

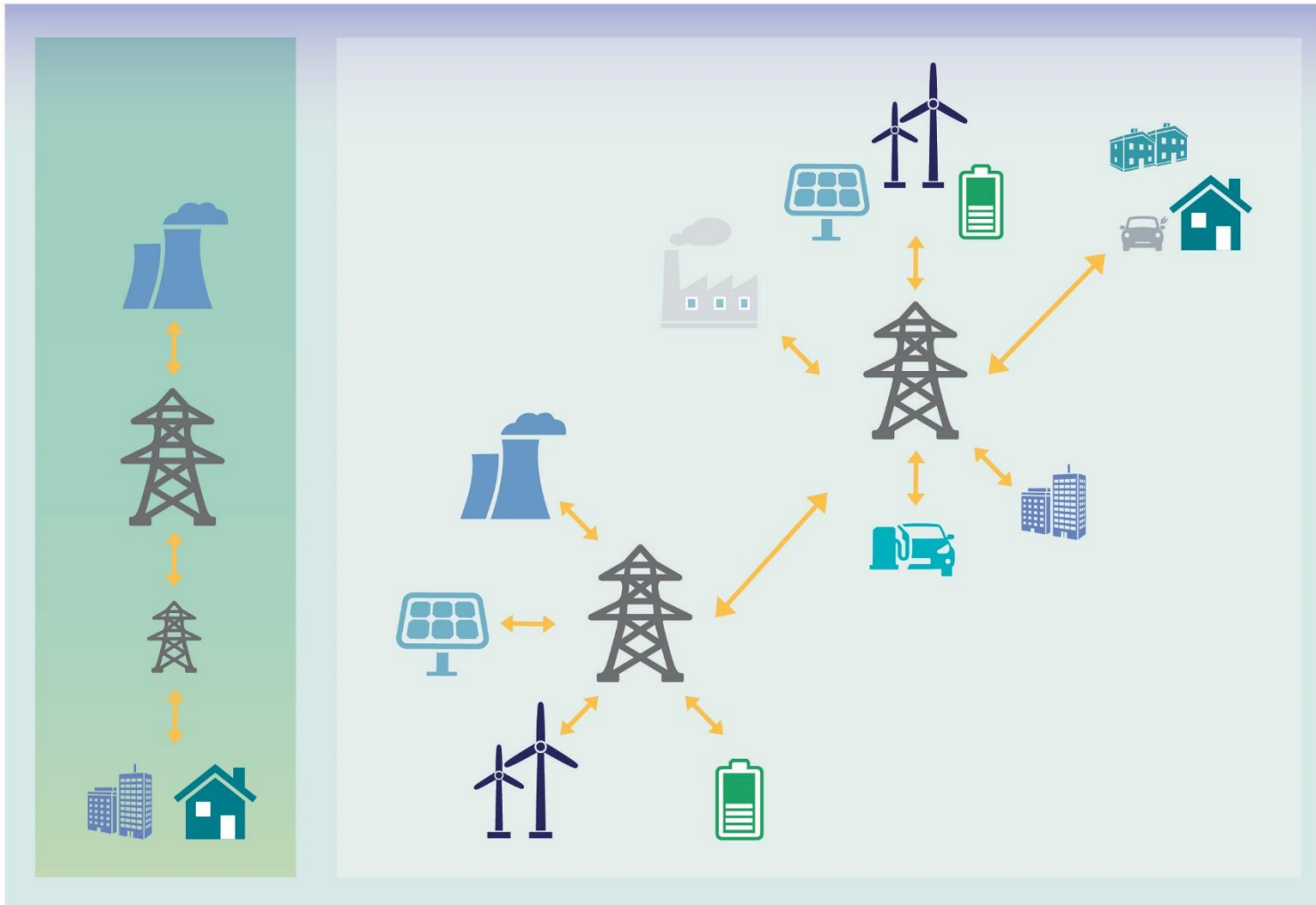
Big Energy Summit

A smart, flexible energy system

ofgem

The changing system

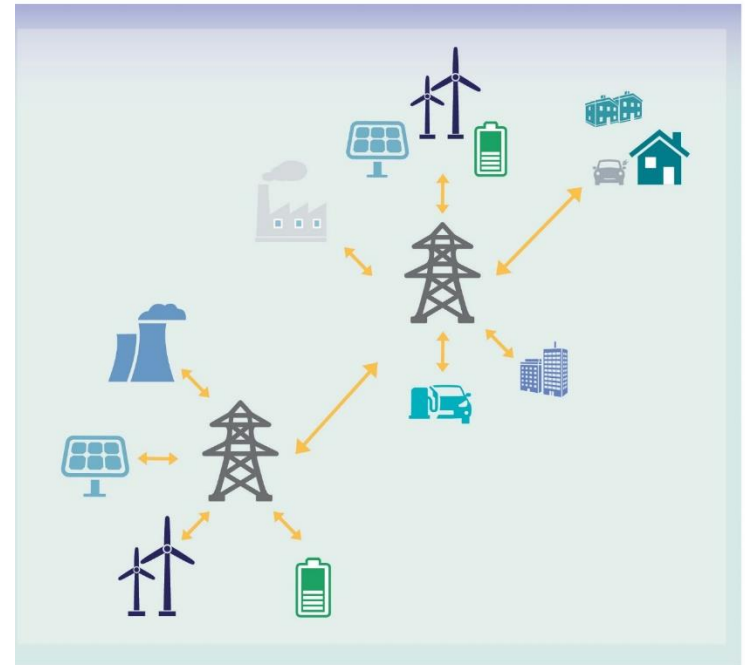
The need for flexibility and smart solutions



