SABS

RENEWABLE ENERGY AND ENERGY STORAGE STANDARDS

Phillip Kgosana
phillip.kgosana@sabs.co.za
012 428 6514

Who develops the South African National Standards

Through the Standards Act of 2008, the SABS is mandated to

- ❑ Develop
- ❑ Promote and
- ❑ Maintain, the South African National Standards(SANS)
- ❑ Note – not limited to these functions

The SABS collaborates with IEC and ISO for the development of international standards

International Electrotechnical Commission

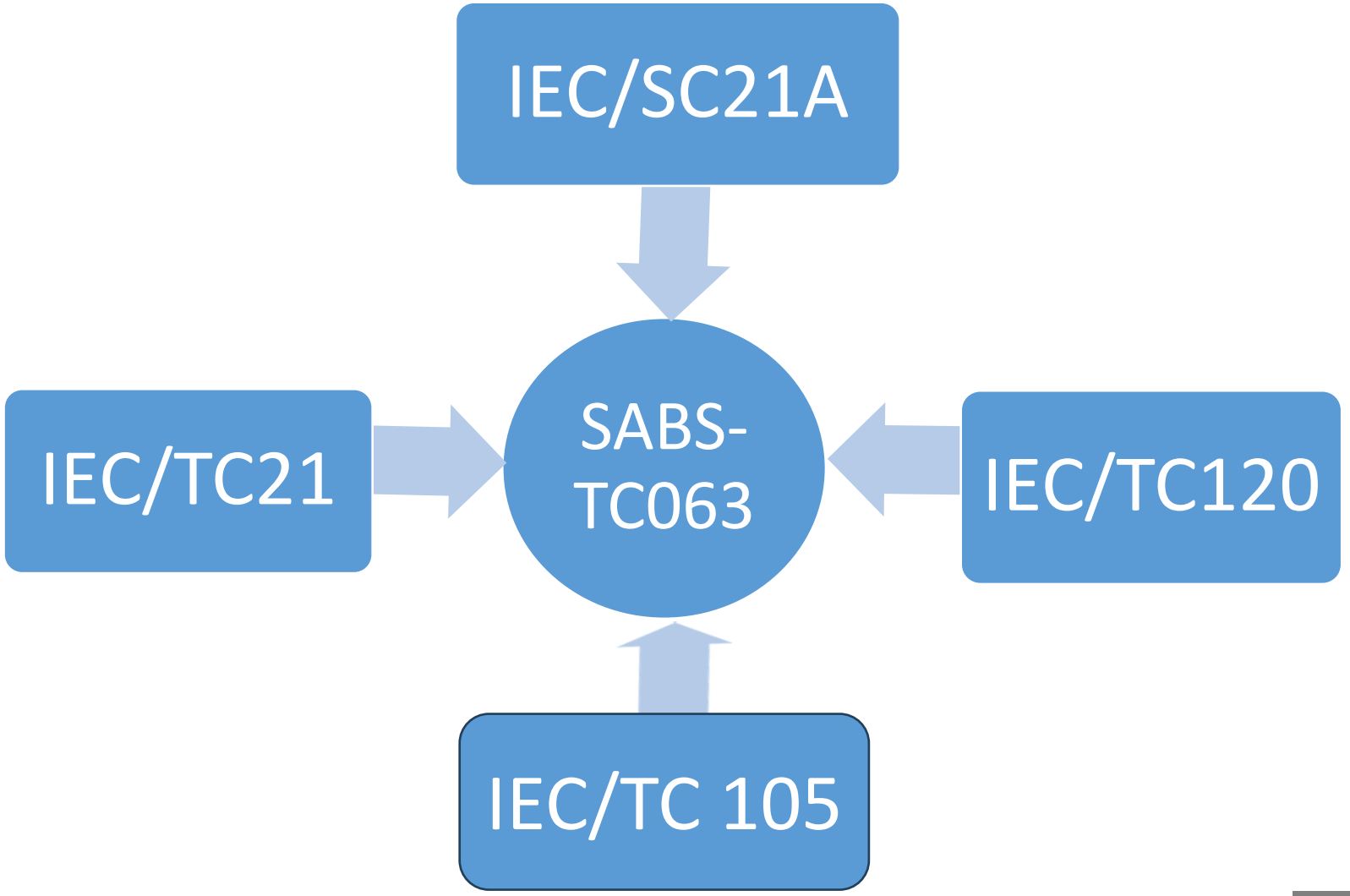
SABS

