Guidelines for Electrical Industry Standards

The electrical industry, always habitually referred to as the electrical equipment industry in China due to certain historical reasons, is an industry that mainly provides equipment for the electric power industry.

1. Chinese Electrical Industry Standards System and Policies

1.1 Structure, definition and standardization authorities of Chinese electrical industry

1.1.1 Structure and definition

As an integral part of the Chinese equipment manufacturing industry as well as a key foundation of the modern industry in China, the electrical industry focuses on the production of power generation, power transmission and transformation and power distribution equipment, electrical equipment, electrical appliances and materials, as well as other electrical products for various special purposes. In accordance with the standards of the Categorization of the National Economic Sectors, the electrical industry covers five major categories and a total of 25 sub-categories. Based on the data statistics in 2008, the gross output value of the Chinese electrical industry represents about 4% of the national industrial output value or 2% of the total GDP. As one of the four pillar industries in the machinery sector, the electrical industry generates a gross output value accounting for about 28% of the total in the sector as well as an industrial added value representing 1/4 of the total.

For different purposes as power generation, power transmission and transformation, power distribution, and power utilization, the electrical industry can be divided into various specialties, including large motors, steam turbines, boilers, water and electricity equipment, internal-combustion generating equipment, transformers, high-voltage switches, insulators, surge arresters, power capacitors, electric power distribution equipment, general-purpose low-voltage apparatus, power electronic equipment, electric traction power sources, industrial electroheat equipment, electric welding equipment, small and medium-sized motors, micro motors, electric tools, wires and cables, industrial daily-use electrical appliances, insulating materials, lead-acid batteries, electrical carbon, electrotechnical equipment, industrial boilers, electrical alloys, explosion-proof electrical equipment, relay protection and automation equipment, electric accessories, household automatic controllers, field bus, heat-shrinkable materials, electrical equipment structure, and frequency converters etc.

1.1.2 Classification of standards for the Chinese electrical industry

In accordance with the Standardization Law of the People's Republic of China, the current standards in China are classified into four levels: national standards, professional standards, provincial standards and enterprise standards. For the electrical industry, the national and professional standards are applicable and have binding effect on the entire industry.

The national standards (GB), administrated by the Standardization Administration of China (SAC) and developed by the National Professional Standardization Techniques Commission whose establishment was approved by SAC, are formulated based on the technical requirements that need to be unified within the entire country, mainly covering technical requirements on basis, methods, general purposes and security. Regarding different properties of the standards, the national standards (GB) can be further divided into mandatory standards (GB), recommended standards (GB/T), and technical guides for national standards (GB/Z).

The professional standards are generally issued for unified technical requirements within a specific national industry (such as the electric water heater industry) which is absent of corresponding national standards. As provided in the Standardization Law, the professional standards shall be administrated by various administrative department of the State Council. As an integral part of the standards for machinery industry (JB), the standard for electrical industry was previously issued by the National Development and Reform Commission (NDRC). After the restructuring of government administrations in 2008, the function of professional standards administration of NDRC was transferred to the National Energy Administration and the Ministry of Industry and Information Technology. In accordance with the Administration Method for Standardization of Energy Industry (Trial), the National Energy Administration will mainly be responsible for the centralized administration of the standards for energy equipment industry (covering power generation, transmission and transformation equipment), and has been authorized by the SAC to number the professional standards of energy industry (covering energy equipment) with NB. The Ministry of Industry and Information Technology has been authorized by the NDRC to be responsible for the administration of the electrical industry standards except for the standards for power generation, transmission and transformation equipment under the original machinery industry numbering of JB.

1.2 Overview of the standardization authorities of the electrical industry

1.2.1 Standardization bodies associated with electrical standards

There are two major standardization administration bodies associated with the electrical industry: China Machinery Industry Federation (CMIF) and China Electrical Equipment Industry Association (CEEIA).

CMIF is a national socio-economic organization as a legal person officially approved by the State, whose competent department is the State-owned Assets Supervision and Administration Commission of the State Council. CMIF has members mainly coming from various national professional associations and local associations, intermediaries and some comprehensive enterprises within the machinery industry, including over 120 direct members as well as 77,800 indirect members distributed in various sectors of the machinery industry.

CEEIA is a non-profit national industrial organization as a legal person free from restrictions of region, hierarchy and ownership formed by various national electrical product manufacturing and related businesses, user units, as well as relevant research and design institutions and complete engineering and sales units on a voluntary basis, whose competent department is the State-owned Assets Supervision and Administration Commission of the State Council. CEEIA is responsible for various equipment manufacturing industries ranging from power generation, transmission and distribution equipment to a variety of electrical

equipment (heavy current) as well as electrical components and basic materials with 38 branches covering the above industries and over 4,700 member units.

The national standards of the electrical industry were formerly administrated by the Ministry of Machine Building. During the reorganization of the government institutions at the end of the last century, the former State Bureau of Technical Supervision and the State Administration of Machinery Industry jointly issued an official document to authorize China Association for Automobile Manufacturers (CAAM) and CEEIA to be responsible for the administration of the national standards of the automobile industry and electrical industry and to report to relevant national standardization authorities. In 2006, SAC further expressly stipulated in writing that CEEIA should be responsible for the planning, approval and international standardization of the national standards of the electrical industry and report to SAC directly, while CMIF should report to SAC on the administration of the National Professional Standardization Techniques Commission.

As an integral part of the professional standards of the machinery industry (JB), the existing professional standards of the electrical industry shall be centrally administrated and reported by CMIF to the Ministry of Industry and Information Technology for issuance. In addition, the energy industrial standards (NB) issued by the National Energy Administration will also include the standards for power generation, transmission and transformation equipment, which shall be in the charge of CEEIA together with CMIF in accordance with the Administration Method for Standardization of Energy Industry (Trial).

1.2.1 Contacts of the standardization bodies

1.2.1.1 CMIF has an internal standardization department mainly responsible for: organizing study on the machinery industry standardization development strategies, standard systems, technical trade initiatives and administration methods and making proper recommendations; organizing the preparation and implementation of work plans and schemes for the machinery industry standardization, and assisting the national and professional standardization authorities in administration of the National Professional Standardization Techniques Commission and other standardization techniques commissions within the machinery industry; conducting review and implementation of the preparation and approval application documents for national and professional standards of the machinery industry as well as professional standards filing, and supervising and inspecting the execution of the standards; assisting SAC in international standardization related to the machinery industry; organizing the publications of the professional standards of the machinery industry; promoting the implementation of the standards of the machinery industry, and carrying out standardization trainings and advisory services; establishing and maintaining the standard database and website of the machinery industry. Specific contacts are as follows:

Tel: 010-68594869 68594891

Fax: 010-68594869

Website: http://cmis.mei.gov.cn

1.2.1.2 CEEIA has an internal standardization department mainly responsible for:

Implementation of national standardization policies, laws and regulations, as well as preparation, revisions and review of the national and professional standards of the electrical industry; study and

preparation of the standards for important industrial technologies and products; administration of the National Professional Standardization Techniques Commission and its branches within the electrical industry; organization of adoption of international standards and IEC standard transformation; provision of electrical industry standardization information and advisory services. This department acts as the Secretariat of four national technical committees of standardization:

1. National Technical Committee of Standardization for Electrical Safety (corresponding to IEC/ACOS)

2. Environmental Eco-design Branch of National Technical Committee of Standardization for Environment of Electrical and Electronic Products and Systems (corresponding to IEC/TC111)

3. National Technical Committee of Standardization for Fuel Cells (corresponding to IEC/TC105)

4. National Technical Committee of Standardization for Insulating Materials and Systems Assessment (corresponding to IEC/TC112)

Contacts:

Tel: 010-68212343 68157615 68177030

Fax: 010-68244802

Website: www.ceeia.com

1.3 Standards and development of the electrical industry

1.3.1 Standards promoting the industrial development

The standardization of the electrical industry has gone through the development during the thirty-year reform and opening-up. Especially after entering into the 21st century, with the rapid development of China's national economic construction, the implementation of the medium-and long-term national scientific and technological development plan, the eleventh five-year plan for national economic and social development, the opinions of the State Council on accelerating the development of equipment manufacturing industry, and the planning of China's standardization during the "11th five-year" period has provided a strong support to the development of the standardization in China, and has brought vigor and vitality to the development of electrical standardization with emphasis on the following aspects:

The active adoption of international standards has promoted the product upgrading and driven the technical progress; established an electrical standardization organization not only reflecting international levels but also satisfying the needs of China's economic construction and development; formed a technical system for electrical standards keeping pace with scientific researches and major equipment R & D, and coordinating with power generation, transmission and distribution equipment and electrical apparatus field; set up an enterprise-oriented mechanism for electrical standardization integrated with production, teaching and research; realized breakthroughs in the international standardization field with practical participations; built a high-level, professional and young electrical standardization team.

