

# Session 1.4 Flexibility Needs Assessment



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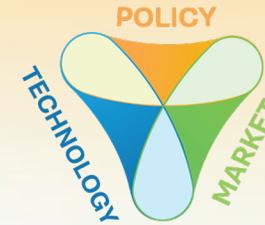


*Moderator:*

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# Session 1.4 Flexibility Needs Assessment



**ENERGY  
STORAGE**  
Global Conference  
Brussels, 14-16 October 2025

Christos Kolokathis

Team Leader on Flexibility & Resilience  
EU Agency for the Cooperation of Energy  
Regulators (ACER)



European Union Agency for the Cooperation  
of Energy Regulators

# The EMD reform puts increased focus on the integration of renewables

**EMD reform -- (EU) 2024/1747**

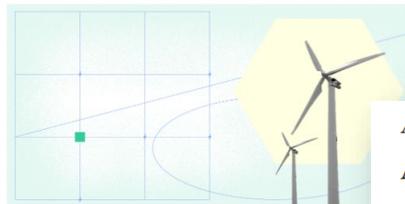
Better protection for consumers



More stability for companies



Increased green electricity



Article 19e  
Assessment of flexibility needs

## ACER EU-wide report

ACER's EU-wide report estimating flexibility needs

## Define targets

Member States define indicative national targets for non-fossil flexibility

## National flexibility assessment

Member States conduct a national flexibility needs assessment (FNA)

## Promote flexibility

Encourage the entry of non-fossil flexibility

## Submit FNA

Member States submit the national report to ACER and European Commission

## EU-wide flexibility methodology

ACER adopts the flexibility needs assessment methodology



# Different assessments have complementary roles and are intertwined

## Network development

Network development plans  
(NDPs/DNDPs)



## Security of Supply

Resource adequacy  
assessments (ERAA/NRAAs)



## Policy targets

National energy & climate  
plans (NECPs)

