# System Operation European Stakeholder Committee

## Materials for meeting 10 March 2021

entsoe

Reliable Sustainable Connected

# 1. Review of the Agenda

| Subject | Timing | Lead |
|---|---|---|
| 1. Opening<br>• Review of the agenda<br>• Review and approval of minutes from previous meeting<br>• Review of actions | 13:30 – 13:45 | Uros Gabrijel<br><br>Ana Cigaran |
| 2. Update on the implementation actions at pan-EU level<br>• Active Library | 13:45 – 14:00 | Ana Cigaran |
| 3. Emergency & Restoration<br>• Update on status of national Terms and Conditions | 14:00 – 14:10 | Rafal Kuczynski |
| 4. Cybersecurity Network Code<br>• Update on on-going and future activities | 14:10 – 14:25 | Stefano Bracco |
| 5. CGM Program Implementation Update | 14:25 – 14:40 | Derek Lawler |
| 6. Wind eclipse | 14:40 – 14:45 | Bernard Malfliet |
| 7. System separation event 8 January | 14:45 – 14:55 | Frank Reyer |
| 8. AOB – Next meetings | 14:55 – 15:00 | Uros Gabrijel |

# 1. Review of actions

Ana Cigaran

# 1 Review of actions

| ACTION | ANSWER | STATUS |
|---|---|---|
| Note for future SO GL active library to include pre-qualification process aFRR, mFRR, RR. | See update in Point 2 | Ongoing |
| ENTSO-E to provide an update about TCM status according to NCER Article | See update on topic 3 | Close |
| ENTSO-E to report on the “wind-eclipse” related topics including current solutions to the phenomena. Interaction with MESC to be checked. | See update on topic 6 | Close |
| | | |

# 2. Update on the Implementation Actions

Ana Cigaran

# Pan-European or regional deliverables 2021: SOGL

| | |
|---|---|
| CSAm Amendments (Article 21 & 27) | Public consultation is planned for 8-22 March. |
| Regional Proposals for CSA (Art 76-77) | Most art.76 proposals are approved by the NRAs. |

Black – update compared to last meeting

Grey – no update compared to last meeting

# Pan-European deliverables 2020: CEP

| | |
|---|---|
| RCC Establishment proposals (Art 35 ER) | The approval of the RCC establishment proposals by regulators of each SOR is expected early 2021. |
| Risk Preparedness | The Electricity Coordination Group (ECG) completed the internal process of gathering comments to the 7 September 2020 ENTSO-E “Identification of Regional Electricity Crisis Scenarios” Report. ENTSO-E will proceed to the review of the comments. |

# National Implementation

| | |
|---|---|
| KORRR | Information of National Implementation of KORRR will be included in ACER SO GL Monitoring Report. |
| Operational Agreements | All the Synchronous Area Operational Agreements are available on Transparency platform.<br>Additionally, ENTSO-E has taken actions to facilitate the (optional) publication of LFC data in the Transparency Platform the LFC Block Operational Agreements from Austria, Belgium, Germany, Spain, France, Hungary, Italy, Great Britain, Slovenia/Croatia/Bosnia i Herzegovina, Slovak Republic, Ireland/Northern Ireland and Nordic are available on the Platform. |

# Transparency Platform and Active Library

## Transparency Platform

An update to the SO GL Detailed Data Descriptions (SO GL DDD) was performed and it is foreseen to be included to the Manual of Procedures and subject to Public Consultation.

## Active Library

Internal tool is ready to host the following data:

- National implementation Data Exchange
- Active Power Reserves
- Requirements FCR, FRR, RR

The launch of the public tool will be performed once the new SO GL DDD is fully implemented to Transparency Platform.

# 3. Emergency and Restoration

## Update on status of national Terms and Conditions

Rafal Kuczynski

# Article 4(2) of NC ER – summary (status on 15.11.2019)

| | Y | N | NA |
|---|---|---|---|
| Article 4(2)(a) – defence service provider - contract | 7 | 9 | 14 |
| Article 4(2)(b) – restoration service provider - contract | 10 | 16 | 4 |
| Article 4(2)(c) – list of SGUs and list of measures | 13 | 12 | 5 |
| Article 4(2)(d) – list of high priority SGUs | 12 | 10 | 8 |
| Article 4(2)(e) – suspension and restoration of market activities | 11 | 19 | 0 |
| Article 4(2)(f) – imbalance settlement | 11 | 19 | 0 |
| | | | |
| 30 EU (TSOs) | | | |
| Y - approved by NRA | | | |
| N - submitted to NRA | | | |
| NA - not applicable | | | |

# Article 4(2) of NC ER – summary (status on 15.02.2020)

| | Y | N | NA |
|---|---|---|---|
| Article 4(2)(a) – defence service provider - contract | 7 | 9 | 14 |
| Article 4(2)(b) – restoration service provider - contract | 11 | 15 | 4 |
| Article 4(2)(c) – list of SGUs and list of measures | 15 | 10 | 5 |
| Article 4(2)(d) – list of high priority SGUs | 14 | 8 | 8 |
| Article 4(2)(e) – suspension and restoration of market activities | 13 | 17 | 0 |
| Article 4(2)(f) – imbalance settlement | 13 | 17 | 0 |
| Article 4(2)(g) – test plan – missed due to extraordinary situation | 1 | 21 | |
| | | | |
| 30 EU (TSOs) – red colour new value compare to 15.11.2019 | | | |
| Y - approved by NRA | | | |
| N - submitted to NRA | | | |
| NA - not applicable | | | |

# Article 4(2) of NC ER – summary (status on 31.07.2020)

| | Y | N | NA |
|---|---|---|---|
| Article 4(2)(a) – defence service provider - contract | 8 | 7 | 15 |
| Article 4(2)(b) – restoration service provider - contract | 17 | 8 | 5 |
| Article 4(2)(c) – list of SGUs and list of measures | 17 | 8 | 5 |
| Article 4(2)(d) – list of high priority SGUs | 17 | 6 | 7 |
| Article 4(2)(e) – suspension and restoration of market activities | 14 | 16 | 0 |
| Article 4(2)(f) – imbalance settlement | 14 | 16 | 0 |
| Article 4(2)(g) – test plan (Transelectrica, NGESO & IPTO missed) | 11 | 14 | 2 |
| | | | |
| 30 EU (TSOs) – green colour new value compare to 15.02.2020 | | | |
| Y - approved by NRA | | | |
| N - submitted to NRA | | | |
| NA - not applicable | | | |

