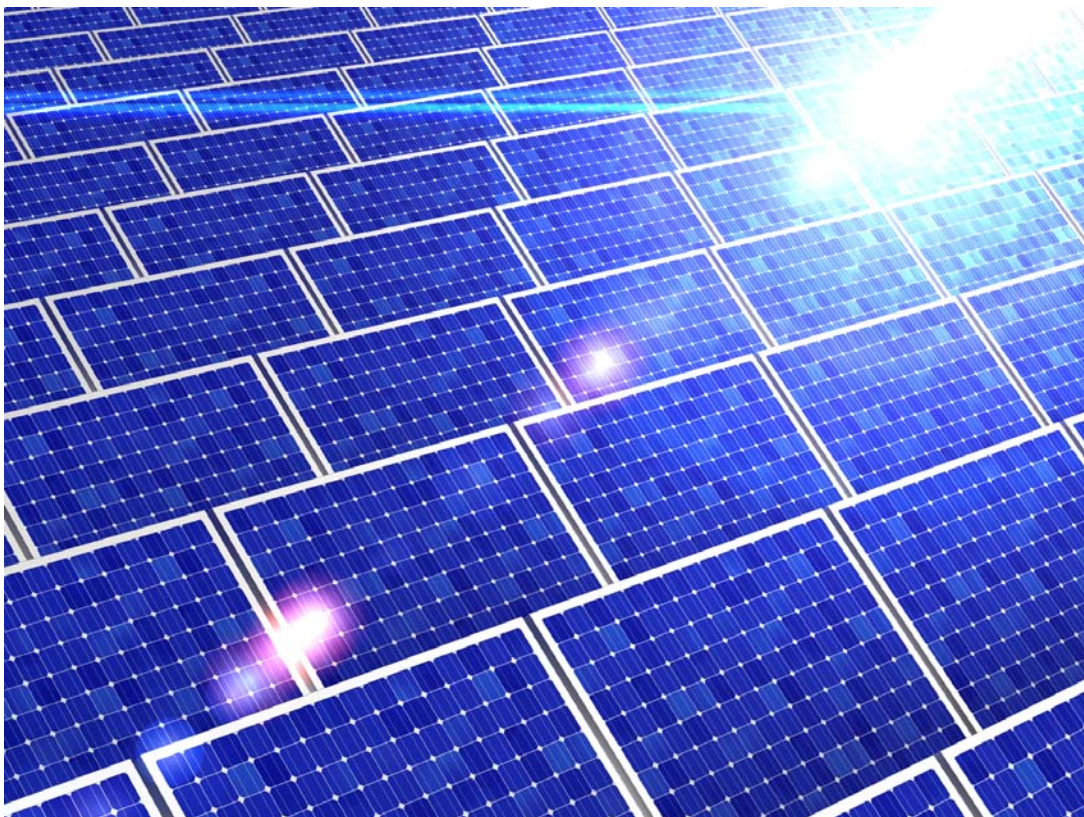




WORLDWIDE SYSTEM FOR
CONFORMITY TESTING AND CERTIFICATION
OF ELECTROTECHNICAL EQUIPMENT AND COMPONENTS (IECEE)

IECEE PV Programme – The Best Tool to facilitate trade of Photovoltaic in the Global Market

