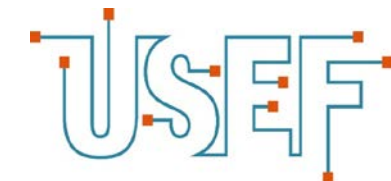


An aerial photograph of a city, likely Amsterdam, showing a mix of urban development and green spaces. A network diagram is overlaid on the image, consisting of white dots connected by thin white lines. The dots are positioned at various locations across the city, including residential areas, industrial zones, and green spaces. The lines connect these dots in a way that suggests a network or flow of information or resources.

Flexibility

Bram Sieben

Advisor to the Board of Alliander
Boardmember @ USEF Foundation



Alliander, a Dutch network company

alliander



Alliander is a network company. Every day, we support over three million customers with access to energy. We secure affordable, reliable and accessible energy distribution in a large part of the Netherlands. Our shareholders are municipalities and provinces.

Customers

- Customer connections (E&G): 5.7 million
- Availability of energy: 99.99%
- Installed smart meters: 1.9 million
- Customers feeding energy to the grid: 189,810

Employees

- Employees: 5669
- Employee satisfaction 70%

Financial

- Revenue: € 1.9 billion
- Investments: € 731 million

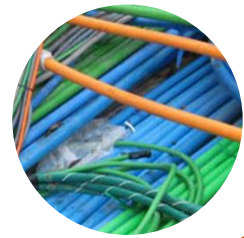
The energy transition program of Alliander

A portfolio of six dedicated programs



Flexibility

Developing our flexibility toolbox



New infra and smart design

Integral energy networks, cable pooling and new infrastructure



Market-facilitation

Being ready as market facilitator for the future



Insights and guidance

Optimizing socio-demographical developments in our grid planning



Heat transition

Tools for optimal customer and system choices locally and regionally



Data-driven grid management

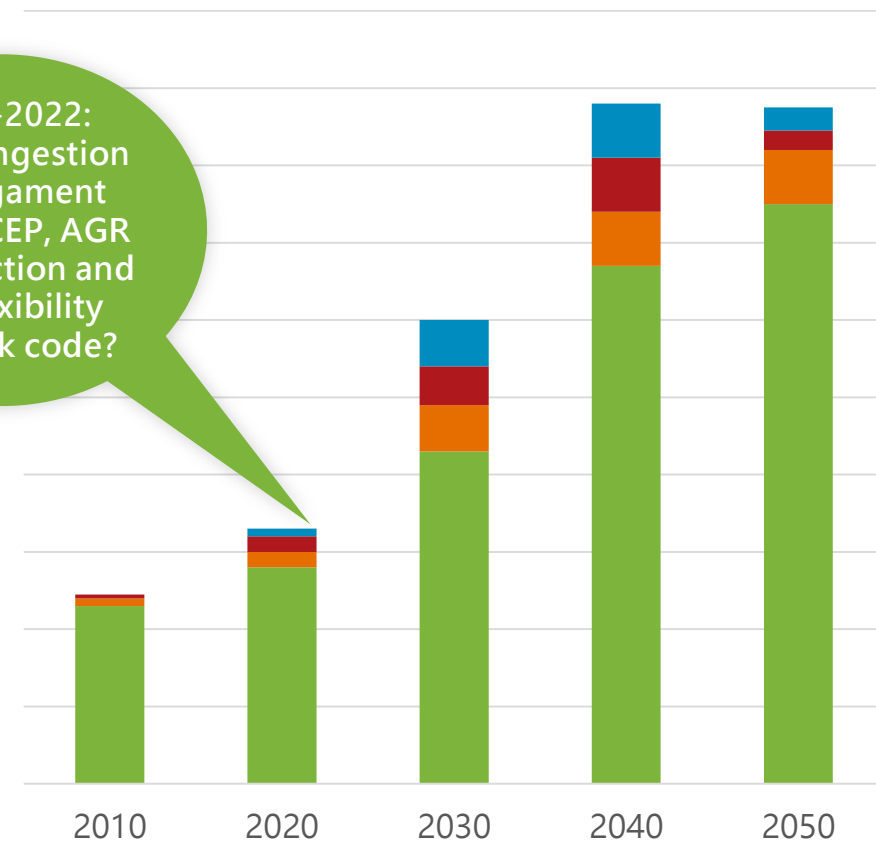
Digitalisation, data and analytics

Market development: Flexibility demand increases and supply will might eventually not be enough in 2040