# Article 4(2) of NC ER – summary (status on 15.01.2021)

| | Y | N | NA |
|---|---|---|---|
| Article 4(2)(a) – defence service provider - contract | 8 | 5 | 15 |
| Article 4(2)(b) – restoration service provider - contract | 17 | 6 | 5 |
| Article 4(2)(c) – list of SGUs and list of measures | 17 | 6 | 5 |
| Article 4(2)(d) – list of high priority SGUs | 17 | 3 | 8 |
| Article 4(2)(e) – suspension and restoration of market activities | 20 | 8 | 0 |
| Article 4(2)(f) – imbalance settlement | 20 | 8 | 0 |
| Article 4(2)(g) – test plan (Transelectrica & IPTO missed) | 15 | 10 | 1 |
| | | | |
| 28 EU (TSOs) – blue colour new value compare to 31.07.2020 (NG ESO and SONI excluded) | | | |
| Y - approved by NRA | | | |
| N - submitted to NRA | | | |
| NA - not applicable | | | |

# Article 4(2) of NC ER – details (1)

| | **Article 4(2)(a) – defence service provider - contract** |
|---|---|
| Approved by NRA | AT (APG), BG (ESO), CZ (CEPS), EE (Elering), FI (Fingrid), FR (RTE), HR (HOPS), LV (AST) |
| Submitted to the NRA, not yet approved | DK (energinet), ES (REE), EL (IPTO), IE (EirGrid), RO (Transelectrica) |
| Not Applicable | BE (Elia), DE (Amprion, 50Hertz, TenneT DE, Transnet BW), HU (Mavir), IT (Terna), LT (Litgrid), LU (Creos), NL (TenneT NL), PL (PSE), PT (REN), SE (SvK), SI (ELES), SK (SEPS) |

# Article 4(2) of NC ER – details (2)

| | **Article 4(2)(b) – restoration service provider - contract** |
|---|---|
| Approved by NRA | AT (APG), BE (Elia), BG (ESO), CZ (CEPS), DE (Amprion, 50Hertz, TenneT DE, Transnet BW), EE (Elering), FI (Fingrid), FR (RTE), HR (HOPS), HU (Mavir), LV (AST), NL (TenneT NL), PL (PSE), SK (SEPS) |
| Submitted to the NRA, not yet approved | DK (energinet), ES (REE), EL (IPTO), IE (EirGrid), PT (REN), RO (Transelectrica) |
| Not Applicable | IT (Terna), LT (Litgrid), LU (Creos), SE (SvK), SI (ELES) |

# Article 4(2) of NC ER – details (3)

| | **Article 4(2)(c) – list of SGUs and list of measures** |
|---|---|
| Approved by NRA | AT (APG), BE (Elia), BG (ESO), CZ (CEPS), EE (Elering), FI (Fingrid), FR (RTE), HR (HOPS), HU (Mavir), IT (Terna), LT (Litgrid), LV (AST), NL (TenneT NL), PL (PSE), SE (SvK), SI (ELES), SK (SEPS) |
| Submitted to the NRA, not yet approved | DK (energinet), ES (REE), EL (IPTO), IE (EirGrid), LT (Litgrid), PT (REN), RO (Transelectrica) |
| Not Applicable | DE (Amprion, 50Hertz, TenneT DE, Transnet BW), LU (Creos) |

# Article 4(2) of NC ER – details (4)

| | **Article 4(2)(d) – list of high priority SGUs** |
|---|---|
| Approved by NRA | AT (APG), BE (Elia), BG (ESO), CZ (CEPS), EE (Elering), FI (Fingrid), FR (RTE), HR (HOPS), HU (Mavir), IT (Terna), LT (Litgrid), LV (AST), NL (TenneT NL), PT (REN), SE (SvK), SI (ELES), SK (SEPS) |
| Submitted to the NRA, not yet approved | ES (REE), EL (IPTO), UK (NGESO, SONI), RO (Transelectrica), |
| Not Applicable | DE (Amprion, 50Hertz, TenneT DE, Transnet BW), DK (energinet), IE (EirGrid), LU (Creos), PL (PSE), |

# Article 4(2) of NC ER – details (5)

| | **Article 4(2)(e) – suspension and restoration of market activities** |
|---|---|
| Approved by NRA | AT (APG), BG (ESO), CZ (CEPS), DE (Amprion, 50Hertz, TenneT DE, Transnet BW), EE (Elering), ES (REE) ,FI (Fingrid), FR (RTE), HR (HOPS), HU (Mavir), IT (Terna), LV (AST), NL (TennetT NL), PL (PSE), SE (SvK), SI (ELES), SK (SEPS) |
| Submitted to the NRA, not yet approved | BE (Elia), DK (energinet), EL (IPTO), IE (EirGrid), LT (Litgrid), LU (Creos), PT (REN), RO (Transelectrica) |
| Not Applicable | |

# Article 4(2) of NC ER – details (6)

| | **Article 4(2)(f) – imbalance settlement** |
|---|---|
| Approved by NRA | AT (APG), BG (ESO), CZ (CEPS), DE (Amprion, 50Hertz, TenneT DE, Transnet BW), EE (Elering), ES (REE) ,FI (Fingrid), FR (RTE), HR (HOPS), HU (Mavir), IT (Terna), LV (AST), NL (TennetT NL), PL (PSE), SE (SvK), SI (ELES), SK (SEPS) |
| Submitted to the NRA, not yet approved | BE (Elia), DK (energinet), EL (IPTO), IE (EirGrid), LT (Litgrid), LU (Creos), PT (REN), RO (Transelectrica) |
| Not Applicable | |

