A MARKET FIT FOR NET-ZERO POWER SYSTEM
EURELECTRIC’S FLAGSHIP STUDY

Prepared for
29 March 2023
Agenda and overview of the study

Today's agenda

- Study scope and approach
- Gap analysis and key market design principles
- Overview of policy recommendations

Study overview: a 4-phase approach

1. Diagnostic and gap analysis to meet policy targets  
   June-July 2022

2. Potential market design reforms  
   July-September 2022

3. Definition of the market design framework and market archetypes  
   Sept. 2022 – Jan. 2023

4. Recommendations on the policy “toolbox”  
   February-March 2023
1. Gap analysis and key market design principles
The EU integrated market ensures an efficient functioning of the power system but needs to be complemented to address policy objectives

Wholesale markets based on marginal pricing ensure an efficient operation of the energy system and have proven resilient in the energy crisis

1. **an efficient dispatch** of generation and flexibility resources;
2. **optimised imports / exports** to limit costs for consumers;
3. **a mutualisation of resources** to integrate renewables and strengthen security of supply;
4. **short term** economic signals to coordinate generators, prosumers, flexibility providers and foster demand response

However, the recent energy crisis has highlighted some of the gaps of the current EU electricity markets to address policy objectives

- Need to drive the scaling up of investment in **resources necessary for the energy transition** (clean technologies and flexible resources, but also networks)
- Need to **benefit consumers and support their active engagement**

A long-term hedging and contracting framework can complement existing short-term markets to address the double-challenge of stimulating investments while providing better hedging opportunities for consumers
Key design elements – A market design fit for Net-Zero should build on the existing internal energy market, adding three critical pillars

The existing internal energy market

1. A consumer contracting and engagement framework based on enhanced hedging opportunities and retail price structures

2. An investment framework underpinned by enhanced long-term hedging / contracting opportunities

3. A framework to coordinate the future system needs to meet security of supply and policy objectives
Guiding principles of the policy recommendations

1. Implement fully existing regulations and continue to improve the current markets

2. Empower consumers and foster transparency, liquidity, and competition

3. Remove barriers and reinforce incentives for long-term hedging through market-based solutions

4. Address local specificities and policy priorities through a toolbox of optional measures for Member States
2.
A framework to identify and satisfy the evolving system needs
Key gaps with the current European framework for the identification of system needs to ensure security of supply

System needs assessment needs to be further improved

- Broaden focus of EU / national planning instruments

- Time horizon (10-20 years) needs to be extended to map challenges on path towards net-zero
  - Provide visibility for market participants and network operators and allow timely investments and dimension networks fit for the future power system

- Cross-sector: Whole energy system perspective needed to assess synergies across sectors

- Demand-side contribution not fully captured

Limitations to current power system planning studies

Source: ¹ ENTSO-E, Power Outlooks, Compass Lexecon analysis
Notes: * ACER currently consults on the framework guidelines for scenarios.
Key recommendations to establish an enhanced framework to assess system needs with a cross-sector perspective in the long-term

Scope of system needs to be assessed:

- Low-carbon energy and RES
- Flexible energy
- Cross-sector / end-use coordination
- System needs
- Networks
- Firm energy

**Scope**
- Widen the scope and include cross-sector
- Extend the time horizon
- Move away from a too incremental approach and allow to anticipate investments in networks and optimise their dimensioning

**Methodology**
- Develop EU-wide guidelines for the methodology
- Assess systematically the economic viability for all resources
- Stress test the resilience of the energy system

**Governance**
- Define a governance framework with adequate cooperation with distribution, through EU DSO, and improved stakeholder engagement
3.
An investment framework
An investment framework underpinned by enhanced long-term hedging / contracting opportunities

Different types of measures can be introduced to enhance long-term contracting, reflected by different types of long-term contracts at the core of the new market model.

- Long-term contracts play a critical role to support large-scale investment in RES and low-carbon technologies, as well as in firm and flexible capacities.
- By facilitating financing and reducing the cost of capital, they reduce the total cost of decarbonisation and benefit consumers.
- Capacity mechanisms, private PPAs, public RES and low-carbon schemes, and forward hedging, all have a role to play.
- If well designed, these instruments are complementary and can work together to meet a wide range of needs and preferences of customers.
Key recommendations to facilitate hedging through the improvement of forward markets

<table>
<thead>
<tr>
<th>Key gaps</th>
<th>Recommendations</th>
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<tbody>
<tr>
<td>Restrictions on collaterals</td>
<td>Ease collateral regulations in forward markets</td>
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<tr>
<td>Volume of LTTRs too low and only limited to a year</td>
<td>Facilitate cross-border hedging</td>
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<td>Regulatory interventions increase uncertainties and affect forward market liquidity</td>
<td>Make regulatory frameworks stable.</td>
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<td>Lack of liquid products to hedge beyond 2-3 years</td>
<td>Explore voluntary mechanisms for market makers in forward markets</td>
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<td>Stimulating demand and supply in forward markets, including at longer horizons</td>
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Key recommendations to establish a private framework for RES and low-carbon investment: Power Purchase Agreements

We put forward a range of measures at a European level, and some optional measures at national level depending on local specificities.

