

**CEER**

**Council of European  
Energy Regulators**



## **Energy Efficiency and EED2 Art. 15 from a Regulator's Point of View**



**CONCERTED ACTION  
ENERGY EFFICIENCY  
DIRECTIVE**

**CA EED 5<sup>th</sup> Plenary, Working Group 5.1**

**Charles Esser, 17 October 2019, Zagreb, Croatia**

# Agenda

- Overview of CEER
- CEER 3D Strategy
- European energy context
- EED2 Article 15 (2a) in the context of the Clean Energy Package
- Energy Losses
- Barriers
- Electrification
- Incentives
- Conclusion



## Overview of CEER

# Council of European Energy Regulators

Voice of Europe's national energy regulators at EU and international level

39 Members and Observers

Not-for-profit organisation

HQ in Brussels

9 permanent staff



# CEER Members and Observers

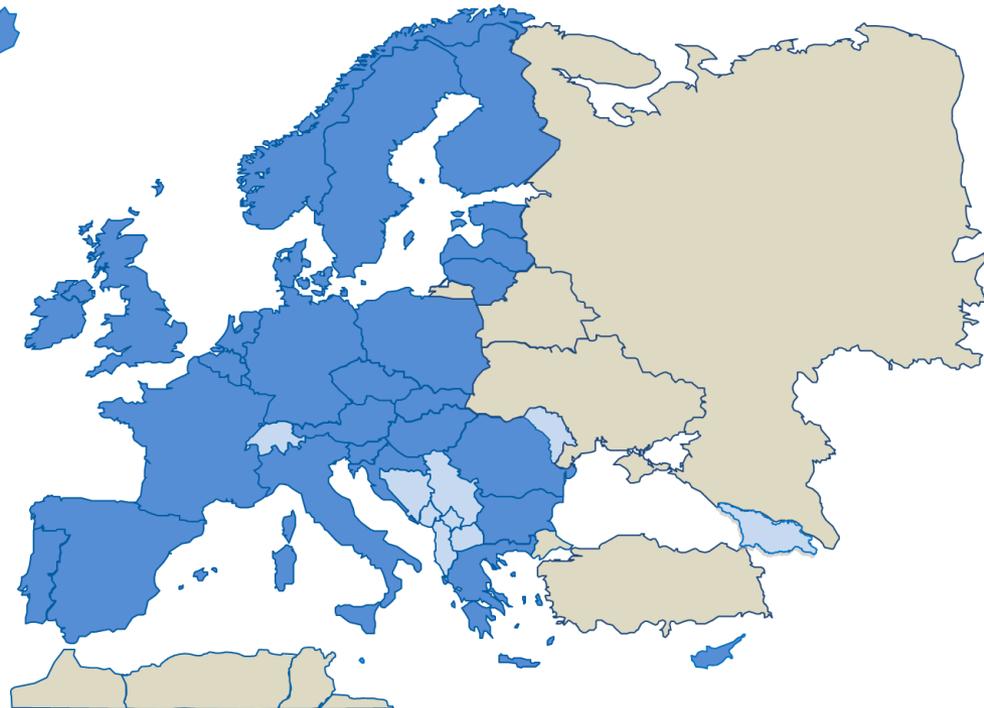
## Members from:

28 EU Member States +  
Iceland & Norway



## Observers from:

Albania  
Bosnia and Herzegovina  
Georgia  
Kosovo  
Moldova  
Montenegro  
Republic of North Macedonia  
Serbia  
Switzerland



## CEER: Fostering energy markets, empowering consumers

- Independent voice for 39 European energy regulators
- Promotes competitive, secure and sustainable markets for consumers
- Supports NRAs and best practice energy regulation:
  - ▶ Papers and reports
  - ▶ Events and workshops
  - ▶ Advocacy
  - ▶ Training Academy
  - ▶ Capacity-building
  - ▶ Working with ACER

(EU Agency for the Cooperation of  
Energy Regulators)



**3D** **D**IGITALISATION  
**D**ECARBONISATION  
**D**YNAMIC REGULATION



## CEER's 3D Strategy (2019- 2021)

- Digitalisation  
(in consumer interest)

- ▶ Protect and empower consumers
- ▶ Cost saving opportunities
- ▶ New business models

- Decarbonisation  
(at least cost)

- ▶ Promotion of flexibility, integration of renewables fully into the grid and market
- ▶ Whole system approach
- ▶ Market based solutions