# Article 4(2) of NC ER – details (7)

| | **Article 4(2)(g) – test plan** |
|---|---|
| Approved by NRA | AT (APG), BG (ESO), CZ (CEPS), DE (Amprion, 50Hertz, TenneT DE, Transnet BW), FI (Fingrid), HR (HOPS), IT (Terna), LT (Litgrid), NL (TenneT NL), PL (PSE), SI (ELES), SK (SEPS) |
| Submitted to the NRA, not yet approved | BE (Elia), DK (energinet), EE (Elering), ES (REE), FR (RTE), HU (Mavir), IE (EirGrid), LV (AST), PT (REN), SE (SvK) |
| Not Applicable | LU (Creos) |

# Article 4(2) of NC ER – links to the appoved TCM

Document on national implementation are available on ENTSO-E public web page :

https://www.entsoe.eu/active-library/codes/er/

Next update (status of NC ER implementation on 15.08.2021)

Last moment info – EirGrid - all TCM (except „Test Plan”) approved on 11.02.2021

# 4. Cybersecurity network code

## Update on on-going and future activities

Stefano Bracco

# Timeline of key activities in 2021 – Formal process

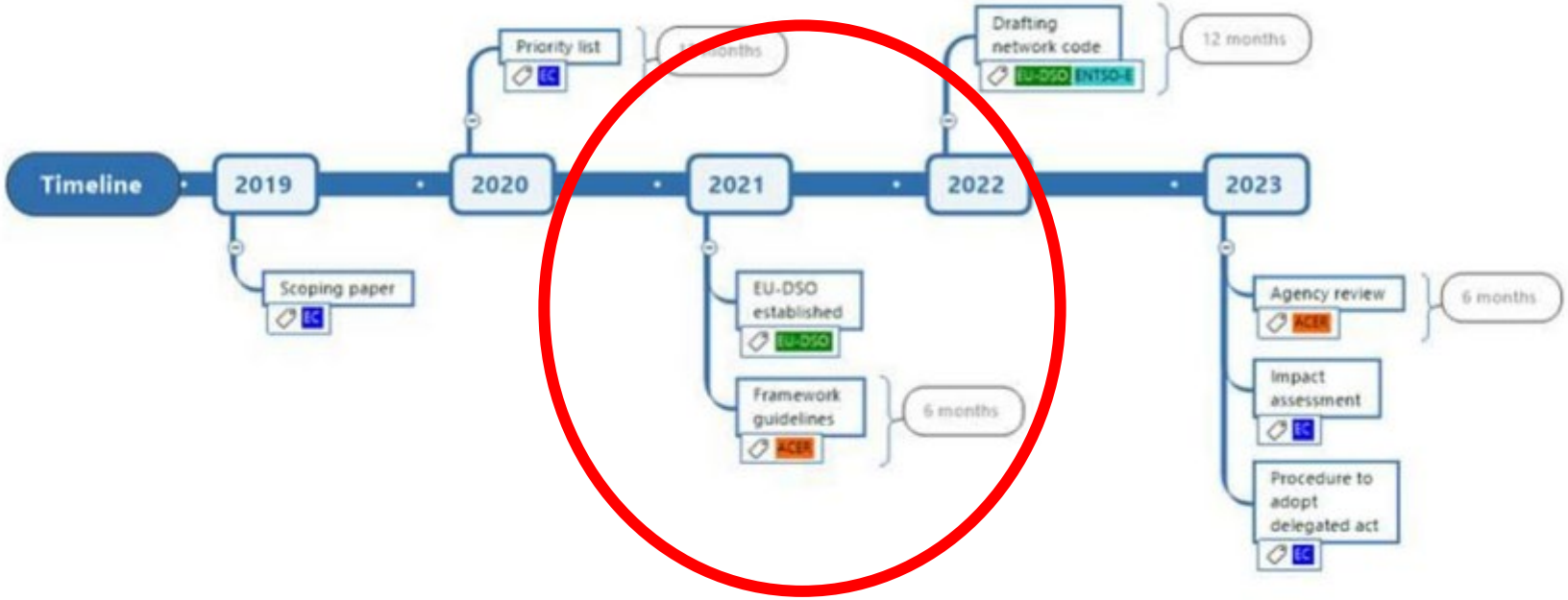



*Figure 2 : Formal process*

# Timeline of key activities in 2021 – Informal process

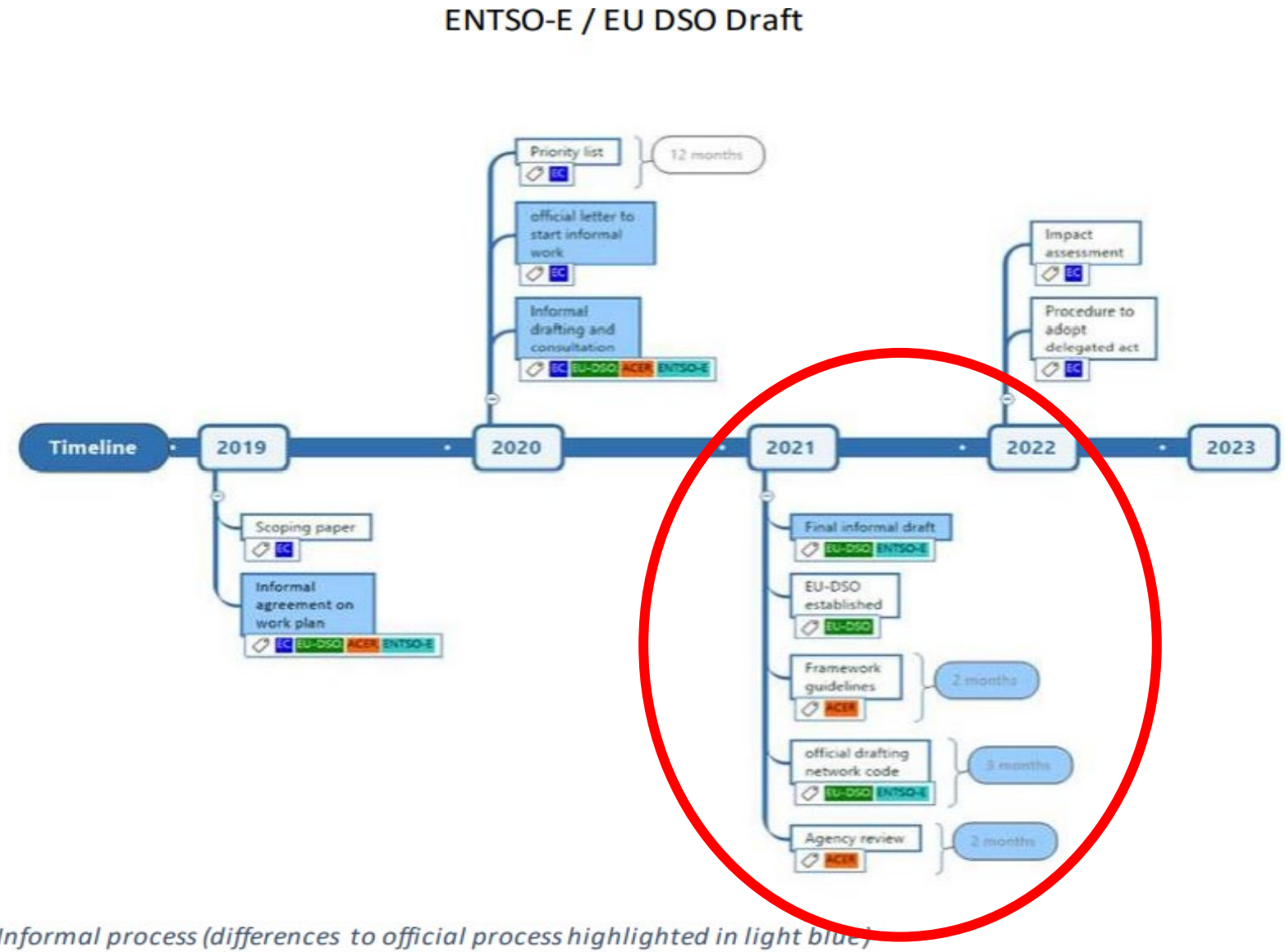
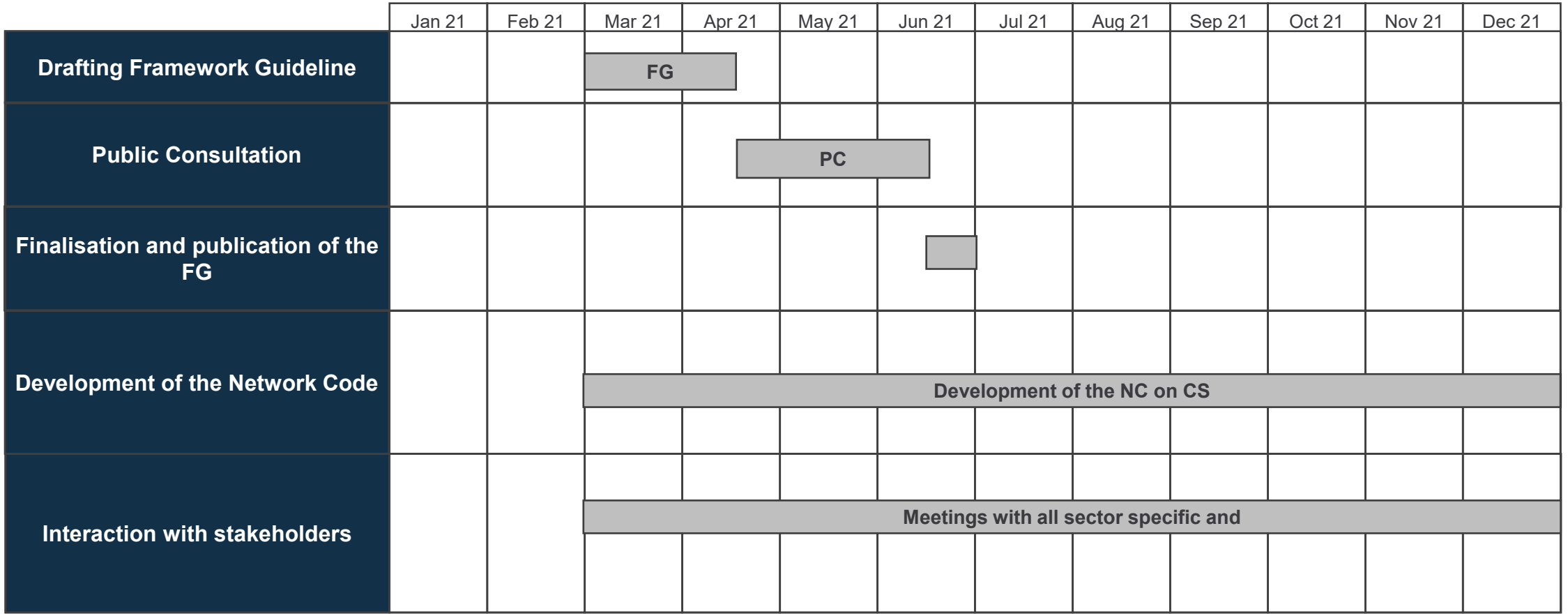



*Figure 3 : Informal process (differences to official process highlighted in light blue)*