1.3.1.1 Active adoption of international standards promoting the industry's technical progress

Active adoption of international standards and advanced overseas standards is a key technical basis for national economic development, and also an important technical initiative to promote the industry's technical progress and improve the product quality and overall level.

1.3.1.1.1 Course of the adoption of international standards for electrical industry

In the early nineties, namely the 10-year period of the "eighth five-year" and "ninth five-year" plan, it was pointed out in the Ninth Five-year Plan for Standardization and the Outline for the Long-range Objective Through the Year 2010 issued by the State Bureau of Technical Supervision that, by year 2000, all ISO and IEC standards should be converted to China's national standards except that cannot be adopted due to geographical, climate and basic technical reasons. In addition, the Bureau has also put forward the guidelines for standard adoption as "serious analysis – active adoption – practical verification" and "direct adoption – practical verification – supplementation and revision", and has issued the Administration Method for Adoption of International Standards and Advanced Overseas Standards on December 13, 1993 to promote the nationwide adoption of international standards. In 1999, the electrical industry prepared the Guide for Electrical Industry Adopting International Standards to provide guide as standard adopting principles on the industrial standard systems, assorted adoption, environmental factors of geography and climate, and differences with the IEC standards, which has promoted the sound development of international standards adoption in the electrical industry.

During the "10th five-year" planning period after entering into the 21st century, under the conditions of China's entry into WTO and economic globalization, China stepped up the adoption of international standards. On July 23, 2002, seven ministries and commissions including AQSIQ, NDRC, SETC, MOST, MOF, MOFTEC and SAC jointly issued the Opinions on Pushing Forward Adoption of International Standards, and at the same time held the national working conference for international standard adoption (fifth), requiring governments at all levels to implement the Administration Method for Adoption of International Standards issued by the AQSIQ on December 4, 2001, and support and encourage enterprises to actively adopt the international standards and advanced overseas standards to improve product competitiveness, expand opening up and keep pace with international practices. In 2003, as proposing to carry out interventions, tracking study and presentation of China's new ideas at the early development stage of international standards, the electrical industry developed the Guide for Simultaneous Adoption of International Standards of Electrical Industry which requires that the standards for electrical product certification and export trade as well as the mandatory standards related to security shall adopt the latest versions of the corresponding international standards on a simultaneous basis, and at the same time proposes to guide the enterprises to take practical participation in the international standardization activities.

After entering into the "11th five-year" planning period, SAC again held the national working conference for international standard adoption (sixth) in December 2007, proposing to comprehensively intensify the adoption of international standards regarding the new situations and issues of standardization, and developed the guidelines of "government promoting, market orienting, enterprise based, categorized guidance, and international compatibility" to accelerate the fulfillment of the objectives in two phases: adopting international standards at a rate of 85% by the end of the "11th five-year" planning period; and adopting international standards at a rate of over 90% by year 2020. It also put forward the principles of scientific, proactive and enterprise-oriented adoption with focus on both international and domestic standards, which has further promoted the international standard adoption on a vertical level and given it a broader new meaning.

1.3.1.1.2 Effect of the adoption of international standards

By the end of 2001, among the 1,097 national standards of the electrical industry that had been approved and issued, 661 standards had adopted the international standards and advanced overseas standards with an adoption rate of 60%, higher than the national average. By the end of 2007, among the 1,222 national standards of the electrical industry, 890 standards had adopted the international standards and advanced overseas standards with an adoption rate of 73%, an increase of 13% compared with that in the early "10th five-year" planning period; at the same time, the adoption of related international standards had reached a rate of 90%, higher than the average of the machinery industry.

The adoption of international standards during the "8th five-year" and "9th five-year" planning period has improved the overall level of the industrial standards and the manufacturing technology of electrical products, promoted the rapid growth of electrical product exports, established the international recognized CB laboratories, and laid a foundation for the security certification of electrical products.

1.3.1.2 Establish the standardization organization system of electrical industry under new mechanism

In 2004, the CEEIA Standardization Committee, a membership secondary institution, was set up upon approval of the SASAC and registered at the Ministry of Civil Affairs. Consisted of the leaders in electrical industry, scientific research institutions, technical committees of standardization for various electrical sectors, and the industrial experienced experts, the Committee forms a new standardization system integrated with production, teaching and research. At present, the Committee has 120 directors and members in total, while 40 of which come from 31 enterprises, 21 of which come from 18 electrical institutions, and 54 of which are senior experts from technical committees of standardization for various electrical sectors. With enterprises' extensive understanding, engagement and support, the Committee has built a member-based innovation platform for electrical industry standardization with active engagement of industrial leaders and coordination of industry-related associations and organizations.

1.3.1.3 Form a technical system of standardization for electrical industry with simultaneous research and technical development

As of September 2008, there are 1,485 active national standards centrally administrated by the electrical industry, accounting for 6.2% of the total national standards, among which, 310 are mandatory standards, 20.9% of the total, 1,159 are recommended standards, 78% of the total, and 16 are technical guides for national standards, 1.1% of the total. There are also over 400 national standards under development and preparation.

In 2004, CEEIA organized the electrical industry to carry out the specific preparation of the Development Plan for Standardization of Power Generation, Transmission and Transformation Equipment Manufacturing Industry (hereinafter referred to as the "Plan"), which was submitted and included in the 2005-2007 Development Plan for Standardization of Equipment Manufacturing Industry issued by the SAC. The Plan identifies 251 key projects and 359 international standard adoption projects covering 31 major areas in the electrical industry. In 2005, the electrical industry developed the 2005-2007 Development

Program for Standardization of Resources Conservation and Comprehensive Utilization (Electrical), which was included in the 2005-2007 Development Plan for Standardization of Resources Conservation and Comprehensive Utilization (hereinafter referred to as the "Plan") jointly issued by 14 ministries and commissions including SAC. In 2007, in order to effectively implement the Circular of the State Council Concerning the Issuance of the Comprehensive Working Program on Energy Saving and Emission Elimination (GF [2007] No.15) and improve the resources conservation standard system, the electrical industry further prepared the 2008-2010 Development Program for Standardization of Resources Conservation and Comprehensive Utilization (Electrical), which was included in the 2008-2010 Development Plan for Standardization of Resources Conservation and Comprehensive Utilization (hereinafter referred to as the "Plan") jointly developed by SAC and NDRC. The plan has identified 15 major areas and 193 national standard preparation and revision projects, which has greatly promoted the energy saving and emission elimination of the industry.

Based on the national key technical projects during the "10th five-year" planning period, technology support program during the "11th Five-year" planning period, research projects of AQSIQ public sectors, standardization plan of the national equipment manufacturing industry, and national resource conservation plan etc., the electrical industry has carried out a series of standard researches on the plateau adaptation of machinery and electrical equipment, key technologies of new energy and renewable energy, key technologies of high-voltage direct-current transmission system and equipment, large clean high-efficiency power generation equipment, and extra-high voltage (±800kV) direct-current transmission equipment technology, which have greatly promoted the industrial development and technical progress.

1.3.1.4 Substantive participation in international standardization activities

The electrical industry has substantively participated in the international standardization activities with continuous breakthroughs since 2003 by possessing three international secretariats, two international chairmen, and two international senior management experts, and obtained three IEC1906 awards for technical contributions. Shanghai Electric Cable Research Institute acts as the international secretariat of IEC/TC7 (overhead conductor), Xi'an High Voltage Apparatus Research Institute acts as the international secretariat of IEC/TC28 (insulation coordination), while China National Electric Apparatus Research Institute acts as the international secretariat of IEC/SC32C (miniature fuse). Dr. Li Yaping of Xuchang Relay Research Institute serves as the chairman of IEC/TC95 (Technical Committee of Standardization for Measuring Relays and Protective Equipment), Vice-president Gou Ruifeng of Xi'an High Voltage Apparatus Research Institute serves as the chairman of IEC/SC22F (power electronics technology of transmission and distribution systems), while the Deputy General Manager Zhang Qiuhong of Harbin Turbine Co., Ltd. serves as the chairman of IEC/TC5 (steam turbine). Prof. Bao Ge of Shanghai Electric Appliance Research Institute serves as an expert of IEC/ACOS (IEC Advisory Committee on Safety), Prof. Chen Weisheng of China National Electric Apparatus Research Institute serves as an expert of SMB/SG1 (IEC Advisory Group for Energy Efficiency Strategy), the Assistant Chief engineer Wang Jiansheng of Xi'an High Voltage Apparatus Research Institute serves as an expert of SMB/SG3 (IEC Advisory Group for Ultra-high Voltage AC Strategy), and the senior engineer He Chun of XJ Group serves as an expert of SMB/SG4

(Advisory Group for Smart Grid Strategy). Prof. Liu Xiping of Xi'an Electric Furnace Institute Co., Ltd., Prof. Jiang Zhouhua of Northeastern University, and Prof. Zhao Yuqing of Xi'an Jiaotong University respectively obtained the IEC1906 awards for their outstanding technical contributions to the preparation of international standards of industrial electroheat equipment.

