



**Smart regulation, energy consumer
engagement and demand response**

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- EU consumer rights framework
- Energy market challenges and trends
- Engaged consumers and innovation
- Role of distribution system operators
- EU's new legislative proposals for electricity market design





EU consumer rights framework

- 2009 3rd Package of EU energy liberalisation laws reinforced energy consumers' rights and the responsibilities of public authorities
- EU also has rules on general consumer issues, including unfair commercial practices, distance or doorstep selling and contract transparency.
- Collectively, EU consumer rights for energy (Article 3 and Annex I of Electricity/Gas Directives) can be grouped under 6 headings...





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Your energy rights

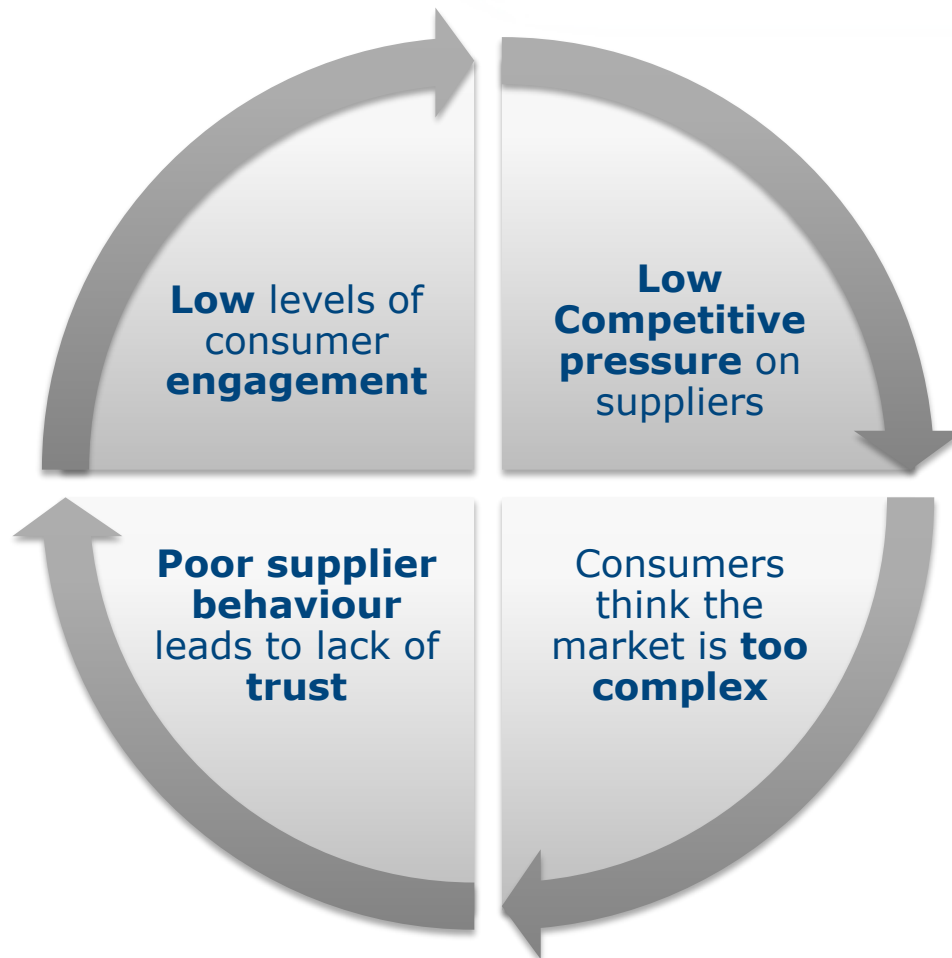
1. Universal service
2. Customer information requirements
3. Supplier switching
4. Complaint handling and out-of-court dispute settlement
5. Protection of vulnerable customers
6. Fair commercial practices and general consumer rights

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The energy market challenge



- Engaging with consumers
- Explaining energy as a commercial product
- Ensuring energy companies receive adequate rate of return
- Promoting simple and non-discriminatory practices by market players

