STRATEGIC BUSINESS PLAN (SBP)

IEC/TC OR SC:	SECRETARIAT:	DATE:
TC 64	**Germany**	**2018**

Please ensure this form is annexed to the Report to the Standardization Management Board if it has been prepared during a meeting, or sent to the Central Office promptly after its contents have been agreed by the committee.

A. Annex A - state title and scope of TC

A.1 Title

Electrical installations and protection against electric shock

A.2 Scope

To prepare International standards:

- concerning protection against electric shock arising from equipment, from installations and from systems without limit of voltage;
- for the design, erection foreseeable correct use, proper functioning and verification of all kind of electrical installations at supply voltage up to 1 kV AC. or 1,5 kV DC., except those installations covered by the following IEC committees: TC 9, TC 18, TC 44, TC 97, TC 99;
- in co-ordination with TC 99, concerning requirements additional to those of TC 99 for the design, erection and verification of electrical installations of buildings above 1 kV up to 35 kV.

The object of the standards shall be:

- to lay down requirements for installation and co-ordination of electrical equipment
- to lay down basic safety requirements for protection against electric shock for use by technical committees
- to lay down safety requirements for protection against other hazards arising from the use of electricity (e.g. thermal effects, overcurrent, fault currents, voltage disturbances)
- to specify the operational characteristics and performance criteria necessary for selection of equipment for installation applications
- to give general guidance to IEC member countries that may have need of such requirements
- and to facilitate international exchanges that may be hampered by differences in national regulations.

The standards will not cover individual items of electrical equipment other than their selection for use.

Horizontal Safety Function: Protection against electric shock for equipment and installations without limitation of voltage.

Group Safety Function: Protection against electric shock for low-voltage electrical installations.

Horizontal Energy Efficiency Function: low-voltage electrical installations.

A.3 Rationale

From the above scope as included in the IEC web site, it must be noted that 2 different tasks have been assigned to TC 64:

– Protection against electric shock; and

– Low-voltage electrical installations.

A.3.1 Protection against electric shock

As this topic covers safety of persons, it needs to cover all voltages (without voltage limitation), all situations:

– normal condition (basic protection); and

– in case of fault (fault protection).

This includes the earthing arrangements for safety.

A.3.2 Low-voltage electrical installations

Low-voltage (LV) covers any voltage up to 1 000 V AC or 1 500 V DC. This means that both alternating current and direct current are covered by this task.

Obviously, generic requirements proposed by documents covering protection against electric shock, need to be implemented within document covering low-voltage electrical installations. But topic on low-voltage electrical installation must also cover all other safety aspects resulting from the installation and the proper functioning of the installations.

A.4 New trends

Low-Voltage electrical installation forms the interface between Distribution Network, and/or power supplies, and current-using equipment. Power supplies become more and more local using renewable energy. Local storage units are increasingly installed in buildings and be used as local power supplies. Current-using equipment may integrate electronic components and communication capabilities. These changes may deeply impact the structure of the LV electrical installation in terms of safety aspects, architecture (e.g. system earthing) and operating modes. Such installations should be designed as to be ready for energy management and/or monitoring based not only on internal information but also on external information such for demand response, load shedding, virtual power plant, or microgrids.

Low-voltage electrical installations mainly use alternating current (AC), although there is increased use of direct current (DC) technology involves electronic equipment, for example photovoltaics, and the spread of energy storage units (e.g. stationary batteries, electric vehicles). The LV electrical installation interconnections are largely supplied with alternating current but some installations are now implementing DC distribution on some part(s) of the installation. In addition, increased access to energy in emerging countries is more frequently enabled through the use of renewable energy supplies and energy storage, with improving safety considerations by use of safety extra low voltage (SELV) at user access points.

Although these trends affect deeply the activity of TC64, no modification of the TC64 scope was felt necessary.

B. Annex B - Management Structure of the TC

B.1 Officers

There are 3 officers in TC64:

– One Secretary,

– One Assistant Secretary,

– One Chair.

B.2 Working Groups

IEC/TC64 has no Sub Committee.

TC64 is structured as follows:

a) Project Teams (PT)

Each PT corresponds to one new project. Once the project is voted positively and edited, the PT is generally transferred into an existing MT or converted into a new MT.

b) Maintenance Teams (MT)

Each MT is normally in charge of one specific topic. This topic corresponds to one or several documents under the responsibility of TC 64.

