



International Electrotechnical Commission
Technical Committee 82 on
Solar photovoltaic energy systems



IEC System for Certification to Standards Relating to Equipment
for Use in Renewable Energy Applications (IECRE System)

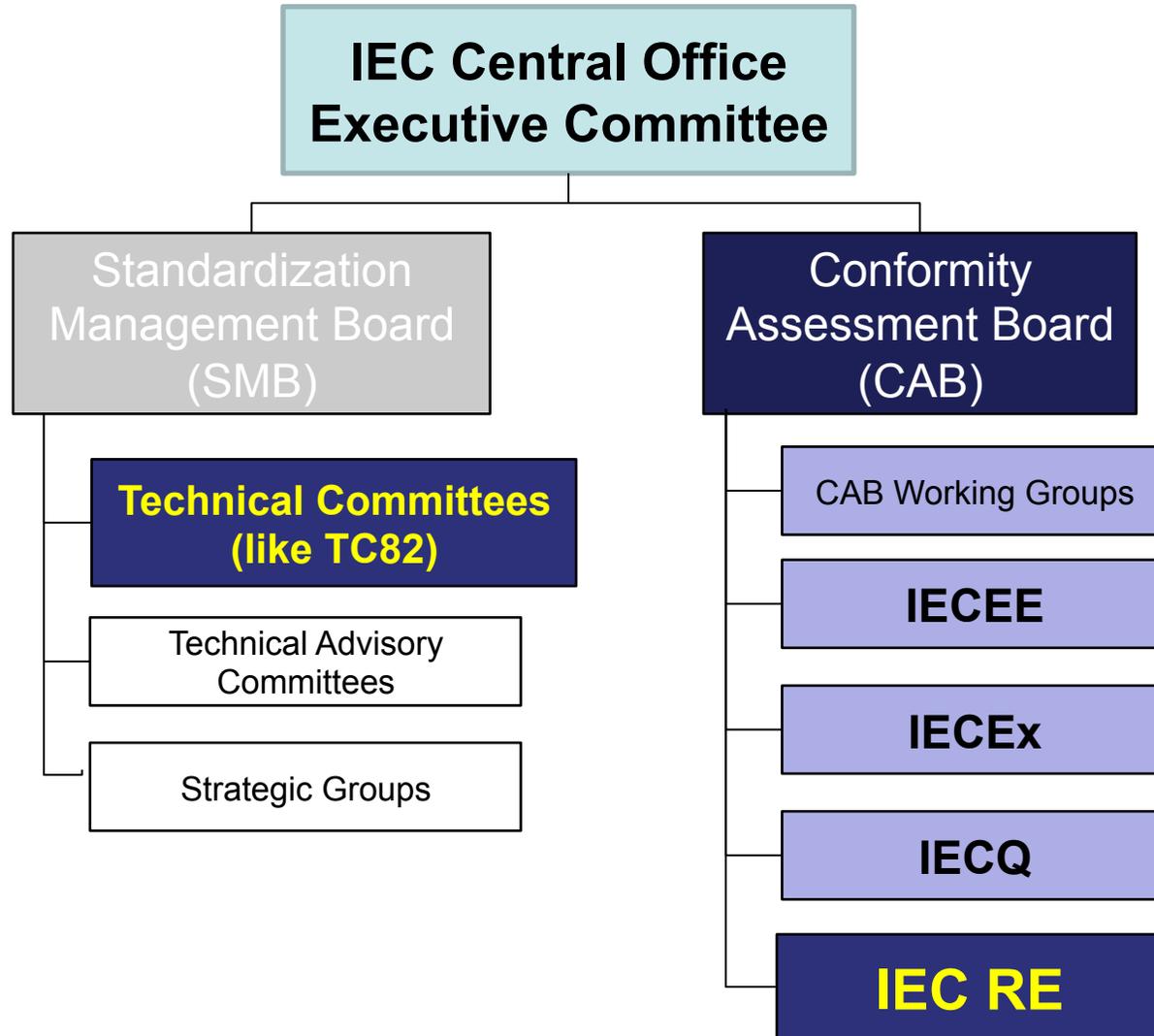
Standards and Conformity Assessment :

IEC TC 82
IECRE PV OMC

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IEC Organization





IEC Standards

- **166** countries represented
 - 83 “member” and 83 “affiliate” countries
 - One vote per country
- Work Programme for each Technical Committee approved by country vote
 - National committees appoint experts to participate in each project
 - Minimum 5 countries to get started
- Rules defined under ISO/IEC Directives