Energy markets are evolving

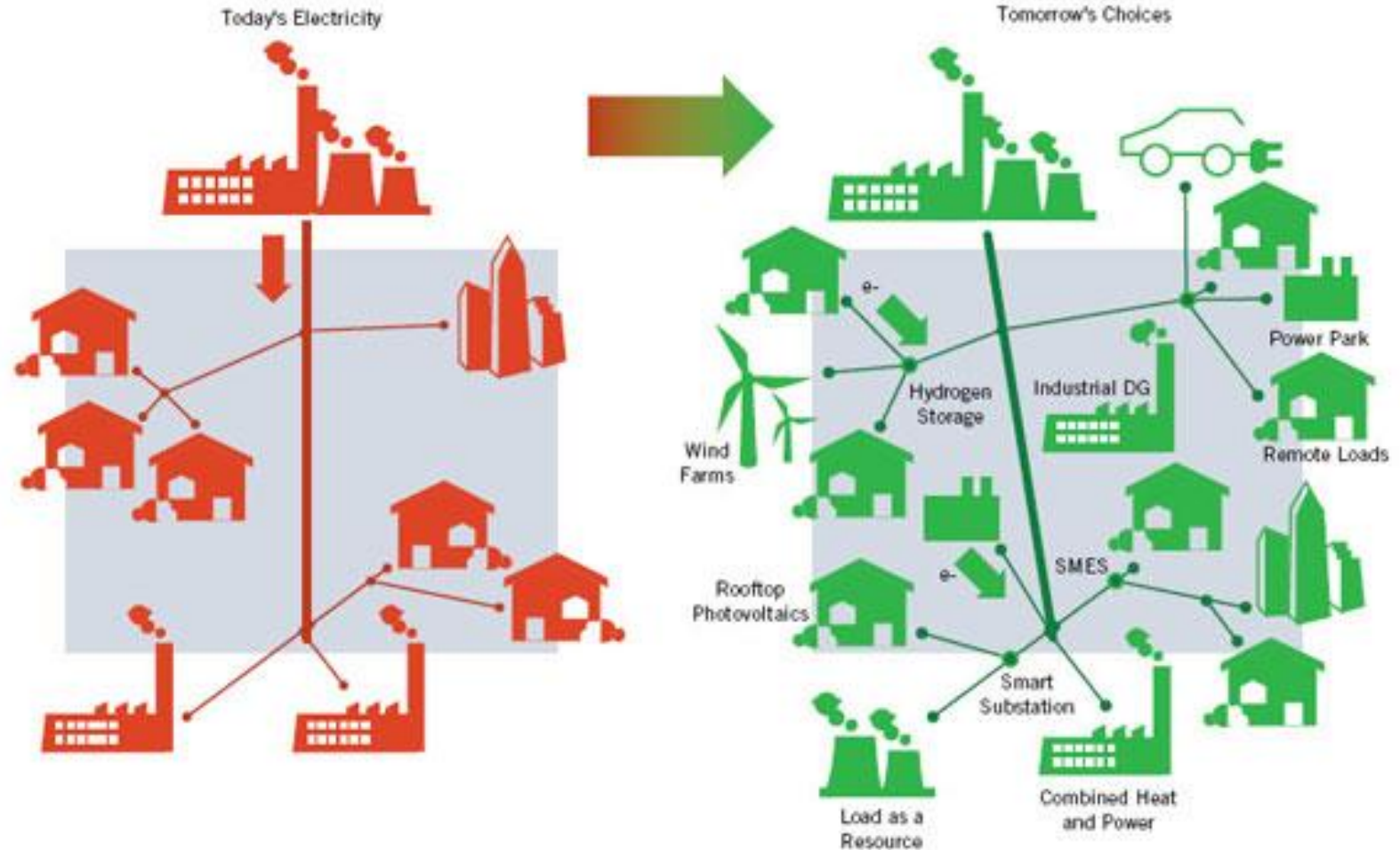
- Massive changes in energy system due to environmental policy and technological advance
 - ▶ Increased amount of intermittent Renewable Energy Sources (RES)
 - ▶ Distributed generation; new market players
 - ▶ Technology: smart meters, smart grids; increased electrification of heat and power
 - ▶ Security of supply concerns
 - ▶ Consumers: increasingly aware and concerned (prices, trust, privacy, the environment)

Demand-Side Flexibility is part of the response



Energy markets: a changing world

Grid Modernization



Megatrends for energy

Decarbonisation and Renewables



Wind and Solar:

Remote, dispersed
and variable

Distributed Generation:

Prosumers, demand
side and storage

New Technology

Hardware:

Electric Vehicles,
Smart Heating,
Internet of Things

Software:

Data Management
Block Chain
Artificial Intelligence



Energy sector trends (I)

- Consumer concerns:

- ▶ Rising energy price remains a major concern: in household budgets and for companies' competitiveness
- ▶ The increasing share of intermittent renewables may require grid investments i.e. fixed costs become higher
- ▶ Households and industry can save energy and money by improving their energy efficiency and be involved in demand response



**Simple and clear information is needed
to encourage consumer to take up
innovative products and services**



Energy sector trends (II)

- Enabling demand response:
 - ▶ Larger consumers have already provided load management services to system operators for many years
 - ▶ Smaller consumers are increasingly equipped i.e. the relationship between consumer and system operators will change considerably
 - ▶ Demand response-enabling technologies will increasingly allow all types of consumers to contribute to system optimisation (e.g. time-of-use pricing, demand-response contracts, load limiters, demand reduction contracts, ...)



