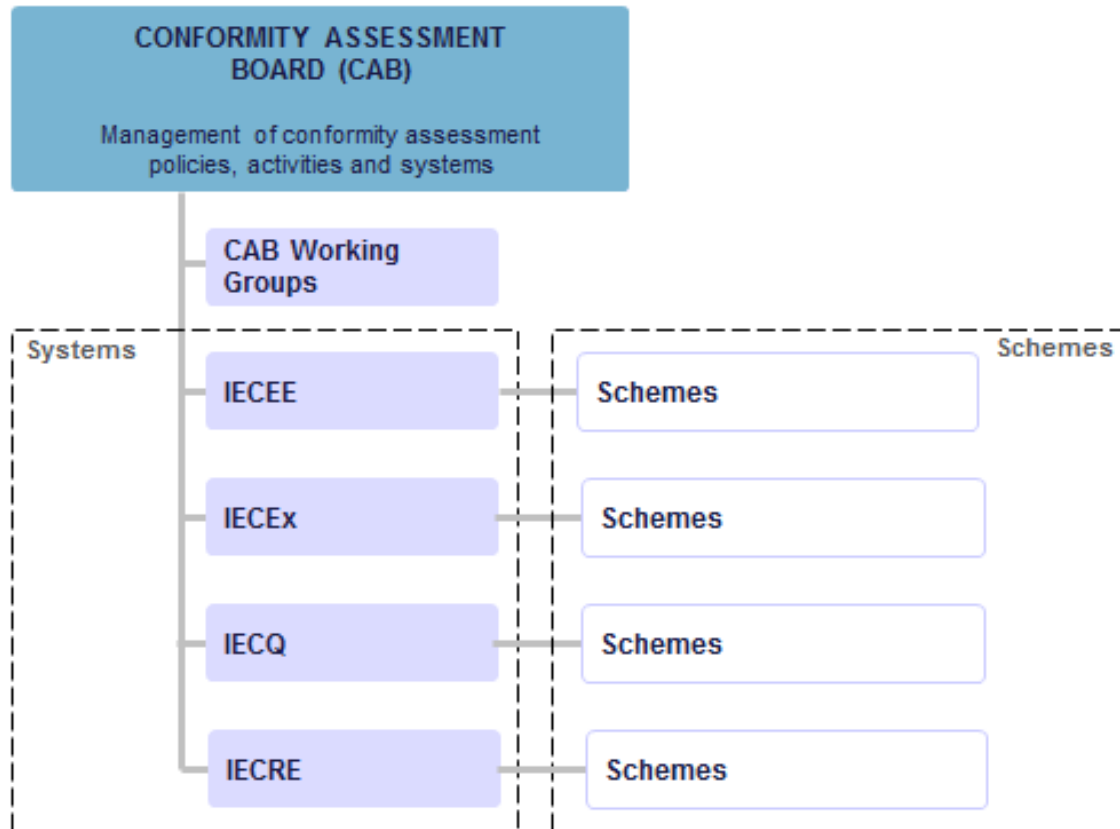


IEC: Conformity Assessment Board





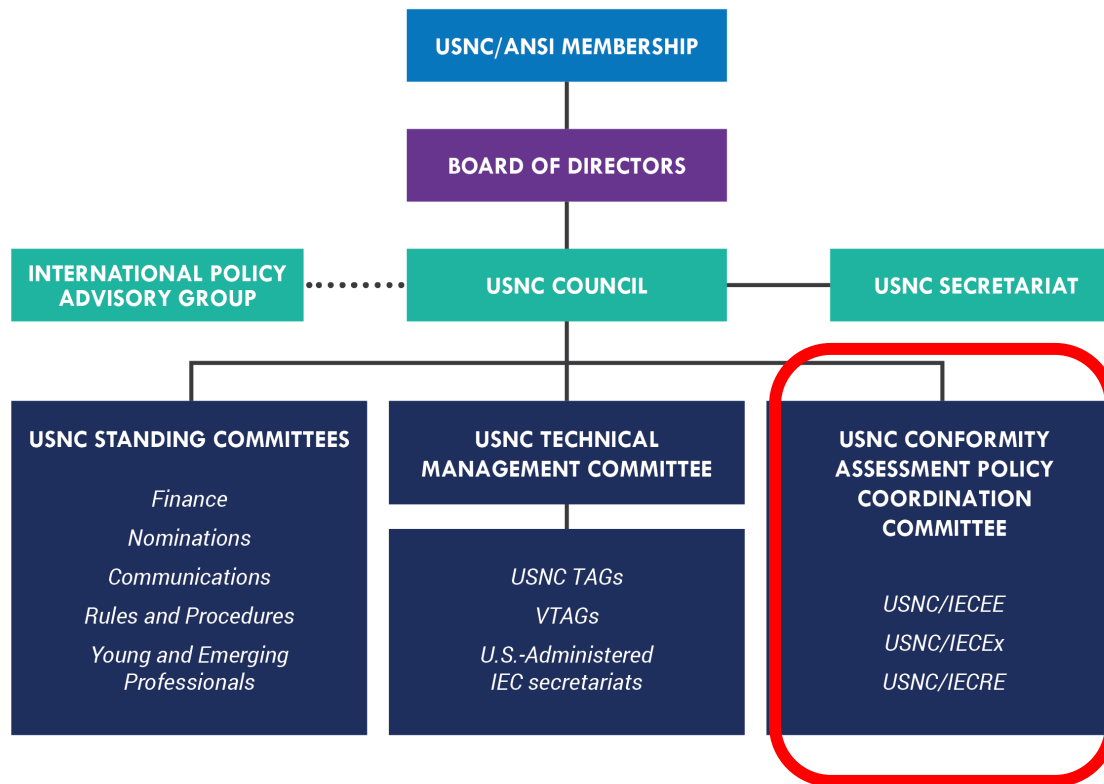
IEC: Conformity Assessment Board



USNC: Conformity Assessment Policy Coordinating Committee



USNC ORGANIZATION STRUCTURE



The Four Systems



IECEE

- Electrical equipment: safety and performance



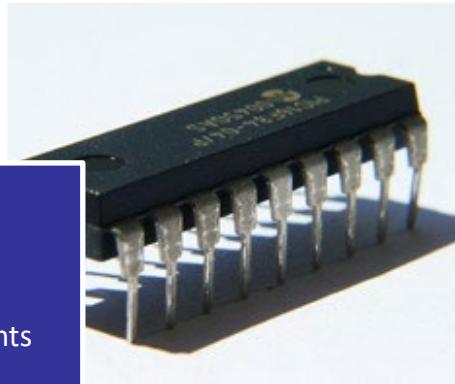
IECEX

- Hazardous environments



IECQ

- Electronic components



IECRE

- Renewable energies





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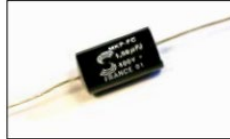
IECEE Certification Services



BATT
Batteries



CABL
Cables and cords



CAP
Capacitors as components



INDA
Industrial Automation



INST
Installation accessories & connection devices



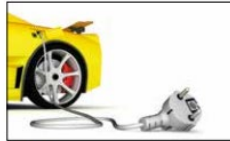
LITE
Luminaires



CONT
Switches for appliances and automatic controls for electrical household appliances



E3
Electrical Energy Efficiency



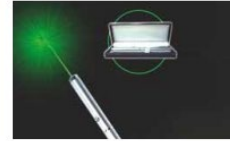
ELVH
Electrical Vehicles



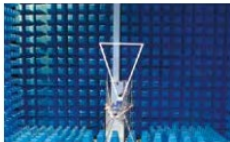
MEAS
Measuring instruments



MED
Electrical equipment for medical use



MISC
Miscellaneous



EMC
Electromagnetic Compatibility



HOUS
Household and similar equipment



HSTS
Hazardous Substances Testing Service



OFF
IT and office equipment



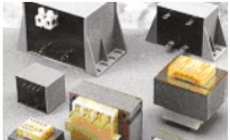
POW
Low voltage, high power switching equipment



