

**DIGITALISATION AT THE CORE OF ENERGY
NETWORKS: THE BACKBONE OF THE ENERGY
TRANSITION.**

**A BRIEF ASSESSMENT ON THE INFRASTRUCTURE
INVESTMENT REGULATORY FRAMEWORK**

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10th Florence School of Regulation Annual Conference

10 June 2021

A pathway towards decarbonisation

- **Smart networks**, which digitalisation makes possible, become critical infrastructure for the decarbonization pathway enabling
 - Increase electrification
 - Integration of new renewable generation
 - Changes in demand paradigms – active consumers
- Smart Grids need investments 375-425 billion € EU27+UK (2020-2030)
- Digitalisation is the process of **moving to a digital business**, by using digital technologies to change business models.
 - A business model, in the energy sector, **responds** to the competing demands of **security, affordability and sustainability**.
- To accelerate and consolidate this process, **requires updated market designs (distribution tariff methodologies included) that reward resources that deliver flexibility and capacity in the system.**

Regulatory frameworks for electricity distribution networks – The Spanish case as a test

European frameworks

Revenue cap or Price cap models

- combined in some countries with performance incentives to improve efficiency

Spanish framework

- Before 2016: allocation of a “sum of money” among the utilities
- (2016-2019): remunerate net value of investment assets, 6 years period, considering investment caps, cyclical economic situation, electricity demand, adequate profitability (linked to State bonds’ performance), 6.003% rate of return
- (2020-2025): introduces weighted average cost of capital (WACC), 5,58% rate of return

The current Spanish framework remunerates the DSO for a “passive” network management

Proposal for a regulatory framework incentivising investments

Goal: Financial incentives (positive or negative) nudge the DSO to align their outputs with system, customer and society interests.

Aspirational goal: To build a framework that ensures timely and predictable recovery of capital costs in modernization and, a fair and equitable bearing of the end cost of implementing the technologies among system stakeholders.

Means in the DSO remuneration

methodology: Along with the investment cap, higher return rate for efficiency gains provided for the use of capital investments and operational expenditures, such as flexibility solutions

- DSO can use flexibility additionally or alternatively to the current network design & development based on copper investments

Criteria: Strike a balance between tariff schemes stability and the fast-evolving system needs and technological evolution

- Allow DSOs to bear the risks and costs of using innovative grid solutions (e.g. flexibility services)
- Introduction of incentive schemes linked to DSO efficient grid operation
- Introduction of financial incentives linked to innovative technologies and processes.

Does the proposal for an incentive regulation match the principles of energy law?

Security of supply and Sustainability

Desired outcomes and metrics

Economic Efficiency/Affordability

- to provide the energy supply at the lowest possible cost
- “the least cost, best-value approach”

Distributed energy resources and grid services pretty valued and integrated into the electric system adding net benefits and minimizing costs

- average time to connect; provision of locational value information; % system needs met by distributed resources

Make the system more efficient

- number kW shifted off peak, % load went to off-peak, % customers in demand response, power losses reduction

Higher levels of reliability

- System Average Interruption Duration/Frequency Index

Identifying clear and measurable metrics is key to the successful implementation of this proposal

The regulatory principles test

Commonly accepted principles of regulation:

Necessity, effectiveness, proportionality, legal certainty, transparency and efficiency

The challenge is framing the proposed incentive-based compensation scheme in a transparent, non-discriminatory and, as far as it was possible, market-based way to reinforce transparency and efficiency

With this purpose in mind and trying to open a window to competitiveness, **the remuneration methodology should consider and include the participation of the DSOs in the flexibility markets** (Art. 32 Electricity Directive (EU) 2019/944), **remunerating as well the investments (IT /OT) necessary for flexibility procurement**