

# FLEXIBILITY PLATFORMS

12 NOVEMBER 2021

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# 01

## PROJECT OVERVIEW





# As part of this refresh, we first sorted platforms into functional categories

Data exchange platforms	Flexibility platforms		Aggregators	
	Network operator	Independent operator		
<b>Grid data</b>	<b>Network procurer</b>	<b>Any procurer</b>		
<ul style="list-style-type: none"> <li>EDSN</li> <li>Open Networks Project</li> <li>SII (Italy)</li> <li>TDX ASSIST</li> <li>TSO-DSO communication platform (IO.E)</li> <li>TSO-DSO Flexhub</li> </ul>	<ul style="list-style-type: none"> <li>Crowd Balancing Platform</li> <li>eSIOS-CECRE</li> <li>DA/RE</li> <li>GOPACS</li> <li>INTERFACE (IEGSA)</li> <li>ARGE FNB – 50Hertz</li> <li>bne Flexmarkt</li> <li>Baltic CoBa</li> <li>Coordinet</li> <li>CROSSBOW: Regional DSM Integration platform, wholesale, and ancillary market toolset</li> <li>Dynamo Flexmarkt in Nijmegen-Noord</li> <li>EUniversal (German demo)</li> <li>EUniversal (Polish demo)</li> <li>EUniversal (Portuguese demo)</li> <li>FUSION</li> <li>GOPACS</li> <li>IGCC: imbalance netting project</li> </ul>	<ul style="list-style-type: none"> <li>eSIOS-CECRE</li> <li>PICASSO</li> <li>Platone</li> <li>ReFlex (Enedis)</li> <li>TERRE</li> <li>X-flex</li> </ul> <p>Concluded projects:</p> <ul style="list-style-type: none"> <li>InterFlex: Dutch pilot</li> <li>InterFlex: French pilot</li> <li>InterFlex: Swedish pilot</li> <li>Flexibility resource participation to Ancillary Services (Terna)</li> <li>FutureFlow</li> <li>OSMOSE: WP2, WP6</li> <li>Power Potential (TDI 2.0)</li> <li>SINTEG C/sells</li> <li>SINTEG C/sells: Comax</li> <li>SINTEG C/sells: ReFLEX Dillenburg</li> </ul>	<ul style="list-style-type: none"> <li>PicloFlex</li> <li>NorFlex (NODES)</li> <li>IntraFlex (NODES)</li> <li>Sthlmflex (NODES)</li> <li>FLEXITRANSTORE: Wholesale and Clearing Market</li> <li>Orsted – Renewable Balancing Reserve</li> <li>Orsted – Market Price Optimisation</li> <li>Flexity</li> <li>eBalance Plus</li> <li>Merlon</li> </ul> <p>Concluded projects</p> <ul style="list-style-type: none"> <li>Project TraDER (Orkney)</li> <li>SINTEG C/sells: Altdorfer Flexmarkt (ALF)</li> <li>SINTEG DESIGNETZ</li> <li>SINTEG New 4.0: ENKO</li> <li>SINTEG WindNODE: Flexibilitätsplattform</li> </ul>	<ul style="list-style-type: none"> <li>Agregio</li> <li>AutoGrid</li> <li>Crowd Charge</li> <li>e2m</li> <li>Entelios</li> <li>ev.energy</li> <li>Innowatio</li> <li>Jedlix (VGI)</li> <li>Kaluza</li> <li>Limejump</li> <li>Newmotion</li> <li>Next Kraftwerke</li> <li>NextFlex (ENGIE)</li> <li>NUVVE</li> <li>Open Energi</li> <li>Powerhouse</li> <li>Resilience Energy</li> <li>REstore</li> <li>Sonnen</li> <li>Upside Energy</li> <li>Urban Chain</li> <li>Voltaalis</li> </ul>
<b>Market data</b>				
<ul style="list-style-type: none"> <li>Atrias</li> <li>ECCo SP</li> <li>Elhub (from Statnett)</li> <li>CROSSBOW: Wide Area Monitoring Awareness System</li> </ul>				
<b>Meter data</b>				
<ul style="list-style-type: none"> <li>DataHub from Fingrid</li> <li>Energinet DataHub</li> <li>EDA Flex</li> <li>EDSN</li> <li>Elhub (from Statnett)</li> <li>Estfeed</li> <li>MRSO</li> <li>SIMEI</li> </ul>				