Relative development flexibility demand

Source: TenneT flexibility roadmap NL

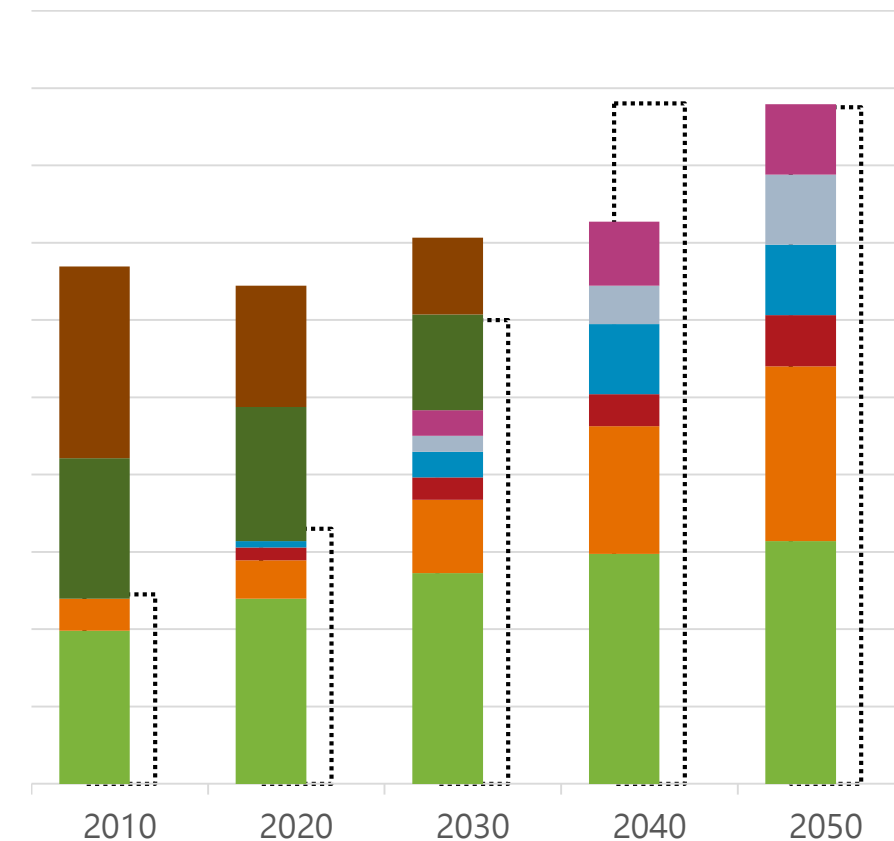
2020-2022:
DSO congestion
managment
codes, CEP, AGR
introduction and
EU Flexibility
network code?



- Flexibility need for portfolio-optimisation (BRP)
- Flexibility need for balancing (BRP & TSO)
- Flexibility need for congestionmanagement (TSO)
- Flexibility need for local congestionmanagement (DSO)

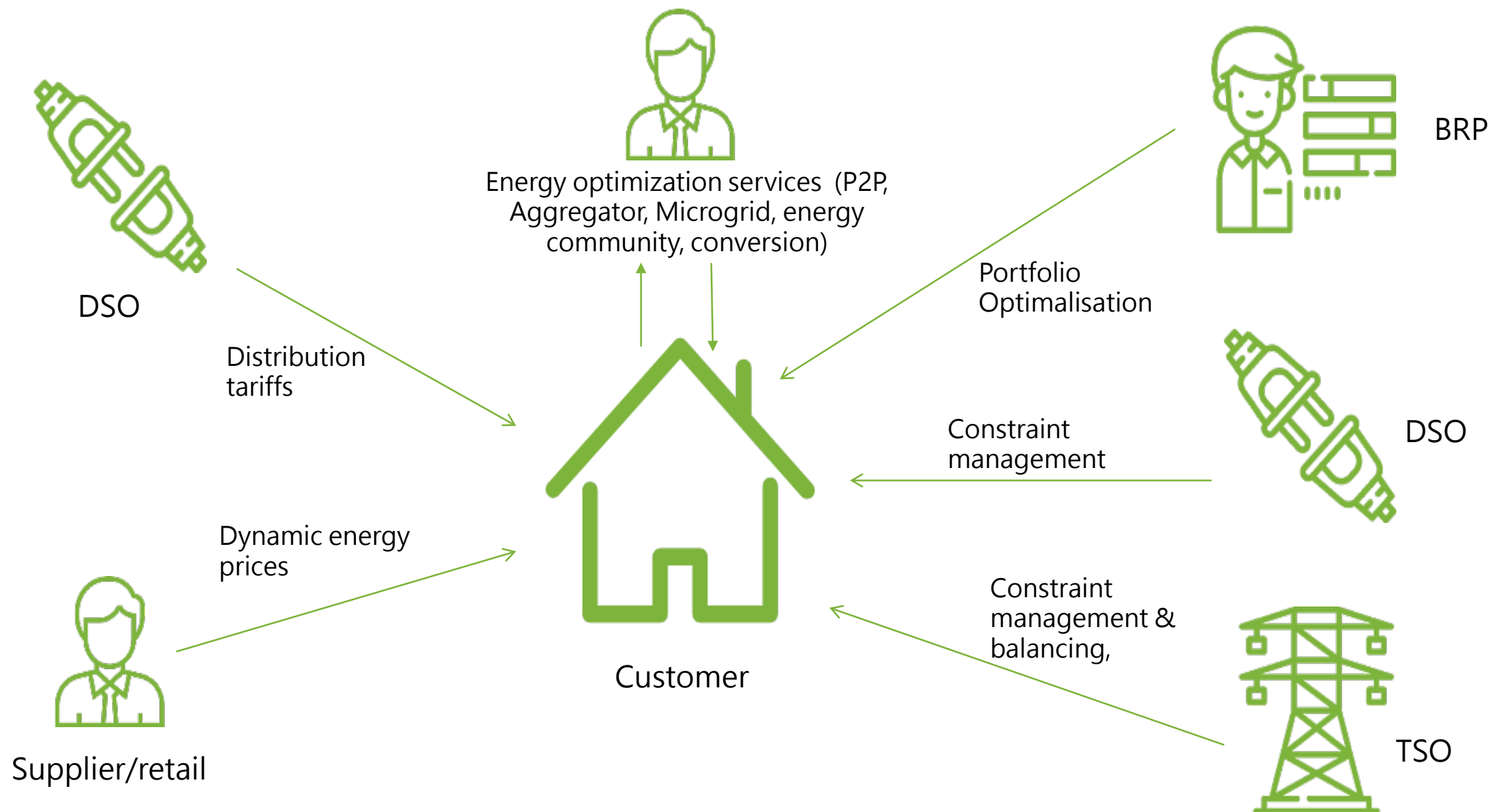
Relative developemnt of flexibility supply

