ACER
European Union Agency for the Cooperation of Energy Regulators

WORKSHOP

on rate of change of frequency and grid forming capabilities

Wednesday, 10.05.2023
09:30 - 16:00 (CET)
Ljubljana and online

www.acer.europa.eu

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Agenda

DRAFT AGENDA		
09.15 – 09.30	**Webinar open for log-in**	Starts promptly at 09.30
09.30 – 09.35	**Process on the grid connection network codes amendment** ACER	
09.35 – 09.55	**Rate of change of frequency and grid forming capabilities** ACER	
09.55 – 11.05	**EU associations' presentations:** - ENTSO-E - EU-DSO Entity - Expert Group Advanced Capabilities for Grids with High Shares of Power Park Modules - Eurelectric	
11.05 – 11.15	**Coffee break**	
11.15 – 13.00	**EU associations' presentations:** - EUTurbines - WindEurope - Cenelec - COGEN Europe - SolarPower Europe	
13.00 – 13.45	**Lunch break**	
13.45 – 15.55	**Q&A and discussion on the topics presented** Via MS Teams and in person	
15.55 - 16.00	**Closing Remarks** ACER	

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Housekeeping

Post your questions and comments in the chat box, optionally indicating your affiliation

Keep your microphone muted unless the chair gives you the floor

Substance-related questions will be moved to the Q&A session; minor queries will be tackled in the chat

Slides from this workshop are uploaded to ACER website

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Workshop materials

Workshop materials uploaded to ACER website:

- ACER workshop guide (slide deck)
- NC RfG draft amendments relevant to this workshop (PDF file)*
- Presentations of the interested European associations (PDF files)

* Draft amendments include some changes linked to other policy areas; these changes will be discussed during the dedicated workshops

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DISCLAIMER: The information set out in this slide deck and accompanying documents constitute preliminary views at the working level. The information contained in all public workshop documents are intended solely for the purpose of the discussion and are without prejudice to further communications.

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Public Workshop on GC NCs amendments
- RoCoF and grid forming capabilities

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Public Workshop

10 May – hybrid workshop in Ljubljana

ACER Indicative proposals for GC NCs amendments concerning rate of change of frequency (RoCoF) and grid forming capabilities

10 minute-long stakeholders presentations

2 weeks following the workshop for the stakeholders to provide additional input and/or discuss with ACER drafting Project Group: ACER-ELE-2022-015@acer.europa.eu

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Process on the grid connection network codes amendment