- Dynamic regulation

- ▶ Coherent and adaptive regulatory framework with European solutions oversight to ensure trust in the market
- ▶ Future proofed regulatory framework that enables the energy transition and digitalisation
- ▶ Cross-sectoral cooperation



# The Energy Context in Europe

## Liberalised Markets

Competition  
Consumer choice  
Demand-side and prosumer growth at DSO level

## Renewables Growth

Dispersed and Variable  
Low marginal cost  
Often small-scale at DSO level  
**The 'energy transition'**

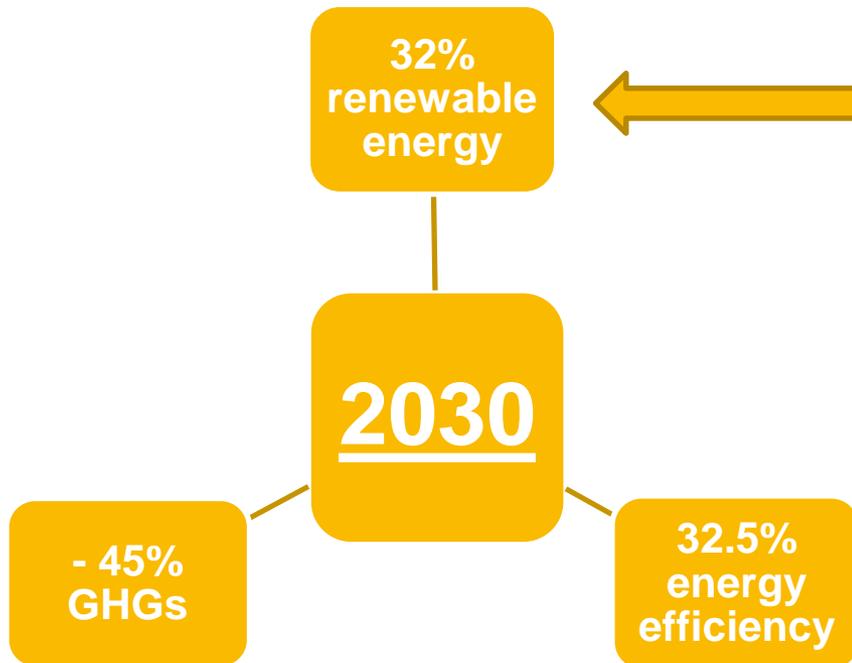
## New Technology

Smart Meters  
Smart Grids  
Smart Heating  
Electric Vehicles  
Internet of Things  
Data Management  
Cybersecurity



# Big Picture on the Energy Transition

- Sustainability at the heart of EU economic energy regulation
  - ▶ Decarbonisation at pace to 2050



**~50% of electricity  
from RES**

*Retrofitting EU  
wholesale markets*

*Enabling role for  
Distribution*

*Empowering  
consumers and  
demand-side  
participation*





- Renewable generation 30.7% of EU electricity demand; renewables 17.5% total energy demand (2017).
- Growth driven by 2020 RES 20% energy target and “support schemes” (subsidies)
- Raising market design issues
- Climate change mitigation: commitments increased

## Renewables: The only way is up!

### Share of energy from renewable sources in the EU Member States

(2017, in % of gross final energy consumption)



ec.europa.eu/eurostat

## Article 15 (2a)

“By 31 December 2020, the Commission shall, after consulting relevant stakeholders, prepare a common methodology in order to encourage network operators to reduce losses, implement a cost-efficient and energy-efficient infrastructure investment programme and properly account for the energy efficiency and flexibility of the grid.”

### CEER Questions:

- Who are the relevant stakeholders?
- What is meant by a “common methodology”? Who is best placed to create incentives for network operators?
- Is this an advisory (guidance) methodology or something more stringent? How is it envisioned to fit into national plans (with the Electricity Directive)?
- What is the European Commission’s timeline on consulting stakeholders and developing this methodology?

## In the context of the Electricity Regulation of the CEP

- Elec. Reg. Rec. 39 “Network tariffs should not...represent an obstacle to improving energy efficiency.”
- Elec. Reg. Art. 18 “Tariff methodologies shall reflect the fixed costs of transmission system operators and distribution system operators and shall provide appropriate incentives to transmission system operators and distribution system operators over both the short and long run, **in order to increase efficiencies, including energy efficiency...**”

However...

