BestRES

Best practices and implementation of innovative business models for renewable energy aggregators

Enabling European legal and regulatory framework for business models for renewable energy aggregation

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This document has been produced within the BestRES project “Best practices and implementation of innovative business models for Renewable Energy aggregatorS”.

The logos of the partners cooperating in this project are shown below and information about them is available in this report and at the website: www.bestres.eu

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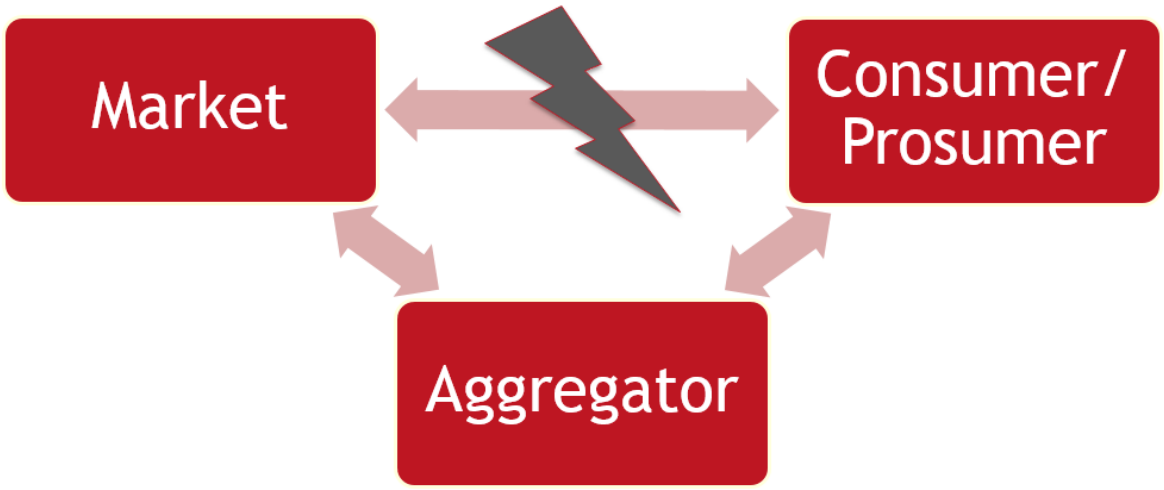
A. Executive summary

The BestRES project aims to develop Business Models for integration of renewable energy sources by aggregating distributed generation such as wind, PV, biogas, biomass, hydro, Combined Heat and Power and combining this with demand side management and energy storage. Aggregators are likely to play an important role in the sectors of demand response, generation and balancing services as enablers for consumers and prosumers. Aggregators commonly perceive lower prices on control reserves and wholesale markets as a key advantage since more units are participating. For providers of aggregation services, the potential benefits include increased revenues and a reduced energy bill. Aggregation has the potential to lower balancing costs and decrease the energy costs for prosumers.

Figure 1: Aggregators as enablers for consumers/prosumers



Hence 13 improved Business Models that are concerned with aggregation were developed in the BestRES project to be analysed, examined, and eventually implemented in the energy market. However, these Business Models encounter various barriers on their way, be it of economic, technical or legal nature (For a more detailed analysis of the barriers see “An assessment of the economics of and barriers for implementation of the improved business models”, Deliverable 4.1 of the BestRES project).

Solutions to reduce or eliminate these barriers can be achieved on two different but connected paths. On the one hand, there is the legal framework on EU level, on the other hand there are possibilities on national level to facilitate aggregation in the energy market.

During the BestRES project the EU finalised the “Clean Energy for all Europeans” Package (Clean Energy Package), which contains various provisions that are likely

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to facilitate aggregation in the future energy market and help to reduce the identified barriers. These aspects are discussed in detail in this document[1] However, the legal analysis led to the result that there are still several barriers left, which are not addressed sufficiently or at all by European law and therefore have to be approached on national level. In order to provide solutions for these national barriers, in "Enabling National legal and regulatory framework for business models for RES aggregation" (deliverable D5.2 of the BestRES project) the development of relevant aspects for an enabling framework for aggregators on national level is in the centre of the analysis.

Figure 2: The connection between European and National law in respect of barriers for aggregators

[1] This analysis is based on the consolidated trilogue outcomes from January 2019, thus the final result of the Clean Energy Package may vary in minor aspects, especially regarding the numbering of individual provisions.

