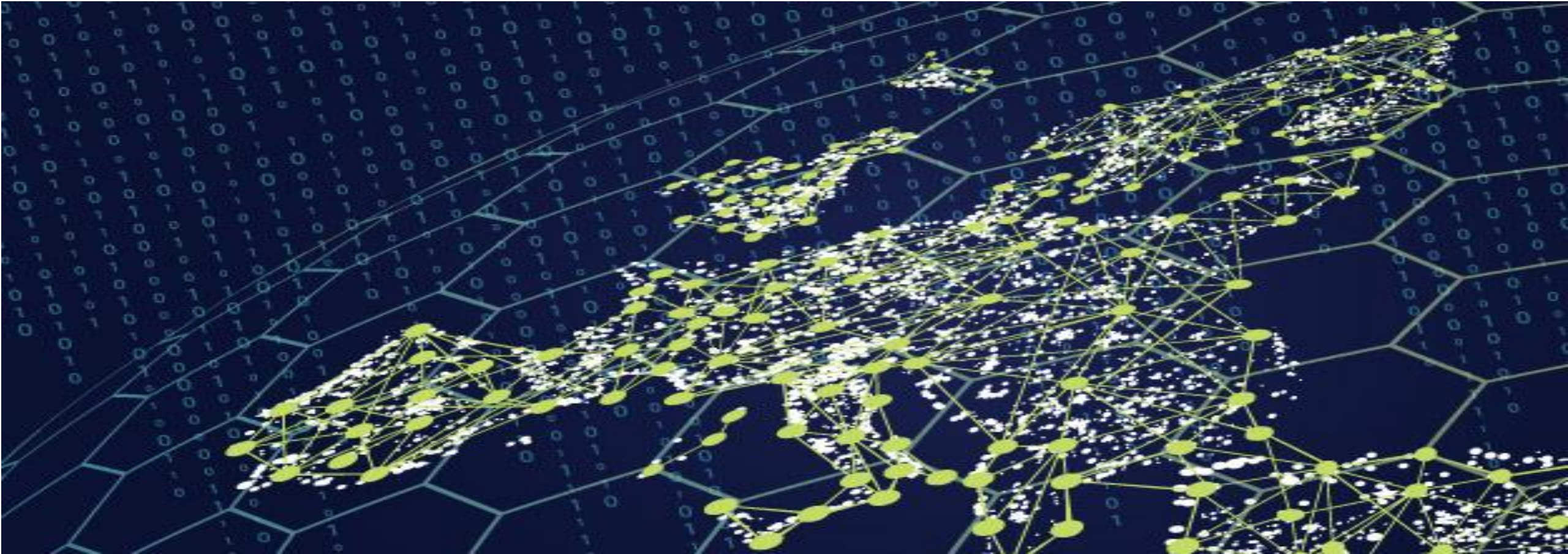# Status of Implementation of CGM Methodology and Regional Services
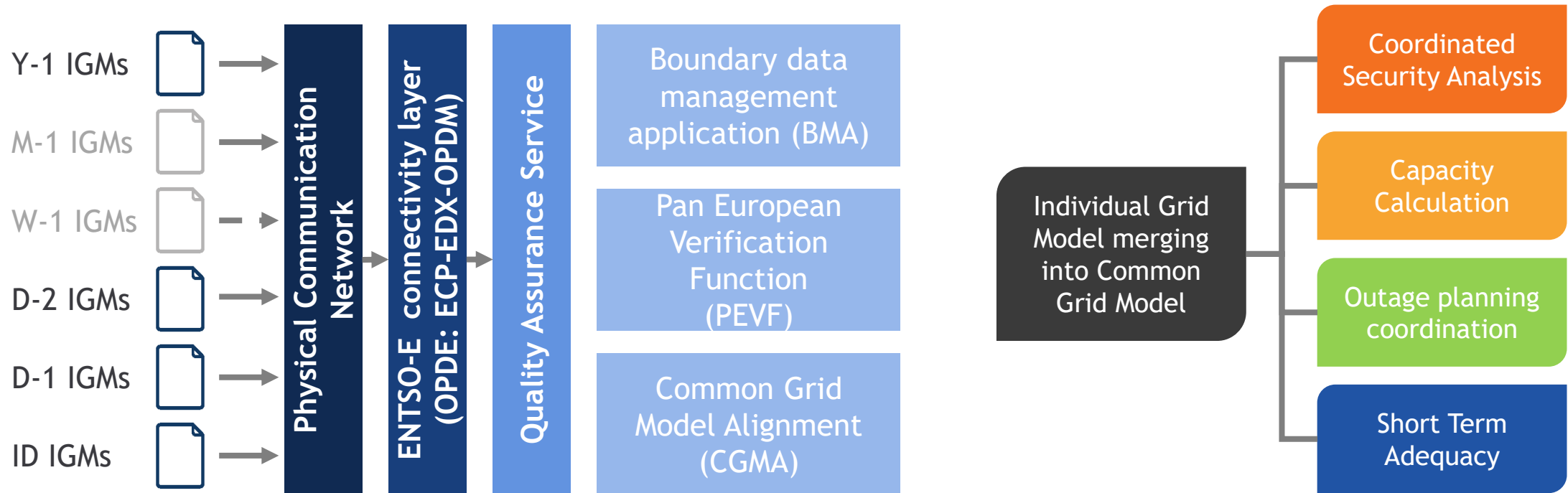
SO European Stakeholder Committee Webinar, 16 September 2020

