

Harmonisation of Photovoltaic Standards in China

中国光伏标准统一过程

**Public-Private-Partnership
Workshop Qingdao**

February 28, 2005

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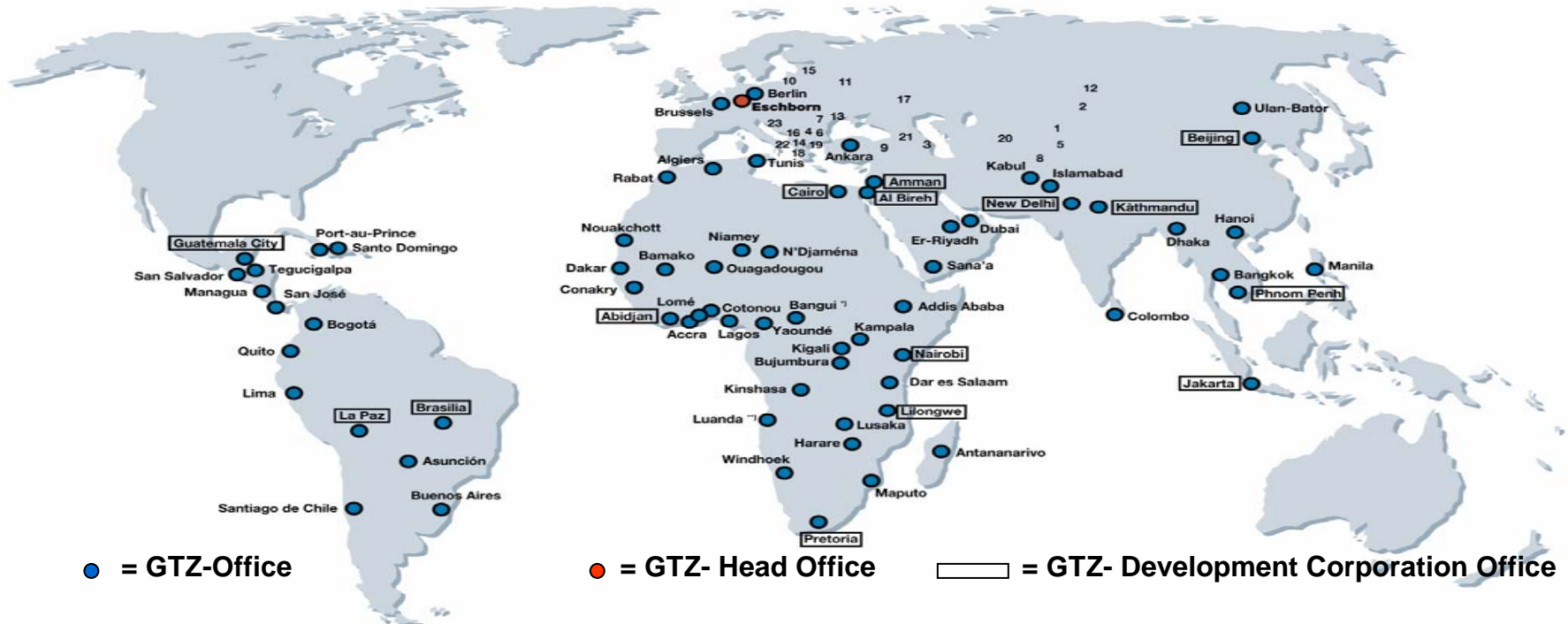


Introduction – GTZ at a glance

德国经济技术合作公司

GTZ is a public benefit corporation whose shares belong to the Federal Republic of Germany and acts on behalf of the BMZ with operations all over the world

turnover (2004): €990 m
No. of projects (2004): approx. 2,800
staff (2004): approx. 10,000



Who's Who in PV Standards

与PV标准相关的机构组织

- International Electrotechnical Commission (IEC), Geneva - Photovoltaic Technical Committee TC/82
国际电工委员会(简称IEC), 日内瓦-光伏技术委员会TC/82
- International Energy Agency (IEA), Paris – Photovoltaic Power Systems Programme (PVPS)
国际能源机构(简称IEA) 巴黎- 光伏能源系统项目
- Global Approval Programme for Photovoltaics (PVGAP), Geneva – Quality Seals
- Institute for Sustainable Power (ISP), Denver – global standards for training and workforce development
可持续能源机构,



What is the IEC/TC-82?

