New market design of the CE4ALL package

ERRA Chairmen Meeting

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1 Clean Energy for All

A new energy policy package for 2030
Legislative background of CE4ALL

- 2030 Climate and Energy Framework
- Energy Union Framework Strategy
- Gas Winter Package
- Revision of ETS
- CE4ALL proposal
- MD in OJ
- MD political deal
- ED applies from 1/1/2021 (with exceptions)
- ER applies from 1/1/2020
- Revision of Effort Sharing Regulation
Elements of CE4ALL

- **2020 targets**
  - GHG Directive
  - RED
  - EED
- **Third Energy Package**
  - Electricity Directive
  - Electricity Regulation
  - ACER Regulation
- **SoS**
  - Risk Preparedness Regulation
- **Other**
  - EPBD

- **2030 targets**
  - GHG Directive
  - RED II
  - EED II
- **New E Market Design**
  - Electricity Directive
  - Electricity Regulation
  - ACER Regulation
- **Governance Regulation**

*CE4ALL*
New Market Design

Enablers of a cost-efficient energy transition
The headlines

• More market
• More regionalisation
• More demand-side resources
• More active consumers
More market
Market-based price formation

- Wholesale:
  - No price floors/caps: unless it is at VoLL
- Retail:
  - Regulated price: temporary and for the energy poor only
Price volatility

13 August 2019
Texas

Source: ERCOT
Market integration of renewables

- No priority dispatch
- All market participants (RES) responsible for balancing
- (Curtailment still to be minimised for RES-E)
Capacity remuneration mechanisms only as last resort

• Preference for strategic reserves
• Conditions for old and new:
  • Proof of the problem
  • Market reforms underway to make it temporary
Toolkit for reformed energy markets

- Remove market distortions for more reflective pricing
- Develop interconnectors, demand response and storage
Need for EU-wide resource adequacy assessment

- Single methodology: scenarios and modelling tool
  - National assessment to include EU-wide scenarios as well
- Sign-off by ACER
- National versus EU-wide assessment: Burden of proof on the MS
CRM design

• Market-based
• Open to all types of resources:
  • Generation/demand/storage
  • Domestic and cross-border
• No coal
• Existing CRMs to be adapted to these rules by end of 2019 without prejudice to contracts concluded by then
More regionalisation
Regionalisation saves money

What's at stake?
€16-43 billion in social welfare benefits by 2030

- Full harmonization of wholesale markets: €13 bn
- Regional resource adequacy assessment: €8 bn
- Regional balancing: €3 bn

Achieved savings
Total potential savings

Increasing IC availability

Figure 11: Ratio of available tradable capacity to benchmark capacity on HVAC borders per Capacity Calculation Region – 2017 (%)

ACER/CEER. 2018. Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2017
System operation

- Short-term resource adequacy assessment
- Crisis response coordination
- Coordinated IC capacity calculation
- Regional sizing of reserve capacity
- Procurement of balancing capacity

Source: ENTSO-E
More demand-side resources

In quest for flexibility
A (yet theoretical) commonsense

Unit cost of $D = S$
There is potential in Europe

Share of theoretical potential for DR at system peak load

<table>
<thead>
<tr>
<th></th>
<th>Total DR (GW)</th>
<th>Peak (GW)</th>
<th>Total DR / Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>11.6</td>
<td>102</td>
<td>11%</td>
</tr>
<tr>
<td>Poland</td>
<td>3.6</td>
<td>25</td>
<td>14%</td>
</tr>
<tr>
<td>UK</td>
<td>8.0</td>
<td>56</td>
<td>14%</td>
</tr>
</tbody>
</table>

E1st in network planning

- ↑ peak - ↑ investment - ↑ tariff
- Non-wire solutions to network investment:

**TSOs**: “fully take into account the potential of the use of demand response, energy storage facilities … as an alternative to system expansion” (Art 51(3) of ED)

**Distribution network plans** “shall … include the use of demand response, energy efficiency, energy storage facilities … as an alternative to system expansion” (Art 32(3)).
Targeted acquisition allows DR to avoid network upgrades

Instead of a new substation...

