



European Network of  
Transmission System Operators  
for Electricity

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# INCIDENTS CLASSIFICATION SCALE GUIDELINES

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AD HOC TEAM INCIDENTS CLASSIFICATION SCALE  
UNDER SYSTEM OPERATION COMMITTEE

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## 1. Rules of use

### 1.1 Objectives

This document describes the classification scale procedure of use. Classification scale has to be used by all TSOs. Every TSO has to define internal organization to use the classification scale.

Depending on the type of disturbances, the TSO's could have to agree bilaterally with whom will have to report and which information they need to exchange. On a general way, reporting will have to be done by the TSO in whose system the disturbance has occurred.

### 1.2 Links between classification scale and crisis communication tool

ENTSO-E Incident Classification Scale (ICS) Level 2 and Level 3 define the starting point of Crisis Communication Tool (in case a major disturbance occurs on the European grid, affecting several control areas, with severe consequences outside the area of origin of the disturbance).

### 1.3 Tasks to be done

#### 1.3.1 Concept

From January 2011 till mid 2012, disturbances reporting will be based on the use of an excel macro. In near future, a specific web based tool will be proposed to all TSO's.

Each TSO will have to report grid and system disturbances on a **four degrees scale (0 to 3)** corresponding to incidents of growing seriousness up to a general Europe wide incident.

#### 1.3.2 Main rules for reporting

The main rules for reporting:

- The reporting has to be done by the TSO in whose system the disturbance has occurred. Each TSO shall only focus on its own area and report if the causes or consequences of the incidents are covered by the criteria and are in the range of thresholds
- It is obligatory to report the level 0 incidents. They will be used for the internal analysis and is not intended for reporting annually.
- It is important the reporting remains as short and factual as possible. Comments on potential causes and any other matters of a speculative nature may be reduced if they don't bring any learning.
- All events should be reported within one month after they occurred. As time scales are very different between disturbances reporting and crisis communication, those processes will be linked to identify common ways of information sharing between  $t_0$  and  $t_0+1$  month.
  - **$t_0$** : the disturbance occurs;
  - **$t_0 + 1$  month**: disturbance reporting.
- As a disturbance could be in different time zones, TSOs will report according the local time. The tool will convert the local time into the agreed time.
- The reporting methodology consists in following steps (see methodology for details):

- Identification of the different criteria related to a single event (It is very important to fix the criteria on a risk assessment, by taking into account real and potential consequences (some disturbances have limited effects but are potentially very risky)).
- Identification of dominating criterion;
- Reporting on the classification scale and comments (templates).

## 1.4 Rules of operation

### 1.4.1 Connection

Login and password provided by ENTSOE.

### 1.4.2 To make a new report

After accessing the main menu, please click on “report a new disturbance”.



Then, after accessing the form, please fill each template and process to criteria choice

1- Title (type freely)		This template must be filled before recording		<p>Please fill each template then press "Record Disturbance"</p> <p><b>Record Disturbance</b></p>
2- Date		This template must be filled before recording		
3- Time		This template must be filled before recording		
4- Origin Fault (type freely)				
5- Dominating criterion		Before recording, select dominating criterion by pressing any "Dom" key (see above)		
6- Sub criterion		Before recording, select 0 or 1 sub criterion by pressing any "Sub" key or "none" key		
7- Comments (type freely)				

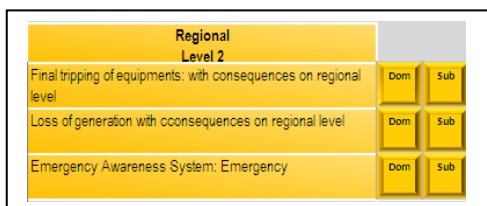
Local to National Level 0			National Level 1			Regional Level 2		
T1	T2	T3	Dom	Sub	Dom	Sub	Dom	Sub
Final/permanent tripping of equipments with ordinary consequences on national area			Final tripping of equipments with consequences on national area			Final tripping of equipments with consequences on regional level		
S2	S3	S4	Dom	Sub	Dom	Sub	Dom	Sub
Loss of generation with no consequence or ordinary consequence on national area			Loss of generation with consequences on national area			Loss of generation with consequences on regional level		
S1	S2	S3			Dom	Sub	Dom	Sub
			Emergency Awareness System: alert			Emergency Awareness System: Emergency		
S2					Dom	Sub		
			Lack of reserve					
S3					Dom	Sub		
			network node operated at voltage exceeding voltage thresholds					
S4					Dom	Sub		
			N-1 violation situation with consequences on, at least, 2 TSO's					

#### Remarks:

- It is important the reporting remains as short and factual as possible. Comments on potential causes and any other matters of a speculative nature may be reduced if they don't bring any learning.
- As a disturbance could be in different time zones, TSOs will report according the local time. Conversion into the agreed time will have to be done manually.

