STRATEGIC BUSINESS PLAN (SBP)

IEC/TC OR SC:	SECRETARIAT:	DATE:
123	**JAPAN**	**2018-01-11**

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. STATE TITLE AND SCOPE OF TC

Are there any new or emerging trends in technology that will impact the scope and work activities of the TC? Please describe briefly.

Do you need to update your scope to reflect new and emerging technologies? If yes, will these changes impact another TC's scope or work activities?

If yes, describe how these will impact another TC(s) and list the TC(s) it would impact

TITLE: Management of network assets in power systems

SCOPE:

Standardisation to deliver, in co-operation with other TC/SCs and international organizations, common methods and guidelines for coordinated lifetime management of network assets in power systems to support good asset management.

In addition this may include the development of new methods and guidelines.

Excluded:

- Generation business assets

- The scopes of other IEC Technical Committees, such as TC 8, TC 56 and TC 57.

B. MANAGEMENT STRUCTURE OF THE TC

Describe the management structure of the TC (use of an organizational chart is acceptable) (should be integrated by CO automatically) and, if relevant (for example an unusual structure is used), provide the rationale as to why this structure is used.

Note: Check if the information on the IEC website is complete.

When was the last time the TC reviewed its management structure? Describe any changes made. When does the TC intend to review its current management structure? In the future, will the TC change the current structure, for example due to new and emerging technologies, product withdrawal, change in regulations etc. Please describe.

Make sure the overview includes:

- any joint working groups with other committees,
- any special groups like advisory groups, editing groups, etc.

Officers

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Australia, Belgium, Canada, China, France, Germany, India, Italy, Japan, Korea, Republic of, Netherlands, Russian Federation, Spain, Sweden, Switzerland, United Kingdom

Liaisons

ISO TC 251
CIGRE
IEC TC 8

Established WGs

WG 1: Terminology
WG 2: Case studies of managing assets
AHG 3: Task and structure development

Planned Projects

- Risk Evaluation and Risk mitigation
- Common framework for management of all assets

C. BUSINESS ENVIRONMENT

Provide the rationale for the market relevance of the future standards being produced in the TC.

If readily available, provide an indication of global or regional sales of products or services related to the TC/SC work and state the source of the data.

Specify if standards will be significantly effective for assessing regulatory compliance.

There has, and will continue to be significant investment in electricity assets which will require ongoing management to realise value for the organizations. In the last 5 years, there has been USD 718 billion investment for electricity, spending on electricity networks and storage continued, reaching an all-time high of USD 277 billion in 2016. In the United States (17% of the total) and Europe (13%), a growing share is going to the replacement of ageing transmission and distribution assets. [SOURCE IEA World Energy Investment 2017]

The background showing the market relevance of TC123 is shown below. There is a significant volume of work occurring across a range of stakeholders all of which will benefit and be enhanced by our work.

1. Background, CIGRE TB 597, "Transmission Risk Management" (2014.7)

(1) Large fleet of aging infrastructure

The asset management business model gained rapid popularity through the 1990's as many utilities responded to liberalization of electricity markets and associated de-regulation and re-regulation. The asset owner - asset manager - service provider – model offered the opportunity for improved efficiencies and it focused business decisions related to investment in the assets on the technical needs of assets themselves as opposed to sustainment of organizational funding. In parallel with these organizational changes the looming problems associated with large fleets of aging infrastructure became apparent.

(2) Regulatory environment

For transmission companies, changes in the regulatory environment had the profound effect of shifting the focus of regulatory scrutiny from the generation side of the business to the transmission side. This change resulted in transparency for transmission costs and allowed the structuring of performance and efficiency measures for transmission companies. As a result utilities have been motivated to develop more rigorous and quantitative methods for business case analysis to justify investments in assets

2. Background, IEC Whitepaper "Strategic asset management of power networks" (2015.10)

Electricity networks around the world are facing an once-in-a-lifetime level of profound challenges, ranging from the massive uptake of distributed generation devices, such as rooftop solar generation, through to significant changes in the control and communications equipment used in the network itself. Power networks in developed nations are struggling with an equipment base nearing the end of its lifetime, whilst those in developing nations wrestle with trying to identify best-practice examples on which to model their operations. Compounding these challenges, there is ever-increasing regulatory and funding pressure being placed on electricity network businesses to justify their management actions and expenditure decisions.

Amidst these challenges, there is great variation around the world on how electricity network companies approach what are arguably their number one challenge – the design, maintenance and operation of a large network of electrical equipment. Network companies often take quite different approaches in testing equipment, calculating the lifetime and financial costs of various equipment maintenance options, and even reporting on the performance of their system. The variety here is hardly intentional – it stems from a lack of internationally accepted global standards or guidelines on how to practice asset management in the electricity network sector.

This current lack of international standards or guidelines on asset management for electrical networks will have a significant impact on the reliability and future viability of the electricity sector.