1.3.2 Five-year planning for the development of standards of the electrical industry

The standardization planning of the electrical industry is an integral part of the planning of the national standardization which is always developed in accordance with the national economic and social development planning. In 2010, the last year of the "11th five-year" planning period, the "12th five-year" planning will be initiated, and specific working schemes have not been publicized yet.

2. Information about standards and market access of the electrical industry

2.1 Scope of mandatory and recommended standards

National standards are divided into three categories as mandatory standards (GB), recommended standards (GB/T) and guides for national standards (GB/Z) (at present the former two categories prevail). The mandatory national standards are equivalent to technical regulations, and mainly focus on the following in accordance with the requirements of WTO/TBT:

- To protect the national security;
- To prevent fraud;
- To protect human health and safety;
- To protect the lives and health of animals and plants;
- To protect the environment;
- To maintain the national economic order.

Relevant enterprises must strictly comply with and enforce the mandatory national standards. Recommended national standards mainly focus on the performance as well as performance testing methods of electrical products. The guides for national standards mainly provide technical guides or standards for products with technologies under development, much similar to the TS or PAS documents of IEC.

2.2 Market access management

Although the standards, certification and entry-exit inspection and quarantine are managed by AQSIQ, they still have respective systems due to specific division of functions and are respectively in the charge of SAC, CNCA and relevant divisions of AQSIQ. The implementation rules of compulsory certification and products within the CCC scope are available on the CNCA website www.cnca.gov.cn and CQC website www.cqc.com.

Information on entry-exit inspection and quarantine requirements are available on AQSIQ website www.aqsiq.gov.cn. Details and relevant market access management procedures are available on all websites above.

2.3 English versions of standards

Currently no English translations of China's electrical industry standards are available, while relevant standardization technical committees can provide the standards in key areas (e.g. generators) in English

versions. The industry may organize to prepare the English translations of important standards upon request of foreign enterprises and relevant institutions when necessary, while associated costs thereof should be borne by the party in request.

3. Integration of the electrical industry standards with the international standards

3.1 Policies of adopting international standards

In accordance with the Administration Method for Adoption of International Standards of SAC, the international standards can be adopted with IDT or MOD methods. IDT adoption refers to the adoption with the same technical content and text structure as the international standard, or the same technical content with minor editorial changes. MOD adoption refers to the adoption with technical differences with the international standard expressly identified and explained, allowing editorial changes. The MOD adoptions shall exclude the cases where only a small number of or insignificant terms in the international standards are retained. Where a MOD adoption is applied, the text structure of the domestic standards and the international standards adopted shall be matched, and shall not be changed unless having no impact on the comparison with the contents and text structures of the international standards.

Code for degree of national standard adoption:

IDT: identical;

MOD: modified.

The number, title and adoption degree of the standard prepared based on corresponding international standard should be specified in the front cover and the foreword; regarding the standard making reference to corresponding international standard, the number and adoption degree of the international standard should be specified in the chapter of “normative references” as well as the title of the international standard in case of different titles.

The specific method for specifying the degree of adoption of international standards should comply with the Guides for Standardization – Part 2: Rules for Adoption of International Standards (GB/T 20000.2).

The technical differences and editorial changes shall be specified or identified in the domestic standards prepared by adopting international standards, and the specific method for specifying or identifying should comply with the Guides for Standardization – Part 2: Rules for Adoption of International Standards (GB/T 20000.2).

Methods for numbering the domestic standards prepared by adopting international standards:

(1) Double numbering is applied to the standards identical to the international standards:

E.g.: GB×××××—××××/ ISO (IEC) ×××××: ××××.

(2) Single national numbering is applied to the standards modified in relation to the international standards.

In addition to IDT and MOD, there is NEQ that can indicate the corresponding relation between China’s national standards and the international standards. However, NEQ does not indicate the degree of adoption of international standards.

NEQ refers to the cases where there are differences on technical contents and text structure between the national and international standards which are not expressly indicated. It also includes the cases where only a small number of or insignificant terms in the international standards are retained.

Not equivalent: NEQ.

Therefore, the national standards that are modified in relation to international standards will indicate the modified technical indicators or terms in the foreword, text and annexes.

3.2 Status quo of integration of the electrical industry standards with the international standards

Based on research on standard systems at home and abroad as well as tracking studies and effective adoption of international standards, the electrical industry has strengthened the preparation and revision management of the industry's national standards and professional standards with the use of database management. As of September 2008, there are 1,485 active national standards centrally administrated by the electrical industry, accounting for 6.2% of the total national standards, among which, 310 are mandatory standards, 20.9% of the total, 1,159 are recommended standards, 78% of the total, and 16 are technical guides for national standards, 1.1% of the total. There are also nearly 500 national standards under preparation and revision. Among the 1,485 active national standards, 1,035 have adopted international and advanced overseas standards, accounting for 70% of the total active national standards of the industry. This is the traditionally calculated rate of adoption, which is up to 98% in accordance with the calculating method newly defined by the SAC. The rate of adoption is basically over 90% in power transmission and transformation area or over 95% in power distribution and electrical apparatus area with a considerable number of standardization technical committees realizing an adoption rate of 100%. Among the 1,035 standards with adoption, 965 have adopted the IEC standards, accounting for 93.2% of the total, while the others have adopted ISO and ITU standards as well as advanced national standards.

3.3 MOD Mandatory standards in the electrical industry

No.	Standard number	Standard title	English title	Number of adopted standard	Degree of adoption
1.	GB 1094.1-1996	电力变压器 第1部分 总则	Power transformers–Part 1:General	IEC 60076-1:1993	MOD
2.	GB 1094.2-1996	电力变压器 第2部分 温升	Power transformers–Part 2:Temperature rise	IEC 60076-2:1993	MOD
3.	GB 2099.1-1996	家用和类似用途插头插座 第一部分:通用要求	Plugs and socket-outlets for household and similar purposes–Part 1:General requirements	IEC 60884-1:1994	MOD
4.	GB 3836.11-1991	爆炸性环境用防爆电器设备 最大试验安全间隙测定方法	Electrical apparatus for explosive atmospheres–Method of test for ascertainment of maximum experimental safe gap	IEC 60079-1A:1975	MOD
5.	GB 3836.12-1991	爆炸性环境用防爆电器设备 气体或蒸汽混合物按照其最大试验安全间隙和最小点燃电流的分级	Electrical apparatus for explosive atmospheres–Classification ofgases or vapours with air according to their maximum experimental safe gaps andminimum igniting currents	IEC 60079-12:1978	MOD

No.	Standard number	Standard title	English title	Number of adopted standard	Degree of adoption
6.	GB 5959.3-1988	电热设备的安全 第三部分:对感应和导电加热设备以及感应熔炼设备的特殊要求	Safety in electroheat installations–Part 3:Particular requirements for induction and conduction heating installations and induction melting installations	IEC 60519-3:1985	MOD
7.	GB 5959.4-1992	电热设备的安全 第四部分:对电阻炉的通用要求	Safety in electroheat installations–Part 4:General requirements for resistance furnaces	IEC 60519-2:1975	MOD
8.	GB 5959.5-1991	电热设备的安全 第五部分:等离子设备的安全规程	Safety in electroheat installations–Part 5:Specifications for safety in plasma installations	IEC 519-5:1980	MOD
9.	GB 5959.6-1987	电热设备的安全 第六部分:对工业微波加热设备的特殊要求	Safety in electroheat installations–Part 6:Particular requirements for industrial microwaveheating installations	IEC 60519-6:1982	MOD
10.	GB 5959.7-1987	电热设备的安全 第七部分:对具有电子枪的电热设备的特殊要求	Safety in electroheat installations–Part 7:Particular requirements for installations with electron guns	IEC 60519-7:1983	MOD
11.	GB 5959.9-1989	电热设备的安全 第九部分:对高频介质加热设备的特殊要求	Safety in electroheat installations–Part 9:Particular requirements for high-frequency dielectric heating installations	IEC 60519-9:1987	MOD
12.	GB 6829-1995	剩余电流动作保护器的一般要求	General requirements for residual currentoperated protective devices	IEC 60755:1992	MOD
13.	GB 9089.5-1995	户外严酷条件下电气装置操作要求	Electrical installations for outdoor sites under heavy conditions–Operating requirements	IEC 60621-5:1987	MOD
14.	GB 13028-1991	隔离变压器和安全隔离变压器 技术要求	Isolating transformers and safetyisolating transformers–Requirements	IEC 60742:1983	MOD
15.	GB 14316-1993	间距1.27 mm 绝缘刺破型端接式聚氯乙烯绝缘带状电缆	PVC insulated ribbon cable with a pitch of 1.27mm suitable for insulation displacement termination	IEC 918:1987	MOD
16.	GB 15092.2-1994	器具开关 第2部分:软线开关的特殊要求	Switches for appliances–Part 2:Particular requirements for cord switches	IEC 61058-2-1:1992	MOD
17.	GB 7674-1997	72.5 kV及以上气体绝缘金属封闭开关设备	Gas-insulated metal-enclosed switchgear for rated voltages of 72.5 kV and above	IEC 60517:1990	MOD
18.	GB 15579.12-1998	弧焊设备安全要求 第12部分:焊接电缆耦合装置	Safety requirements for arc welding equipment–Part 12:Coupling devices for welding cables	IEC 974-12:1992	MOD
19.	GB 3836.3-2000	爆炸性气体环境用电气设备第3部分:增安型"e"	Electrical apparatus forexplosive gas atmospheres–Part 3:Increased safety "e"	IEC 60079-7:1990	MOD
20.	GB 3836.1-2000	爆炸性气体环境用电气设备第1部分:通用要求	Electrical apparatus for explosive gas atmospheres–Part 1:General requirements	IEC 60079-0:1998	MOD
21.	GB 3836.2-2000	爆炸性气体环境用电气设备第2部分:隔爆型"d"	Electrical apparatus forexplosive gas atmospheres–Part 2:Flameproof enclosure "d"	IEC 60079-1:1990	MOD
22.	GB	交流牵引线路用棒形瓷绝缘	Rod porcelain insulators for a.c.system	IEC 383-1:1993	MOD