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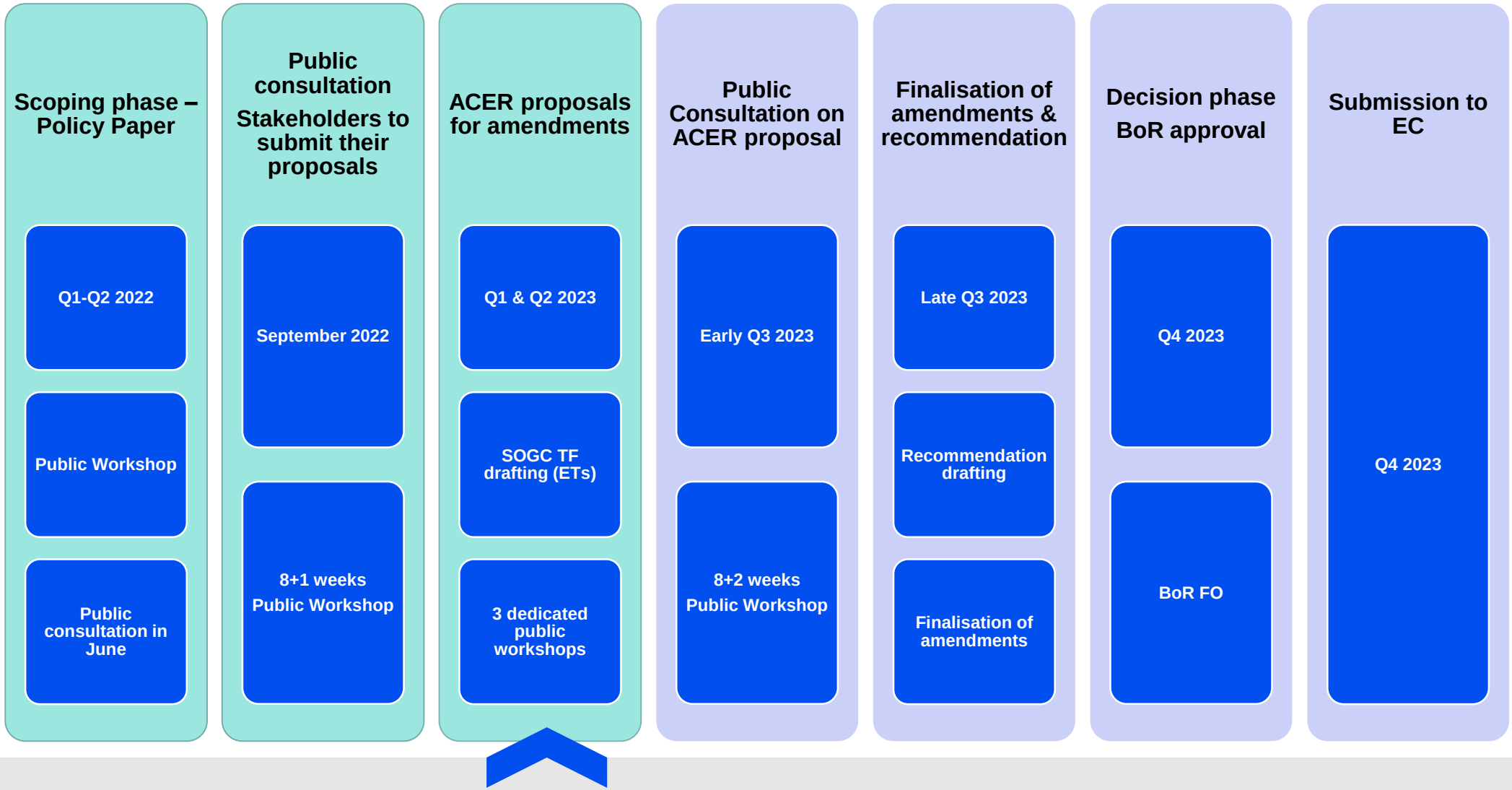
CNC - amendment process



Public consultation on ACER draft proposal

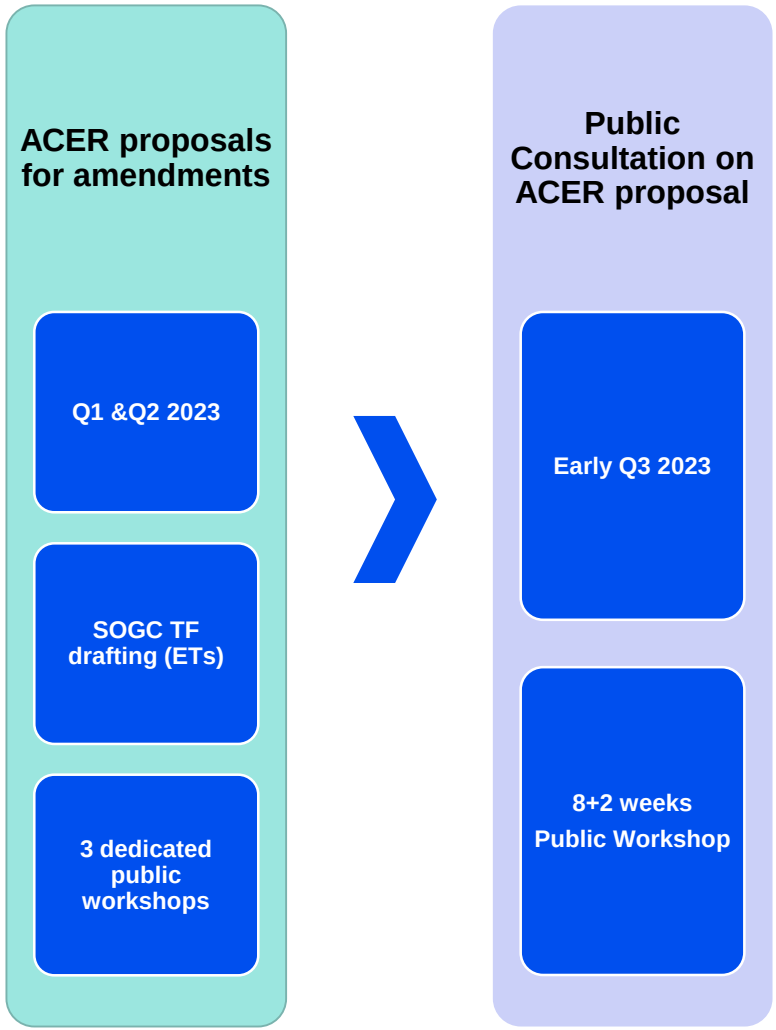
28.3.2023

Registration is open for ACER's 3 workshops related to the electricity grid connection network codes

