

# Empowering Consumers through Demand Response

The role of aggregators and  
dynamic pricing



Grace Murray  
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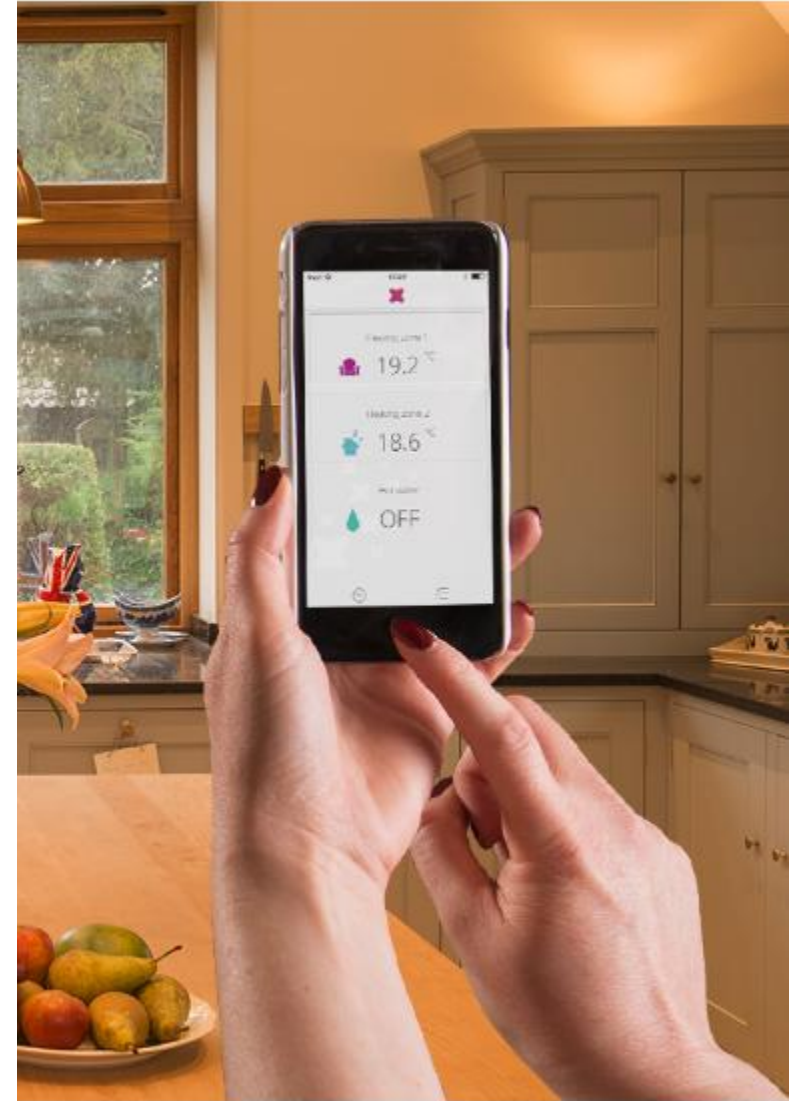
# Consumer empowerment through Demand Response



# 1) Implicit Demand-Side Flexibility

Consumer adjusts to variable market-price signals through

- ➡ personal choices
  - ➡ automation
- 
- ✓ uses power when it's cheapest
  - ✓ saves money on consumer's bill
  - ✓ saves hedging cost & supports system