- **Removing barriers to PPAs**
  - Remove all unjustified barriers
  - Allow all consumers to sign long-term PPAs
  - Allow solidarity consortia to contract PPAs on behalf of multiple smaller sites/buyers
  - Simplify/improve accounting obligations and reporting on PPAs
  - Consider removing charges and levies related to policy cost financing the development of RES/low-carbon technologies on PPAs volumes of electricity

- **Transparency and Standardisation**
  - Condition the attribution of public guarantees for PPAs to transparency requirements
  - Establish standardised PPA contracts and products at EU level and promote or incentivise their use

- **Public guarantees**
  - Implement insurance mechanisms or public guarantees for counterparty risks in PPAs

- **Voluntary pan-EU PPA platform**
  - Establish a pan-European voluntary platform to facilitate PPA trading whilst still allowing for bespoke bilateral contracts
  - Envisage using public entities as an example, by contracting part of their electricity consumption through PPAs

- **Stimulating demand and supply**
  - Encourage entities to supply services to cover the balancing/shaping risk

**EU-wide measure**

**Optional further MS measure**
Key recommendations to establish a public framework for RES and low-carbon investment

Key gaps

- Large variety of support schemes
- Cannibalisation effect
- Uncapped upside revenues

Key implementation questions

- How to minimise distortions on short-term markets?
- How to avoid dampening liquidity in forward markets?
- How to redistribute costs and benefits to consumers?

Recommendations

- Competitive allocation process and more harmonised design through guidance on best practices
- Assess options for counterparty(ies) in the application of the long-term public contracting schemes
- Specific attention to cost-benefit allocation:
  - hedging for consumers
  - without increasing risk for retailers
  - not preventing or distorting time-differentiated signals to consumers

Decision to introduce public de-risking scheme and detailed design left at MS level

EU-wide measure

Optional further MS measure
Key recommendations to guarantee security of supply: Capacity Mechanisms

Capacity mechanisms in Europe

- **Structurally embed Capacity Mechanisms in the market design** to streamline and automate the approval process…
- **National decision to implement CMs or not**
- … and remove their last-resort and temporary character.
- **Guidelines on capacity mechanisms’ design**
- **Procurement mechanism for flexible resources** to cover all system needs (esp. flexibility) - e.g. with storage/DSR.

1. EU-wide measure
2. Optional further MS measure

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4. A consumer protection and engagement framework
Key recommendations to establish a consumer protection and engagement framework

- Bring the benefits of RES and low-carbon generation more directly to consumers...
- …while still providing efficient short-term signals fostering active demand participation.
- The overarching objective is to offer consumers a more balanced choice of short- and long-term price signals in retail prices

This pillar is strongly linked to the investment framework pillar through the hedging properties of long-term contracting and the importance of forward markets, public schemes and PPAs

- Adequate information to consumers (fair and transparent T&Cs including risks)
- Relieve barriers to long-term consumer contracts
- Lift barriers for suppliers to hedge & allow cost-reflective termination fees
- Empower consumers and facilitate DSR
- Enhance hedging opportunities
- Suppliers’ resilience
- Flexible resilience framework on suppliers with regular stress tests
- Implement CEP to lift barriers to demand-side response
- Ensure consumer access to an adequate range of retail offers
- Ensure consumer access to an adequate range of retail offers

The overarching objective is to offer consumers a more balanced choice of short- and long-term price signals in retail prices.
Thank you for your attention

Further details of policy recommendations can be found in the study report

https://market-design.eurelectric.org/
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6.
Annex
Deep dive on the recommendation to establish a pan-European voluntary platform to facilitate PPA trading

**Existing arrangements – bilateral contracting**

- Bilateral PPA
- Bilateral PPA
- Large industrials
- RES

**Complementary PPA market – pan-EU voluntary platform**

- Balancing/shaping risk service providers
- Pan-EU voluntary market
- Residential consumers, SMEs, large industrials, suppliers…
- RES

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**The voluntary platform would:**

1. Facilitate supply and demand to meet more easily, potentially including with balancing/shaping risk service providers
2. Provide standard contractual arrangements for PPAs, to facilitate secondary trading over the lifetime of such contracts if necessary
3. Allow the platform operator to act as a central counterparty to PPA contracts, potentially backed by public guarantees.