No.	Standard number	Standard title	English title	Number of adopted standard	Degree of adoption
	11030-2000	子	traction lines		
23.	GB 11032-2000	交流无间隙金属氧化物避雷器	Metal oxide surge arresters without gaps for a.c.systems	IEC 60099-4:1991	MOD
24.	GB 3836.4-2000	爆炸性气体环境用电气设备 第4部分:本质安全型"i"	Electrical apparatus for explosive gas atmospheres–Part 4:Intrinsic safety "i"	IEC 60079-11:1999	MOD
25.	GB 14048.5-2001	低压开关设备和控制设备 第5-1部分 控制电路电器和开关元件 机电式控制电路电器	Low-voltage switchgear and controlgear–Part 5-1:Control circuit devices and switching element–Electromechanical control circuit devices	IEC 60947-5-1:1997	MOD
26.	GB 13960.6-1996	可移式电动工具的安全 带锯的专用要求	Safety of transportable motor-operated electric tools–Particular requirements for band saws	IEC 1029-2-5:1993	MOD
27.	GB 16926-1997	交流高压负荷开关-熔断器组合电器	High-voltage alternating current switch-fuse combinations	IEC 60420:1990	MOD
28.	GB 2099.2-1997	家用和类似用途插头插座 第二部分:器具插座的特殊要求	Plugs and socket-outlets for household and similar purposes–Part 2:Particular requirements for socket-outlets for appliances	IEC 60884-2-2:1989	MOD
29.	GB 15579.11-1998	弧焊设备安全要求 第11部分:电焊钳	Safety requirements for arc welding equipment–Part 11:Electrode holders	IEC 974-11:1992	MOD
30.	GB 17465.1-1998	家用和类似用途的器具耦合器 第一部分:通用要求	Appliance couplers for household and similar general purposes–Part 1:General requirements	IEC 60320-1:1994+A1:1995+A2:1996	MOD
31.	GB 17465.2-1998	家用和类似用途的器具耦合器 第二部分:家用和类似设备用互连耦合器	Appliance couplers for household and similar general purposes–Part 2:Interconnection couplers for household and similar equipment	IEC 60320-2-2:1990+A1:1994+A2:1997	MOD
32.	GB 17466-1998	家用和类似用途固定式电气装置电器附件外壳的通用要求	General requirements for enclosures for accessories for household and similar fixed electrical installations	IEC 60670:1989+A1:1994	MOD
33.	GB 3836.15-2000	爆炸性气体环境用电气设备 第15部分:危险场所电气安装(煤矿除外)	Electrical apparatus for explosive gas atmospheres–Part 15:Electrical installation in hazardous areas (other than mines)	IEC 60079-14:1996	MOD
34.	GB 16915.2-2000	家用和类似用途固定式电气装置的开关 第2部分:特殊要求 第1节:电子开关	Switches for household and similar fixed-electrical installations–Part 2:Particular requirements–Section 1:Electronic switches	IEC 60669-2-1:1996+A1:1997	MOD
35.	GB 1094.3-2003	电力变压器 第3部分: 绝缘水平、绝缘试验和外绝缘空气间隙	Power transformers–Part 3: Insulation levels, dielectric tests and external clearances in air	IEC 60076-3:2000	MOD
36.	GB 1094.5-2003	电力变压器 第5部分: 承受短路的能力	Power transformers–Part 5: Ability to withstand short circuit	IEC 60076-5:2000	MOD
37.	GB 3836.8-2003	爆炸性气体环境用电气设备 第8部分: "n"型电气设备	Electrical apparatus for explosive gas atmospheres–Part 8: Type of protection "n"	IEC 60079-15:2001	MOD

No.	Standard number	Standard title	English title	Number of adopted standard	Degree of adoption
38.	GB 1984-2003	高压交流断路器	High-voltage alternating-current circuit-breakers	IEC 62271-100:2001	MOD
39.	GB 7260.2-2003	不间断电源设备(UPS) 第2部分:电磁兼容性(EMC)要求	Uninterruptible power systems(UPS)–Part 2:Electromagnetic compatibility(EMC) requirements	IEC 62040-2:1999	MOD
40.	GB 16915.1-2003	家用和类似用途固定式电气装置的开关 第1部分:通用要求	Switches for household and similar fixed-electrical installations–Part 1: General requirements	IEC 60669-1:2000E3.1	MOD
41.	GB 16915.4-2003	家用和类似用途固定式电气装置的开关 第2部分: 特殊要求 第3节: 延时开关	Switches for household and similar fixed-electrical installations–Part 2:Particular requirements–Section 3: Time-delay switches(TDS)	IEC 60669-2-3:1997	MOD
42.	GB 19212.1-2003	电力变压器、电源装置和类似产品的安全 第1部分:通用要求和试验	Safety of power transformers, power supply units and similar–Part 1: General requirements and tests	IEC 61558-1:1998	MOD
43.	GB 16916.1-2003	家用和类似用途的不带过电流保护的剩余电流动作断路器(RCCB) 第1部分:一般规则	Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses(RCCB)–Part 1: General rules	IEC 61008-1:1996	MOD
44.	GB 16917.1-2003	家用和类似用途的带过电流保护的剩余电流动作断路器(RCBO) 第1部分:一般规则	Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses(RCBO)–Part 1: General rules	IEC 61009-1:1996	MOD
45.	GB 3836.5-2004	爆炸性气体环境用电气设备 第5部分:正压外壳型"p"	Electrical apparatusfor explosive gas atmosphere–Part 5:Pressurized enclosures"p"	IEC 60079-2:2001	MOD
46.	GB 12802.2-2004	电气绝缘用薄膜 第2部分:电气绝缘用聚酯薄膜	Film for electrical insulation–Part 2:Polythylene terephthalate film used for electrical insulation	IEC 60674-3-2:1992	MOD
47.	GB 3804-2004	3.6 kV~40.5 kV 高压交流负荷开关	High-voltage alternating-current switches for rated voltage above 3.6 kV and less than 40.5 kV	IEC 60265-1:1998	MOD
48.	GB 1985-2004	高压交流隔离开关和接地开关	High-voltage alternating-current disconnectors and earthing switches	IEC 62271-102:2002	MOD
49.	GB 19854-2005	爆炸性环境用工业车辆防爆技术通则	General rules of explosion-proof techniques of industrial trucks for explosive atmospheres	EN 1755:2000	MOD
50.	GB 20044-2005	电气附件 家用和类似用途的不带过电流保护的移动式剩余电流装置(PRCD)	Electrical accessories – Portable residual current devices without integral overcurrent protection for household and similar use(PRCDs)	IEC 61540:1997	MOD
51.	GB 19212.4-2005	电力变压器、电源装置和类似产品的安全 第4部分:燃气和燃油燃烧器点火变压器的特殊要求	Safety of power transformers, power supply units and similar devices – Part 4: Particular requirements for ignition transformers for gas and oil burners	IEC 61558-2-3:1999	MOD
52.	GB 19212.13-2	电力变压器、电源装置和类似产品的安全 第13部分:	Safety of power transformers, power supply units and similar devices – Part	IEC 61588-2-12:2001	MOD

