

# Bird & Bird & Clean Energy Package & Digitalisation

Europe on the road to digitalisation in the energy sector?

Institut für Berg- und Energierecht, Universität Bochum

3. Brüsseler Expertengespräch, 10 October 2019

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# Agenda

1. Clean Energy for all Europeans Package
2. Electricity Market Design & Digitalisation
3. Energy Performance of Buildings & Digitalisation
4. Renewable Energy Directive & Digitalisation
5. Conclusion





# 1. Clean Energy for all Europeans Package

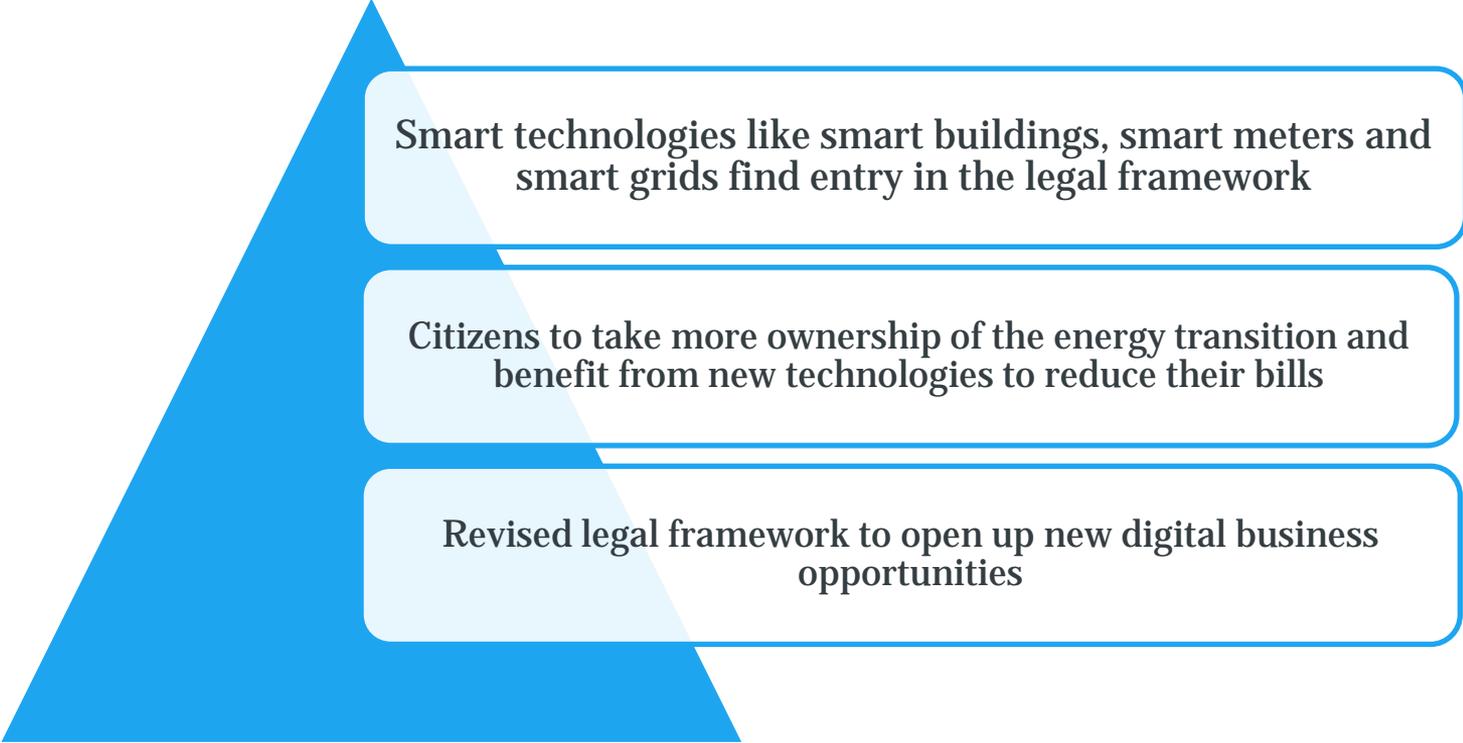
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# 1. Clean Energy for all Europeans Package

## *a) The Role of Digitalisation*



Smart technologies like smart buildings, smart meters and smart grids find entry in the legal framework

