ANNUAL REPORT 2024

NSAI TECHNICAL COMMITTEES (NSAI/ETC/TC 03 - POWER INSTALLATIONS EXCEEDING 1KV (1.5KV DC))

Contents

1 Chair Statement

In 2024 the NSAI/ETC/TC 03 committee held 4 Meetings, membership and contributions are very healthy. We have 27 members with all members engaging in 2024 and several new members in 2024. Some of the highlights of 2024 were:

- The committee welcomed new members from Eli Lilly, TLI Group and UCD Energy Institute to the committee in 2024;
- The committee published a National Forward in I.S. EN 61936 in relation to the Engineers Ireland issued a Practice Note "Competence of persons controlling, operating, and working on high-voltage apparatus";
- The committee has been actively attending CENELEC (CLC) and IEC meetings. Mostly remote but some in person meetings;
- The committee actively voted on 29 documents in 2024. The committee submitted 6 sets of comments;
- Some committee members are contributing to the working group NSAI/ETC/WG 01 as it continues work on HV & LV Earthing Systems to address the proliferation of LV earthing systems in close proximity to distribution and Transmission earthing systems as a result of Solar farms and electric vehicle charging points. Progress has been slower than expected.

Many Thanks to all involved.

Neil Cowap

Chair of NSAI/ETC/TC 03.

2 Introduction

NSAI/ETC/TC 03 is the technical committee responsible for preparing national installation standards for High Voltage power installations (exceeding 1 kV a.c. or 1,5 kV d.c.) located indoors or indoors, including earthing. In 2019, the committee published a Standard Recommendation S.R. 61936:2019, "Guidelines on the application of I.S. EN 61936-1:2010&A1:2014, Power installations exceeding 1 kV a.c. - Part 1: Common rules".

The committee are responsible for the maintenance of S.R. 61936.

The committee has two Subcommittees which reports into it.

- NSAI/ETC/TC 03/SC 01 "Overhead electrical lines exceeding 1kVa.c.

  This subcommittee was established to develop the Irish National Normative Aspects NNA to EN 50341-1 "Overhead electrical lines exceeding AC 1 KV - Part 1: General Requirements - Common Specifications", which will be I.S. EN 50341-2-11 "Overhead Electrical Lines Exceeding AC 1 KV - Part 2-1: National Normative Aspects (NNAs) For Ireland (based On EN 50341-1)". This committee is dormant.

- NSAI/ETC/TC 03/SC 02 "Insulators and surge Arresters"

  As a result of restructuring within the Electrotechnical sector of NSAI, NSAI/ETC/TC 19 was disbanded and reformed as a subcommittee NSAI/ETC/TC 03/SC 02. This committee is dormant.

3 Scope of TC

NSAI/ETC/TC 03 is the Technical Committee responsible for preparing national installation standards for:

- Design,
- Operations and Maintenance,
- associated competence assessment/certification
    - of Designers
    - of assets designed
    - of assets constructed

of assets for High Voltage power installations (exceeding 1 kV a.c. or 1,5 kV d.c.) located indoors or indoors, including earthing.

The standard specifies the design requirements (and associated pro-forma certification) of the installation, and the selection and erection of electrical equipment in order to ensure the safety of persons and the proper operation of the installation. The installation standard is not applicable to factory built and type tested equipment but is relevant to the installation of this equipment. The installation requirements defined in S.R. 61936 are not applicable to overhead and underground lines between separate installations.

The EN 50110 standard is applicable to all operation of and work activity on, with, or near electrical installations. These are electrical installations operating at voltage levels from and including extra-low voltage up to and including high voltage. This latter term includes those levels referred to as medium, high voltage and extra-high voltage. These electrical installations are designed for the generation, transmission, conversion, distribution and use of electrical power.

The work of this NSAI ETC TC3 committee focuses on installations operating at voltages above 1,000 Volts a.c. (question about auxiliary supplies).

The work of the committee is analogous to the work of NSAI ETC TC2 'Electrical Installations' which develops and maintains the requirements for installations connected at low voltage. The work of this committee will also require coordination and cooperation with the scope of work associated with that of NSAI ETC TC 20 for Smart Grids.