**CEER does not believe that the common methodology in the EED2 mandates harmonised or time-differentiated network tariffs across MS.**

**As a methodology for encouraging network operators, Art. 15 would seem to be more on the topic of incentives for TSOs/DSOs, not network tariffs, which, after all, are incentives for users.**

## Energy Efficiency in the CEP Electricity Directive

- Art. 8: MS can impose on electricity undertakings energy efficiency measures in the general economic interest
- Arts. 19-20: MS/NRA should promote efficiency via smart metering systems
- Art. 31: DSOs must operate with “due regard” for energy efficiency
- Art. 32: *“...the regulatory framework [for DSOs]...shall promote the uptake of energy efficiency measures, where such services cost-effectively alleviate the need to upgrade or replace electricity capacity and support the efficient and secure operation of the distribution system.”*
- Art. 40: *“...the regulatory framework [for TSOs]...shall promote the uptake of energy efficiency measures, where such services cost-effectively alleviate the need to upgrade or replace electricity capacity and support the efficient and secure operation of the transmission system.”*
- Art. 58: A general objective of the NRA is to promote system adequacy in accordance with energy efficiency, including incentives for efficiency
- Art. 59: NRA duty to monitor and assess SOs in regard to smart grids promoting energy efficiency

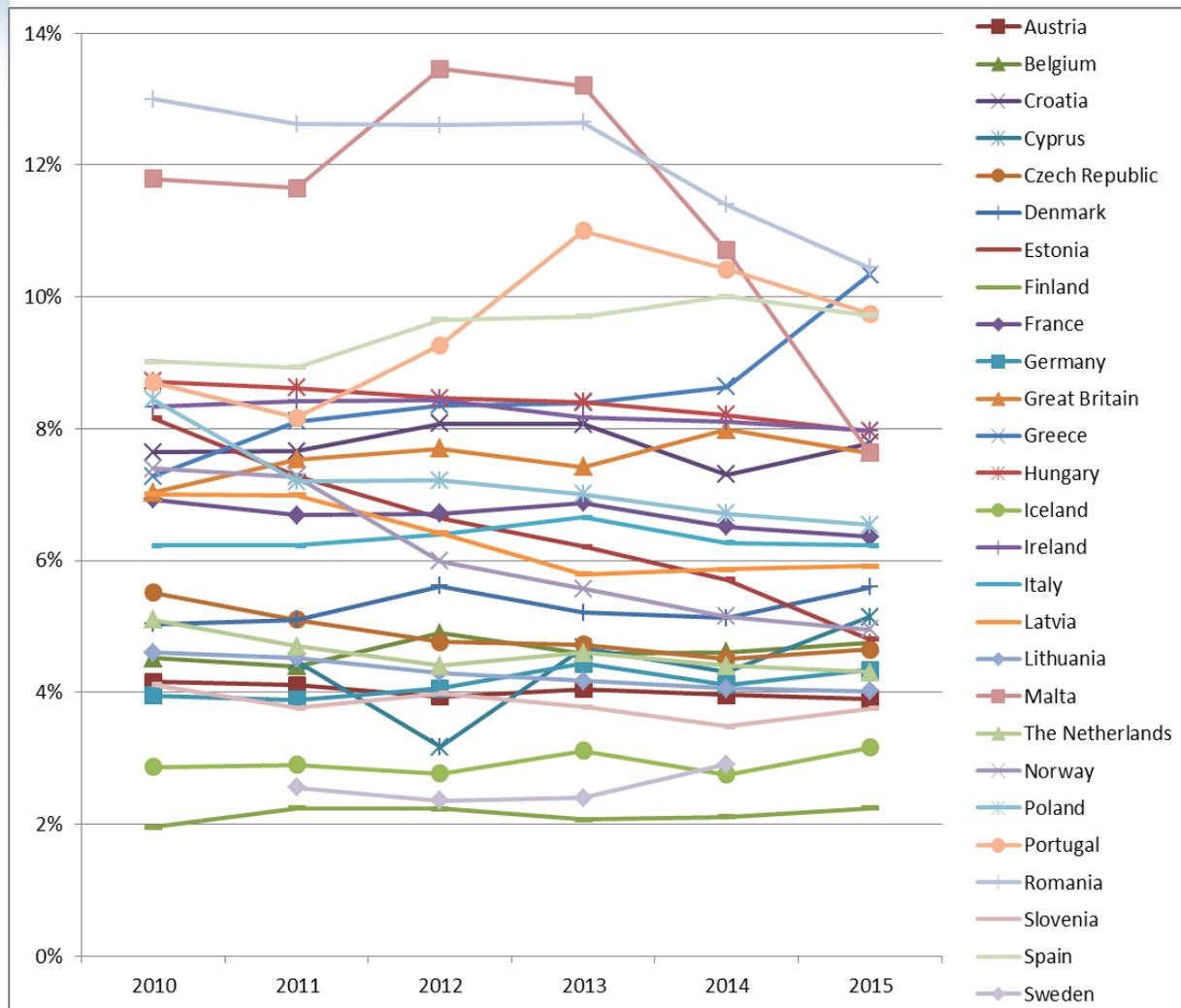
...So MS/NRA network plans and regulatory frameworks will be there per the Elec. Directive – how does the Commission plan at EU level in the EED2 fit in with this?



