



Electrical Safety Project

Annual Meeting 2024 – Close-out

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ESP 2024 in a Nutshell

WP3

- Produced **compliance checklists** for equipment and installations v 0.1,
- Proposed a **classification process** for electrical safety compliance of systems / equipment in ATS (at CERN)

WP4

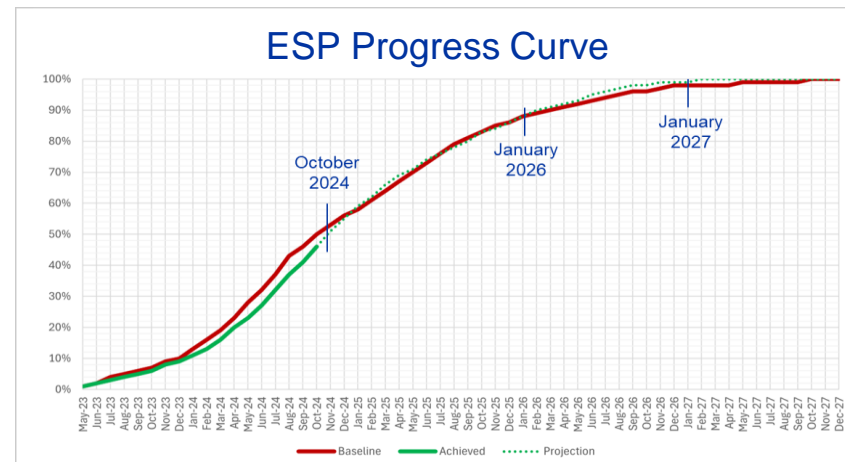
- Proposed a method for **electrical risk identification & classification**,
- Established v0.1 **Intervention Management workflow**,
- Reviewed & updated the **ATS forms** used for Lock-out and work authorization with respect to electrical risk

ESP project team

Glossary of terms related to electrical risk management in ATS

WP2, WP4, WP5

Defined **Roles & responsibilities** for a given work/activity in an electrical environment



Courtesy T. Bauler, EN-ACE-OSS

Active contribution from all ATS departments/ groups

(indico: [link](#) or in EDMS: [link](#))

WP5

- Proposed a **process to identify the limit of responsibility**. Operation and maintenance between groups (WP5)
- Set-up **SLD viewer concept**, basic rules defined how to **represent data in the equipment dependency graph**, developed a batch upload utility for attributes

WP6

- Identified **systems relevant to ESP** and understood the data workflow.
- Set-up **ESP portal version 0.1** collaborating with **WP5.2**



Graduates: Cornelia, Rui, Iulian and Afonso

Project office: Denis

ESP 2024 Documents



Your feedback in key to go ahead!

Documents in ESP project team internal review (soon in approval loop for contributors)

- WP3 Checklist – Equipment (EDMS 319097)
- WP3 Checklist – Installations (EDMS 3190978)
- WP3 - Terms and Definition for Electrical Systems Safety Compliance (EDMS 3165727)
- ESP – Glossary of terms related to electrical risk management in Accelerators & technology Sector (EDMS 3158196)

Documents in approval loop for contributors

- ‘Rôles et Responsabilités dans le cadre ESP WP2 & WP4’ (EDMS# 3140941);
- ‘Méthode pour l'identification et la classification des risques électriques’ (EDMS# 3138825);
- ‘Equipment Owner and Equipment Operator Responsibilities with respect to Electrical Safety ’ (EDMS# 3128618);
- Formulaire ‘Mise En Securite Electrique’ – ESP WP4 proposal (EDMS # 3176242) ;
- Formulaire ‘Attestation De Consignation Electrique’ – ESP WP4 proposal (EDMS# 3176250) ;
- Formulaire ‘Autorisation De Travail Vis-a-vis Du Risque Electrique’ – ESP WP4 proposal (EDMS# 3176259)
- ‘Equipment Owner and Equipment Operator Responsibilities with respect to Electrical Safety’ (EDMS# 3128618);
- ‘Limits of Responsibility, Operation & Maintenance – (General Case Template) - Magnet Powering Chain’ (EDMS# 3158173);
- ‘Limits of Responsibility, Operation & Maintenance - (Special Case Template) - LHC Static Variable Compensators’ (EDMS# 3129002).