MTs covering large number of documents usually include great number of experts. Some members typically have an expertise only in restricted number of documents discussed within the MT. Usually these MTs have to set up internal Ad Hoc Groups for discussing these items with the appropriate experts.

– For the horizontal safety function protection against electric shock, there are 2 MTs exclusively dedicated to this topic as they need specific expertise (doctors and physiologists for IEC 60479 series, and strong liaisons with other TCs for IEC 61140).
– For low-voltage electrical installation there are 15 MTs covering all documents on this topic.

c) Joint Working Group (JWG)

A specific JWG has been set up by TC64 and TC82 for the maintenance of one part of IEC 60364. This results from discussion between both TCs on standards edited by both TCs on the same subject. This JWG includes experts from both TCs and has a joint convenorship.

On lightning protection, a JWG was set up gathering officers and experts from IEC/TC37/SC37A, IEC/TC64 and IEC/TC81. This JWG discussed safety issues raised by lightning strokes. This JWG is dormant until new safety issues are identified.

Upon request from ACOS, a JWG has also been set up between IEC/TC23/SC23E, IEC/TC23/SC23H, IEC/TC64, IEC/TC69, ISO/TC22/SC37 and ISO/TC22/SC38 on safety of electric vehicle charging systems. The convenorship was allocated to IEC/TC64. This JWG is dormant until new safety issues will need to be discussed.

A TC64 JWG with TC8 and/or SC8B will be set up for the maintenance of IEC 60364-8-2, *Prosumer's low-voltage electrical installations*, and also for the maintenance of the future IEC 60364-8-3, *Operation of prosumer's electrical installations*. In addition, TC64 will contribute to the TC8 JWG10 (TS 62786 series), and SC8B JWG1 and WG3 (TS 62898 series).

B.3 Structure adaptation

The structure of TC64 is constantly evolving as new topics come up such as PV installation, charging of Electric Vehicle, Power over Ethernet, Direct Current power supply system in the data centre, Energy Efficiency, Prosumer's installation, use of stationary batteries, access to energy. For each new adopted topic, a dedicated Project Team is set up.

Chairman Advisory Groups (CAG) were set up for helping TC64 officers in adapting the SBP and proposing new projects to plenary meeting. A CAG on System Approach (CAG SA) was set up for advising TC64 on its evolution on new trends.

c.

Annex C - Business Environment

C.1 Market relevance

C.1.1 Protection against electric shock

Electricity is recognized to be a flexible means of distributing energy with easy way for being transformed into any kind of active energy. It is recognized that safety precautions are necessary with electricity use as potential for harmful effects, including ventricular fibrillation, may occur on humans and livestock. IEC has long specified that common and well coordinate safety measures against electric shock shall be implemented in all standards including safety requirements and in a homogenous way. Therefore, the task for developing and maintaining generic safety requirements on protection against electric shock has been assigned to TC64.

TC64 is supported by the Advisory Committee On Safety (ACOS) which has allocated to TC64 the possibility to edit Basic Safety Publications and Group Safety Publications. According to IEC Guide 104, Basic Safety Publications shall be used by all IEC Technical Committees when developing new standards or maintaining existing standards for consistency on this important safety topic.

IEC technical committees using TC64 Basic Safety Publications need to:

– provide protective measures against electrocution, and

– specify preventive measures addressing physiological effects other than ventricular fibrillation of current through the human body and livestock.

Physiological effects of current induced through bodies by electromagnetic fields are not covered by TC64 as other international bodies have already addressed this topic.

There are no known international competing standards on protection against electric shock or low voltage electrical installation.

C.1.2 Low-voltage electrical installations

Most of the safety measures on protection against electric shock are implemented within the electrical installation in conjunction with to those implemented within the equipment. One of the main safety measures on protection against electric shock consists in the Fault Protection by automatic disconnection of supply (based on the system earthing). The implementation of this protective measure either for AC or DC, has a strong impact on the design, erection and verification of the electrical installation. Therefore, a strong coordination between both protection against electric shock and low-voltage electrical installation is necessary. Consequently, one single TC must cover both protection against electric shock and low-voltage electrical installation.

Other safety issues are specific to electrical installations such as:

– Protection against thermal effects (burns, fires, arcs);

– Protection against overcurrent (overload, short-circuit); and

– Protection against overvoltage (temporary, transient).

All these safety measures must be developed in a coordinated way as one single protective device may be used for different types of protective measures and shall not disturb mutually the safety functions.