TECHNICAL COMMITTEES on RENEWABLES and ENERGY STORAGE

SABS/TC63
Energy Storage

SABS/TC69
Power electronics and alternative energy conversion

SABS-TC063 – ENERGY STORAGE - Liaisons



IEC TC 21 SCOPE

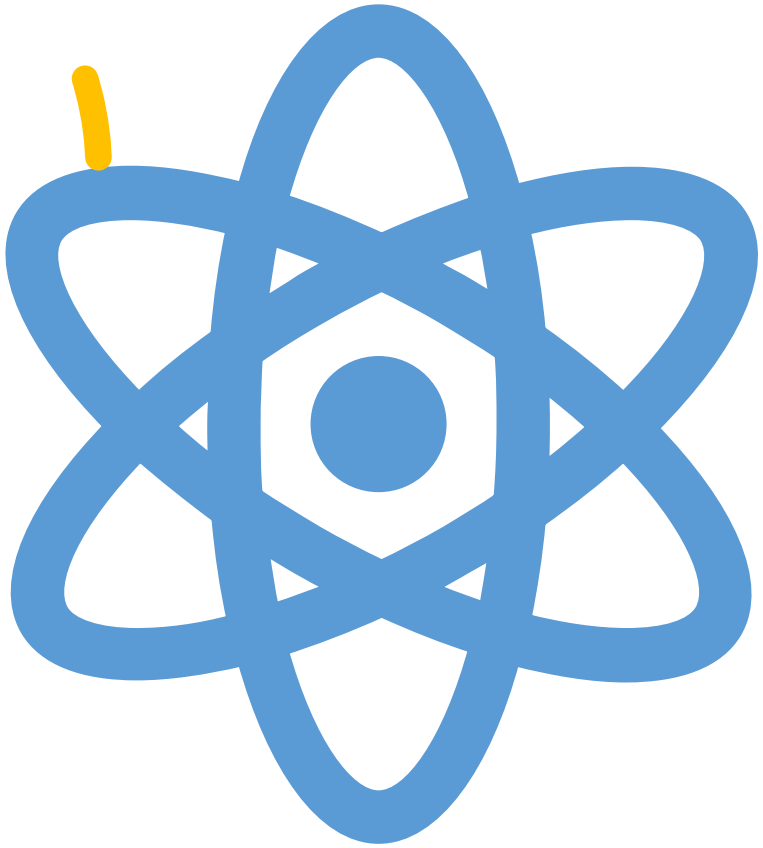
- provide standards for all types of secondary i.e. rechargeable cells and batteries as related to their chemistry, product dimensions, marking and performances, the intrinsic safety of the design, the qualification tests for selected applications and the safety rules for installation, operation, maintenance and disposal