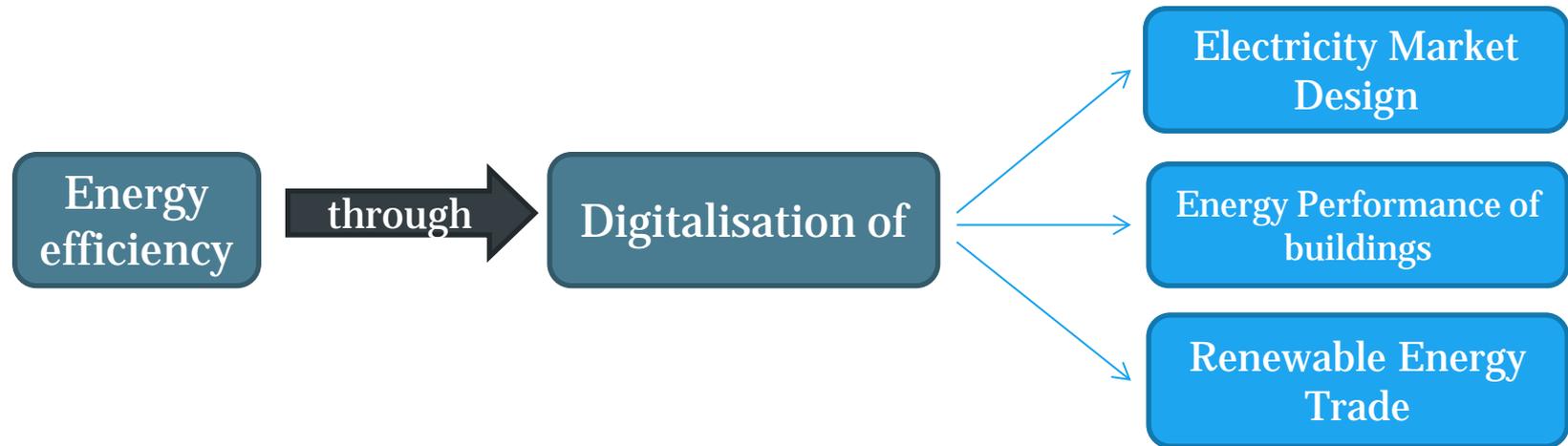
Citizens to take more ownership of the energy transition and benefit from new technologies to reduce their bills

Revised legal framework to open up new digital business opportunities

# Clean Energy for all Europeans Package

## *b) Main topics affected by digitalisation*

Digitalisation not at the core of the Clean Energy Package. The revised legal framework reinforces the cooperation of all market participants in order to generate more energy efficiency, often indirectly furthering digitalisation.





## 2. Electricity Market Design & Digitalisation

## 2. Electricity Market Design & Digitalisation

### *a) Intelligent technologies meet legal framework*

[Electricity Directive \(EU\) 2019/944](#) and [Electricity Regulation \(EU\) 2019/943](#) update the existing electricity market rules based on Directive 2009/72/EC.

Member States have until 31 December 2020 to transpose the Electricity Directive into national law.

Energy digitalisation part of the new rules in form of:



## 2. Electricity Market Design & Digitalisation

### *b) Smart Meter & Consumer*

Clear right to request a smart meter for final consumers

#### [Art. 21 Para. 1 Electricity Directive \(EU\) 2019/944:](#)

*'Where the deployment of smart metering systems has been **negatively assessed** as a result of the cost-benefit assessment referred to in Article 19(2) and where smart metering systems are **not systematically deployed**, Member States shall ensure that every **final customer is entitled on request**, while bearing the associated costs, **to have installed** or, where applicable, to have upgraded, under fair, reasonable and cost-effective conditions, **a smart meter** that:*

- (a) is equipped, where technically feasible, with the functionalities referred to in Article 20, or with a minimum set of functionalities to be defined and published by Member States at national level in accordance with Annex II;*
- (b) is interoperable and able to deliver the desired connectivity of the metering infrastructure with consumer energy management systems in near real-time. '*

## 2. Electricity Market Design & Digitalisation

### *b) Smart Meter & Consumer*

Final consumer receives the right to request a dynamic electricity price contract