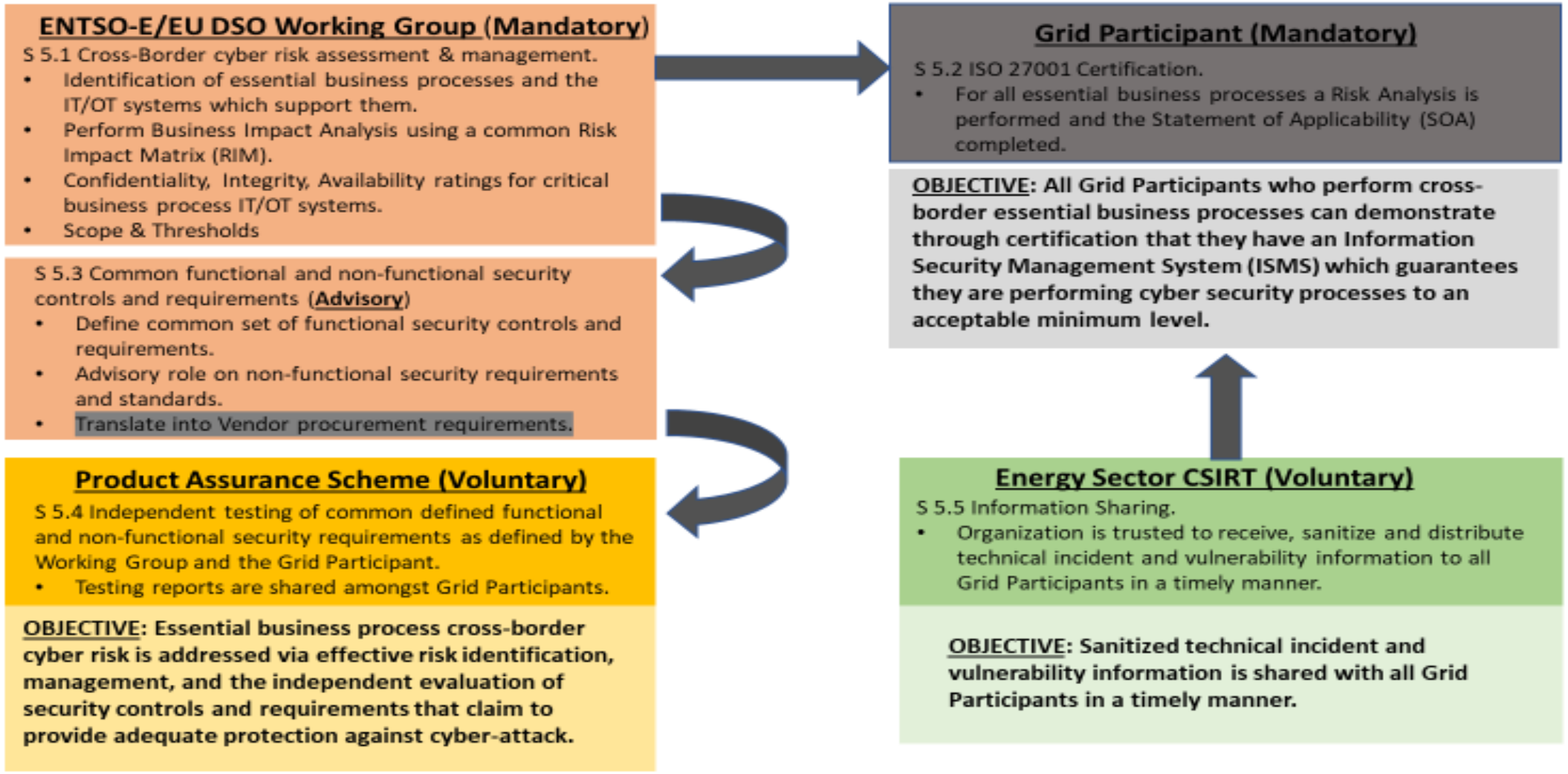
# Timeline of key activities in 2021



# Stakeholders that will be involved

- ENTSO-E and TSOs
- DSO Associations in absence of EU-DSO
- National Regulatory Authorities
- National Competent Authorities for Cybersecurity (if competence is not on NRA)
- Vendors of OT and IT systems and solutions for the electricity sector
- Standard makers
- Third countries connected to the EU and may be impacted by the EU decisions
- ENISA
- European Commission
- Other dependent actors (

# Content from Expert Group perspective



# Content currently on drafting

“Framework guideline on sector-specific rules for cybersecurity aspect of cross-border electricity flows”

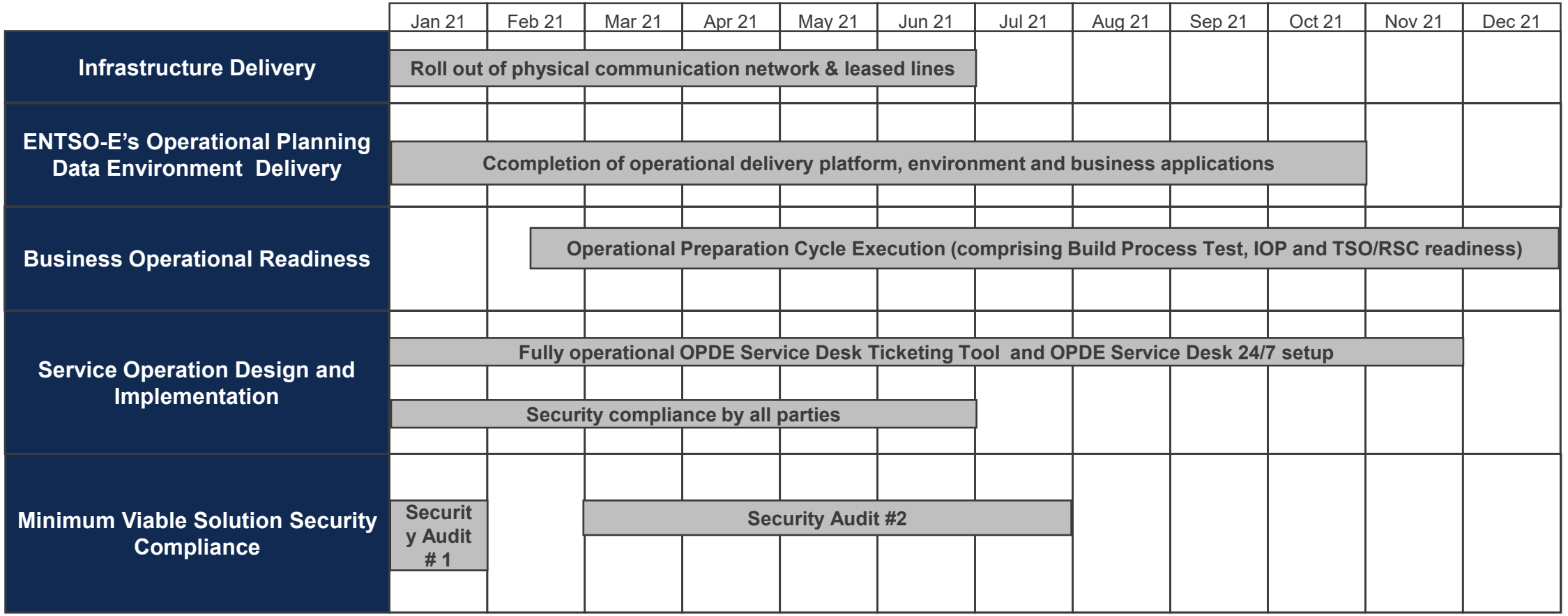
- Scope in line with the proposal in COM(2020) 823 Final and COM(2020) 829 Final
- Governance of the entire cybersecurity electricity system (re-using as much as possible from the existing/proposed regulations and directives on the same topics – making sure that each of the following points will have an efficient governance and will not generate any redundancy)
- Cross border organisation risk assessment and management
- Minimum Cyber Security standards for the operators and their processes in scope
- Minimum functional Cyber Security requirements for products and systems used in the cross-border electricity flows context
- Management of the supply chain of the electricity sector
- Enhancing the protection of legacy systems
- Information sharing among operators in scope and other concerned entities
- **Protection of critical information that are handled in order to allow the implementation of this legislation**