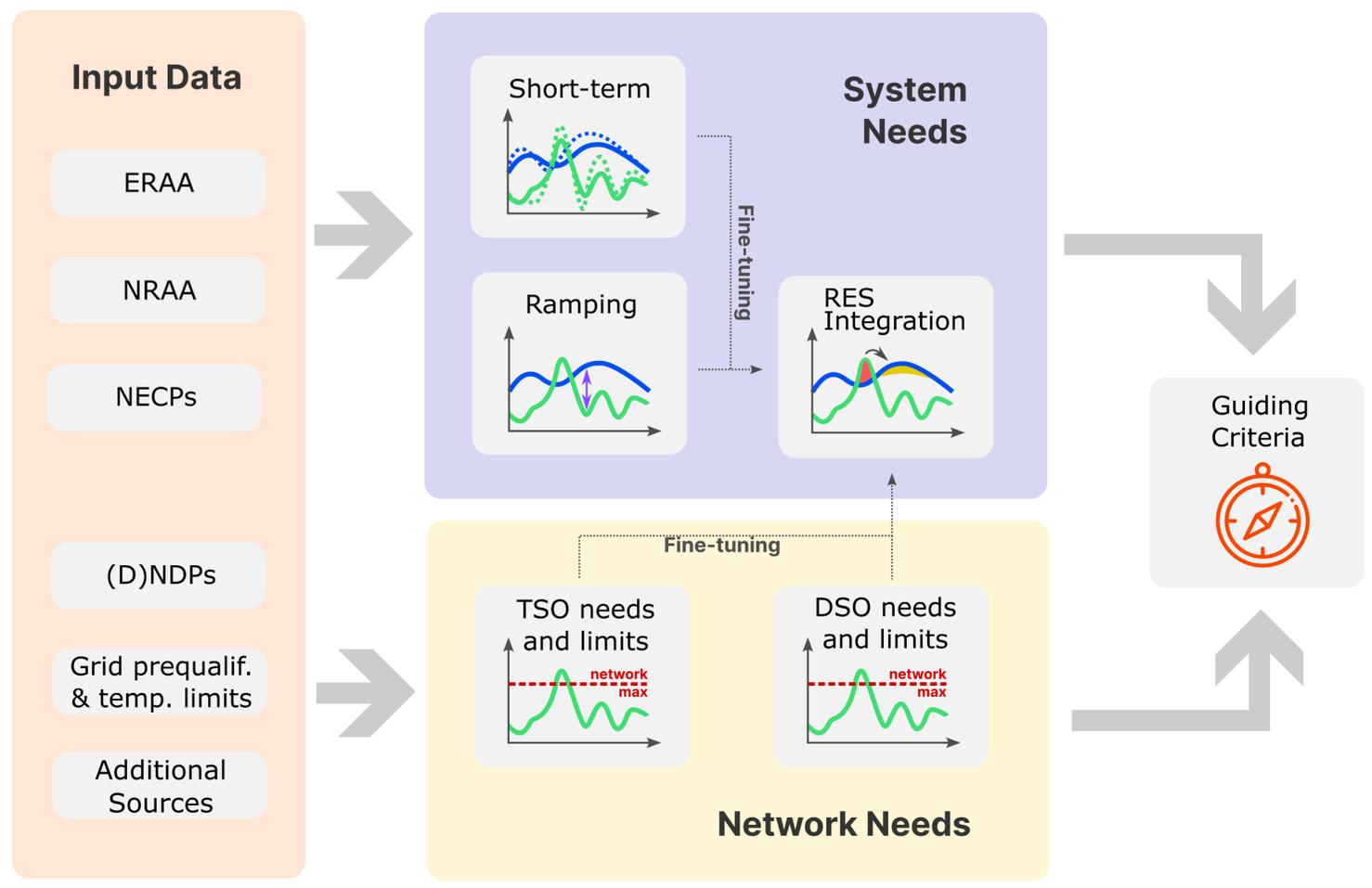


## Flexibility

Flexibility needs assessments  
(FNAs)



# Flexibility needs assessment architecture



# Flexibility assessments will address pertinent questions on the transition

## RES Integration Need

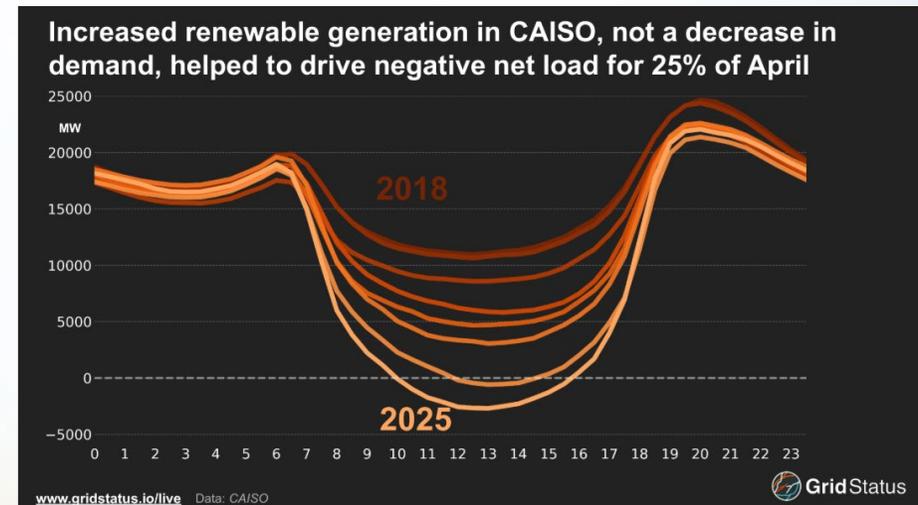
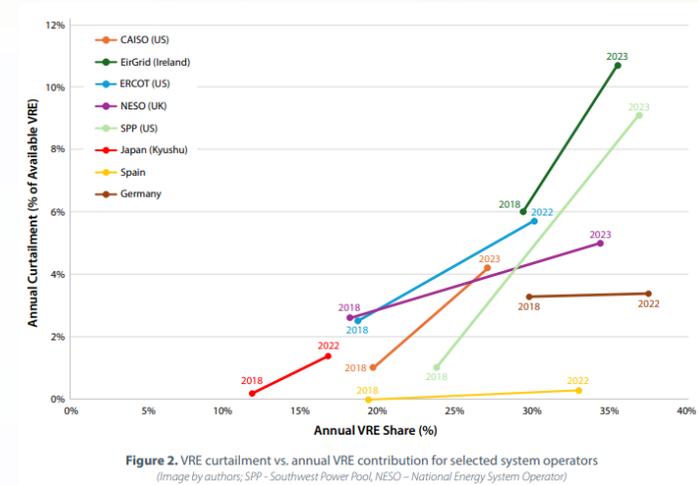
What is the flexibility needed to integrate more RES (**reduce curtailment**)?

## Ramping Need

What is the flexibility needed to cope with new **ramping needs**?

## Short-term Need

What is the flexibility needed to cope with RES/demand **forecast errors**?