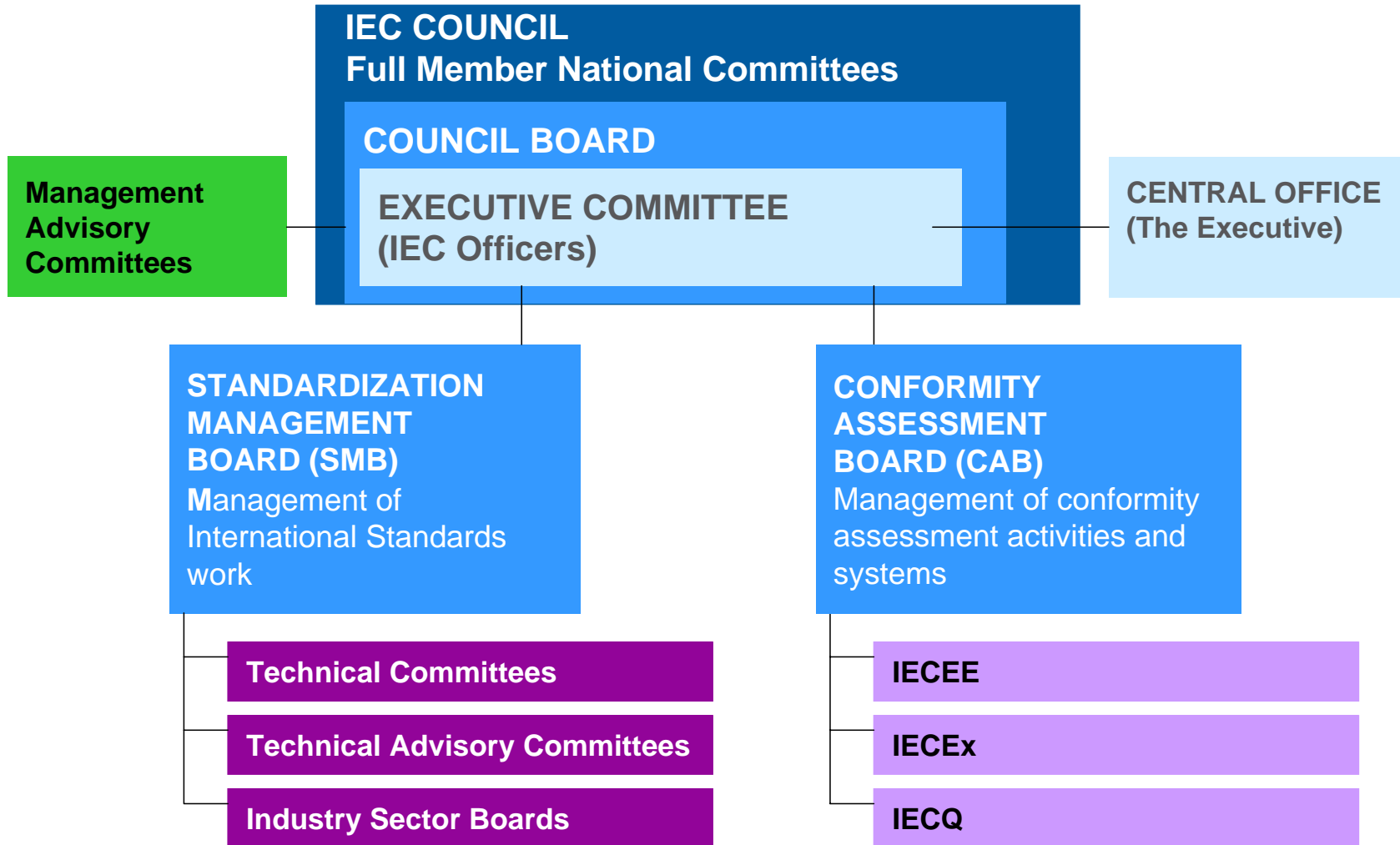


*By Pierre de RUVO
Executive Secretary IECEE
Gerhard Dreger
Managing Director DKE*