# Energy Losses

## Overall recommendations

1. Harmonise definitions for improved benchmarking
2. Make more data available, such as the availability of energy injected into distribution grids, which would permit the calculation of distribution system losses as a percentage of energy injected into distribution grids (upcoming)
3. **Incentivise system operators to reduce losses instead of passing losses on to consumers**
4. Employ a life cycle costing approach that includes losses when making investment decisions



Total transmission and distribution losses as a percentage of total injected energy

## Energy Losses - 2

### Recommendations on technical losses

1. Increase voltage levels
2. Apply less transformational steps to deliver electricity to consumers
3. Utilise new and improved [low loss] equipment
4. Employ distributed generation in a more efficient manner, including combining it with local storage
5. Optimise network flows – reduce peaking
6. In general, pursue network architecture and management that promote the highest efficiency

	Who	How	Tariffs
Croatia, Cyprus, Czech Republic,  Denmark, Estonia, Finland,  France, Germany, Italy,  Netherlands, Malta, Norway,  Poland, Slovenia and Sweden	Network operators (TSOs or DSOs)	PEX or bilaterally (by auctions or tenders)	Paid by network tariffs
Belgium (Regional Transm. level <70 kV, Distribution level Flanders and Wallonia),  Austria, Hungary, Iceland,  Latvia, Lithuania and Romania			Dedicated tariff for losses
Belgium (Federal Transm. level >70 kV),  Great Britain, Greece,  Ireland, Portugal and Spain	Injected by suppliers		No tariffs for losses

