



# SMB/7247/SBP

## STRATEGIC BUSINESS PLAN (SBP)

IEC/TC OR SC: <b>TC120</b>	SECRETARIAT: <b>Japan</b>	DATE: <b>2021-01-22</b>
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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

#### Electrical Energy Storage (EES) Systems

##### 1. Standardization in the field of grid integrated EES Systems.

- TC 120 focuses on system aspects on EES Systems rather than energy storage devices.
- TC 120 investigates system aspects and the need for new standards for EES Systems.
- TC 120 also focuses on the interaction between EES Systems and Electric Power Systems (EPS).

##### 2. For the purpose of TC120, "grid" includes and is not limited to applications in:

- a) transmission grids
- b) distribution grids
- c) commercial grids
- d) industrial grids
- e) residential grids
- f) islanded grids
- g) MUSH (Municipal/Military, Utilities/Universities, Schools, Hospitals) grids
- h) ICI (Institutional, Commercial and Industrial) grids

It is also confirmed that TC120 can include "smart grid." Storage in railway systems is considered if it contributes as an EES System to the grid as referenced in 2 a-f.

**Note: grid: electricity supply network (ISO/IEC 15067-3)**

**smart grid: electric power system that utilizes information exchange and control technologies, distributed computing and associated sensors and actuators, for purposes such as:**

- to integrate the behaviour and actions of the network users and other stakeholders
- to efficiently deliver sustainable, economic and secure electricity supplies (IEV 617-04-13)

**3. EES Systems include any type of grid-connected EES Systems which can both store electrical energy from a grid or any other source and provide electrical energy to a grid. By that feature it maintains the balance between electrical energy demand and supply over a period of time.**

**TC 120 considers all storage technologies as long as they are capable to store and to discharge electrical energy. (Energy storage itself is not in the scope of the work.)**

**Note) Thermal storage systems are included in the scope, only from the electricity exchange point of view.**

**Unidirectional energy storage systems such as UPS are not included in the scope of TC 120.**

**4. The scope of TC 120 is to prepare normative documents dealing with the system aspects of EES Systems.**

**For example, TC 120 deals with defining unit parameters, testing methods, planning and installation, guide for environmental issues and system safety aspects.**

#### **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.

#### **CAG**

##### **WG1 Terminology**

##### **WG2 Unit parameters and testing methods**

##### **WG3 Planning and installation**

##### **WG4 Environmental issues**

##### **WG5 Safety considerations**

#### **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.

**EES Systems become essential technologies to achieve global and continuing needs, for CO2 reduction and more efficient and reliable electricity supply and use. These can be efficiently and quickly accomplished by maximizing the advantages of EES Systems integrated with Renewables Energy (RE) installation, Smart Grids and dispersed**

generations.

#### 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.

**As the RE market grows, the market for EES Systems, will also expand and require technical specifications and regulation frameworks for their grid interconnection. However, though we usually need B2B (Business to Business) coordination to introduce EES Systems, there are no specific standards, specifications nor procedure which formulates the integration of EES Systems in power systems. Furthermore, many aspects such as safety and environmental compatibility to utilize large numbers of EES Systems have not yet been thoroughly summarized to widely and safely deploy EES Systems in any countries. This situation cannot help EES System users easily installing them in every region and country.**

#### E. SUSTAINABILITY DEVELOPMENT GOALS

INDICATE THE SUSTAINABLE DEVELOPMENT GOALS (SDGs) THAT ARE ADDRESSED BY WORK WITHIN THE TC/SC. INDICATE EACH SDG INDICATOR AFFECTED (REFERENCE SPREADSHEET AVAILABLE AT [HTTPS://WWW.IEC.CH/SDG/](https://www.iec.ch/SDG/)), AND PROVIDE SPECIFIC INFORMATION ABOUT HOW THE TC/SC IS ADDRESSING THE SDG. CONSIDER BOTH DIRECT AND INDIRECT IMPACTS OF THE WORK OF THE TC/SC.

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|--|--|
| <input checked="" type="checkbox"/> <b>GOAL 1:</b> No Poverty                            | <input type="checkbox"/> <b>GOAL 10:</b> Reduced Inequality                              |
| <input type="checkbox"/> <b>GOAL 2:</b> Zero Hunger                                      | <input checked="" type="checkbox"/> <b>GOAL 11:</b> Sustainable Cities and Communities   |
| <input type="checkbox"/> <b>GOAL 3:</b> Good Health and Well-being                       | <input checked="" type="checkbox"/> <b>GOAL 12:</b> Responsible Consumption & Production |
| <input type="checkbox"/> <b>GOAL 4:</b> Quality Education                                | <input checked="" type="checkbox"/> <b>GOAL 13:</b> Climate Action                       |
| <input type="checkbox"/> <b>GOAL 5:</b> Gender Equality                                  | <input type="checkbox"/> <b>GOAL 14:</b> Life Below Water                                |
| <input type="checkbox"/> <b>GOAL 6:</b> Clean Water and Sanitation                       | <input type="checkbox"/> <b>GOAL 15:</b> Life on Land                                    |
| <input type="checkbox"/> <b>GOAL 7:</b> Affordable and Clean Energy                      | <input type="checkbox"/> <b>GOAL 16:</b> Peace & Justice Strong Institutions             |
| <input checked="" type="checkbox"/> <b>GOAL 8:</b> Decent Work & Economic Growth         | <input type="checkbox"/> <b>GOAL 17:</b> Partnerships to achieve the Goal                |
| <input checked="" type="checkbox"/> <b>GOAL 9:</b> Industry, Innovation & Infrastructure |  |