Source: TenneT flexibility roadmap NL



- Network & interconnections
- Industry en greenhouses
- Decentral demand-response
- Sustainable supply (flex)
- Decentral storage systems
- Industrial storage systems
- Decentral conventional supply
- Conventional supply (flex)
- Total demand for flex

And the location plus the moment of using energy becomes more volatile and valuable

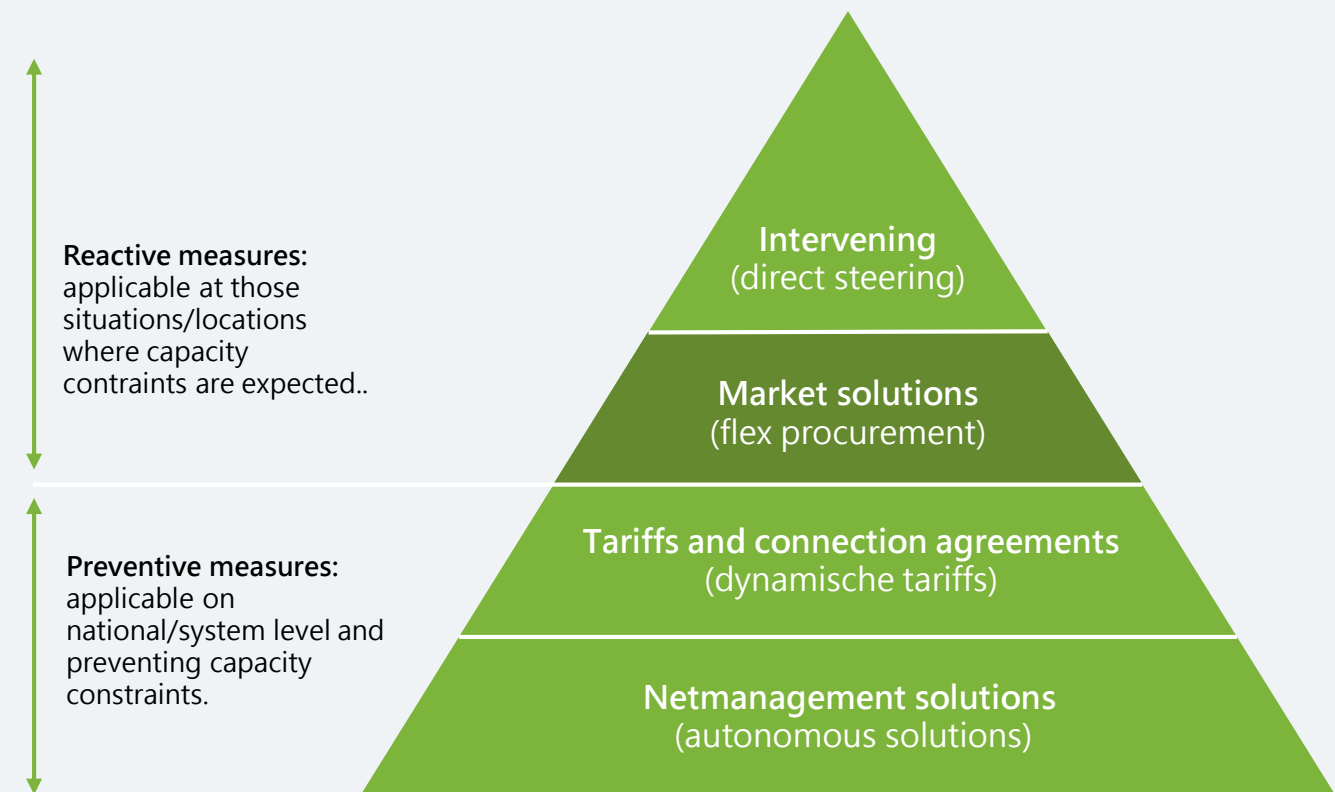


Flexibility options DSO

There are multiple ways to influence demand/supply at a local level:

- 1 Technical assetmanagement solutions (e.g. cable pooling)
- 2 Tariffs and connection agreements (e.g. smart charging)
- 3 Flexiblity procurement (e.g. flexibility market)
- 4 Direct intervention (e.g. curtailment)

We follow a hierachy of solutions:



Flexibility versus congestion management

If grid expansion is no longer an option, we can procure flexibility locally as an alternative to connection constraints.

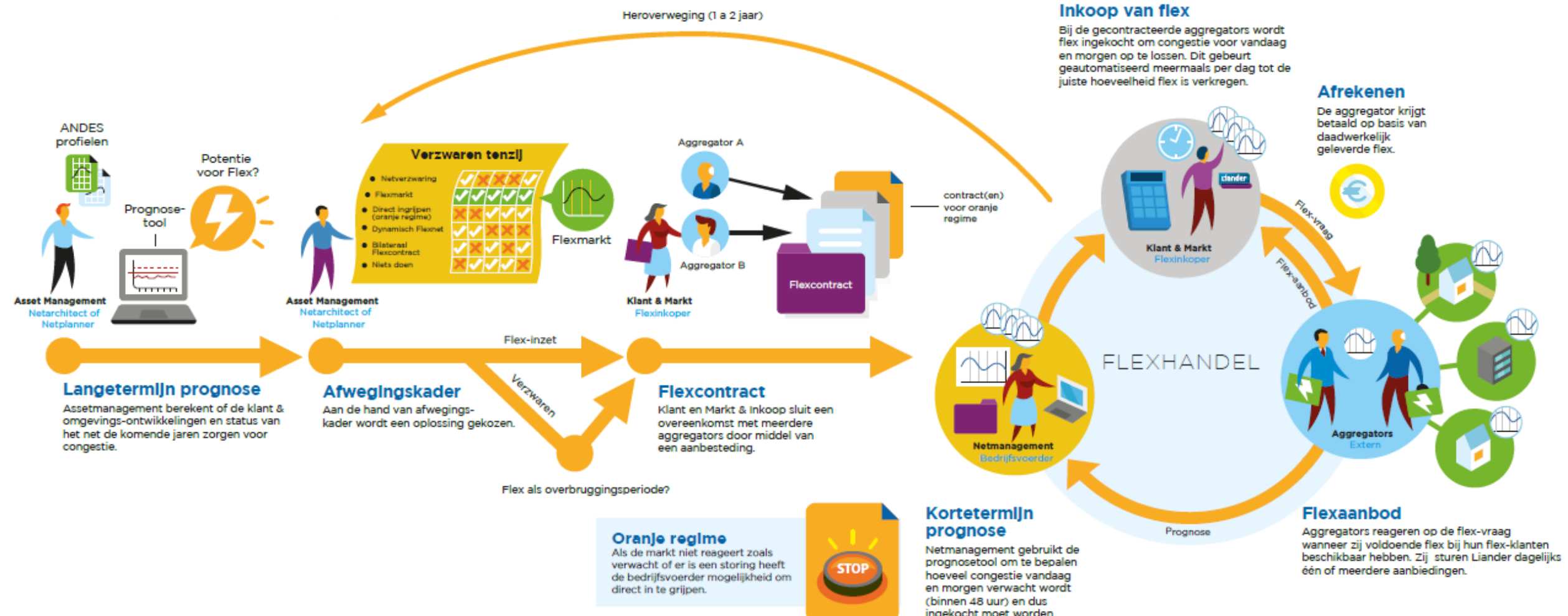


Extensive information and transparant evaluation is essential