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B. Introduction

I. Methodology

1. In general

As stated above, the general methodology for the development of legal recommendations and an enabling framework for aggregators has to take into account both, the European and the National legislation. Thus the following structure is used for this document:

I. Update: Analysis on barriers

- Which legal/regulatory barriers were identified when placing the 13 improved Business Models (BMs) in three groups, especially regarding group 2 and 3? (see B. in D5.3)
- Result: Overview of existing barriers, with emphasis on groups 2 and 3 (and group 1). (see B. and D5.3)

II. Clean Energy Package: Which barriers are addressed?

- In which way are these barriers addressed by the Clean Energy Package? (see F. in D5.3)
- Evaluation of the Trilogue negotiations and their results, starting with COM proposal as initial point, followed by the positions of Council and the European Parliament. (see C. and D. in D5.3)
- Analysis: (see D. to F. in D5.3)
  - Which barriers are not/insufficiently addressed?
  - Which barriers cannot be addressed on EU-level (e.g. for competence reasons)? → **National policy recommendations (see C. to G. in D5.2)**

III. Result: Concrete recommendations related to still remaining barriers

- Overview: Which barriers are already sufficiently addressed by the Clean Energy Package? (see E and F. in D5.3)
- **Evaluation of the final Version of the Clean Energy Package. (see F. in D5.3)**

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II. Overview of legal and regulatory barriers

The following overviews shows the improved BMs by the BestRES consortium in the target countries and the groups they are allocated to. The respective legal and regulatory barriers are described in "An assessment of the economics of and barriers for implementation of the improved business models", Deliverable 4.1 of the BestRES project).

Figure 3: The BestRES partner countries and their business models

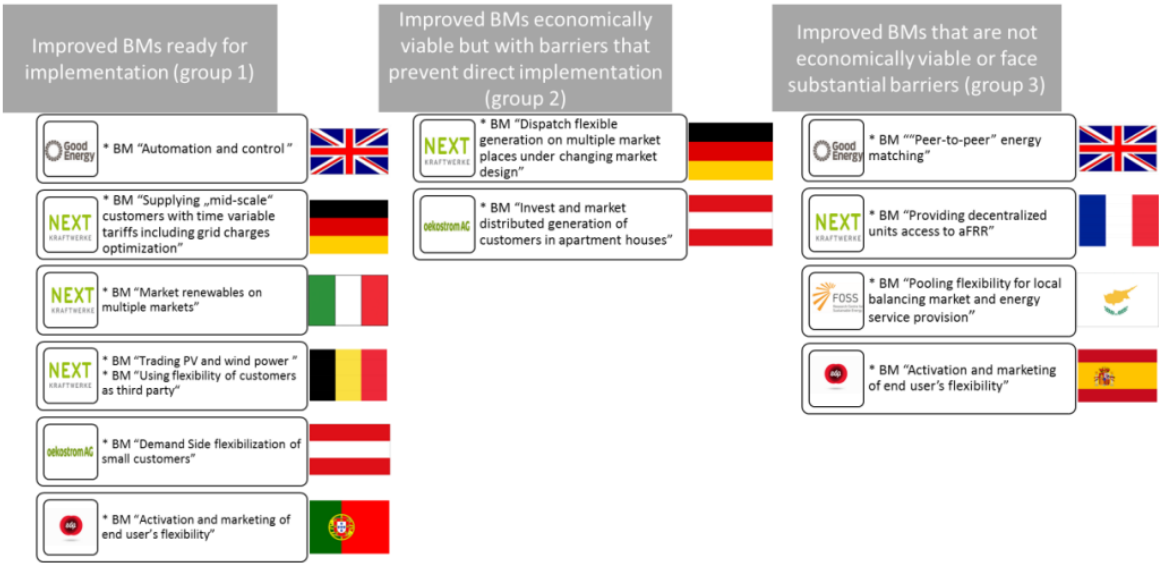

Table 1: Overview of existing groups and Business Models.

Group 1	BMs 1, 4, 6, 7, 8, 9, 11
Group 2	BMs 3, 10
Group 3	BMs 2, 5, 12 (no legal or regulatory barriers), 13

When comparing and analysing the identified legal and regulatory barriers in the target countries, three main topics that shall be in the centre of the following study can be identified. These topics are:

- **Market access and participation in general (and especially on the balancing market) (BMs 3, 5, 6)**
- **Data and privacy protection and data access (BMs 1, 4, 8 to 13)**
- **Local settlement of generation and self-consumption (BMs 2 and 10)**

These main topics will be focused by both, the general and the more detailed, business model related, barrier analysis below (see C. and D.).