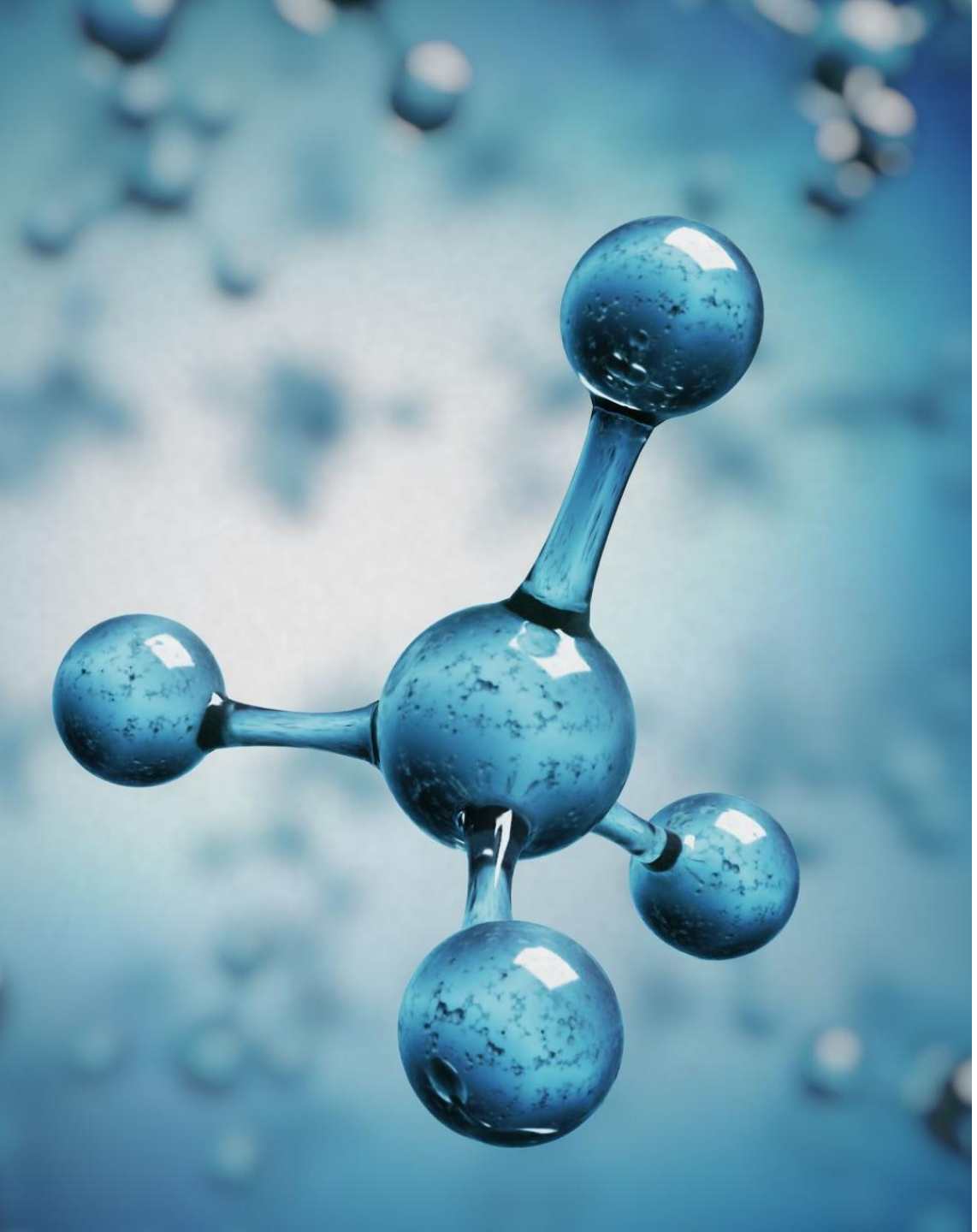
IEC – TC 120 - SCOPE

- 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).

IEC TC 105 SCOPE

- prepare international standards regarding fuel cell (FC) technologies for all FC types and various associated applications such as stationary FC power systems for distributed power generators and combined heat and power systems, FCs for transportation such as propulsion systems (see note below), range extenders, auxiliary power units, portable FC power systems, micro FC power systems, reverse operating FC power systems, and general electrochemical flow systems and processes.