IEC/TC-82 简介

- International Electrotechnical Commission – International Standards Body based in Geneva, 100+ member countries, develops and writes International Standards for all manner of electrical equipment and components
国际电工委员会—位于日内瓦的国际标准机构，有100多个成员国。负责为各种电器设备和元器件制定并编写标准
- Technical Committee 82 - PV Systems and components
光伏系统及部件技术委员会TC82
- Member countries have National Committees which nominate experts to Working Groups to develop Standards, and appoint delegate to TC-82
每个成员国有各自的国家标准委员会，负责任命专家组成工作组制定标准，并派代表参加TC82

IEC/TC-82 Working Groups

IEC/TC-82 工作组

- WG 1: Glossary 术语表
- WG 2: Modules (non-concentrating)
电池组件（非聚光型）
- WG 3: Systems 系统
- WG 4: PV Energy Storage Systems
光伏储能系统
- WG 6: BoS Components 补偿系统元件
- WG 7: Concentrator Modules 聚光型电池组件



IEC PV Module Standards (1)

IEC光伏电池组件标准(1)

- IEC 60891 Ed. 1.0 - Procedures for temperature and irradiance corrections to measured I-V characteristics of crystalline silicon photovoltaic devices (with Amendment 1).
晶体硅光伏器件的I-V实测特性的温度和辐照度修正方法
- IEC 60904-1 Ed. 1.0 - Photovoltaic devices. Part 1: Measurement of photovoltaic current-voltage characteristics.
光伏电流—电压特性的测量
- IEC 60904-2 Ed. 1.0 - Photovoltaic devices. Part 2: Requirements for reference solar cells (with Amendment 1).
标准太阳能电池的要求
- IEC 60904-3 Ed. 1.0 - Photovoltaic devices. Part 3: Measurement principles for terrestrial photovoltaic (PV) solar devices with reference spectral irradiance data.
地面用光伏器件的测量原理及标准光谱辐照度数据



IEC PV Module Standards (2)

IEC光伏电池组件标准(2)

- IEC 60904-5 Ed. 1.0 - Photovoltaic devices - Part 5: Determination of the equivalent cell temperature (ECT) of photovoltaic (PV) devices by the open-circuit voltage method.
用开路电压法确定光伏器件(PV)的等效电池温度 (ECT)
- IEC 60904-6 Ed. 1.0 - Photovoltaic devices - Part 6: Requirements for reference solar modules (with Amendment 1).
标准太阳电池组件的要求
- IEC 60904-8 Ed. 2.0 - Photovoltaic devices - Part 8: Measurement of spectral response of a photovoltaic (PV) device.
光伏器件光谱响应的测量
- IEC 60904-9 Ed. 1.0 - Photovoltaic devices - Part 9: Solar simulator performance requirements.
仿真系统性能要求
- IEC 60904-10 Ed. 1.0 - Photovoltaic devices - Part 10: Methods of linearity measurement.
线性测量方法



IEC PV Module Standards (3)

IEC光伏电池组件标准(3)

- IEC 61345 Ed. 1.0 - UV test for IEC 61215 Ed. 1.0 - Crystalline silicon terrestrial photovoltaic (PV) modules - Design qualification and type approval.
地面用晶体硅光伏组件 设计鉴定和定型
- Photovoltaic (PV) modules.
光伏组件
- IEC 61646 Ed. 1.0 - Thin-film terrestrial photovoltaic (PV) modules - Design qualification and type approval.
地面用薄膜光伏组件设计鉴定和定型
- IEC 61701 Ed. 1.0 - Salt mist corrosion testing of photovoltaic (PV) modules.
光伏组件盐雾腐蚀试验
- IEC 61721 Ed. 1.0 - Susceptibility of a photovoltaic (PV) module to accidental impact damage (resistance to impact test).
抗冲击试验
- IEC 61829 Ed. 1.0 - Crystalline silicon photovoltaic (PV) array - On-site measurement of I-V characteristics.
晶体硅光伏方阵I-V特性的现场测量



Existing PV Standards

现有光伏标准

- 17 out of 19 surveyed countries develop PV standards
19个被调查的国家中17个有光伏标准
- Some 200 national or regional PV standards
有200多个国家和地区有光伏标准
- Limited number of IEC standards and PV GAP Recommended Specifications (PVRS)
有限的IEC标准和PV GAP 推荐技术参数
- Urgent need for a complete set of global standards
急需一整套全球标准



China's Standardization Structure

中国标准化体制

- National Standardization Administration Committee of China
国家标准化管理委员会
 - National Standards
 - 国家标准
 - Professional Standards
 - 行业标准
 - Local Standards
 - 地方标准
 - Enterprise Standards
 - 企业标准
 - National Advisory Technical Documents
 - 国家标准化指导技术性文件
- TC 90 Solar Photovoltaic Energy Systems
TC 90 太阳光伏能源系统



STRUCTURE OF CHINA'S STANDARDIZATION AND CERTIFICATION ADMINISTRATION 中国标准化与认证管理

General Administration of Quality Supervision
Inspection and Quarantine of P.R. China

Natl. Standardization
Administration Committee

Certification and
Accreditation Administration

TC 1

National Test Center

CNAB, CNAT, CNAL

Certification
Organization

TC 20 Technical Committee of
National Energy Foundation and
Administration Standardization