- **17 April 2023** – electromobility, power-to-gas demand units and heat-pumps
- **11 May 2023** – technical requirements for electricity storage

Register to public workshops:
https://acer.europa.eu/news-and-events/news/registration-open-acers-3-workshops-related-electricity-grid-connection-network-codes

Public consultation on ACER draft proposal



- **10-week** long public consultation
- Planned for early Q3 2023
- Stakeholders to comment on ACER draft amendment proposals
- In the course of public consultation, ACER will organise **public workshop** to present key proposals

NC RfG

NC DC

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ACER preliminary views
on grid forming capabilities

Nawid Sadighi

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System Operators´ Roles

TSOs

- Specifications of non-exhaustive grid forming requirements
- Coordination with RSOs

RSOs

- Requesting the activation of grid forming mode
  - subject to connection agreement
  - subject to formal and substantive conditions determined on national level

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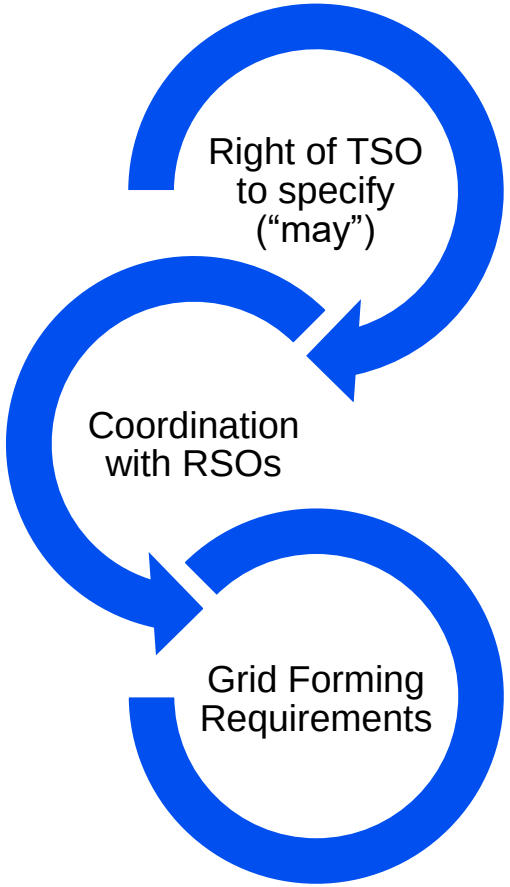
Procedure for Type A



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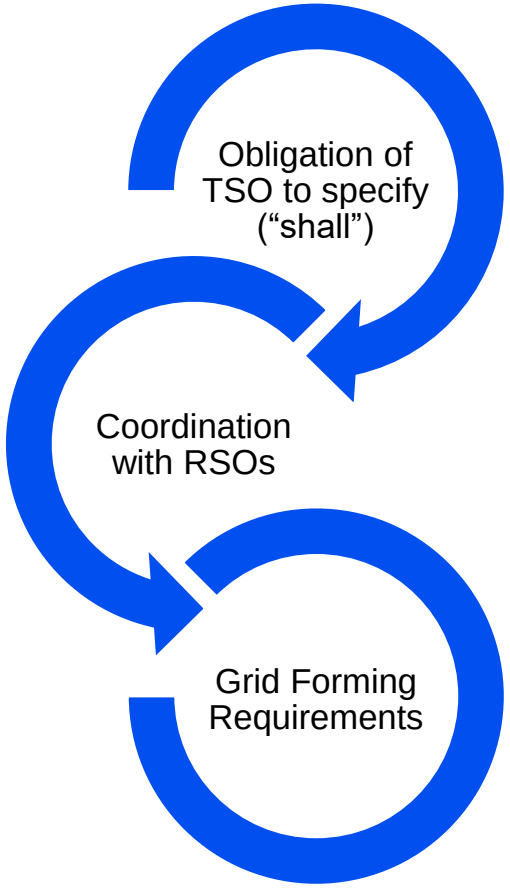
Procedure for Type B, C & D



Intertemporal Law Concepts

Grace Period

(Current Article 72 of NC RfG)

Aim: Grant time to PG facility owners to adapt to new requirements

Means: Determination of a date of application of new requirements sufficiently long after the entry into force of RfG 2.0.