# Guiding criteria: SOs to provide useful information to support policymaking

1

Characterisation of needs, interpretation of the results

Assess technical capability of different sources to meet flexibility needs

2



3

TSOs to analyse interdependencies among the needs

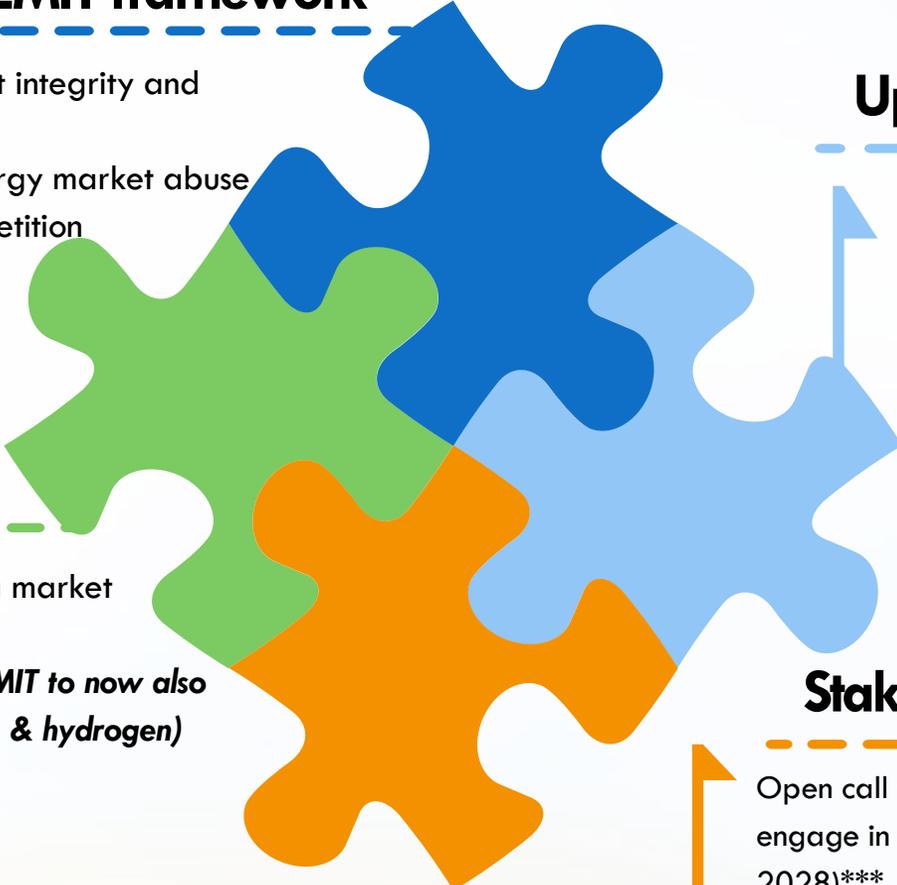
Possibility to assess other cost-effective solutions to meet goals

4

# REMIT and energy storage

[remit@acer.europa.eu](mailto:remit@acer.europa.eu)

## REMIT framework

- 
- Wholesale energy market integrity and transparency
  - Preventing wholesale energy market abuse and supporting fair competition

## Upcoming REMIT obligations...

### ...for energy storage market participants

- REMIT compliance, registration, data reporting...
- Upcoming revision of REMIT Implementing Regulation on data collection\*\* specifying details of reporting energy storage data under REMIT

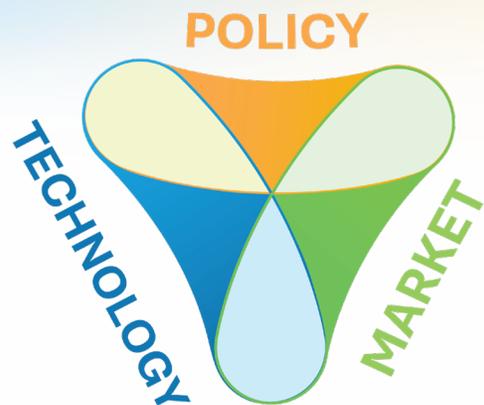
## Expanded REMIT scope

- Keeping pace with evolving market dynamics
- Expanding the scope of *REMIT to now also cover energy (electricity, gas & hydrogen) storage*

## Stakeholder engagement

Open call for the *European associations of energy market participants* to engage in stakeholder activities on REMIT implementation (2026-2028)\*\*\*

• \*Regulation 1227/2011 on Wholesale Energy Market Integrity and Transparency, as amended by Regulation (EU) 2024/1106 amending REMIT  
• \*\*European Commission – Have your say: <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14447-Wholesale-energy-markets-data-reporting-rules-revision-en>  
• \*\*\*More information and how to apply here: <https://www.acer.europa.eu/news/acer-invites-energy-market-associations-help-shape-remit-implementation>



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# THANK YOU!

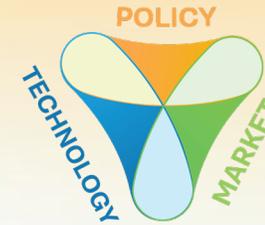


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Kristof De Vos

Manager Flexibility Studies

Elia Group



# Elia has built extensive experience with conducting flexibility studies



- Elia is integrating flexibility in its adequacy studies since 2016
- Focus on fast variations and prediction errors to complement adequacy studies
- Methods are improved and through several iterations and consultations