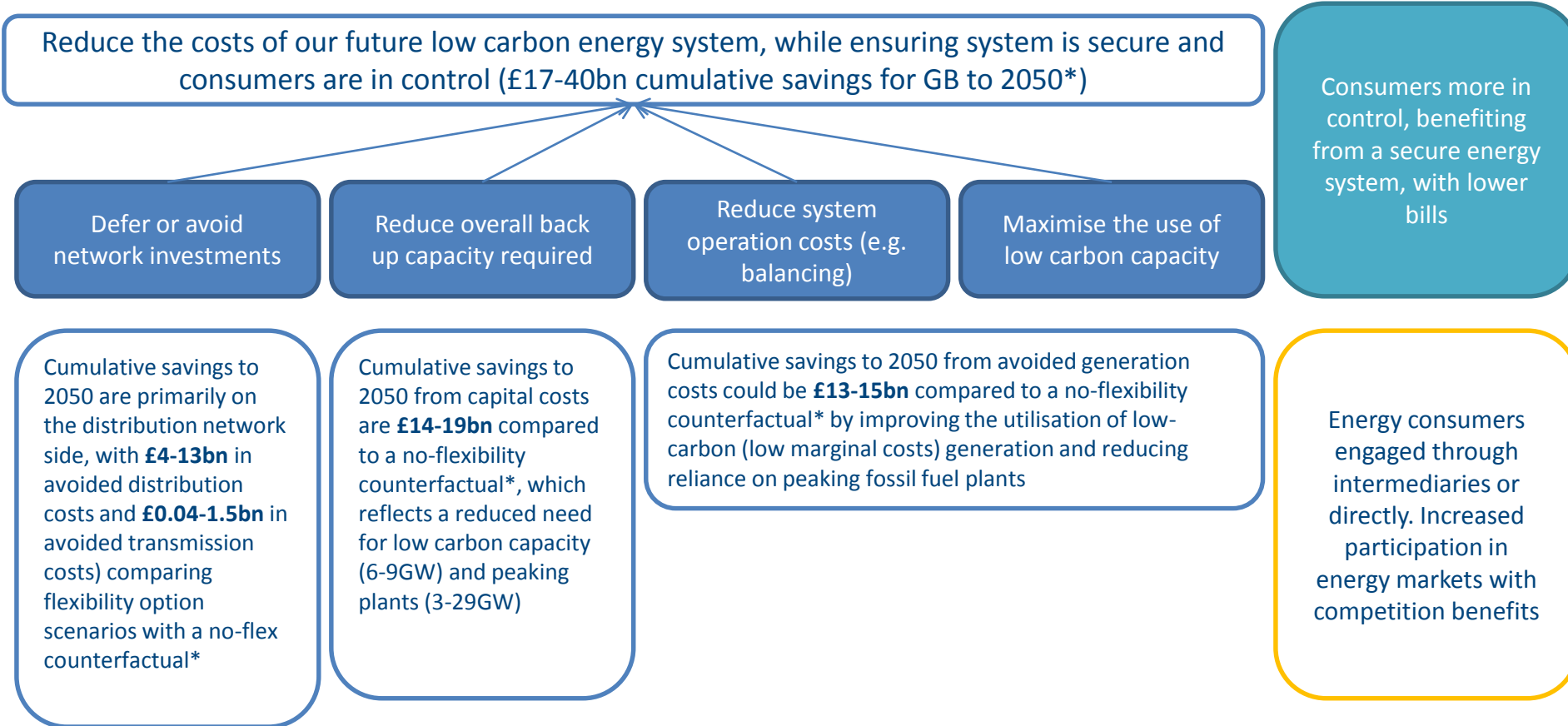
Graphic courtesy of National Grid

What do we mean by a flexible energy system?

- A system which enables low carbon technologies to connect, while reducing the need to invest in new generation and network capability.
- A system that uses new and existing forms of flexibility can help us manage a system with more intermittent renewable and distributed generation.
- A system where it is easier to manage peaks in supply and demand.



What are the benefits of a smart system?



Source: DECC Least regret flexibility project (2016)

*Cost savings in DECC Least-regret flexibility project reflects the benefits of all flexibility options, i.e. not just storage and DSR but also interconnection and flexible CCGTs

Q4 2015

November 2016

Spring 2017

2017 onwards

Ofgem's position paper

'Making the electricity system more flexible and delivering the benefits for consumers'

DECC's paper

'Towards a smart energy system'

Joint Call for Evidence

'A smart, flexible energy system'