# 5. Common Grid Model

## Implementation Update

Derek Lawler

# CGM Programme: Timeline of key activities in 2021



# CGM Programme: Operational Preparation Cycles

Operational Preparation is the phase of the CGM Programme focused on testing and trialling the technology and business processes used in conducting the CGM processes.

Operational Preparation is organised into two phases:

***Transition Phase***
*January – June 2021*

*The focus is on building confidence and fluency with running the CGM processes. This will start slowly, with increasing frequency and intensity over time.*

***Full Trial Phase***
*July – December 2021.*

*The focus is on increasing stakeholder capability with operating the CGM processes. The frequency and intensity of CGM daily processes will increase to a full 24x7 schedule prior to go-live.*

Each phase is composed of multiple Cycles, one for each calendar month


There are two types of Cycles.

Cycles are defined by their Scope, Entry Criteria, and Objectives.

| | |
|---|---|
| Operations Cycle | The Operations Cycle consists of the Build Process (the execution of the end-to-end CGM process) and Interoperability (the technical verification of IGMs, CGMs, and associated validation rules). |
| Analysis Cycle | A review and analysis of previous Operations Cycles to identify and investigate issues, gather feedback from TSOs and RSCs, and compile the Readiness metrics and reports. |

*Scope* *Entry Criteria* *Objectives*

Cycle "Run Sheets" describe the individual steps to perform for the Cycle.

C2 – C12 Run Sheet

- Describes actions to perform within the Cycle execution for specified energy delivery days
- Defines ownership for each action/step (ENTSO-E, TSO, RSC)
- Can use as "checklist" through daily operation