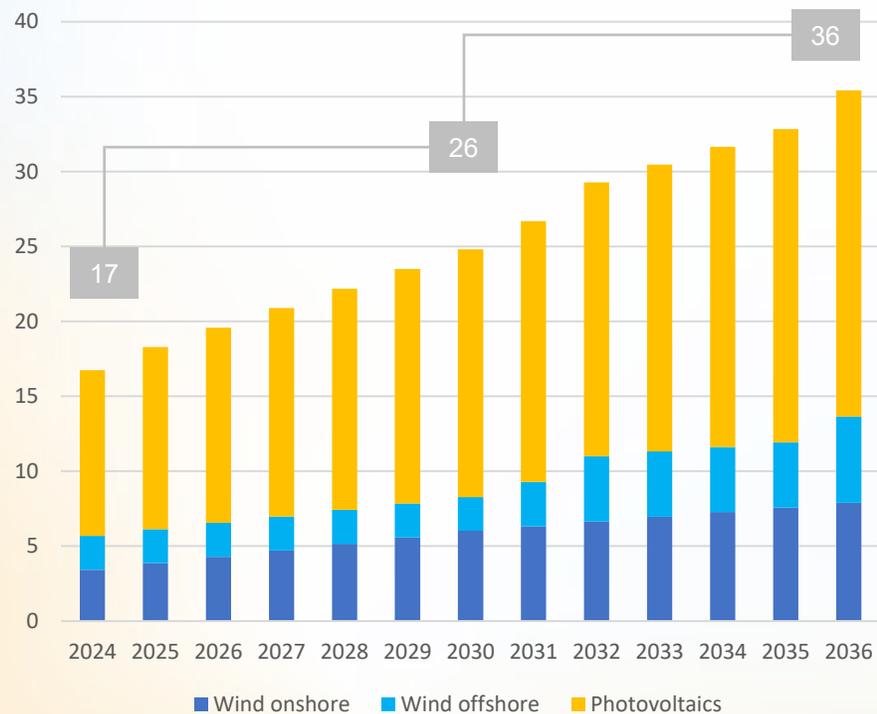
Allowed Elia to leverage experience in the development of the FNA method

# Flexibility needs assessments enable a better view on the challenge...

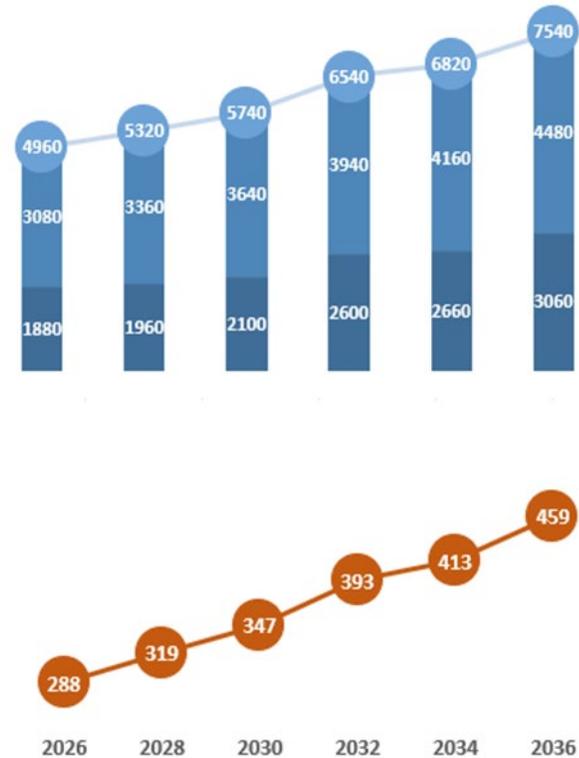
*Installed capacities of variable generation in Belgium will increase up to a multiple of its peak demand*

*These result in flexible needs to manage prediction errors of renewable capacity in intra-day and real-time. Without action, the share to be covered by the TSO through reserve capacity will increase proportionally.*

Belgium - Installed RES capacity [GW]