Standards Development Principles

- Established by World Trade Organization
 - Common to ISO, IEC, ITU
- IEC procedures are intended to ensure:
 1. Transparency
 2. Openness
 3. Impartiality and consensus
 4. Effectiveness and relevance
 5. Coherence
- And to address the concerns of developing countries



Standards Development Tools

- IEC website: www.iec.ch
 - Up-to-date information on all projects
 - Access to all working documents
 - Electronic voting / commenting
 - Templates for drafting standards
 - Web-conferencing & collaboration tools
- IEC Experts Management System (**EMS**)
 - Administered by national committees
 - Online registration for TC meetings



TC 82 Scope

- To prepare international standards for systems of photovoltaic conversion of solar energy into electrical energy and for all the elements in the **entire photovoltaic energy system**.
- In this context, the "photovoltaic energy system" includes the entire field **from light input** to a photovoltaic cell to and including the interface with the electrical system(s) to which energy is supplied.



TC82 Structure

- **48** countries represented
 - 35 “participating” and 13 “observing” member countries with 300+ experts
 - 8 active working groups
- TC82 has the **LARGEST** work programme of all IEC committees
 - 74 projects and counting
 - This is good – if they get finished !!



TC 82 Working Groups

WG 1: Glossary

WG 2: Modules, non-concentrating

WG 3: Systems

WG 6: BOS components

WG 7: Concentrator modules

WG 8: Cells

JWG 1: Decentralized Rural Electrification

JWG 82: Batteries ([TC 21](#))



Recent Standards Published

Document	Ed.	Date	Title
IEC 62817	1.0	Aug 2014	Photovoltaic systems - Design qualification of solar trackers
IEC 60904-8	3.0	May 2014	Photovoltaic devices - Part 8: Measurement of spectral responsivity of a photovoltaic (PV) device
IEC 62116	2.0	Feb 2014	Utility-interconnected photovoltaic inverters - Test procedure of islanding prevention measures
IEC 62670-1	1.0	Sep 2013	Photovoltaic concentrators (CPV) - Performance testing - Part 1: Standard conditions
IEC/TS 62548	1.0	Jul 2013	Photovoltaic (PV) arrays - Design requirements
IEC 62716	1.0	Jun 2013	Photovoltaic (PV) modules - Ammonia corrosion testing



Recent Committee Drafts

Document	Working Group	Title
82/892/CD	3	IEC 62738 TS Ed.1: Design guidelines and recommendations for photovoltaic power plants
82/885/DTS	2	IEC 62804 TS Ed.1: Test methods for detection of potential-induced degradation of crystalline silicon photovoltaic (PV) modules
82/884/DTS	6	IEC 62910 TS Ed.1: Test procedure of Low Voltage Ride-Through (LVRT) measurements for utility-interconnected photovoltaic inverter
82/883/CD	7	IEC 62925 Ed.1: Thermal cycling test for CPV modules to differentiate increased thermal fatigue durability
82/875/CD	2	IEC 62941 TS Ed.1: Guideline for increased confidence in PV module design qualification and type approval
82/866/CDV	6	IEC 62891 Ed.1: Overall efficiency of grid connected photovoltaic inverters



Recent New Work Items

Document	Working Group	Title
82/904/NP	7	Primary Optics for Concentrator Photovoltaic Systems (Future IEC 629XX TS Ed.1)
82/903/NP	2	Measurement procedures for materials used in photovoltaic modules - Part 3-1: Polymeric materials for photovoltaic (PV) modules - Backrail attachment (proposed future IEC 62788-3-1)
82/901/NP	2	Photovoltaic devices - Part 13: Electroluminescence of photovoltaic modules (proposed future IEC TS 60904-13)
82/869/NP	2	Photovoltaic devices - Part 12: Infrared thermography of photovoltaic modules (future IEC 60904-12 TS Ed.1)
82/867/NP	2	Future IEC 62xxx Ed.1: Photovoltaic module bypass diode thermal runaway test
82/826/NP	3	Photovoltaic system energy performance evaluation method



Anticipated areas of activity

- **WG2 Modules**
 - Module component specs & tests
 - Reliability & comparative testing
 - Closely tied to PVQA Task Force efforts
- **WG3/6 Systems/BOS**
 - Safety standards for specific components
 - System commissioning and O&M
- **WG7 Concentrators**
 - Power & energy rating; solar simulator