← Regulated domain Commercial domain →

... before deep-diving into a selection

# 02

## KEY FINDINGS



# FLEXIBILITY PLATFORMS



Digital platforms that facilitate or support the provision of flexibility services to System Operators from DER

## CHARACTERISTICS

- Multi-sided communication infrastructures
- Facilitate data exchange
- Automated and scalable processes
- Near real-time responsiveness
- Operated independently or by networks

## USE CASES

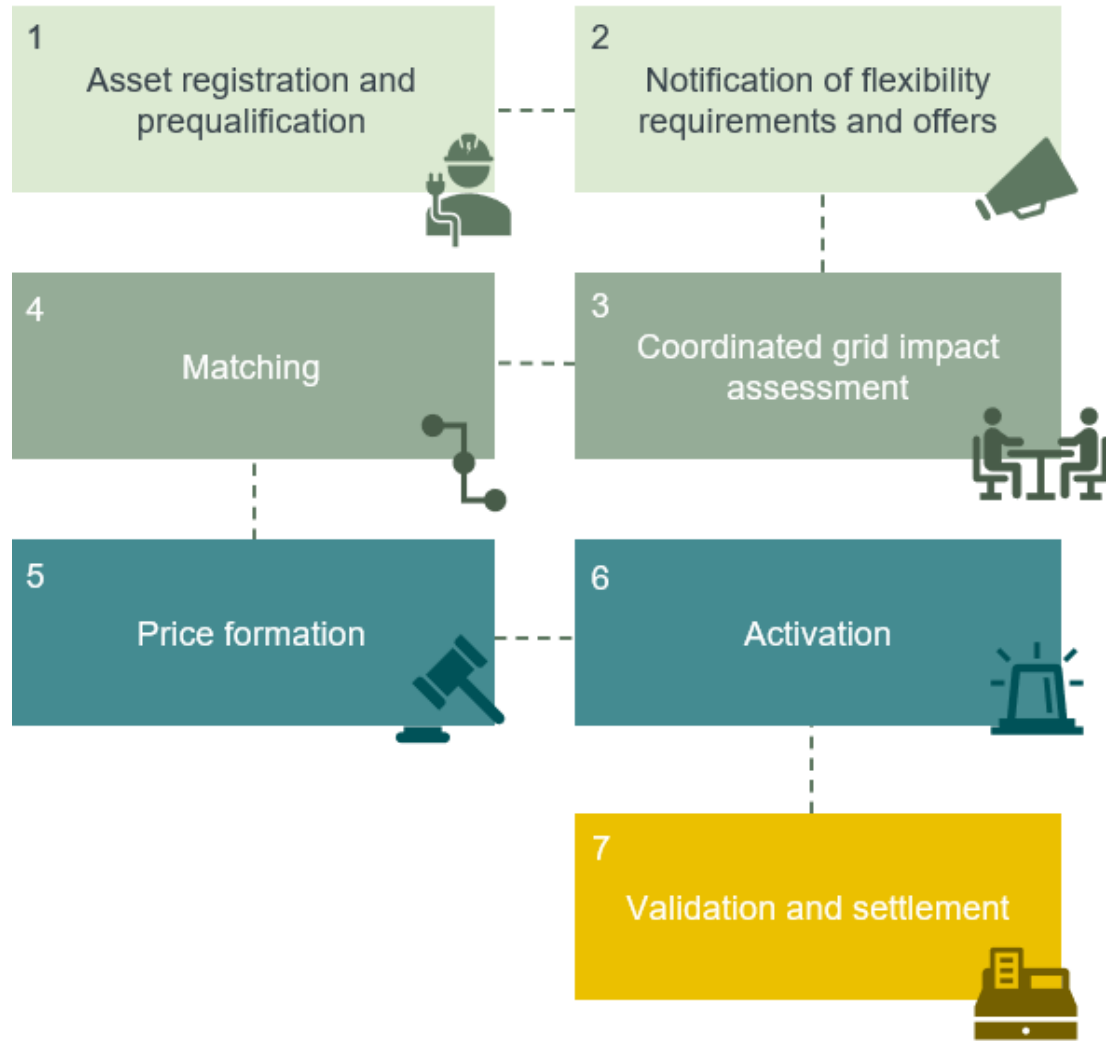
- Frequency response
- Congestion management
- Voltage control
- Wholesale energy trade
- Post-fault restore