Peak reduction by 149 MW

Competitive bidding

EE, PV, CHP, battery storage, fuel cells

$1 bn saving at a cost of $200 m
In wholesale and capacity markets

• Non-discriminatory treatment (de facto not just de jure!)

• Actions that disincentivize the development of flexibility prohibited

• Remember TEMPUS
Where is explicit DR commercially active in Europe?

Source: Smart Energy Demand Coalition (SEDC), 2017
Aggregation is crucial

From DVN GL based on USEF
No automatic supplier compensation

BUT

Net-benefit test
More active consumers

…and the DSO of the future
New consumer rights

- Smart meter
- Dynamic tariff
- Expedited supplier switch
- Citizen energy community
Smart meter deployment (2017)

Energy and network tariffs

- Consumer wants to reduce the bill
- Make him/her interested in adjusting consumption to market and network conditions
- Fixed versus volumetric/dynamic tariffs
- Mixed message on network tariffs *(Art 18 of ER)*
  - “shall … reflect fixed costs”
  - “shall not create disincentives for the participation of demand response”
- ACER’s Best Practice Report by end of 2019
Consumers respond to prices

![Average Peak Reduction from Time-Varying Rate Pilots](image)

Energy transition at the distribution level

- Distribution networks crucial
- EU-DSO as counterpart of ENTSO-E
- Response to the challenges posed by the energy transition will define the DSO of the future
  - Active consumers and electrification
  - Community energy
  - Local markets
Active consumers and electrification

- Impact on network design/operation
- „TSO-like” DSO: IDSO?
- Peak driven investment need
- Network charging a critical issue

- Requires MS to set up appropriate incentives for DSO utilising flexibility
- Restricts DSO involvement in storage and charging infrastructure
- Requires TSOs & DSOs to cooperate
- Request cost-reflective charging
Community energy

- Range of activities
- Regulatory issues for microgrids: operation and ownership, loss of the DSOs regional monopoly, customer choice and protection

Rights and obligations in accordance with the roles that they undertake, such as the roles of final customers, producers, suppliers or distribution system operators.
Local markets

Local energy
- DSOs in (un)constrained market

Balancing markets
- DSOs doing “local balancing” and manage congestions

Network services
- DSOs contract directly with customers or via third parties, i.e. aggregators

CE4All
- All customers are entitled to participate in energy markets, trading self-generated energy or flexibility - dynamic energy & network pricing encouraged
- TSOs & DSOs shall cooperate to achieve coordinated access to distributed resources
New regulatory tasks
Many. Such as..

- Network regulation
  - Ensuring that DSOs/TSOs procure demand-side flexibility when cheaper than capacity upgrades
  - Consider ToU network tariffs
  - With performance targets (PBR)
- Safeguard the inclusion of demand-side resources in network development plans
- Establish the technical requirements for DR participation in all markets
- Measuring DSO/TSO smart grid performance
- Define VoLL and reliability standards
- Net-benefit test for suppliers compensation
Conclusions

• Package provides a sound framework, however often high-level and optional
  • More market
  • More regionalisation
  • More demand-side resources
  • More active consumers

• Governance follows market integration: ACER, ENTSO-E, EU-DSO, COM

• New tasks for regulators
Resources

- Performance-based regulation: Aligning incentives with clean energy outcomes
- Start with smart: Promising practices for integrating electric vehicles into the grid
- Demand Response as a Power System Resource
- Time-varying and dynamic rate design
- Cleaner, Smarter, Cheaper: Network tariff design for a smart future
- Unleashing Demand Response with Effective Supplier Compensation
- The Market Design Initiative: Enabling Demand-Side Markets
About RAP

The Regulatory Assistance Project (RAP)® is an independent, non-partisan, non-governmental organization dedicated to accelerating the transition to a clean, reliable, and efficient energy future.

Learn more about our work at raponline.org

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Elements of CE4ALL

- Governance of the energy union and climate action (EU) Regulation 2018/1999

- Regulation on risk-preparedness in the electricity sector (EU) 2019/941

- Regulation establishing a European Union Agency for the Cooperation of Energy Regulators (EU) 2019/942

- Regulation on the internal market for electricity (EU) 2019/943

- Directive on common rules for the internal market for electricity (EU) 2019/944