No.	Standard number	Standard title	English title	Number of adopted standard	Degree of adoption
	005	恒压变压器的特殊要求	13: Particular requirements for constant voltage transformers		
53.	GB 19212.24-2005	电力变压器、电源装置和类似产品的安全 第24部分：建筑工地用变压器的特殊要求	Safety of power transformers, power supply units and similar devices – Part 24: Particular requirements for transformers for construction sites	IEC 61558-2-23:2000	MOD
54.	GB 19212.16-2005	电力变压器、电源装置和类似产品的安全 第16部分：医疗场所供电用隔离变压器的特殊要求	Safety of power transformers ,power supply units and similar devices – Part 16: Particular requirements for isolating transformers for the supply of medical locations	IEC 61558-2-15:1999	MOD
55.	GB 19212.6-2006	电力变压器、电源装置和类似产品的安全 第6部分：剃须刀用变压器和剃须刀用电源装置的特殊要求	Safety of power transformers, power supply units and similar - Part 6: Particular requirements for shaver transformers and shaver supply units	IEC 61558-2-5:1997	MOD
56.	GB 14048.1-2006	低压开关设备和控制设备 第1部分：总则	Low-voltage switchgear and controlgear — Part 1: General rules	IEC 60947-1:2001	MOD
57.	GB 19212.2-2006	电力变压器、电源装置和类似产品的安全 第2部分：一般用途分离变压器的特殊要求	Safety of power transformers, power supply units and similar - Part 2: Particular requirements for separating transformers for general use	IEC 61558-2-1:1997	MOD
58.	GB 19212.8-2006	电力变压器、电源装置和类似产品的安全 第8部分：玩具用变压器的特殊要求	Safety of power transformers, power supply units and similar - Part 8: Particular requirements for transformers for toys	IEC 61558-2-7:1997	MOD
59.	GB 19212.7-2006	电力变压器、电源装置和类似产品的安全 第7部分：一般用途安全隔离变压器的特殊要求	Safety of power transformers, power supply units and similar - Part 7: Particular requirements for safety isolating transformers for general use	IEC 61558-2-6:1997	MOD
60.	GB 19212.18-2006	电力变压器、电源装置和类似产品的安全 第18部分：开关型电源用变压器的特殊要求	Safety of power transformers, power supply units and similar - Part 18: Particular requirements for switch mode power supplies	IEC 61558-2-17:1997	MOD
61.	GB 19212.5-2006	电力变压器、电源装置和类似产品的安全 第5部分：一般用途隔离变压器的特殊要求	Safety of power transformers, power supply units and similar - Part 5: Particular requirements for isolating transformers for general use	IEC 61558-2-4:1997	MOD
62.	GB 3906-2006	3.6kV～40.5kV 交流金属封闭开关设备和控制设备	Alternating-current metal-enclosed switchgear and controlgear for rated voltages above 3.6 kV and up to and including 40.5 kV	IEC 62271-200:2003	MOD
63.	GB 1208-2006	电流互感器	Current transformers	IEC 60044-1:2003	MOD
64.	GB 19212.3-2006	电力变压器、电源装置和类似产品的安全 第3部分：控制变压器的特殊要求	Safety of power transformers, power supply units and similar - Part 3: Particular requirements for control transformers	IEC 61558-2-2:1997	MOD

No.	Standard number	Standard title	English title	Number of adopted standard	Degree of adoption
65.	GB 1207-2006	电磁式电压互感器	Inductive voltage transformers	IEC 60044-2:2003	MOD
66.	GB 20800.1-2006	爆炸性环境用往复式内燃机 防爆技术通则 第1部分：可燃性气体和蒸汽环境用□类内燃机	General rules of explosion-protect techniques of reciprocating internal combustion engines for explosive atmospheres - Part 1: Group □engines for use in flammable gas and vapor atmospheres	EN 1834.1:2000	MOD
67.	GB 20800.2-2006	爆炸性环境用往复式内燃机 防爆技术通则 第2部分：可燃性粉尘环境用□类内燃机	General rules of explosion-protect techniques of reciprocating internal combustion engines for explosive atmospheres - Part 2: Group □engines for use in flammable dust atmospheres	EN 1834.3-2000	MOD
68.	GB 20936.1-2007	可燃性气体探测用电气设备 第1部分：通用要求和试验方法	Electrical apparatus for the detection and measurement of flammable gases - Part 1: General requirement and test methods	IEC 61779-1:1998	MOD
69.	GB 1094.11-2007	电力变压器 第11部分：干式变压器	Power transformers - Part 11: Dry-type transformers	IEC 60076-11:2004	MOD
70.	GB 17201-2007	组合互感器	Combined instrument transformers	IEC 60044-3：2002	MOD
71.	GB 10230.1-2007	分接开关 第1部分：性能要求和试验方法	Tap-changers - Part 1: Performance requirements and test methods	IEC 60214-1：2003	MOD
72.	GB/T 10230.2-2007	分接开关 第2部分：应用导则	Tap changers - Part 2: Application guide	IEC 60214-2：2004	MOD
73.	GB 19212.9-2007	电力变压器、电源装置和类似产品的安全 第9部分：电铃和电钟变压器的特殊要求	Safety of power transformers, power supply units and similar devices - Part 9: Particular requirements for bell and chime transformers	IEC 61558-2-8:1998	MOD
74.	GB 19212.21-2007	电力变压器、电源装置和类似产品的安全 第21部分：小型电抗器的特殊要求	Safety of power transformers, power supply units and similar devices - Part 21: Particular requirements for small reactors	IEC 61558-2-20:2000	MOD
75.	GB 19212.14-2007	电力变压器、电源装置和类似产品的安全 第14部分：一般用途自耦变压器的特殊要求	Safety of power transformers, power supply units and similar devices - Part 14: Particular requirements for auto-transformers for general use	IEC 61558-2-13:1999	MOD
76.	GB 19212.10-2007	电力变压器、电源装置和类似产品的安全 第10部分：III类手提钨丝灯用变压器的特殊要求	Safety of power transformers, power supply units and similar devices - Part 10: Particular requirements for transformers for class III hand-lamps for tungsten filament lamps	IEC 61558-2-9:2002	MOD

Note: this table is prepared with data as of the end of 2007.

4. Access to standards and channels for participating in standard preparation

4.1 Access to standards and information

The national standards of the electrical industry are available on the SAC website www.sac.gov.cn, and mandatory national standards are available for free on the SAC website www.sac.gov.cn. The standards can be purchased via the website of the Standards Press of China www.spc.net.cn and its online book store.

The professional standards of the electrical industry (JB) are available on the MIIT website www.miit.gov.cn and www.standardcn.com, while the standards of the energy equipment industry (NB) are available on www.chinaneast.xinhuanet.com. The standards can be purchased via the website of China Machine Press www.cmpbook.com.

Other relevant information can be accessed on the website of the standardization department of CMIF www.cmis.mei.com.cn and the website of CEEIA www.ceeia.com, or by sending emails to ceeia@vip.sina.com.

Overseas SMEs can have access to the standards of the electrical industry through the above ways, while information or directories of various standardization technical committees can be access via the Technical Committee channel on the SAC website www.sac.gov.cn. The following table has listed relevant information about the existing national technical committees of standardization for various sectors in the electrical industry for reference:

Table: Information on national technical committees of standardization for various sectors in the electrical industry

TC No.	SC No.	TC title	SC title	Corresponding international organization	Specialized Field	Secretariat	Secretary-General or other contacts	Tel	Address	Zip code
2		Micro motors			Micro motors, special motors, and control and drive circuit of micro motors	Xi'an Micromotor Research Institute	Guo Qiaobin	029-84276642	No.2 Taoyuan West Road, Xi'an, Shaanxi	710077
8		Environmental conditions and test of electrical and electronic products		ISO/TC89 ISO/TC104	Environmental conditions and test of electrical and electronic products	China National Electric Apparatus Research Institute	Huang Kaiyun	020-32293827	No.3 1st Tiantai Road, Kaitai Avenue, City of Science, Guangzhou City, Guangdong	510663
8	1	Environmental conditions and test of electrical and electronic products	Mechanical environmental test		Mechanical environmental test	Fifth Institute of Electronics of MII	Li Meilan	020-87236785	Branch mailbox 02, P.O. Box 1501, Guangzhou City, Guangdong	510610
8	2	Environmental conditions and test of electrical and electronic products	Climatic environmental test		Climatic environmental test	China National Electric Apparatus Research Institute	Wang Jun	020-32058718	No.3 1st Tiantai Road, Kaitai Avenue, City of Science, Guangzhou City, Guangdong	510663
9		Explosion-proof electrical equipment			Explosion-proof electrical equipment	Nanyang Explosion-Proof Electric Institute	Li Shuchao	0377-3258556、13703418984	No.20 Zhongjing Road, Nanyang, Henan	473008
9	1	Explosion-proof electrical equipment	Explosion-proof motor		Explosion-proof motor	Nanyang Explosion-Proof Electric Institute	Li Meilan	0377-3258544	No.20 Zhongjing Road, Nanyang, Henan	473008
9	2	Explosion-proof electrical equipment	Explosion-proof electric apparatus		Explosion-proof electric apparatus	Shenyang Institute of Electric Drive	Zheng Qi	024-25303261	No.64 North Xinggong Street, Tiexi District, Shenyang, Liaoning	110025
9	3	Explosion-proof electrical equipment	Installation and maintenance		Equipment selection, installation, inspection, maintenance, repair, scrapping and hazardous area classification for explosive environment	Nanyang Explosion-Proof Electric Institute	Li Shuchao	0377-63258543	No.20 North Zhongjing Road, Nanyang, Henan	473008
9	4	Explosion-proof electrical equipment	Non-electric apparatus explosion protection		Non-electric apparatus explosion protection for explosive environment	Nanyang Explosion-Proof Electric Institute	Wang Jun	0377-63258543	No.20 North Zhongjing Road, Nanyang, Henan	473008
9	5	Explosion-proof electrical equipment	Explosion-proof electric apparatus for explosive environment		Explosion-proof electric apparatus for explosive environment	Nanyang Explosion-Proof Electric Institute	Wang Jun	0377-63258543	No.20 North Zhongjing Road, Nanyang, Henan	473008