#### Art. 11 Para. 1 Electricity Directive (EU) 2019/944:

*'Member States shall ensure that the national regulatory framework enables suppliers to offer dynamic electricity price contracts. Member States shall ensure that final customers who have a smart meter installed can request to conclude a **dynamic electricity price contract** with at least one supplier and with every supplier that has more than 200 000 final customers.'*

## 2. Electricity Market Design & Digitalisation

### *c) Smart Meter & Member State*

Member States are challenged to comply with consumer protection and functionality standards

#### [Art. 20 a\) Electricity Directive \(EU\) 2019/944:](#)

*'the **smart metering systems** shall accurately measure actual electricity consumption and shall be capable of providing to final customers information on actual time of use. Validated **historical consumption data** shall be made **easily and securely available and visualised to final customers** on request and at **no additional cost**. Non-validated **near real-time consumption data** shall also be made **easily and securely available to final customers at no additional cost**, through a **standardised interface or through remote access**, in order to **support automated energy efficiency programmes, demand response and other services..'***

## 2. Electricity Market Design & Digitalisation

### c) *Smart Meter & Member State*

Member States are obligated to roll out Smart Meters

[Art. 19 Para. 2, Annex II Electricity Directive \(EU\) 2019/944](#)

*'Member States shall ensure the deployment in their territories of **smart metering** systems that assist the **active participation of customers in the electricity market**. Such deployment may be subject to a **cost-benefit assessment** which shall be undertaken in accordance with the principles laid down in Annex II.'*

## 2. Electricity Market Design & Digitalisation

### *d) Smart Meter & System Operators*

Transmission and distribution system operators are obligated to establish the technical requirements for participation of demand response in all electricity markets

#### [Art. 17 Para. 5 Electricity Directive \(EU\) 2019/944](#)

*'Member States shall ensure that regulatory authorities or, where their national legal system so requires, transmission system operators and distribution system operators, acting in close cooperation with market participants and final customers, establish the technical requirements for participation of demand response in all electricity markets on the basis of the technical characteristics of those markets and the capabilities of demand response. Such requirements shall cover participation involving aggregated loads.'*

## 2. Electricity Market Design & Digitalisation

### *e) Data Management*

Winter Package includes various articles to organize data management while Directive 2009/72/EC mentioned data management just once in Annex 1 Para. 1 (h)

Member States are required to put in place data management systems to allow for the exchange, storage and access of data, Art. 23 Para. 2 Electricity Directive (EU) 2019/944

Data management systems have to comply with relevant data protection and privacy rules such as the General Data Protection Regulation, Art. 23 Para. 3 Electricity Directive (EU) 2019/944

DSOs and TSOs and national regulatory authorities are required to establish a compliance programme which includes rules on non-discriminatory access to data, Art. 23 Para. 4 Electricity Directive (EU) 2019/944

## 2. Electricity Market Design & Digitalisation

### e) *Data Management*

#### [Art. 23 Electricity Directive \(EU\) 2019/944](#)

1. ... For the purpose of this Directive, **data shall be understood** to include metering and consumption data as well as data required **for customer switching, demand response and other services.**

2. **Member States shall organise** the management of data in order to ensure efficient and secure data access and exchange, as well as data protection and data security.

*Independently of the data management model applied in each Member State, the **parties responsible** for data management **shall provide access to the data of the final customer to any eligible party**, in accordance with paragraph 1. Eligible parties shall have the requested data at their disposal in a **non-discriminatory manner and simultaneously**. Access to data shall be easy and the relevant procedures for obtaining access to data shall be made publicly available.*

## 2. Electricity Market Design & Digitalisation

### *f) Smart Grids*

#### [Art. 30 Para. 1 h\) Electricity Regulation \(EU\) 2019/943](#)

*'The **ENTSO** for Electricity shall ...*

*(h) **promote** the digitalisation of transmission networks including **deployment of smart grids**, efficient real time data acquisition and intelligent metering systems...'*

#### [Art. 55 Para. 1 d\) Electricity Regulation \(EU\) 2019/943](#)

*'...the **EU DSO** entity shall be...:*

*(d) **contributing to the digitalisation** of distribution systems including **deployment of smart grids** and intelligent metering systems...'*

