
# EU Regulation for Market-based Flexibility Procurement on Distribution Networks

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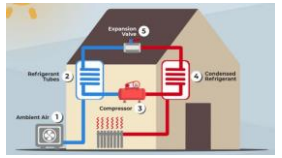
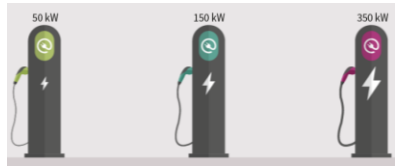
# Why do we need flexibility on Distribution Networks?

Electrification of energy needs



Increase of NP-RES penetration

High power applications




CUSTOMER BASIS

GRID TOPOLOGY

LOCATIONAL CHARACTERISTICS

frequency variation

overloading

congestions

voltage swells/drops

network stress

DISTRIBUTION NETWORK

# European legislation for local flexibility procurement

**Article 32** of EU Directive on common rules for the internal market of electricity (**2019/944**)

- ✓ Published at least every 2 years
- ✓ Long and mid term needs
- ✓ 5-to-10 years investments
- ✓ Coherent scenarios development
- ✓ Stakeholder consultation

- customers should have access to electricity markets to trade demand flexibility and self-generated electricity,
- procurement procedures must be transparent, avoid discrimination and possibly market-based,
- standardised market products should be established,
- NDPs must be used to ensure the right balance between network investments and flexibility exploitation.

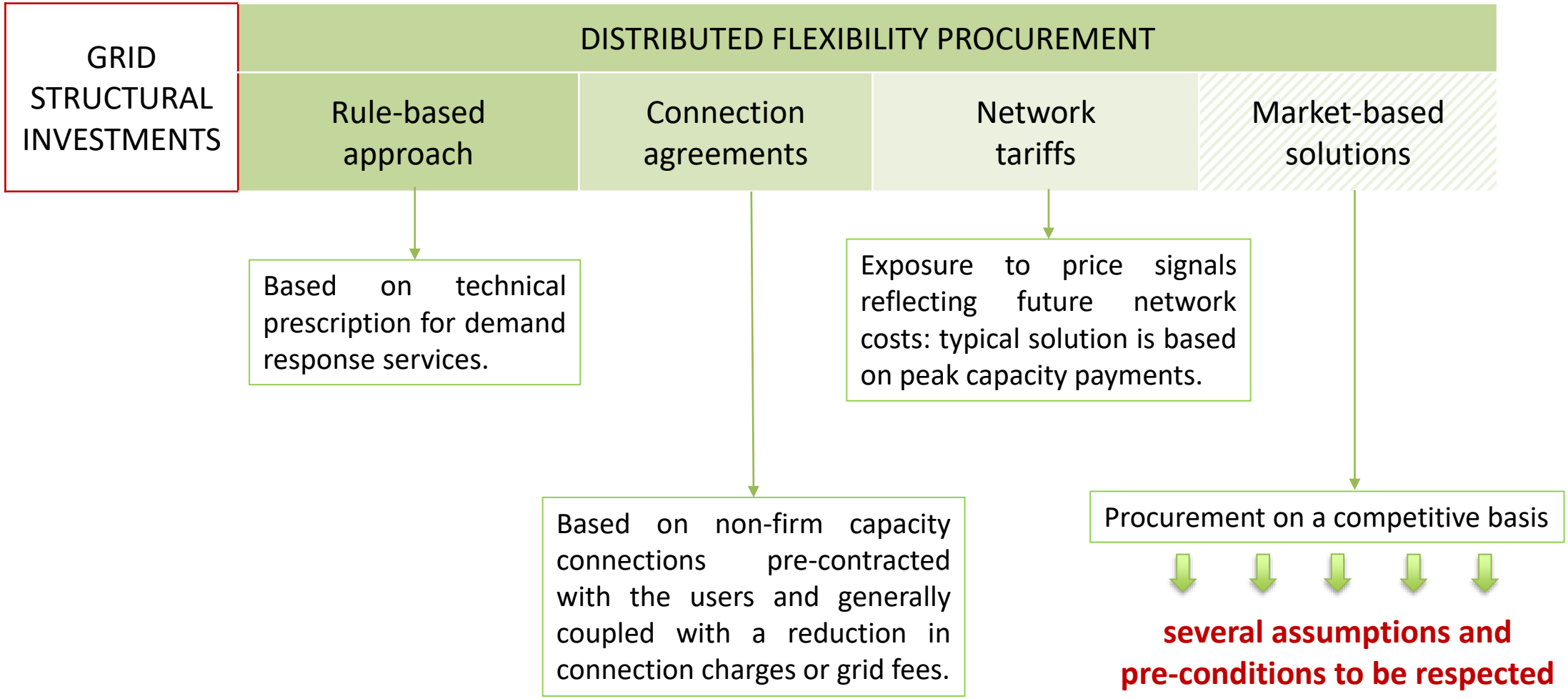
EB GL (2017/2195)
*standardised balancing products definition*