Equipment manufacturers desire to produce protective device for the worldwide market and therefore it is relevant for this market to harmonize protective measures throughout the world.

Following the survey on the IEC 60364 relevance made by IEC/TC64, it has been noted that most of the countries claim to follow the general principles of protection as proposed by the IEC 60364 on safety issues. Few countries have developed their own standard on electrical installations not following IEC/TC64 documents. Among them, some countries are now revising their own standard applying the general principles of protection as proposed by the IEC 60364 on safety issues.

Product Technical Committees gather experts on a specific area. They are tempted to include requirements covering the part of the electrical installation concerned by their equipment standards. They may not have the full expertise on protection against electric shock within electrical installation and their set of requirements often very much interfere with the requirements provided by the IEC 60364, or with requirement proposed by other TC having the same approach on a different area. This should be strongly avoided as safety of users and correct operation of the installation may be hampered (see § F.1 on system approach).

From the above, TC64 considers that developing installation requirements outside IEC 60364:

– **is useless** as these requirements, if kept in the equipment standards, are usually not translated into various national languages by the different National Committees. National Committees sometime cannot detect that inside some equipment standard there are requirements that should be introduced within the national wiring rules;

– **may be unsafe or inoperative**. A product TC has certainly some expertise on the selection and erection of their equipment but not the comprehensive view of all installation requirements. Developing installation requirement without TC64 expertise can be in conflict with basic safety

principles or existing correct installation functioning requirements as developed by TC64;

– **may not be adaptable** to local habits by National Committees as requirements for electrical installation should be independent of the technology used within the equipment for being able to be adopted worldwide. (requirements based on objectives to be reached and not on state of the art in technologies) These requirements should also be developed in a way to be easily adaptable by National Committees. This is one of the principle used by the flexible structure of IEC 60364 (general rules from §1 to §6 and specific applications in §7);

– **confirms criticality of coordination** so that by working with TC64, product committees can enable installation requirements suitable for their devices while consistent with the needs of other components of the installation/system.

C.2 Economic indicators

C.2.1 Protection against electric shock

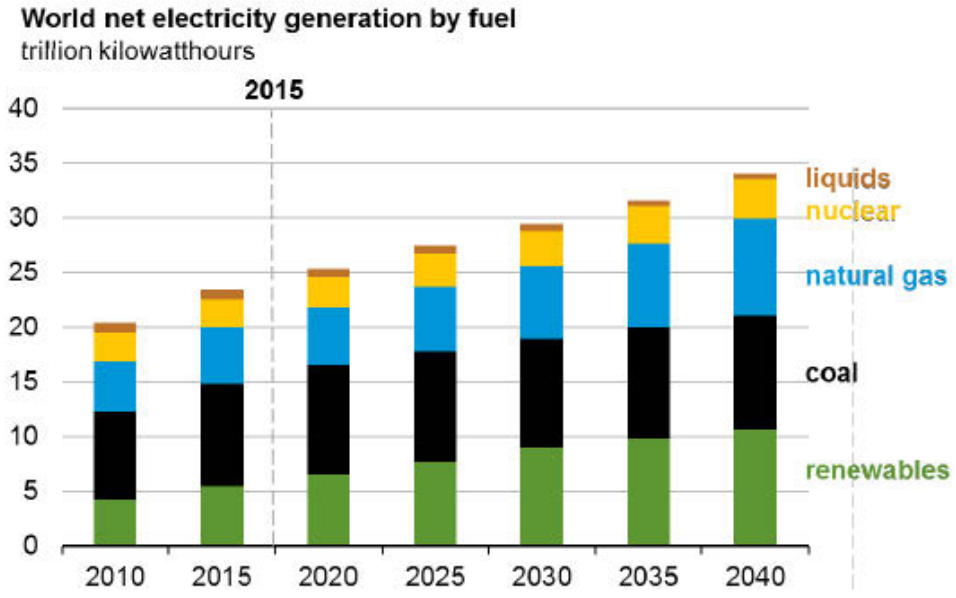
Per country it may be possible to register the number of injuries and fatalities due to the use of electricity. These statistics may allow analyse of these figures per category of "persons" (skilled or ordinary), per voltage ranges or per application (industry, dwellings…). The evolution of these figures can give a rather good estimate of the effectiveness of implementation of protective measures as provided by these standards, if implemented nationally

C.2.2 Low-voltage electrical installations

It is extremely difficult to estimate the number of LV electrical installations in a country. But the following indicators may be found useful.