PROT
Installation protective equipment



PV
Photovoltaics



SAFE
Safety transformers and similar equipment



TOOL
Portable tools



TOYS
Electric toys



TRON
Electronics, entertainment



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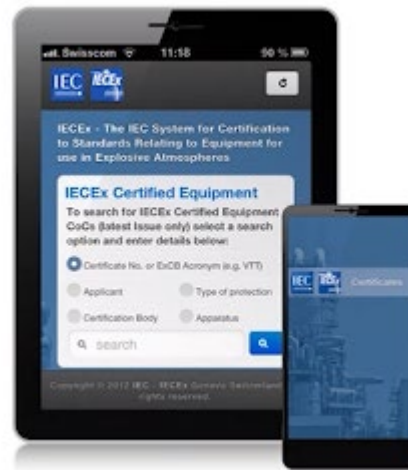


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IECEX Certification Services



- IECEX Certified Equipment Scheme
- IECEX Certified Service Facilities Scheme
- IECEX Certification of Personnel Competencies
- IECEX Certified Mark Licensing System



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IECRE Certification Services



- IECRE System is organized into three Sectors:
 - *Marine Energy*
 - *Solar PV Energy*
 - *Wind Energy*
- Each of these sectors will be able to operate Schemes that cover
 - *products, e.g. components and systems*
 - *services, e.g. installations and other related offers of the sector*
 - *personnel, e.g. covering the competence of those working in the sector*





IECQ Certification Services

Note: The USNC is no longer a member of IECQ



- **IECQ AP - Approved Process Scheme**
 - Certification of sub-processes for component manufacture
- **IECQ AC - Approved Components Scheme**
 - Certification of components, products, materials, & assemblies
- **IECQ AQP - Automotive Qualification Program**
- **IECQ LED - Scheme for LED Lighting**
- **IECQ ADHP - Avionic, Defense, & High Performance Scheme**
- **IECQ CAP - Counterfeit Avoidance Programme**
- **IECQ HSPM - Hazardous Substances Process Mgmt Scheme**



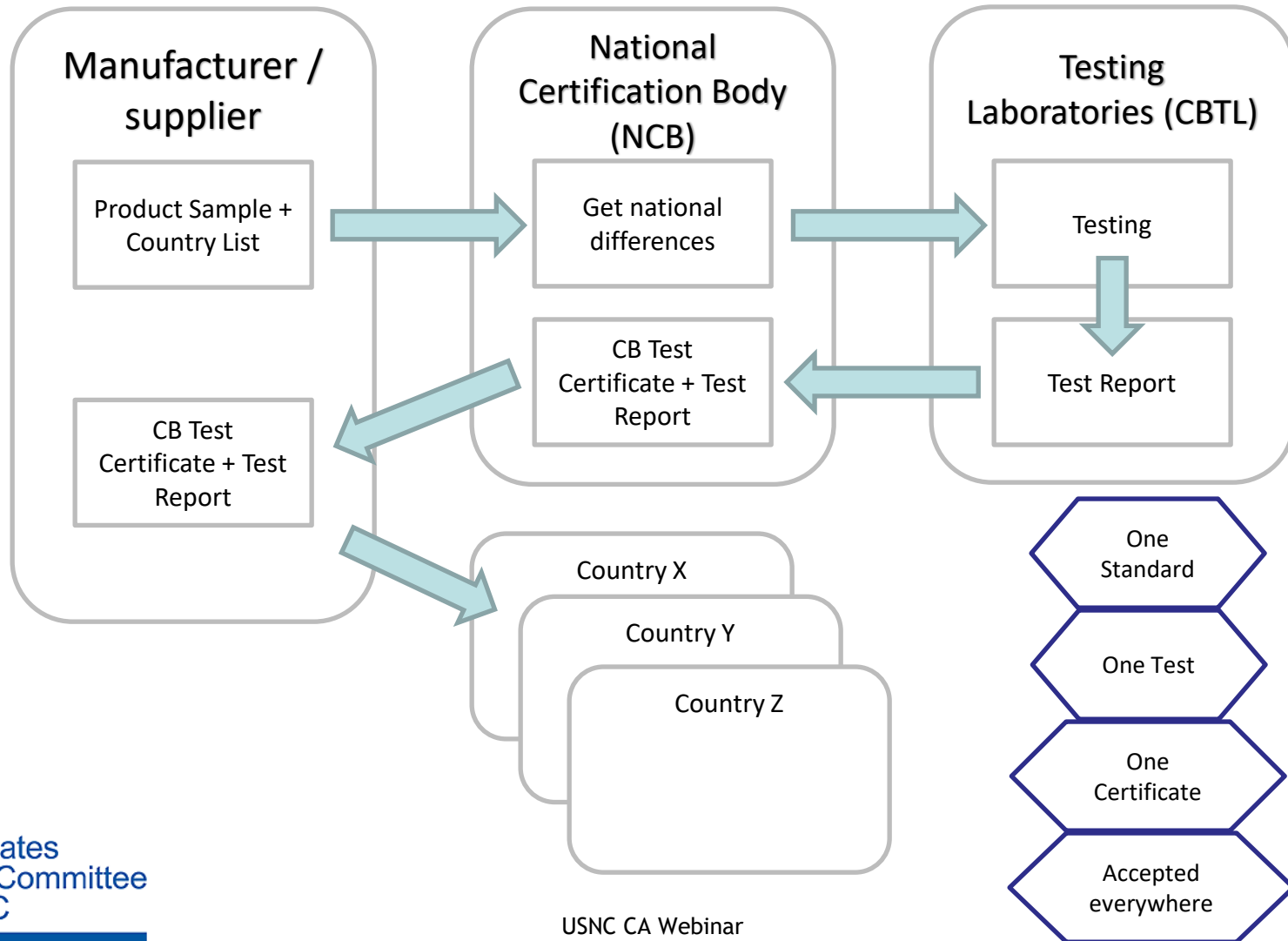
Certification Bodies and Test Laboratories (IECEE)



