

ICS METHODOLOGY – SUMMARY OF PROPOSED CHANGES

10 October 2025

From: Working Group Incident Classification Scale

ENTSO-E Mission Statement

Who we are

ENTSO-E, the European Network of Transmission System Operators for Electricity, is the association for the cooperation of the European transmission system operators (TSOs). The 40 member TSOs, representing 36 countries, are responsible for the secure and co-ordinated operation of Europe's electricity system, the largest interconnected electrical grid in the world. In addition to its core, historical role in technical cooperation, ENTSO-E is also the common voice of TSOs.

ENTSO-E brings together the unique expertise of TSOs for the benefit of European citizens by keeping the lights on, enabling the energy transition, and promoting the completion and optimal functioning of the internal electricity market, including via the fulfilment of the mandates given to ENTSO-E based on EU legislation.

Our mission

ENTSO-E and its members, as the European TSO community, fulfil a common mission: Ensuring the security of the interconnected power system in all time frames at pan-European level and the optimal functioning and development of the European interconnected electricity markets, while enabling the integration of electricity generated from renewable energy sources and of emerging technologies.

Our vision

ENTSO-E plays a central role in enabling Europe to become the first climate-neutral continent by 2050 by creating a system that is secure, sustainable and affordable, and that integrates the expected amount of renewable energy, thereby offering an essential contribution to the European Green Deal. This endeavour requires sector integration and close cooperation among all actors.

Europe is moving towards a sustainable, digitalised, integrated and electrified energy system with a combination of centralised and distributed resources. ENTSO-E acts to ensure that this energy system keeps consumers at its centre and is operated and developed with climate objectives and social welfare in mind.

ENTSO-E is committed to use its unique expertise and system-wide view – supported by a responsibility to maintain the system's security – to deliver a comprehensive roadmap of how a climate-neutral Europe looks.

Our values

ENTSO-E acts in solidarity as a community of TSOs united by a shared responsibility.

As the professional association of independent and neutral regulated entities acting under a clear legal mandate, ENTSO-E serves the interests of society by optimising social welfare in its dimensions of safety, economy, environment, and performance.

ENTSO-E is committed to working with the highest technical rigour as well as developing sustainable and innovative responses to prepare for the future and overcoming the challenges of keeping the power system secure in a climate-neutral Europe. In all its activities, ENTSO-E acts with transparency and in a trustworthy dialogue with legislative and regulatory decision makers and stakeholders.

Our contributions

ENTSO-E supports the cooperation among its members at European and regional levels. Over the past decades, TSOs have undertaken initiatives to increase their cooperation in network planning, operation and market integration, thereby successfully contributing to meeting EU climate and energy targets.

To carry out its legally mandated tasks, ENTSO-E's key responsibilities include the following:

- › Development and implementation of standards, network codes, platforms and tools to ensure secure system and market operation as well as integration of renewable energy;
- › Assessment of the adequacy of the system in different timeframes;
- › Coordination of the planning and development of infrastructures at the European level (Ten-Year Network Development Plans, TYNDPs);
- › Coordination of research, development and innovation activities of TSOs;
- › Development of platforms to enable the transparent sharing of data with market participants.

ENTSO-E supports its members in the implementation and monitoring of the agreed common rules.

ENTSO-E is the common voice of European TSOs and provides expert contributions and a constructive view to energy debates to support policymakers in making informed decisions.

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Summary of proposed changes

This document summarises the proposed changes by chapter and gives motivations for the changes. Each Chapter and Section is covered in the sections below, where changes are listed in tables with the reason of the change explained on the column to the right.

General improvements throughout the ICS Methodology

Change	Reason
Improved clarity and language.	Clarity and readability
GB and Baltics have been removed throughout the report. Added “Following the synchronisation of the Baltic TSOs with the Continental Europe (CE) Synchronous Area (SA), the ICS criteria for CE SA will apply to them.”	GB is not an EU Member anymore and hence not covered by SOGL. The Baltics have synchronised with CE and according to the Continental Europe ICS thresholds.
Renamed “ICS events” to “ICS criteria violations” as the “ICS criteria violation”	The term “ICS event” was causing confusion. ICS criteria violation explains directly what is meant.
Instead of listing the data that must be provided in several places throughout the methodology, Annex 1 describes all of them in one table.	Clarity and readability
Added references to relevant regulation when such were missing.	Readability

Preamble

Change	Reason
Added Glossary	Clarity and readability

Chapter 1 Introduction

Change	Reason
Added precision on what the ICS methodology provides and how the regulations are connected to it.	Clarity and readability
Added short description of ICS incidents and ICS criteria and criteria violations are	Clarity and readability

Chapter 2 Definitions

Change	Reason
Added chapter similarly to how definitions are presented in, for example, SOGL.	The chapter was requested and wished to be aligned with how definitions are presented in other documents.