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C. General overview of provisions that are relevant for aggregators

I. In general

Analysing the Clean Energy Package shows that many provisions in the relevant regulatory acts (the Regulation on the internal market for electricity = IEM-Reg., the Directive for the internal market in electricity = IEM-Dir. and the Renewable Energy-Directive = RED II) mention aggregators or aggregation in different contexts. Regarding the improved BMs, it has to be pointed out that on the one hand, not all these provisions are relevant, and on the other hand, there are also several provisions not mentioning aggregators which are relevant as well, as they address important areas related to the BMs. Knowing this makes it necessary to work in a bilateral way:

1. Identifying the provisions that mention aggregators/aggregation to ensure no aggregator-related section will be missed, as this is relevant for aggregators even if not related to a BM in the BestRES project.

2. Identifying the provisions that are relevant for the improved BMs in particular, may they or may they not mention aggregators or aggregation explicitly, as this is the main task to solve the identified legal and regulatory barriers concerned in the BestRES project.

To meet both requirements, the tabular overview below, of the provisions in the Clean Energy Package which mention aggregators or aggregation, shall provide a general idea of the relevant provisions in the Clean Energy Package.

In the analysis afterwards, the relevant positions by the Commission, the Council and the Parliament and the final versions will be described to illustrate the development of the Trilogue negotiations and to offer the possibility to classify the existing outcome in respect of these provisions.

Table 2: Relevant provisions regarding aggregation in the Clean Energy Package.

RED II	IEM-Reg.	IEM-Dir.
Art. 21: Renewable self-consumers MS shall ensure that renewable self-consumers, **individually or through aggregators** (…)	Art. 1 b): this Regulation aims at: (…) **facilitate aggregation** (…)	Art. 2: Definitions that mention aggregators or aggregation No.6 lit. b): market participant No.7: citizen energy community No.12: contract termination fee Nr.13: switching related fee No.14: Aggregation No.15: independent aggregator No.16: demand response No.45: electricity undertaking
	Art. 3 para. 1 lit. d): market participation of consumers (…) shall be **enabled by aggregation**	Art. 12: Right to switch supplier related to every market participant **engaged in aggregation**
Art. 22: Renewable energy communities	Art. 5: Balancing markets	Art. 13: Aggregation contract

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(e) renewable energy communities that supply energy, **provide aggregation** (…) (i) renewable energy communities are entitled to access all suitable energy markets both **directly or through aggregation** in a non-discriminatory manner	access to the balancing market and procurement of balancing capacity **individually or through aggregation**	Art. 15: Active customer; Art. 16: Citizens energy communities; Art. 17: Demand response; **"through aggregation"**
	Art. 6 para. 2 lit. i): Day-ahead/intraday markets access to the market, **individually or through aggregation**	Art. 27: Universal service
	Art. 16: Network charges shall **not discriminate against aggregation**	Art. 31, 32, 40: Tasks of DSOs and TSOs
	Art. 55: Network codes in the area of demand response, **including aggregation**	

II. Aggregators as enablers

The IEM-Reg. foresees in its first Article that: "this Regulation aims at setting fundamental principles for well-functioning, integrated electricity markets, which (…) facilitate aggregation of distributed demand and supply (…)"

In Art. 3 IEM-Reg it is stated that market participation of consumers and small businesses shall be enabled by aggregation (…).

In recital 26 IEM-Dir. it says: "Customers should be allowed to make full use of the advantages of aggregation of production and supply over larger regions and benefit from cross-border competition. Aggregators are likely to play an important role as intermediaries between customer groups and the market."

The combination of these aspects leads to the conclusion that aggregators are indeed a very important aspect in the future energy market and that the Clean Energy Package sees them as enablers for consumers/prosumers in respect of their access to the energy market (as already pictured above).

Another relevant aspect is that according to Art. 13 IEM-Dir. aggregation is possible without submission from the supplier as it is stated:

> "Member States shall ensure that all customers are free to purchase and sell electricity services, other than electricity supply, including aggregation, independently from their supply contract and from an electricity undertaking of their choice.
> Member States shall ensure that, where a final customer wishes to conclude an aggregation contract, this shall not require the consent of the final customer's electricity undertaking."