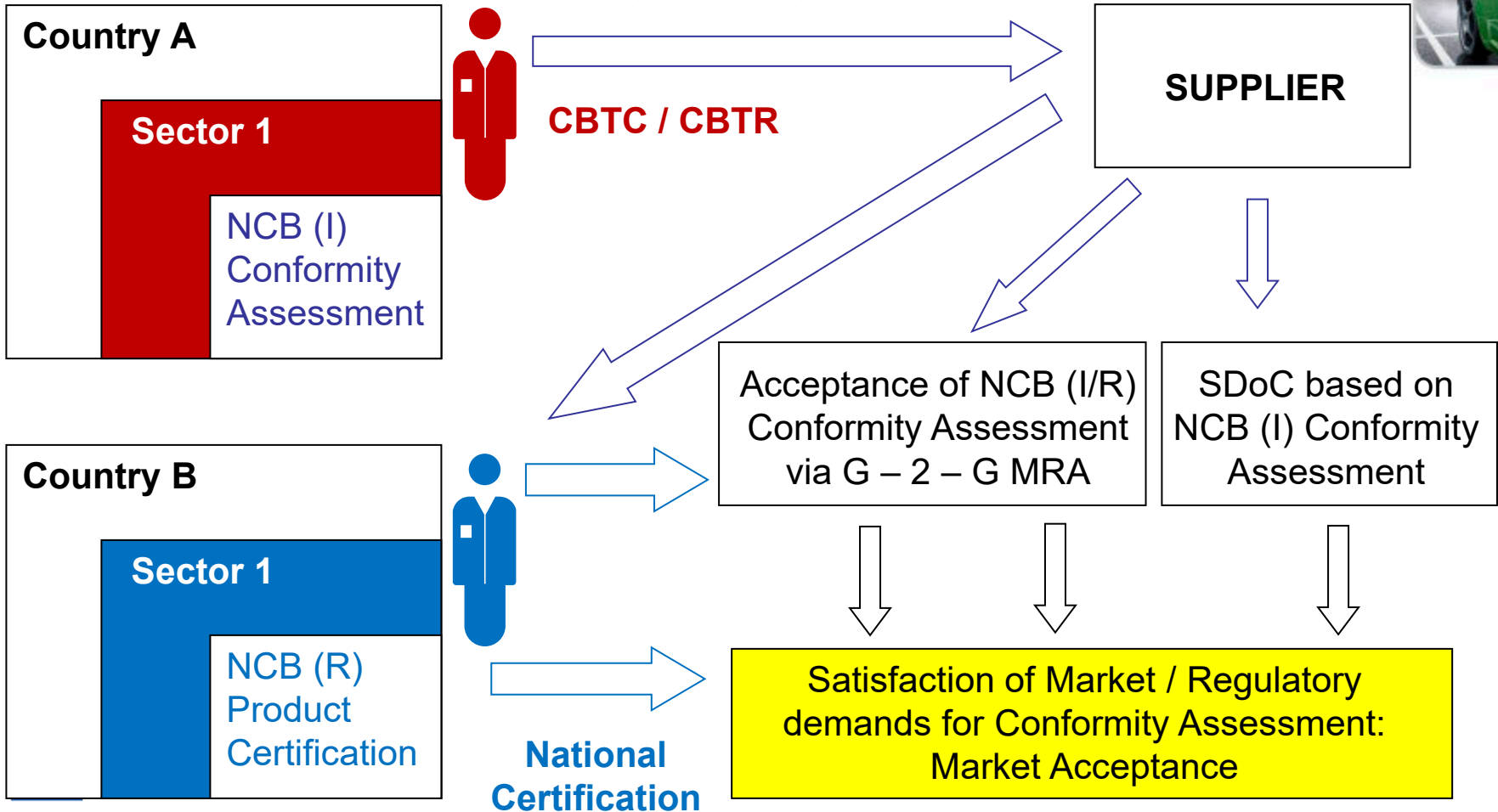
- National Certification Body (NCB)
 - One or more NCB per country
- Testing Laboratory (CBTL)
 - “CB” does not refer to “Certification Body”
 - Laboratory is part of the *CB-scheme*
- Client Test Facilities (CTF)