Upward needs - MW

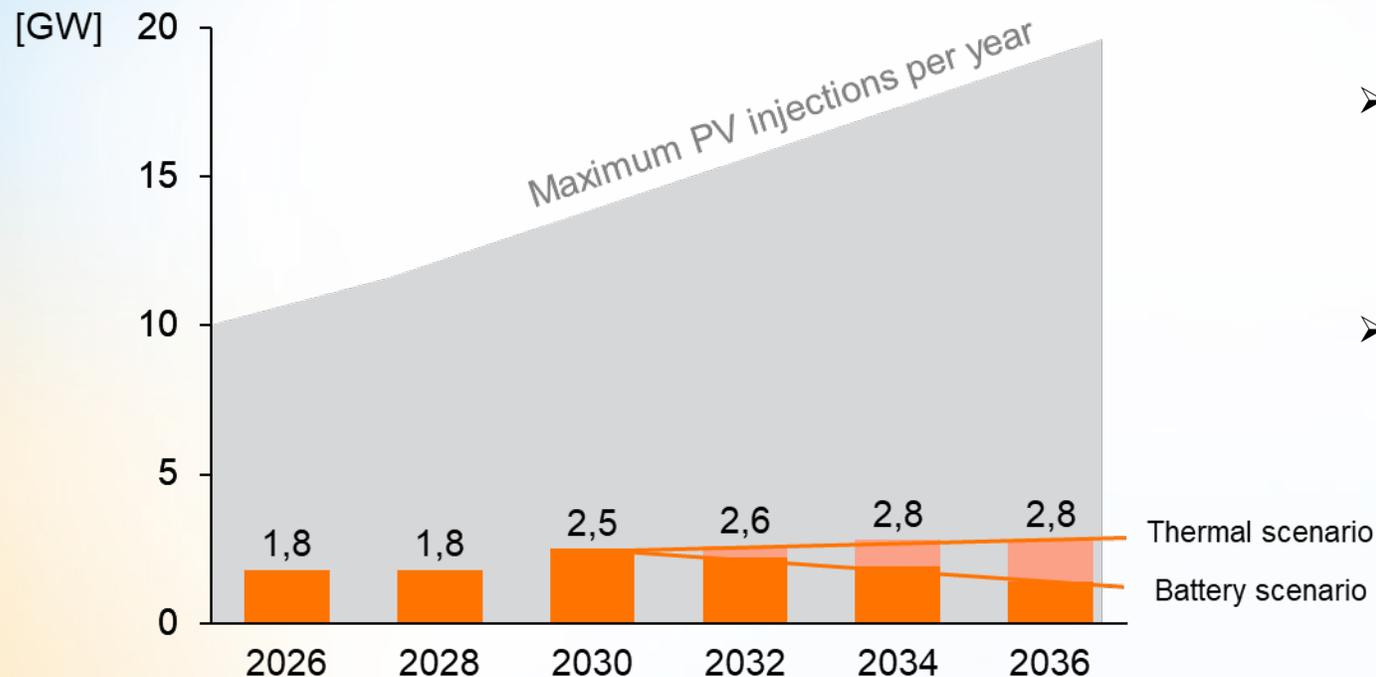


By 2036, the Belgian system will require

- **6 - 7 GW of flexibility** in the last hours before real time,
- of which **3 GW needs** to be able to react in the last quarter hours,
- and up to **0.5 GW needs** to react within 5 minutes.

# ...while creating opportunities to identify solutions to country-specific issues

Additional efforts needed on unlocking decentralized solar power or consumer flexibility to keep the system in balance during excess energy periods



➤ From **300 hours** (in 2026) towards **300-600 hours** (in 2036) with risks of not covering all flexibility needs

➤ An additional effort of **1,8 GW** (in 2026) to **2,5 GW** (in 2030) of decentralized solar power or consumer flexibility is needed to react in the market to manage system imbalances

*Results represent minimum flexibility needs under scenario including all flexibility options of batteries, end-user flexibility, large-scale RES, cross-border flex under the Current Commitments scenario while accounting the contributions of decentralized wind power*