DCC (2016/1388)
*demand side control technical requirements*

SO GL (2017/1485)
*requirements for observability and data exchange*

REMIT (2011/1227)
*dominance and low liquidity issues in local markets*

# How to access distributed flexibility?



# Pre-conditions for local flexibility market-based procurement

| REGULATORY ASSUMPTIONS | TECHNICAL PREREQUISITES | OPERATIONAL PRINCIPLES |
|---|---|---|
| • OPEX vs CAPEX remuneration asymmetries can push DSOs choices towards *iron&copper* even with more cost-effective solutions.<br><br>• Ownership unbundling btw market operation and competitive activity.<br>→ info and data about congestions<br>→ low market liquidity<br>→ bilateral contracts | • Observability: forecasted and known state of the grid elements<br><br>• Controllability: correct activation of flexibility resources. | • Complex control centres with new tools: RES and load forecast, predictive and actual state estimation, sensors deployment and data availability.<br><br>• Common Information Model for data exchange btw relevant actors. |

# Markets design and coordination mechanisms

SmartNet

TSO – DSO REPORT

CEDEC E.DSO entsoe eurelectric powering people GEODE

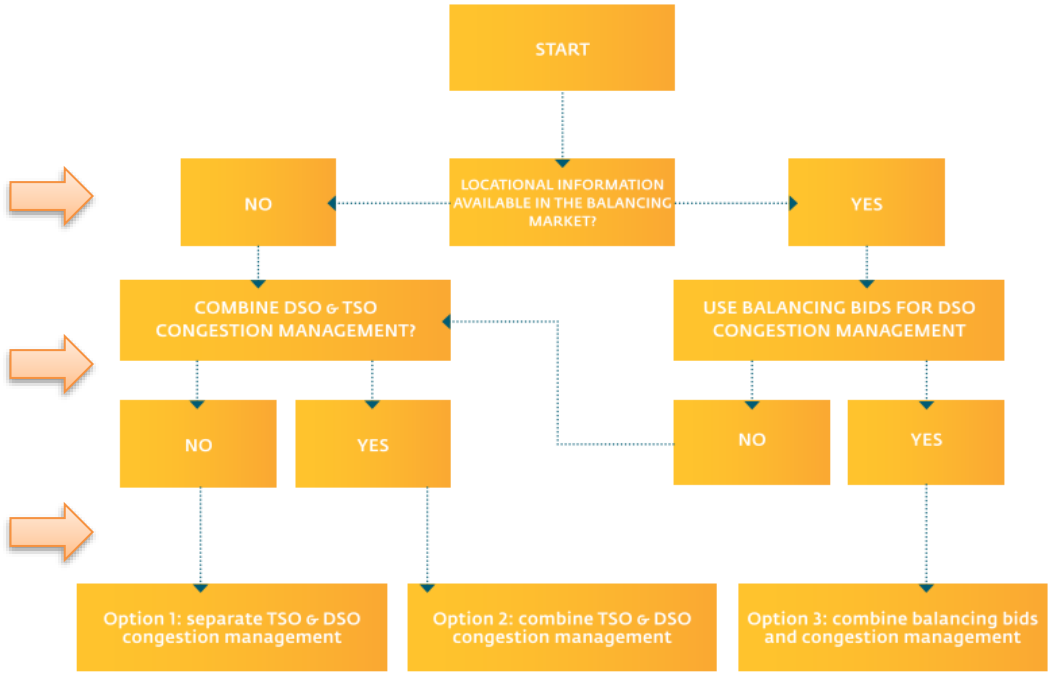
**1)** Centralised market with DSO traffic light