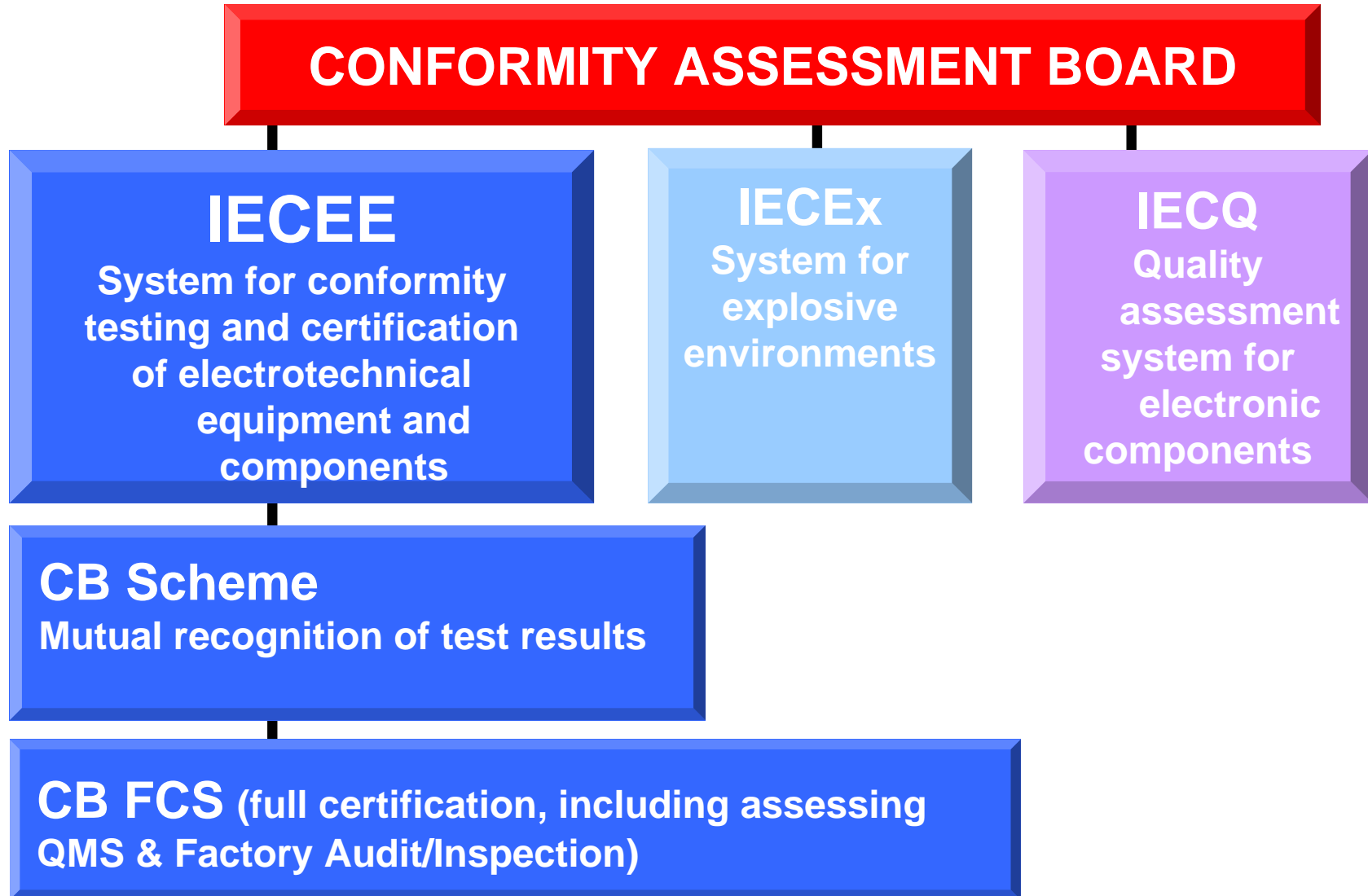


Organisation Chart of the IEC





IEC Conformity Assessment Structure





Standards

IEC Technical Committee 82, comprised of leading industry and government experts from 40 countries, prepares 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 solar cell to the interface with the electrical system(s) to which energy is supplied. IEC TC 82 has prepared standards for terms and symbols, PV Module testing, design qualification and type approval of crystalline silicon and thin-film modules, and characteristic parameters of stand-alone systems, among others.



Conformity Assessment

The Worldwide System for Conformity Testing and Certification of Electrotechnical Equipment and Components – or IECEE – provides both certification and a quality mark to provide proof of adherence to IEC's International Standards for Photovoltaics. Industry and governments can use the globally-recognized certification system to help assure quality and improve safety.

Countries are now using both IEC International Standards and the IECEE Certification System to create the framework for their own domestic industry or to regulate the products and equipment being imported from overseas.



Aim of the IECEE PV Programme

The aim of the IECEE PV Scheme is to provide
Manufacturers:

- with the most appropriate tool to market their product worldwide
- with the most economic and cost effective procedures within the best certification time-frames
- with the assurance that the products have been tested against IEC Standards and found compliant with Safety and Performance aspects



Values of the IECEE PV Programme

- The IEC-IECEE PV Certificate
- The PV GAP Mark
- Multilateral recognition by IECEE Members
- Acceleration of Product Acceptance in the Market Place
- Direct acceptance by the Regulators in many countries
- Direct acceptance by the Retailers and Buyers
- Expanded markets
- Faster product movement from plants to markets



