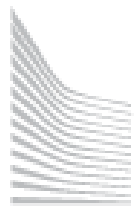


# How Flexibility is developing in Central Eastern Europe



European  
Commission

| about flexibility



Flexibility markets help energy networks to monitor energy flows and create market signals to motivate changes in energy supply and demand, integrating smart meters, smart appliances, renewable energy resources and energy efficient resources accordingly. The Commission promotes flexibility markets as they can contribute and help the EU becoming a climate-neutral continent by 2050.

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# Flexibility is key



Flexibility available to all levels of the grid



TSO



DSO  
REGIONAL



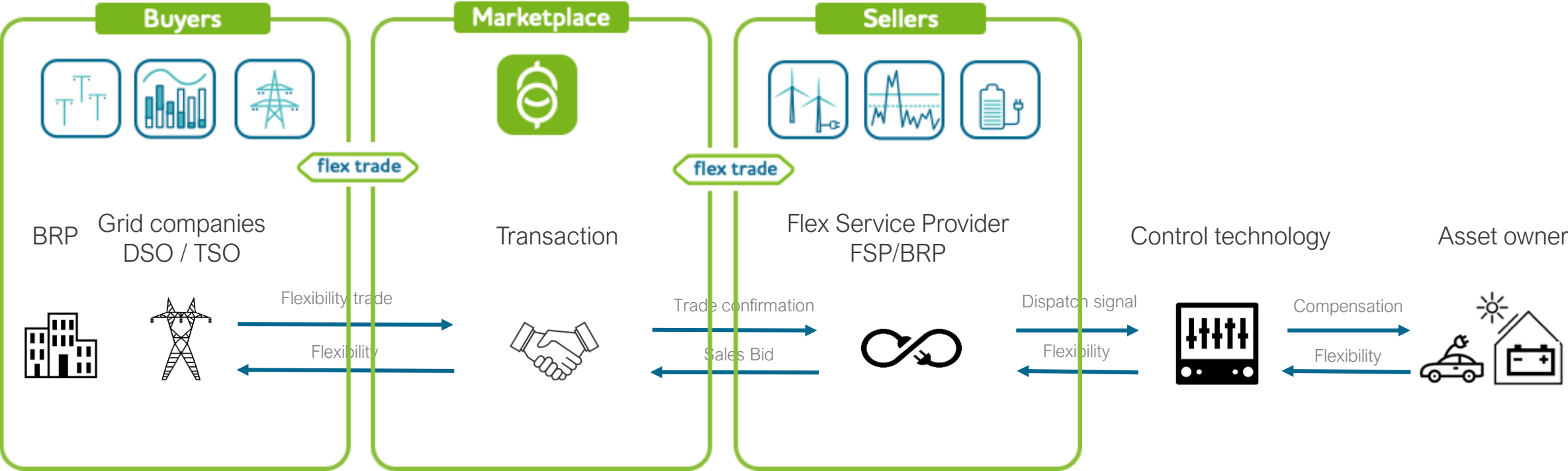
DSO  
LOCAL



Microgrid



# Flexibility value chain



## TSO's initiatives on Flexibility – ONE NET (*numerous partners from CEE*)

---

### **Vision**

OneNet envisions a European electricity system that provides for the seamless near real time integration of all actors across countries, with a view to create the conditions for a synergistic operation of market and network that optimizes the overall energy management while creating an open and fair market structure and maximizing the consumer capabilities to participate in it.

### **Objective**

Involving an unprecedented number of countries in a single project, OneNet aims at creating the conditions for a new generation of grid services able to fully exploit demand response, storage and distributed generation while creating fair, transparent and open conditions for the consumer. As result, while creating One Network for Europe, the project aims to build a customer centric approach to grid operation.

# Research projects



www.cineldi.no

<https://www.forskningsradet.no/en/apply-for-funding/funding-from-the-research-council/fme/>