Whilst standards such as the ISO 55000 series provide general guidance on best-practice asset management procedures, they do not provide the industry-specific guidance that is needed given the operational methods and challenges of the electricity transmission and distribution industry.

3. ISO TC251 (in charge of ISO 55000 series)

Following previous British standard, PAS 55, in 2004 and 2008, ISO TC 251 produced ISO 55000 series in 2014, specifying general requirement on asset management. (Exactly speaking, it was PC 251 then, transformed to TC251 later)

According to ISO TC 251 plenary meeting held in November 2018, at least 48 organizations from power network business have been certified to ISO 55001, which account for about 1/4 of the organization of the whole industries. More than 50 organizations responded CIGRE C1.34 survey on ISO 55000 series requirements that means those organizations are interested. The number is, however, still small among thousands of power network companies.

4. CIGRE

CIGRE has produced several Technical Brochures (TBs) on asset management summarized in the table below (Boudewijn, London workshop in 2018-2-1). Those TBs (study committees) are classified into 2 groups:

C1 (System Development and Economics): covering all product

A1, A2, A3, B1, B2, B3, etc.: covering specific asset such as transformer (A2), High voltage equipment (A3), Cable (B1), Overhead line (B2), Substation (B3), HVDC (B4).

AM Topic	A1	A2	A3	B1	B2	B3	C1	D1	Other SC's
Condition Assessment & Monitoring	386 437 552 558	393 436 630	083 259	622	498	300 380 381 400 462		226 627 654	
End-of-life Issues		227	165 368	358	353 477	252	422	296 409 414	448 (B5) 649 (B4)
Risk Management & AM Decision-making	641	248	509 510 511 512 513 514	385	515 585	300 472 486 576 639	309 327 422 541 597	420 525	340 (C3) 383 (C3) 565 (C5)
Grid Development			335 336		385		176 433		
Maintenance processes and Decision-making		445 625	259 319	279 560	230	380 660			464 (B5) 539 (B5)
Asset Data and Information		298 642					367		329 (B5) 341 (D2) 617 (B4)

D. MARKET DEMAND

Provide a list of likely customers of the standards (suppliers, specifiers, testing bodies, regulators, installers, other TC/SC's etc.). Do not specify company names, only categories of customers.

The primary customer of the standards will be organizations who own and/or operate power networks, mainly Transmission & Distribution System Operators, including vertically integrated companies. However, the standards shall also be applicable, and relevant, to smaller electricity network owners and/or operators. The target group are "asset managers" in these organizations.

For asset managers, as outlined in the IEC white paper "Strategic asset management of power networks", there will be different areas of demand for the TC work as e. g.

- Without worldwide standards on measuring and reporting on electricity network asset management procedures and performance, broader stakeholder engagement is very difficult.
- There is a lack of consensus on what are best practice methods for everything from testing the health of a particular item of equipment to prioritizing various asset management options.
- Commonly-accepted definition of ways to calculate (for example) failure rates, it is very difficult to benchmark across organizations or jurisdictions.

In addition, this standard shall be useful to regulators who are looking to understand the management of assets and manufacturers who are designing and building equipment to service these companies.

IEC 123 is working in close collaboration with many product TCs, and across organisations such as CIGRE. The output of this TC's will facilitate a great sharing of knowledge and asset management practises, in the asset lifecycle, across a wide spectrum of stakeholders.

E. TRENDS IN TECHNOLOGY AND IN THE MARKET

If any, indicate the current or expected trends in the technology or in the market covered by the products of your TC/SC.

The electricity industry is undergoing, a period of significant change, with an increase in de-centralised energy and non-conventional forms, of generation being connected to the networks. This coupled with a significant drive to deliver smart grids with an increase in monitoring and automation provides both challenges and opportunities for those managing assets. Those

managing assets are always looking for new technology and methods to better evaluate their assets and support decision making in the interest of their stakeholders.

There will be additional demands on this TC, especially in the following areas:

- Smart Energy, Microgrids and Active Distribution Networks
- Infrastructure modernization or new asset types
- Decision making and support tools e.g. risk-based management of assets. It is recognised that decision-making may include not only like-for-like replacement but adaptation of the existing grid to the energy transition with synchronous view on refurbishment, disposal and new construction, “flexible” solutions like Dynamic Line Rating (DLR), demand side management of generation, automatic grid configuration, etc.
- Data management and automation e.g. blockchain
- Condition monitoring
- Generation types: generation places demands on network assets that may dictate how we manage these assets. These demands will vary depending on the type of generation assets and the volume by which they stress the network assets.
- Energy storage systems may be considered as network assets.

F. SYSTEMS APPROACH ASPECTS (REFERENCE - AC/33/2013)

Does your TC/SC have a need for a systems approach?