IECEE Facts



19 product categories ranging from Batteries, Cables and cords, Capacitors as components, Switches for appliances and automatic controls for electrical household appliances, Electromagnetic Compatibility, Household and similar equipment, Installation accessories and connection devices, Lighting, Measuring instruments, Electrical equipment for medical use, Miscellaneous, IT and office equipment, Low voltage, high power switching equipment, Installation protective equipment, **Photovoltaics**, Safety transformers and similar equipment, Portable tools, Electric Toys and Electronics, entertainment ... representing more than 2000 standards



IECEE participating countries

 Argentina	 France	 Malaysia	 Slovakia
 Australia	 Germany	 Mexico	 Slovenia
 Austria	 Greece	 Netherlands	 South Africa
 Belarus	 Hungary	 New Zealand	 Spain
 Belgium	 India	 Norway	 Sweden
 Brazil	 Indonesia	 Pakistan	 Switzerland
 Bulgaria	 Ireland	 Poland	 Thailand
 Canada	 Israel	 Portugal	 Turkey
 China	 Italy	 Romania	 Ukraine
 Croatia	 Japan	 Russia	 United Arab Emirates
 Czech Rep.	 Libya	 Saudi Arabia	 United Kingdom
 Denmark	 Kenya	 Serbia	 United States
 Finland	 Korea Rep. of	 Singapore	 Uruguay