Main Challenges for 2025

01

Pilot test in YETS24/25

02

Set-up the Electrical Safety Expert Team*

03

Be ready for LS3 (methodology, knowledge, tools)

ESP Pilot in YETS 24/25 (1/4)

Aim: test the feasibility and relevance of the proposed solutions on a small scale and on real scenarios.

3 areas

7 scenarios

In East Area

Scenario 1: Aligning the T10.MQNEL012 magnet.

Scenario 2: Alignment of the T10 beam line.

Scenario 3: Replacement of seals on the cooling feeder.

Scenario 4: Cleaning of room 157/R-F09.

Scenario 5: Night intervention: A converter fault.

In SH18

Scenario 6: QLC1H-S-M01 Compressor - temporary removal for maintenance by TE/CRG

In LHC

Scenario 7: Troubleshooting intervention by TE/CRG (checking the connections on a power supply valve), on a DFB at LHC point 1 - on call from the control room, during the physics period.

ESP Pilot in YETS 24/25 (3/4)

WP5 - Electrical Distribution Network

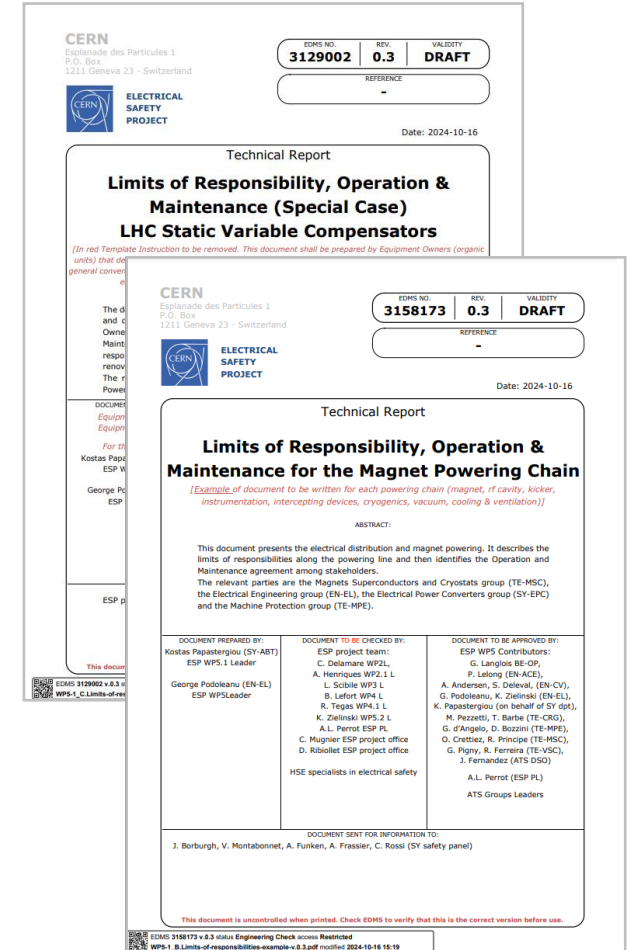
- Determine responsibilities limits for Equipment Owners (EOw) along the powering chain based on the supply scenario,
- Define the means of coding and marking this boundary on the site,
- Create the missing functional positions,
- Proof test the templates proposed by WP5
- Establish a status of the data needed for creating the electrical dependencies (maturity, database source)
- Create the electrical dependencies between FPs in EAM