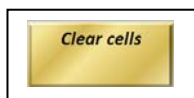
### 1.4.3 To choose criteria

Choose the dominating criterion and the sub criterion by clicking on corresponding key



### 1.4.4 To correct information

Click on “clear cells” in case of mistake



## 1.5 Time scale

- Each month, TSO declared disturbances for the last month. It means that all events should be reported within one month after they occurred. As time scales are very different between disturbances reporting and crisis communication, those processes will be linked to identify common ways of information sharing between t0 and t0+1 month.
- Each quarter, a quantitative report is done by ENTSOE.
- Each year, an annual report is done, with figures and qualitative analysis.

## 2. Classification Scale: Description

For each category, criteria have been defined by using definitions (from ENTSO-E draft Glossary and IEC standards) of faults, incidents, events, disturbances, reasons, etc. for developing of common understanding.

Each criterion describes “factually” an event or a situation which is observable. Only significant events are recorded and classified at their right level of gravity.

Classification scale counts 4 levels of gravity corresponding to incidents of growing seriousness up to a general Europe wide incident:

- **Level 0** for anomaly (see 2.2 for details).
- **Level 1** for noteworthy disturbances (see 2.3 for details).
- **Level 2** for extensive incidents (see 2.4 for details).
- **Level 3** for widespread incident or Major incident on one TSO (see 2.5 for details).

### 2.1 Criteria prioritization

Level of gravity	Priority	Criteria
3	P1	Black out of synchronous area (R6)
3	P2	Disconnection of load on 1 TSO (L3)
3	P3	System disturbance leading to Sustained Frequency deviation (R3)
3	P4	EAS Regional Black out (SO1B)
2	P5	Regional Black out (R5)
2	P6	Disconnection of load on 1 TSO (L2)
2	P7	Loss of generation with consequences on regional level (G3)
2	P8	System disturbance leading to Sustained Frequency deviation (R2)

2	P9	System disturbance leading to Separation of a significant (R4)
2	P10	EAS Emergency (SO1E)
2	P11	Final tripping of equipments: with consequences on regional level (T3)
1	P12	Disconnection of load on 1 TSO (L1)
1	P13	Loss of generation with cconsequences on national level (G2)
1	P14	System disturbance leading to Sustained Frequency deviation (R1)
1	P15	N-1 violation situation with consequences on, at least, 2 TSO's (SO4)
1	P16	Network node operated at voltage Exceeding voltage thresholds (SO3)
1	P17	Lack of reserve (SO2)
1	P18	EAS Alert (SO1A)
1	P19	Final tripping of equipments: with consequences on national level (T2)
0	P20	Loss of generation with no consequence or ordinary consequence on national area (G1)
0	P21	Final/permanent tripping of equipments with ordinary consequence on national area (T1)



## 2.2 Level 0 disturbances

Level 0 (anomaly) is assigned to local or national events which have limited consequences with low effect on reliability:

- The primary failure may have low security influence and/or low market influence consequences.
- Are manageable by one TSO and with very low effect on reliability.
- Concern only permanent tripping of network equipments or loss of generation.

Level 0 counts three criteria:

- *Disturbances on Transmission Network equipments (T1) on level 0:*
  - Description:
    - Final tripping of highest transmission voltage lines (higher or equal to 300 kV for Continental Europe, Baltic and Nordic and Great Britain, higher or equal to 220 kV for other areas) or tie lines (higher or equal to 220 kV).
    - Final tripping of 1 (one) HVDC link between synchronous areas.
    - No Operational disturbance on other TSO (no overloads or N-1 violation reported).
    - The events can have consequences but only on national area.
    - Potentially leading to a short cross-border transfer capacity reduction (NTC).
    - Potentially leading to important contingencies (failure or outage of a system component, such as a generator, transmission line, circuit breaker, switch, or other electrical element) but only on the TSO area.