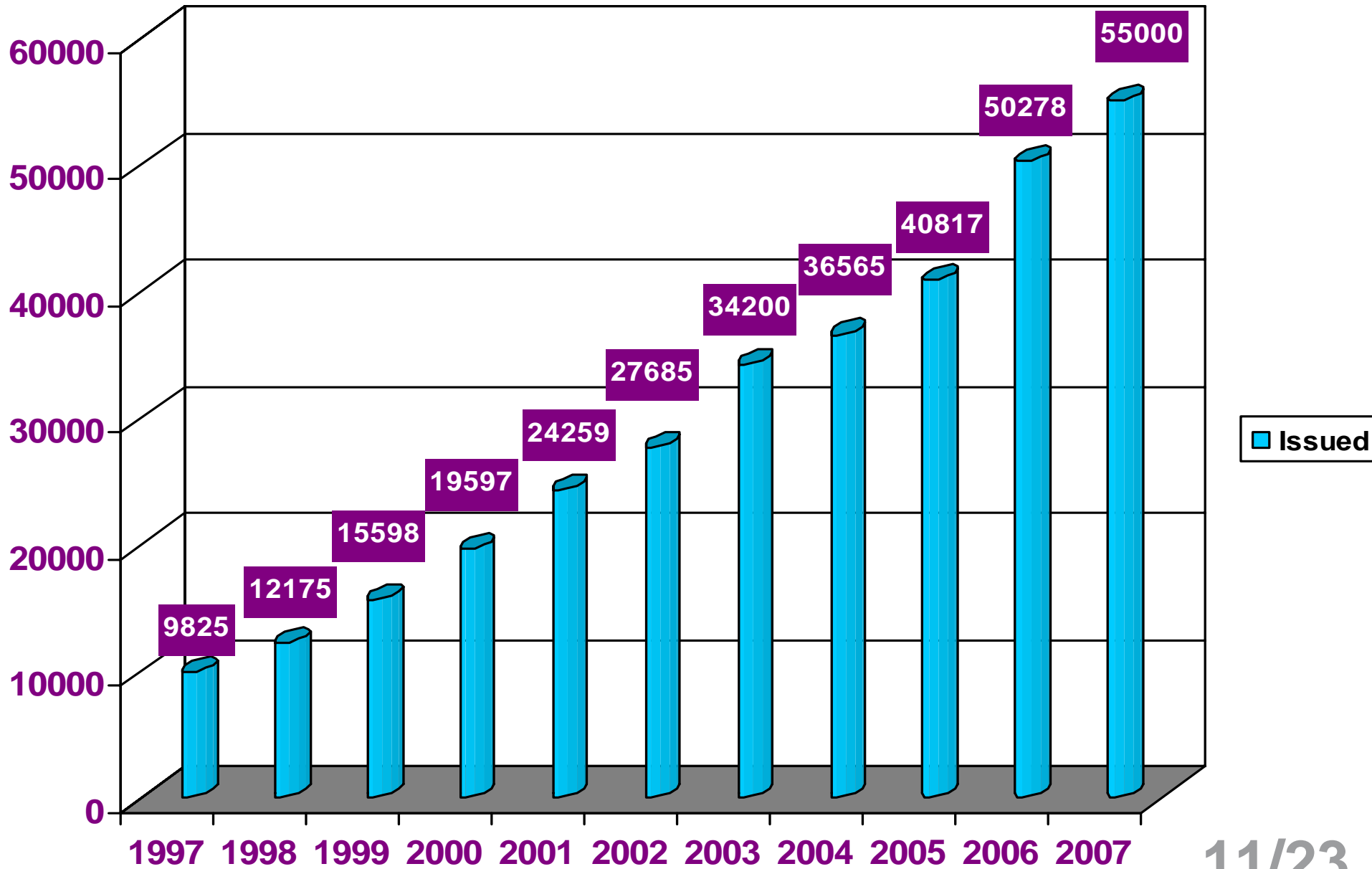


MEMBERS of the IECEE PV Programme

COUNTRY	NATIONAL COMMITTEE	CERTIFICATION BODY	TESTING LABORATORY
FRANCE	UTE	LCIE	ESTI
GERMANY	DKE	TUV Rh	TUV Rh
GERMANY	DKE	VDE	VDE
INDIA	BIS	STQC	ETDC
ITALY	IMQ	IMQ	ESTI
JAPAN	JISC	JET TUV Rh JP	<ul style="list-style-type: none"> ■ JET ■ TUV Rh JP
SPAIN	AENOR	AENOR	<ul style="list-style-type: none"> ■ CIEMAT - Fundacion Cener ■ CIEMAT - PVlabDER
USA	USNC/IECEE	UL Inc.	<ul style="list-style-type: none"> ■ UL Inc. ■ PV TL Arizona State Univ. ■ Bodycote



CB Scheme Statistics





IEC and PVRS Standards

60891(ed.1);am1	61646(ed.1)
60891(ed.1)	61646(ed.2)
60904-10(ed.1)	61702(ed.1)
60904-1(ed.1)	61721(ed.1)
60904-1(ed.2)	61727(ed.2)
60904-2(ed.1);am1	61730-1(ed.1)
60904-2(ed.1)	61730-2(ed.1)
60904-3(ed.1)	61829(ed.1)
60904-5(ed.1)	62093(ed.1)
60904-6(ed.1);am1	62109-1/NP(ed.1)
60904-6(ed.1)	62109-2/NP(ed.1)
60904-7(ed.2)	62124(ed.1)
60904-8(ed.2)	62257-9-5(ed.1)
60904-9(ed.1)	PVRS11A(ed.1)
61194(ed.1)	PVRS11(ed.1)
61215(ed.1)	PVRS6A(ed.1)
61215(ed.2)	PVRS6(ed.1)
61345(ed.1)	



IEC Standards

1. IEC 61215, Crystalline silicon terrestrial photovoltaic (PV) module. CB-FCS
2. IEC 61646, Thin-film terrestrial photovoltaic (PV) modules. CB-FCS

**Declaration
Forms**

**Test Equipment
Lists**

**Technical
Report Forms**

**Retesting
Guidelines**

**Conformity
Assessment
Reports**

IEC – IECEE CB-FCS FULL CERTIFICATION SCHEME		CERTIFICATE NUMBER US-UL-04-000x-PV
CONFORMITY ASSESSMENT CERTIFICATE PHOTOVOLTAICS		
Product(s)	Crystalline silicon terrestrial photovoltaic (PV) modules	
Model / Type Ref.		
Name and address of the manufacturer		
Name and address of the factory		
Ratings and principal characteristics		
Trademark (if any)		
Expiration date of this Certificate		
Base of certification	PUBLICATION/STANDARD IEC 61215 ISO 9001	EDITION 1993 2000
Conformity Assessment Report Ref. N°		
Factory Audit Report Ref. N°		
<small>THE SAMPLE(S) OF THE PRODUCT(S) LISTED IN THIS C.A.C. HAS (HAVE) BEEN FOUND TO BE IN CONFORMITY WITH THE APPLICABLE REQUIREMENT OF THE PRODUCT'S STANDARD(S) LISTED ABOVE</small>		
<small>THE QUALITY MANAGEMENT SYSTEM AT THE ABOVE PLACE HAS BEEN FOUND TO COMPLY WITH THE REQUIREMENTS OF THE IECEE RULES OF PROCEDURE IECEE 03 AND ISO 9001 (2000) IN RESPECT OF THE MANUFACTURING PROCESS OF THE PRODUCT(S) LISTED IN THIS C.A.C.</small>		
<small>This Conformity Assessment Certificate is issued by the National Certification Body.</small> 	<small>Underwriters Laboratories Inc. 333 Pfingsten Road, Northbrook, IL 60062-2096, United States of America TEL INT + 1-647-272-8800 email: joanta.m.wolewska@us.ul.com</small>	
Date:	Signature:	