Context and Key Principles

- **The CGM Programme,** under ENTSO-E**,** is tasked with <u>delivery of CGMs</u> under various Network Codes (i.e. CACM, FCA, SOGL).

- The TSOs in each **Capacity Calculation Region (CCR)** are responsible for specifying and implementing the Capacity Calculation Service in alignment with the relevant National Regulatory Authorities (NRA).

- The CGM Programme is managed by TSOs under ENTSO-E governance arrangements.

- The Services for each CCR are delivered under regional implementation projects i.e. by TSOs under regional governance arrangements overseen by relevant NRAs.

- For the purpose of the request to provide an update on status of implementation of the Methodologies, we have developed a **high-level 'picture'** as to:
  - The timeline of ENTSO-E's CGM Programme in the context of the implementation of each (Regional) Service
  - The scope of ENTSO-E's CGM Programme enable the Services under separate Methodologies to be implemented.

- **Note that questions at a specific CCR level will need to be addressed directly to the relevant CCR project team.**

CGM Programme and dependent Services

Y-1 IGMs → [document]
M-1 IGMs → [document]
W-1 IGMs ⇢ [document]
D-2 IGMs → [document]
D-1 IGMs → [document]
ID IGMs → [document]

Physical Communication Network

ENTSO-E connectivity layer (OPDE: ECP-EDX-OPDM)

Quality Assurance Service

Boundary data management application (BMA)

Pan European Verification Function (PEVF)

Common Grid Model Alignment (CGMA)

