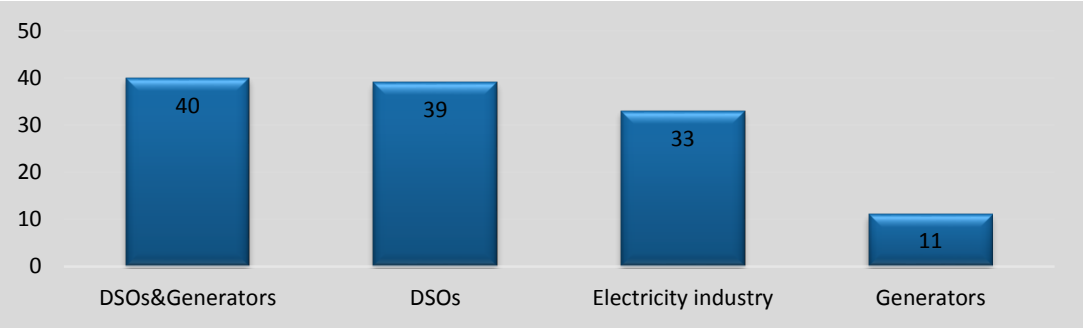
SO GL implementation: update on ongoing activities

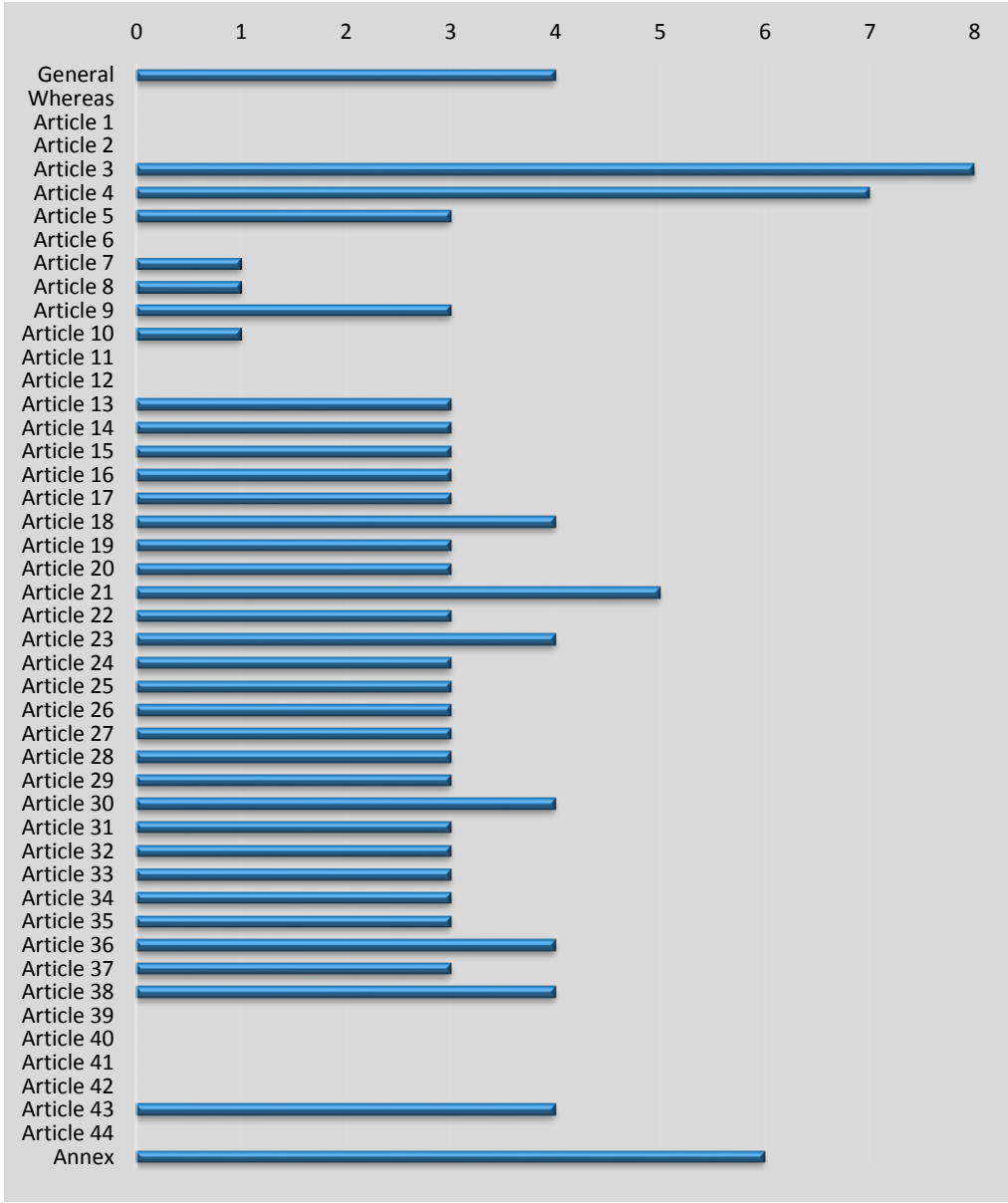
System Operation European Stakeholder Committee
12 June 2018