9	6	Explosion-proof electrical equipment	Explosion-proof electric apparatus for combustible dust environment	IEC/SC31H	Explosion-proof electric apparatus for combustible dust environment	Nanyang Explosion-Proof Electric Institute	Wu Jianguo	0377-63258543	No.20 North Zhongjing Road, Nanyang, Henan	473008
25		Electrical safety			Standardization of electrical safety field	CEEIA	Fang Xiaoyan	010-68212343	P. O. Box 197	100036
26		Rotating machine		IEC/TC2	Standardization of rotating machine field	Shanghai Electrical Apparatus Research Institute	Chen Weihua	021-62574990-366	No. 505 Wuning Road, Shanghai	200063
26	1	Rotating machine	Low-power machine		Standardization of low-power machine field	Guangzhou Electric Apparatus Research Institute	Yang Zhaote	020-84456917	No. 204 West Xingang Road, Guangzhou, Guangdong	510300
26	2	Rotating machine	Generator		Standardization of team-turbine generator and hydraulic generator field	Harbin Institute of Large Electrical Machinery	Fu Changhong	0451-2102601-2113	No. 89 Daqing Road, Dongli District, Harbin, Heilongjiang	150040
26	3	Rotating machine	Hoisting, metallurgical and shield electric machine		Standardization of hoisting, metallurgical and shield electric machine field	Jiamusi Institute of Explosion-proof Motor	Miao Feng	0454-8326351	No. 3 Anqing Street, Jiamusi, Heilongjiang	154002
34		General electric and electronic equipment structure		IEC/TC48/SC48D	Standardization of electric and electronic equipment and instrument structure including overall design guidelines, size and dimensions, color style, human engineering guidelines, analog symbols, switch cabinets, control cabinets, screens and panels, and general purpose parts and spare parts	Beijing Institute of Electro-engineering and Economy of Electrical Machinery Industry	Li Feng	010-68163341 13901183366	Building 30, Block 12, No. 188 (Headquarters Base), West Nansihuan Road, Fengtai District, Beijing	100070
44		Transformer		IEC/TC14, TC96	Standardization of transformer field	Shenyang Transformer Research Institute	Zhang Zhongguo	024-23785217	Hunnan High-tech Industrial Development Zone, Shenyang, Liaoning	110167
45		Power capacitor		IEC/TC33	Standardization of power capacitor field	Xi'an Institute of Electric Power Capacitor	Liu Jing	029-84221423	No. 10, Taoyuan Road, Xi'an, Shaanxi	710082
51		Insulating material		IEC/TC10, TC15, SC15C, SC15E	Standardization of insulating material for electrical industry	Guilin Electrical Equipment Scientific Research Institute	Li Xuemin	0773-5811097	No. 1 Chenshan Road, Guilin, Guangxi Zhuang Autonomous Region	541004

51	1	Insulating material	Thermoset molding material for electrical industry		Thermoset molding material for electrical insulation	Wuxi SAHAT Electrical Apparatus Co., Ltd.	Zhao Minhai	0510-83746167	No. 18 Yanxin Road, Yanqiao, Huishan District, Wuxi	214174
51	2	Insulating material	Heat-shrinkable material for electrical industry		Heat-shrinkable material for electrical industry	Shenzhen Changyuan New Material Co., Ltd.	Zhao Chenggang	0755-26719434	5th Floor, Building F, Changyuan New Material Zone, Middle Keyuan Road, Nanshan District, Shenzhen	518057
60		Power electronics		IEC/TC22	Standardization of national power electronics technology field	Xi'an Power Electronic Research Institute	Zhou Guanyun	029-5271824	No. 94 Zhuque Street, Xi'an, Shaanxi	710061
60	1	Power electronics	Semiconductor power converter for speed regulating electric drive system	IEC/TC22/SC22G	Standardization of national electric drive and semiconductor regulating system	Tianjin Research Institute of Electric Drive	Zhao Xiangbin	022-24391401-6308	No. 174 Jintang Road, Hedong District, Tianjin	300180
60	2	Power electronics	Power electronics technology for transmission and distribution system	IEC/SC22F	Power electronic conversion and semiconductor switching devices and systems as well as their application in transmission and distribution system, including control, protection and detection	Xi'an High-voltage Apparatus Research Institute	Gou Ruifeng	029-84244818	Fu No. 30, North Fenghui Road, Xi'an, Shaanxi	710077
60	3	Power electronics	UPS	IEC/SC22H	Uninterruptible power supplies, including: low-frequency interactive UPS, low-frequency modulation on-line UPS, high-frequency digital modulation UPS, and high-frequency modular redundant parallel UPS etc.	Guangdong Zhicheng Champion Group Co., Ltd.	Li Minying	133326418980769-87282699	Tianxin Industrial Zone, Tangxia Town, Dongguan, Guangdong	523718
60	4	Power electronics	Inverter		Inverter	Chuangtong Technology Development Co., Ltd. of Qingdao Economic and Technical Development Zone	Zhang Zhenshen g	0532-88699251	No. 21 Qingcheng Road, Shibei District, Qingdao, Shandong	266012

65		High-voltage switchgear		IEC/TC17/SC17A, SC17C, SC32A	Standardization of national high-voltage switchgear and controlgear	Xi'an High-voltage Apparatus Research Institute	Li Peng	029-84244818-8934	Fu No. 30, North Fenghui Road, Xi'an, Shaanxi	710077
67		Electrical accessories		IEC/TC23	Standardization of national electrical accessories field	Guangzhou Electric Apparatus Research Institute	Luo Huaiping	020-84451171-982	No. 204 West Xingang Road, Guangzhou, Guangdong	510300
67	1	Electrical accessories	Switches for appliances	IEC/TC23/SC23J	Standardization of switches for appliances field	Shanghai Electric Tool Research Institute	Liu Jiang	021-64375647	No. 10 Baoqing Road, Shanghai	200031
67	2	Electrical accessories	Bridge		Cable testing bridge	DAQO Group Co., Ltd.	Chen Weiguo	1.3605E+10	No. 66 South Xinzhong Road, Xinba Town, Yangzhong, Jiangsu	212211
68		Electric tool		IEC/TC61/SC61F	Standardization of handheld and portable electric tools, electric tool accessories and related standards	Shanghai Electric Tool Research Institute	Li Bangxie	021-64311101	No. 10 Baoqing Road, Shanghai	200031
68	1	Electric tool	Gardening electric tool	IEC/SC61F/MT3	Safety, electromagnetic compatibility, vibration, noise, performance and performance testing methods of gardening electric tools	Shanghai Electric Tool Research Institute	Pan Shunfang	021-64375647	No. 10 Baoqing Road, Shanghai	200031
69		Lead-acid battery		IEC/TC21	Standardization of national lead-acid battery field	Shenyang Storage Battery Research Institute	Chen Yusong	024-85610109	No. 7, 6h North Kaifa Road, Shenyang Economic and Technological Development Zone, Liaoning	110142
70		Electric welding machine		IEC/TC26, ISO/TC44/SC6	Standardization of national electric welding machine and equipment field	Chengdu Electric Welding Machine Research Institute	Yang Qingxuan	028-83285080	No. 29, Dongyiduan, 2nd Ring Road, Chengdu, Sichuan	610051
79		Radio interference		IEC/CISPR	Standardization of the national radio interference field	Shanghai Electrical Apparatus Research Institute	Xing Ling	021-62574990-280	No. 800, Caoyang Road, Shanghai	200063
79	6	Radio interference	Electromagnetic compatibility of household appliances, electric tools, lighting devices and electric toys	IEC/CISPR/F	Standardization of the limit of interference and special measurement of household appliances, electric tools, lighting devices and electric toys and other similar equipment	Guangzhou Electric Apparatus Research Institute	Li Xiuqing	020-84451171-932	No. 204 West Xingang Road, Guangzhou, Guangdong	510300

