Ensuring Market and Regulatory Arrangements help deliver Demand-Side Flexibility

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CEER’s work on Demand-Side Flexibility

• Who are we?
  ► The Council of European Energy Regulators: the voice of Europe's national regulators of electricity and gas at EU and international level

  ► We cooperate and exchange best practice to deliver a competitive, efficient and sustainable European internal energy market

• Why Demand-Side Flexibility?
  ► The Energy Efficiency Directive (2012) places requirements on regulators to promote demand side

  ► There are huge potential benefits if we can harness DSF and make it work in the best interests of European consumers
Agenda

• The potential value of Demand-Side Flexibility

• Unlocking that value through open markets

• Principles to govern Demand-Side Flexibility
Energy markets are evolving…challenges

• 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; 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
Where’s the value?

DSF value throughout the energy system

- **Balancing**: A flexible tool for balancing
- **Capacity**: A flexible form of providing adequacy
- **Generation**: Reduction in average generation costs
- **Networks**: A substitute for network assets

DSF for Market purposes  DSF for Network purposes
## Potential benefits of DSF

<table>
<thead>
<tr>
<th>Potential benefits</th>
<th>Details</th>
<th>Valuation (where service/product engages)</th>
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<tbody>
<tr>
<td>Improved long-term security of supply</td>
<td>• Avoided investment in peak generation units</td>
<td>• Participation in capacity remuneration mechanisms</td>
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<td>• Back up for intermittent generation</td>
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<td>Improved short-term security of supply</td>
<td>• Additional flexibility, reduction of balancing costs</td>
<td>• Participation in balancing reserves (capacity + energy remuneration)</td>
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<td>Reduced market price</td>
<td>• Production cost savings</td>
<td>• Spot price</td>
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<td></td>
<td>• Lower spot prices</td>
<td></td>
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<td>Reduced network costs</td>
<td>• Reduction of losses recovery costs</td>
<td>• Reduced network tariffs</td>
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<td></td>
<td>• Avoided investment costs</td>
<td>• Difficult to assess the value at this stage</td>
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<td>Better integration of renewables</td>
<td>• Increased flexibility to manage renewables intermittency</td>
<td>• Cheaper balancing reserves</td>
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<td></td>
<td></td>
<td>• Wholesale market (negative prices/RES curtailment)</td>
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<tr>
<td>Environmental benefits and energy savings</td>
<td>• Potential reduction of global $\text{CO}_2$ emissions</td>
<td>• EU ETS dedicated mechanism</td>
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<td></td>
<td>• If deferment is less than 100%</td>
<td>• Dedicated mechanisms (white certificates, direct subsidies programme)</td>
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<td>Social and economic benefits</td>
<td>• Reduction of fossil fuel import dependency</td>
<td>• Risk covered in the pricing of fossil generation</td>
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<td>• Industrial competitiveness</td>
<td>• No direct link with DSF action</td>
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<td></td>
<td>• Jobs and innovation</td>
<td>• Net jobs creation</td>
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</tbody>
</table>
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• Unlocking that value through open markets

• Principles to govern Demand-Side Flexibility
Where we are currently?

• DSF is so far mainly offered by large industrial consumers and mainly in the balancing markets.

• For smaller consumers, DSF is so far not a real option although some countries enable them to participate either independently or through an aggregation service provider.

• Energy systems historically designed from the supply side – the process to open up demand side will be progressive.

• Post EED, IEM and Network Codes, Smart Meters, (and local network balancing) things will change.
Not a market for DSF, but markets open to DSF

**Networks**
- Balancing?
  - Open?
  - Partially open?
  - Closed?
- Capacity
  - Volume/Energy
  - Open?
  - Partially open?
  - Closed?

**Markets**
- Ancillary Services
  - Open?
  - Partially open?
  - Closed?
- Balancing
  - Open?
  - Partially open?
  - Closed?
- Wholesale
  - Open?
  - Partially open?
  - Closed?
Anything in our way?

• But some difficulties to be overcome
  ► Clearly established roles, responsibilities, relationships among market players
  ► DSF needs access to all available energy markets (balancing, wholesale, retail and capacity)
  ► The changing role of the DSO
  ► Competition between the market players (new and incumbents)
  ► Existing price regulation hinders DSF
  ► Technological compatibility, measurement & verification, smart meters
  ► Consumer awareness, engagement & understanding
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High level Principles governing Demand-Side Flexibility

• As a high-level outcome CEER wants to **unlock the value of demand-side flexibility for the provider/customer.** This requires:

  ▶ That consumers and market participants have the necessary information and tools to adequately and effectively engage in the market

  ▶ A market free from barriers that promotes equal access for all parties and new entrants, through interoperable standards and arrangements

  ▶ A regulatory framework that is flexible enough to adapt in an evolving market
High level Principles governing Demand-Side Flexibility

• More specifically:
  ► An independent party should facilitate the administration of the different exchanges (energy, information, financial) between commercial parties

  ► There should be processes to ensure that all parties have visibility of the DSF actions taken by any one party which impacts their business

  ► Distortions to market signals that would unfairly advantage or disadvantage DSF should be avoided – a level playing field

  ► DSF should be considered alongside traditional network reinforcement options by TSOs and DSOs
Recommendations

• 6 short term recommendations

► Roles and responsibilities clarified

► The role of DSOs (and network tariffs)

► Standards and methodologies

► European network codes maintain a focus on demand side

► Continue to quantitatively assess/compare DSF across the EU

► Market and regulatory arrangements allow system-wide benefits to be passed on to end-use consumers
Thank you for your attention

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