Methodologies for coordinating operational security analysis and for assessing the relevance of assets

Consultation on CSAM – SO GL article 75

123 comments from 8 reviewers (38 unique comments without repetitions)



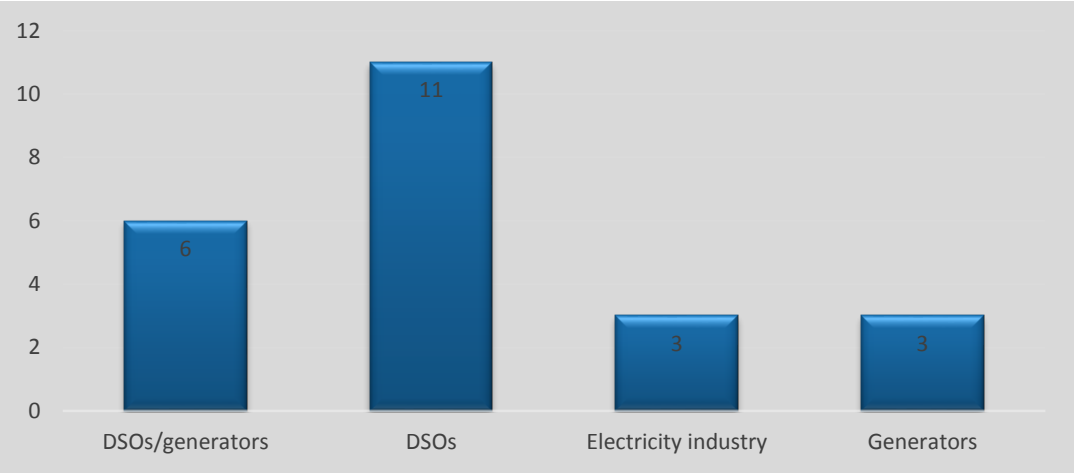


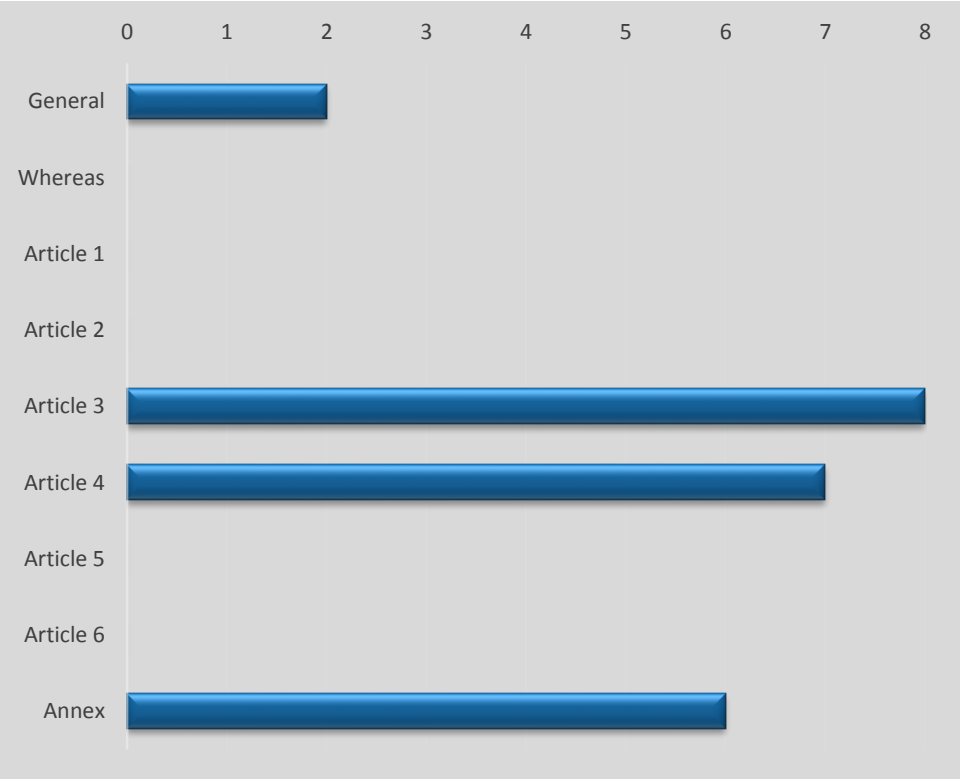
Most commented topics:

- „Influence computation method“, Art. 3
- „Identification of observability area elements“, Art. 4
- Suggestion to move chapters on „Coordination of RA“ and „Inter-RSC coordination“ to SO GL Art. 76 proposal

Consultation on Relevant Assets for Outage Coordination – SO GL Article 84

23 comments from 8 reviewers (18 unique comments without repetitions)





Most commented topics:

- „Influence computation method“, Art. 3
- „Identification of relevant assets“, Art. 4

Synchronous Area Framework Agreement for RG CE

Status of consulted Policy on LFC&R articles

Only article A-2 required amendments based on stakeholder consultation

#	Methodologies, conditions and values subject to all regulatory authorities approval	Status
A-1	FCR Dimensioning according to Article 118(A) So GL (mandatory & NRA approval)	**Final draft (no changes due to consultation required)**
A-2	Additional Properties of Frequency Containment Reserves according to Article 118(b) SO GL (optional & NRA approval)	**Draft being finalized (based on comments)**
A-3	Frequency quality parameters according to Article 118(c) SO GL (optional & NRA approval)	**No draft (optional article)**
A-4	If applicable, for synchronous areas other than CE, limits for the exchange of FCR between the TSOs according to Article 118(t) SO GL (optional & NRA approval)	**No draft (optional article)**
A-5	Limits on the amount of Exchange and Sharing of FRR between Synchronous Areas according to Article 118(z) SO GL (mandatory & NRA approval)	**Final draft (no changes due to consultation required)**
A-6	Limits on the amount of Exchange and Sharing of RR between Synchronous Areas according to Article 118(aa) SO GL (mandatory & NRA approval)	**Final draft (no changes due to consultation required)**
A-7	Common proposal per synchronous area for the determination of LFC blocks in accordance with Article 141(2) (mandatory & NRA approval)	**RfA from ACER received and currently being processed**

Deep dive on article A-2

Stakeholder comments have been taken into account and paragraphs updated

- 3.1 - Acceptable activation delay and characteristic
  - Initial proposal: Acceptable activation delay (2s) and characteristic (at least linear)
  - Comments:
    - 2s and linear shape could be a problem for stand alone units and units operated on a centralized approach where communication needs some extra-time (→5 seconds proposed)
    - How to be checked
  - Answers: since frequency fluctuates very fast a limits for reaction to deviations are essential; 5 seconds are not acceptable. Time is measured between occurrence of a deviation and start of physical activation Check shall be made during prequalification.
  - Updated proposal: " If the delay in initial activation of active power frequency response is greater than two seconds and/or the activation of active power frequency response cannot be linearly or quicker, the power generating facility owner shall provide technical evidence demonstrating why a longer time is needed".

Deep dive on article A-2

Stakeholder comments have been taken into account and paragraphs updated

- 3.2 - Frequency ranges within which the FCR providing have to stay connected to the grid
  - Initial proposal: FCR providing have to stay connected to the grid (47,5-51,5 Hz) at least for a limited period of time
  - Comments:
    - Application of RfG not acceptable - existing units cannot fulfil and will have to be excluded from the market
  - Answer: Text of SOGL 154, 6.: "*Each FCR providing unit and each FCR providing group shall comply with…. They shall be capable of activating FCR within the frequency ranges specified in Article 13(1) of Regulation (EU) 2016/631*"
    It already requires the frequency ranges given in RfG. Nevertheless it is up to the TSO to decide upon the time periods

    --> thus, the current formulation is now completely consistent with SOGL.