### **Cost and Energy efficiency**

Distribution tariff methodologies shall provide incentives to distribution system operators for the most cost-efficient operation and development of their networks including through the procurement of services. For that purpose regulatory authorities shall recognise relevant costs as eligible, shall include those costs in distribution tariffs, and may introduce performance targets in order to provide incentives to distribution system operators to increase efficiencies in their networks, including through energy efficiency, flexibility and the development of smart grids and intelligent metering systems ([Art. 18 Para. 8 Electricity Regulation \(EU\) 2019/943](#))

# 3. Energy Performance of Buildings & Digitalisation



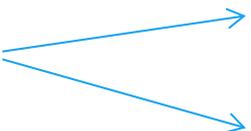
# 3. Energy Performance of Buildings & Digitalisation

## a) *Improving Energy Efficiency through Smart Buildings*

The Clean Energy Package promotes the development and integration of digital solutions into buildings through the [Energy Performance of Buildings Directive \(EU\) 2018/844](#). Member States must transpose the Directive into national law by 10 March 2020. For the first time the term 'Smart Building' is officially mentioned ([Recital 16 Energy Performance of Buildings Directive \(EU\) 2018/844](#)).

### **Requirements for Smart Buildings:**

- self- regulating devices (e.g. regulating temperature in individual rooms or designated heating zones in a building unit); [Art. 8 Para. 1 Energy Performance of Buildings Directive \(EU\) 2018/844](#)
- Built-in home appliances
- Interoperability with other features; [Annex IA Para. 1 Energy Performance of Buildings Directive \(EU\) 2018/844](#)

**Benefits from smart buildings:** 

- Improvement of the overall energy efficiency
- Higher performance level and enabled flexibility

# 3. Energy Performance of Buildings & Digitalisation

## *b) Promoting Smart Technologies for Smarter Buildings*

### [Art. 2a Para. 1 Energy Performance of Buildings Directive \(EU\) 2018/844](#)

*'Each **Member State shall establish a long-term renovation strategy** to support the renovation of the national stock of residential and non-residential buildings, both public and private, into a highly energy efficient and decarbonised building stock by 2050, facilitating the cost-effective transformation of existing buildings into nearly zero-energy buildings. Each **long-term renovation strategy** shall be submitted in accordance with the applicable planning and reporting obligations and **shall encompass:***

*(f) an **overview of national initiatives to promote smart technologies** and well-connected buildings and communities, as well as skills and education in the construction and energy efficiency sectors... .'*

# 3. Energy Performance of Buildings & Digitalisation

## *c) Smart readiness indicator (SRI)*

### Concept

- SRI will assess the ability of buildings to use information and communication technologies to adapt to the needs of the occupants and of the grid and to improve energy efficiency ([Article 8 Para. 10 Directive \(EU\) 2018/844](#))
- By the end of 2019, the Commission is required to adopt further legislation on the SRI to clarify its definition and lay down rules on its calculation methodology and technical modalities ([Article 8 Para. 10 Directive \(EU\) 2018/844](#))
- Use of SRI scheme remains optional for Member States

### Purpose

- Increase awareness amongst building owners and occupants for the benefits of building automation and actual energy savings

# 3. Energy Performance of Buildings & Digitalisation

## d) SRI & Smart Charging



Charging of electric vehicles challenges grid operators due to high demand of electricity



- SRI can also take into account smart charging infrastructure for electric vehicles
- Groundwork for rolling out electric charging points in buildings
- **Non-residential buildings** with at least ten parking spaces are **required to install** at least one **recharging point** while new residential buildings have to put in place conduits for electric cables and other necessary infrastructure; [Article 8 Para. 2 Energy Performance of Buildings Directive \(EU\) 2018/844](#)

**Future idea:**

Use of car batteries as a source of power to provide more flexibility to the electricity grid

## 4. Renewable Energy Directive & Digitalisation



## 4. Renewable Energy Directive & Digitalisation

### *a) Introducing the renewable self-consumer*

[Renewable Energy Directive \(EU\) 2018/2001](#) includes some rules on energy digitalisation. It has to be transposed into national law by 30 June 2021.