The committee mirrors the following international committees:

Committee Name	Committee Title
IEC TC 99	Insulation co-ordination and system engineering of high voltage electrical power installations above 1,0 kV AC and 1,5 kV DC
IEC TC 115	High Voltage Direct Current (HVDC) transmission for DC voltages above 100 kV
IEC TC 78	Live Working
IEC PC 127	Low-voltage auxiliary power systems for electric power plants and substations
IEC PC 128	Operation of electrical installations
CLC BTTF 62-3	Operation of electrical installations
CLC TC 99X	Power installations exceeding 1 kV a.c. (1,5 kV d.c)

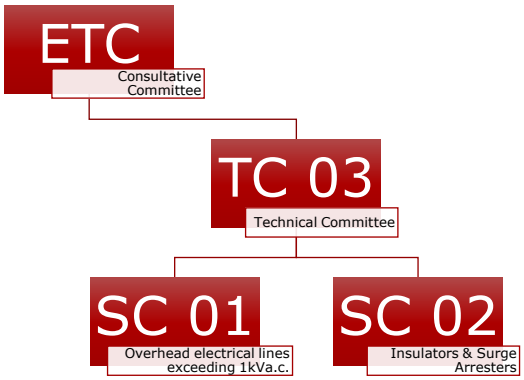
Subcommittee NSAI/ETC/TC 03/SC 02 mirrors the following international committees:

Committee Name	Committee Title
IEC TC 36	Insulators
IEC SC 36A	Insulated bushings
IEC TC 37	Surge arresters
IEC SC 37A	Low-voltage surge protective devices
IEC SC 37B	Components for low-voltage surge protection
CLC TC 36A	Insulated bushings
CLC TC 37A	Low-voltage surge protective devices

4 Structure and Membership

4.1 Structure

The Figure below illustrates the structure of the Committee:



4.2 Members

2024 brought several new members to the committee. The table below list the members represented on the committee for the year:

Organisation	Role
Eirgrid	National chairperson
AECOM	National committee member
AFRY	National committee member
Consultant	National committee member
Engineers Ireland	National committee member
Eirgrid	National committee member
Eli Lilly	National committee member
ESB Networks	National observer
ESBI	National observer
ESBN EMP	National committee member
H&MV Engineering	National observer
Hitachi Energy	National committee member
Hivar Engineering	National observer
HSA	National committee member
HSE	National observer
IET	National committee member
MOTTMAC	National committee member
NeoDyne	National committee member
Premium Power	National observer

Powercomm Engineering	National committee member
R-P-G	National committee member
RPS-Tetratech	National committee member
SIRO	National committee member
Statkraft	National committee member
Suir Engineering	National committee member
TLI Group	National committee member
UCD	National committee member
NSAI SECRETARY	National secretary

4.2.1 Members of NSAI/ETC/TC 03/SC 01

Organisation	Role
NSAI	National Secretary
ESB	National Committee Member

4.2.2 Members of NSAI/ETC/TC 03/SC 02

Organisation	Role
NSAI	National secretary
ESB	National Chairperson
TE Connectivity Ireland LTD	National Committee Member
ESB	National Committee Member

5 Summary of 2024 Activities

5.1 National

The Technical Committee met 4 times in 2024, 3 virtually meeting using MS Teams and 1 hybrid meeting, using MS Teams and NSAI offices.

5.1.1 Meetings

Committee members attended the following national meetings in NSAI as follows:

Meeting No.	Date	Minutes Reference
1	2024/03/07	N1386
2	2024/05/23	N1395
3	2024/09/05	N1404
4	2024/12/05	N1417

5.1.2 National Work

The committee are following the review of IEC 61936 and have inputting Irish comments where relevant. When I.S. EN 61936:2021 was published a lot of the Irish content in S.R. 61936:2019 has been incorporated. The committee are inputting Irish content into IEC PC 128, who are looking at adopting EN 50110-1:2023 along with Irish content from S.R. 61936:2019. The aim of the committee is to be able to withdraw S.R. 61936:2019 once the Irish content is incorporated into these two standards.