    --> for new units, according to the requirements of RFG adapted time periods could be defined.
  - Updated proposal: "Each TSO shall ensure that each FCR providing unit stays connected to the grid within the frequency ranges of 47,5 to 51,5 Hz for time periods specified by the TSO taking into account the technical boundary conditions of the respective FCR providing units or FCR providing groups and shall consider possible under frequency load shedding actions of the relevant system operators which might include also FCR providing units."

Deep dive on article A-2

Stakeholder comments have been taken into account and paragraphs updated

- 3.3 - Requirements for FCR providing units/modules/groups with limited energy reservoir in particular if they are operated completely separated (“stand alone”) from not limited units
  - Initial proposal: energy-to-power-ration of 1.25:1, specific operation mode for inverter-connected units
  - Comments:
    - Energy-to-power-ratio 1,25:1 too strict; lack of individual solutions
    - Last years frequency shows no necessity of such requirements
  - Answer: FCR is a reserve of last resort and is therefore kind of an insurance; because of no critical events in the near past)
    Nevertheless the fulfilment of the 200 mHz for 15/30 minutes rule could be left to the provider
  - Updated proposal:
    - Change of the term “SOC management” to “energy reservoir management”
    - “The FCR provider shall ensure that FCR providing units or FCR providing groups with limited energy reservoir in stand-alone operation ensure that the energy–to-power-ratio is sufficient to cover a Δf of 200 mHz for at least [30] minutes in positive and negative direction by additionally taking into account possible frequency deviations that might happen before entering into Alert State”

Deep dive on article A-2

Stakeholder comments have been taken into account and paragraphs updated

- 3.4 - Limits for centralization of frequency measurement
  - Initial proposal: In case of regional disturbances, system split or communication problems separate frequency measurements for every geographical area behind a connection point to the voltage level of 110 kV and above shall be used and the autonomous activation of FCR shall still be possible
  - Comments: to strict, too expensive; would be a problem for aggregators with distributed units
  - Answer: limits are needed to avoid sudden loss of too many units due to a loss of communication or measurement and to keep the relation between network area and connected units. Some degree of autonomous reaction is absolutely necessary
  - Updated proposal (discussion ongoing): "Where centralized control of FCR providing units or FCR providing groups is applied each TSO shall ensure, that in for the case of regional disturbances, system split or communication problems the distance between the FCR providing units or FCR providing groups and a central frequency measurement of the FCR provider does not exceed 100 km and full redundancy of frequency measurement and communication is guaranteed. In addition the total FCR operated by means of a single central frequency measurement shall not exceed 150 MW. "

Deep dive on article A-2

Stakeholder comments have been taken into account and paragraphs updated

- 3.5 - Continuing activation of FCR also at frequency deviations
  - Initial proposal: Continuing activation of FCR also at frequency deviation above 200 mHz
  - Comments: is out of scope; should be a separate service
  - Updated proposal: . Still being formulated.

Update on CGM-related methodologies

Progress update: Common Grid Model Methodology

- **CGMM-v1-plus (pursuant to Regulation 2015/1222): approved**
- **CGMM-v2 (pursuant to Regulation 2016/1719):**
  - Amended CGMM-v2 ("CGMM-v2-plus") approved by "all TSOs"
  - As of 2018-06-05, all TSOs except one had submitted the document to their NRA
  - Indication with respect to NRAs' stance expected from ERF meeting on 06 June 2018
- **CGMM-v3 (pursuant to Regulation 2017/1485)**
  - All TSOs have submitted the CGMM-v3 to their NRA; last submission on 21 March 2018
  - Decision expected by 21 September 2018
  - Indications are that, for the time being, NRAs have no concerns about the CGMM-v3

==> Drafting team hopes and expects that by October 2018 the CGM methodology framework will be in force for all time frames

Progress update: Common Grid Model Methodology

- NRAs had earlier indicated that if and when the framework is complete, consolidation of the three CGMMs (and the two GLDPMs) should be envisaged

- The consolidated versions should ideally be legally binding and replace the three existing documents

- The drafting team is standing by to move forward with the consolidation process when the NRAs give the green light

ENTSO-E Project
TSOs Coordination Implementation with RSCs
"RSC Project"

Flashback I/III

Summer 2008: CORESO & TSC founded to help TSOs cope with challenges identified after UCTE system-split 04.11.2006

November 2014: ENTSO-E designs the TSOs‘ coordination strategy with „Regional Security Coordination Initiatives“:

- Answer the challenges of European electric power sector transformation by higher level of TSOs‘ operational coordination
- Mandatory participation of all TSOs in RSCs
- European harmonised operational planning framework
- Security, efficiency, reliability


ENTSO-E POLICY PAPER
FUTURE TSO COORDINATION FOR EUROPE
November 2014

1 KEY POINTS

TSOs within ENTSO-E have decided to implement and enforce a higher level of coordination among the TSOs for operating the European transmission system, as an answer to the challenge of the transformation of the European electricity system.