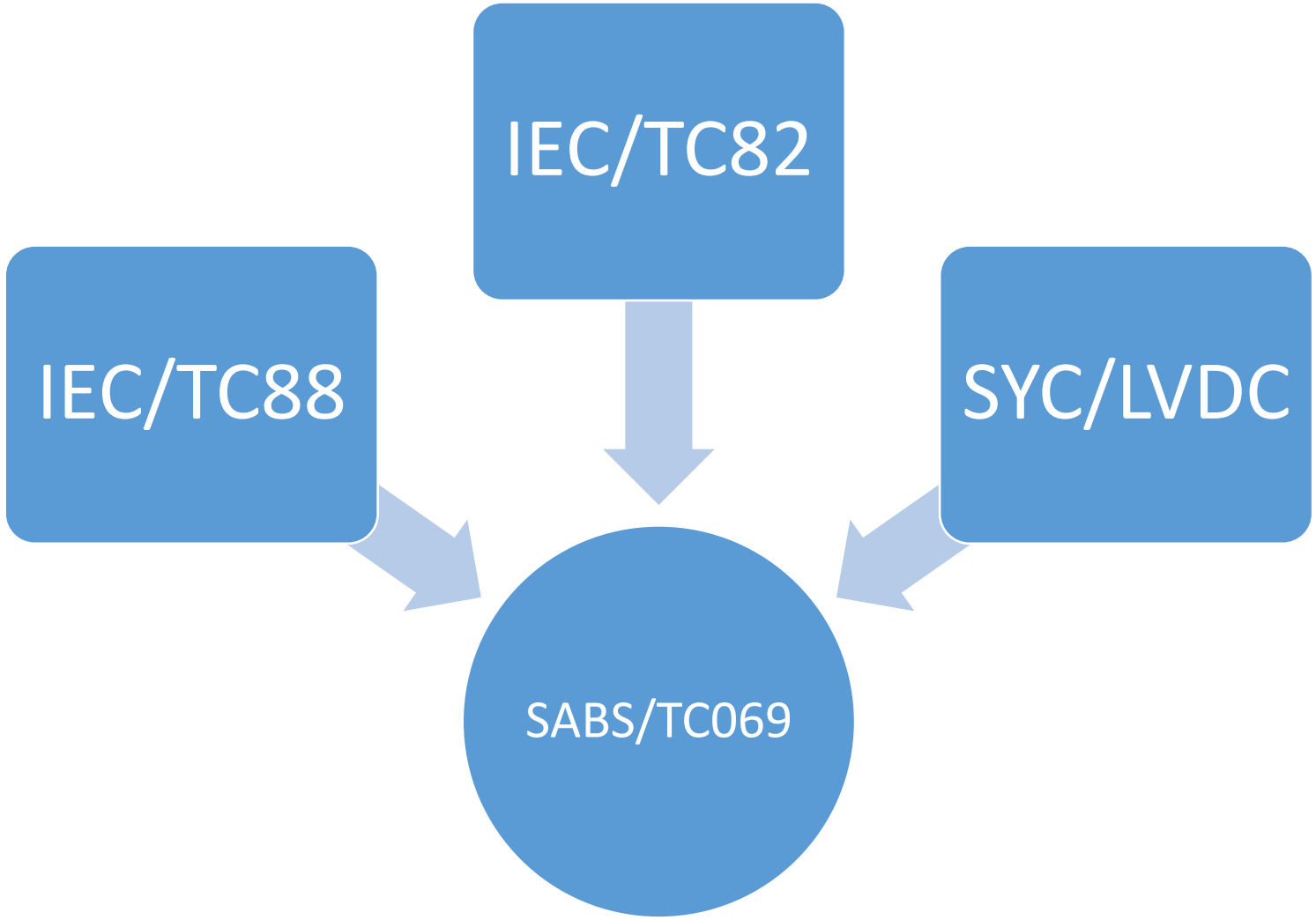


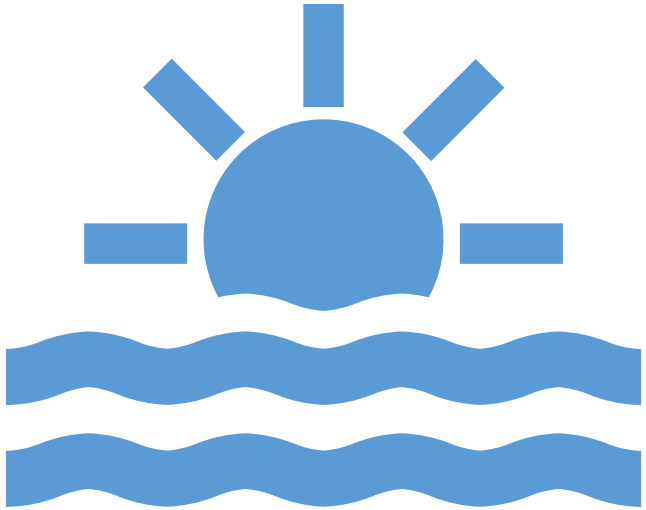


FUEL CELLS AND BATTERIES STANDARDS

1. **SANS 62620**:Secondary cells and batteries containing alkaline or other non-acid electrolytes - Secondary lithium cells and batteries for use in industrial applications
2. **SANS 62619**:Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for secondary lithium cells and batteries, for use in industrial applications
3. **SANS 62485-2**:Safety requirements for secondary batteries and battery installations - Part 2: Stationary batteries
4. **SANS 62282-3-100**:Fuel cell technologies Part 3-100: Stationary fuel cell power systems – Safety
5. **SANS 61427-1**:Secondary cells and batteries for renewable energy storage - General requirements and methods of test Part 1: Photovoltaic off-grid application
6. **IEC 62933-5-2:**Electrical energy storage (EES) systems - Part 5-2: Safety requirements for grid-integrated EES systems - Electrochemical-based systems