This would still allow for bespoke contractual arrangements outside of the platform if required by some market participants.
Key design choices to establish an efficient public framework for RES and low-carbon investment which benefits consumers (1)

The choice of product type and energy profile impact interactions with short-term markets.

Choice of reference index in de-risking contracts impacts liquidity in forward markets.

Key implementation options

- **Physical contract**: Less impacts on short-term operations
- **Financial contract**: Incentives for efficient ST market participation

Key implementation question

- **Physical production**: Incentives for availability in times of supply shortness, risk mitigation against risk of not being dispatched
- **Standardised profile**: Improved incentives for efficient dispatch as well as to balance between public and private contracts
- **Share of profile**: Liquidity drive towards forward markets

- **Day ahead market**: May drive liquidity to DA
- **Hybrid approach**: Could help foster liquidity in forward markets, but also increase market risk
- **Forward markets**: Complexity
Key design choices to establish an efficient public framework for RES and low-carbon investment which benefits consumers (2)

Key implementation question

- Redistribute the costs/benefits efficiently to consumers

Key implementation options

A. Levies/charges in grid tariffs
   - Robust to consumer switching
   - Risk of untimely redistribution of costs and benefits: need for sufficiently granular intervals
   - Risk of dampening price signals and the incentives to consume in off-peak periods when there is abundant RES and low-carbon generation

B. Through suppliers e.g. proportionally to their clients’ consumption
   - Robust to consumer switching
   - Efficient and dynamic redistribution of costs and benefits to consumers
   - Create additional risks and uncertainty for suppliers on the costs and benefits to recover and on the balancing of their portfolio.
   - Costs may be allocated to consumers with less price-elastic demand and raise concerns regarding the fairness of allocation.

C. Resale to suppliers/consumers via centralised auctions of contract slices
   - Suppliers/consumers would be able to access medium-term contracts (e.g. 1-3 years), through voluntary, open and competitive auctions organised by a central public or private entity.
   - Lower supplier risk exposure but a share of the risk on cost recovery and balancing transferred to the central entity
   - Risk of interference with forward markets
### Key gaps: A need to bring benefits of RES / low-carbon generation more directly to end-consumers while fostering consumer engagement

- The high prices seen during the energy crisis have led to widespread interventions across Member States to protect consumers.

- This shows the need to better pass on the benefits of renewables and other clean technologies’ stable generation costs to consumers.

- However, the lack of long-term consumer commitment to suppliers conditions their willingness to engage in long-term contracts with generators – limiting hedging opportunities.

- At the same time, a large share of energy consumers is not engaged in the market.

#### Retail market ad-hoc intervention across Europe to protect consumers against rising prices

|                        | Austria | Belgium | Bulgaria | Croatia | Cyprus | Czech Republic | Denmark | Estonia | Finland | France | Germany | Greece | Hungary | Ireland | Italy | Latvia | Lithuania | Luxembourg | Malta | Netherlands | Poland | Portugal | Romania | Slovakia | Slovenia | Spain | Sweden | Switzerland | United Kingdom |
|------------------------|---------|---------|----------|---------|--------|----------------|----------|---------|---------|--------|---------|--------|---------|---------|--------|--------|-----------|-----------|-------|-----------|---------|----------|----------|---------|---------|----------|------------------|
| **Direct aid for energy costs** | •       | •       | •        | •       | •      | •               | •        | •       | •       | •      | •       | •      | •       | •       | •      | •       | •         | •         | •     | •         | •       | •        | •      | •       | •       | •       | •       | •       | •       | •       |
| **Tax Relief - Retail**  | •       | •       | •        | •       | •      | •               | •        | •       | •       | •      | •       | •      | •       | •       | •      | •       | •         | •         | •     | •         | •       | •        | •      | •       | •       | •       | •       | •       | •       | •       |
| **Network tariff reductions/exemptions** | •       | •       | •        | •       | •      | •               | •        | •       | •       | •      | •       | •      | •       | •       | •      | •       | •         | •         | •     | •         | •       | •        | •      | •       | •       | •       | •       | •       | •       | •       |
| **Retail Price Regulation** | •       | •       | •        | •       | •      | •               | •        | •       | •       | •      | •       | •      | •       | •       | •      | •       | •         | •         | •     | •         | •       | •        | •      | •       | •       | •       | •       | •       | •       | •       |

Source: Compass Lexecon analysis, Bruegel as of October 2022