ENTSO-E's approach is based on an all-TSOs Multilateral Agreement to be developed in 2015, making participation in Regional Security Coordination Initiatives (RSCIs) mandatory for interconnected TSOs.

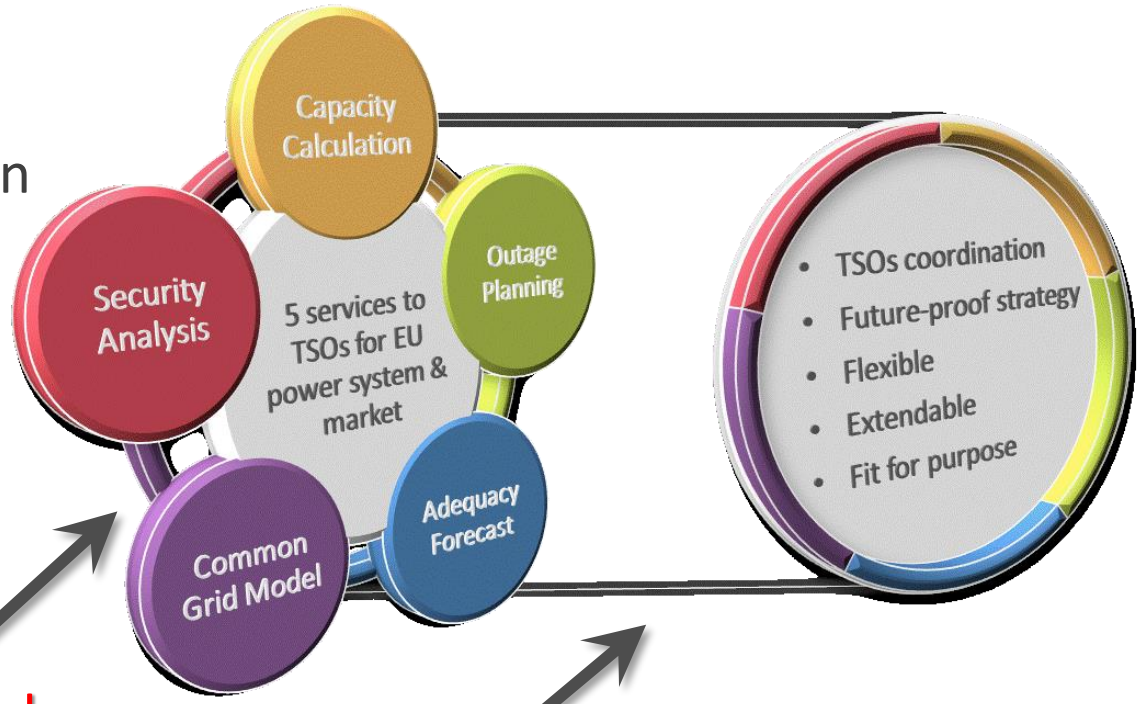
This agreement together with the network codes will create a Europe-wide harmonised power system operation framework with cross-regional and pan-European geographical coverage, setting up the fastest, most efficient, secure and reliable way to ensure the highest security of electricity supply standards in Europe.

Flashback II/III

April 2015: ENTSO-E Project TSOs Coordination Strategy Implementation with RSCIs is established

Goals and reasoning behind:

- Complement operational rules with an **all-TSOs Multilateral Agreement**
- Facilitate **implementation and rollout of standard services provided to TSOs by RSCs throughout Europe**



December 2015: All-TSOs **Multilateral Agreement** signed (www.entsoe.eu)