Consequence: PGMs are obliged to comply with RfG after grace period has elapsed!

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Intertemporal Law Concepts

Grandfathering

Aim: Protection of legitimate interest of PG facility owners to preserve their established status quo permanently

Means: Keep their predefined status quo, i.e. connection to grid already before entry into force of RfG 2.0. or purchase of main plant of PPM within 2 years after entry into force of RfG 2.0., out of scope of the RfG 2.0.

Consequence: No obligation to comply with RfG ever! No retrofitting!

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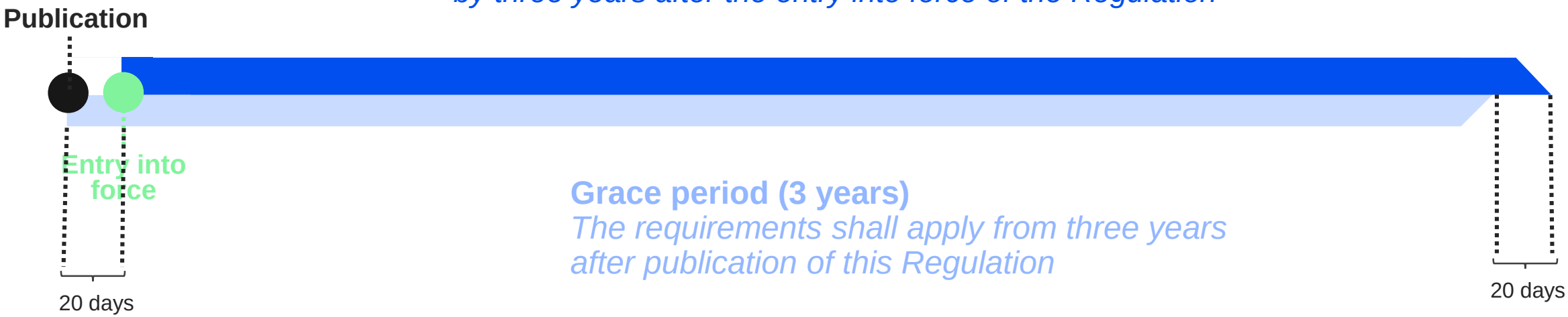
Draft Intertemporal Provisions in RfG 2.0

- Grandfathering via Article 4(2) RfG for all requirements except grid forming: 2 Years
- Grandfathering via Article Y(7) RfG 2.0. for grid forming: 3 years
- Grace Period via Article 72 for all requirements: 3 years

Draft Intertemporal Provisions for Grid Forming Requirements in RfG 2.0

Grandfathering (3 years)

A PPM shall be considered existing if a final and binding contract for the purchase of the main generating plant has been concluded by three years after the entry into force of the Regulation



Adoption Provisions in RfG 1.0

Proposals submission (2 years) – Article 7(4)
RSO or TSO shall submit a proposal for requirements of general application, or the methodology used to calculate or establish them within two years of entry into force of this Regulation

Approval (6 months) – Article 7(6)
Competent entities shall take decisions on proposals for requirements or methodologies within six months

Grace period (3 years) – Article 72
The requirements shall apply from three years after publication of this Regulation