ESP Electrical Safety Project Upload template

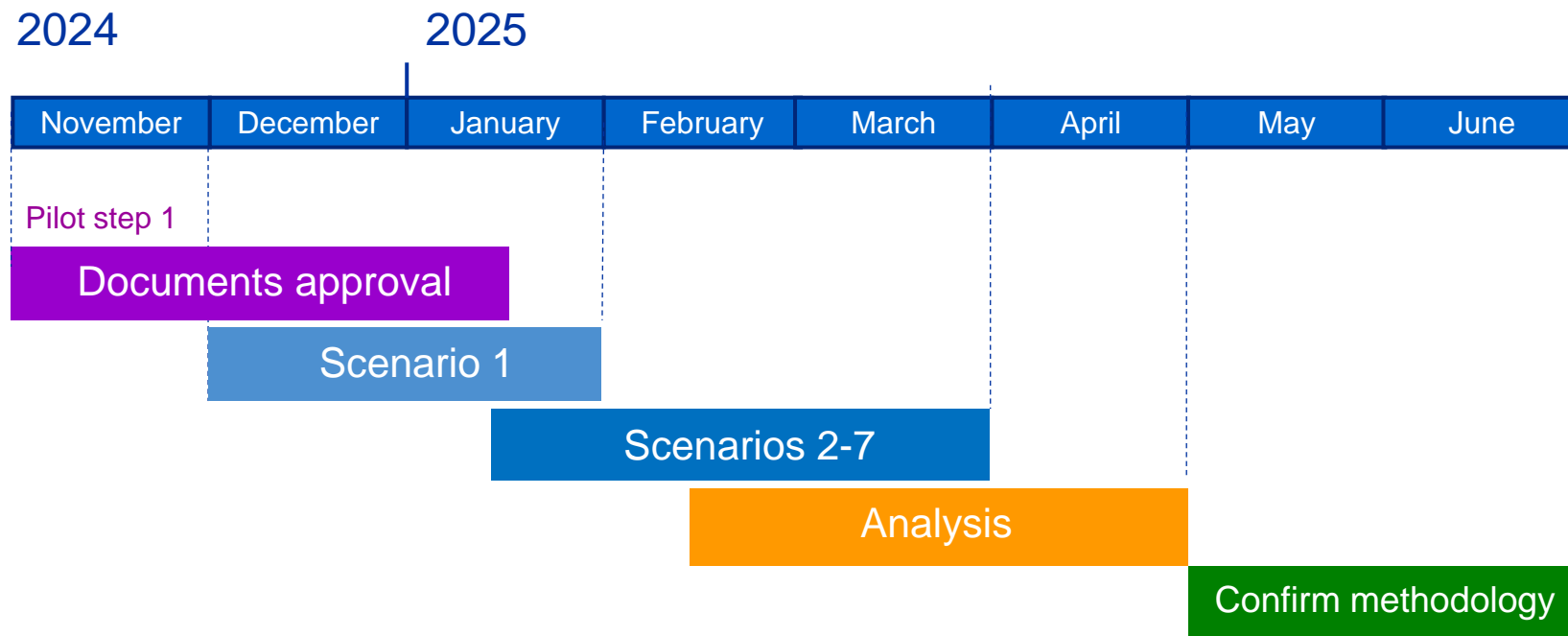
Equipment Dependencies Creator - one line per relation

Main Equipment Functional Position click for ⓘ	Equipment Dependencies			
	Source Functional Position click for ⓘ	Type click for ⓘ	Attribute click for ⓘ	Dependency click for ⓘ
EBD1/1E7	MT308/1E7	POWERED_BY	Normal	
EBD107/1E7	EBD1/1E7	POWERED_BY	Normal	
UIAC-00001	ESD103/1E7	POWERED_BY	Normal	Main power supply, secured by diesel
UIAC-00001	EBD107/1E7	POWERED_BY	Limited Power Backup	Backup resupply from normal network limited to 100A
EBD1/1E7	EBD2/1E7	POWERED_BY	Normal	

