

Flexibility Needs Assessment Methodology Workshop

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Outline

In the process of developing the FNA methodology, there are 3 consequential steps:

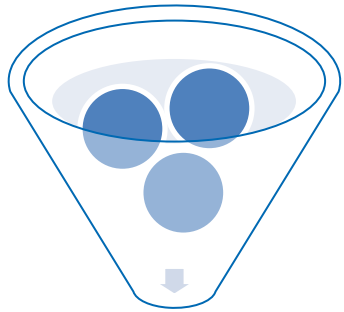
1. Defining flexibility needs
2. Applying consistency requirements
3. Designing scenarios subject to uncertainties

EASE Position Paper on Guiding Principles to Develop an EU Methodology to Assess Flexibility Needs

Brussels, July 2024

Consequential steps

FNA methodology steps



Scoping
flexibility
needs



Indicative
targets



Purpose

1. Defining flexibility needs

EASE member input – mapping use cases



European Association
for Storage of Energy

- Flexibility sources shift energy in time, in space, and across vectors to integrate an increasing share of variable RES.
 - Flexibility sources ensure the continuous supply–demand balance across all time–scales.
 - Security of supply (and specifically resource adequacy planning) is one of the bricks to address power system flexibility, others include system stability, balancing reserves procurement, and grid availability.
 - Flexibility is just a short–term dimension of resource adequacy which concerns the procurement of reserves to deal with unexpected variability from day–ahead to real–time
 - Flexibility sources can maximise network utilisation and address congestion management issues in transmission or distribution grids
 - Flexibility sources can firm up renewables and avoid curtailment, making RES more cost–competitive
- Energy storage can simultaneously decarbonise end–uses, do wholesale arbitrage, optimise network utilisation, and provide balancing services (value stacking can be key to business case)

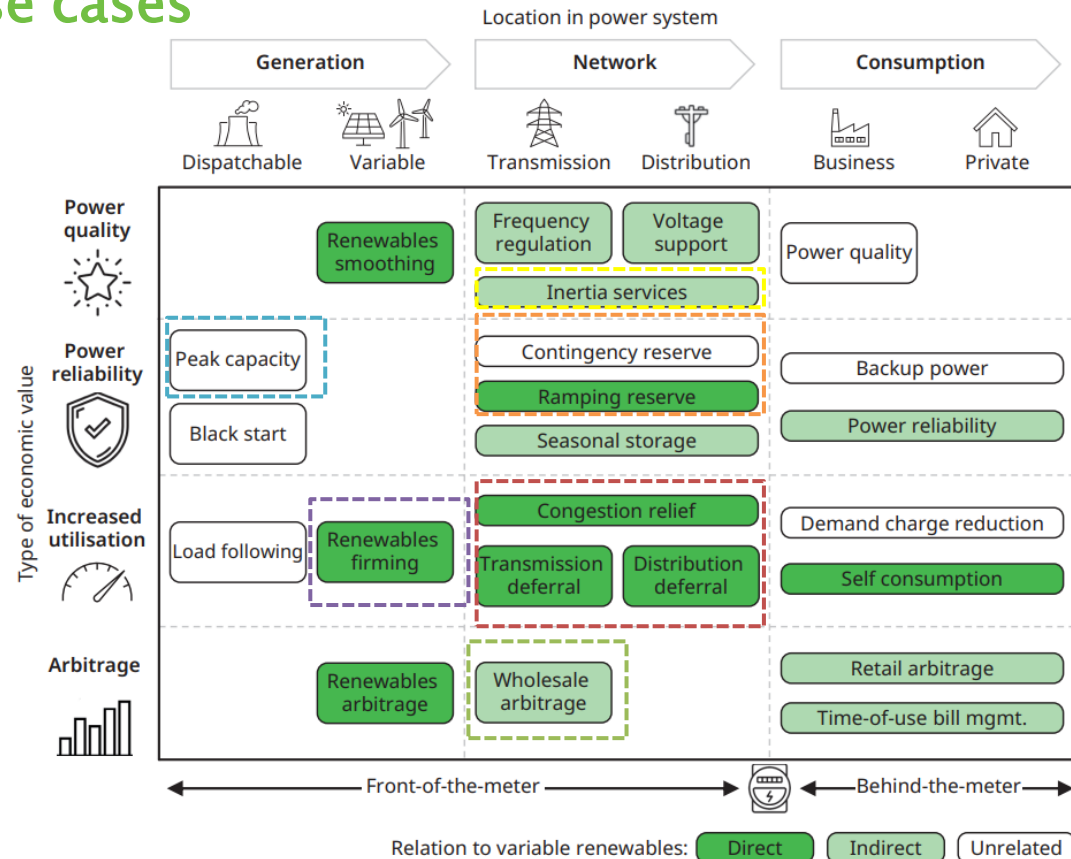
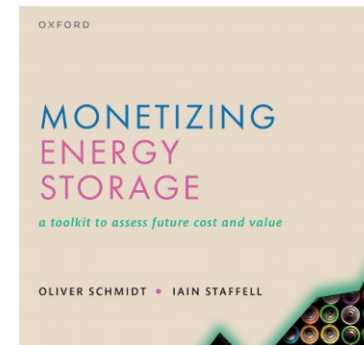