2017 practices for procurement of losses

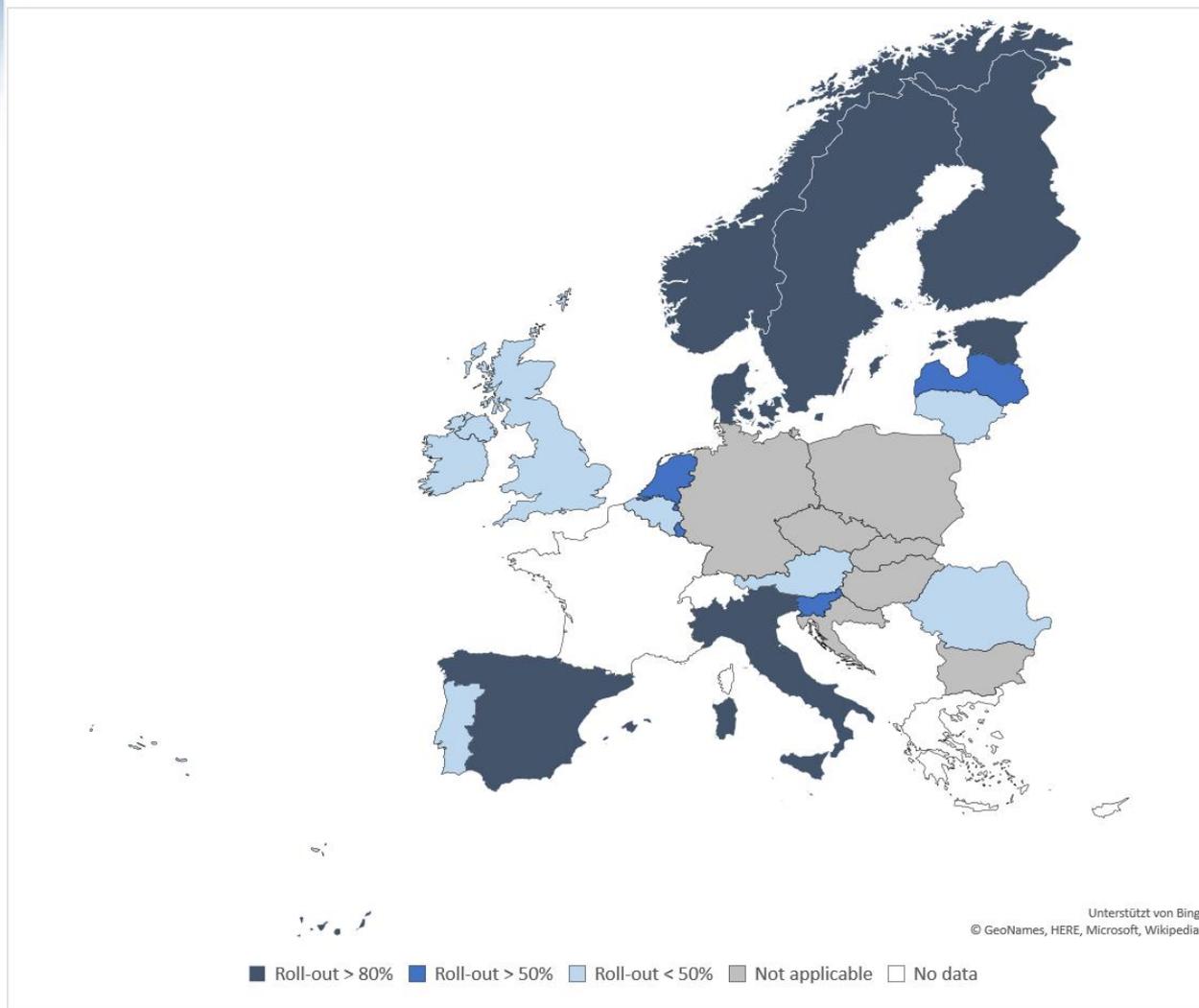




## Energy Losses - 3

### Recommendations on non-technical losses

1. All countries should collect data on these types of losses, with separate monitoring for technical and non-technical losses
2. Focus on more accurate recording of electricity consumption through improved metering and the use of smart meters
3. Reduce theft and other hidden losses



Status of smart meter roll-out



## Barriers

- One of the main goals of DSO regulation (CEER 2018 Conclusions Paper “Incentives Schemes for Regulating Distribution System Operators, including for innovation”):

Facilitating innovation: promoting a regulatory environment that removes barriers to the pursuit of innovative approaches by DSOs and which have the potential to bring savings or benefits to consumers, without foreclosing competition in new activities.

So, consumer-focused innovation – for example, removing regulatory barriers so that DSOs can spend on innovative solutions to find leakage on the low voltage system. E.g. Power Survey’s SVDTM mobile electric field detection system for CVL. This could be less expensive than untargeted new wire or (complementary to) demand side management programmes.