# 6. Wind Eclipse

## Follow up

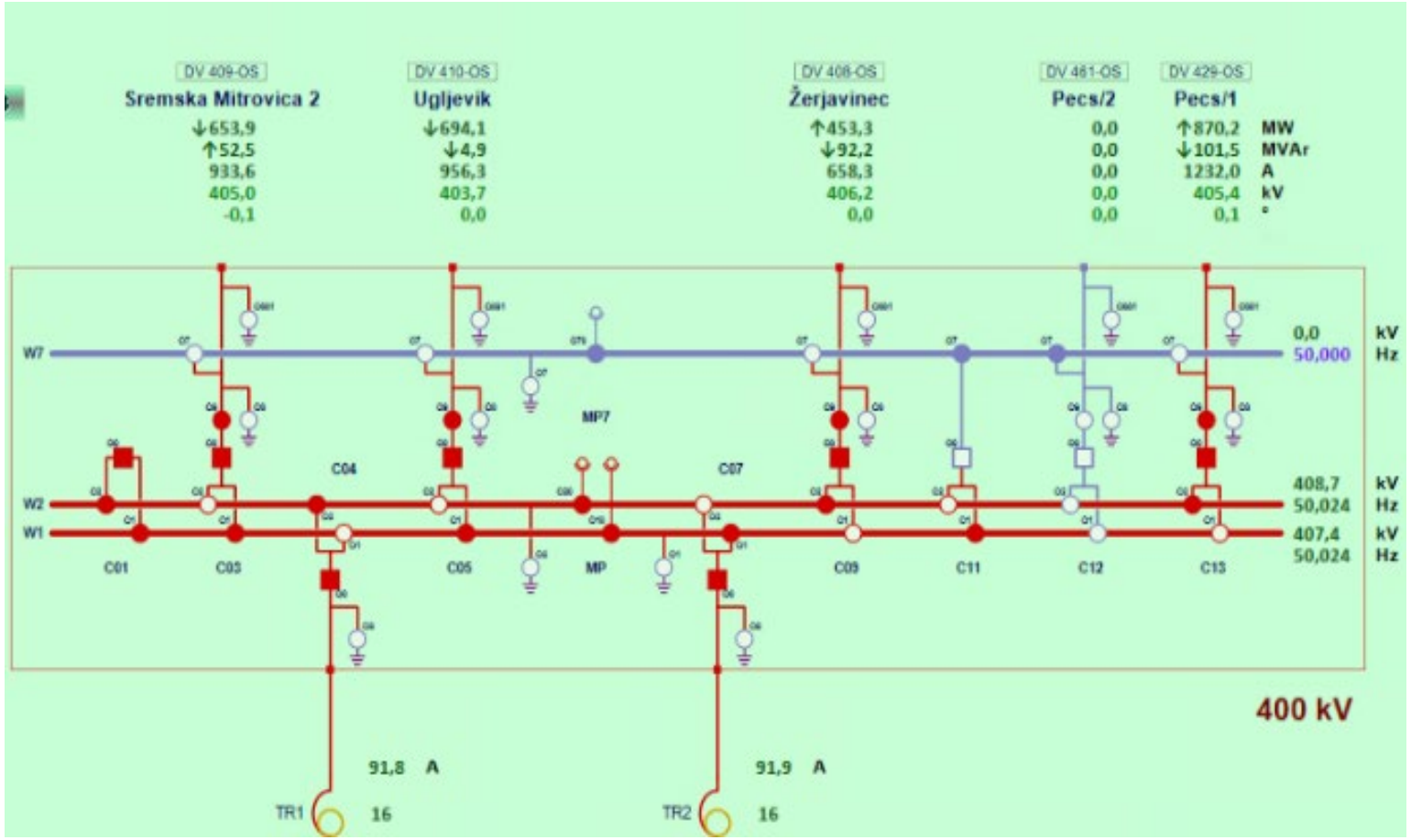
Bernard Malfliet

# 7. System separation event 8 January

Frank Reyer, TF Continental Europe System Separation on 08 January 2021

# Topology in SS Ernestinovo just before the system separation

- Both 400/110kV transformers (TR1 and TR2) are not connected to the same busbar.
- Both 400 kV tie-lines between Ernestinovo and Pecs (no. 1 and no. 2) are not connected to the same busbar.
- The topology was not changed, when the line Ernestinovo (HR) – Pecs (HU) 2 was taken out of service on 5 of January 2021.
- The tripping of the busbar coupler was not identified as an ordinary contingency pursuant to the methodology for coordinating operational security analysis

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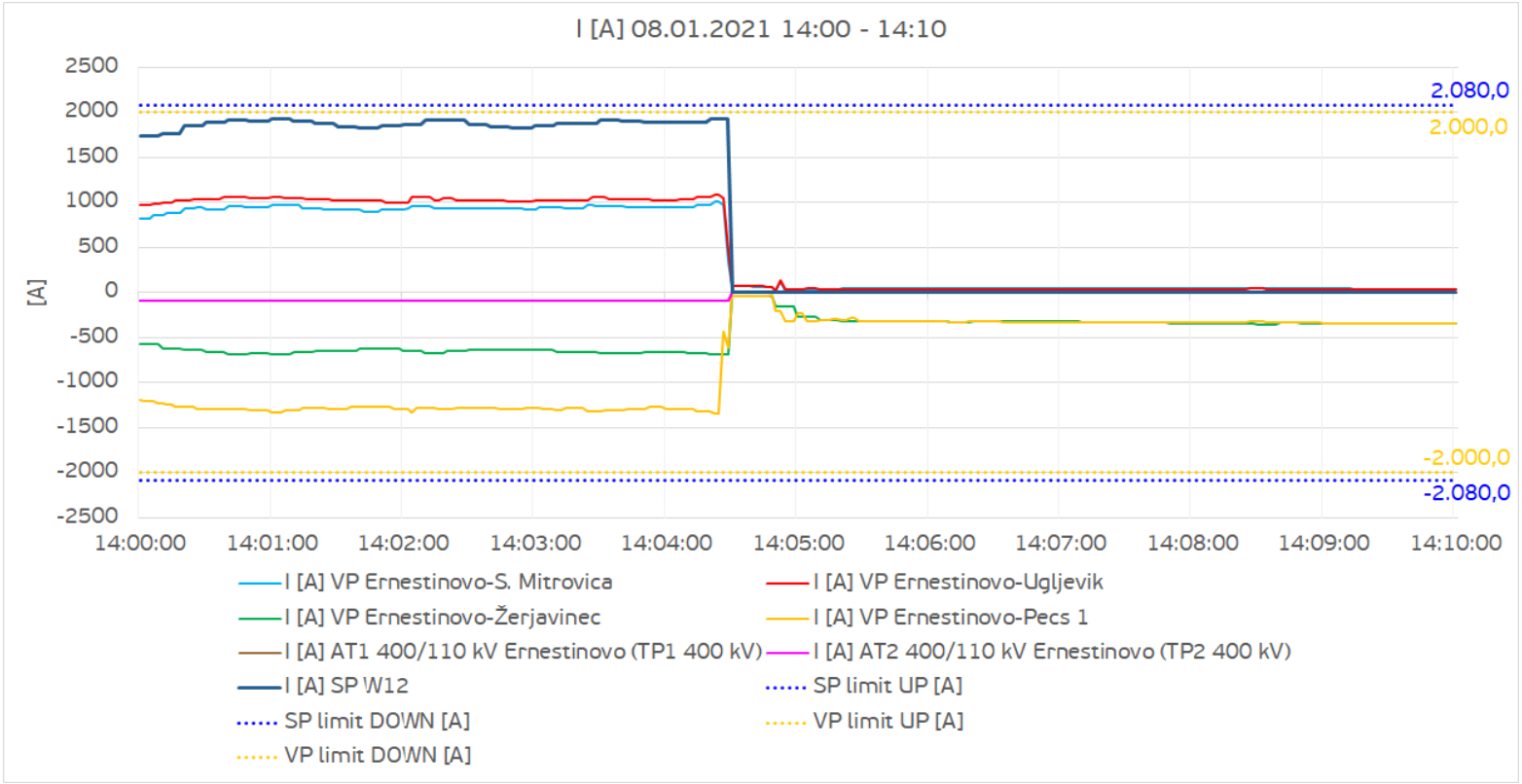
# Currents of transmission network elements in SS Ernestinovo between 14:00 and 14:10

(SP W12 corresponds to the flow through the busbar coupler)