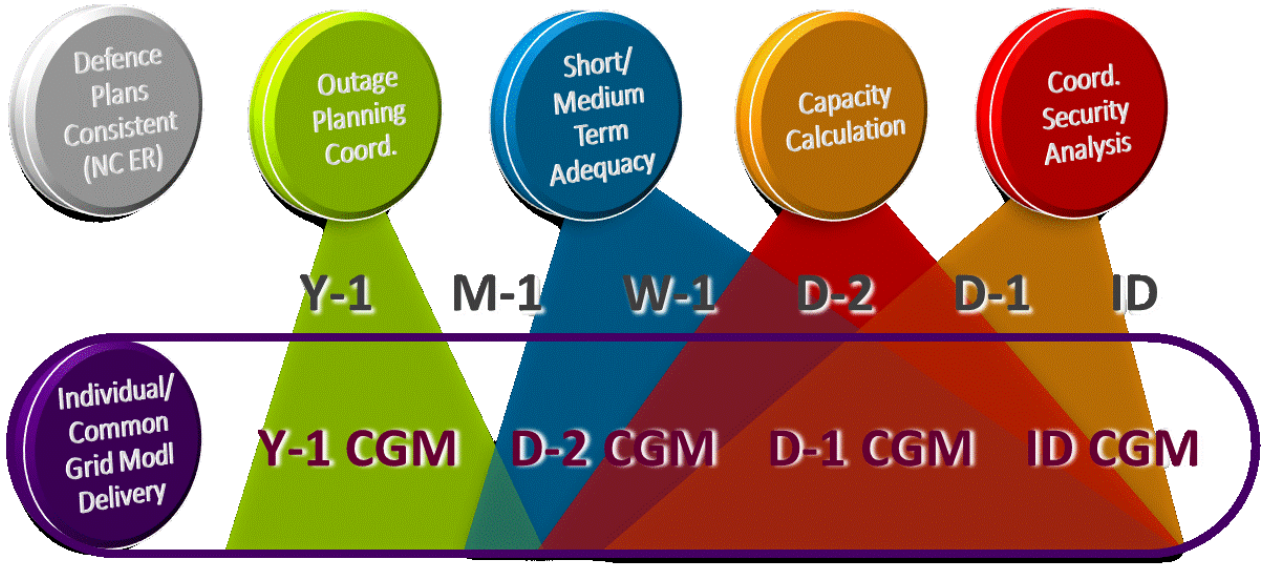
CGMES = Common Grid Model Exchange Standard
OPDE = Operational Planning Data Environment
ATOM = All TSO network for Operational and Market-Operations related data exchanges
SMTA = Short-Medium Term Adequacy forecast
OPC = Outage Planning Coordination