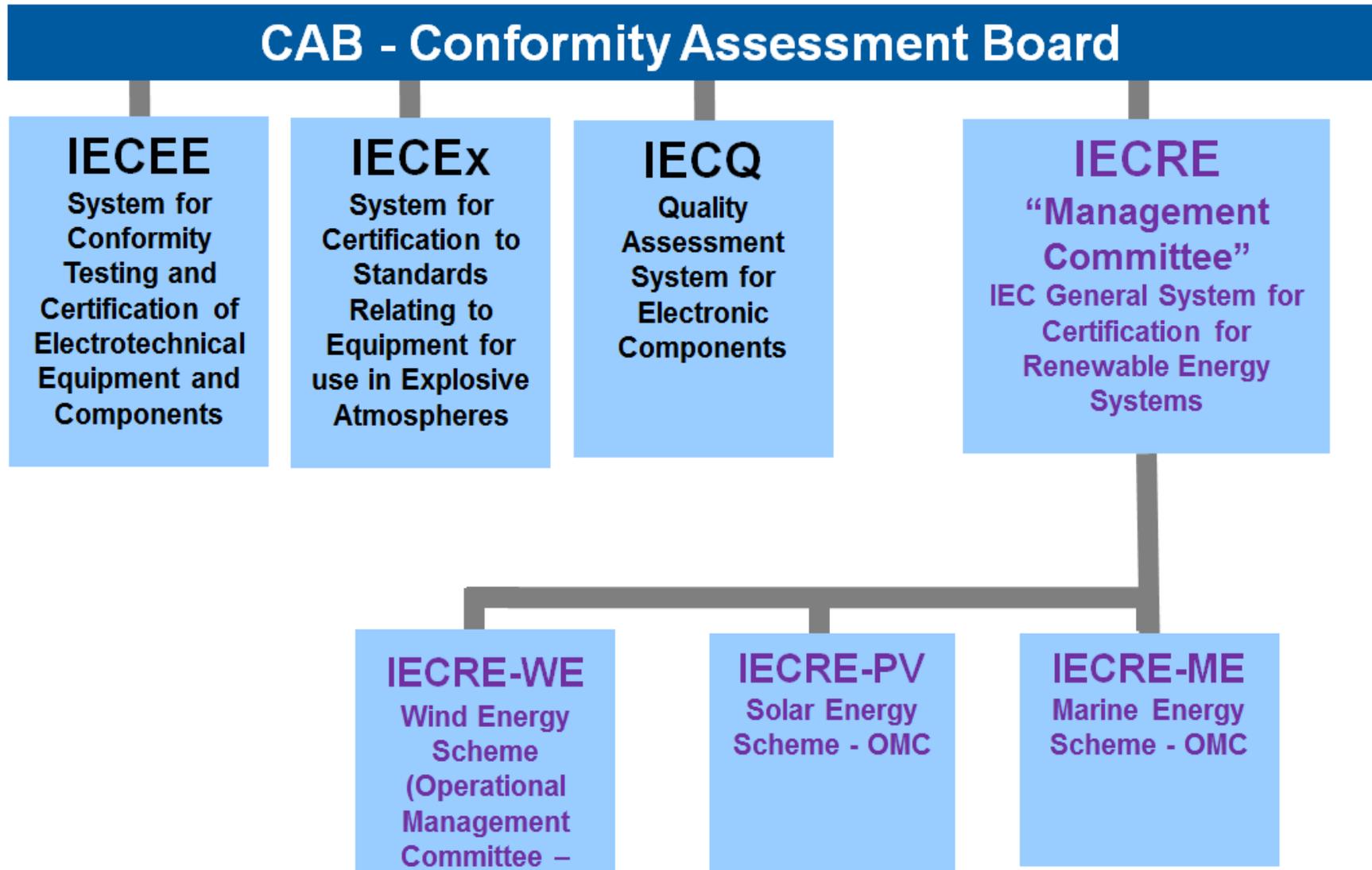


Conformity Assessment

- Evaluation against international standards
 - May use national or regional standards if no international standard is available
- Improved **quality** and **performance**
 - Assurance that power plant will operate as designed for its expected lifetime
- Increased **confidence** for investors
 - Financial return meets expectations
 - Risk is reduced