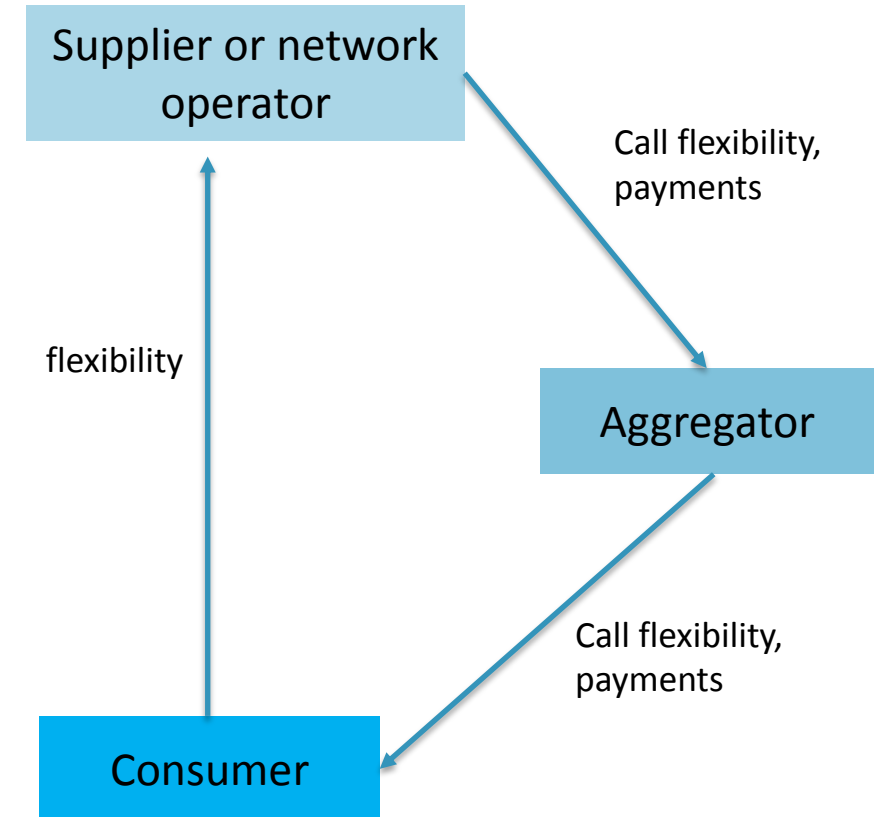


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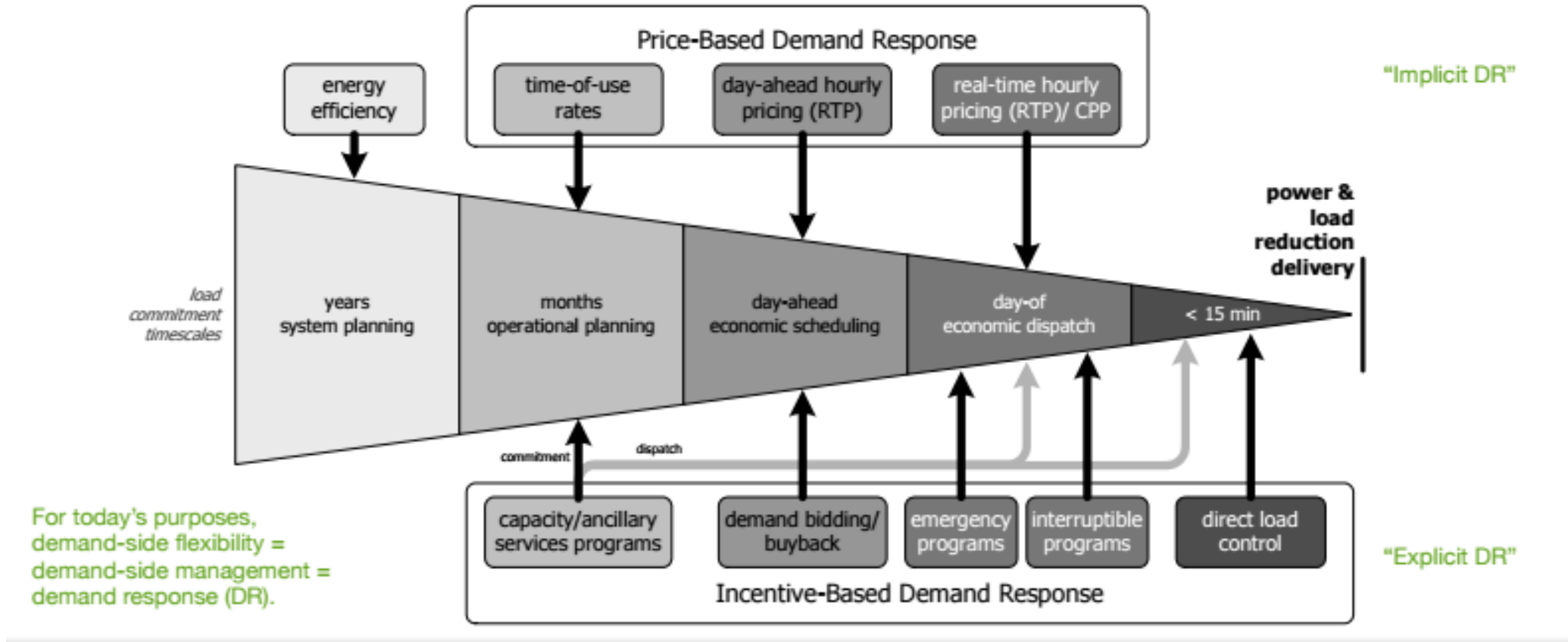
## 2) Explicit Demand-Side Flexibility