If so:

- Will the Systems work be in a single TC or in multiple TCs?
- Will a Systems Evaluation Group (SEG), Systems Committee (SyC), or Systems Resource Group be required?
- Is your TC/SC work of relevance to ISO?
- Is or are there fora or consortia working in parallel to IEC? Is there a chance to integrate this work in your TC/SC?

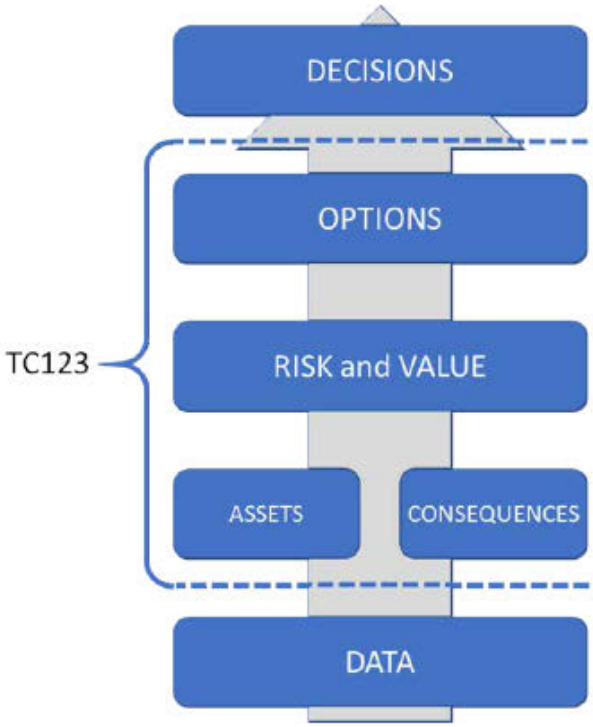
This should not only be restricted to the customer/supplier relationships with other TC/SCs indicating types of co-operation (e.g. liaisons, joint working groups) but be of a more generic nature.

If there is no need for a systems approach as outlined in AC/33/2013, is it intended a TC would not be requested to report on general systems approach considerations such as customer/supplier relationships, liaisons, joint WGs, etc. as referenced in the system approach matrix illustrated in slide 14 of the presentation attached to AC/37/2006?

This newly established TC on “management of network assets in power systems” has two aspects:

- Projects within the scope of TC123 that can be handled by TC 123 alone
- Projects which need cooperation with the relevant committees.

This relationship is shown below.



This diagram aims at identifying the main areas of work of TC 123 and the related areas. TC 123 shall interact with appropriate committees to address these areas and align activities. TC 123 already has established liaisons ISO/TC 251and CIGRE.

Other related committees may include the following:

- TC 7 Overhead electrical conductors
- TC 8 Systems aspects of electrical energy supply
- TC 11 Overhead lines
- TC 14 Power transformers
- SC 17A Switching devices
- SC 17C Assemblies
- TC 20 Electric cables
- TC 22 Power electronic systems and equipment
- TC 33 Power capacitors and their applications
- TC 36 Insulators (and SC 36A Insulated bushings)
- TC 37 Surge arresters
- TC 38 Instrument transformers
- TC 56 Dependability
- TC 57 Power systems management and associated information exchange
- TC 65 Industrial-process measurement, control and automation, SC65A System aspects
- TC 95 Measuring relays and protection equipment
- TC 99 Insulation co-ordination and system engineering of high voltage electrical power installations above 1,0 kV AC and 1,5 kV DC
- TC 108 Safety of electronic equipment within the field of audio/video, information technology

and communication technology

- TC 111 Environmental standardization for electrical and electronic products and systems
- TC 115 High Voltage Direct Current (HVDC) transmission for DC voltages above 100 kV
- SyC Smart Energy
- TC 120 Electrical Energy Storage (EES) Systems

G. Conformity Assessment

With reference to clause 33 of Part 2 of the ISO/IEC directives, are all you publications in line with the requirements related to conformity assessment aspects?

Will the TC/SC publications be used for IEC Conformity Assessment Systems (IECEE, IECEx, IECQ, IECRE)?

Will any of your standards include test specifications, reproducible test requirements, and test methods?

Are there likely to be special conformity assessment requirements generated by any standards projects? If yes, list which projects.

TC 123, being a new technical committee, has not issued any publication, which can be used by IEC Conformity Assessment Systems yet.

H. Horizontal issues

Indicate here how the TC/SC deals with horizontal issues such as energy efficiency, environmental aspects, safety, security…

Provide information on the interaction with SMB Advisory Committees, if applicable.

TC 123 joined ACTAD.

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

Strategic Objectives 3-5 years	Actions to support the strategic objectives	Target Date(s) to complete the actions
To define terminology used for management of network assets in power systems.	WG 1 will contribute	2021
To identify real world practices on asset management and management of network assets in power systems	WG 2 will contribute	2021
To develop methods on risk and value	Under consideration	2021
To develop common framework for evaluation of assets and consequences	Under consideration	2021
To develop approaches for evaluation of options for management of assets	Under consideration	2021

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