#### F. 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 total EES System market is expected to be large, but it will remain very sensitive to cost. Given the cost sensitivity, lifetime cost and well-described planning and installation methods should be considered, not simply installation cost but also cost of operation and disposal. Low raw material cost, which is a part of total installation cost, may also become a specific selection criterion for EES System technology. This means that not only further R&D and highly-motivated policy goals but the development of uniform technical parameters at the right moment are vital as well.**

**EES Systems have played at least three major roles for years and are also coming to be more important in near future. First, EES Systems reduce electricity costs by storing electricity obtained at off-peak times when its price is lower, for use at peak times. Secondly, in order to improve the reliability of the power supply, EES Systems support users when power network failures occur, for example, due to natural disasters. Their third role is to maintain and improve power quality, frequency and voltage.**

**EES Systems maintain the balance between electrical energy demand and supply. Furthermore, EES Systems are responsible to provide grid stability forming parameters like short circuit power, reactive / active power, and damping of sudden power fluctuation by providing inertia like- properties and other parameters which will be defined during TC120's work. In certain situations, the EES System is the only energy source within the respective electrical grid. As such it must be capable to ensure the functionality and reliability of the grid as well as providing the black-start capability if required.**

**TC 120 considers all storage technologies as long as they are capable to store and to discharge electrical energy. For example, the EES System can be considered as a black box however with a set of standardized parameters essential for electrical grid planners and**

## EES System manufactures.

**With rollout of the Smart Grid and microgrids, implying storage installed at customer sites, the market for small and dispersed EES Systems is also expected to be quite large. EES Systems will be used not only for single applications but simultaneously for several objectives by integrating multiple dispersed storage sites**

### G. SYSTEMS APPROACH ASPECTS (SEE DIRECTIVES PART 1 ANNEX SP)

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 Standardization 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.

**In order to introduce EES Systems in electrical grids, users shall understand the EES Systems composed of numerous technologies, for example, battery subsystems, control system, interface, grid elements and their safety and environmental aspects. Therefore, it is essential to implement system approaches for not only fully integrating necessary technical requirements but also avoiding any duplications and/or contradictions in a system. TC120 will cover these systems to help all users to efficiently and effectively install EES Systems which meet different technical needs and optimized economics to be most attractive to the market.**

### H. CONFORMITY ASSESSMENT

With reference to Clause 33 of Part 2 of the ISO/IEC directives, are all your 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.

**Documents made by WG2 and WG5 include test requirements.**

### 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
Objectives of TC 120 is to be the one stop-shop in order to plan, integrate, control and manage EES Systems beyond mechanical and thermal storage domains.	TC 120 to collect the relative information and successful applications to support the whole system of EES functionality with the grids.	2020-10 and onward update.
WG1 (Working Group1) Produce terminology standards	-Update IEC62933-1 reflecting the WG-documents published after IEC62933-1.	2022-12

for EES system	-A work item of “INTERNATIONAL ELECTROTECHNICAL VOCABULARY (IEV) – Part 631: Electrical energy storage systems” is in progress.	2020-12
WG2 (Working Group2)  Produce standards of Unit parameters and testing methods for EES system	-Update IEC62933-2-1.  - A work item of “Unit parameters and testing methods – Applications and Performance testing” is in progress. (IEC62933-2-2)	2022-12  2022-05
WG3 (Working Group3)  Produce standards of Planning and installation for EES system	-TS 62933-3-1 is upgraded to IS including SOC and SOH definition, post SAT operation, integration of mobile EESS  -2 work items of  “Planning and performance assessment of electrical energy storage systems -Additional requirements for power intensive and for renewable energy sources integration related applications (IEC62933-3-2)”  and  “Planning and performance assessment of electrical energy storage systems -Additional requirements for energy intensive and backup power applications (IEC62933-3-3)”  are in progress.	2023-08  2022-03  2022-03
WG4 (Working Group4)  Produce standards of Environmental issues for EES system	-Update IEC 62933-4-1.  -4 work items of  “Guidance on environmental issues - Greenhouse gas (GHG) emission reduction by electrical energy storage (EES) systems (IEC62933-4-200)”  and  “Environment impact assessment requirement for electrochemical based systems	2022-07  2021-05  2023-03

	<p>failure (IEC62933-4-2)”</p> <p>and</p> <p>“The protection requirements of BESS according to the environmental conditions and location types (IEC62933-4-3)”</p> <p>and</p> <p>“Environmental requirements for BESS using reused batteries in various installations and aspects of life cycles (IEC62933-4-4)”</p> <p>are in progress.</p>	<p>2023-03</p> <p>2023-03</p>
<p>WG5 (Working Group5)</p> <p>Produce standards of Safety considerations for EES system</p>	<p>-Update</p> <p>IEC 62933-5-1</p> <p>and</p> <p>IEC 62933-5-2</p> <p>-2 work items of “Safety requirements for electrochemical based EES systems considering initially non-anticipated modifications - partial replacement, changing application, relocation and loading reused battery” is in progress. (IEC 62933-5-3)</p> <p>and</p> <p>“Safety test methods and procedures for grid integrated EES systems – Lithium ion battery-based systems (IEC 62933-5-4)”</p> <p>are in progress.</p>	<p>2022-07</p> <p>2023-05</p> <p>2023-02</p> <p>2023-05</p>
	<p>Ensure coordination with each WG, Terminology, Parameters and testing methods, Planning and installation, Safety Considerations, Environmental Issues.</p>	<p>2023</p>

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