The committee have been working with EirGrid and ESB representative to get the following text included in the 3rd Party declaration of conformance (doc) forms.

> *The relevant requirements of S.I. 299/2007, including I.S. EN 61936/2021, have been complied with."*

Progress is slow but it is hoped that these two organisations along with the organisations represented on the committee will incorporate this text in their 3rd party doc forms.

The committee are following the work in relation to DERMS (Distributed Energy and Resource Management Systems).

The committee welcomed new members from Eli Lilly, TLI Group and UCD Energy Institute to the committee in 2024.

The committee published a National Forward in I.S. EN 61936 "Power installations exceeding 1kV A.C. and 1,5 kV D.C. – Part 1: A.C." & I.S. EN 50110 "Operation of electrical installations - Part 1: General Requirements", that states:

> It should be noted that, in Ireland, Engineers Ireland issued a Practice Note "Competence of persons controlling, operating, and working on high-voltage apparatus, in May 2023. https://www.engineersireland.ie/listings/resource/1034.

NSAI on behalf of the committee attended the Substation Safety Conference & Expo on the 2nd & 3rd October 2024, Midlands Park Hotel, Portlaoise to help promote these two standards.

5.2 International/Regional

5.2.1 Meetings

Committee members attended international CENELEC (CLC) and IEC meetings as follows:

Committee Name	Location	Date	Attended
IEC/PC/127 Plenary	China (Hybrid)	2024/06/24 – 2024/06/26	1 remote
IEC TC 115	Netherlands (Hybrid)	2024-09-12 – 2024-09-13	1 remote
IEC TC 99 Plenary	Sweden (Hybrid)	2024/11/28	1 in person 1 remote
IEC/TC 99/MT 4	Sweden (Hybrid)	2024/11/29	1 in person 2 remote

5.2.2 International/Regional Work

NSAI ETC TC 03 members hold four leadership roles in IEC in this sector.

1) Chairperson of IEC PC 127 – Low-voltage auxiliary power systems for electrical power stations and substations.
2) Convenor of IEC PC 128 WG 1 – Terms and definitions.
3) Convenor of IEC PC 127/WG 3 – System design.
4) Liaison between IEC TC 99 and IEC PC 128 WG 1

Work continues on the international project committee IEC PC 128 "Operation of electrical installations".

Members of the committee attended maintenance teams, working group and project team meeting.

5.2.3 International/Regional Standards Reviewed

The committee continue to review standards as they arise in IEC & CLC.

The committee has been actively attending IEC meeting in relation to IEC 61936 and have been attending CLC meetings in relation to EN 50110.

5.2.4 International/Regional Voting Results

NSAI/ETC/TC 03 vote on all documents at IEC and CENELEC documents using a default voting strategy. The committee actively voted on 29 documents in 2024. The committee submitted 6 sets of comments.

IEC/TC 99: Ireland has actively voted 3 times in 2024 and submitted 2 sets of comments.

IEC/TC 78: Ireland has actively voted 12 time in 2024.

IEC/TC 115: Ireland has actively voted 9 times in 2024 and submitted 2 sets of comments.

IEC/TC 127: Ireland has actively voted 2 times in 2024.

CLC/BTTF 62-3: Ireland has actively voted 3 times in 2024 and submitted 2 sets of comments.

Body	Vote Reference	Comments Submitted	Decision	WIID
IEC	115/356/CD	Yes	Approve	
IEC	115/357/CD	Yes	Approve	
IEC	115/360/DTS	No	Approve	
IEC	115/361/DTR	No	Approve	
IEC	115/369/CD	No	No Comments	
IEC	115/374/DTR	No	No Comments	
IEC	115/382/AC	No	No Comments	
IEC	115/383/AC	No	No Comments	
IEC	115/385/DC	No	No Comments	