Norwegian Centre for Energy Transition Strategies

Forskningspartnere

NTNU, SINTEF, NHH, IFE, SNF, NHTS, SINTEF, NHTS

Brukerpartnere

Bygg og industri	Digital transformasjon
<ul style="list-style-type: none"> <li>Hydro</li> <li>Statbygg</li> </ul>	<ul style="list-style-type: none"> <li>Becour</li> <li>eSmart System</li> <li>Nodes</li> <li>Volve (tidligere Power)</li> </ul>
Energiselskaper	Kommuner og fylkeskommuner
<ul style="list-style-type: none"> <li>BKK</li> <li>Equinor</li> <li>Gassco</li> <li>Statkraft</li> <li>Hafslund Nett (observator)</li> </ul>	<ul style="list-style-type: none"> <li>Bergen kommune</li> <li>Vestland fylkeskommune</li> <li>Kinn kommune</li> <li>Oslo kommune</li> <li>Trondheim kommune</li> <li>Trøndelag fylkeskommune</li> </ul>
Interesseorganisasjoner	Etater og offentlige aktører
<ul style="list-style-type: none"> <li>Energi Norge</li> <li>Norges Lastebileier-forebund</li> <li>Norweg (observator)</li> </ul>	<ul style="list-style-type: none"> <li>Enova</li> <li>Gassnova</li> <li>Innovasjon Norge</li> <li>Jernbanedirektoratet</li> <li>Kystverket</li> <li>Miljødirektoratet</li> <li>Norges Vassdrags- og energidirektorat (observator)</li> <li>Statens Vegvesen</li> </ul>
Transport	
<ul style="list-style-type: none"> <li>Arb</li> <li>Fjord Line AS</li> <li>Hub for ocean</li> <li>Posten Norge</li> <li>Ruter</li> </ul>	

<https://ntrans.no>

The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 844334

centrica	COMILLAS	E-REDES
E.D.S.O.	e-on	EASE
Energa	ENGIE Impact	INSTITUT ENERGETIK
INESCTEC	KU LEUVEN	INSTITUT ENERGETIK
N-SIDE	NODES	MANCHESTER
University of Cyprus	vito	V
	zabala	

<https://euniversal.eu/>

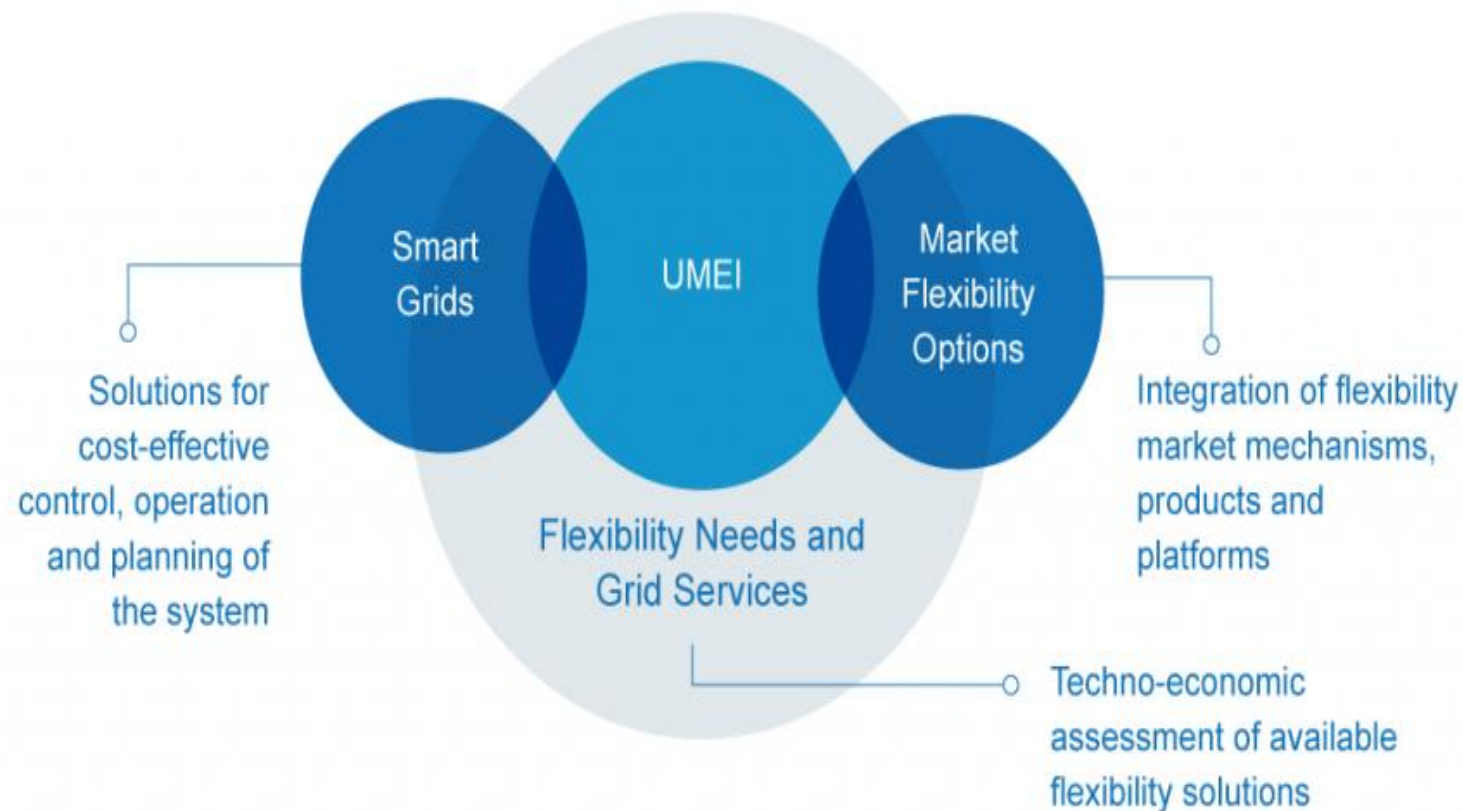
The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 844334

