# New business models for the energy transition

*CEEPR & EPRG European Energy Policy Conference*

*EVOLVING BUSINESS MODELS IN THE ELECTRICITY SECTOR*

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***Paris – 07 July 2016***

# FTI Consulting overview

## Overview

- Global business advisory firm established in 1982
- c.4,000 staff across 24 countries
- Dedicated to helping organisations protect and enhance enterprise value

## History & scale

- Established in 1982
- >US$ 1.5 billion revenues, NYSE listed
- >4,000 staff across 24 countries on six continents

## Global reach

## Services

- Five divisions:
  1. Economic Consulting
  2. Corporate Finance / Restructuring
  3. Forensic & Litigation Consulting
  4. Technology
  5. Strategic Communications

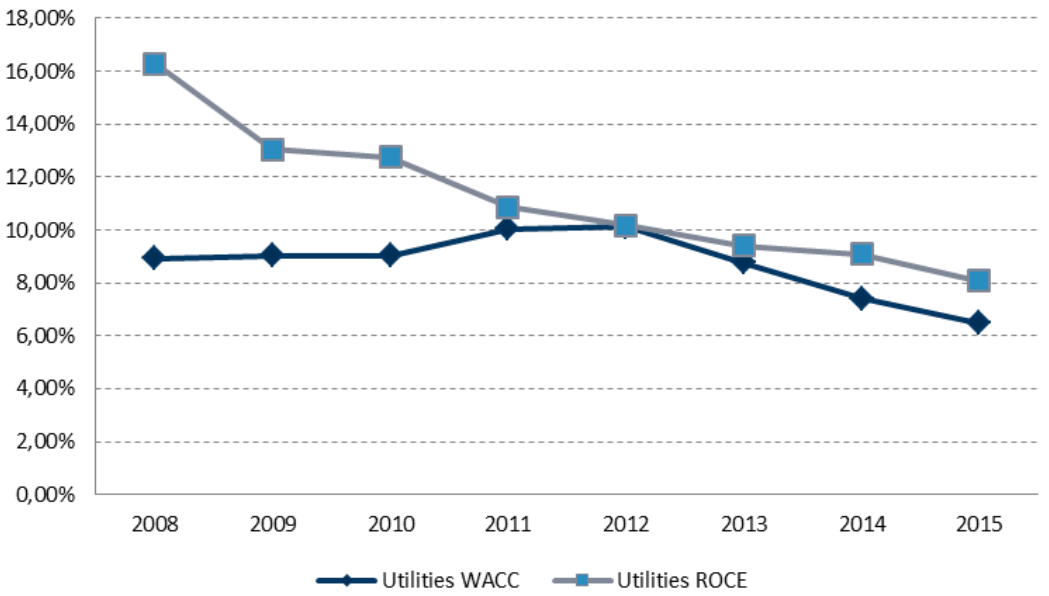
FTI·CL Energy

# Outline

- Introduction: The death of the traditional business model of utilities in Europe
- New business models are emerging upstream and downstream on the value chain
- Which changes to market design to enable the energy transition and limit distortions?
- Conclusions

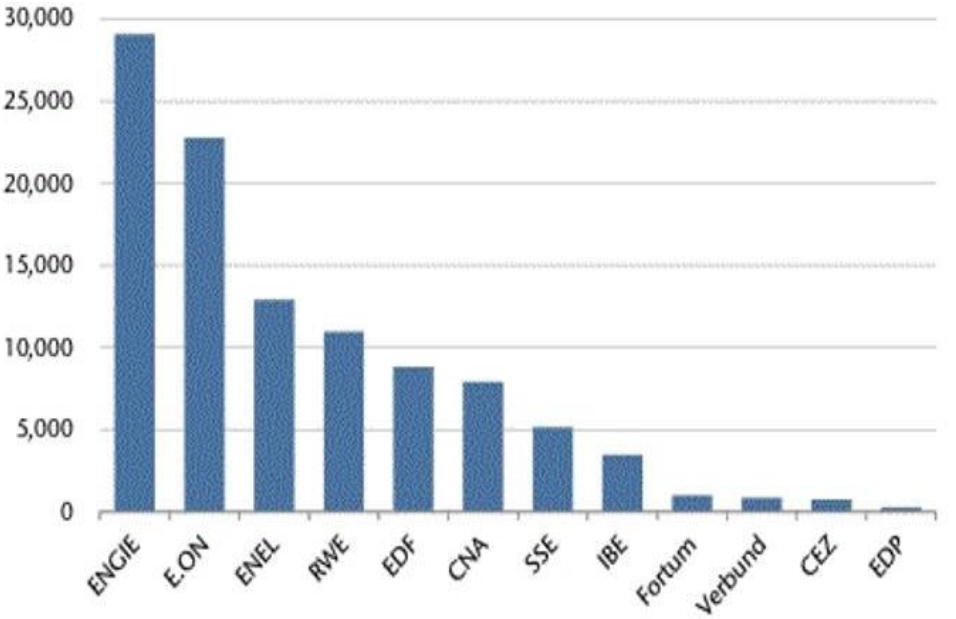
# Introduction: The death of the traditional business model of utilities in Europe