IEC	127/60/DC	No	No Comments	
IEC	127/63/DTS	No	No Comments	
IEC	78/1447/CD	No	No Comments	
IEC	78/1449/CD	No	No Comments	
IEC	78/1450A/AC	No	No Comments	
IEC	78/1455/DTR	No	No Comments	
IEC	78/1461/CD	No	No Comments	
IEC	78/1462/CD	No	No Comments	
IEC	78/1463/CD	No	No Comments	
IEC	78/1465/Q	No	No Comments	
IEC	78/1468/DTR	No	No Comments	
IEC	78/1473/CD	No	No Comments	
IEC	78/1474/DC	No	No Comments	
IEC	78/1480/AC	No	No Comments	
IEC	99/446/CD	No	No Comments	
IEC	99/461/Q	Yes	Approve	
IEC	99/462/DC	Yes	Approve	
CLC	EN 50522:2022/prA1:2024	Yes	Approve	76984
CLC	EN IEC 61936-1:2021/prAA:2024	Yes	Approve	76621
CLC	FprEN 50528:2024	No	Abstain	

5.3 Regulatory Development/Update

NSAI attended the Substation Safety Conference & Expo on the 2nd & 3rd of October 2024, Midlands Park Hotel, Portlaoise to promote the 2 standards mentioned in the Engineers Ireland Practice notice.

- I.S. EN 50110-1 Operation of Electrical Installations - Part 1: General
- I.S. EN 61936-1 Power Installations exceeding 1KV (AC) Part 1: Common Rules

6 Irish Publications/Reviews

6.1 Publications

The Committee did not publish any deliverables this year.

6.2 Reviews

The Committee reviewed the following Irish national deliverables:

- S.R. 61936-1:2019

7 Work programme for 2025 onwards

The committee will continue to explore the following areas for 2025:

- Socialisation of I.S. EN 61936 & I.S. EN 50110.
  - to get the requirements included on the EirGrid and ESBN Declaration of fitness documents.
- Draft completion cert to be shared with IEC TC 99 WG 4.
- Collaborate with Working group NSAI/ETC/WG 01 HV & LV Earthing Systems
- DERMS (Distributed Energy and Resource Management Systems)
- Provide input in ESBN Distribution Code Review Panel (DCRP) when necessary
- Irish engagement with IEC & CLC TC's

The committee will continue attendance and contribution at the IEC & CLC level throughout 2025 by reviewing, inputting Irish comments and voting on the various stages of standards development. The number of work programmes taking place in the relevant IEC committees are listed and detailed below:

- IEC TC 99 6 work programmes,
- IEC TC 78 7 work programmes,
- IEC TC 115 10 work programmes,
- IEC PC 127 4 work programmes
- IEC PC 128 1 work programmes

IEC Work Programme:

IEC	Project Reference	Title	Document Reference	Working Group	Fcst. Publ. Date
TC 99	PRECD TR 99-2	Insulation co-ordination — Part 15: Insulation co-ordination for DC transmission lines			
TC 99	IEC 60071-1 ED10	Insulation co-ordination - Part 1: Definitions, principles and rules	99/450/RR	MT 10	2026-08
TC 99	IEC 60071-2 ED6	Insulation co-ordination - Part 2: Application guidelines	99/449/RR	MT 9	2027-12
TC 99	IEC TR 60071-4 ED2	Insulation co-ordination - Part 4: Computational guide to insulation co-ordination and modelling of electrical networks	99/446/CD	MT 14	2025-10
TC 99	IEC 60071-14 ED1	Insulation co-ordination - Part 14: Application procedures for AC/DC filters	99/402/NP	JWG 13	2026-06
TC 99	IEC 61936-0 ED1	Power installations exceeding 1 kV AC and 1,5 kV DC - Part 0: Principles to be observed in the design and erection of high voltage installations - Safety of high voltage installations	99/484/CD	MT 12	2027-02
TC 78	IEC 60743/AMD1 ED3	Amendment 1 - Live working - Terminology for tools, devices and equipment	78/1504/RR	WG 1	2026-04
TC 78	IEC 60984 ED3	Live working - Electrical insulating sleeves	78/1308/RR	MT 60903-984	2026-01