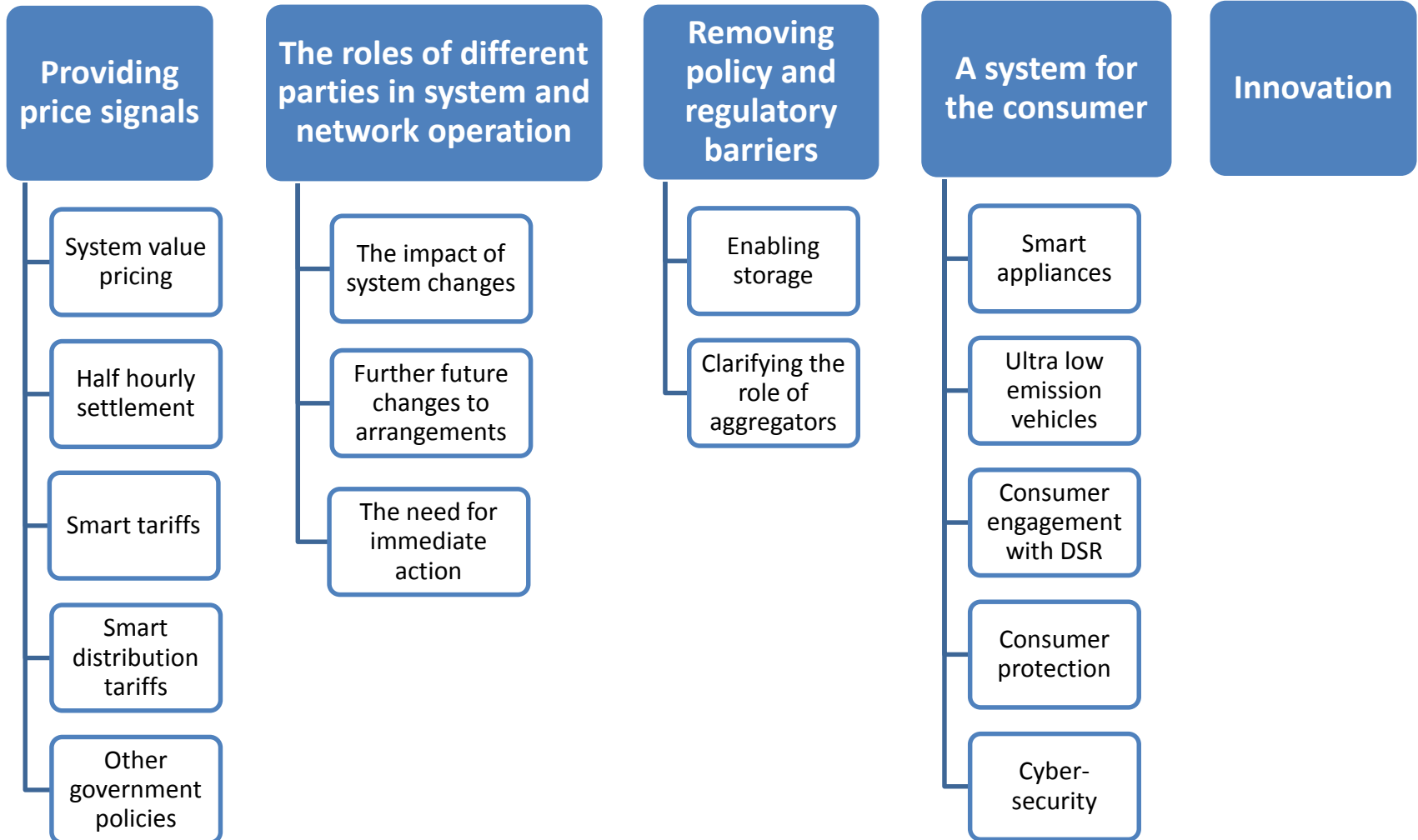
Joint Plan

Work package A

Work package B

Work package C

Engagement in Europe and internationally





- Opportunities for storage in delivering new EFR
- Potential to go further through multiservice contracts
- Power Responsive campaign outcomes
- Capacity market outcomes

- Diverse business models are emerging simultaneously for storage, ranging from colocation with renewables to domestic consumer offerings through aggregators

- Dramatic cost reduction of Li-ion technology – around 14% pa from 2007-2014 and likely to reduce further. Comparable with drop in solar costs

Removing Barriers

Creating a level playing field

Regulatory Clarity

- **Jointly led:** issue of where and how storage sits in legislation.

Final Consumption Levies

- **BEIS-led:** issue of exempting distribution-sited storage from policy charges (RO, FiTs, CCL).

Planning

- **BEIS-led:** issues of time, scale and boosting investor confidence.

Ownership

- **Ofgem-led:** issue of who can or should own storage.

Connections

- **Ofgem-led:** issues of priority, cost, duration and status of existing generators installing storage.

Network Charging

- **Ofgem-led:** issue of 'double-charging' on import and export.

Large I&C

- Many of the enablers in place
- Large users with commercial incentive to participate
- Traditional provision from largest users, typically using on-site generation
- Many do not participate (as much as they could) as unaware of the opportunities or wary of the risks
- Some existing initiatives to address this, eg NG's Power Responsive

Domestic and smaller non-domestic

- Need for more smart meters, appliances and tariffs
- Current concerns around: scepticism of impact of energy costs; loss of control; lack of info
- Importance of the role of ESCOs; quality of design solutions; development of energy tariffs/services
- Need to engage to raise potential participation esp. vulnerable and those most likely to have difficulty participating



Aggregators aggregate flexibility from individual consumers to better meet the needs of those procuring flexibility services. Some traditional electricity suppliers also provide this service to their customers and the customers of other suppliers.