80		Insulator		IEC/TC36/SC36A, 36B, 36C	Standardization of national insulator field	Xi'an Electric Porcelain Research Institute	Yao Junrui	029-84225085	No. 642 Daqing Road, Xi'an, Shaanxi	710077
81		Surge arrester		IEC/TC37/SC37A, 37B	Standardization of national surge arrester field	Xi'an Electric Porcelain Research Institute	He Jimou	029-84225078	No. 642 Daqing Road, Xi'an, Shaanxi	710077
121		Industrial electro-heat installation		IEC/TC27	Standardization of national industrial electro-heat installation field	Xi'an Electric Furnace Institute	Liu Xiping	029-5271257	No. 222 Zhuque Street, Xi'an, Shaanxi	710061
154		Measuring relay and protective equipment		IEC/TC95	Standardization of measuring relays and protective equipment field	Xuchang Relay Research Institute	Liu Wen	0374-3212853	No. 183, Jianshe Road, Xuchang, Henan	461000
163		High-voltage testing technology and insulation coordination		IEC/TC28, TC42	Standardization of high-voltage testing technology and insulation coordination field	Xi'an High-voltage Apparatus Research Institute	Wang Jiansheng	029-84225318	No. 18, Xierhuan Beiduan, Xi'an	710077
163	2	High-voltage testing technology and insulation coordination	Insulation coordination		Standardization of insulation coordination field	Xi'an High-voltage Apparatus Research Institute	Tian Enwen	029-84225318	Fu No. 30, North Fenghui Road, Xi'an, Shaanxi	710077
175		Hydraulic turbine		IEC/TC4	Standardization of hydraulic turbine and auxiliary engines field	Harbin Institute of Large Electrical Machinery	Liu Shiqi	0451-2102601-3290	No. 89 Daqing Road, Dongli District, Harbin, Heilongjiang	150040
175	1	Hydraulic turbine	Controlgear		Standardization of the speed governor, oil pressure unit, and relevant automation components and systems of the hydraulic turbines	Tianjin Research Institute of Electric Drive	Dong Yuqing	022-24957372	No. 174 Jintang Road, Hedong District, Tianjin	300180
189		Low-voltage apparatus		IEC/TC17/SC17B、TC32/SC32B、TC109、TC23/SC23E	Standardization of low-voltage switchgears and controlgears, including low-voltage circuit breakers, switches, isolators, apparatus with combined isolating switches and fuse, contactors, starters, overload relays, electric circuit controllers and switching components, multi-function apparatus, automatic transfer switch equipment,, self-coordinated control and protection equipment, terminal blocks, modular combined apparatus, low-voltage fuses, domestic circuit breakers, residual current circuit breakers, residual current operated relays, portable residual current operated protective devices, and insulation coordination of low-voltage systems, etc.	Shanghai Electrical Apparatus Research Institute	Ji Huiyu	021-62574990-377	No. 505 Wuning Road, Shanghai	200063
205		Electrical installations for buildings		IEC/TC64	Standardization of electrical installations for buildings	China Electric Design and Research Institute	He Xiangkun	010-68798542	Room 1215, 12 Floor, China Electric Building, Capital Indoor Stadium South Road 9, Haidian District, Beijing	100044
212		Domestic automatic controller		IEC/TC72	Standardization of domestic automatic controller field	Guangzhou Electric Apparatus Research Institute	Huang Kaiyun	020-84451171-942	No. 204 West Xingang Road, Guangzhou, Guangdong	510300

212	1	Domestic automatic controller	Frequency-variable controller		Frequency-variable controller for domestic electrical appliances	Hisense Group Co., Ltd.	Lu Hanning	0532-86016010-2765 13305321668	Hisense Kelon R & D Center, Ronggang Road 8, Ronggui, Shunde District, Foshan, Guangdong	528303
213		Electric wire and cable		IEC/SC18A, TC7, TC20, SC46C, TC55	Standardization of electric wires and cables field	Shanghai Electric Cable Research Institute	Chen Jimin	021-55620036	No. 1000, Jungong Road, Shanghai	200093
228		Electrical alloy		IEC/TC68	Standardization of the electrical alloy field	Guilin Electrical Equipment Scientific Research Institute	Chen Jingsheng	0773-5840633	No. 1 Chenshan Road, Guilin, Guangxi Zhuang Autonomous Region	541004
259		Gas turbine		ISO/TC192	Gas turbine and auxiliary engines, and gas/steam combined circulation devices	Nanjing Gas Turbine Research Institute	Tu Qingguo	025-5540307	No. 80 North Zhongyang Road, Nanjing, Jiangsu	210037
266		Low-voltage switchgear and controlgear assembly			Low-voltage switchgear and controlgear assembly	Tianjin Research Institute of Electric Drive	Wang Chunjuan	022-23491401-3606	No. 174 Jintang Road, Tianjin	300180
297	2	Environment of electric and electronic products and systems	Environmental design	IEC/TC111/WG2	Design of the environment of electric and electronic products	CMIF	Zhang Liang	010—68171344—833	Building 30, Block 12, No. 188, West Nansihuan Road, Fengtai District, Beijing	100070
300		Fire hazard testing of electric and electronic products		IEC/TC89	Guidelines and testing methods for the impact of local fire hazard of electrical equipment on overall fire hazard, as well as the risks of electrical equipment and its spare parts (including components) and electrical insulating materials under fire hazard and abnormal heat effect	Guangzhou Electric Apparatus Research Institute	Chen Ling	020-84451171-649	No. 204 West Xingang Road, Guangzhou, Guangdong	510300
301		Assessment of electrical insulating materials and systems		IEC/TC112	Assessment and testing methods for electrical insulating materials and systems	Beijing Institute of Electro-engineering and Economy of Electrical Machinery Industry	Guo Liping	010—68177030	Building 30, Block 12, No. 188, West Nansihuan Road, Fengtai District, Beijing	100070
323		Electromagnetic shielding materials			Electromagnetic shielding materials	Shanghai Institute of Measurement and Testing Technology	Lu Fumin	021-50798515	Room 413 of the Electronics Institute, No. 1500, Zhangheng Road, Pudong New Area, Shanghai	201203
329		Mobile power station			Equipment and auxiliary products for internal combustion mobile power stations including diesel generator sets, gasoline generator sets, automatic generator sets, low noise generator sets, marine generator sets, auto power plants, and trailer power plants etc.	Lanzhou Power Station and Vehicle Institute	Zhang Hongzhan	0931—2880370	No. 64 Minle Road, Qilihe District, Lanzhou	730050

330		Environmental technology of plateau electrical products			Plateau adaptation technology of electrical products	Kunming Electric Apparatus Research Institute	Zhao Lei	0817-6243005 13108893780	Flower Quality Testing Center, Quality Standard Institute of Yunnan Academy of Agricultural Sciences, Longtou Street, Beijiao, Kunming	650221
333		High-voltage direct current transmission equipment			Manufacturing of high-voltage and extra-high-voltage direct current transmission equipment, including converter transformer, smoothing reactor, converter valves, DC surge arrester, DC casing, high-power light triggered and electrical control thyristor, filters, and control and protective equipment	Xi'an Electric Manufacturing Complex	Gou Ruifeng	029-84225582	Xi'an Electric Manufacturing Complex	710077
340		Fuse		IEC/TC32	Installation and operating characteristics, testing methods and requirements of fuses; rated voltage, current and resistance-capacitance of fuses; specifications of high-voltage and low-voltage fuses	Shanghai Electrical Apparatus Research Institute (Group) Co., Ltd.	Ji Huiyu	021—62574990—337	No. 505 Wuning Road, Shanghai	200063
340	1	Fuse	High-voltage fuse	IEC/SC32A	High-voltage fuse	Xi'an High-voltage Apparatus Research Institute	Li Peng	029—84225577	No. 18, Xierhuan Beiduan, Xi'an	710077
340	2	Fuse	Low-voltage fuse	IEC/TC32B	Low-voltage fuse	Shanghai Electrical Apparatus Research Institute (Group) Co., Ltd.	Ji Huiyu	021—62574990—337	No. 505 Wuning Road, Shanghai	200063
340	3	Fuse	Miniature fuse	IEC/TC 32C	Miniature fuses, including tubular fuse-link, ultra-miniature fuse-link, universal modular fuse-link, and fuse base of miniature tubular fuse-link, and thermal fuse-link	Guangzhou Electric Apparatus Research Institute	Cai Jun	020—84453139	No. 204 West Xingang Road, Guangzhou, Guangdong	510300
342		Fuel cell		IEC/TC105	Terms, performance, general requirements and testing methods of fuel cells	Beijing Institute of Electro-engineering and Economy of Electrical Machinery Industry	Lu Chenyu	010—68157615	Building 30, Block 12, No. 188, West Nansihuan Road, Fengtai District, Beijing	100070
411		Network communication interface of electrical equipment			Network communication interface of electrical equipment, including the equipment, communication-capable electrical equipment and relevant testing technology etc.	Shanghai Electrical Apparatus Research Institute (Group) Co., Ltd.	Ji Huiyu	021-62574990-377	No. 505 Wuning Road, Shanghai	200063