TC 78	IEC 61111 ED3	Live working - Electrical insulating matting	78/1473/CD	MT 61111-61112	2026-02
TC 78	IEC 62192-1 ED1	Rope for electrical work – Part 1: work within the live working zone or in contact with live parts	78/1482/CDV	WG 12	2025-12
TC 78	IEC 62192-2 ED1	Live working - Vicinity working ropes	78/1442/CD	WG 12	2026-02
TC 115	PWI TR 115-31	Future IEC TR 63363-2 ED1: Performance of voltage sourced converter based high-voltage direct current transmission - Part 2: Transient conditions		JWG 11	
TC 115	PWI TR 115-32	High voltage DC circuit breaker - Onsite test		ahG 17	
TC 115	PNW TS 115-393 ED1	High voltage direct current (HVDC) power transmission – System requirements for DC-side equipment - Part2: Using voltage sourced converters	115/393/NP	WG 9	2027-04
TC 115	IEC TS 61973 ED2	High voltage direct current (HVDC) substation audible noise	115/327/RR	JMT 1	2026-02
TC 115	IEC TS 62978 ED1	HVDC Installations - Guidelines on Asset Management	115/330/NP	WG 4	2026-03
TC 115	IEC TS 63014-1 ED2	High voltage direct current (HVDC) power transmission – System requirements for DC-side equipment - Part 1: Common equipment and equipment specific to Line-Commutated Converters	115/388/RR	WG 9	2027-03
TC 115	IEC TR 63179 ED1	Planning of HVDC systems	115/394/CD	WG 10	2025-10
TC 115	IEC TS 63291-1 ED2	High voltage direct current (HVDC) grid systems and connected converter stations - Guideline and parameter lists for functional specifications - Part 1: Guideline	115/389/RR	WG 15	2027-12
TC 115	IEC TS 63291-2 ED2	High voltage direct current (HVDC) grid systems and connected converter stations - Guideline and parameter lists for functional specifications - Part 2: Parameter lists	115/390/RR	WG 15	2027-12
TC 115	IEC TS 63529 ED1	DC side harmonics & filtering in HVDC transmission systems	115/369/CD	WG 7	2025-07
PC 127	PREPNW TS 127-4 ED1	Low-voltage auxiliary power systems –Part 2-4: Design criteria- Low-voltage AC auxiliary power systems for hydropower stations		WG 3	2026-10
PC 127	IEC TS 63346-2-1 ED1	Low-voltage auxiliary power systems - Part 2-1: Design criteria - General requirements	127/50/CD	WG 3	2026-02
PC 127	IEC TS 63346-2-2 ED1	Low-voltage auxiliary power systems - Part 2-2: Design	127/47/CD	WG 3	2025-07

		criteria - Low-voltage d.c. auxiliary power systems for substations			
PC 127	IEC TS 63346-2-3 ED1	Low-voltage auxiliary power systems - Part 2-3: Design criteria - Low-voltage a.c. auxiliary power systems for substations	127/66/CD	WG 3	2026-02
PC 128	IEC TS 63527 ED1	Safe management and operation of electrical installations	128/41/CD	WG 2	2025-06

The number of work programmes taking place in the relevant CENELEC committees are listed and detailed below:

- CLC TC 99x 5 work programmes,
- BTTF 62-3 4 work programmes,

CENELEC Work Programme:

CLC TC	WI Number	Reference	Title
TC 99x	76621	EN IEC 61936-1:2021/A11:2024	Power installations exceeding 1 kV AC and 1,5 kV DC - Part 1: AC
TC 99x	78093	prEN IEC 60071-14	Insulation co-ordination - Part 14: Application procedures for AC/DC filters
TC 99x	79499	prEN IEC 61936-0	Power installations exceeding 1 kv AC and 1,5 kv DC - Part 0: Principles to be observed in the design and erection of high voltage installations - Safety of high voltage installations
TC 99x	79503	prEN IEC 60071-2	Insulation co-ordination - Part 2: Application guidelines
BTTF 62-3	21676	EN 50110-1:2013	Operation of electrical installations - Part 1: General requirements
BTTF 62-3	63273	EN 50110-2:2021	Operation of electrical installations - Part 2: National annexes
BTTF 62-3	70639	EN 50110-1:2023	Operation of electrical installations - Part 1: General requirements
BTTF 62-3	74962	EN 50110-2:2023	Operation of electrical installations - Part 2: National annexes

8 Additional Information

No additional information to add.