Aggregators facilitate customers access to markets, adding value through simplification, scale or portfolio effects.

They assist customers to access revenue from the Balancing Mechanism, Balancing Services, the Capacity and wholesale markets in exchange for a share of the revenue that they receive.

In our September 2015 Flexibility Position Paper we committed to clarify the role of aggregators and their relationships with other parties and explore the need for policy intervention and regulatory oversight.

Market Access

Do licensing & regulatory regimes, and market access rules support DSR growth where it is needed?

Is System Operator-led procurement of DSR transparent and efficient? Is it facilitating aggregated DSR?

External Effects

Do the regulatory arrangements ensure aggregators interact efficiently with other market participants?

Are costs borne in a way that leads to efficient outcomes?

Consumer Protection

Are consumers being protected sufficiently?

Can flexibility providers **compete fairly** in existing markets?

Are there are **missing markets** for flexibility?

Can flexibility providers **stack value** across these different markets?

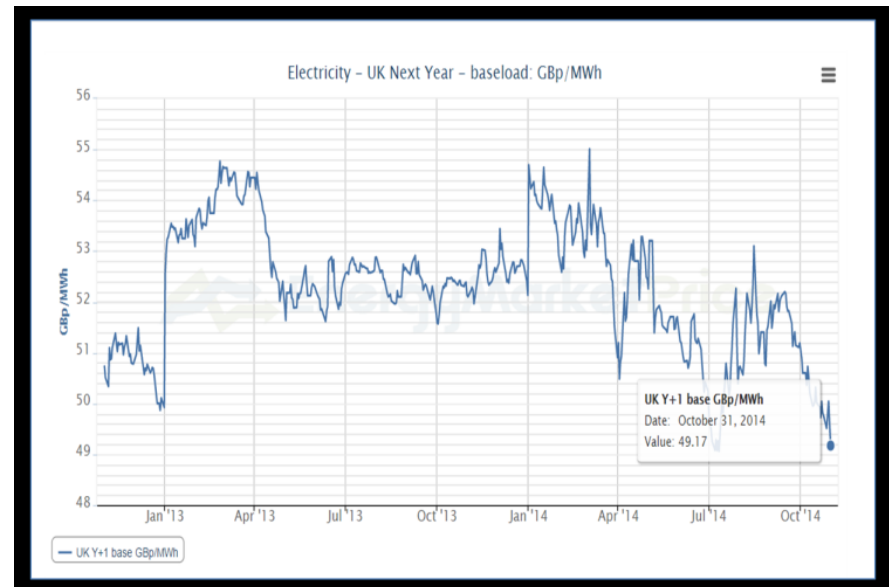
Capacity Market

Wholesale Market

Balancing Mechanism

Ancillary Services

Local network services?



- Price signals shape the profiles of generation and demand → in some cases these will need reform to recognise the changing energy system.
- Institutional, governance, and market arrangements must ensure that all users of flexibility purchase it optimally from all providers of flexibility (based on its value to the whole system).