**2)** Local DSO market with residual flexibility transfer

**3)** Separate markets with TSO-DSO scheduled profile

**4)** Common market managed jointly

**5)** Common market managed by a third party




- ➢ Bilateral contracts
- ➢ Tendering procedures
- ➢ Market platform

- ➢ Capacity reserve
- ➢ Energy only

- ➢ Long term
- ➢ Short term
- ➢ Operational

- Specific locational and temporal needs for DSOs, together with reduced competition and market opportunities
- Reservation + activation schemes

→ **flexibility resources register**

- Verification of possible constraints for DN flexibility activation at higher level
- Marketplace operator independence to avoid conflict of interest and cross subsidisation
- Key role for dynamic regulation and R&D projects

# Product design solutions

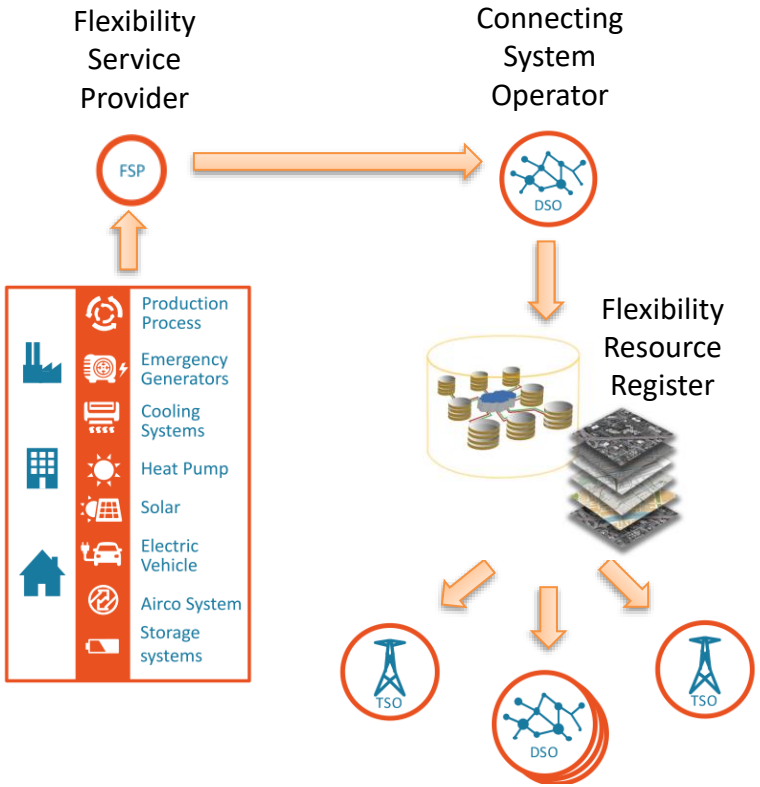
- EB GL provides a first set of reference parameters for product design.
- In first phases it could be useful to study and exploit different characteristic of FSP, without defining a specific set of standard products (**sandboxes and pilot regulation are welcome**).
- Three main requirements for standard products definition at DN level:
  - specific enough to be able to solve congestions and balancing problems,
  - broad as possible to facilitate liquidity,
  - standardised at a national or regional level.
- Importance of **locational information** to correctly cope with DSO's needs, however avoiding too high geographic granularity because of speculation and gaming issues (Dec-Inc-Game).
- Necessity to **define a baseline** with respect to which FSPs offer their flexibility (who defines it? how?).
- Need to set up a procedure for **DSOs controlling FSPs** resources:

→ DIRECT vs INTERMIDIATE control

# Product design solutions: the Flexibility Resource Register

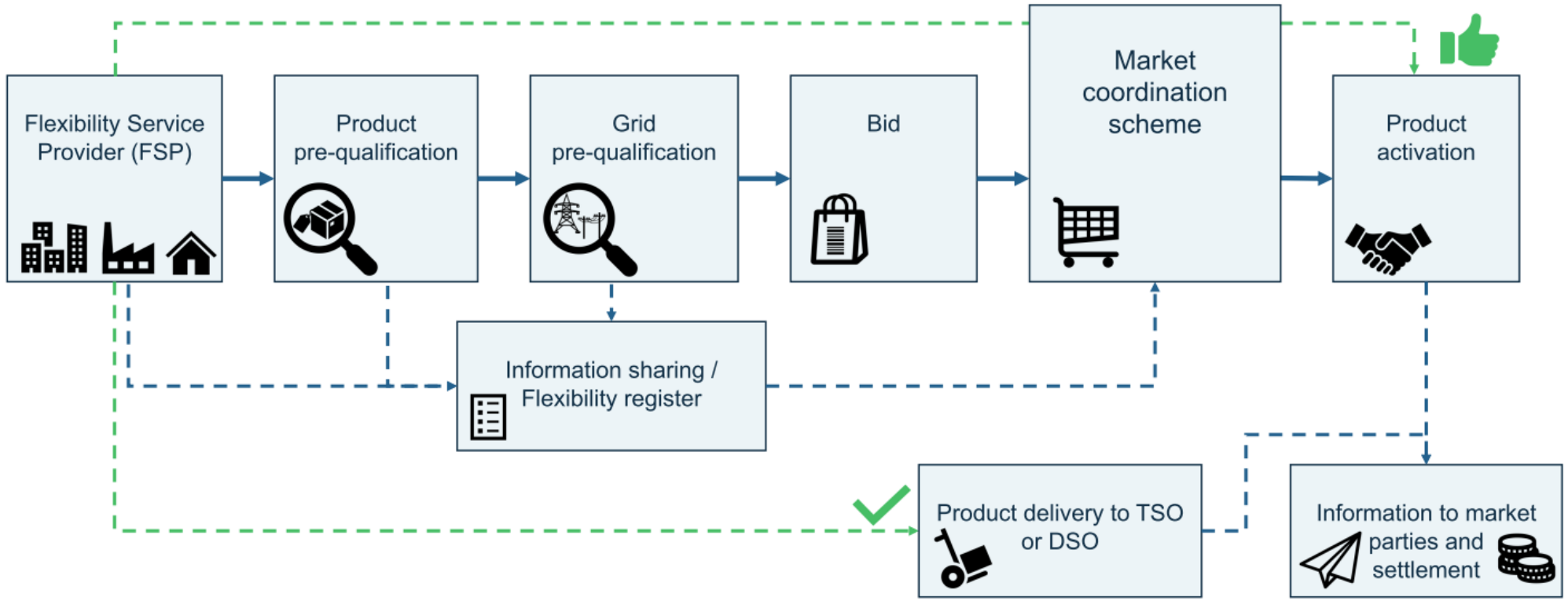
- TSO-DSO report of April 2019 opened up to the concept of flexibility resource register

**TARGET: gather and share relevant information on potential sources of flexibility.**




- All system operators involved know the available connected resources.
- The register should combine more data sources and information.
- Technical data include: location, capacity limits, minimum service duration, ramp rates, mode of activation, service provider, baseline.
- Should be used to evaluate FSPs market bids (monitoring and activate).
- Could be used for the settlement phase (imbalance treatment).
- Could support information exchange on aggregated bids for providers.
- Allows multiple flexibility services and revenues stacking.
- Improves competition and market liquidity.
- Increase stakeholder visibility of potential revenues for flexibility.

# Procurement procedure

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**THANK YOU!**

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