– As most of the electricity produced is used in low voltage, the variation of the total number of LV electrical installations are connected to the variation of the total electricity consumption of this country.

  From the here below figure it can be easily noticed that world electricity consumption still increases, which means that the number of electrical installation still increases Net electricity generation in non-OECD countries increases an average 1.9%/year from 2015 to 2040, compared to 1.0%/year in OECD countries.



Source: eia.org - International Energy Outlook 2017 - Report Number: DOE/EIA-0484(2017)

Figure 1 – World net electricity generation forecast

– The number of buildings per country (for each market segments) may also provide some ideas of the number of electrical installations. The total number of electrical installations certainly exceeds the number of buildings as there may be several installations within a building.

C.3 Support to regulation

C.3.1 Protection against electric shock

As the standards developed by IEC/TC64 on this topic are addressed to other Technical Bodies, it is not the intention of these standards to support Regulation directly.

C.3.2 Low-voltage electrical installations

National standards on low-voltage electrical installations may differ from country to country. As the IEC 60364 series mainly includes safety requirements, and as electrical equipment is widely used by unskilled persons, National Authorities use the national wiring rules based on this IEC 60364 as a National Regulation. Compliance with national wiring rules is often a condition of a contract between parties

D.

Annex D - Market Demand

D.1 Customers

D.1.1 Protection against electric shock

Primarily documents developed under this topic are internal to IEC. Targeted customers are all IEC TCs or SCs, which need to implement the safety requirements developed by TC64 in its Basic Safety Publication or Group Safety Publication when TCs/SCs developing their own safety requirements.

d) The first set of documents is IEC 60479 series which covers the physiological effects of current through
   - Human beings and
   - Livestock

   These documents are used for instance by equipment manufacturers and universities.

e) Then TC64 has developed IEC 61140 that provides requirements on protection against electric shock for:
   - Electrical installations, and/or
   - Equipment.

   This document shall be used by all IEC TCs and SCs as it provides generic preventive and protective measures to be implemented within IEC standards when developing safety requirements.

f) The third document is IEC 60364-5-54 which provides consistent requirements to Product TCs and SCs on earthing arrangement and protective conductor for installation and equipment.

D.1.2 Low-voltage electrical installations

The electrical installation forms the environment for the use of electrical energy and is the interface between electrical equipment and supply systems and thus the market demand is led by the need to provide requirements for the installation of standardized installation equipment so as to allow for the safe use of standardized current-using-equipment.

The IEC 60364 series covers low-voltage electrical installations (in AC and DC). It specifies the safety and functional concepts to be achieved for the design and erection of a new electrical installation, modifications and extensions of existing electrical installations and their proper functioning.

The IEC 60364 series of standards is mainly targeted to National Committees which then develop their own national wiring rules targeted to:

- designers of electrical installations;
- electrical contractors;
- electrical controllers;
- facility managers; and
- maintenance managers.

National Committees may adopt as such or adapt the IEC 60364 according to national habits or regulation.

D.2 Customer's needs

D.2.1 Protection against electric shock

Physiological effect depends of the wave form of the current. New electronic equipment generates many different types of wave forms current, which need to be analysed within IEC 60479 series. For implementing preventive or protective measures, it is much easier to use voltage/time curve than current/time curve as it is very difficult to estimate the real current passing through human bodies. These voltage/time curves are needed for all new wave form of current (see IEC 60479-5).

TCs or SCs using IEC 61140 for developing safety requirements need, in addition to the protective measures, some preventive measures corresponding to other physiological effects of the current on the human body than the ventricular fibrillation. Consumers may consider that any non-hazardous physiological effect (startle reaction, muscular reaction, inability of let-go) is inacceptable. This more particularly true when electrical equipment is used by children, elderly person or in severe environment.

D.2.2 Low-voltage electrical installations

National Committees need to edit national wiring rules in local language. This needs time and expertise to translate IEC 60364 documents, to adapt the requirements to local habits, and to explain these requirements to local customers. TC64 concluded that customers using low-voltage electrical installation standard need to only use one complete and stable document suitable for all installations in their national language.

The numbers of users of national wiring rules are certainly several millions of persons, which represent a much larger number of readers than many other IEC documents. As many National Committees use directly or indirectly IEC 60364 as basis of their national wiring rules, it is therefore necessary to keep valid the standards within this series for a certain duration. It has been decided that each separate standard of the IEC 60364 series should be kept valid for a period of about 10 years. Certainly, updates in form of amendments can be initiated to follow technology trends or upon identification of critical issues.