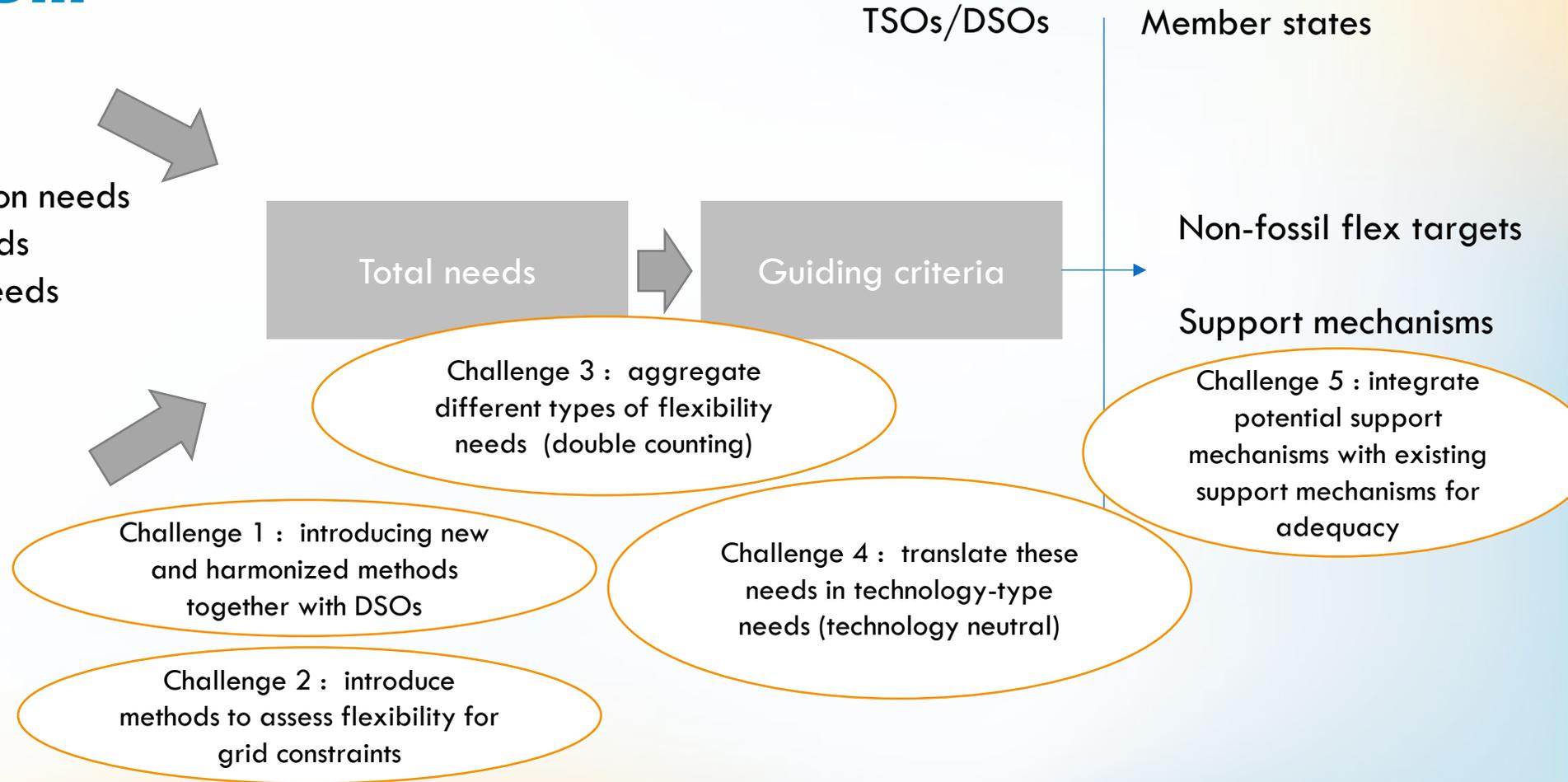
# The new FNA method imposes several implementation challenges...

Identification of system needs to balance demand and generation

- RES integration needs
- Ramping needs
- Short-term needs

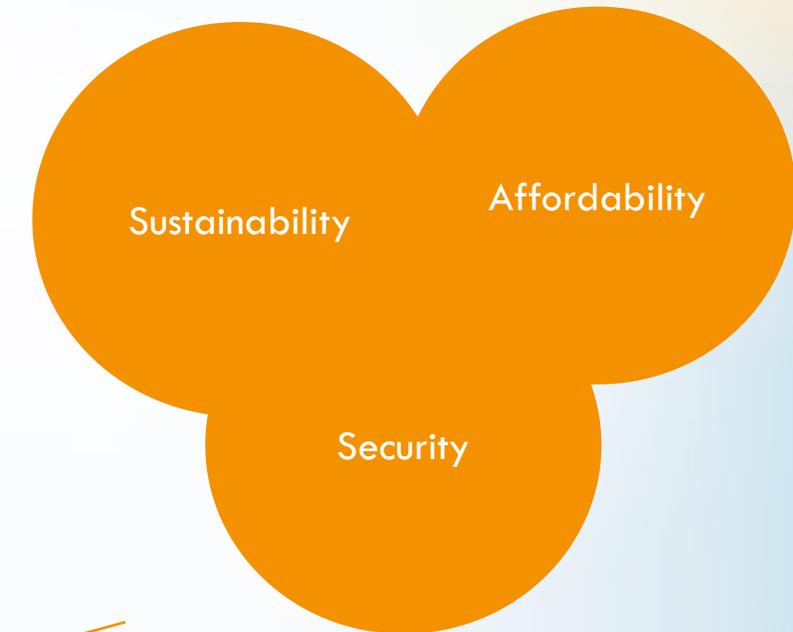
Identification of network needs to manage congestions

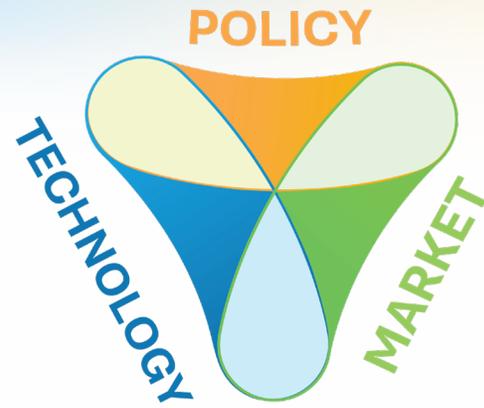
- DSO needs
- TSO needs



# ...while bringing opportunities for society

- Market players will get better view on total system needs and network needs improving ability of market players to assess business cases
- Policy makers will get a more accurate view on the need of additional support mechanisms to attract required flexibility needs
- System operators to better target market and product design improvements to attract flexibility and ensure their availability at the time and place needed





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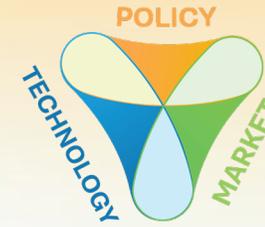
# THANK YOU!