Interior of vehicle for finding losses

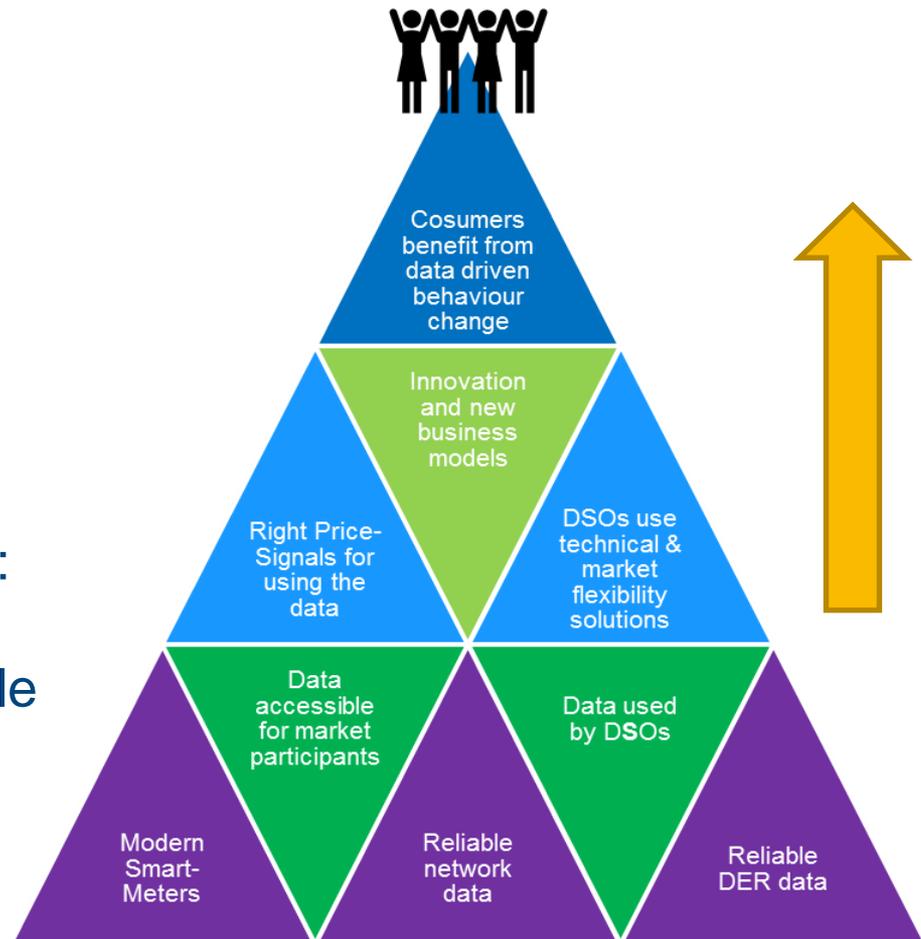
## Electrification / Decarbonisation

- Increasing share of **RES** to reach **climate targets** is inevitable, but creates new challenges both for the grid (new dimensioning and restructuring due to decentralised / distant generation) and markets
- **Regulators** will have more responsibilities to support the **energy transition** and ensure RES grid and market integration
- More interaction between the generation level and the grid and more players require a more **flexible energy system**
- More **flexibility** requires **adaptive/dynamic regulation** using a **market-based approach** to reflect the **closer interaction** between the generation level and the grid as well as the supply/retail side (DSR, prosumers etc.) ensuring markets work well in a system based on a natural monopoly (grid)
- Define roles of **all** players and rules **ex-ante** to ensure a level playing field so that well-functioning markets send efficient price signals so that the right mixture of technologies and **flexibility** solutions result for the benefit of consumers complemented by **ex-post** market surveillance – **REMIT** to ensure market integrity and transparency
- Conclusion: “**smart**” **regulatory oversight** needed with a **market-based whole system customer-centric approach** allowing innovation

# Electrification & Digitalisation

## *Tasks to be done...*

1. Ensure effective price-signals:
2. Promote DSO use of flexibility:
3. Enabling market-based flexibility:
4. Get and make the data accessible and useful
5. Foster innovation



Building up to a smarter energy system

## Incentives: guidelines (1)

- Account for various goals in DSO [and TSO] regulation, striving in particular to balance incentives with different, but complementary purposes, such as cost-efficiency, quality of service, **energy efficiency** or innovation;
- Assess country-specific needs and priorities in the various goals, taking into account national characteristics, such as DSO structure, renewables penetration and other relevant features, as there is no “one size fits all” solution;
- Provide, as far as possible in light of relevant developments in the energy sector, a stable, transparent and predictable regulatory framework, ensuring incentives for efficiency in the short and long run;
- Ensure a technology-neutral approach towards innovative solutions, that may be hindered, inter alia, by different treatment of costs;
- Consider, where feasible, an output-based approach for setting incentives, because this approach has the advantage of considering what is important to customers letting DSOs free to find optimal solutions;

## Incentives: guidelines (2)

- Adopt a **whole system approach**: considering the societal net benefit for the entire system and encouraging DSOs to consider consequences of their decisions on other actors of the value chain (to the extent those decisions are within the scope of NRA's responsibilities in each country);
- Stimulate coordination between transmission and distribution system operator and ensure that funding flows in the right direction when the most efficient solution is the TSO taking action to address a problem at distribution level or the DSO taking action to address a problem at transmission level;
- Lead DSOs to demonstrate meaningful engagement with stakeholders;
- Promote a role for DSOs as neutral market facilitators regarding regulation for the market of flexibility services; ensuring no discrimination among network users and appropriate transparency in data management; and
- Continue pursuing an interactive regulatory process, which facilitates the involvement and contributions by all stakeholders from the early stage of regulatory decisions to the implementation stage, with the development of monitoring instruments to evaluate and, if necessary, adapt those decisions.