Individual Grid Model merging into Common Grid Model

- Coordinated Security Analysis
- Capacity Calculation
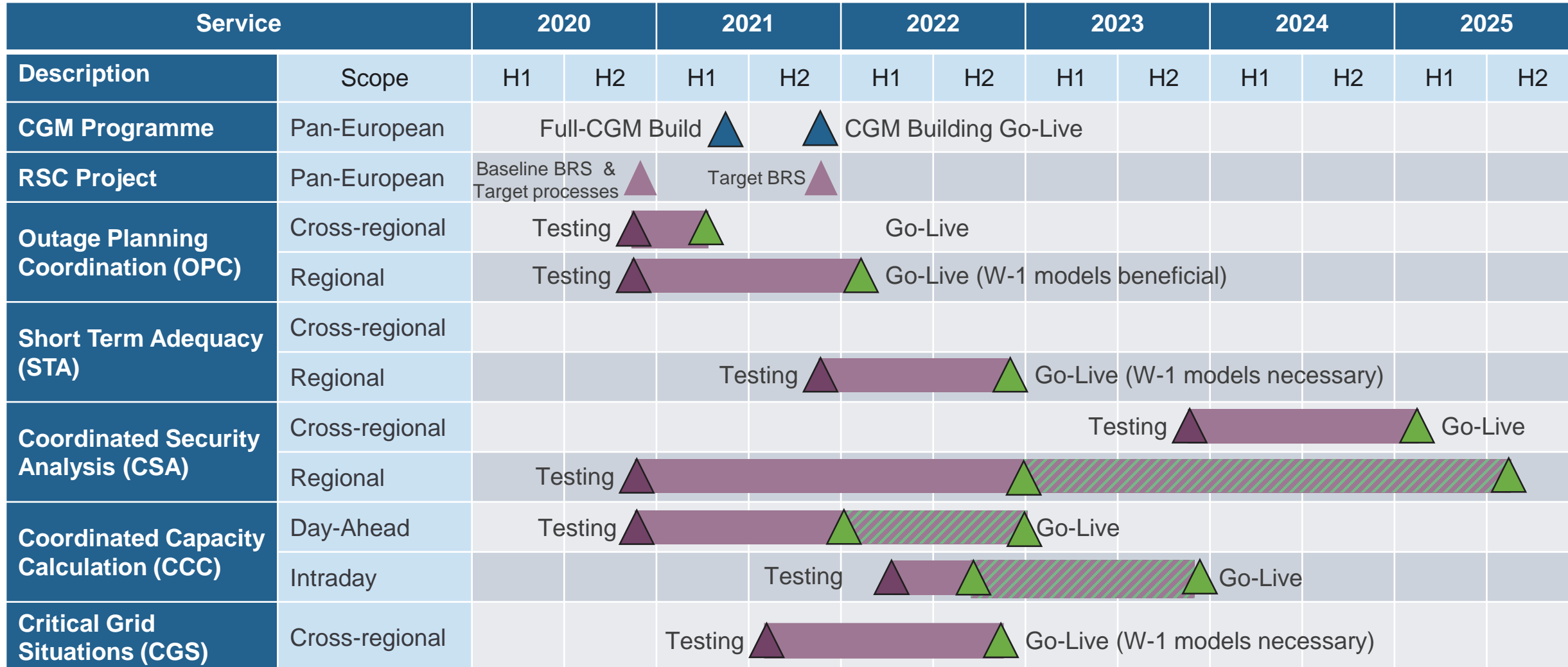- Outage planning coordination
- Short Term Adequacy

TSOs
ENTSO-E
RSCs

Integration of CGM Programme, TSOs and RSCs is key for an integrated system for a more secure, cleaner and cost efficient European energy market

Indicative implementation windows for CGM and Services

Info provided: Timelines for service provision using Common Grid Model Exchange Standard (CGMES) and data exchange via OPDE
Date: 19/05/2020 **Note:** Not all CCRs are reflected.

Service		2020		2021		2022		2023		2024		2025	
Description	Scope	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
CGM Programme	Pan-European	Full-CGM Build ▲		▲ CGM Building Go-Live									
RSC Project	Pan-European	Baseline BRS & Target processes ▲		Target BRS ▲									
Outage Planning Coordination (OPC)	Cross-regional	Testing ▲	▲		Go-Live								
	Regional	Testing ▲			▲ Go-Live (W-1 models beneficial)								
Short Term Adequacy (STA)	Cross-regional												
	Regional			Testing ▲		▲ Go-Live (W-1 models necessary)							
Coordinated Security Analysis (CSA)	Cross-regional								Testing ▲			▲ Go-Live	
	Regional	Testing ▲						▲					▲
Coordinated Capacity Calculation (CCC)	Day-Ahead	Testing ▲			▲		▲ Go-Live						
	Intraday		Testing ▲		▲	▲ Go-Live							
Critical Grid Situations (CGS)	Cross-regional		Testing ▲		▲ Go-Live (W-1 models necessary)								

▲ Planned start of testing   ▲ Planned Go-Live (first and last)

▬ Indication of Testing period   ▨ Indication of Go-live "window"

Source: CGM-RSC User Group under the RSC Project in SOC after liaison with CCRs

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Scope for the service execution based on the CGM Build Process

Capacity Calculation (CCC) applicable to all Capacity Calculation Regions (CCR)

Coordinated Security Analysis (CSA)[1]

Outage Planning Coordination (OPC)