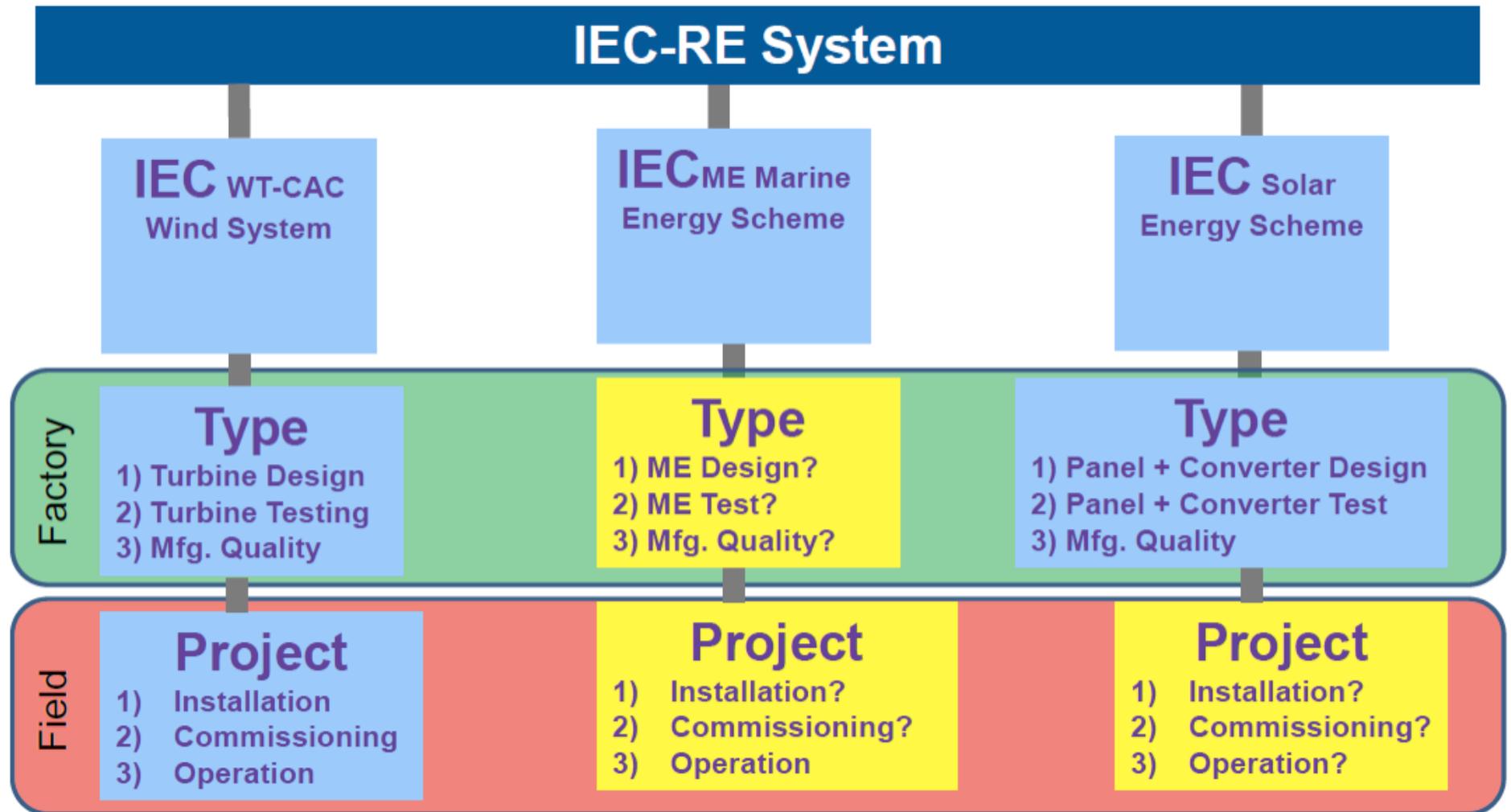


IECRE Concept





RE System Common Elements





IECRE PV Forum

- 18-Sep-2014 in Boulder, CO
- Participation by 28 individuals representing 6 member body countries, including 4 officers of IEC TC 82
- Initiated activities of PV OMC pending nomination and election of OMC officers



Recommendations to REMC

- WG001 should include as many common issues as possible in the RE system rules of procedure.
- REMC should engage in outreach to financial stakeholders
(e.g., PVOMC is planning a series of workshops in Asia, Europe and North America to collect input that can be used to guide future activities)



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Thank you for your attention

Questions?

Contact george@sunset-technology.com