Consumer sells local flexibility via an aggregator

- ✓ Gains an income on committed flexibility
- ✓ Supports the system



# Implicit & Explicit Demand Response can go hand in hand



From US Department of Energy, Benefits of Demand Response in Electricity Markets and Recommendations for Achieving Them, Figure 2-3



# Some real life examples of Demand Response in action



**Vivaqua – Water Treatment**



**Sainsbury's – Supermarkets**



**ArcelorMittal – Steel Prod.**

Pictures: REstore,  
Open Energi

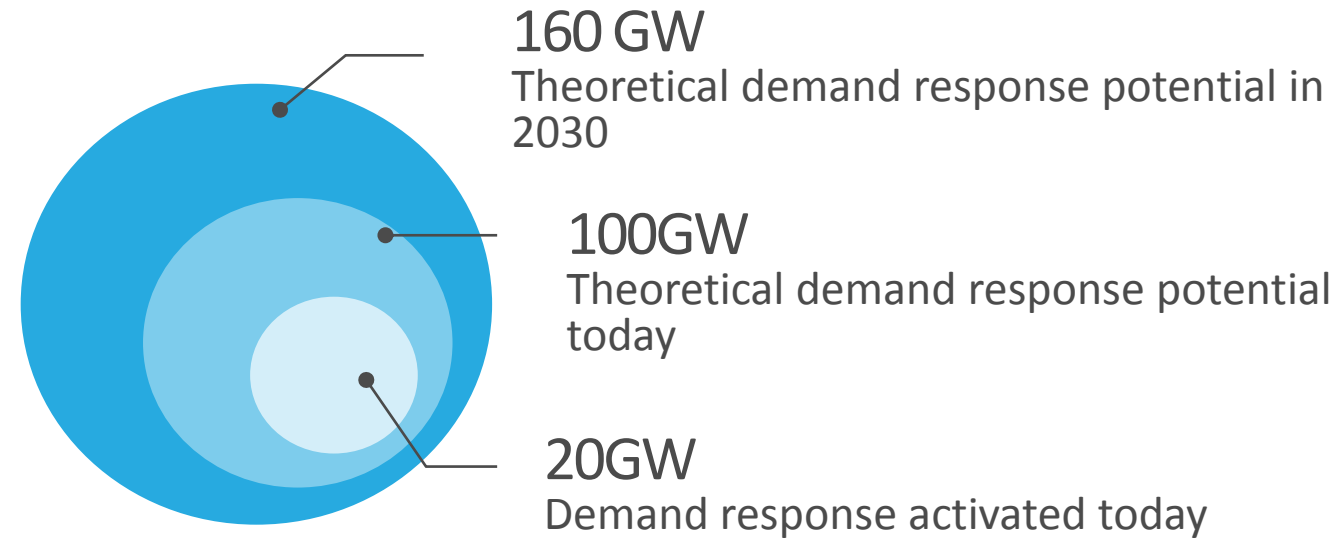
# The relationship between aggregators and suppliers

- ❌ Demand response and conventional generation directly compete
- ❌ Aggregator needs permission from supplier to access the consumer (in most EU countries, but not all)
- ❌ Other general market principles have blocked access for aggregators to trade on the wholesale markets