ROCE and WACC for European utilities, 2008 to 2015




*Source: FTI-CL Energy based on Exane data.*

Utilities impairments since 2010 by company (€ m)



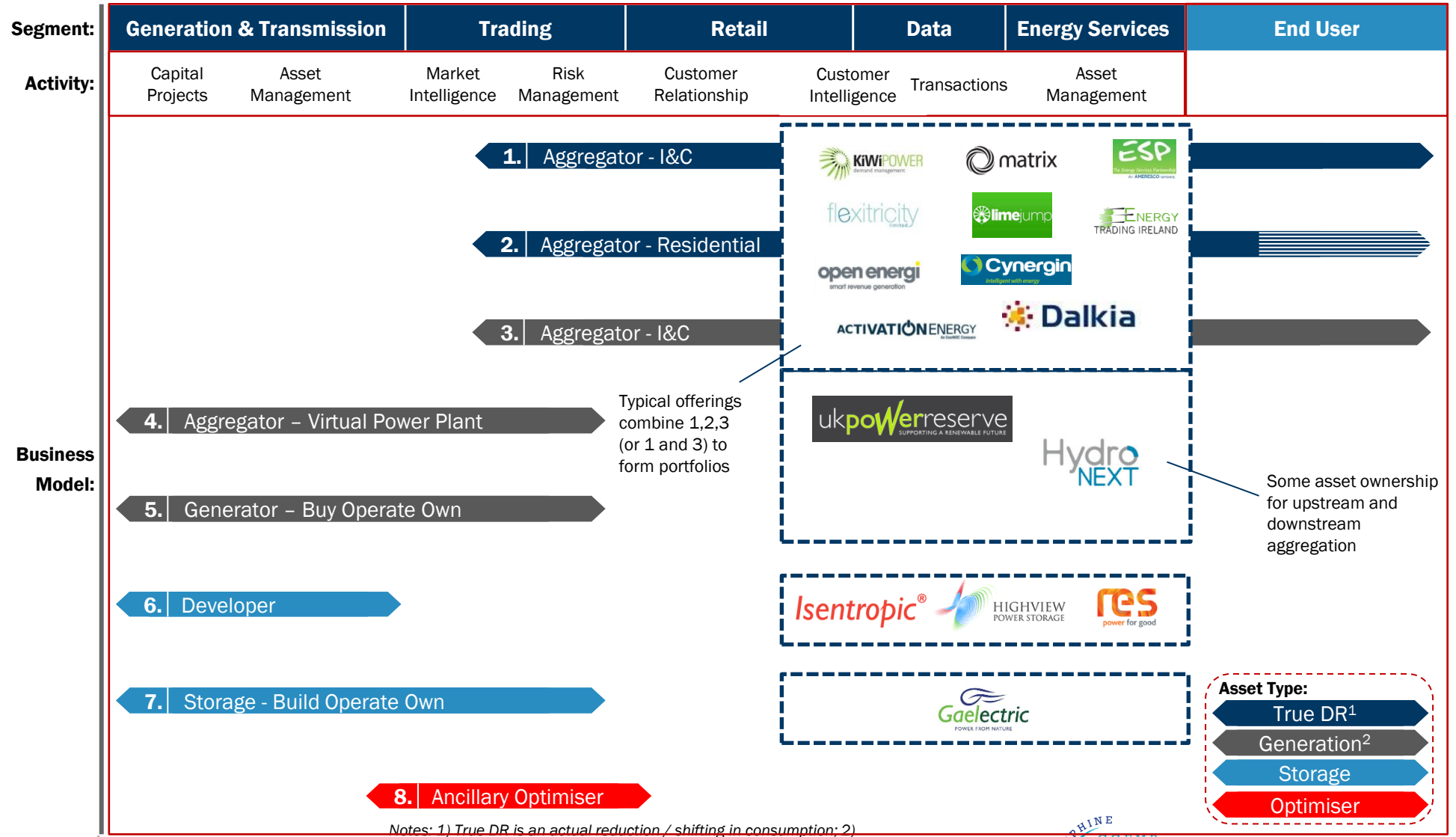

*Source: Jefferies estimates, Company Data*

- The profitability of the traditional business model of utilities has fallen in recent years, as margins upstream have collapsed following the drop in power prices.
- This led to > 100 Bn€ of impairments but it is not just a transitional trend as the market rebalances, but a structural issue that will undermine sustainably investment in generation.

# New business models emerging upstream and downstream on the value chain

# Upstream, new business models are emerging to monetize distributed generation, storage, and demand response

## Business model application to the value chain




*Notes: 1) True DR is an actual reduction / shifting in consumption; 2) Generation from small capacity units (<10MW ) that are "behind the meter" on-site at I&Cs / owned*

*Source: FTI Consulting Analysis*

# Downstream, utilities are moving toward the energy service company model

**Energy service companies**

Making demand management services as well as cleaner and more resilient power options available to all electricity consumers is core to all new energy business models.

**Optimizing customer participation**

- Understand behavior patterns
- Increase customer awareness through products
- Identify incentives and technologies to increase customers' ability to manage energy bills

**Providing energy management products and services**

- Provide bill management services
- Expand energy management services to small commercial and residential customers, e.g. building management systems, demand-response and energy efficiency programs, behind the meter distributed energy resources such as solar PV, micro-wind turbines and battery storage