SABS-TC063 – RENEWABLE ENERGY - Liasions

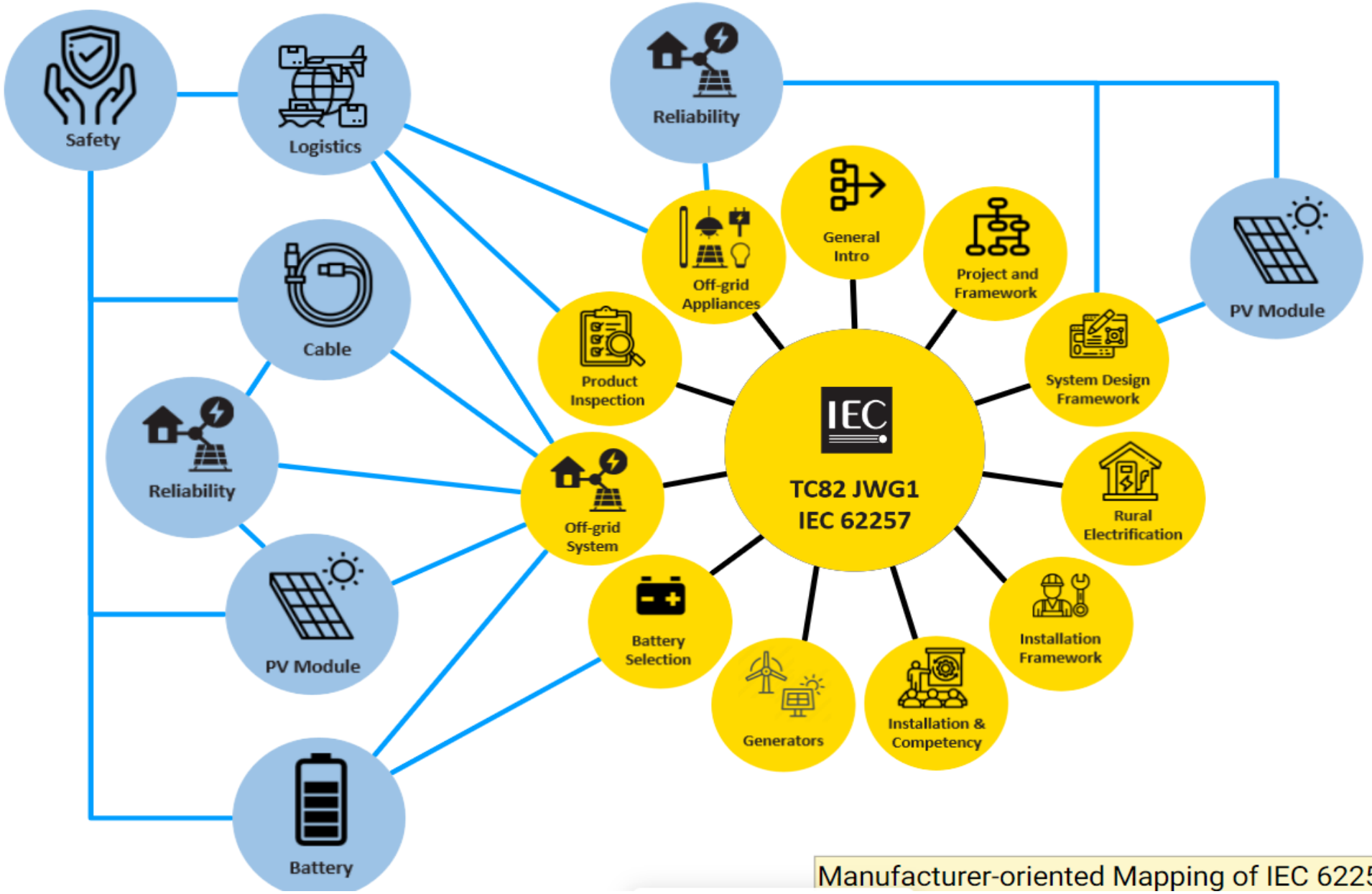




IEC-TC82 SOLAR PHOTOVOLTAIC ENERGY SYSEMS - SCOPE

- To prepare international standards for systems of photovoltaic conversion of solar energy into electrical energy and for all the elements in the entire photovoltaic energy system. In this context, the concept "photovoltaic energy system" includes the entire field from light input to a photovoltaic cell to and including the interface with the electrical system(s) to which energy is supplied.