etna	SMART INNOVATION	NORD POOL
NODES	University of Cyprus	FER
WEMAG	brnnetze	DTU
		AIT

<https://flexgrid-project.eu/>

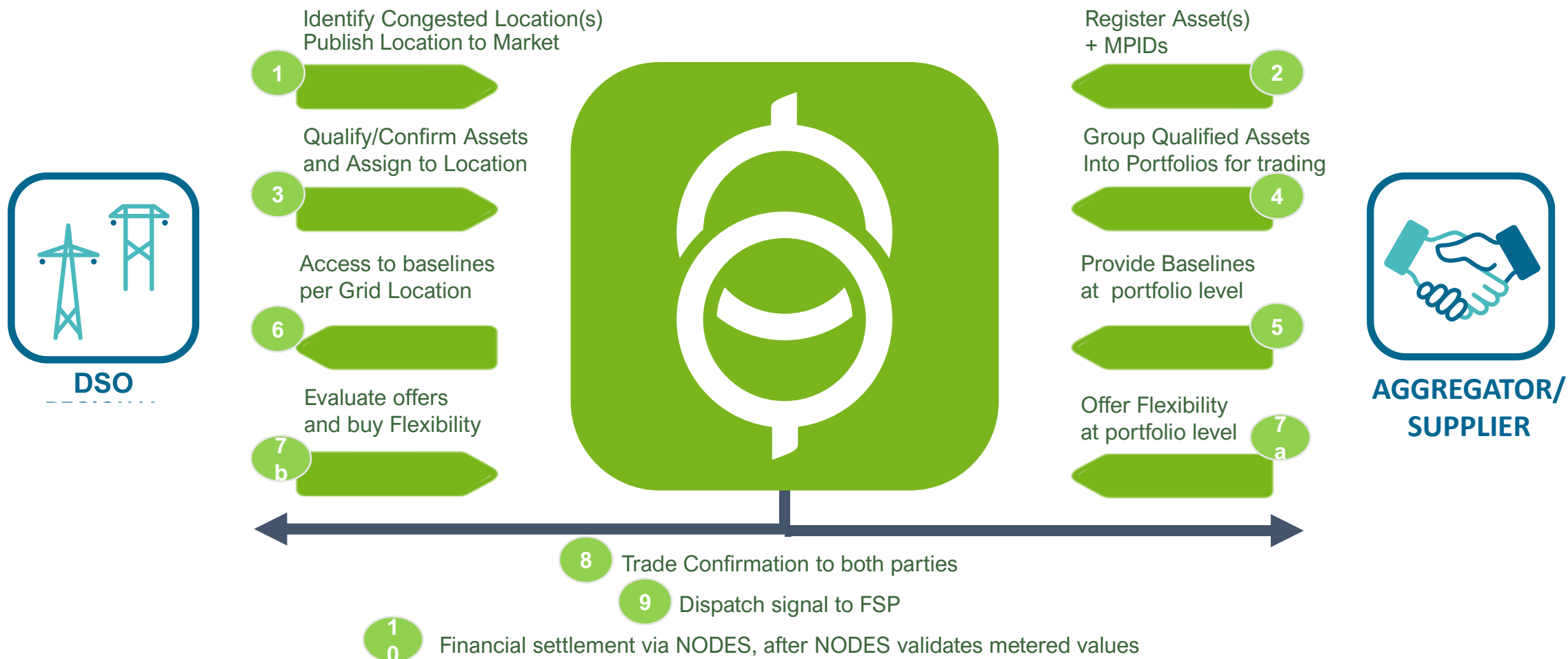
The EUniversal project, funded by the [European Union](#), aims to develop a universal approach on the use of flexibility by Distribution System Operators (DSO) and their interaction with the new flexibility markets, enabled through the development of the concept of the Universal Market Enabling Interface (UMEI) – a unique approach to foster interoperability across Europe.