Consumer engagement will be increasingly important to ensure that new relationships are understood and that demand response matches consumer needs (habits, load flexibility, size, etc.)

Challenges

- Clearly established roles and responsibilities among market players
- Demand response needs access to all markets (balancing, wholesale, retail, capacity)
- The changing role of the DSO
- Competition between the market players (new and incumbents)
- Adapt price regulation in order to promote demand response
- Technological compatibility, measurement & verification, smart meters
- Consumer awareness, engagement & understanding

The Engaged Consumer?

Is my
Information
private?

Can I Trust
A Supplier?

Why bother
Switching?

Why is it so complicated?



Consumer Innovation

- Consumer friendly
 - ▶ Seamless integration of products
 - ▶ ‘Set and Forget’
 - ▶ Intuitive information on demand
 - ▶ Tailor for ‘Tech Savvy’ and ‘Digitally Challenged’ User
 - ▶ **Trusted** Artificial Intelligence
 - ▶ Who polices the algorithms?



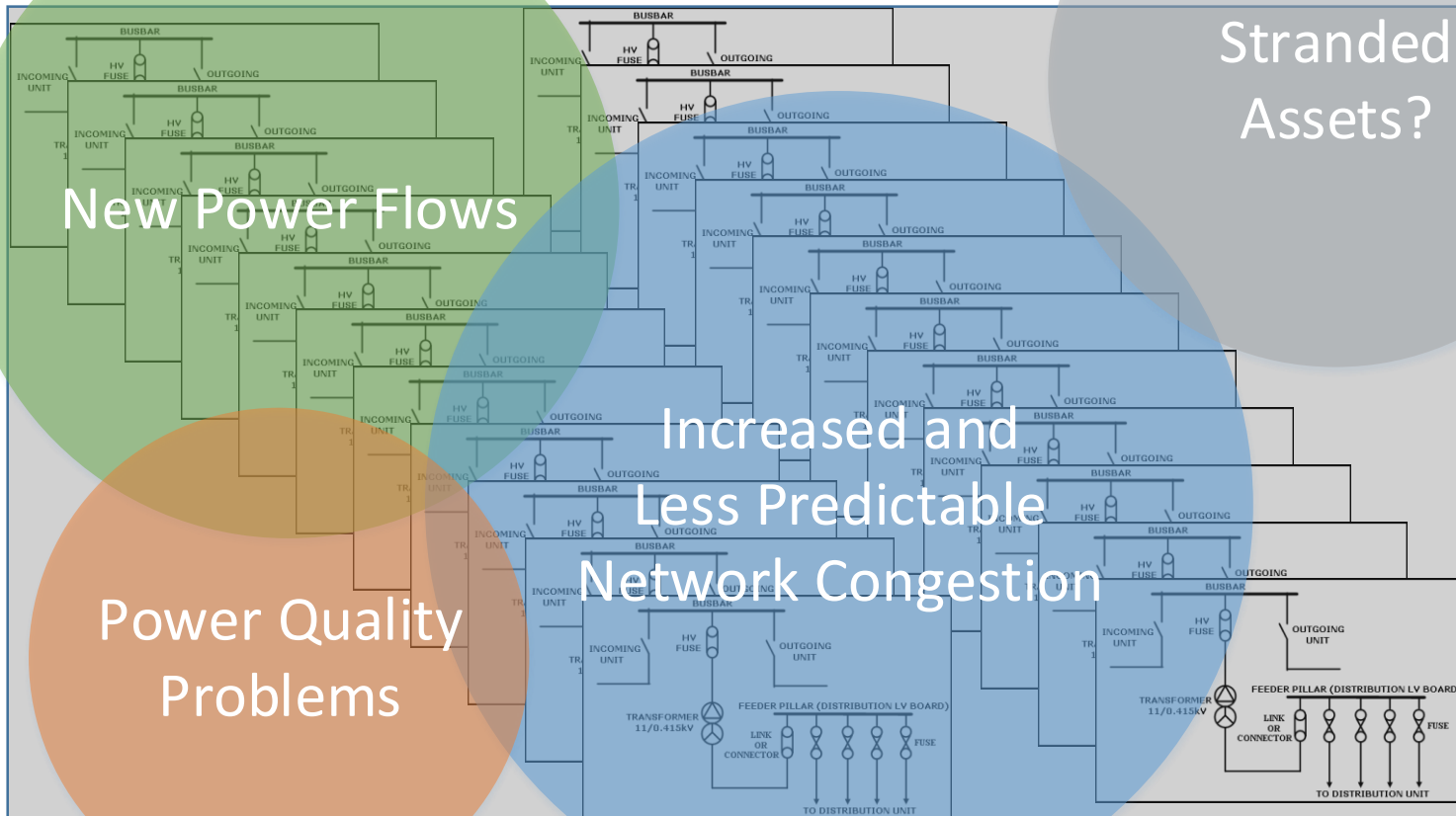
New Challenges for DSOs

Stranded
Assets?

New Power Flows

Increased and
Less Predictable
Network Congestion

Power Quality
Problems



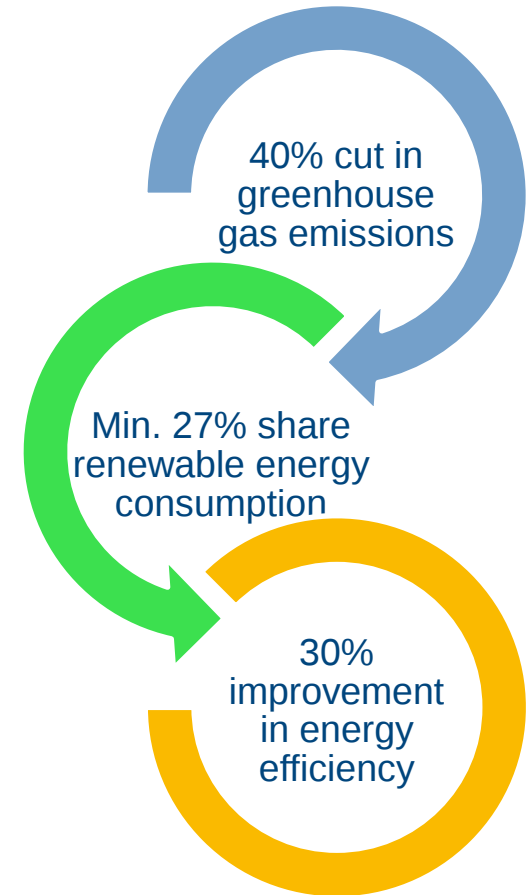
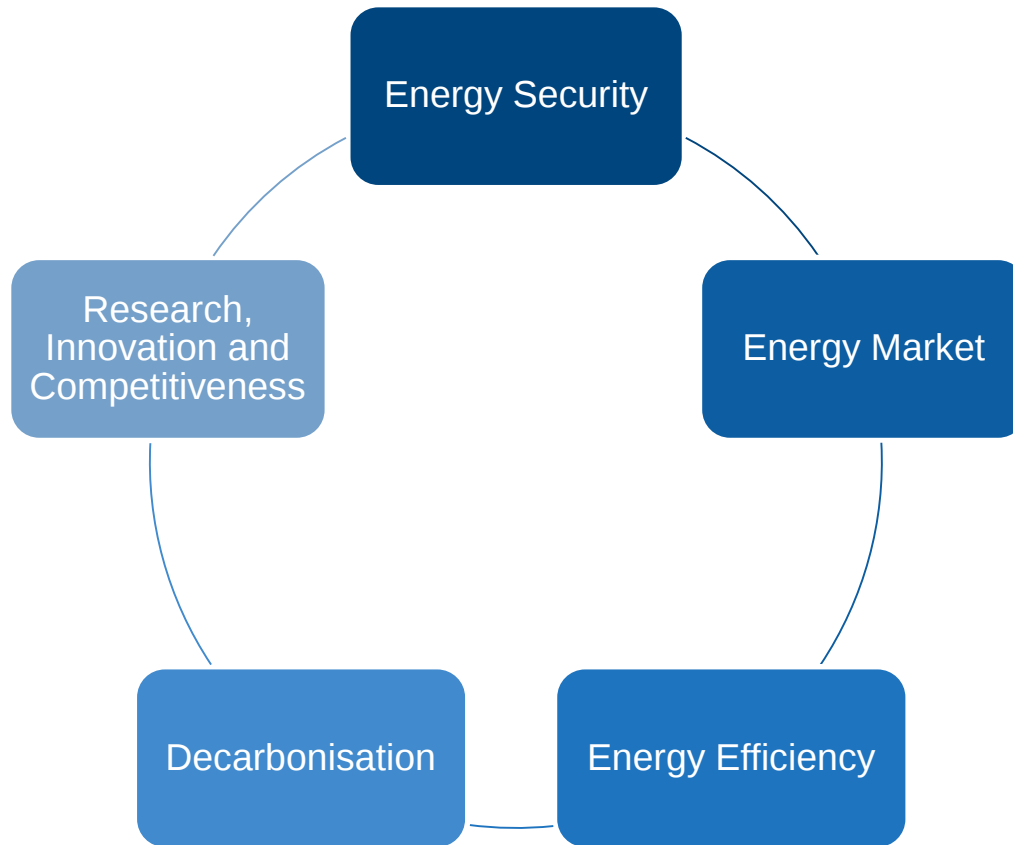
A forward looking approach for DSOs