Attributes Delegations Eqp. Dependencies Positions ESP Delegation

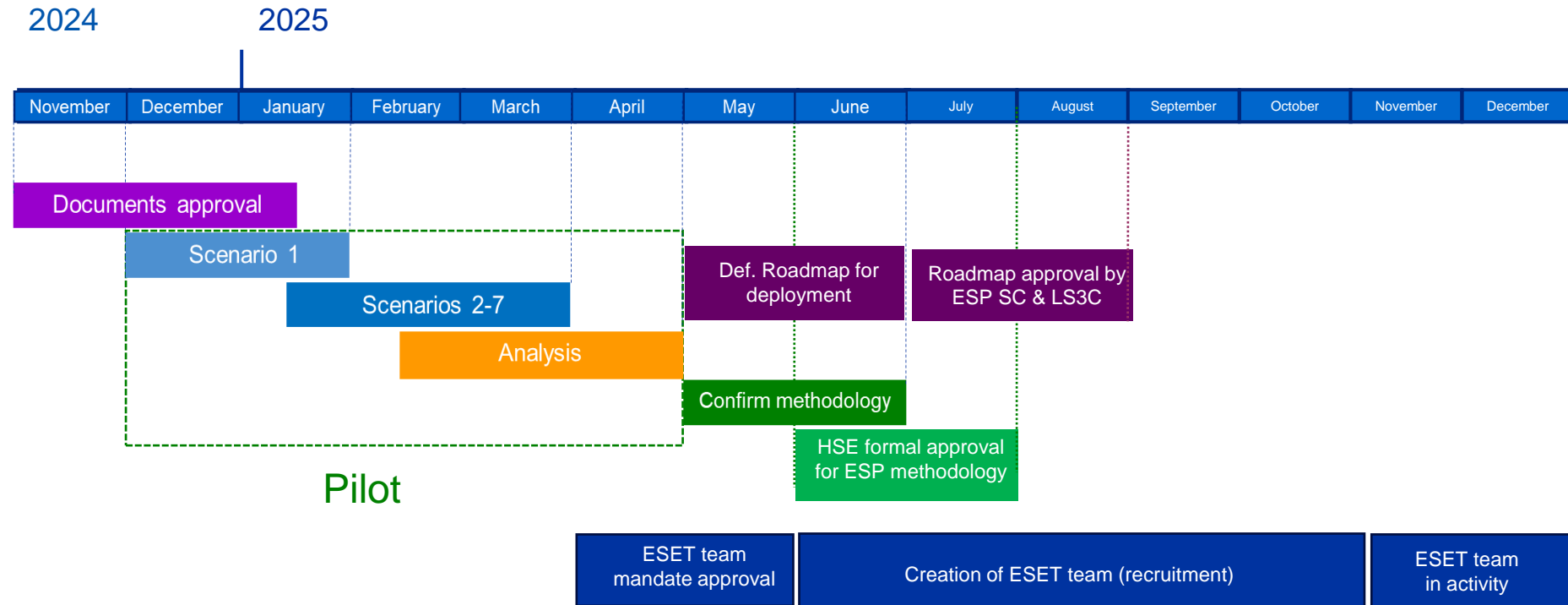


ESP Pilot in YETS 24/25 (4/4) Timeline



Stakeholders
ESP project team
&
ESP contributors

ESP 2025 Timeline



ESP Methodology implementation will start after:

- **Official HSE approval** to ensure convergence with the future Electrical Safety Cluster by HSE
- Allocation of **manpower (MTP25) for the ESET**