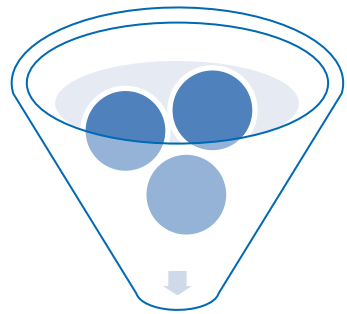
Figure 3.25 Overview of the 23 most common electricity storage applications along the



Consequential steps

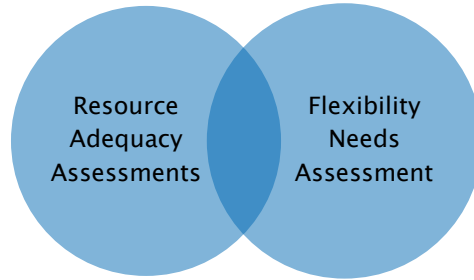
Flexibility Needs Assessment Methodology

FNA methodology steps



Scoping
flexibility
needs

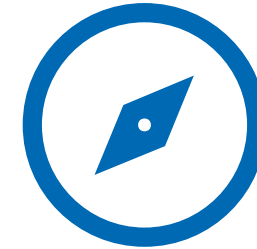
1.



Applying
consistency
aspects



Evaluation of
flexibility
resources



Guiding
criteria



Indicative
targets



Purpose

3 consequential steps

1. Comprehensively defining flexibility needs

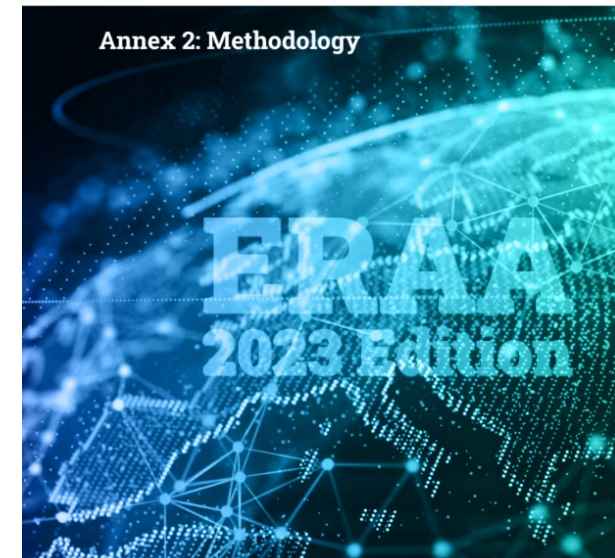
2. Applying consistency requirements

Sufficiently technology neutral for evaluating competing flexibility resources?

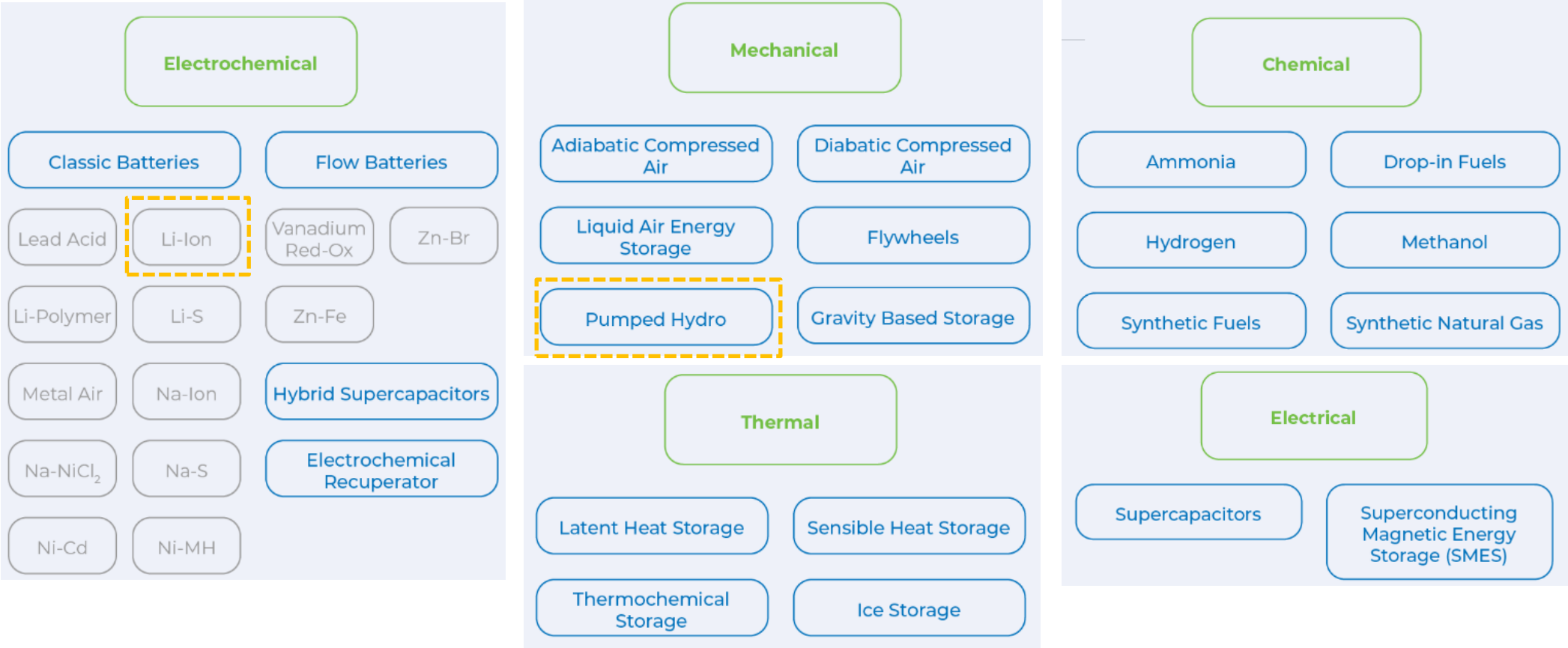
- Revenues from ancillary services are not considered
- Share of price-sensitive consumers (EVs, HPs, out-of-market batteries) is not disclosed
- Daily sampling to create representative days and daily UCED
- Many energy storage technologies excluded