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Joint Research Centre, European  
Commission



# Flexibility Needs Assessments in 2030

Market sessions, 15 minutes and a comprehensive Economic Viability Assessment

By Georg Thomaßen

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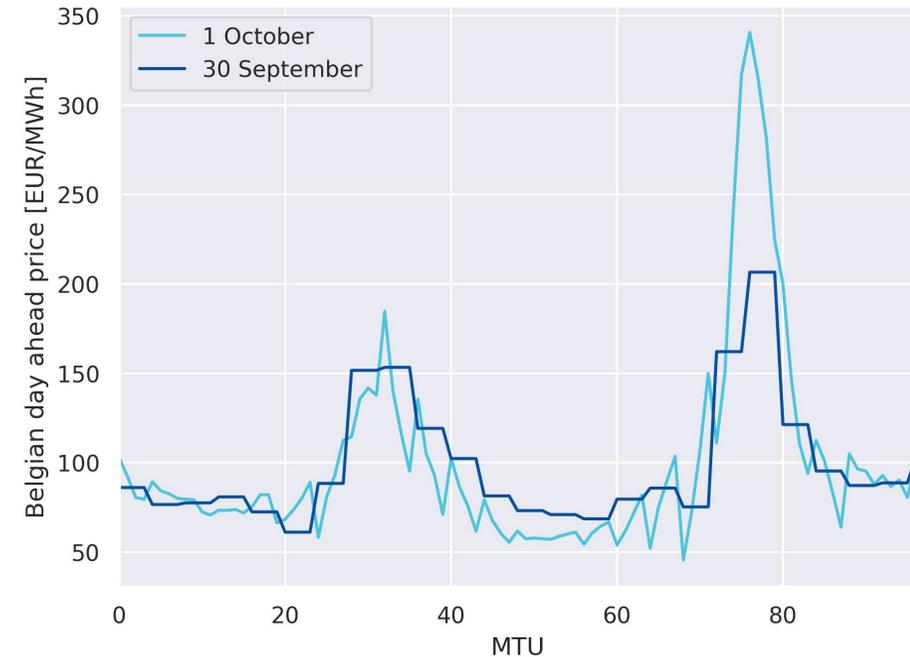
# Disclaimer

- This presentation discusses how flexibility needs should be assessed if technical and time constraints do not play a role.
- It is not to be contrasted with the recently published Flexibility Needs Assessment Methodology: Time constraints with regard to its implementation require pragmatic solutions so that the first assessments can be delivered in time.



# 15 min as the new standard for electricity trading

- New SDAC standard of **15 min trading intervals** in force since October resulted in large sub-hourly spreads.
- Flexible assets, such as storage or demand response, generate substantial value smoothing out **sub-hourly** deviations.
- FNAs will need to capture 15 min resolution to deliver **realistic** picture of **benefits of flexibility**.
- Especially relevant for assessing profitability and thus **level of investment**.

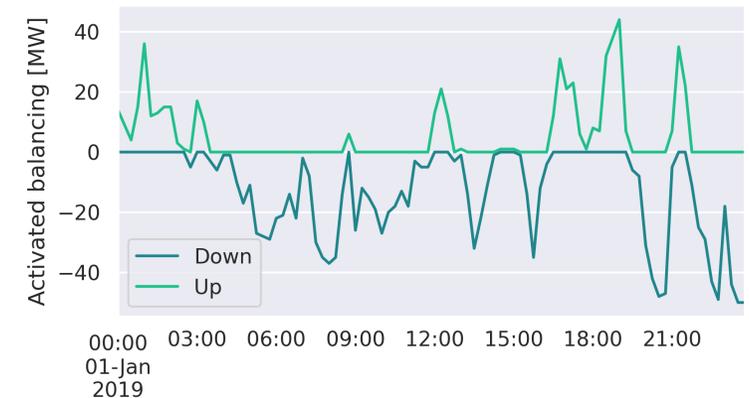
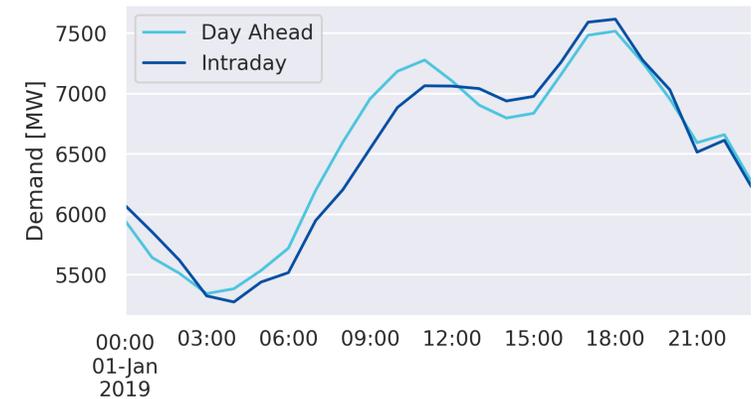