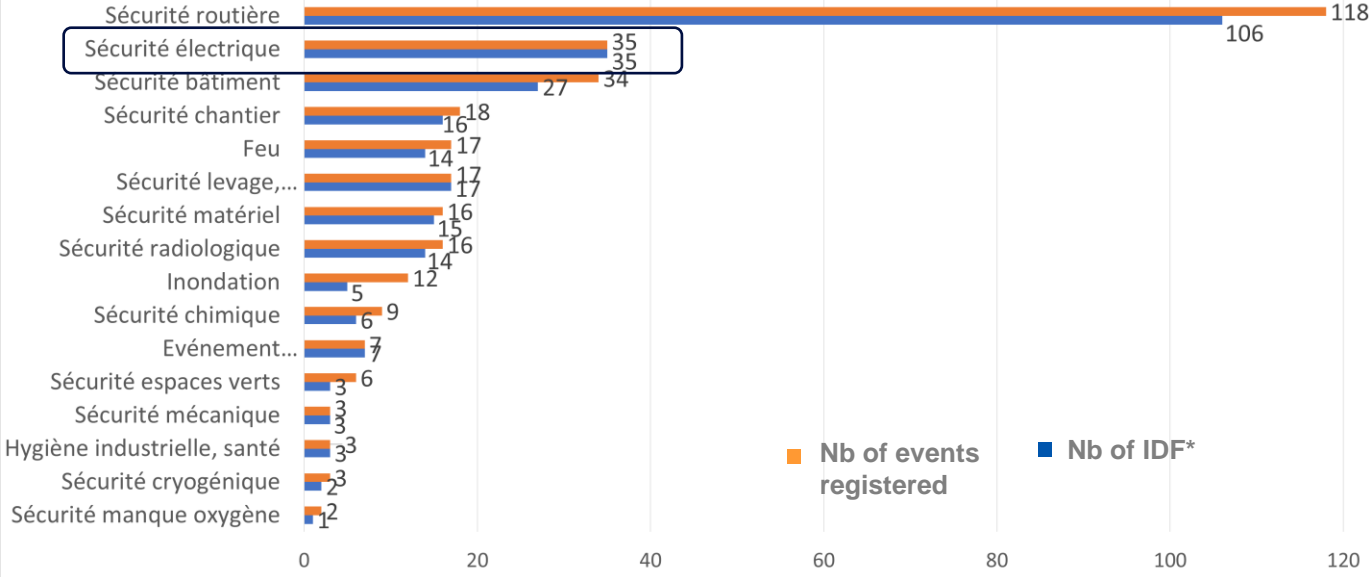
Thank you!

Backslides

Electrical Safety Incidents in 2023

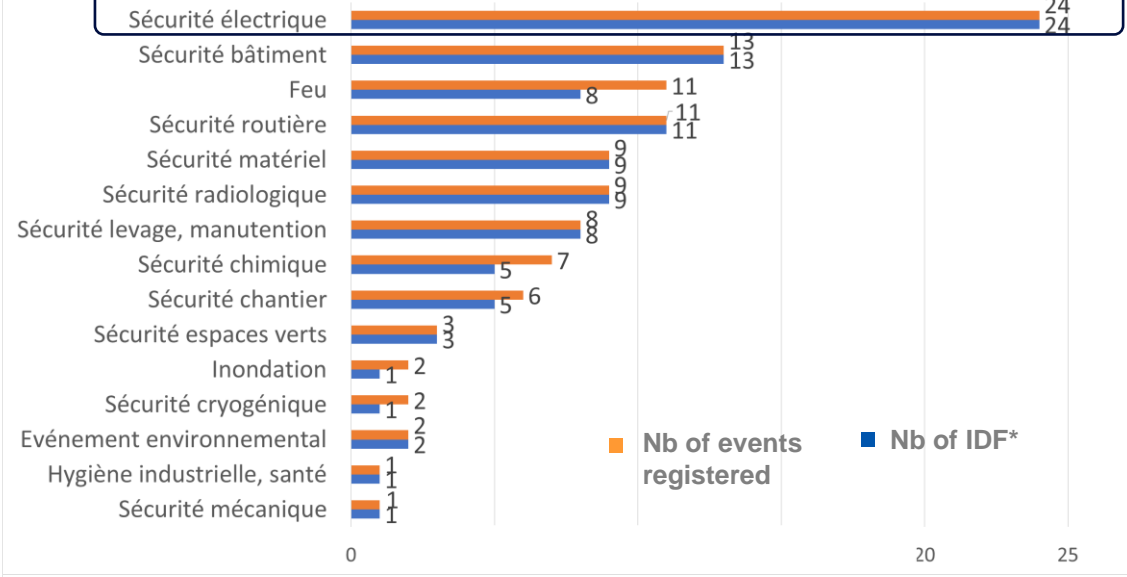
CERN safety incidents in 2023

Type d'incidents de sécurité enregistrés / reportés par IDF*, hors accidents de personne en 2023