[Art. 2 Para. 14 Renewable Energy Directive \(EU\) 2018/2001](#) introduces the **renewable self-consumer**

*'a final customer operating within its premises **located within confined boundaries** or, where permitted by a Member State, within other premises, who **generates renewable electricity for its own consumption**, and **who may store or sell self-generated renewable electricity**, provided that, for a non-household renewables self-consumer, those activities do not constitute its primary commercial or professional activity'*

The idea of the renewable self-consumer **indirectly contributes** to the **digitalisation** of the energy sector through storing and selling self generated energy

## 4. Renewable Energy Directive & Digitalisation

### *b) Peer-to-peer trading of renewable self-consumers*

#### [Art. 21. Para. 2 a\) Renewable Energy Directive \(EU\) 2018/2001](#)

*'Member States shall ensure that **renewables self-consumers, individually or through aggregators**, are entitled:*

*(a) to generate renewable energy, including for their own consumption, **store and sell their excess production** of renewable electricity, including **through** renewables power purchase agreements, electricity supplier and **peer-to-peer trading arrangement**, without being subject:*

*(i) in relation to the electricity that they consume from or feed into the grid, to **discriminatory or disproportionate procedures and charges, and to network charges** that are not cost-reflective;*

*(ii) in relation to their self-generated electricity from renewable sources remaining within their premises, to **discriminatory or disproportionate procedures, and to any charges or fees;***

## 4. Renewable Energy Directive & Digitalisation

### *b) Peer-to-peer trading of renewable self-consumers*

**Energy is sold between market participants** by means of a contract with pre-determined conditions governing the automated execution and settlement of the transaction → **possible gateway for Blockchain technology**

**But:** No further specifications on the use of smart contracts or Blockchain for the implementation of peer-to-peer trading in the current legal framework



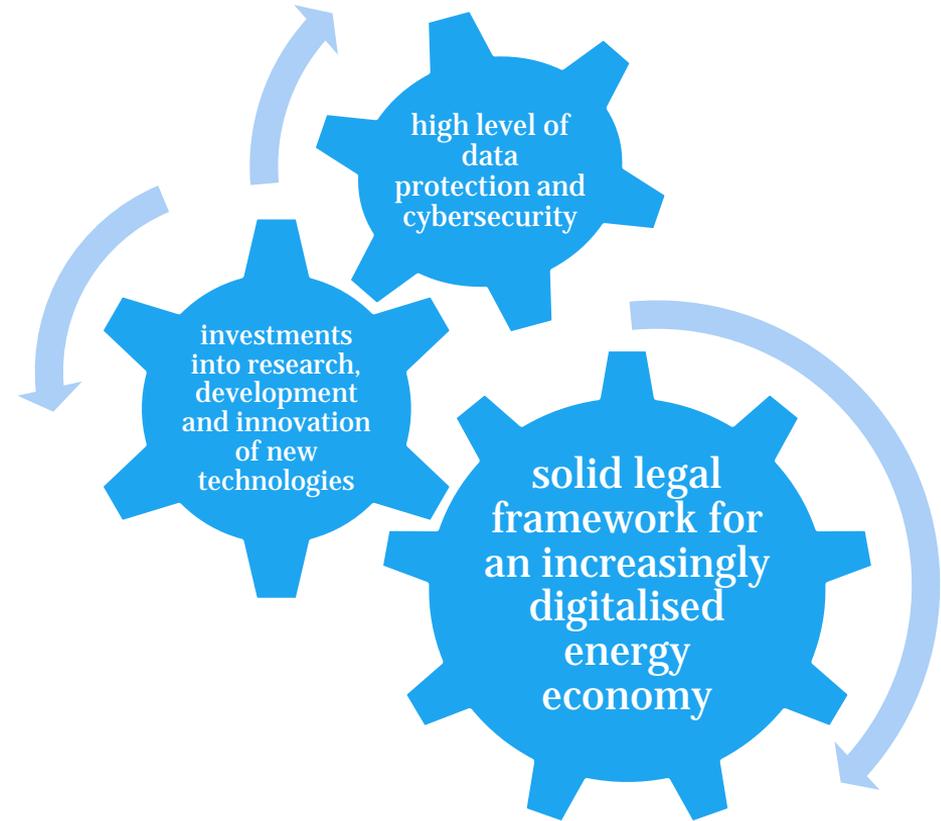
## 5. Conclusion

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## *Quo Vadis Digitalisation*

The Clean Energy Package takes an important step towards utilising digital solutions for the clean energy transition and building a more flexible electricity system.

Digitalisation is planted in the forest of the new European legal framework - but still a somewhat fragile plant, on the way to growing bigger.



# Thank you & Bird & Bird

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