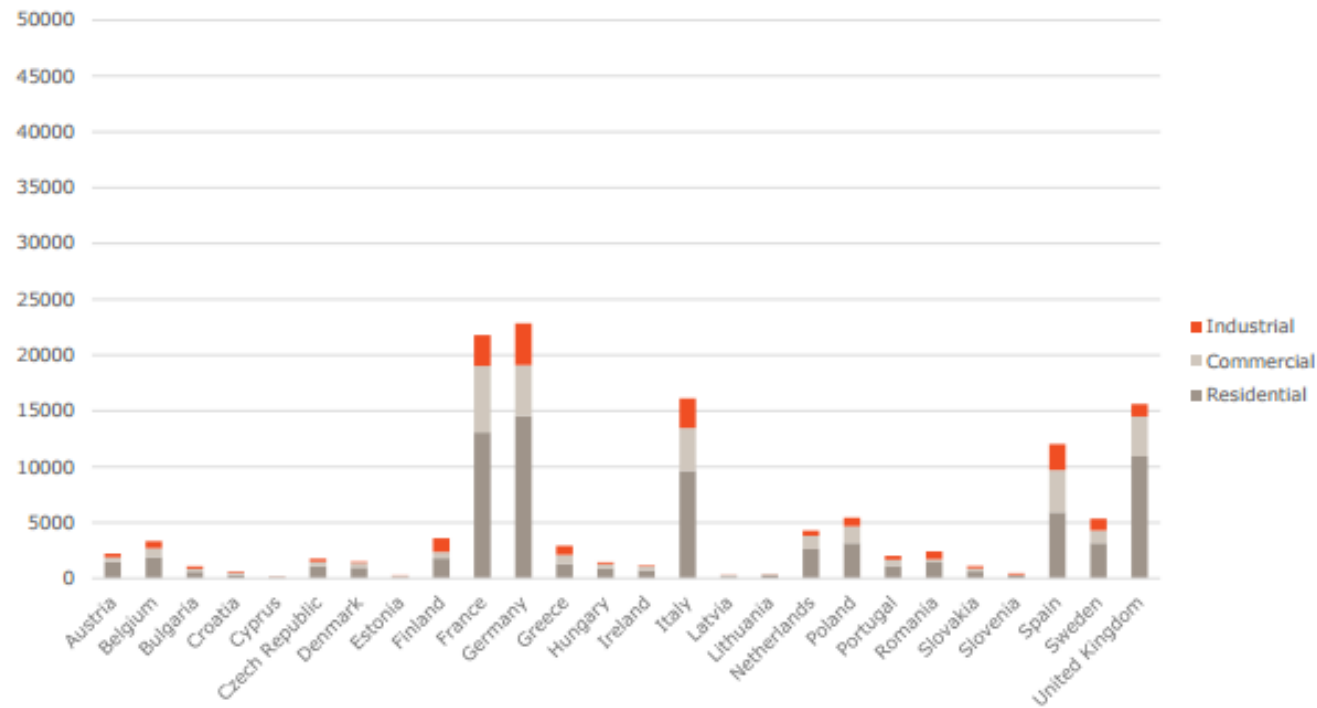


# The Clean Energy Package



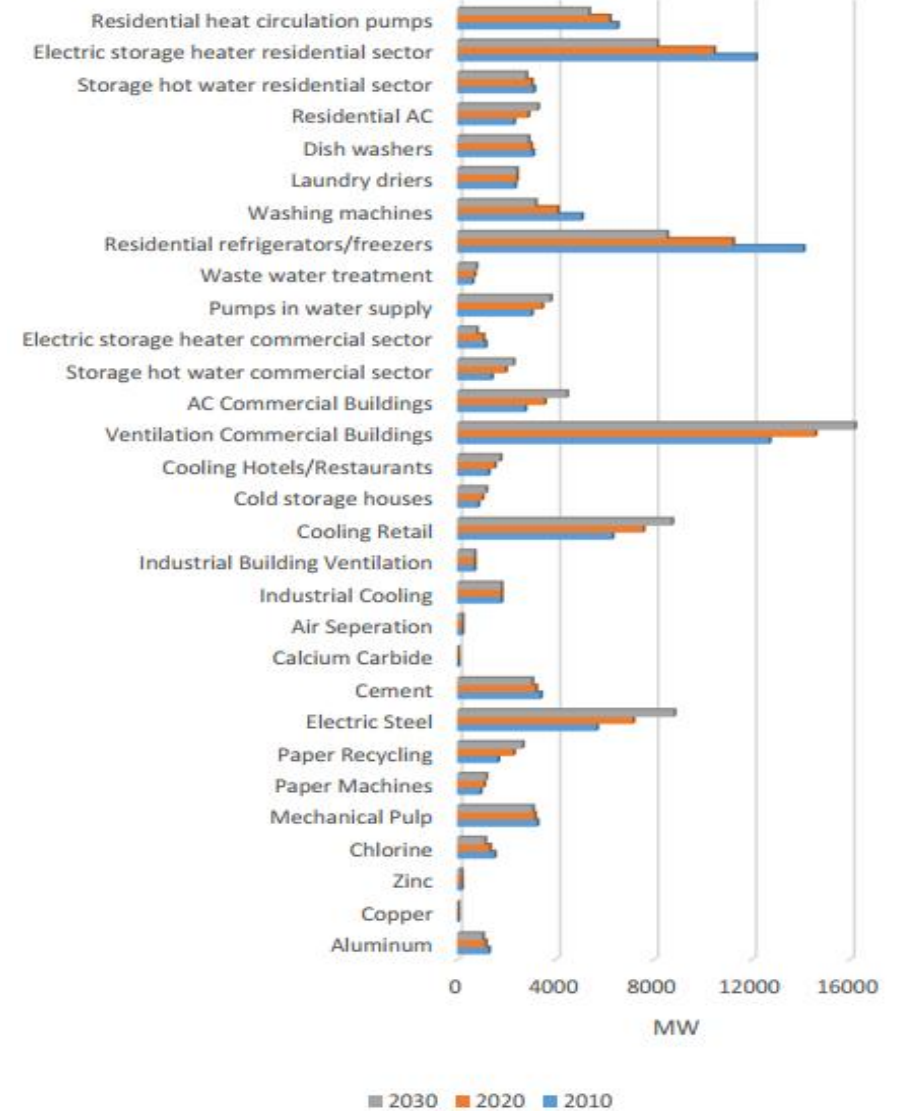
Source: European Commission

**Figure 1: Theoretical demand response potential 2016 (in MW)**



Source: Impact Assessment support Study on downstream flexibility, demand response and smart metering, COWI, 2016

**Figure 2: Theoretical potential of demand response per appliance**



# COM has provided Aggregator Framework

- ✓ Definition of 'independent aggregator'
- ✓ Non-discriminatory market access for all resource providers, either individually or through aggregation
- ✓ Load aggregation from multiple demand facilities allowed
- ✓ Market participants free to develop products that suit participants' demands
- ✓ Aggregator has right to enter the market without consent from other market participants
- ✓ Aggregator is not required to pay compensation to suppliers or generators

# Further provisions on Consumer Access

- Consumers' access to real-time pricing and smart meter
- Consumers self-generate/ community projects
- Data access and interoperability
- Buildings SI, provisions on automation and EV charging