- Tripping of the highest transmission voltage lines with automatic re-closure is **NOT** reported.
    - Tripping of the highest transmission voltage lines with the designed manual connection (instead of automatic for security reasons) is **NOT** reported.
    - Planned emergency manual disconnection of the highest transmission voltage lines is **NOT** reported.
  - Prioritization for dominating criterion definition: This criterion is defined on **priority number 2** in case the reporting of a single disturbance identifies more than one criterion on level 0.
- *Disturbances on generation facilities (G1) on level 0:*
  - Description:
    - Disconnection from the grid of power plant facilities connected to transmission network representing an output less important than biggest power station output.
    - No noticeable consequences outside the TSO area but potentially leading to a short cross-border transfer capacity reduction (NTC).
    - No Operational disturbance on other TSO (no overloads or N-1 violation reported).
  - Thresholds defined for each synchronous area from a minimal threshold defined specifically for each synchronous area to the tripping of the most important power station in the TSO area.
  - Prioritization for dominating criterion definition: This criterion is defined on **priority number 1** in case the reporting of a single disturbance identifies more than one criterion on level 0. This criterion can't be dominating criterion in case of tripping of equipments related to the same disturbance.
- *Events on load (L1) on level 0:*
  - Peak load is the maximum hourly demand during a period of time: day, month or year. The national definition of the peak load will be used temporarily to enable each TSO to begin the use of classification scale. Later it is possible to use the definition of the peak load from transparency platform.

### 2.3 Level 1 disturbances: description

Level 1 is assigned to national events due to noteworthy disturbances which:

- Have noticeable consequences. The primary failure may have high security influence and/or high market influence consequences or cause noticeable violation of standards for at least 2 TSO.
- Are manageable by one TSO and with noticeable effect on reliability.

Level 1 counts eight criteria:

- *Disturbances on Transmission Network equipments (T2) on level 1:*
  - Description:
    - Final tripping of highest transmission voltage lines (higher or equal to 300 kV for Continental Europe, Baltic and Nordic and Great Britain, higher or equal to 220 kV for other areas) or tie lines (higher or equal to 220 kV).
    - Final tripping of 2 (two) or more HVDC links between synchronous areas.
    - Operational disturbance on other TSO with overloads or N-1 violation reported.

- Consequences on capability of exchange with reduction of cross-border transfer capacity reduction.
  - Noticeable consequences on the TSO area.
- Prioritization for dominating criterion definition: This criterion is defined on **priority number 8** in case the reporting of a single disturbance identifies more than one criterion on level 1.
- *Disturbances on generation facilities (G2) on level 1:*
  - Description:
    - Disconnection from the grid of power plant facilities connected to transmission network representing an output more important than biggest power station output.
    - Operational disturbance on other TSO with overloads or N-1 violation reported.
    - Reduction of cross-border transfer capacity (NTC).
    - Those disturbances can eventually lead to exceptional or out of range contingencies (failure or outage of a system component, such as a generator, transmission line, circuit breaker, switch, or other electrical element) limited to the TSO area.
  - Thresholds defined for each synchronous area from a minimal threshold defined specifically for each synchronous area to the tripping of the most important power station in the TSO area.
  - Prioritization for dominating criterion definition: This criterion is defined on **priority number 2** in case the reporting of a single disturbance identifies more than one criterion on level 1.
- *Disturbances leading to loss of load on one TSO (L2) on level 1:*
  - Description:
    - Disconnection of load from the grid due to automatic activation of load shedding or tripping of equipments.
    - The disconnection of load concerns only one TSO.
    - No Operational disturbance on other TSO (no overloads or N-1 violation reported).
  - Prioritization for dominating criterion definition: This criterion is defined on **priority number 1** in case the reporting of a single disturbance identifies more than one criterion on level 1.
  - Thresholds (the national definition of the peak load will be used temporarily to enable each TSO to begin the use of classification scale. Later it is possible to use the definition of the peak load from transparency platform).
- *Degradation in System Operation conditions - EAS Alert (SO1A) on level 1:*
  - Description:
    - Operational state which entails that all consumption is being met and that the frequency, voltage or transmissions are within acceptable limits. This operational state is also ALERT state (endangered state precision)
    - Real time alert transmitted by ENTSO-E wide awareness system (EAS or traffic light system).
    - This criterion does not apply to isolated systems.
  - Prioritization for dominating criterion definition: This criterion is defined on **priority number 7** in case the reporting of a single disturbance identifies more than one criterion on level 1.
- *Degradation in System Operation conditions - Lack of reserve (SO2) on level 1 :*
  - Description:



- Lack of more than 20% of reserve (secondary and tertiary reserve are considered combined) on a control area for at least 60 minutes for all areas.
    - It is assumed that the evaluation of the lack of reserves could constitute an issue in itself because the reserves are restored after some time after the incident and during that time the TSOs do not have enough reserves. To report those events, TSOs will act according the existing rules (regional, national grid codes or agreements) and if the reserves are restored according the existing rules, TSOs don't have to report the temporal lack of reserves.
  - Prioritization for dominating criterion definition: This criterion is defined on **priority number 6** in case the reporting of a single disturbance identifies more than one criterion on level 1.
- *Degradation in System Operation conditions – Voltage (SO3) on level 1 :*
  - Description:
    - Network node operated at voltage exceeding voltage  $\pm 10\%$  of the pre-fault level (downward or upward) affecting at least 2 TSO's within 15 minutes with the necessity to apply coordinated measures.
    - This criterion does not apply to isolated systems.
  - Prioritization for dominating criterion definition: This criterion is defined on **priority number 5** in case the reporting of a single disturbance identifies more than one criterion on level 1.
- *Degradation in System Operation conditions – N-1 violation (SO4) on level 1:*
  - Description:
    - The N-1 was not fulfilled within 15 minutes with no possibility to bring the system back into the N-1 security by own measures within 15 minutes:
      - Consequences on, at least, 2 TSO's.
      - Cross border overloads.
      - Necessity to apply coordinated measures.
    - This criterion does not apply to isolated systems.
  - Prioritization for dominating criterion definition: This criterion is defined on **priority number 4** in case the reporting of a single disturbance identifies more than one criterion on level 1.
- *System disturbances leading to Reliability degradation – Frequency (R1) on level 1:*
  - Prioritization for dominating criterion definition: This criterion is defined on **priority number 3** in case the reporting of a single disturbance identifies more than one criterion on level 1.

## 2.4 Level 2 disturbances: description

Level 2 is assigned to regional events due to extensive incidents which:

- Have important consequences. The primary failure may lead to degradation of system adequacy or important social consequences or cause important violation of standards for at least 2 TSO.
- **Are not manageable by one TSO.** There is a necessity of coordinated action by more than one TSO.

In the case of Isolated Systems, the Level 2 incidents apply to major incidents that lead to extensive load shedding with serious social consequences.

Level 2 counts seven criteria:

- *Disturbances on Transmission Network equipments (T3) on level 2:*

- Description:
  - Final tripping of highest transmission voltage lines (higher or equal to 300 kV for Continental Europe, Baltic and Nordic and Great Britain, higher or equal to 220 kV for other areas) or tie lines (higher or equal to 220 kV).
  - Operational disturbance on a regional level with overloads, N-1 violation or load shedding reported on 2 TSO's or more.
  - Serious consequences on capability of exchange with reduction of cross-border transfer capacity reduction or restrictions for the market (e.g. stop Intraday).
  - Serious consequences on capability of exchange and social consequences. This criterion does not apply to isolated systems.
- Prioritization for dominating criterion definition: This criteria is defined on **priority number 7** in case the reporting of a single disturbance identifies more than one criteria on level 2.
- *Disturbances on generation facilities (G3) on level 2:*
  - Description:
    - Disconnection from the grid of power plant facilities connected to transmission network representing an output much more important than biggest power station output leading to degradation of system adequacy.
    - Operational disturbance on a regional level with overloads, N-1 violation or load shedding reported on 2 TSO's or more.
    - Serious consequences on capability of exchange with reduction of cross-border transfer capacity reduction or restrictions for the market (e.g. stop Intraday, redispatching).
    - Social consequences (load shedding).
    - Those disturbances can eventually lead to exceptional or out of range contingences (failure or outage of a system component, such as a generator, transmission line, circuit breaker, switch, or other electrical element) on more than one TSO area.
  - Prioritization for dominating criterion definition: This criterion is defined on **priority number 3** in case the reporting of a single disturbance identifies more than one criterion on level 2.
- *Disturbances leading to loss of load on one TSO (L2) on level 2:*
  - Description:
    - Disconnection of load from the grid due to automatic activation of load shedding or tripping of equipments.
    - The disconnection of load concerns only one TSO.
  - Prioritization for dominating criterion definition: This criterion is defined on **priority number 2** in case the reporting of a single disturbance identifies more than one criterion on level 2.
  - Thresholds (the national definition of the peak load will be used temporarily to enable each TSO to begin the use of classification scale. Later it is possible to use the definition of the peak load from transparency platform).
- *Degradation in System Operation conditions - EAS Emergency (SO1E) on level 2:*
  - Description:
    - Operational state which entails that all consumption is being met, but that the frequency, voltage or transmissions are not within acceptable limits and that normal state cannot be achieved in 15 minutes. This operational state is also defined as EMERGENCY state (disturbed state).