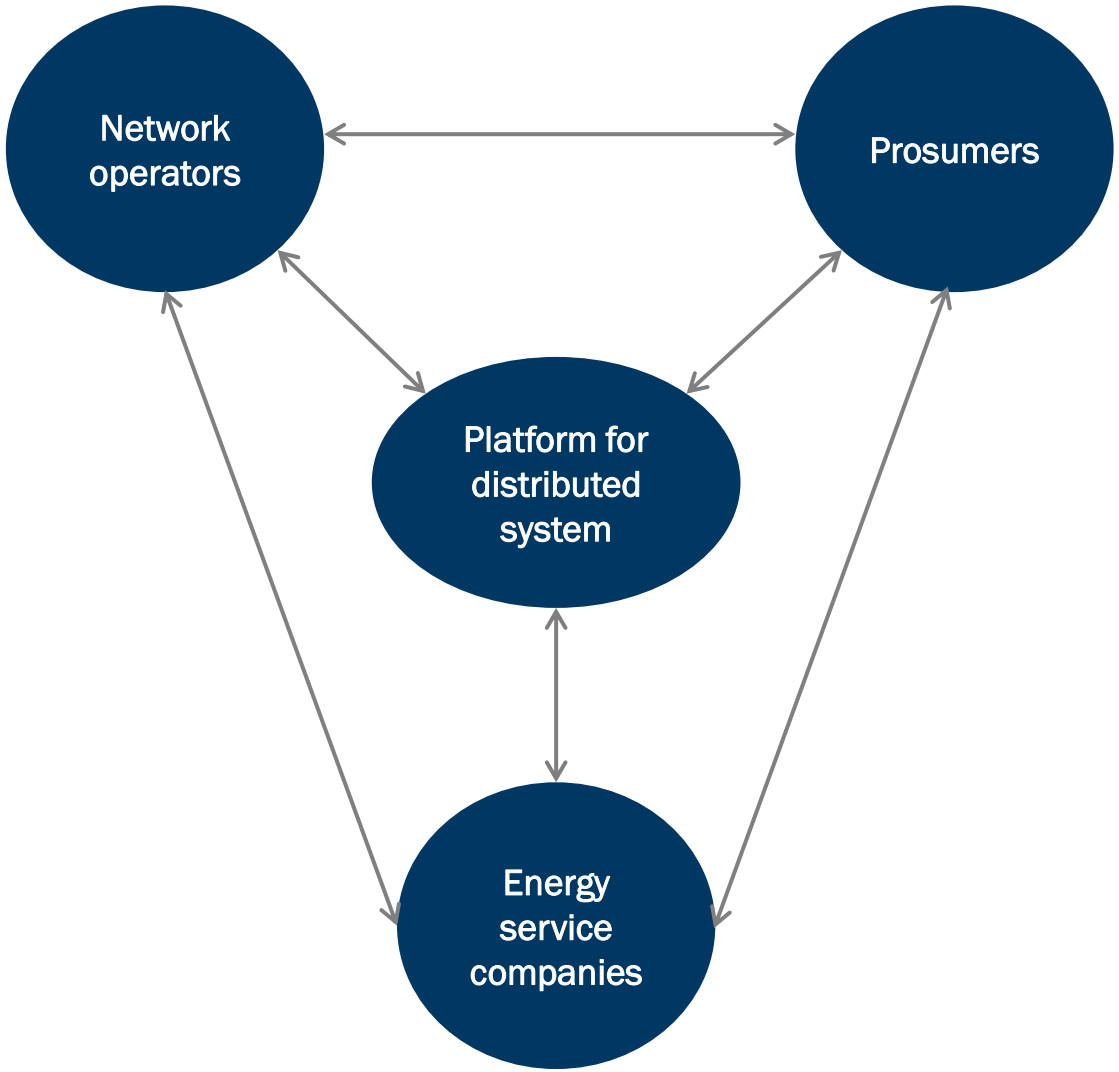
**Aggregating customers**

- Increase customers' participation and decrease transaction costs through aggregation, e.g in communities (municipal, community, commercial, non-profit)

**Offering energy value-added services**

- Support community and multi-family based renewal energy projects, e.g. sponsorship of micro-grid projects or community-based distributed energy generation projects
- Support "buy local" green power initiatives

# Downstream, new platforms are likely to emerge to coordinate distributed system operation, ESCOs, and prosumers



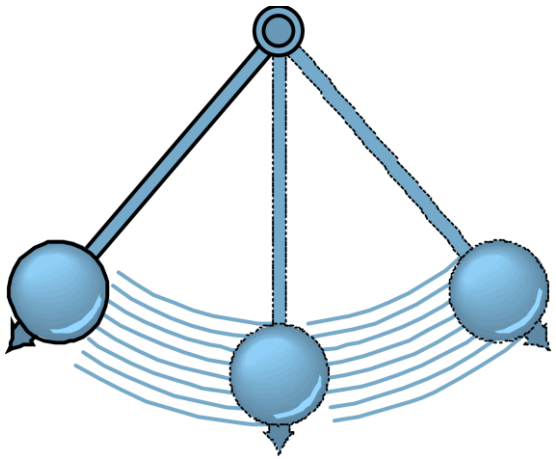

- Traditional role of network operators and utilities as system optimizers will need to be reconciled with emergence of new platforms
- Multiple platforms may co-exist / compete:
  - To capture value associated with system optimization of decentralized resources
  - To develop new services for active consumers (Prosumers)
  - To provide coordination signals for system planning and operations
- Key challenge is to limit “des-optimisation of energy system”:

# Which changes to market design to enable the energy transition and limit distortions?

# Adapting market design for the change of context and policy objectives

## Context of the 2010s

- Policy priorities: Decarbonization and security of supply
- Technology: growth of decentralised generation, storage (all capital intensive)
- Networks: Deployment of smart networks and technologies
- **Market: focus on consistency between retail and wholesale market**



## Context of the 1990s and early 2000s

- Policy priority: focus on EU market integration
- Technology: dominance of variable costs technologies with economies of scale
- Networks: Optimization of use of pre-existing infrastructure
- **Market: Focus on wholesale market (initially day ahead)**