412		Electro-technical equipment			Manufacturing of electro-technical equipment	Beijing Institute of Electro-engineering and Economy of Electrical Machinery Industry	Li Xiaojing	010－68166514	Building 30, Block 12, No. 188, West Nansihuan Road, Fengtai District, Beijing	100070
413		Parts and components of electric and electronic apparatus for transmission and distribution			Parts and components of electric and electronic apparatus for transmission and distribution, including electrical semiconductor discrete devices, modules, components and case and radiators etc.	Xi'an Power Electronic Research Institute	Wei Hongqi	029-85219219	No. 94 Zhuque Street, Xi'an, Shaanxi	710061
417		Insulation coordination of low-voltage equipment		IEC/TC109	Insulation coordination of low-voltage equipment	Shanghai Electrical Apparatus Research Institute (Group) Co., Ltd.	Ji Huiyu	021－62574990－337－598	No. 505 Wuning Road, Shanghai	200063
418		Miniature power transformer, reactor, power supply and similar products		IEC/TC96	Miniature power transformer, reactor, power supply and similar products	Shenyang Transformer Research Institute Co., Ltd.	Zhang Zhongguo	024－23785217	No. 39, Shiji Road, Hunnan Xinqu, Shenyang	110179
422		Bare wire		IEC/TC7	Products, materials, packaging and testing methods of bare wires	Shanghai Electric Cable Research Institute	Liu Bin	021-65494605	No. 1000, Jungong Road, Shanghai	200093

Note: this table is prepared with data as of the end of 2008.

4.2 Trend and future plans for the standardization of electrical industry

Based on the current national economic policies and industrial development status, the electrical industry will focus on the following in the years to come:

Based on the national demands for energy restructuring, coordinate with the implementation of the national “restructuring and revitalization planning for the equipment manufacturing industry”; place emphasis on independent development of large power generation, transmission and transformation equipment, and introduce the research on the independent innovation technology standard in the process of technology digestion and absorption; carry out research and study on the standards of large hydropower generating units, ultra-supercritical coal-fired thermal power generating units, large air cooling generating units, nuclear power equipment, large steam-gas combined cycle units, and ultra-high voltage transmission and transformation technologies, so as to lay a technical foundation for the digestion and absorption of introduced technology as well as realization of independent innovation, and to build a standard system platform with advanced technical standards driving industrial technical progress.

Based on the national needs and development of new energy and renewable energy resources, carry out technology researches and develop corresponding standards in wind energy, solar energy, biomass energy, ocean energy, hydrogen energy, fuel cells and geothermal energy areas to establish a preliminary standard system and develop key technical standards;

Based on the demand of the construction of environmentally-friendly resource-saving community for high-efficiency energy-saving electrical equipment, effectively implement the national middle-and long-term special plans for energy-conservation and environmental protection, and develop and improve the energy efficiency and consumption technical standards for electric products as motors, transformers, industrial boilers, industrial electroheat equipment, and electric welding machines to satisfy the needs of national industrial structure adjustment and promotion of high-efficiency energy-saving electrical equipment; reinforce studies on industrial common technologies as eco-design, clean production and realizing recycling economy as well as relevant standards, promote the environmental protection, resource conservation, comprehensive utilization and sustainable development throughout the entire industry, and supplement and improve the technical standard system for major energy-consuming electrical equipment.

Based on the demands for international trade, reinforce the studies on the standards involved in the increasingly various foreign technical trade measures in the name of environmental protection or life and health of animals and plants, and guide the electrical equipment industry to improve its market competitiveness and capability of making response to various technical trade measures.

Based on the national demands for improved product quality, safety certification and standardized market, reinforce the preparation and revision of the certification standards, and establish a new technical standard system for certification purpose reflecting international levels.

4.3 How can SMEs participate in the standard preparations of the electrical industry?

By complying with the national development strategy for standardization, the electrical industry has, through years of exploration and innovation, given full play to the leadership of enterprises in the development of standardization, and has preliminarily established an enterprise-oriented mechanism with

multi-participation and inputs of various authorities, local governments, research institutes and universities. Motivated by this mechanism, the industrial leading enterprises have played a great part in the preparation and revision of standards. As various technical committees of standardization operate with different practices, SMEs are generally welcomed to participate in the standard preparation and revision. However, for specific industries with large number of highly competitive enterprises (e.g. electrical wires and cables, small and medium-sized motors, and low-voltage apparatus etc.), the main principle is to absorb enterprises with certain scale and technical strengths. In case of any questions or problems regarding participation in standard preparation and revision in electrical industry, SMEs may communicate or consult with CEEIA, the administrative authority of the industry, or the Secretariats of various technical committees of standardization.

5. Definition and scope of the machinery industry

5.1 The electrical industry specified in this project covers the following ICS categories: (excluding that marked with red colour)

International Classification for Standards (ICS)	29.020	Electrical engineering in general
	29.030	Magnetic materials
	29.035	Insulating materials
	29.035.01.03	Insulating materials in general
	29.035.10	Paper and board insulating materials
	29.035.20	Plastics and rubber insulating materials
	29.035.30	Ceramic and glass insulating materials
	29.035.40	Insulating oil
	29.035.50	Mica based materials
	29.035.60	Varnished fabrics
	29.035.99	Other insulating materials
	29.040	Insulating fluids
	29.040.01	Insulating fluids in general
	29.040.10	Insulating oils
	29.040.20	Insulating gases
	29.040.99	Other insulating fluids
	29.045	Semiconducting materials
	29.050	Conducting materials
	29.060	Electrical wires and cables
	29.060.01	Electrical wires and cables in general
	29.060.10	Wires
	29.060.20	Cables
	29.080	Insulation
	29.080.01	Electrical insulation in general
	29.080.10	Insulators
	29.080.20	Bushings
	29.080.30	Insulation systems
	29.080.99	Other standards related to insulation

	29.100 Components for electrical equipment
	29.100.01 Components for electrical equipment in general
	29.100.10 Magnetic components
	29.100.20 Electrical and electromechanical components
	29.100.99 Other components for electrical equipment
	29.120 Electrical accessories
	29.120.01 Electrical accessories in general
	29.120.10 Conduits for electrical purposes
	29.120.20 Connecting devices
	29.120.30 Plugs, socket-outlets, couplers
	29.120.40 Switches
	29.120.50 Fuses and other overcurrent protection devices
	29.120.60 Switchgear and controlgear
	29.120.70 Relays
	29.120.99 Other electrical accessories
	29.130 Switchgear and controlgear
	29.130.01 Switchgear and controlgear in general
	29.130.10 High voltage switchgear and controlgear
	29.130.20 Low voltage switchgear and controlgear
	29.130.99 Other switchgear and controlgear
	29.140 Lamps and related equipment
	29.140.01 Lamps in general
	29.140.10 Lamp caps and holders
	29.140.20 Incandescent lamps
	29.140.30 Fluorescent lamps. Discharge lamps
	29.140.40 Luminaires
	29.140.50 Lighting installation systems
	29.140.99 Other standards related to lamps
	29.160 Rotating machinery
	29.160.01 Rotating machinery in general
	29.160.10 Components for rotating machines
	29.160.20 Generators
	29.160.30 Motors
	29.160.40 Generating sets
	29.160.99 Other standards related to rotating machinery
	29.180 Transformers. Reactors
	29.200 Rectifiers. Convertors. Stabilized power supply
	29.220 Galvanic cells and batteries
	29.220.01 Galvanic cells and batteries in general
	29.220.10 Primary cells and batteries
	29.220.20 Acid secondary cells and batteries
	29.220.30 Alkaline secondary cells and batteries
	29.220.99 Other cells and batteries
	29.240 Power transmission and distribution networks

	29.240.01 Power transmission and distribution networks in general 29.240.10 Substations. Surge arresters 29.240.20 Power transmission and distribution lines 29.240.30 Control equipment for electric power systems 29.240.99 Other equipment related to power transmission and distribution networks 29.260 Electrical equipments for working in special conditions 29.260.01 Electrical equipments for working in special conditions in general 29.260.10 Electrical installations for outdoor use 29.260.20 Electrical apparatus for explosive atmospheres 29.260.99 Other electrical equipment for working in special conditions 29.280 Electric traction equipment31 ELECTRONICS 29.300 Electric oscillation