IECEE Certification Services - CB Scheme



IECEE Case: Flow of a CB Test Report (CBTR) / CB Test Certificate (CBTC)





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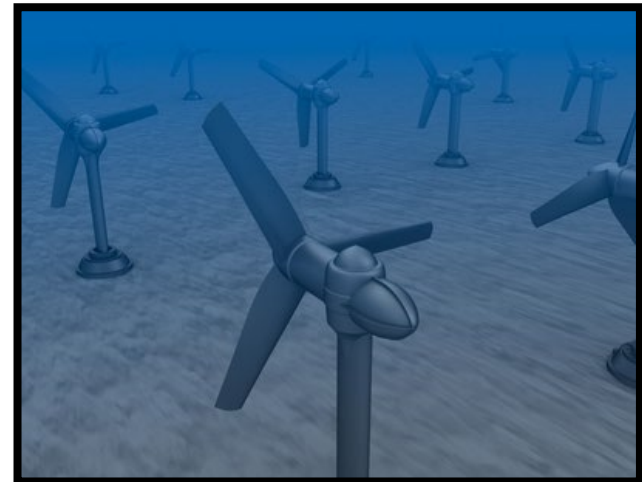
Where Does Company X “Fit”?



- Marine Energy

- Renewables

- IECRE



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Standards and Conformity



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Standards used in Conformity Assessment



- Clearly and concisely written
- Readily understood
- Precise
- Technically Credible
- Contain only unambiguous requirements
 - *the absence or presence of which can be objectively verified*



Demonstration of Conformity



- You've done the work, how do you satisfy everyone?
 - *Customer*
 - *Regulatory body*
 - *Government agency*
 - *Customs*

(All with different demands)





But How?



- Certification Document
- Test Report
- Regulatory Labelling
- E-Labeling

IECEx Certificate of Conformity
INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

Certificate No.: IECEx L01E 17 0020X Issue No.: 0 Certificate History Issue No.: 0 (2017-12-29)

Status: Current Page 1 of 3

Date of Issue: 2017-12-29

Applicant: Fortrek Industries B.V.
Oudevenneind 101,
2904 BL, Hildesheim,
The Netherlands

Equipment: Pressure transmitter / switch - Type : ESTB-PTDC

Optional accessory:

Type of Protection: Ex db, Ex Ib

Marking: Ex db IIC T8 Gb
Ex Ib IIC T80°C Gb
(Refer to attachment for full marking)