- The limits for the transmission lines is 2000 A, whereas the limit for the busbar coupler is 2080 A
- At 14:04:21 the current through the busbar coupler reached a value of 1989 A.
- Because of the refreshing rate of the SCADA system the operators could not see the last value of 1989 A (last reported value was 1922 A)
- The relay, which opens the circuit breaker of the busbar coupler uses a different measurement equipment, noticing > 2080 A value



# Sequence of events on 8 January 2021 (1/2)

- Initial event was the tripping of a busbar coupler in Ernestinovo (HR) by overcurrent protection at 14:04:25.9
- The resulting two decoupled busbars in Ernestinovo lead to a separation of north-west and south-east flows
  - one busbar of Ernestinovo connects Zerjavinec (HR) and Pecs (HU)
  - another busbar of Ernestinovo connects Ugljevik (BA) and Sremska Mitrovica (RS)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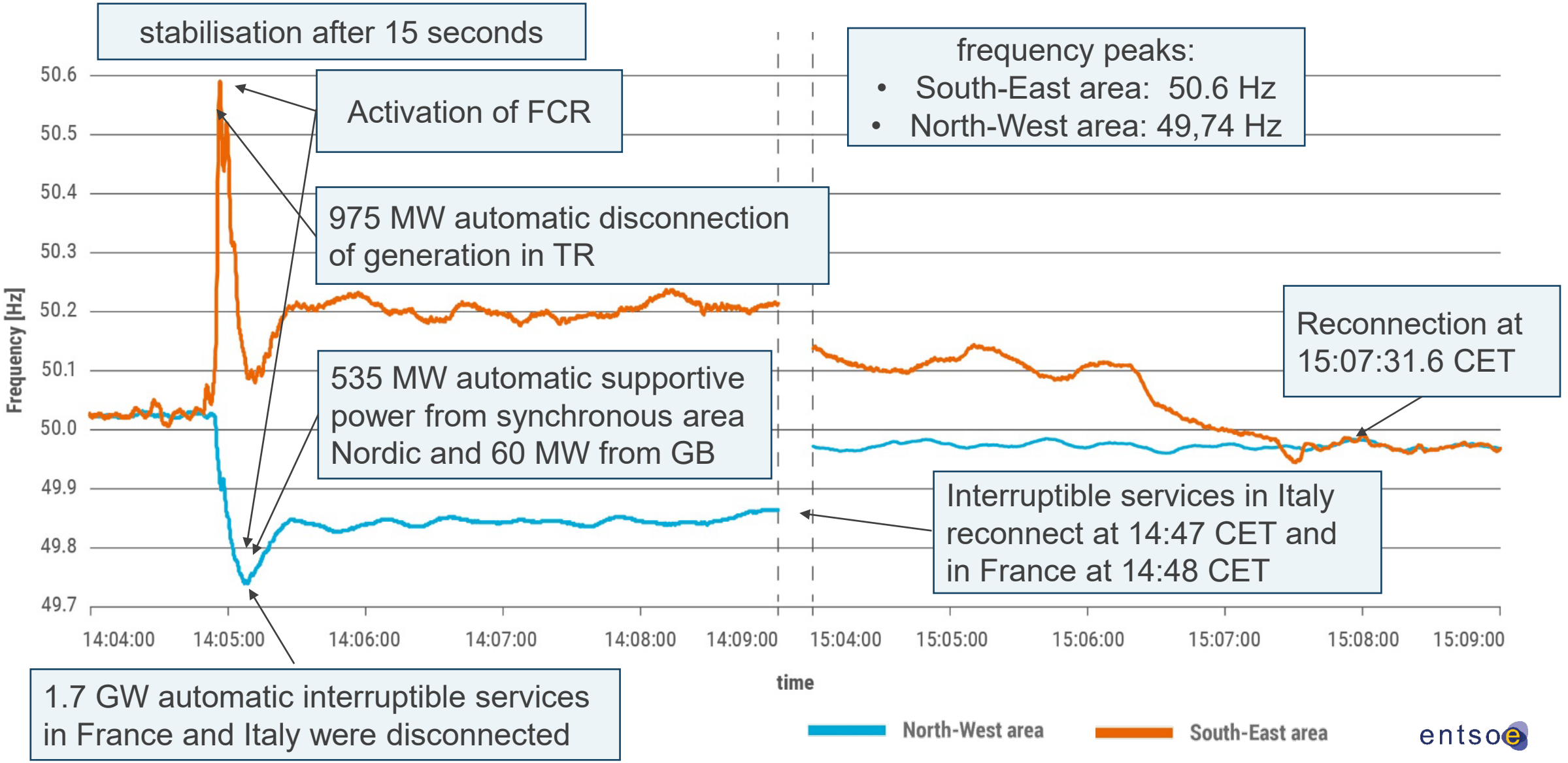
# Sequence of events on 8 January 2021 (2/2)

- Separation of flows in Ernestinovo (at 14:04:25.9) shifted flows to neighbouring lines
- Tripping of line Subotica – Novi Sad (RS) due to overcurrent protection at 14:04:48.9
- Further tripping of lines due to distance protection and system separation into two areas at 14:05:08.6

# System behaviour after the system separation (1/2)

*Preliminary – further measures are currently analysed*

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# Procedure for the investigation of scale 2 and scale 3 incidents

- For incidents on scale 2 and 3 a detailed report shall be prepared by an expert panel

- Expert panel shall be composed of:
  - Leader (from non-affected TSO)
  - Representatives of affected TSOs
  - RSC representative of the concerned region
  - ICS SG representatives
  - NRAs and ACER (on request)


- An official invite to NRAs and ACER for the expert panel will be made by ENTSO-E in due course

- Latest by 6 months after the event the expert panel shall prepare a **Factual Report**

- Latest by the publication of the ICS annual report for the year of the event the expert panel shall prepare a **Final Report**

- To perform the analysis and reporting of the event a **data collection** is necessary

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# 8. AoB

# Dates for 2021

| SO ESC | GC ESC |
|---|---|
| 10 March | 09 March |
| 09 June | 10 June |
| 23 September | 22 September |
| 06 December | 07 December |