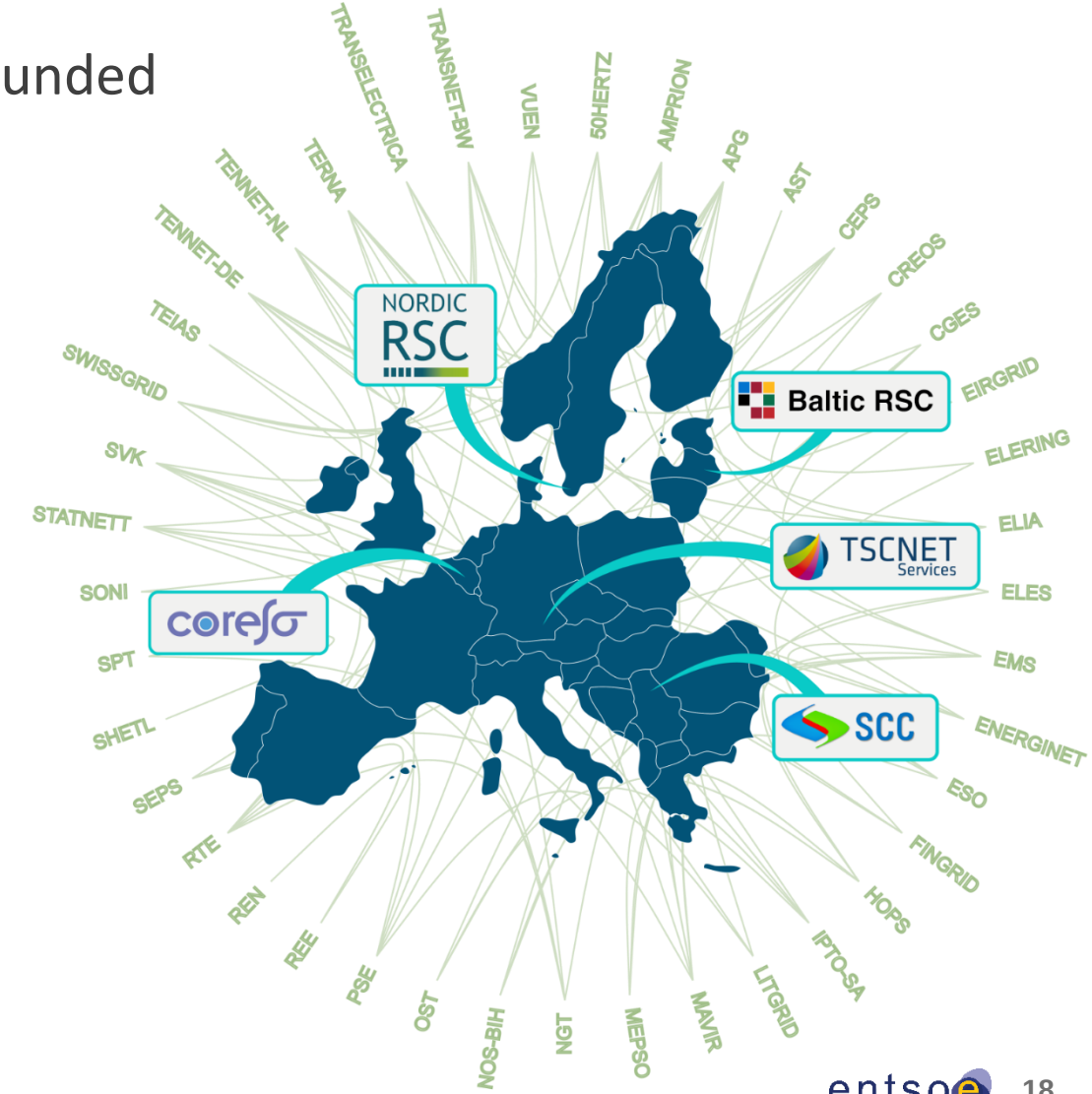
Flashback III/III

2016: Nordic, Baltic and SEE (SCC) RSCs founded

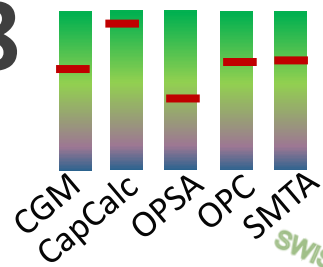
- ENTSO-E CGMES Programme + OPDE + ATOM
- Field-trials of SMTA and OPC

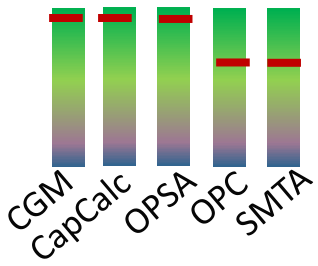
09&12 2017: SO GL & NC ER, RSCs are legally binding