III. The definition in Art. 2 IEM-Dir.

The proposal by the Commission (and the Parliament) defined an "aggregator" as "a market participant that combines multiple customer loads or generated electricity for sale, for purchase or auction in any organized energy market". The Council proposed some changes, starting with the fact that the definition is no

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longer related to the "aggregator" but to "aggregation" as a whole. Therefore Art. 2 No. 14 described aggregation as a function which is taken by a natural or legal person. In comparison with this the Commission spoke of "market participant" and did not make reference to natural or legal person. Eventually a market participant can be a natural or legal person as well. Thus there was no substantial change to this point, since the Council also referred to customer loads and generated electricity. Another difference could be seen in the change from "any organized energy market" to "any electricity market". While cutting the word "organized" this wording was likely to restrict the field of activities by aggregators. The consequence could be a constraint of possibilities offered by the legal and regulatory framework, since aggregators can "only" act in the electricity sector.

The final version mostly follows the Council's approach by defining "aggregation" as a function taken by a natural or legal person that combines multiple customer loads or generated electricity for sale, for purchase or auction in any electricity market. This definition does not specify on the party that can provide aggregation.

"Independent aggregator" is defined as a market participant that performs aggregation that is not affiliated to its customer's supplier. Hence, this definition specifies personal aspects that are required to count as independent aggregator.

A further difference regarding aggregation could be found in recital 26 IEM-Dir. As well as the Commission and the Parliament, the Council put emphasis on the advantages of aggregation for larger regions and cross-border competition and that aggregators are important intermediaries between customer groups and the market. But when it comes to independent aggregators the Council pointed out that the Member States should be free to choose the appropriate implementation model and approach to governance, while setting general rules but not as strict as the Commission.

The final version follows the Councils proposal to give the Member States a freedom of choice regarding independent aggregation. Recital 26 says that:

> "customers should be allowed to make full use of the advantages of aggregation of production and supply over larger regions and benefit from cross-border competition. Market participants engaged in aggregation are likely to play an important role as intermediaries between customer groups and the market. Member States should be free to choose the appropriate implementation model and approach to governance, for independent aggregation while respecting the general principles as laid out in this Directive. This could include market-based or regulatory principles which provide solutions which achieve the provisions set out in this Directive, including models where imbalances are settled or where perimeter corrections are introduced. The chosen model should contain transparent and fair rules to allow independent aggregators to fulfil this role and to ensure, that the final customer adequately benefits from their activity. Products should be defined on all energy markets, including ancillary services and capacity markets so as to encourage the participation of demand response."

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IV. Aggregation and demand response

The Commission mentioned aggregation in the context of demand response in Art. 17 IEM-Dir. and especially addressed aggregators in para. 1, para. 2, para. 3 lit. a), lit. b) and lit. d), para. 4 and 5:

Demand response

1. Member States shall ensure that national regulatory authorities encourage final customers, including those offering demand response through aggregators, to participate alongside generators in a non-discriminatory manner in all organised markets.
2. Member States shall ensure that transmission system operators and distribution system operators when procuring ancillary services, treat demand response providers, including independent aggregators, in a non-discriminatory manner, on the basis of their technical capabilities.
3. Member States shall ensure that their regulatory framework encourages the participation of aggregators in the retail market and that it contains at least the following elements:
   (a) the right for each aggregator to enter the market without consent from other market participants;
   (b) transparent rules clearly assigning roles and responsibilities to all market participants;
   (c) transparent rules and procedures for data exchange between market participants that ensure easy access to data on equal and non-discriminatory terms while fully protecting commercial data;
   (d) aggregators shall not be required to pay compensation to suppliers or generators;
   (e) a conflict resolution mechanism between market participants.
4. In order to ensure that balancing costs and benefits induced by aggregators are fairly assigned to market participants, Member States may exceptionally allow compensation payments between aggregators and balance responsible parties. Such compensation payments must be limited to situations where one market participant induces imbalances to another market participant resulting in a financial cost.
   Such exceptional compensation payments shall be subject to approval by the national regulatory authorities and monitored by the Agency.
5. Member States shall ensure access to and foster participation of demand response, including through independent aggregators in all organised markets. Member States shall ensure that national regulatory authorities or, where their national legal system so requires, transmission system operators and distribution system operators in close cooperation with demand service providers and final customers define technical modalities for participation of demand response

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> in these markets on the basis of the technical requirements of these markets and the capabilities of demand response. Such specifications shall include the participation of aggregators.