DONE!



IEC Standards

1. IEC 61730-1:2004, Photovoltaic module safety qualification – Part 1: (construction)
2. IEC 61730-2:2004, Photovoltaic module safety qualification – Part 2: (testing)
3. IEC 62124:2004, Photovoltaic (PV) stand-alone systems

**Declaration
Forms**

**Test Equipment
Lists**

**Retesting
Guidelines**

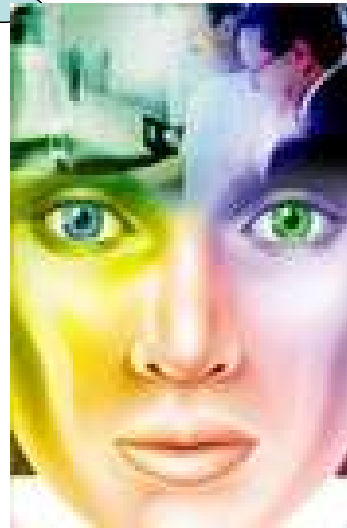
DONE!



ISO/IEC System 1



ISO/IEC System 5



Which Scheme suits my needs?

The Manufacturer decides the most appropriate «vehicle» to be used for marketing his products in the market place



Fundamentals about Product Certification and the ISO/IEC Systems operated under the IECEE

Table 1 — Building a product certification system

Elements ^a of product certification system		Product certification systems ^{b, c, d}							N ^e
		1a	1b	2	3	4	5	6	
1)	Selection^f (sampling), as applicable	x	x	x	x	x	x		
2)	Determination^{f,g} of characteristics, as applicable, by: a) testing (ISO/IEC 17025) b) inspection (ISO/IEC 17020) c) design appraisal d) assessment of services	x	x	x	x	x	x	x	
3)	Review^{f,g} (evaluation)	x	x	x	x	x	x	x	
4)	Decision on certification Granting, maintaining, extending, suspending, withdrawing certification	x	x	x	x	x	x	x	
5)	Licensing (attestation^f) Granting, maintaining, extending, suspending, withdrawing the right to use certificates or marks		x	x	x	x	x	x	
6)	Surveillance , as applicable by: a) testing or inspection of samples from the open market b) testing or inspection of samples from the factory c) quality system audits combined with random tests or inspections d) assessment of the production process or service			x		x	x		
					x	x	x	x	
^a	Where applicable, the elements can be coupled with initial assessment and surveillance of the applicant's quality system (an example is given in ISO/IEC Guide 53) or initial assessment of the production process. The order in which the assessments are performed may vary.								
^b	A product certification system should include at least the elements 2), 3) and 4).								
^c	An often used and well-tried model for a product certification system is described in ISO/IEC Guide 28; it is a product certification system corresponding to system 5.								
^d	For product certification systems related to specific products, the term "scheme" is used (see 3.2, Note 2).								
^e	Reference [16] mentions system 7 (batch testing) and system 8 (100 % testing). These may be considered product certification systems if at least the elements of system 1a are included.								
^f	See ISO/IEC 17000 for definitions.								
^g	In some systems, evaluation means determination, and in other systems it means review.								