National Committees should adopt as such IEC 60364 series or adapt it as their National wiring rules. This is the reason why TC64 adopted a specific structure for the IEC 60364 series of standards. In some countries, national laws force the implementation of the national wiring rules for all or some applications, or local or regional habits strongly recommend the compliance with national or regional wiring rules.

National Committees of some countries may not have the complete expertise to adapt all the requirements of IEC 60364 series. More and more they require TC64 to propose documents in the format of "Wiring Rules" providing final solutions to be directly implemented by their national customers. These solutions are to be based on the electrical equipment with the existing technology. This request corresponds to a complete different philosophy of actual IEC 60364. Such objective will result in frequent modification of the wiring code as technology evolves quickly. TC64 proposes not to change the structure of IEC 60364, but to develop application guides beside the main document IEC 60364. These guides are directed to National Committees for publications for their customers. They explain how to design an electrical installation or part of it for specific application (e.g. protection of motors, lighting circuits, DC applications…)

The targeted users of the IEC 60364 are obviously concerned by safety but they are also concerned by other aspects of the electrical installation such as proper functioning of the electrical installation. New equipment with latest technology can be easily connected to old existing installation and consider that they should operate correctly in a safe manner.

Energy management for improving energy efficiency, managing the supplies, managing current-using equipment or dedicated circuits, within electrical installations becomes more important. Therefore, TC64 developed new parts of IEC 60364 covering this specific need.

Prevention of fire cause by to the use of electricity is also a future big challenge in order to decrease the number of fatalities and the losses of production or buildings due to fire. TC64 will cover this need by developing adequate safety requirements.

E. Annex E - Trends in Technology and in the Market

E.1 Trends in technology

E.1.1 General

TC 64 standards need continuous development in order to address the use of new electrical equipment on the market (e.g. extended use of converters). They have to take into account the latest technological trends in the work of equipment committees which lead to new or modified equipment standards.

E.1.2 Protection against electric shock

New technologies used in the current-using-equipment (electronics) or within the power supplies are generating currents with multiple frequencies. Due to higher presence of harmonics and high frequencies, currents and voltages with high frequencies should be better assessed in the Basic Safety Publications edited by IEC/TC64.

E.1.3 Low-voltage electrical installations

Installation using Direct Current seems today becoming an opportunity in some applications. A larger use of DC in electrical installations will request from TC64 further investigation concerning safety of persons and properties. Mix of AC and DC installations will also need further work by TC64.

Traditionally transfer of electrical energy is made from power supplies to electrical equipment through dedicated wiring systems. Today new ways of transferring electrical energy emerge such as through signalling conductors (Power over Ethernet) or through electromagnetic fields (inductive charging of electric vehicle and personal electronics). TC64 should investigate on how these new methods of transferring energy impact traditional electrical installations.

E.2 Market trends

E.2.1 Protection against electric shock

To respond to TC needs, it become necessary to explain the technical content of IEC 61140 in order to help its implementation by TCs. Involvement of these TCs in the maintenance of this BSP is urgently needed in order to integrate their requests. The key issue concerns the adaptation by TCs of the safety concepts developed in IEC 61140 and how to select the appropriate one which could be in conflict with economic aspects.

People and the modern environment need more and more safety. Number of persons killed by electricity is already low and is still decreasing while the application of electricity is still increasing. Therefore, prevention of injuries and fatalities becomes a necessity and requirements based on all physiological effects become necessary (e.g. startle reaction, muscular reaction, burns…) and need to be introduced in our Basic Safety Publications, for ultimate introduction in all equipment standards.

E.2.2 Low-voltage electrical installations

Technologies for decentralized power systems and active installations are now emerging. Use cases for energy management for prosumer's installations need to be covered.

Distributed and/or intermittent energy supplies have direct impacts on the design of electrical installations and also on safety requirements to be complied with and require a deep consideration on the long term.

Efficient use of electrical energy due to adapted design of new installations or modification of existing installations can reduce the carbon emission. Energy efficiency is now one of the key issues for all countries. This has deep influence on standards for electrical installation which need to be regularly up dated.

The emergence of local energy storage for electricity used within private low-voltage electrical installations will also impact the design of these installations.