Chapter 3 The Incident Classification Scale

Change	Reason
Renamed the chapter title from “General overview and criteria prioritisation” to “The Incident Classification Scale”	The new title describes better the contents in the Chapter.
Renamed “local” to “minor” in the description of the scales (below scale and zero)	Local indicated regionality, while regionality can be a mismatched concept depending on the incident. Now the scale is from minor incidents (below scale and zero) up to major incidents (scale 3).
Removed the scale 0–3 considerations	They did not bring additional value
Improved the description of differences between ICS and EAS	Clarity and readability

Chapter 4 General provisions

Change	Reason
Renamed chapter title from “Reporting rules” to “General provisions”	Be more aligned with other legal documents such as SOGL. The chapter also contained more than reporting rules from before.
Moved the Annual Report parts to Chapter 8 Annual Report	Editorial. It was written twice in the previous edition of the methodology and had inconsistencies.
Added paragraph on the reporting of consumption and circuit length for the annual report.	Readability and clarity. These values are used to normalise and improve comparisons in reported ICS incidents between synchronous areas.

Section 4.1 Annual reporting process and timeline

Change	Reason
Moved paragraph on how incidents impacting multiple TSOs to the main part of general provisions.	Editorial

Chapter 5 Definitions of ICS criteria

Section 5.1 Blackout (OB)

Change	Reason
Specified that the load is compared to the pre-incident load in the concerned TSO’s control area for clarity.	Clarification
Removed “A TSO of the Ireland / Northern Ireland (IE/NL) synchronous area may develop a proposal specifying the level of demand loss at which the transmission system shall be in the blackout state according to Article 18(4) of the SOGL; and”	Ireland applies the same rules for the Blackout (OB) definition as the other synchronous areas. No need for exceptions.

Section 5.2 Incidents on load (L)

Change	Reason
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Same specification that load is compared to pre-incident load as for OB incidents.	Clarification
Added the bolded part to the exception of reporting small losses of load: “disconnection of load less than 100 MW and below 5 % of the pre-incident load is not reported”	Added additional criteria of the lost load of 100 MW having to be less than 5% of the pre-incident load to cover reporting of loss of load that is small in the perspective of the synchronous area, but large for a small TSO. The threshold of 5 % is aligned with the separation from the grid (RS) criterion.

Section 5.3 Incidents leading to frequency degradation (F)

Change	Reason
Added references to where the timings come from.	
Instead of listing each synchronous area monitor that should report incidents on frequency, a general text is included to make the ICS Methodology more future proof for potential SAM changes: <i>“For each synchronous area, the frequency deviations are reported by the synchronous area monitor appointed by the applicable synchronous area operational agreement, which is concluded in accordance with Article 133(1) of the SOGL.”</i>	
Removed the upper frequency threshold limits to avoid loopholes when the measured frequency transitions back and forth between the different scales.	
Specifies that <i>“In case a frequency violation exceeds the frequency and time thresholds of multiple scales (‘below scale’, 0, 1 or 2), the criteria violation is classified as the highest violated scale.”</i> to clarify the scaling.	

Section 5.4 Incidents on network elements (T)

Change	Reason
Added table on thresholds for unexpected change or reduction of flow through an HVDC link as an additional consideration for T incidents.	These flow changes are not covered in the current methodology while still being similar to an incident on generation (G). Furthermore, flow changes on HVDC links are not the same as changes in generation. Therefore, T criteria is the best place to add this to rather than the G criteria (incidents on power generating facilities).
Changed “network elements” to “transmission system elements”	SOGL definitions are preferred. The name of the ICS criterion was kept unchanged to be consistent with historical ICS incident reporting. <i>Note: this change is also reflected throughout the methodology.</i>

Section 5.5 Incidents on power generating facilities (G)