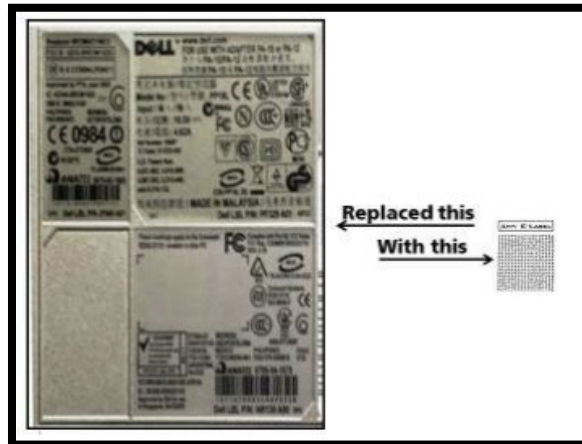
Approved for issue on behalf of the IECEx Certification Body: Marie Elisabeth d'Onno
Position: Director for Certification

Signature: (For printed version)

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificates issued by:
Laboratoire Central des Industries Electriques (LCIE)
23 Avenue de Central Garden
FR-92200 Fontenay-aux-Roses
France



More on Labeling...



- Marks on a product show compliance
- Every program and agency wants their own Mark
- Marks are beautiful
- Challenge for global products
- Advances in Labeling
 - Electronic
 - Other ideas

How did Company X use Standards in Conformity Assessment?



- IEC TC 114: Marine Energy - Wave, tidal and other water current converters
- Publication of Technical Specification 62600-200
 - Common language and consensus-based TS for marine energy industry





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A World Without Conformity Assessment



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What happens when there is no IEC / CA?



- Every country would test to different standards, resulting in:
 - *Increased Complexity*
 - *Increased Costs for Testing*
 - *Lower Market Confidence*
 - *Longer Time-to-Market*
 - *No verification of standards*



Where can we see this happening now?



■ Cybersecurity

- *Currently, we don't have harmonized standards*
- *Countries are finding their own solutions*
- *No coordination*
- *No agreement on what it means to be “secure”*



...now back to Company X



WHO IS
COMPANY
X?





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IECRE: with IEC Conformity Assessment, Verdant Power succeeds



- To recap: no 3rd Party Verification of Compliance
 - *Verifications in separate markets, not accepted across countries*
- IECRE System (Renewable Energy)
 - *provides platform required to develop necessary Marine Energy Certification Schemes*
 - *Internationally recognized and transportable*
- **Increased market confidence in Marine Energy**

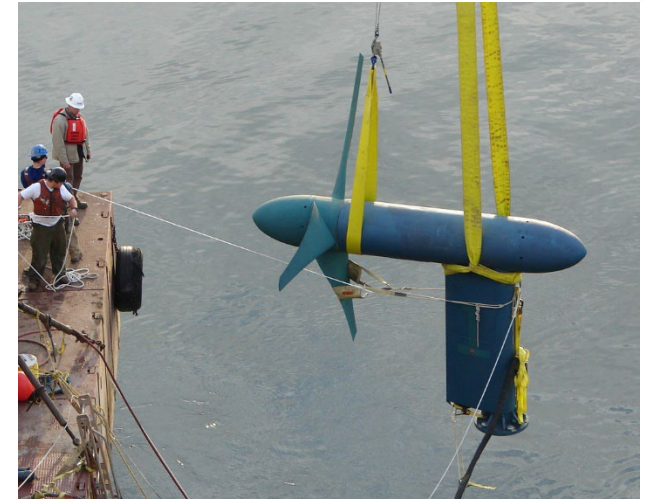


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Questions?



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What is the USNC?



- United States National Committee
 - Official U.S. member to the IEC and related regional standardization bodies
- Represents the interests of the U.S. electrotechnical industry before its international counterparts in the standardization arena
- Committee of the American National Standards Institute (ANSI)



What is ANSI?



- Serves as the coordinator of the U.S. voluntary consensus standards and conformity assessment system.
- Mission is to enhance both the global competitiveness of U.S. business and the U.S. quality of life
- Promoting and facilitating voluntary consensus standards and conformity assessment systems, and safeguarding their integrity.



What is an SDO?



- Standards developing organizations (SDOs) are independent organizations within the U.S. system
- Each SDO has the autonomy to decide which standards it would like to develop, to set its own policies, and to pursue ANSI accreditation and approval.
- SDOs in the U.S. are generally private-sector not-for-profit organizations
- Because SDOs are responsible for their own operating costs, they tend to focus on developing only standards that fit a particular market need.



Questions?

Reach out to USNC Staff at usnc@ansi.org
for more information!



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