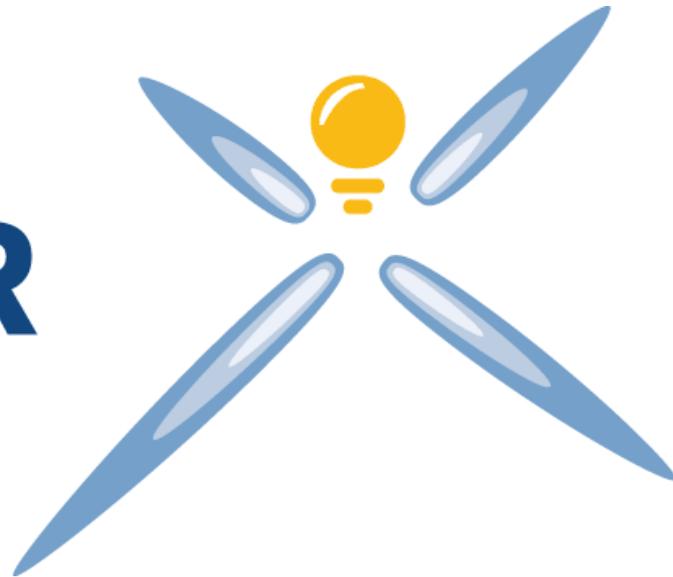
## Conclusions

- The Clean Energy Package represents a big step forward on efficiency, but implementation is a major task that brings important questions to answer.
- Regulators have considered how to reduce losses in electricity systems and continue to work on the topic (CEER's *2<sup>nd</sup> Power Losses Report* to be published end-2019).
- With increased electrification and VRES, regulators need to adapt to allow flexible solutions to come to the fore, via “smart” regulatory oversight with a market-based whole system customer-centric approach allowing innovation.
- Regulators have best-practice guidelines for incentives for system operators, and these can be used to improve energy efficiency, among other goals.

# Thank you for your attention!

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# Supplementary Slides

## Main Tasks for ACER & CEER (1)

Association Tasks	ACER	CEER
1. Exchange of best practice	<ul style="list-style-type: none"> <li>• Recommendations to assist NRAs and market players</li> </ul>	<ul style="list-style-type: none"> <li>• Basically all regulatory topics</li> </ul>
2. Training		<ul style="list-style-type: none"> <li>• Mainly for regulatory staff</li> <li>• Cooperation with FSR</li> </ul>
3. Rulemaking/ harmonisation	<ul style="list-style-type: none"> <li>• Cross-border issues</li> <li>• REMIT</li> <li>• Gas Security of Supply</li> <li>• Cost allocation decisions</li> <li>• ITC</li> <li>• Peer reviews of NRA decisions</li> <li>• Supervision of ENTSOs</li> <li>• Exemptions of new infrastructure</li> </ul>	<p>Non-binding recommendations e.g.</p> <ul style="list-style-type: none"> <li>• Distribution/retail</li> <li>• Consumers</li> <li>• Sustainability</li> <li>• Gas storage and LNG</li> <li>• Future challenges...</li> </ul>

## Main Tasks for ACER & CEER (2)

Association Tasks	ACER	CEER
4. Policy development	<ul style="list-style-type: none"> <li>• Advisory role to EU institutions</li> </ul>	<ul style="list-style-type: none"> <li>• Position papers and fact sheets</li> <li>• Contribution to EC consultations</li> <li>• Preparing amendments for EP</li> <li>• Special events</li> </ul>
5. External / global contacts		<ul style="list-style-type: none"> <li>• Founding member of ICER</li> <li>• EU/US roundtable</li> <li>• CEER/FTS dialogue</li> <li>• EaP partner of EC</li> <li>• Contract with RAERESA</li> <li>• Work with the EBRD</li> </ul>

## Contact Voltage Losses

- Energy leaking from cable is analogous to water leaking from plumbing, it is a preventable loss of a valuable commodity
- Princeton\Andlinger estimated that Contact Voltage faults are responsible for more than 615,000 MWh/year across the UK
  - Princeton\Andlinger calculated loss for typical faults
  - Lighting Column –42.9 MWh/yr. per fault
  - Cable Faults –54.5 MWh/yr. per fault