- X-Regional
- Regional

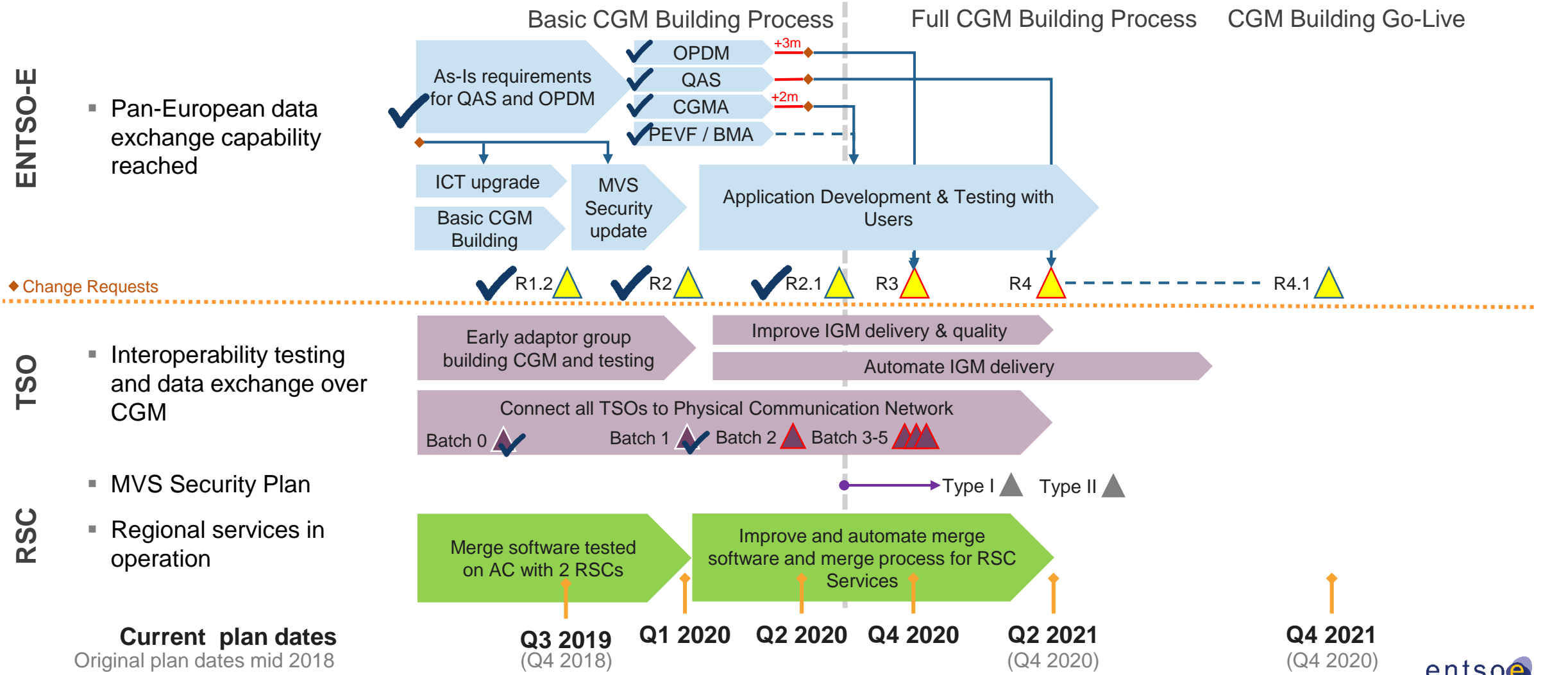Short Term Adequacy Forecast (STA)

- X-Regional
- Regional

> **The scope of CGM Build Process allows operation of most RSC services with applied mitigations. For full-extent service provisions W-1 models and full utilization of OPDE (e.g. exchange / storage of service-related data) are required.**

No impact | Workaround is possible to not delay the go-live according to the planning | Impact

(1) Indication related to CSA Service status is given under the assumption that OPDE will be fully utilized for the purpose of CCC Service before applying a similar solution for CSA Service.