- Real time alert transmitted by ENTSOE-E wide awareness system (EAS or traffic light system).
    - This criterion does not apply to isolated systems.
  - Prioritization for dominating criterion definition: This criterion is defined on **priority number 6** in case the reporting of a single disturbance identifies more than one criterion on level 2.
- *System disturbances leading to Reliability degradation – Frequency (R2) on level 2:*
  - Prioritization for dominating criterion definition: This criterion is defined on **priority number 4** in case the reporting of a single disturbance identifies more than one criterion on level 2.
- *System disturbances leading to Reliability degradation – Separation (R4) on level 2:*
  - Prioritization for dominating criterion definition: This criterion is defined on **priority number 5** in case the reporting of a single disturbance identifies more than one criterion on level 2.
- *System disturbances leading to Reliability degradation – Regional Black out (R5) on level 2:*
  - Description:
    - System disturbance leading to Regional (synchronous area) collapse.
    - This criterion does not apply to isolated systems.
  - Prioritization for dominating criterion definition: This criterion is defined on **priority number 1** in case the reporting of a single disturbance identifies more than one criterion on level 2.

## 2.5 Level 3 disturbances: description

Level 3 is assigned to wide events due to major incidents such as:

- massive loss of load on one TSO;
- regional black out.

Level 3 counts four criteria:

- *Disturbances leading to loss of load on one TSO (L3) on level 3:*
  - Description:
    - Disconnection of load on 1 TSO area above 50 % of load at the time of the incident (due to automatic activation of load shedding or tripping of equipments).
    - For isolated systems: 70% of load (load-shedding) at the time of the incident or total shut down.
    - The disconnection of load concerns only one TSO.
  - Prioritization for dominating criterion definition: This criterion is defined on **priority number 2** in case the reporting of a single disturbance identifies more than one criterion on level 3.
  - The national definition of the peak load will be used temporarily to enable each TSO to begin the use of classification scale. Later it is possible to use the definition of the peak load from transparency platform.
- *Degradation in System Operation conditions - EAS Black Out (SO1B) on level 3:*
  - Description:
    - This operational state concerns needs of Emergency help and external voltage supply for the relevant grid shall be prepared by partner. This operational state is also defined as BLACK STATE:
      - Major part of the TSO network is without supply.
      - Most of the power plants are disconnected from the grid network.

- Most of the tie-lines to the neighbouring TSOs are disconnected.
      - Black start procedures are to be started.
      - Neighbouring TSOs are to be prepared for emergency help for black start according to their possibilities.
    - Real time alert transmitted by “ENTSOE-E wide awareness System (EAS or traffic light system).
    - This criterion does not apply to isolated systems.
  - Prioritization for dominating criterion definition: This criterion is defined on **priority number 4** in case the reporting of a single disturbance identifies more than one criterion on level 3.
- *System disturbances leading to Reliability degradation – Frequency (R3) on level 3:*
  - Prioritization for dominating criterion definition: This criterion is defined on **priority number 3** in case the reporting of a single disturbance identifies more than one criterion on level 3.
- *System disturbances leading to Reliability degradation – Frequency (R6) on level 3:*
  - Description: Wide black out (more than 90% of load at the time of the incident).
  - Prioritization for dominating criterion definition: This criterion is defined on **priority number 1** in case the reporting of a single disturbance identifies more than one criterion on level 3.

## 2.6 Classification scale global view

National		Regional	Wide
Level 0 (internal purposes)	Level 1	Level 2	Level 3
Final/permanent tripping of equipments with ordinary consequence on national area	Final tripping of equipments: with consequences on national area.	Final tripping of equipments: with consequences on regional level	
Loss of generation with no consequence or ordinary consequence on national area	Loss of generation with consequences on national area	Loss of generation with consequences on regional level	
	Emergency Awareness System: alert	Emergency Awareness System: Emergency	Emergency Awareness System: Black Out
	Lack of reserve		
	network node operated at voltage exceeding voltage thresholds		
	N-1 violation situation with consequences on, at least, 2 TSO's		
	System disturbance leading to Sustained Frequency deviation Threshold 1	System disturbance leading to Sustained Frequency deviation Threshold 2	System disturbance leading to Sustained Frequency deviation Threshold 3
		System disturbance leading to Separation of a significant	
		Regional Black out	Black out of synchronous area

Disconnection of load on 1 TSO Threshold 1	Disconnection of load on 1 TSO Threshold 2	Disconnection of load on 1 TSO Threshold 3	Disconnection of load on 1 TSO Threshold 4
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## 2.7 Expert panel

An expert panel is appointed to perform the ex-post analysis, based on a TSO's (or working group dedicated on operating issues) proposal, and approved by Regional Group. In case TSO's are asked for quick answers from their regulator or stakeholders, they will report the Regional Group this need to accelerate the process of expert panel definition.