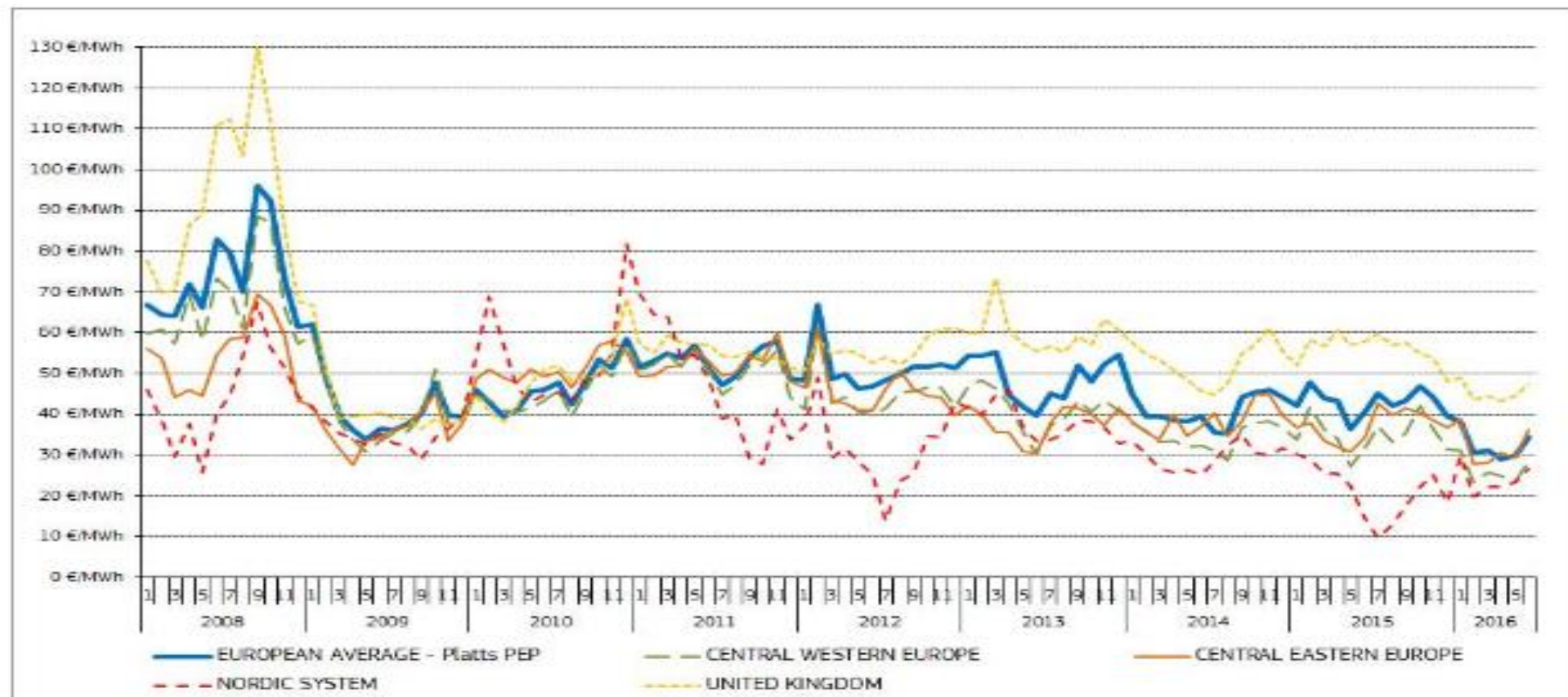


# Market Participation and Valorisation

- Prices reflect real value of electricity: removal of price caps
- Market-based balancing, re-dispatch and curtailment
- DSOs use flexibility through market-based procurement
- Resource adequacy as pre-condition for any CM

# Dynamic Pricing

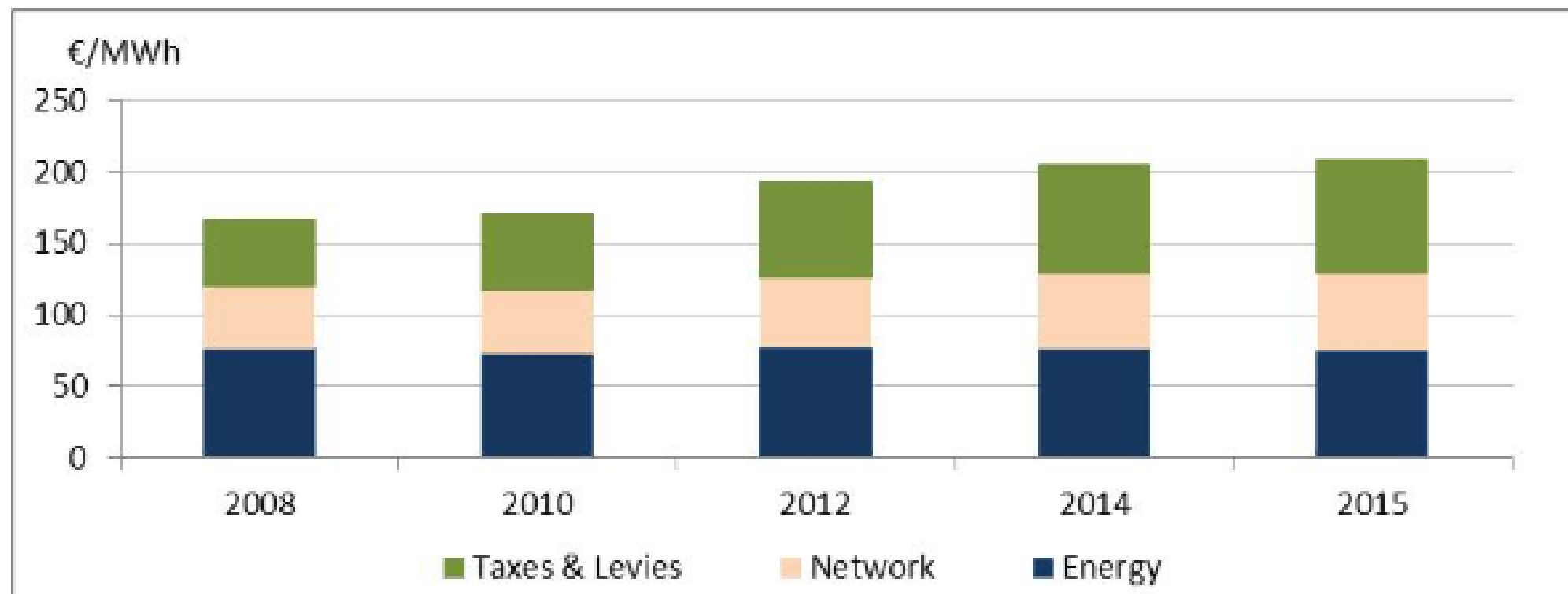
Figure 2: Trends in EU wholesale electricity prices