- In order to combat these challenges DSO must address key issues:
 - ▶ DSOs must be **neutral market facilitators** to enable the development of new market based services to consumers by third parties and to ensure secure system operation
 - ▶ DSOs will need to manage their networks actively; also through **smart grid solutions** and **innovative investments**
 - ▶ **Coordination between DSOs and TSOs** for network operational matters. DSOs should increase resilience to new threats, including cyber-security
 - ▶ Where data management is entrusted to them, DSOs should ensure that consumer's **data privacy** is maintained
 - ▶ DSOs will need to adapt their networks to **meet new demands** (e.g. EV recharging stations and compressed natural gas filling stations).

EU Climate and Energy Policy

2030 Energy Strategy

5 dimensions of EU Energy Union



“Clean Energy for all Europeans Package”

Package goals – Empowering & Informing Consumers



Self-consumers (prosumers) to be allowed to generate, store, sell and consume their own electricity



Self-consumers in multifamily houses to be allowed to generate, store, sell and consume their electricity jointly



No disproportionate procedures and charges that are not reflective



Specific provisions for energy communities



Improved Guarantees of Origin for better consumer information



Reinforcement of consumer rights in billing, information, price comparison tools, market-based prices



Overview of consumer proposals

- Ability for **greater demand-side participation by consumers**,
- Enabling consumers to **self-generate or export power** on to the network (“prosumers”)
- Simple, free and fast supplier **switching processes**
- Encouraging customers to **engage in the market and compare energy offers** in order to benefit from competition
- Access to clear information, including **easy-to-read consumer bills** and reliable **price comparison tools**
- Measures to protect more **vulnerable consumers**
- Access to a **free complaints** resolution body
- Access to **dynamic tariffs**, giving consumers price signals to shift consumption to cheaper times of the day, enabled typically by smart meters



Overview of DSO proposals

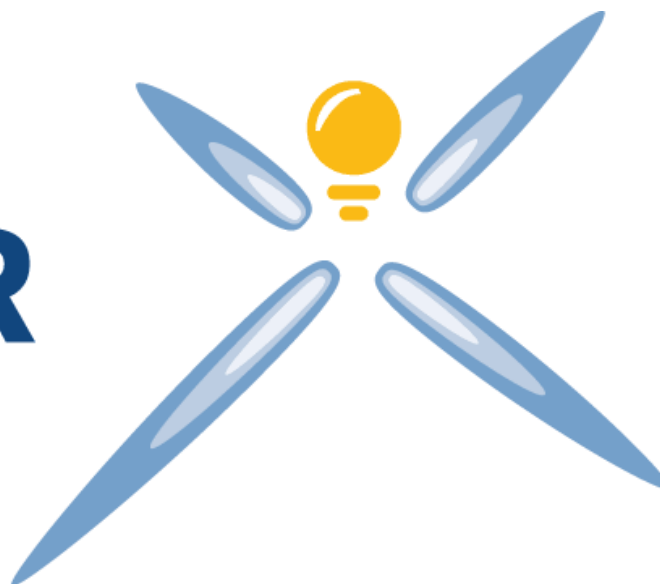
- Creation of new **EU level entity** for DSO cooperation
- **Cost-reflective tariffs** including the possibility of time-differentiated tariffs
- **Transparency requirements** on NRAs regarding tariff methodologies and underlying costs
- NRAs to provide **incentives to DSOs** for use of flexibility and innovation
- More provisions for DSOs to consider **demand response, energy efficiency and distributed generation** in grid planning
- DSOs **not allowed** to own, develop, manage or operate **storage facilities**
- DSOs can **procure services** (including non-ancillary) from distributed energy resources for managing local congestion and technical problems, through market based procedures
- Role of **DSOs in EV recharging points** - national rules should facilitate connection of recharging points; Member States may allow DSO involvement under conditions
- Distribution **network development plans every 2 years**
- Common **European data** format



Thank you for your attention!

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