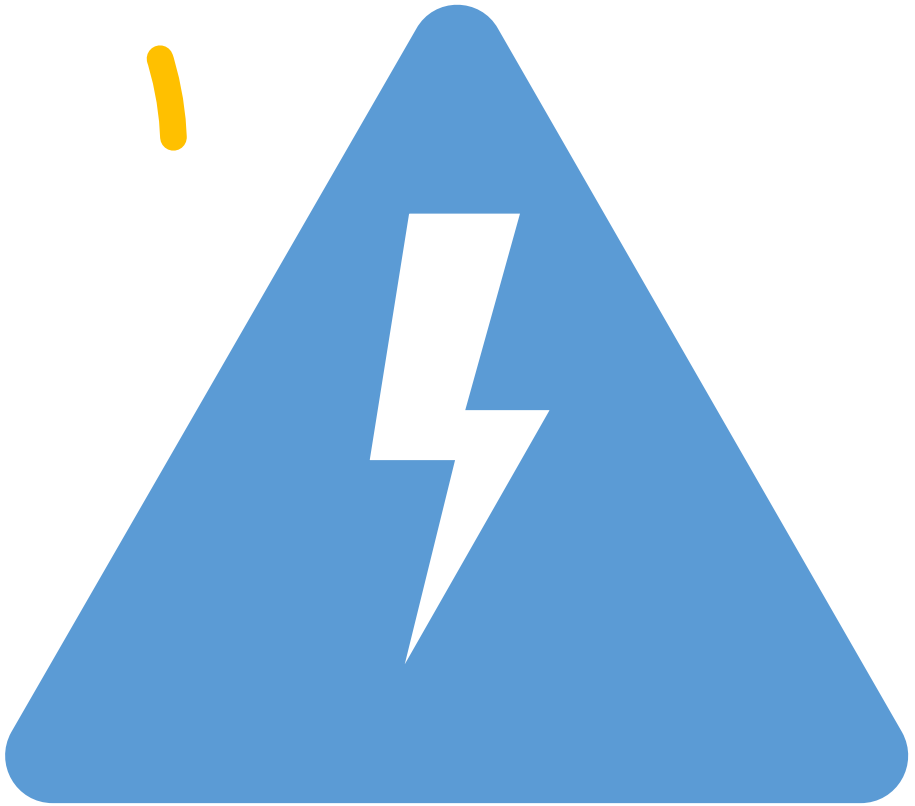
IEC TC 82 MAPPING



Manufacturer-oriented Mapping of IEC 62257

IEC- SYSTEMS COMMITTEE NETWORK - LVDC

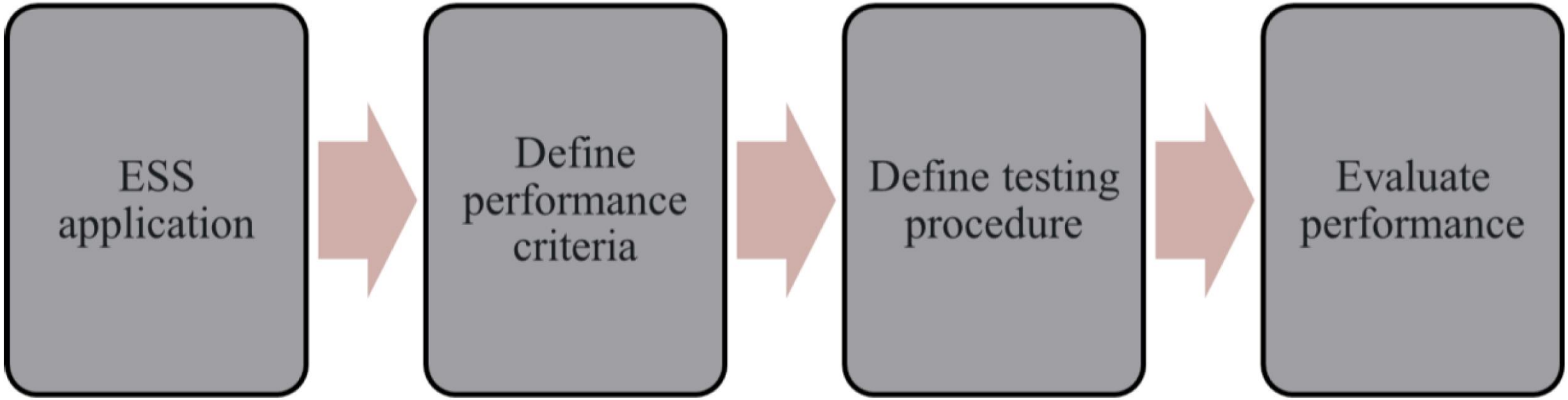
- Standardization in the field of Low Voltage Direct Current (hereinafter referred to as LVDC) in order to provide systems level standardization, coordination and guidance in the areas of LVDC and LVDC for Electricity Access.



Common tests and performance verification for energy storage

	Unit Performance	Grid Integration	Safety
Purpose	Compliance and performance verification of energy storage	Compliance with grid integration and storage performance for grid applications	Safe operation and maintenance of energy storage
Tests	Stored energy capacity, Round-trip energy efficiency, Ramp rate, standby energy loss rate, self-discharge rate, input/output power	Peak shaving, frequency regulation, voltage regulation, Intermittency smoothing, Backup power, Microgrid	Components, Installation, Maintenance, Operation, Safety for grid events

A generic protocol for energy storage testing



Standards and regulations

Different national bodies provide regulations for products and systems

TESTING
ELECTROTECHNICAL

NRCS national regulator for compulsory specifications

The NRCS is currently in the process of developing regulations for the Lithium – Ion batteries

NERSA
NATIONAL ENERGY REGULATOR OF SOUTH AFRICA

THANK YOU

COMMENTS AND QUESTIONS