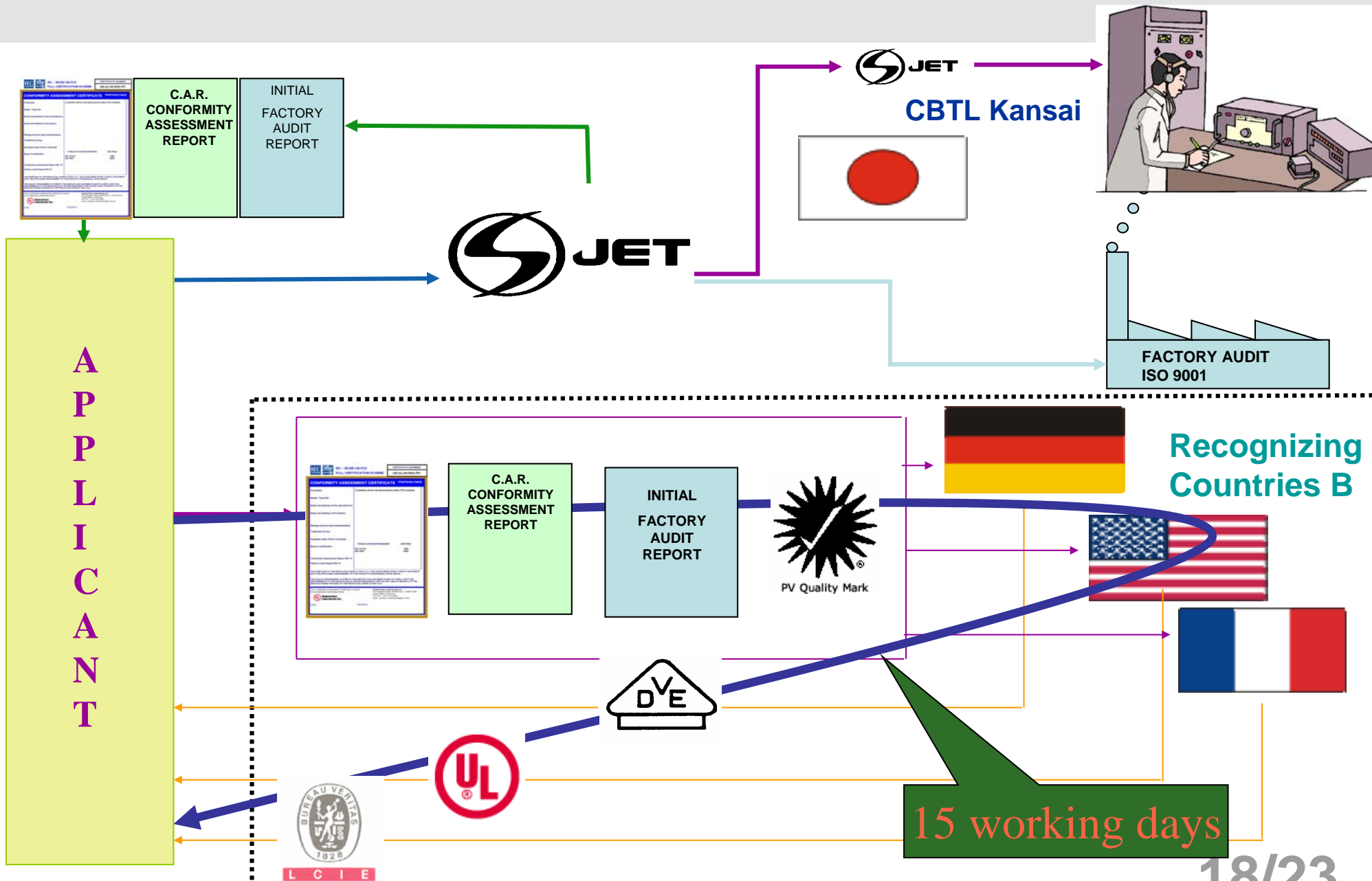
The IECEE-PV Scheme

A full certification scheme ISO/IEC Type 5

- Type Testing
- Assessment of the Management System at the Factory Location
- Surveillance
- Re-testing
- Market Control