SC 1

SC 6 New Energy and
Renewable Energy Committee

TC 50 Technical Committee
of National Wind Mechanism
Standardization

TC 90 Technical Committee of National **Photovoltaic Solar**
Energy System Standardization

TC 260



STRUCTURE OF CHINA'S STANDARDIZATION AND CERTIFICATION ADMINISTRATION

中国国家质量监督检验检疫总局

国家标准化管理委员会

国家认证认可监督管理委员会

TC 1

国家检测中心

CNAB, CNAT, CNAL

认证机构

TC 20 全国能源基础与管理标准化技术委员会

SC 1

TC 50 全国风力机械标准化技术管理委员会

SC 6 新能源和可再生能源分会

TC 90 全国**太阳能光伏能源**系统标准化技术委员会

TC 260



TC 90 Solar PV Energy System

TC90 太阳光伏能源系统

- National Solar PV Standardization Team
国家太阳能光伏标准化工作组
- China National PV System Technical Standard Committee (PVSTSC)
中国国家光伏系统技术标准委员会
- Currently 4th Committee (2001-2005)
截至目前已举行四次

Tasks / 任务

- Propose new, periodically review and update existing standards (natl. / industry)
提议新标准，周期性的修订和更新现有标准（国标/行业标准）
- Collaboration with IEC/TC 82
根据IEC/TC 82 修订标准



Standard Adoption Procedure 标准采纳程序

- Initial translation of an IEC standard into Chinese;
首先将IEC标准翻译成中文
- Select a project leader;
推选项目负责人
- Submission of an adoption project application to the Chinese National PV Standard Committee;
向中国光伏标准委员会提交标准采纳申请
- Upon approval and receipt of a unique project number from the Chinese National Standard Committee;
中国国家标准委员会批准并提供一个唯一的项目代码
- Discuss and get an approval on an annual meeting of the Chinese National PV Standard Committee;
在每年的中国国家光伏标准会议上讨论, 并批准
- Submission of final version to the Chinese National Standard Committee;
向中国国家标准委员会提交最终版本
- Approval and Publication of the standard by the Chinese National Standard Committee.
中国国家标准委员会批准并出版此标准



PV Standards: Status China / IEC

China	IEC
15	15
7 shall be adopted	7
no adoption plan	14 published
no adoption plan	21 under preparation
17 published	--
2 under preparation	--
4 military	--
45	57



Harmonization Process of Chin. PV Standard

中国标准与IEC标准的统一过程

- Assess existing IEC / Chinese Standards
评估现有的IEC/中国标准
- In case there aren't any IEC standards
- If a Chinese standard is recommended for reference to, or adoption in a PVRS

如果中国标准被推荐为PVRS参考标准或中国标准被PVRS采纳

Outcome

- China changed its Module Standard to correspond with IEC 61215
中国已修订了电池组件标准与IEC 61215 保持一致
- Two Chinese Standards became Reference Standards for PQAS / PVRS 6 and 8
两个中国标准成为PQAS / PVRS 6 and 8 参考标准

TC 90 Challenges / TC 90的挑战

- Financial support from NSAC is decreasing
NSAC 资助逐渐减少
- Lack of interest from manufacturer sector
制造商缺少兴趣
- Committee membership is unbalanced
成员之间不平衡



GTZ China Activities

- Evaluate and design a local monitoring system for RE village systems
- Testing of Charge Controllers (100 Wp)
Inverter (150 Wp) for SHS
- Currently: Comparision of existing Chinese and International Standards
IEC 6124 PV stand alone systems – Design Verification;
IEC 61730-1/-2 PV Module Safety Qualification



SOLAR PANEL SCANDAL!!



- 14 WATT LABEL
- ONLY 8.1 WATTS..!
- ONLY 1 YEAR WARRANTY
- MADE IN CHINA

< CHARGE >



- 14 WATT LABEL
- OVER 17 WATTS
- 10 YEAR WARRANTY
- MADE IN U.K. BY ICP SOLAR

< CHARGE >

BEWARE OF THE SILVER FRAME

LOOK FOR THE GOLD FRAME

Tests carried out at Loughborough University in U.K. have shown that 14 watt panels made in China only give out half the power they should do !! They are therefore actually only 8 watt panels and should cost not more than Kshs 2000/= each. They can be identified by their silver frames.

This scandal has been reported to the Kenya Bureau of Standards. The detailed test results can be viewed at any Sollatek Solar Distributor, Sollatek Service Centre or www.sollatek.co.ke

LOOK FOR THE PANEL WITH THE GOLD FRAME MADE IN U.K. BY ICP SOLAR AND SOLD EXCLUSIVELY BY SOLLATEK IN E. AFRICA TO BE GUARANTEED GOOD VALUE FOR YOUR MONEY.

The choice is yours!

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**Thank you
for your attention !**

谢谢

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