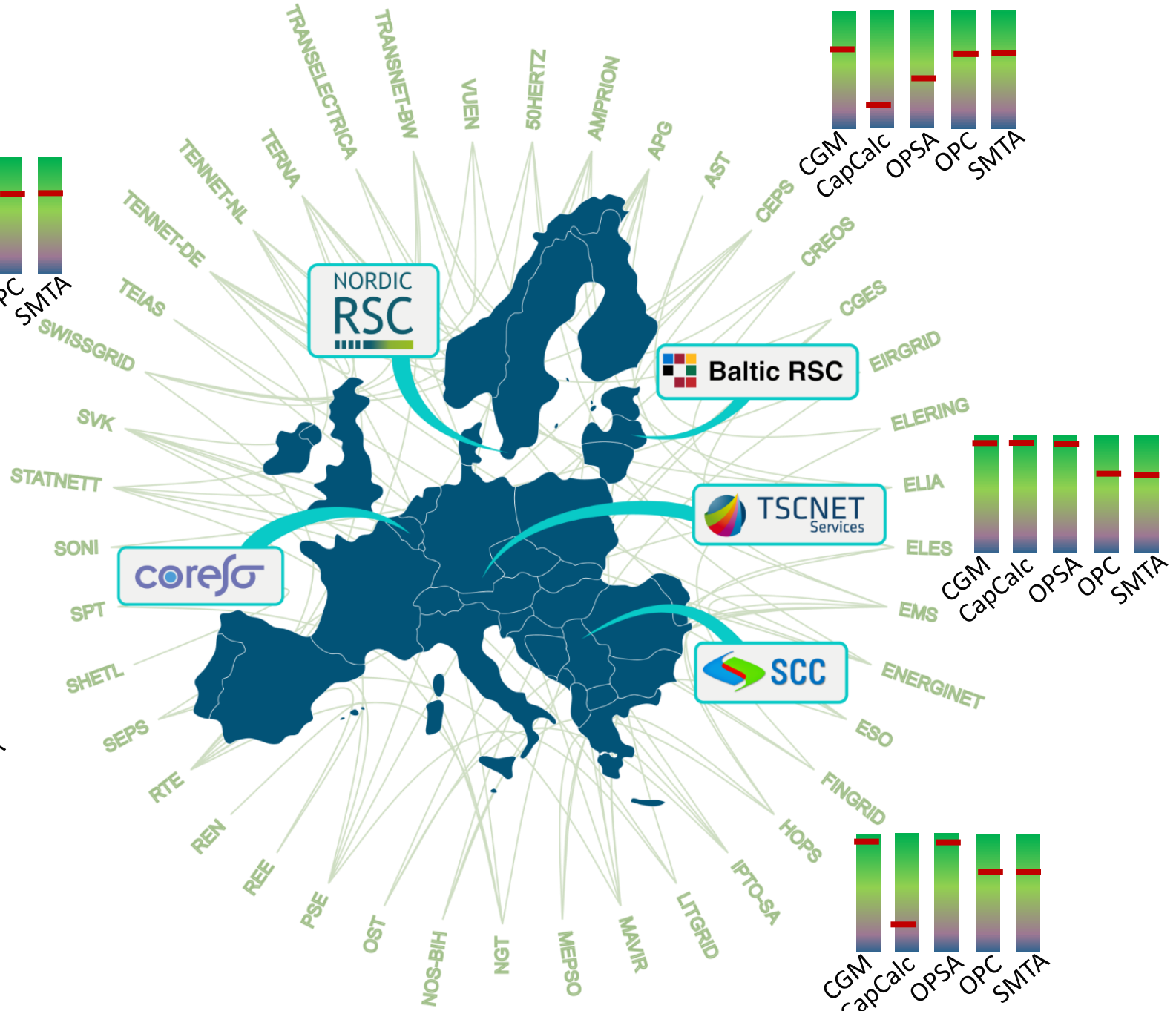




Status I/II 06/2018







CGM = Individual/Common Grid Model delivery
CapCalc = Capacity Calculation
OPSA = Operational Planning Security Analysis

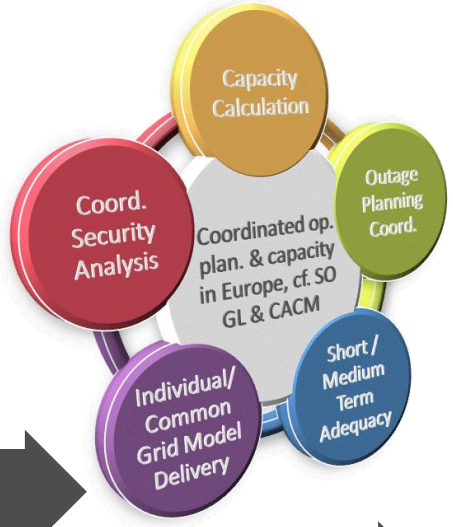
Status II/II

- All 5 European RSCs are established and operational
- European common grid model format (UCTE DEF) migration to CGMES
- Advanced OPC and SMTA field-trials with go-live 01/2018 of more frequent analyses and detailed functinality
- Stepwise rollout and implementation of all services + inter-RSC cooperation agreements according to Regulation (EU) 2017/1485 (SO GL)
- Completion of methodologies envisaged mid-end 2019
- Completion of implementation with rollout of all services 2020/2021

Prospects

2016 | 2018 | 2020 | 2022 and beyond

- CORESO (2008)
- TSC (2008)
- SCC (2015)
- Baltic RSC (2016)
- Nordic RSC (2016)



RSCs established

RSCs operational with all services

Full NCs & Guidelines implementation completed

Strengthening of policy cooperation between member states / regulators (“CEP”)

Enhanced Regional coordination of TSOs

Implementation & operation

RSCs assessed tasks
Other Service providers

TSOs

Other parties

Member States

NRAs

Improved framework at regional or Eu level