## OPERATING MODELS

- Market intermediaries
- Marketplaces
- Administrative coordinators

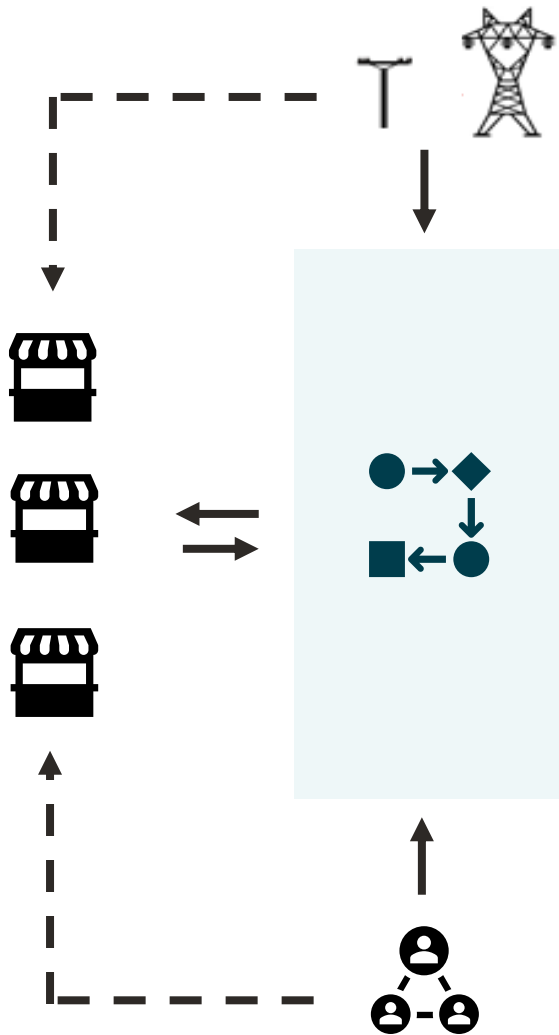
# KEY FUNCTIONS

- 1 Market intermediaries
- 2 Self-contained marketplaces
- 3 Administrative coordinators





# MARKET INTERMEDIARIES



Facilitate the penetration of DERs into existing wholesale energy and balancing markets or act as a single gateway for T/DSOs to procure flexibility through established wholesale energy and balancing markets.

**crowd  
balancing  
platform**

- Enables aggregators to provide balancing services
- Facilitates secure data exchange for procurement processes
- Supports near-real time bids (aFRR) as well as day-ahead.
- Platform adapts to national market rules

  
INTERFACE

- Single portal for coordinated procurement of flexibility via existing wholesale and balancing markets.
- Facilitates mFRR and new congestion management products
- Aggregators subscribe assets to products and bid within-platform
- Merit-order list is forwarded to markets and cleared

**GOPACS**

- Coordinated flexibility procurement via wholesale markets
- Enables new congestion management products
- Intraday Congestion Spread (IDOCNS) transaction structure
- Minimum bid size of 100kW, expected to lower in future