- This expert panel will have to include people from TSO's involved.
- The leadership of the expert panel will have to include to be given to a TSO which is not involved in the disturbance, to ensure a neutral leadership.

## 2.8 Factual report

After collecting the data, the expert panel realizes a factual (or preliminary) report. This factual report aims at providing a very clear understanding of main causes a clear description of disturbance (situation ahead and after), preliminary evaluation of activities of dispatchers and functioning of equipments (thanks to interviews of people involved). All the parties involved must approve this report, before performing analysis and proposing actions plan (analysis report).

## 2.9 Final report

The analysis (or final) report will include conclusions and recommendations (actions plan, lesson learned) related both to technical and "human behaviour" aspects. The method used to analyze disturbances should be based on well-known method such as "causes tree" method. This final report is approved by each TSO.

## 2.10 General Fields

5 general fields have been defined to describe main system and grid disturbances:

- Disturbances on Transmission Network equipments (permanent tripping of transmission lines, busbars, transformers...).
- Disturbances on generation facilities (permanent tripping of power plants).
- Disturbances leading to loss of load on one TSO area.
- Degradation in System Operation conditions leading to non-fulfilment of the security criteria or violation of standards.
- System disturbance leading to Reliability degradation.

## 2.11 Investigation procedure

It is very important to determine the right level to launch ex-post disturbance analysis. The main objective is to ensure that all the incidents which significantly have affected the integrity of interconnected system operations are analyzed.

The investigation procedure aims at defining:

- Agreed criteria to decide specific ex-post analysis.
- The data needed to run ex-post analysis.
- The items to be dealt with.
- The organization to perform ex-post analysis.
- Main milestones about the realization of ex-post analysis.

The events related to Level 0 have very low effect on reliability (the primary failure may have very low security influence and/or low market influence consequences) so there is no obligation to run specific analysis on those events. This level was created to allow ENTSO-E to run statistic analysis and TSO's to report events for internal purposes.

The events related to level 1 don't affect significantly the integrity of interconnected system operations so there is no obligation to perform ex-post analysis.

Ex-post analysis will only be realized in case of decision of TSO, Coordinated System Operation or any type of working group dedicated on operating issues, Regional Group or SOC. For those types of disturbances, investigation procedures and information sharing have been simplified:

- Relevant information will be shared among TSOs by using the reporting tool.
- In case of decision to launch ex-post analysis is taken by TSO's or Regional Group, a shortened Report (one A4 sheet describing factual, actions, anomalies and learning) will be prepared by impacted TSO's to join the yearly report.

All the incidents ranked **on level 2 and 3** (extensive, major, widespread and Europe wide incidents) have to be analyzed following the present method. In case of event related to level 2 and 3, typically detailed Report will be prepared by Regional Group team (formed, reviewed and approved by Regional Group) following specific procedures.

## 2.12 Levels of gravity

Classification scale counts 4 levels of gravity corresponding to incidents of growing seriousness up to a general Europe wide incident.

- Level 0 is assigned to local or national events (see methodology for details).
- Level 1 (noteworthy disturbance) is assigned to national events (see methodology for details).
- Level 2 (extensive and major incidents) is assigned to regional events (see methodology for details).
- Level 3 (widespread incident and Major incident on one TSO) is assigned to events such as massive loss of load on one TSO or regional black out (see methodology for details).



## 2.13 Thresholds

Different **thresholds have been introduced** into the classification principles to take into account the **differences existing between each synchronous area** and specificities of isolated systems. Therefore, specific thresholds are defined for:

- Definition of loss of generation.
- Definition of loss of load.
- Frequency deviation.
- Percentage of peak load affected by black out.

Every isolated system can have different thresholds suitable for the system. In the case of Spanish isolated systems (SEIE) incidents do not have impact on other TSOs, and usually are not even relevant at national scale. Because of that, reporting of incidents and scale degree for these systems will be discretionary, depending on lessons learned and relevance, evaluated by the TSO for each incident.