Renewable energy power supplies, energy efficiency and local energy storage encourage consumers becoming also producers of energy. They now become "prosumers". This tendency

has real impacts on the design of electrical installations and on safety measures. Coordination between local prosumers may form “microgrid” which could be used by utilities during grid outage or recovery time after black out, or may be part of virtual power plants or demand response schemes.

New technologies on renewable power supplies and on storage units enable people having had no access to public distribution network to erect local independent electrical installations. These installations can be either in AC or in DC TC64 needs to develop documents addressed to national committees of countries having a significant part of their population without access to electricity.

Existing standards covering electrical installations are mainly focused on new installations. Improvement of technology used within the electrical equipment lead to changes within the way of designing, erecting and controlling electrical installations. Due to this, upgrading of existing electrical installations may become more and more important for safety reasons and also for functionality.

Implementation of better continuity of service within electrical installation may be provided by selectivity between protective devices.

F. Annex F - Systems approach aspects (Reference - AC/33/2013)

F.1 Specificity of TC64

F.1.1 Protection against electric shock

Protection against electric shock applies to all energized equipment. As TC64 has been assigned to develop requirements for this type of protection through horizontal standards for all voltages, all frequencies and all types of current.

Stated earlier, prevention of electric shock needs also to be assessed. It certainly corresponds to the needs of many customers and therefore to many equipment TCs or SCs.

Other physiological effects exist and should be better addressed. This includes the case of the effects of burns or lightning strokes on human being.

Unfortunately, there are few research activities on this topic. Universities should be better involved in the development of new statements in IEC 60479 series.

Equipment TCs needs also to be better involved in the development of IEC 61140, as this document is mainly addressed to them. Few of them propose comments during the maintenance process of this document, and some of them do not refer to this BSP, or do not use the basic principles developed in this document.

Some TC of ISO are also very much interested in better understand how to protect people against electric shock, as many equipment complying with ISO standard use electricity.

It is also noted that other international organisations have developed documents assessing the protection against electromagnetic fields. No coordination exists today between TC64 and these organisations.

F.1.2 Low-voltage electrical installations

The main characteristic of an electrical installation is to interconnect different electrical equipment to fulfil a specific application. Knowledge of operation of all equipment is necessary for the design of the installation. Furthermore, it has been stated above that electrical installation is now interacting with various interests (e.g. Grid, Power supplies, electrical equipment). As such, standards covering the electrical installation shall be integral part of the system approach concept.

In the recent past some general concept having impacts on electrical installations have been duly considered by TC64 when maintaining IEC 60364 series of documents. This is considered as horizontal approach. This is the case for instance for:

– EMC;
– Energy efficiency;

– Environment.

On the other side, and as already stated, some equipment TCs having the expertise on their respective equipment, have developed their own requirements for the selection and erection of their equipment.

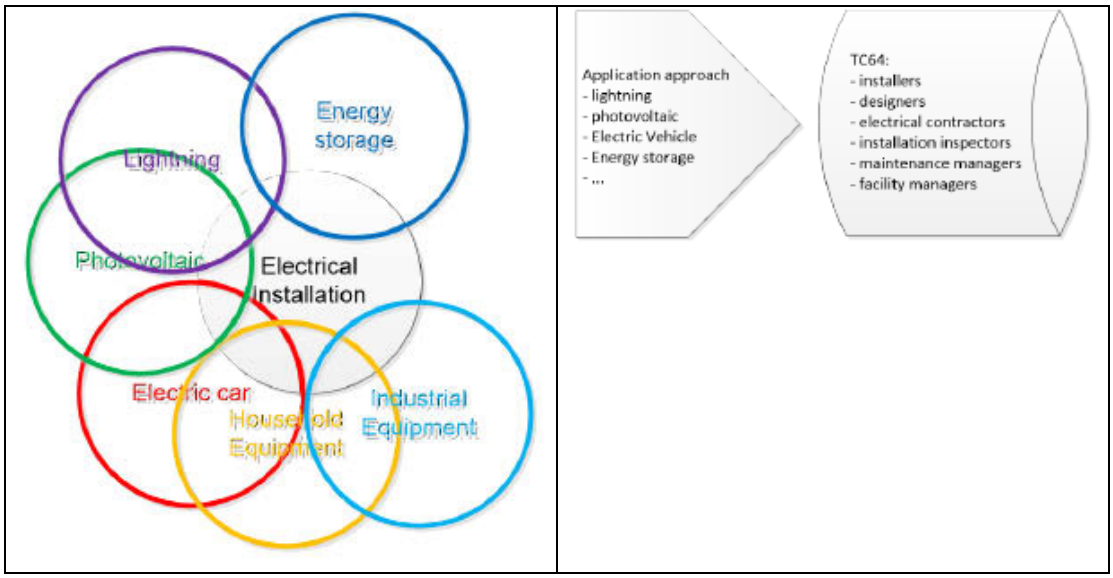


Figure 2 – Illustration of global approach on LV electrical installation covered by IEC/TC64