System Value pricing

Half hourly settlement

Smart Tariffs

Smart Distribution Tariffs

Other Government levies

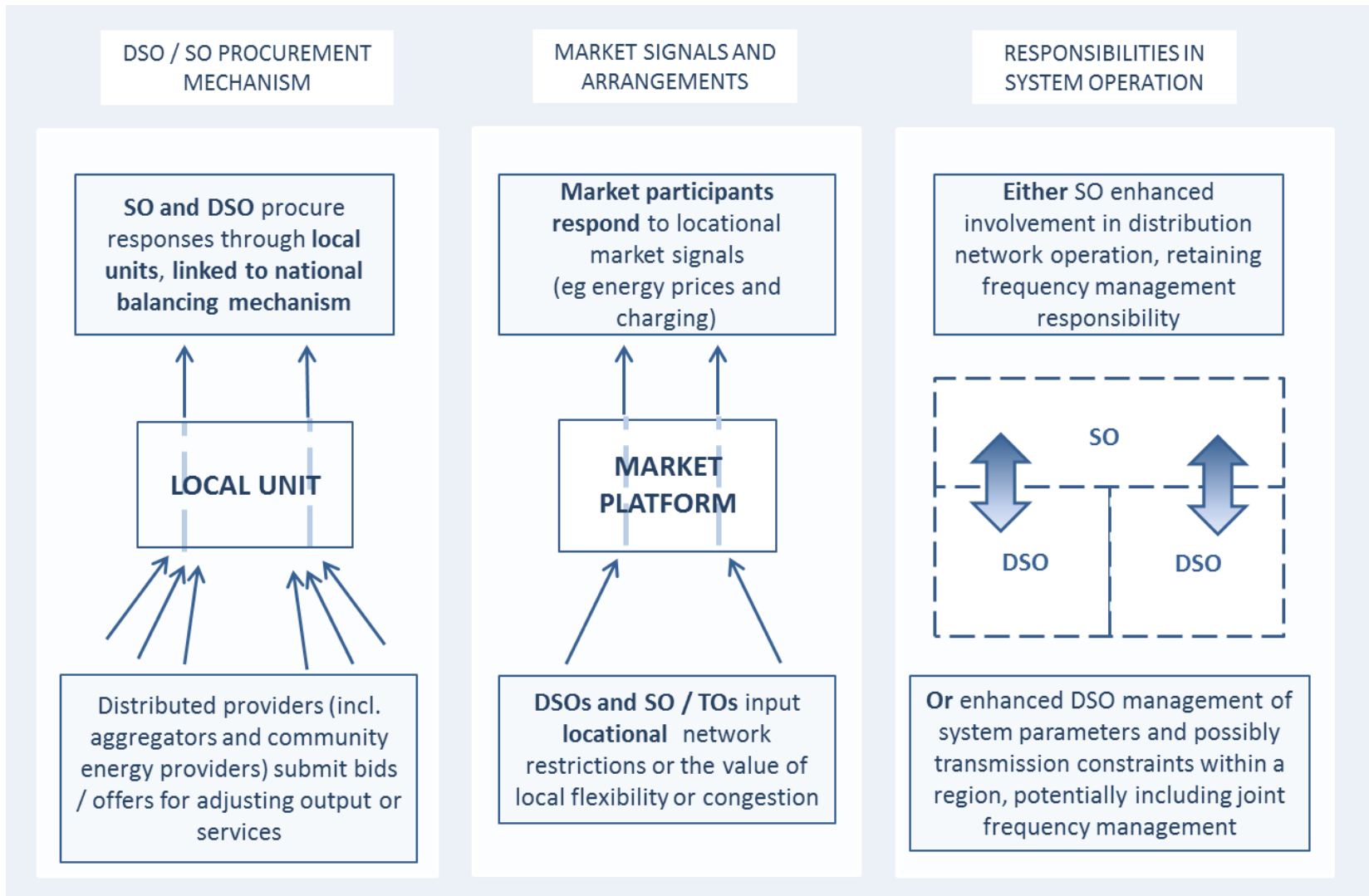
DNOs

Transition to DSO roles:

- Operate efficient, co-ordinated and economical distribution networks, including **active use of new technologies, providers and solutions**
- Have an increased role in delivering an efficient, co-ordinated and economical **wider system**

DNOs, TOs,
SO

- significantly increase engagement with one another, and other parties, to deliver the **best whole system outcome** for consumers



Next steps:

1. 240 Call for Evidence responses received in January 2017
2. Spring Plan published May 2017