**European Resource
Adequacy Assessment**
2023 Edition

Annex 2: Methodology

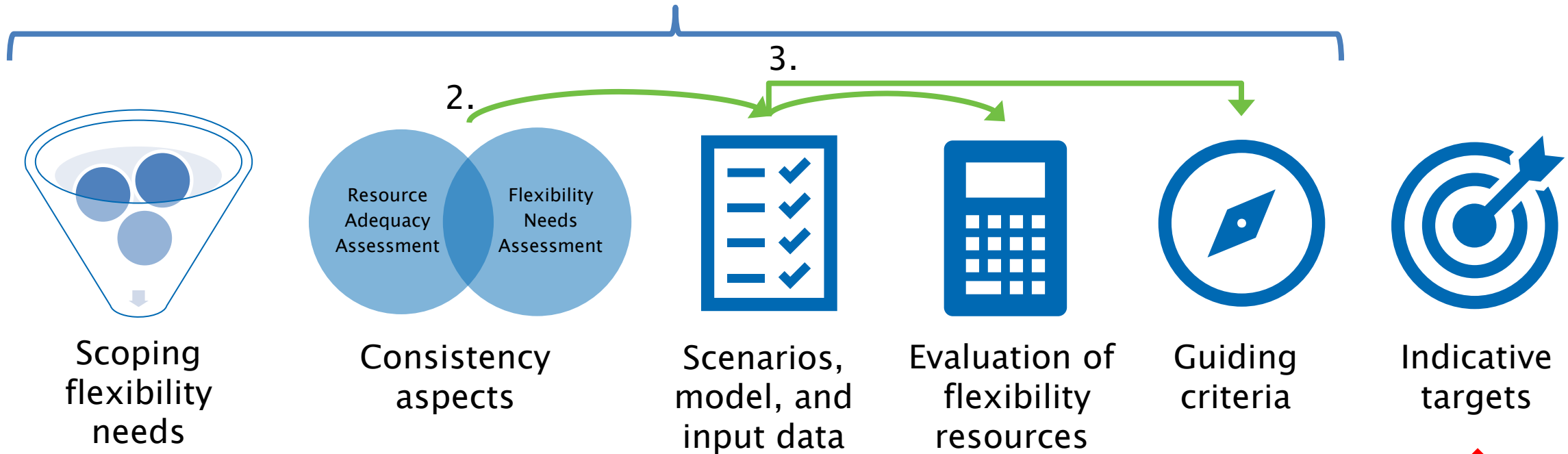


2. Applying consistency requirements



Consequential steps

FNA methodology steps



3 consequential steps

1. Comprehensively defining flexibility needs
2. Aiming for tech neutrality when applying consistency aspects
3. Informing with robust scenarios/sensitivities

3. Designing scenarios subject to uncertainties

Some examples of sensitivities from National Resource Adequacy Assessments (and other studies)

- Infrastructure development:
 - Pace/delays in electrification/RES deployment/transmission expansion
 - Enabling hydrogen infrastructure
- Techno-economic assumptions:
 - Higher fossil gas prices
 - Less flexible electrolysers
 - More active end-consumers
 - Long Duration Energy Storage archetypes
 - Technology cost projections
- Climate related impacts:
 - Panel of climate years
 - Water challenges with cooling thermal power plants

Conclusions

There are no perfect models to represent the flexibility needs associated with all energy storage use cases, but

- Complement quantitative with qualitative analysis and make limitations well known in guiding criteria
- Define flexibility needs comprehensively

Aim for technology neutrality

- in defining flexibility needs
- in modelling flexibility resources

Address relevant uncertainties in designing scenarios/sensitivities

- Investigate how deviating from key assumptions could also impact flexibility requirements