Data source: ENTSO-E Transparency



# Representation of all relevant products

- Resource adequacy assessments consider mostly **only the day-ahead session**.
- Explicit modelling of day-ahead, intraday and balancing markets necessary to capture all potential revenue streams of storage and other flexibility.
- **Day ahead:** Using forecasts for electricity demand and renewable production to reflect uncertainty present at the day-ahead stage.
- **Intraday:** Consider updated forecasts and commitment decisions of conventional generators. Allows market participants to adjust their positions.
- **Balancing:** Considers real-time conditions, as well as deviations occurring *during* trading intervals.
- Technical challenge: Optimization across all market timeframes increases complexity substantially.

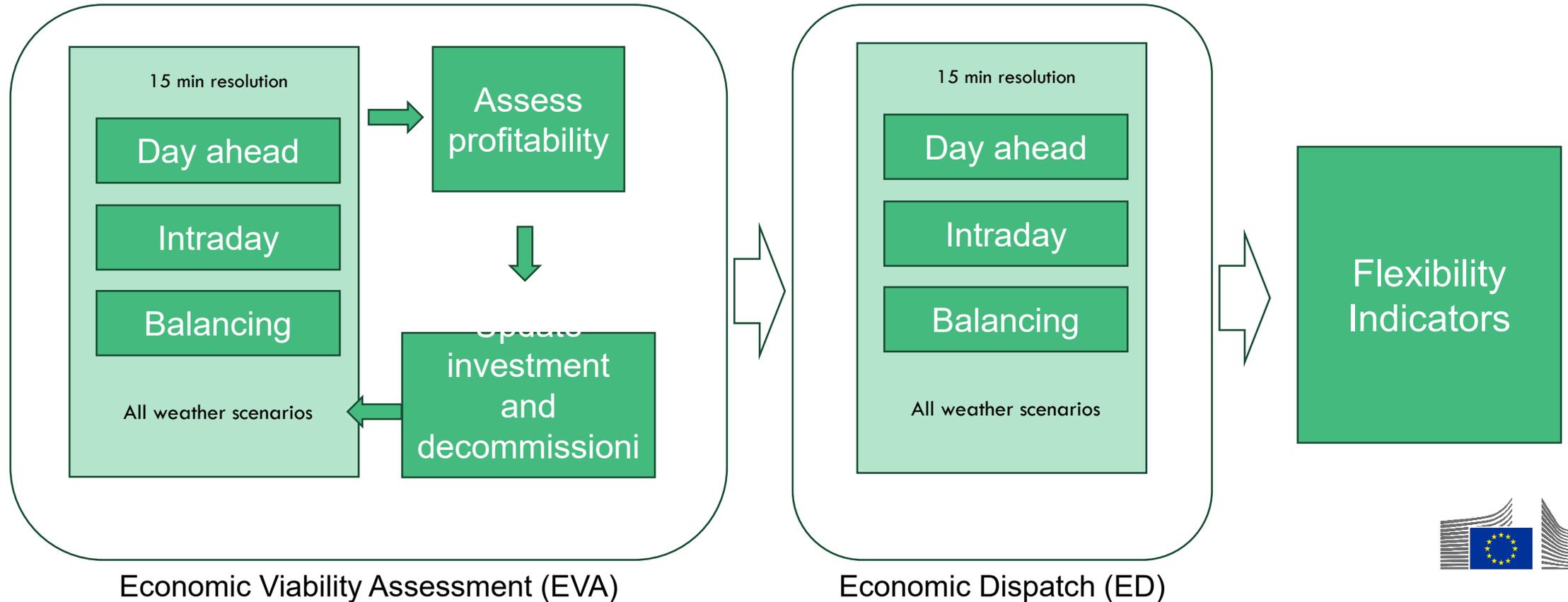


Data source: ENTSO-E Transparency



# A comprehensive Economic Viability Assessment

- Economic Viability Assessments assess the level of **investment that is backed up by the (wholesale) market** without additional support.
- Needs to integrate **all relevant products** and **all relevant climatic conditions**.
- **Computationally challenging** as such an EVA requires many iterations to find market equilibrium.
- Similar approach followed by some resource adequacy assessment, such as Belgium.



# A Flexibility Needs Assessment in 2030...

- ...should be a **model-based assessment**...
- ...at **15 min resolution** to reflect European electricity trading as accurately as possible...
- ...considering **all relevant products and associated uncertainty**...
- ...and include a **robust Economic Viability Assessment** which reflects all possible weather realizations.



# Thank you



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