The UMEI represents an innovative, approach that will be the basis for the development of new services, market solutions and, above all, implementing the real mechanisms for active consumer, prosumer, and energy community's participation in the energy transition.





## Acting on NODES within



# Continuous market, pay as bid, parameterised



HOME

FLEXIBILITY MARKET

NODES

IndependentFspUser01  
IndependentFsp

CREATE ORDER

Tue, 25 Feb, 13:52:07  
Flexibility market Western Power Distribution WPD South Wales Down regulation

Time	Close	My bids	Best bid	Best offer	My offers	Total bid qty	Total offer qty
Wed, 25 Feb 14:00 - 15:00	Tomorrow, 13:45					0.0 MW	0.0 MW
Wed, 26 Feb 15:00 - 16:00	Tomorrow, 14:45					0.0 MW	0.0 MW
Wed, 26 Feb 16:00 - 17:00	Tomorrow, 15:45		10.0 MW   €1,000.00	€1,150.00   5.0 MW	5.0 MW   1150 €	10.0 MW	10.0 MW
Wed, 26 Feb 17:00 - 18:00	Tomorrow, 16:45			€1,200.00   5.0 MW	5.0 MW   1250 €	0.0 MW	10.0 MW
Wed, 26 Feb 18:00 - 19:00	Tomorrow, 17:45					0.0 MW	0.0 MW
Wed, 26 Feb 19:00 - 20:00	Tomorrow, 18:45					0.0 MW	0.0 MW

My orders

From:

To:

All sides

Active

Normal

WPD South Wales

Wed, 26 Feb 2020	ID	Parent	Side	Status	Quantity	Price	Fill Type	Grid location	Portfolio	Creator	Time stamp	Comments
Expiry 17:00 17:00 - 18:00	cf81f4		Sell	Active	5.0 MW	€1,250.00	Normal	WPD South Wales	Portfolio 1	IndependentFsp	25/02/2020, 13:49	
Expiry 16:00 16:00 - 17:00	f19a3e	ab2c3f	Sell	Active	5.0 MW	€1,150.00	Normal	WPD South Wales	Portfolio 1	IndependentFsp	25/02/2020, 13:48	

# Potential opportunities and threats to independent flexibility markets



- ⌚ Problems to connect more RES seen by Regulatory Authorities
  - ⌚ Many European projects and initiatives to join
  - ⌚ Regulatory sandboxes welcomed
  - ⌚ Power exchanges and platforms eager for new business
  - ⌚ Centralization – no responsibilities transferred from TSO to DSO's
  - ⌚ Acting via tariffs instead of acting via markets
  - ⌚ Looking for reasons to avoid more RES connections
  - ⌚ Dependence of DSO's on vertically integrated parent companies
  - ⌚ Resistance to make DSO/DNO system OPERATORS and to leave trading platforms business to independent operators
-

# Unlocking the true value of flexibility

- Open
- Transparent
- Integrated
- Independent



Flexibility markets will help us keep the lights on in the future!

Grzegorz Onichimowski  
+48 600 409 900  
[grzegorz@NODESmarket.com](mailto:grzegorz@NODESmarket.com)



# Parameter details in a NODES Offer



## Order Parameters

Parameter	Comment
RebalancingPrice	Base Price pr MW or MWh («Activation»)
FlexMarginPrice	Added Price for trade/reservation («Reservation»)
Currency	EUR, GBP, NOK, SEK, etc
Quantity	Quantity of MW or MWh
QuantityType	POWER/REACTIVEPOWER/ENERGY
Side	BUY/SELL
Regulation	UP/DOWN
OrderType	MarketOrder/LimitOrder
FillType	Normal/FillOrKill/FillAndKill
TimeToLive	Limit Orders time in orderbook

## Location Parameters

Parameter	Comment
AssetPortfolio	Reference to Asset Portfolio in Offer
GridLocation	Reference to Grid Location
AvailForMarket	[ <u>ALL</u> , TSO, DSO, IDM]

## Time Parameters

Parameter	Comment
BlockSize	Size of building block in Seconds
PeriodFrom	Start of period in Offer
PeiordUntil	End of period in Offer
BlockCount	Count of blocks to activate in Period
AdjacentBlocks	Count blocks adjacent as minimum
RestTime	Count Blocks between activations

## Asset (Profile) Parameters

Parameter	Comment
ASSET CLASSIFICATION	
Class	BG,HY,CP,SL,BA,WM,EV,DR,OG,RG
Category	CONSUMPTION, PRODUCTION, EITHER
Renewability	TRUE/FALSE
ASSET PROFILES	
RampUpRate	
RampDownRate	
Properties[ ]	List (Key/Value) of Asset specific properties