Draft Adoption Provisions for RfG 2.0

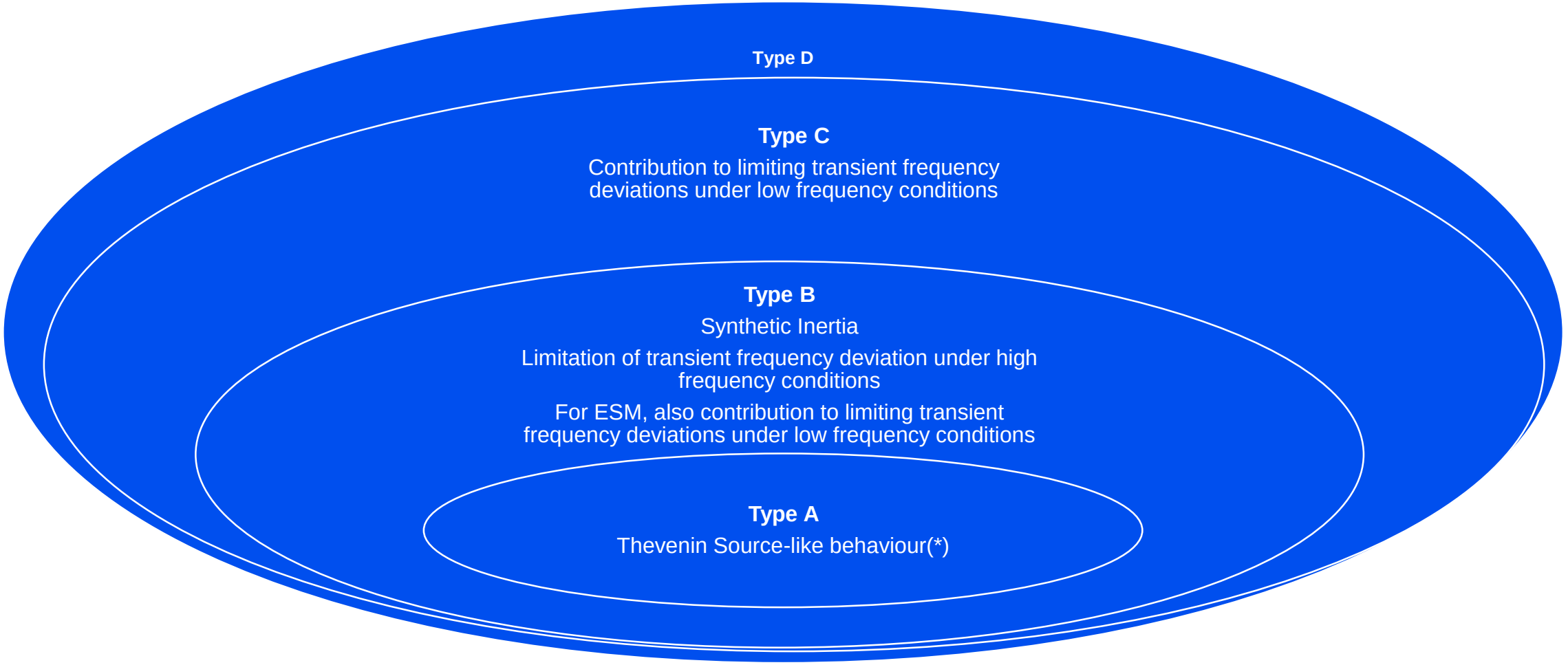
Proposals submission (2 years) – Article 7(4)
RSO or TSO shall submit a proposal for requirements of general application, or the methodology used to calculate or establish them within two years of entry into force of this Regulation

Approval (6 months) – Article 7(6)
Competent entities shall take decisions on proposals for requirements or methodologies within six months

Grace period (3 years) – Article 72
The requirements shall apply from three years after publication of this Regulation

Draft adoption provisions of RfG 2.0 remain as in RfG 1.0

Substantive Provisions



(*) the instantaneous AC voltage characteristics of the internal Thevenin source shall be capable of not changing its amplitude and voltage phase angle while voltage phase angle steps or voltage magnitude steps are occurring at the connection point.

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ACER preliminary views
on RoCoF withstand capability

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In the lack of a common proposal agreed between system operators and interested stakeholders, ACER presents a fall-back option. This option may be subject to changes.

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RoCoF withstand capability

Type A, B, C and D PPMs

Type A, B, C and D SPGMs
with Pmax < … MW*

Type D SPGMs
with Pmax ≥ … MW*

1) Staying connected to the network and operating at:

- ±4,0 Hz/s over a period of 0,25 s,
- ±2,0 Hz/s over a period of 0,5 s,
- ±1,5 Hz/s over a period of 1 s, and
- ±1,25 Hz/s over a period of 2 s;

2) Staying connected to the network and operating at the sequence defined by the frequency against time profiles

Staying connected to the network and operating at:

±1,0 Hz/s over a period of 0,5 s

** Pmax value is subject to discussion*

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Stakeholders' presentations

on RoCoF and grid forming capabilities

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Coffee break

11:05 – 11:15

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Stakeholders' presentations

on RoCoF and grid forming capabilities

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Lunch break

13:00 – 13:45

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Q&A session

Chaired by ACER | 13:45 – 15:55

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Closing remarks

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Thank you.
Any questions?

The contents of this document do not necessarily reflect the position or opinion of the Agency.

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info@acer.europa.eu
acer.europa.eu
@eu_acer
linkedin.com/company/EU-ACER/