ATS safety incidents in 2023

Type d'incidents de sécurité enregistrés / reportés par IDF, hors accidents de personne en 2023



* Incident Declaration Form

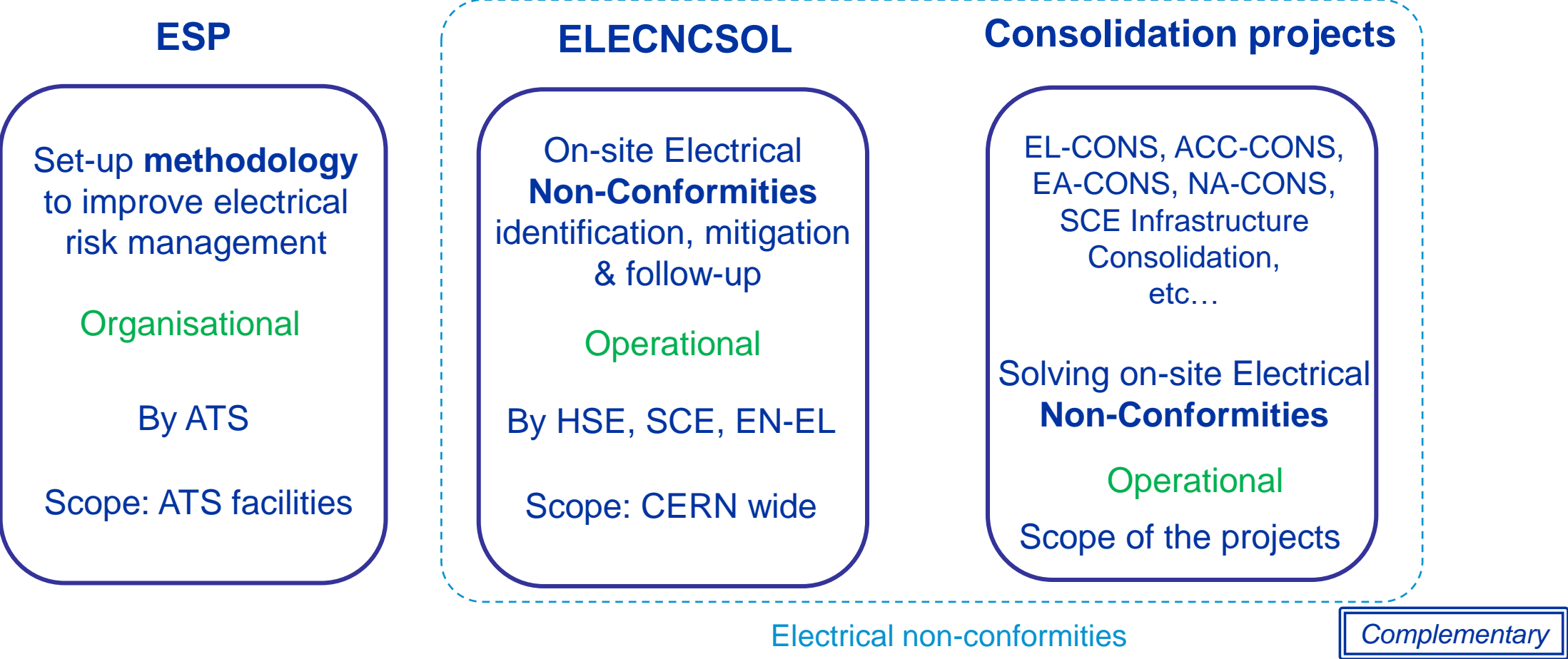
Source: 'Occupational accidents in 2023' by HSE-OHS, SAPOCO Sept 18th 2024 (EDMS 3158108)

* Incident Declaration Form

Source: 'Occupational accidents in 2023' by HSE-OHS, ATS General Safety meeting, Sept 17th 2024 (EDMS 3158121)