# SELF-CONTAINED MARKETPLACES

Perform the essential functions of a marketplace such as running auctions, clearing transactions and settling payments between T/DSOs and FSPs



**NODES**

- Independent local marketplace for congestion management
- 'Parameterised' flexibility products (ShortFlex, LongFlex)
- Continuously clearing market operating close to real-time
- Participants publicise requirements/offers and operator matches

**piclo<sup>®</sup>**

- Independent local marketplace for congestion management
- ENA standard products: Sustain, Secure, Dynamic, Restore
- Modularised service, from advertisement-only to full awards
- Closed auction format

**eSIOS/CECRE**

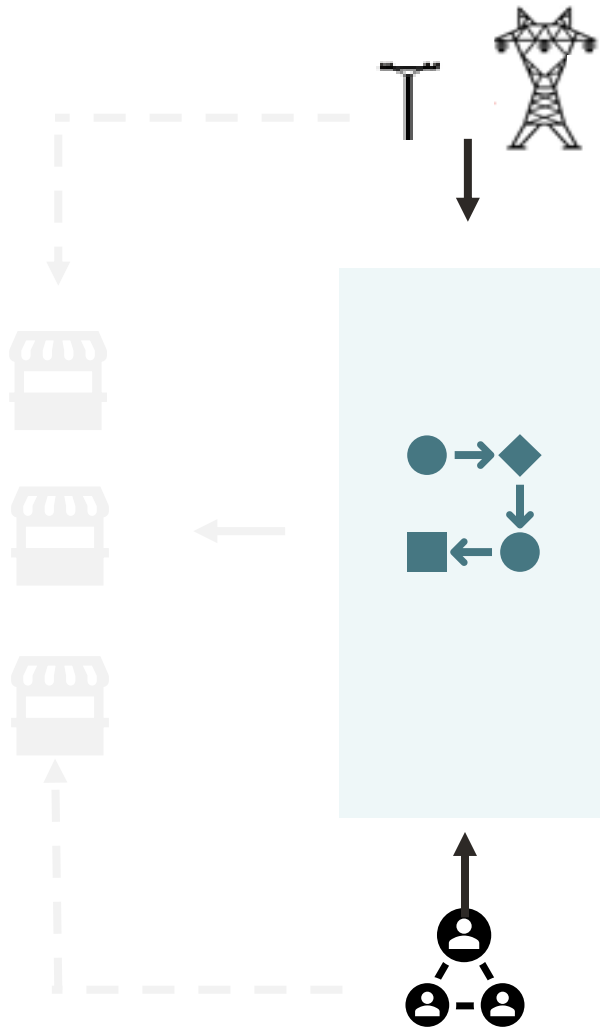
- TSO-operated national marketplace for balancing/congestion
- Supports coordinated grid security assessment for T/DSO
- Collects mandatory bids for upwards and downwards redispatch in D-A and continuously till close to real time
- Cancels D-A wholesale market bids for downwards redispatch in D-A identified congestions

# ADMINISTRATIVE COORDINATION

Do not support a market-based allocation of flexibility, but instead provide support for a centralised cost-based allocation of flexibility, by facilitating data exchange between relevant stakeholders

DA  
RE

- Facilitates data exchange and activation for Redispatch 2.0
- All generating/storage units >100kW provide flexibility for T/DSO
- Grid security assessments & cross-voltage level optimisation
- Issues redispatch dimension instructions close to real-time



# 03

OPEN ISSUES



# CHALLENGES AND OPEN ISSUES



## MARKET ACCESS

- Observability
- Alignment of processes across markets
- Participation incentives



## TSO-DSO COORDINATION

- Combined grid security checks
- Cooperation across procurement process
- Data exchange requirements

## MARKET DESIGN



- Local versus national flexibility markets
- Coordination between flexibility and wholesale/balancing markets
- Standardised versus parameterised products

Any questions?





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