Change	Reason
Clarity on the usage of Transparency Platform data for reporting the below scale incidents.	Clarity

Section 5.6 N and N-1 violations (ON)

Change	Reason
Changed scale 1 ON violation definition to “N-1 criterion is not fulfilled, even after the activation of remedial action(s) pursuant to Article 20 of the SOGL. or set N-1 criterion is not fulfilled and can’t be restored within the limits for transitory admissible overloads of transmission system elements”	The previous definition <i>“At least one contingency from the contingency list can lead to deviations from operational security limits with consequences on neighbouring TSOs after the activation of curative remedial action(s),</i> OR <i>There is at least one deviation from operational security limits after the activation of curative remedial action(s) in N situation.”</i> was challenging in practice when classifying the scale of an incident. The proposed definition is clear on when not complying with the N-1 criterion must be reported as an ICS violation.
Changed scale 2 ON violation definition to <i>“At least one operational security limit is violated and propagates a scale 1, 2 or 3 incident to an interconnected TSO.”</i>	The previous definition <i>“There is at least one wide area deviation from operational security limits after the activation of curative remedial action(s) in N situation.”</i> was challenging in practice when classifying the scale of an incident. The proposed definition is clear on what must be violated and the impact on interconnected TSOs.
Added paragraph “Furthermore, unless a Member State determines otherwise a TSO shall not be required to comply with the (N-1) criterion as long as there are only local consequences within the TSO's control area in accordance with Article 35(5) of the SOGL.”	Copied paragraph from SOGL to ensure the paragraph is remembered by the readers.

Section 5.7 Separation from the grid (RS)

Change	Reason
Added that planned islanding is not reported as an RS violation.	Planned islanding is used by some TSOs as remedial actions during grid operations.
Specifies that the load in the split synchronised region is compared to the pre-incident load in the whole synchronous area.	Clarity

Section 5.8 Loss of tools, means and facilities (LT)

Change	Reason
Scale 2 criteria for LT changed from: “Loss of all tools, means and facilities, for more than 30 minutes” to “Loss of any tool, mean or facility, including backup solution (if exists), for more than 30 minutes and with consequences for other TSO(s).”	In practice, scale 2 was impossible to reach with the previous definition. The proposed change covers serious situations when both main and backup tools are lost with consequences to other TSO(s).
Add note on backup tool: “A backup tool, mean or facility must be able to fully take over the functionality of the main solution.”	Backup tools need to provide full functionality of the main tool to
Added below scale threshold for the LT criterion: “Loss of any tool, mean or facility for more than 30 minutes without consequences for other TSO(s).”	To allow monitoring of the number of single instances of losses of tools, means and facilities without significant impact on the real-time operation of the TSO itself and the neighbouring TSOs.

Section 5.9 Violation of standards on voltage (OV)

Change	Reason
Adds proposal “In addition to the legal requirement, TSO-to-TSO tie-lines are reported based on the time ranges and thresholds for connection points.”	TSO-to-TSO tie-lines were not included in previous editions. However, monitoring voltages on them is important and worth reporting.

Section 5.10 Reduction of reserve capacity (RRC)

Change	Reason
Adds for clarity “The reduction is compared to the target amount of reserve for each TSO and for each type of reserve (FCR, FRR and RR) for the given timeframe”. This is aligned with SOGL definition of reserves.	Clarity
Adds for clarity the exception “Activated energy bids are not considered as reduction of reserve capacity.”	Clarity
Adds for clarity to the thresholds table to each criteria in the end “[...] and there are no means to compensate for that reduction in real-time system operation”.	Clarity

Chapter 6 Operational security indicators

Change	Reason
Adds missing references to which parts of the ICS Methodology specific security indicators are relevant to.	Readability