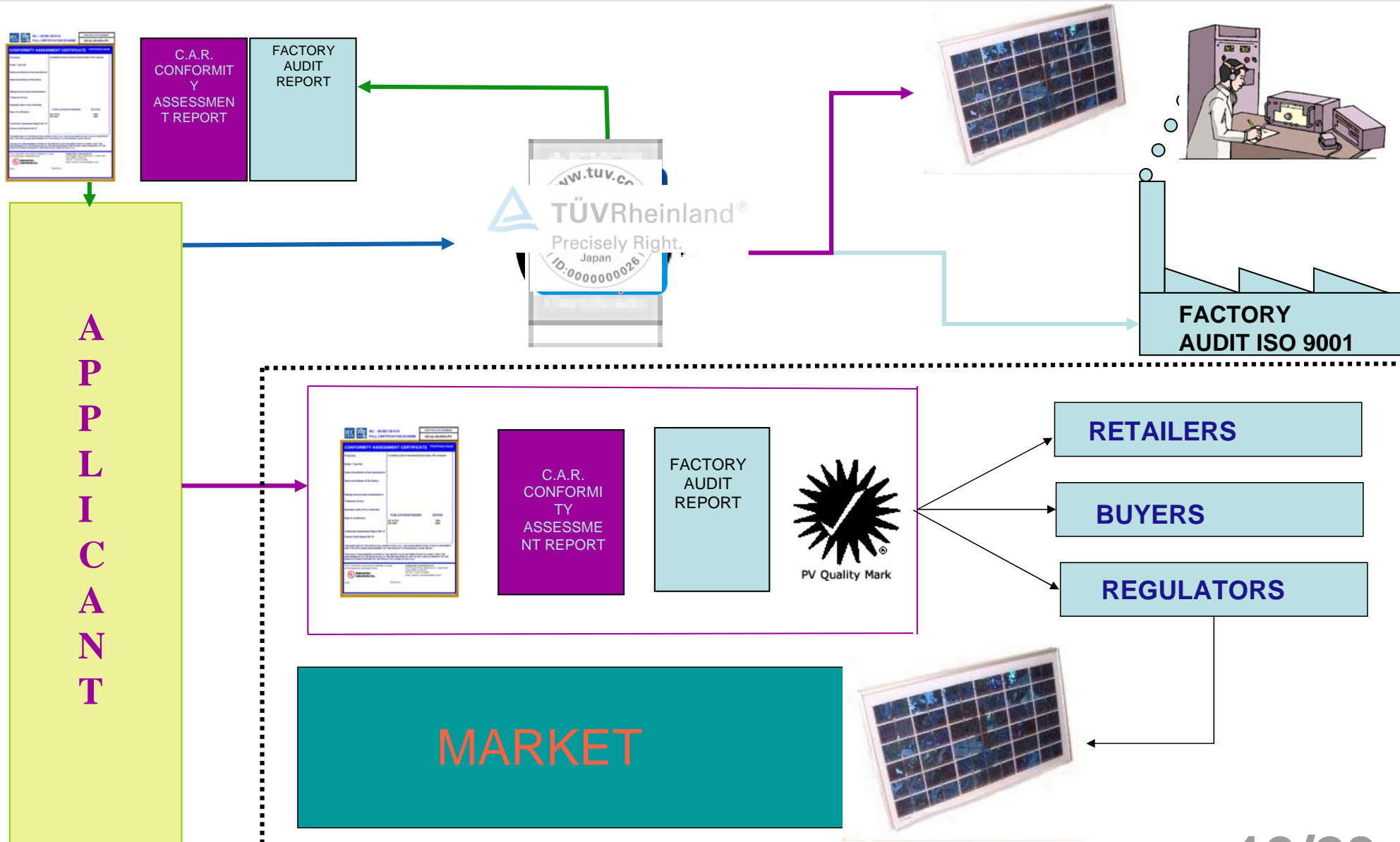


Upstream-Downstream Process





Direct access to a market





The right passport to access the Global Market



Australian Government

Department of the Environment, Water, Heritage and the Arts

Solar Homes and Communities Plan

Guidelines for Residential Applicants

May 2008



The right passport to access the Global Market

Guideline published by the Department of the Environment of the Australian Government encouraging the long-term use of photovoltaic technology to generate electricity from sunlight.

“Photovoltaic modules must be tested and certified to IEC61215 or IEC61646 by a laboratory registered under the International Electrotechnical Commission’s (IEC) IECEE-CB Scheme to test these standards.”



The right passport to access the Global Market

The IECEE PV Scheme proves de facto that certification and testing costs can be reduced through the use of...

1 stop testing.



- **IECEE Website:** www.iecee.org

- **IECEE Executive Secretary:**

Mr Pierre de RUVO

E-mail: pro@iec.ch

Direct Line: +41 22 919 02 07