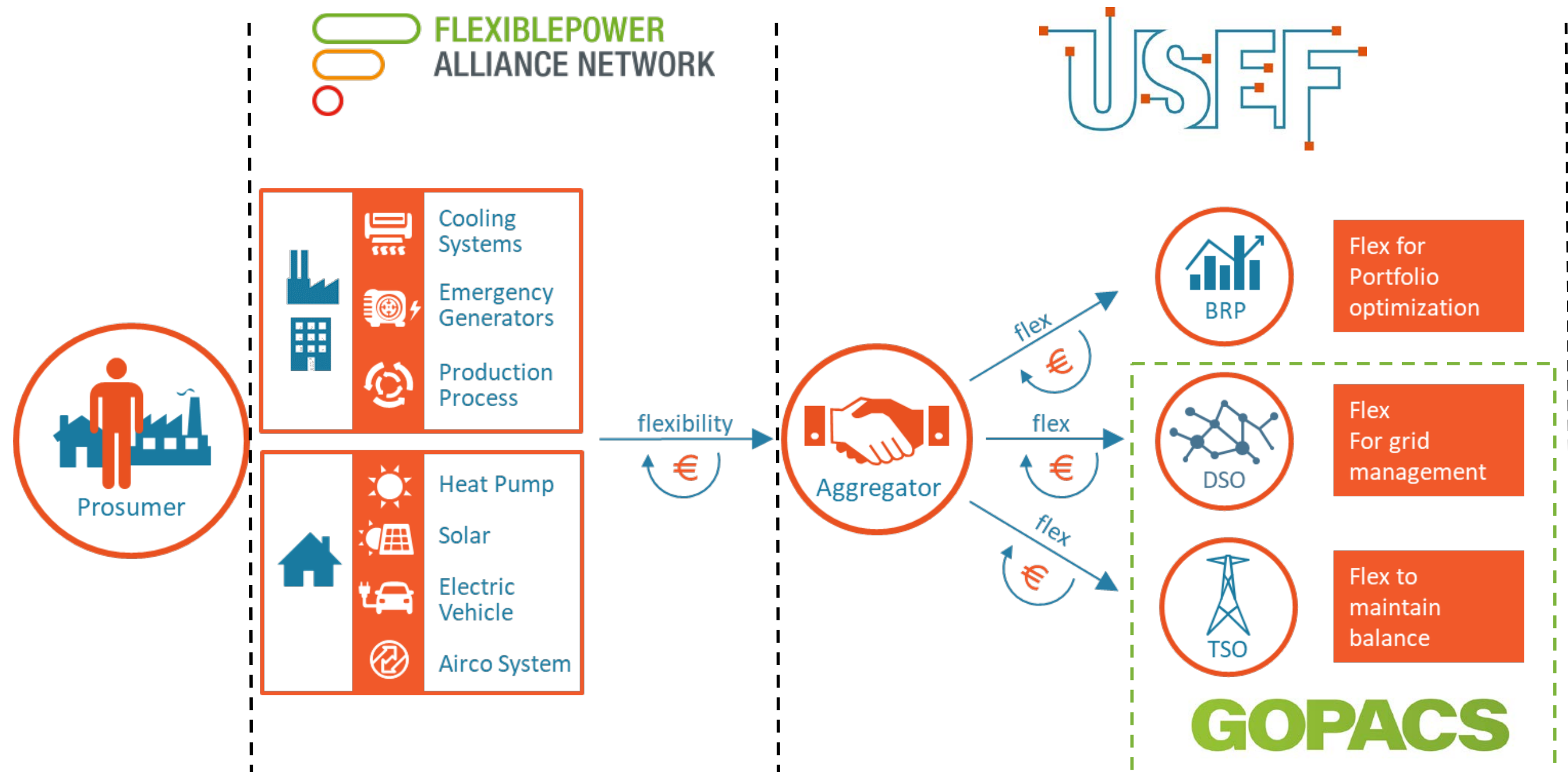
We gather essential information on our assets, customers, local and regional developments to evaluate the long-term impact on our grids and create shorter term prognosis.

Using our evaluation framework, we determine what flexibility option is most applicable and economically viable in each situation

Flexibility procurement is done at our contracted aggregators, automated and with multiple daily intervals.



Three initiatives where Alliander participates in:





How working along a new common standard enhances value creation

ABB

allander

IBM

STEDIN NET

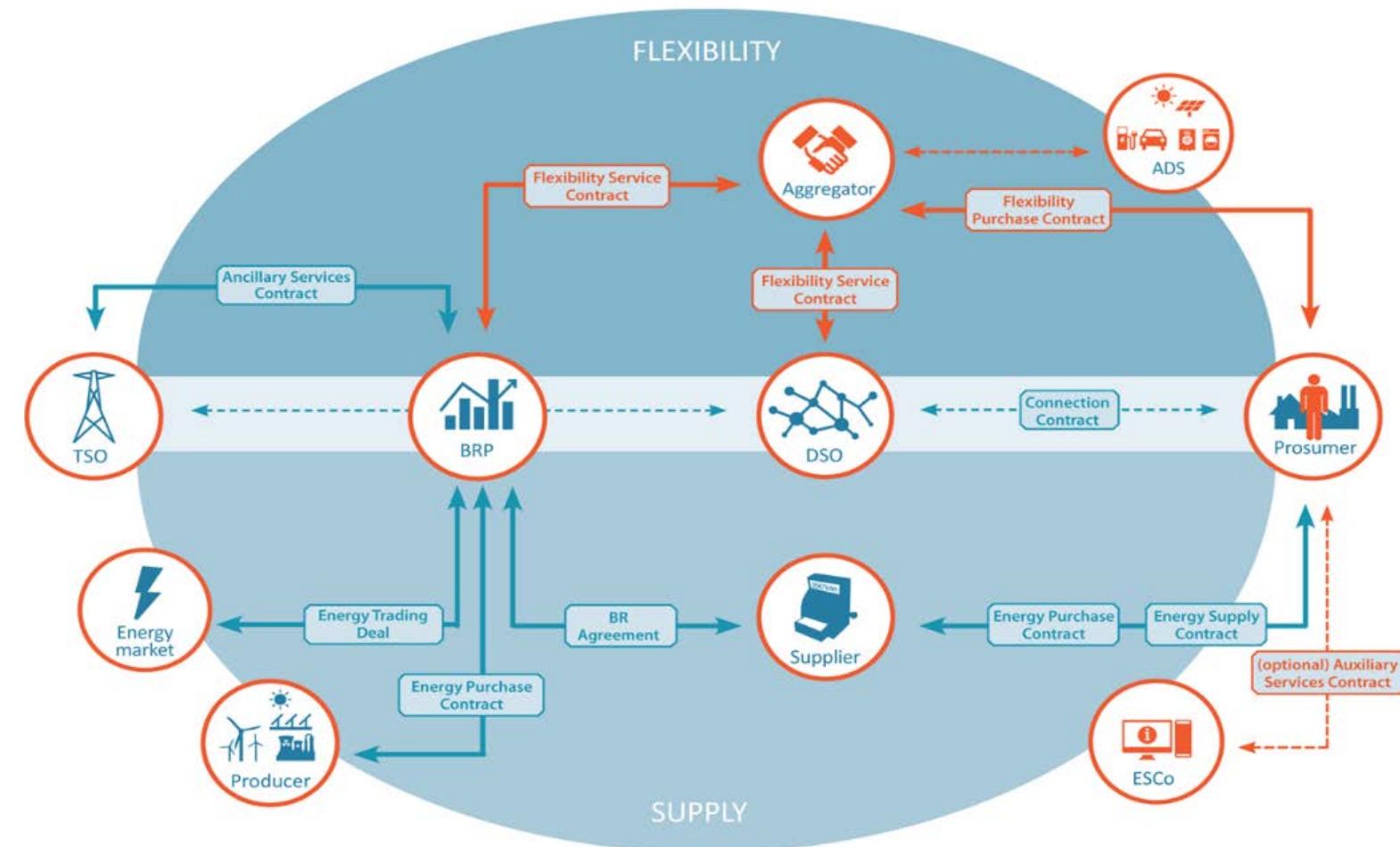
DNV·GL

ICT ⁺

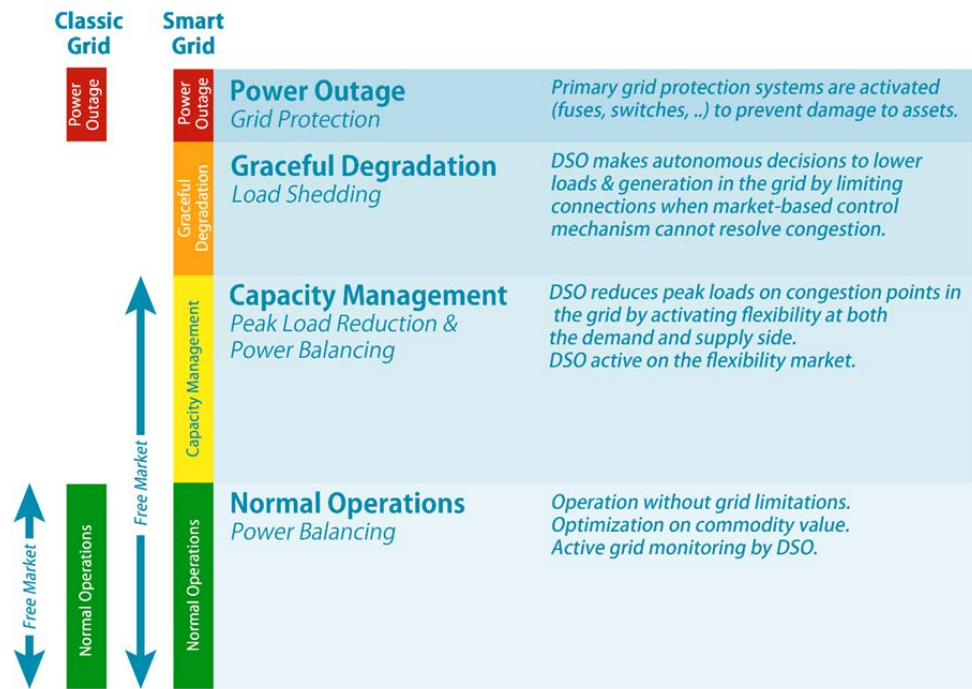
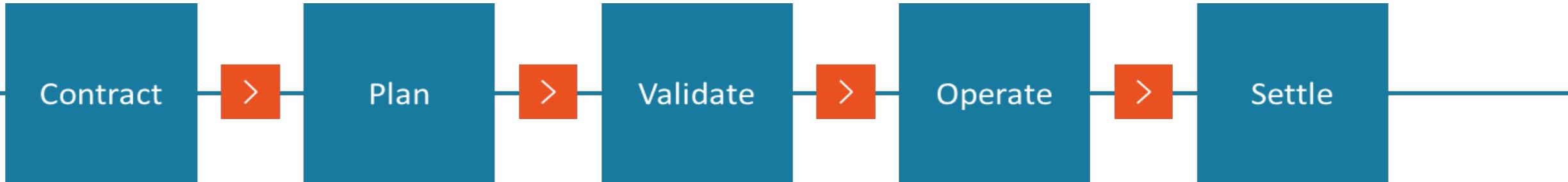
USEF: Roles and responsibilities