All these systems interfere with the low-voltage electrical installations and may also interfere between themselves. It is therefore important for IEC/TC64 to keep consistency between all these different systems within the electrical installation. Creation of JWG with other TCs will be encouraged by TC64.

The IEC/TC64 documents have not to cover individual items of electrical equipment other than their selection for use, taking into consideration the appropriate products characteristics and classification.

F.2 Liaison

Due to the both tasks assigned to TC64, there are many TCs or SCs having liaison with TC64.

Liaisons	Number
IEC TC/SC	22
IEC-ISOI/TC	1
ISO/TC	1
External type A	1
External type B	3
External type D	1 (in discussion)

In addition, TC64 has appointed delegate to the following Advisory Committees

– ACOS: Advisory Committee on Safety

– ACEE: Advisory Committee on Energy Efficiency.

There is a participation of TC64 experts within SyC LVDC on LVDC.

Future participation of experts from TC64 to ACEC (Advisory Committee on Electromagnetic Compatibility) and SyC Smart Energy shall be considered.

G. Annex G - Conformity Assessment

G.1 Conformity assessment

G.1.1 Protection against electric shock

None of our existing publications contains requirements in line with conformity assessment as none of them include reproducible test requirements.

G.1.2 Low-voltage electrical installation

Basically IEC 60364 is not developed in line with conformity assessment although some requirements on tests and verification have been introduced.

G.2 Conformity assessment system

G.2.1 Protection against electric shock

According to above statement, no publications of TC64 will be used for conformity assessment system.

G.2.2 Low-voltage electrical installation

According to above statement, no publications of TC64 will be used for conformity assessment system.

H. Annex H - 3-5 Year Projected Strategic Objectives, Actions, Target Dates

H.1 H.1. Objectives

To reaffirm the leading role of IEC/TC64 within the IEC community on both assigned topics: protection against electric shock and low-voltage electrical installations.

H.2 Strategies

To reach the objectives assigned to IEC/TC64 the following should be fulfilled for both main tasks of TC64:

– BSPs and GSPs edited by IEC/TC64 need to be applied by all Technical Committees; and

– IEC/TC64 needs to better and quicker anticipate the market needs and the trends in technology.

H.2.1 Protection against electric shock

Strategic objectives 3-5 years	Actions to support the strategic objectives	Target Date(s) to complete the actions
To update technical content of IEC 60479	– To include new statements on high and multiple frequencies in IEC 60479-5 and IEC 61201	2022
To promote technical content of IEC 61140	– To prepare set of slides on IEC 61140 on its technical content towards TCs	2019
	– To contact relevant TCs with these slides	2019

H.2.2 Low-voltage electrical installations

New method of energy transfer	– To finalize development of IEC 60364-7-716: Direct Current Power Distribution over Information Technology Cable Infrastructure	2019
Energy efficiency	– To update the IEC 60364-8-1 on energy efficiency thank to the feed-back of users	2022
Renewable energy power supplies	– To develop new requirements on IEC 60364-7-712 where solar photovoltaic power supply is combined with local storage units	2020
Local energy storage for electricity	To develop IEC 60364-5-57 on Stationary Secondary Batteries	2019

Prosumer's installation	– To prepare the second edition of IEC 60364-8-2: prosumer's electrical installation – To develop IEC 60364-8-3: operation of electrical installation	2021 2021
Access to energy	– To update IEC 61200-101: SELV DC electrical installation and develop IEC 61200-102: Low-voltage direct current electrical installation not intended to be connected to Public Distribution Network in collaboration with SyC LVDC	2021 and 2020
Application guides	– To start development of application guides on electrical installations: • Motor protection • Lighting circuit • Uninterruptible power supply • Automatic Transfer Switch • Generators – To investigate on possible new topics for application guides	2021 2020

Note: The progress on the actions should be reported in the RSMB.

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