Source: Platts and European power exchanges

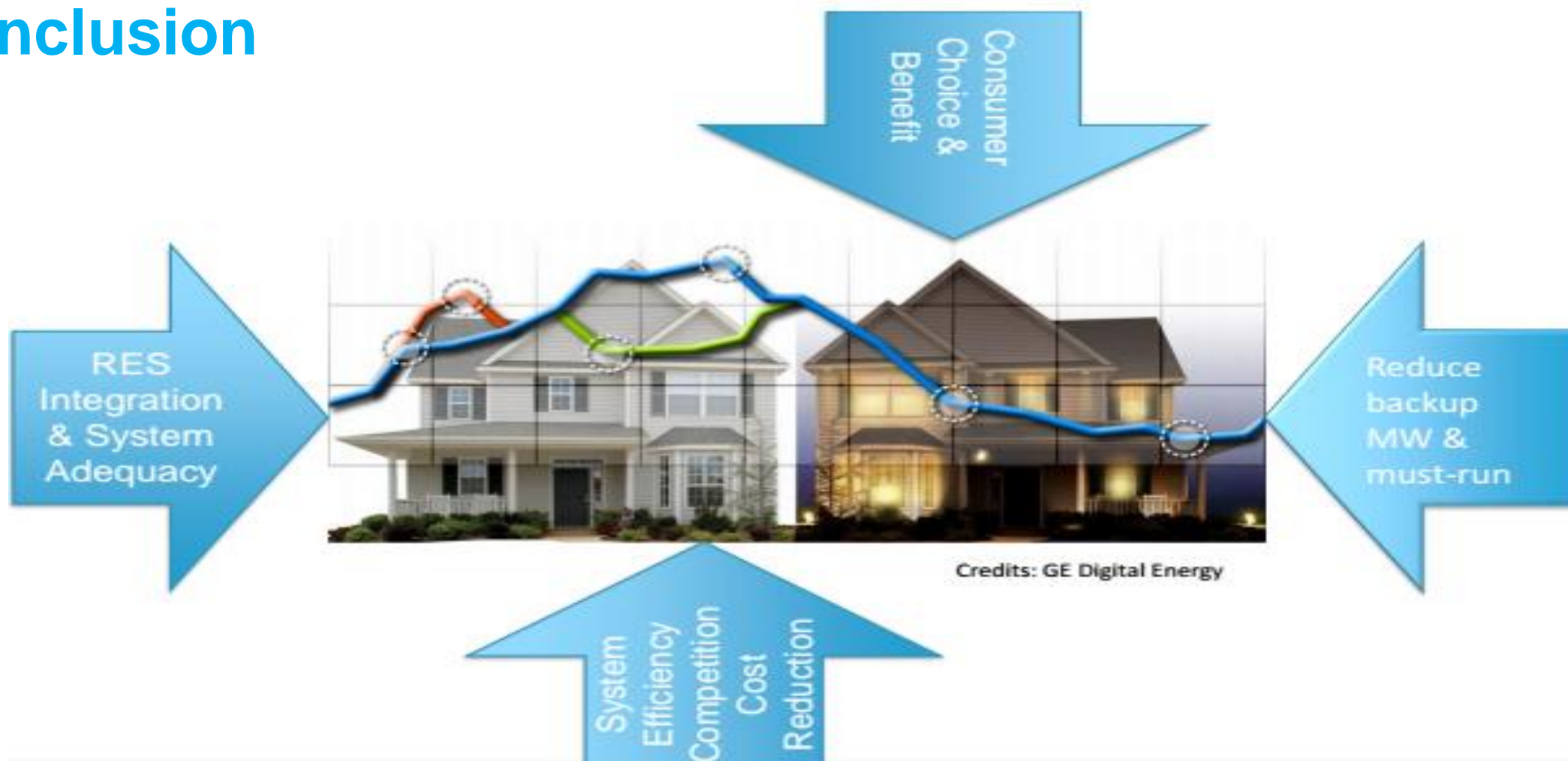
# Dynamic pricing & network charges

Figure 3: Components of average EU household retail electricity prices



Source: Member State, Commission data collection

# Conclusion







**SEDCC**  
Smart Energy Demand Coalition

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