ESP, ELECNC SOL & Consolidation Programs

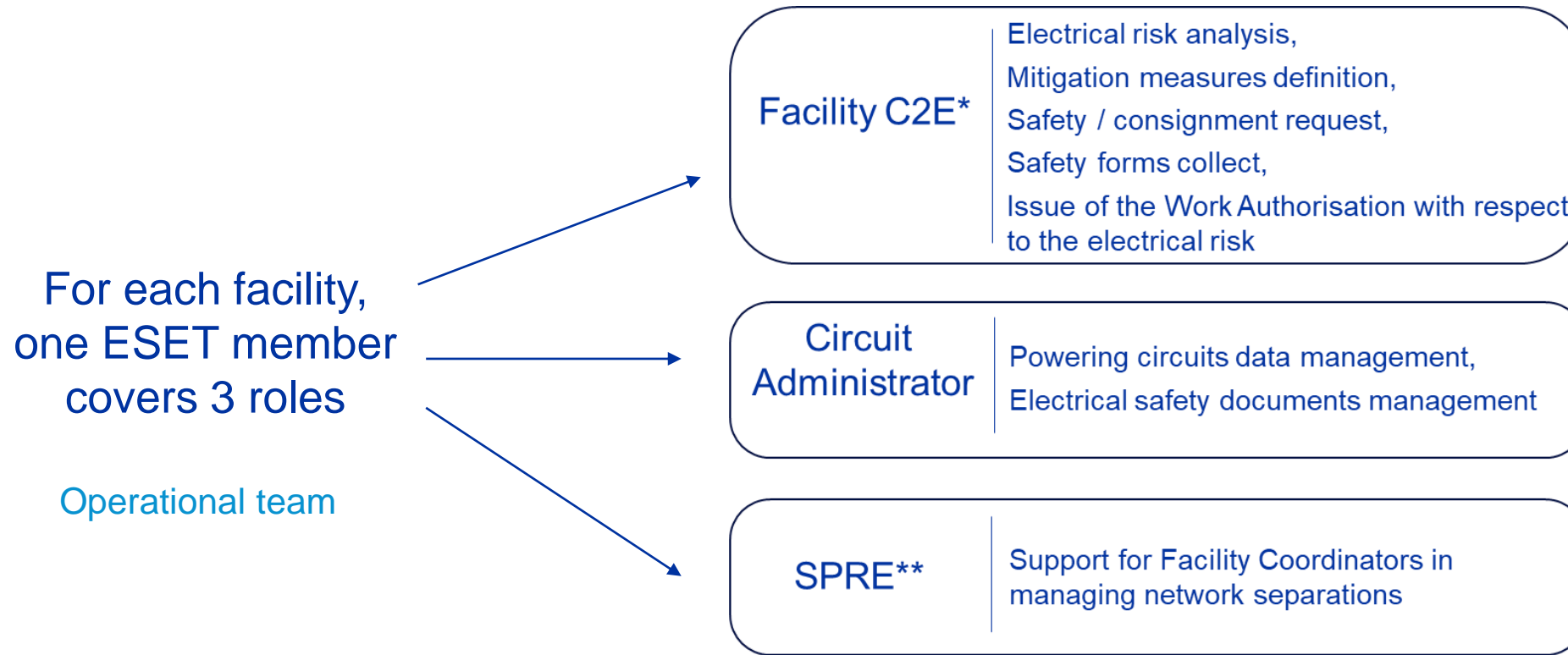
Complementary Projects to Improve Electrical Safety



Electrical Safety Expert Team (ESET)

Roles and Responsibilities

Proposal under study in ESP
to be validated by ATS



Safety remains the
responsibility of the
line management

Proposal: ensure consistency with the existing team structure in EN dpt. for Facility Coordinators, Integration Managers and Configuration Managers

* 'Chargé d'Exploitation Electrique d'un accélérateur ou d'une zone ATS'
** 'Support pour la Prévention des Risques Electriques' (EDMS: 2799346)