USEF concept:

- Role model, based on harmonized role model (eBiX)
- Contractual relationships
- Aggregator is key in unlocking demand-side flexibility



Information exchange: coordination mechanism necessary



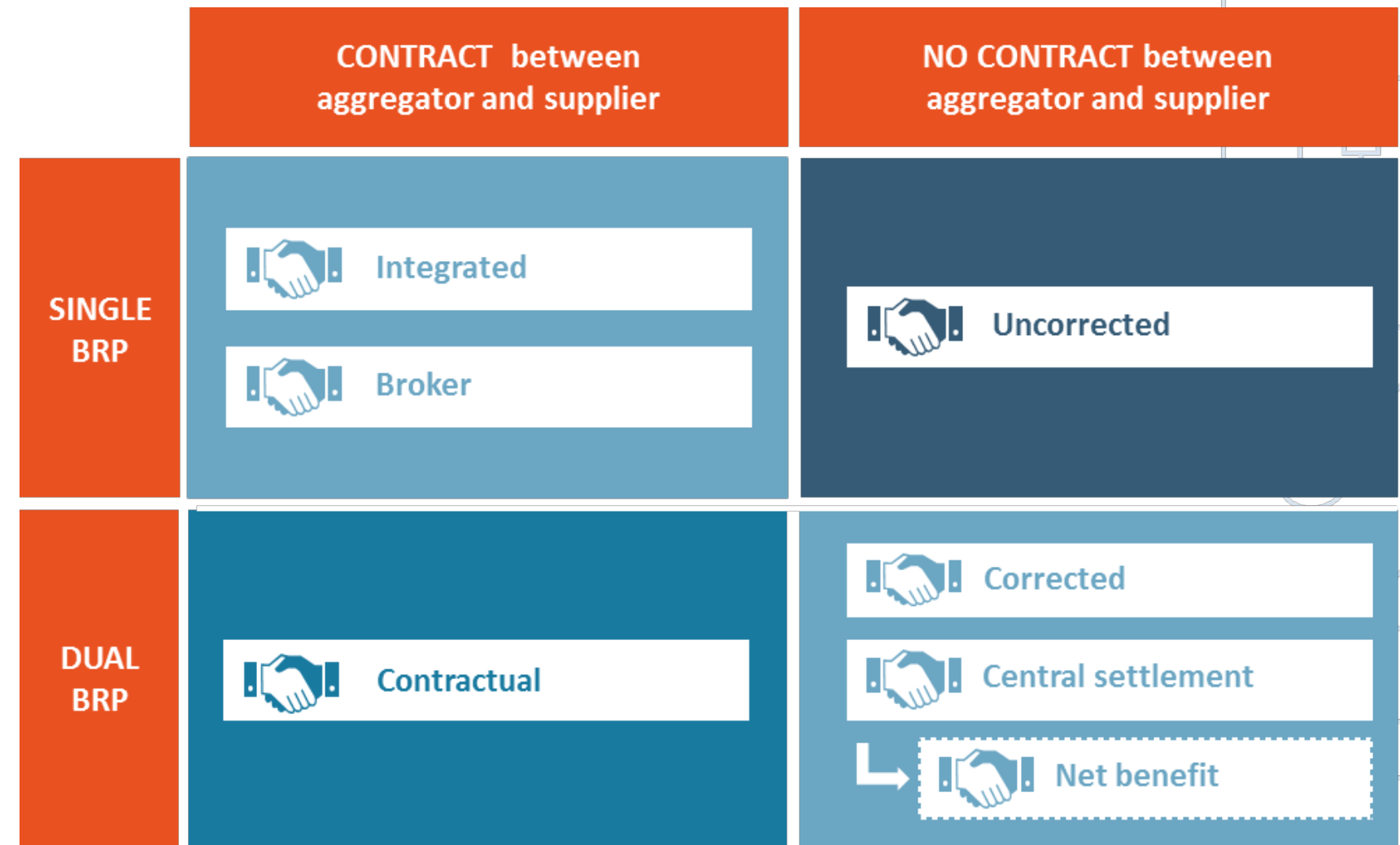
USEF concept:

- Five market phases (in detailed specifications)
- Traffic light system

Defined how to integrate the aggregator role in our energy system

USEF concept:

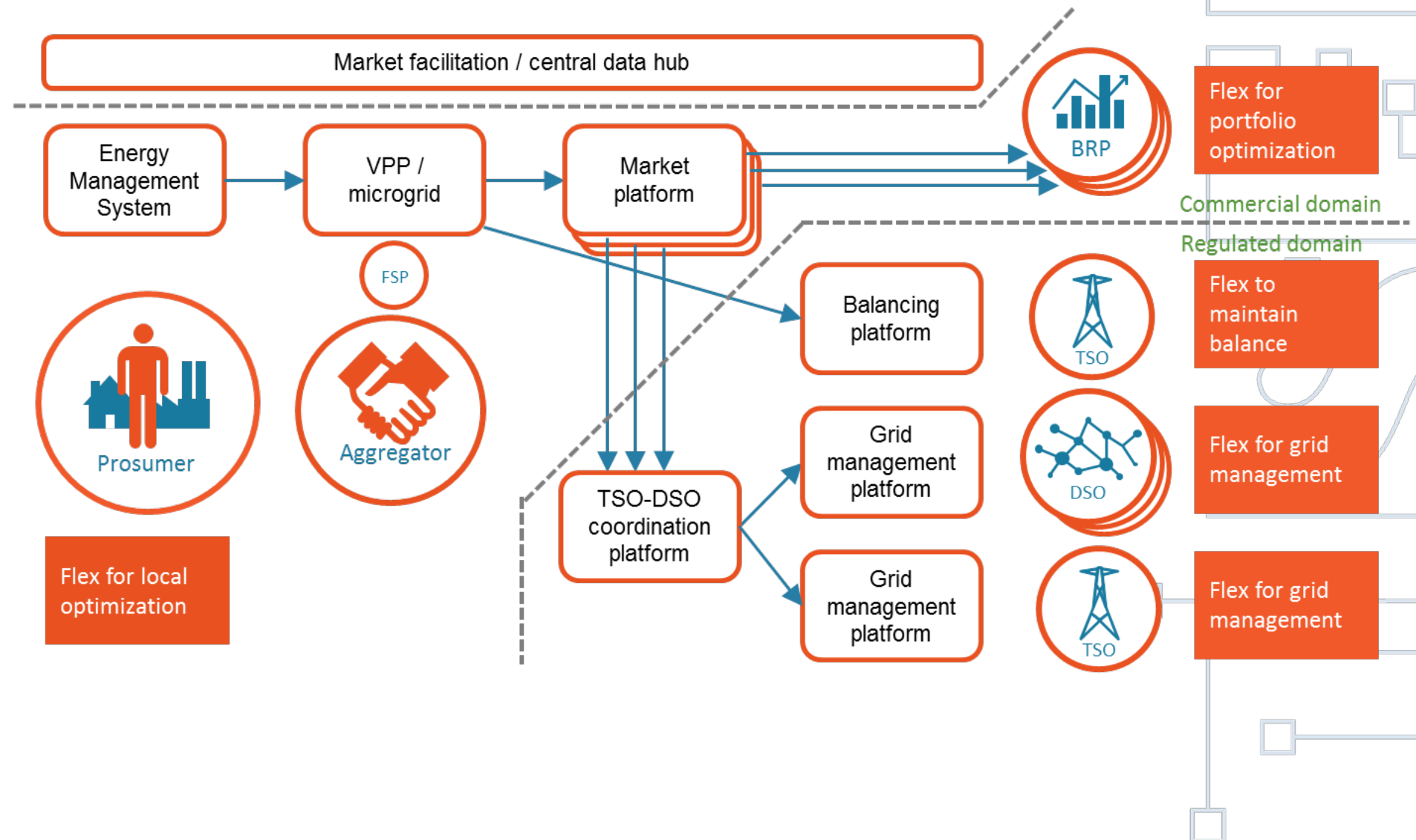
- AGR implementation models
- Relation AGR-Supplier
- Transfer of Energy
- Baseline methodology
- Rebound effects



Upcoming trend of flexibility platforms

USEF concept:

- Classification of platform types
- Flexibility market platforms
- Interface regulated – commercial domain
- TSO-DSO coordination



Key messages:

1. Facilitate the aggregation of demand-side assets
2. Focus on harmonisation, across Europe, right from the start.
Continue to do so during/after implementation(s).
3. Use a common vocabulary and classification of concepts. This helps understanding and comparing initiatives.
4. Develop the necessary updated market model as an effective ecosystem

An aerial photograph of a city, likely Amsterdam, showing a mix of urban development and green spaces. A network diagram is overlaid on the map, consisting of white dots connected by thin white lines. The dots are positioned at various locations across the city, including residential areas, industrial zones, and along a canal. The lines connect these dots in a way that suggests a network or flow between different parts of the city.

Questions?

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Alliander | USEF Foundation



www.game.energy