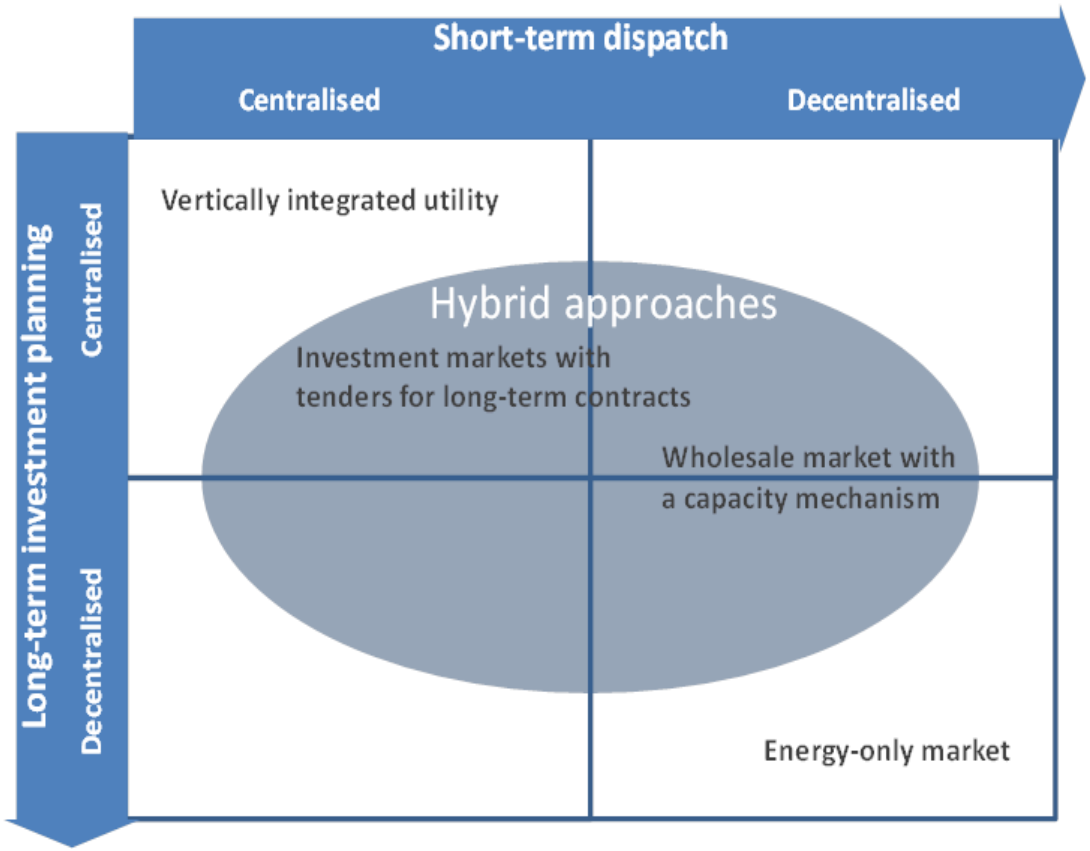
- Current European market model and regulatory framework were designed in a different context
- Market design needs to evolve to address key issue of consistency between retail and wholesale markets, e.g. retail pricing, network charges, tax arbitrage opportunities

# **Upstream (wholesale) market design:** which signals / drivers of short-term dispatch and long-term investment coordination?

- **Power prices are a decentralised coordination mechanism:**
  - **Short term** – Efficient dispatch of all generation units based on variable costs
  - **Long term** – Signal retirement or new investment, trigger new entrants

- **In practice, price signals are distorted by a range of additional mechanisms:**
  - Most markets are hybrids with some form of regulatory interventions
  - Public intervention differs depending on objective, type of intervention and risk allocation

- **Key objective of sound market design is to limit distortions of price signals and establish sound coordination mechanisms for efficient system investment / operation**