Chapter 7 Procedure for the investigation of scale 2 and scale 3 incidents

Change	Reason
Many changes to clarify the process and updates to reflect the RIAR methodology that ACER approved in 2022 (link).	Clarity and consistency
Added <i>“The objective of ICS incident investigations is the prevention of future incidents and the improvement of the resilience of the European electricity system. They do not intend to allocate responsibility or liability to any party.”</i>	To indicate the objective of the ICS Expert Panel investigation.
Many changes to clarify the steps before and during the ICS Expert Panel investigation	Clarity and specificity to the processes and steps
Added definition of what the preliminary data TSOs shall send to WG ICS	To formalise the content of the preliminary data to be shared. The list is based on what has been proved to be useful to classify potential scale 2 and 3 incidents.
Scale 3 incident preliminary data and classification deadline 3 days from the start of the incident.	Previously, scale 2 and 3 incidents had the same deadline. A scale 3 incident is a major incident that motivates a faster response time.
Added <i>“When a scale 2 incident affects only one TSO, the first Expert Panel meeting is conducted as usual. If in this meeting, it is undoubtedly confirmed that the incident affected only one TSO, the investigation proceeds as an internal investigation led by the affected TSO. The original Expert Panel members may, at their request, continue to participate in the investigation as members or as observers. The report of the internal investigation shall be shared with ENTSO-E, the TSOs, RCCs, ACER and the NRAs. The internal report shall follow the timeline set for the ICS Expert Panel reports.”</i>	When the impact of a scale 2 incident is contained within one TSO’s control area, a less weighty process can be motivated to investigate the reasons of the incident. Any potential recommendations to improve the pan-European operational security should still be identified and shared.

Change	Reason
Added to the ICS Expert Panel formation <i>“Depending on the nature of the incident and its impact on distribution grids, the ICS Expert Panel may decide to invite technical experts from the DSO(s) in the affected area(s) to participate to the investigation, provided they are fully unbundled, and/or experts from the EU DSO Entity. In the latter case the representative shall be employed by a fully unbundled DSO or by the EU DSO Entity secretariat”</i>	In case the ICS Expert Panel sees a need to include unbundled DSOs and/or the EU DSO Entity, it should be possible. This was not a case in the previous version of the ICS Methodology. The addition was also highly requested by stakeholders.
ICS Final Report publishing deadline 12 months after the incident instead of when the ICS annual report is published	The ICS Annual Report can be drafted and published independently of the ICS Final Report of each respective scale 2 or 3 incident investigation.
Removed <i>“the ICS Expert Panel shall prepare the explanations of the reasons for the investigated incident on scale 2 or scale 3 to be included in the ICS annual report. The explanations shall be prepared in due time before the publishing of the ICS annual report for the year the incident occurred.”</i>	It was not relevant in practice. WG ICS drafts the explanations independently by consulting members of the ICS Expert Panel investigation.
Added specifications to the data collection. For example, data can be requested from TSOs, RCCs and third parties (within the scope of SOGL (Art. 2)).	
Added three new items that the ICS Factual Report shall contain: “ a. description of the data collected; b. measures already taken by impacted system operators; and c. planned next steps. “	Provides additional value to the ICS Factual Report.

Chapter 8 Annual Report

Change	Reason
Moved the Annual Report parts from Chapter 4 to this Chapter.	Editorial. It was written twice in the previous edition of the methodology and had inconsistencies.

Annex 1 Data to be reported for recorded ICS incidents

Change	Reason
Table replaces the text list to increase clarity.	Clarity

Annex 2 Additional data for the investigation of scale 2 and scale 3 incidents

Change	Reason
Added at the top: “Because the nature of scale 2 or 3 incidents can vary greatly, the ICS Expert Panel must specify what additional data is requested for the ICS Expert Panel investigation of the incident. These data can be, for example “	Provides context.

Annex 3 Timeline for the ICS Expert Panel investigation

Change	Reason
Added process diagrams for the ICS Expert Panel Investigation processes to illustrate the flows and clearly show the timelines/deadlines	Readability and clarity

Glossary

AC	Alternating current
ACER	European Union Agency for the Cooperation of Energy Regulators
CE	Continental Europe
EAS	ENTSO-E Awareness System
EC	European Commission
ENTSO-E	European Network of Transmission System Operators for Electricity
FCR	Frequency containment reserves
FRR	Frequency restoration reserves
HVAC	High voltage alternating current
HVDC	High-voltage direct current
ICS	Incident Classification Scale
ICSM	Incident Classification Scale Methodology
NRA	National Regulatory Authority
RCC	Regional Coordination Centre
RCC	Regional Coordination Centre
RIAR	Regional Incident and Analysis Reporting
RR	Replacement reserves
SA	Synchronous Area
SO	System Operator
SOC	System Operations Committee
SOGL	Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation
SPOC	Single point of contact
TSO	Transmission System Operator
WG ICS	Working Group Incident Classification Scale