Source: CGM-RSC User Group under the RSC Project in SOC

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Overall CGM Programme plan

Programme ... | **Implementation of Basic CGM building** | **Implementation of full CGM Building** | **Trial-run** | **Operation**

Basic CGM Building Process | Full CGM Building Process | CGM Building Go-Live

ENTSO-E

- Pan-European data exchange capability reached

As-Is requirements for QAS and OPDM

OPDM +3m
QAS
CGMA +2m
PEVF / BMA

ICT upgrade
Basic CGM Building

MVS Security update

Application Development & Testing with Users

◆ Change Requests

R1.2 ▲ R2 ▲ R2.1 ▲ R3 ▲ R4 ▲ ---- R4.1 ▲

TSO

- Interoperability testing and data exchange over CGM

Early adaptor group building CGM and testing

Improve IGM delivery & quality

Automate IGM delivery

Connect all TSOs to Physical Communication Network

Batch 0 ✔ Batch 1 ✔ Batch 2 ▲ Batch 3-5 ▲▲▲

- MVS Security Plan

Type I ▲ Type II ▲

RSC

- Regional services in operation

Merge software tested on AC with 2 RSCs

Improve and automate merge software and merge process for RSC Services

Current plan dates
Original plan dates mid 2018

Q3 2019
(Q4 2018)

Q1 2020

Q2 2020

Q4 2020

Q2 2021
(Q4 2020)

Q4 2021
(Q4 2020)

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QAS: Quality Assessment Service | OPDM: Operational Planning Data Management | PEVF: Pan-European Verification Function | CGMA: CGM Alignment | BMA: Boundary Management Application

CGM Business Test

CGM Solution Delivery has defined different tests, to ensure that the CGM process and functionalities will be delivered and working as expected.

Test	Description
1 **Basic CGM Build Process Test**	**The Basic CGM Build Process tests the basic business process and its related software applications. The test shows if the overall process is working within its expected process times and if the data is delivered, merged and processed as required. The Basic CGM Build Process shows the status of the maturity of all software applications and stakeholders.**
2 **Non-functional requirements test**	**The non-functional requirements tests will ensure that the OPDE platform is capable to fulfil the quality and performance requirements, which have been defined in the Business Requirements specifications**
3 **User Acceptance Testing (UAT)**	**The UAT is a verification of the functionalities and requirements from a user point of view. In the context of the CGM Programme the intent of the UAT is to verify the delivered functionalities of new OPDE releases.**
4 **Interoperability Test (IOP)**	**The IOP is executed on a monthly basis by the Building Process Working Group on behalf of the Business Lead Manager. This monthly test aims at increasing the compliancy of TSOs' and RSCs' provisions with quality standards by providing detailed feedback.**

Note: Integration testing (e.g. Factory Acceptance Test, Site Acceptance Test) are not shown.

Backup

Foundation of the CGM Programme

▪ The CGM-Methodologies work package has successfully developed the relevant CGM methodologies over the past 3 years. These methodologies have been approved by regulators on the following dates:

CACM		FCA		SOGL	
CGMM v1 +	May 2017 (after amendment)	CGMM v2 +	July 2018 (after amendment)	CGMM v3	September 2018
GLDPM v1	January 2017	GLDPM v2	March 2018		

These methodologies provide the needed framework for CGM and have defined the following deadlines :

- **OPDE: Article 24(4) of CGMM v1+: "By [December 2017], the information platform referred to in Article 21 shall be operational.** All TSOs, all alignment agents, and all merging agents shall be connected to the information platform and shall be able to make use of all of its features as described in the present methodology."

- **CGM Process: Article 24(5) of CGMM v1+: "By [June 2018], all TSOs shall jointly ensure that the CGM process is operational** and available for use by coordinated capacity calculators."

Example of Capacity Calculation

- Pursuant to Article 20 (2) CACM, all TSOs in each Capacity Calculation Region (CCR) shall submit a proposal for a common **coordinated capacity calculation methodology** within the respective region

- Hence each **Capacity Calculation Region (CCR) has to determine standard** used for Capacity Calculation in the corresponding methodology.

- Most Capacity Calculation Methodology are **referring to the Common Grid Model Methodology** (Article 17 CACM):
  - All TSOs shall organize the process of merging the individual grid models via a information platform [Operational Planning Data Environment]
  - CGM process is operational and available for use by coordinated capacity calculators.

- Regional solutions in terms of standards and communication means are / will be deployed to operate Capacity Calculation prior to the implementation of the Common Grid Model Methodologies.