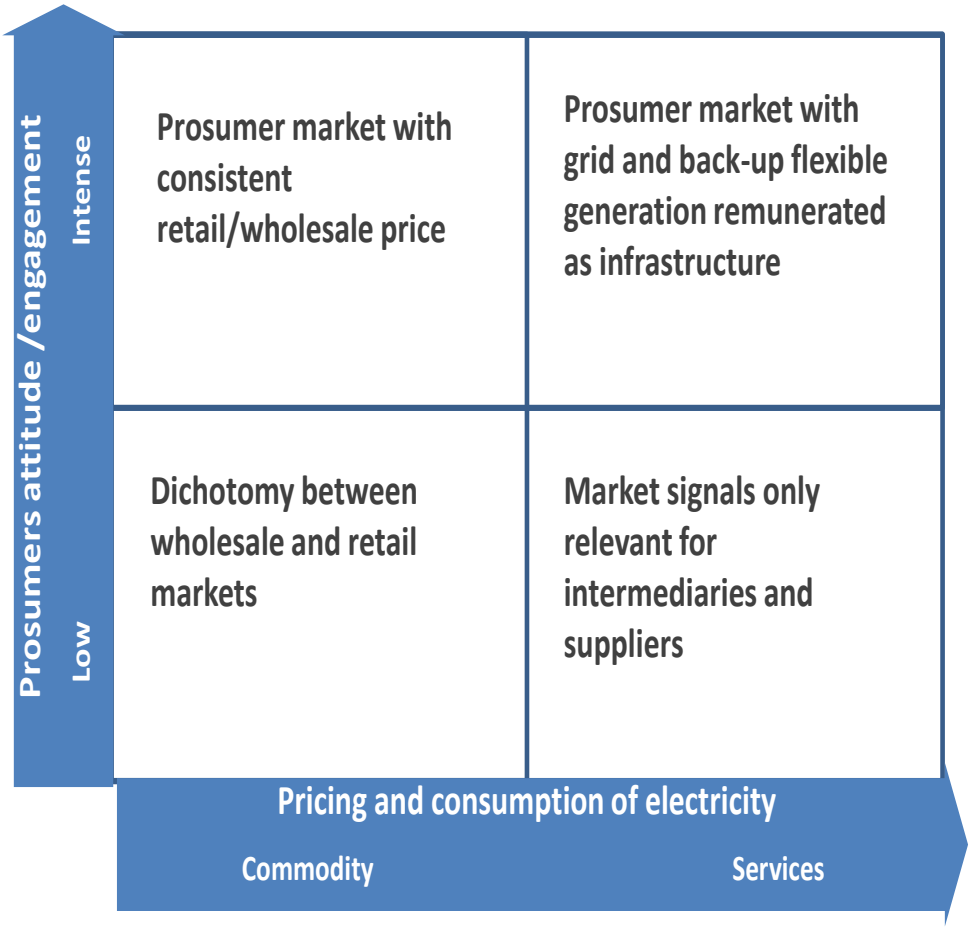


# Downstream (retail) market design: which price signals for prosumers?

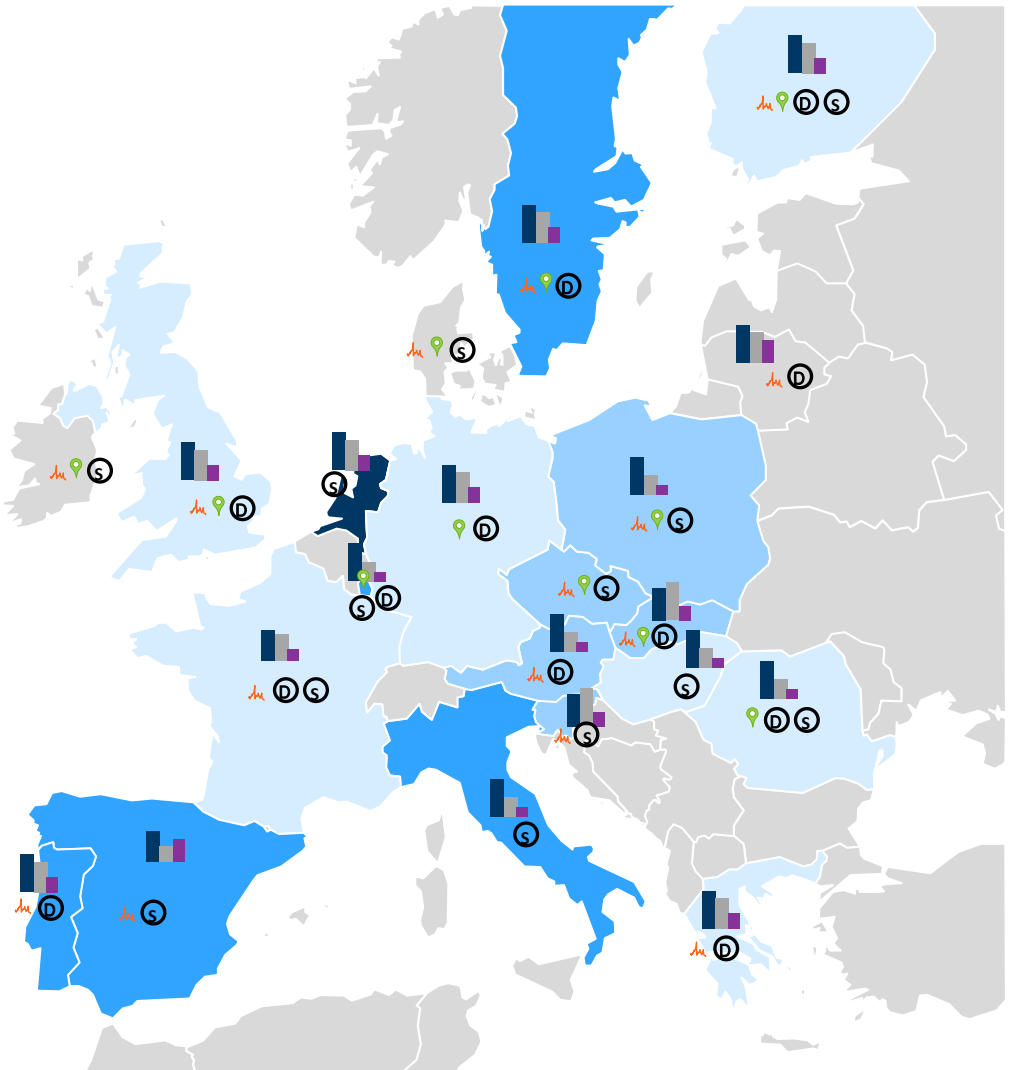
- The evolution of retail market design and the relevant price signals for consumers could be very different depending on the following drivers:

- Prosumer attitude /engagement toward electricity
  - status and life-style;
  - the gamification of energy supply;
  - an "early adopter" attitude towards energy technology; and
  - the positive image associated with auto-generation.

- Commodity vs. service pricing approach
  - The energy transition could transform the retail energy supply into a service-oriented good, rather than a commodity



# Distribution network tariffs: a wide range of approaches in Europe



**Network tarif structure**

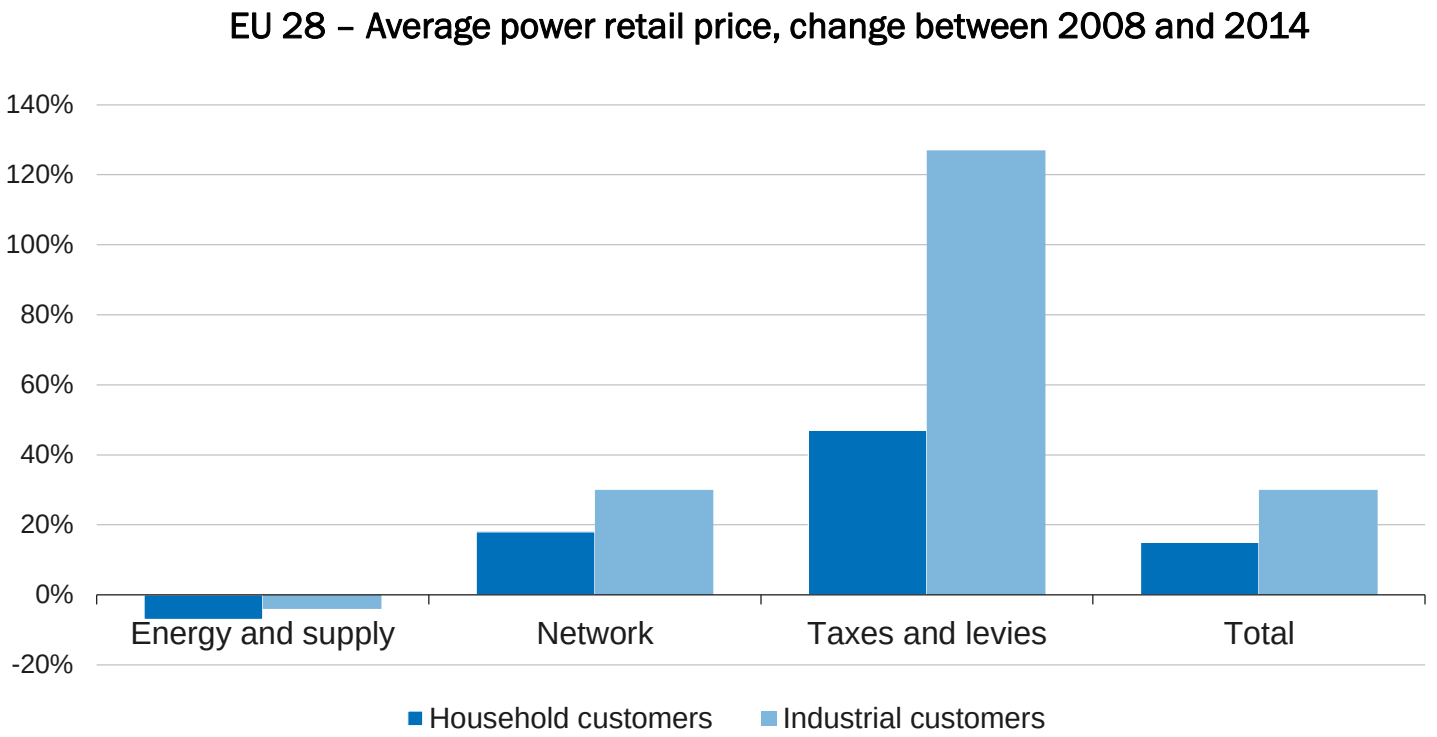
- **Fixed / variable part**
  - > 80%
  - 50% - 80%
  - 30% - 50%
  - < 30%

Note: average over all consumers' categories

- **Split of network costs between different users**
  - Résidentials
  - Small industrials
  - Large industrials
- **Connection charges**
  - (S) "Shallow"
  - (D) "Deep"
- **Tarif with time and/ or spatial differentiation**
  - Geographic differentiation
  - Temporal différentiation temporelle ("time of use")

Source: European Commission (2015), "*Study on tariff design for distribution systems*" https://ec.europa.eu/energy/sites/ener/files/documents/20150313%20Tariff%20report%20fina_revREF_E.PDF

# Taxes and levies represent a growing share of the retail energy bill and create opportunities for arbitrage




- Levies to support energy transition (renewables, energy efficiency, etc.) create growing arbitrage opportunities between wholesale / retail markets, as well as unsustainable cross-subsidies between categories of consumers
- A radical rethink of energy taxation and funding for decarbonization is needed (e.g. finance some of the levies for renewables through general budget as these are public goods and reduce/remove taxes on production and raise taxes on electricity consumption (VAT))

*Source :* « Retail pricing for a cost-effective transition to a low-carbon power system », *Eurelectric (2016)*

# Conclusions

# Conclusion: consistency across retail and wholesale market price signals is key

- **Three EU legislative packages in the 1990s and 2000s established the internal electricity market:**
  - Mostly focused on wholesale market integration; level playing field for large scale generators (e.g. harmonization of network injection charges, non discriminatory network access)
  - Recent policy interventions (support for RES, capacity mechanism for security of supply, etc.) undermine the ability of power prices to act as coordination signal on the wholesale market

- **Rise of prosumers and decentralized resources is a radical disruption that requires fundamental rethink of approach for market design:**
  - Auto producers / DSR use retail price as relevant benchmark for operation / investment
  - Key objective should thus be to ensure consistency across retail and wholesale market price signals:
    - Design market rules to avoid perverse incentives / opportunistic arbitrage (e.g. net metering, etc.)
    - This requires reform of: 1/network charges, 2/ levies and taxes on electricity

- **Network charges need to evolve in order to:** 1/ Reflect changing cost structure and increase weigh of fixed charge; and 2/ Provide geographically differentiated dynamic price signals for consumers

- **Energy taxation and funding for decarbonization: Time for a radical rethink?**
  - Finance some of the levies for renewables and possibly security of supply through general budget as these are public goods; and
  - Reduce/remove taxes on production and raise taxes on electricity consumption (VAT)

# Thank you for your attention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