The Parliament adopted many aspects from the Commission's proposal, and while it only proposed a few changes in para. 1 and 2 ("framework" instead of "national authorities"; participation in all organised markets "and capacity mechanisms" in para. 1; addition of: "alongside generators" in para. 2), more important changes could be noticed in para. 3 and 4. Para. 3 should be changed and not only relate to retail markets but to all markets. While para. 4 was deleted, para. 3 lit. da) foresaw that market participants engaged in aggregation would be financially responsible for the imbalances they cause in the electricity system, and therefore highlight the responsibility that is provided by Art. 4 IEM-Reg. ("All market participants shall be responsible for the imbalances they cause in the system"). Further it was added that the framework shall contain non-discriminatory and transparent rules and procedures to compensate market participants for the energy they deliver during the demand response period in a proportionate manner, under the supervision of the national regulatory authority, without creating a barrier for market entry of aggregators or a barrier for flexibility. Compensation should be strictly limited to cover the resulting costs. The calculation method for such compensation may take account of the benefits induced by the independent aggregators to other market participants and be subject to approval by the regulatory authority.

The Council's proposal made some important changes, starting with a specified title that says: "demand response through aggregation" and therefore directly addressed aggregation in particular. Para. 1 addressed aggregation, as Member States are obliged to allow and foster participation of demand response through aggregation. Para. 3 lit. b) and lit. c) were extended so that the regulatory framework would contain not only transparent but also non-discriminatory rules and was not restricted to retail markets. Further, the former para. 3 lit. d), which stated that aggregators do not have to pay compensation disappeared and was virtually replaced with the opposite in para. 3 lit. da) and lit. db), as this new provision stated that: "independent aggregators may pay compensation to other market participants". Further para. 3 lit. e) was extended, so that the conflict resolution mechanism would have to include responsibility for imbalance.

The final version mainly follows the Council's proposal, which can be seen on first sight by looking at the title that says: "Demand response through aggregation". Further Art. 17 IEM-Reg. is related to electricity markets only, and it highlights that market participants engaged in aggregation shall be financially responsible for the imbalances they cause in the electricity system and that they shall be balance responsible parties or shall delegate their balance responsibility in para. 3. Further the payment of compensations found its way in Art. 17 IEM-Dir.

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Para. 3 contains a few more important provisions for aggregators, as it states that the relevant Member States' framework shall contain the following elements:

- the right for each market participant engaged in aggregation, including independent aggregators, to enter electricity markets without consent from other market participants;
- non-discriminatory and transparent rules clearly assigning roles and responsibilities to all electricity undertakings and customers;
- non-discriminatory and transparent rules and procedures for data exchange between market participants engaged in aggregation and other electricity undertakings that ensure easy access to data on equal and non-discriminatory terms while fully protecting commercial data and customers´ personal data;
- Member States may require electricity undertakings or participating final customers to pay compensation to other market participants or their balancing responsible party that are directly affected by demand response activation. Such payments shall not create a barrier for market entry of market participants engaged in aggregation or a barrier for flexibility. In such cases the compensation payment shall be strictly limited to cover the resulting costs incurred by the suppliers of participating customers or their balance responsible party during activation of demand response. The calculation method for compensation may take account of the benefits induced by the independent aggregators to other market participants and in such a case aggregators or participating consumers may contribute to such compensation only if ever and insofar as the benefits for all suppliers, customers and their balance responsible parties do not exceed the direct costs they incurred. The calculations method shall be subject to approval by the regulatory authority or other national competent authority;
- final customers who have a contract with independent aggregators shall not face undue payments, penalties or other undue contractual restriction from their suppliers;
- a conflict resolution mechanism between market participants engaged in aggregation and other market participants, including responsibility for imbalance.

In addition, according to para. 2, TSOs and DSOs, when procuring ancillary services, have to treat market participants engaging in demand response aggregation, in a non-discriminatory manner alongside generators, on the basis of their technical capabilities.

Finally, para. 4 provides that technical characteristics for participation of demand response in all electricity markets shall be defined in close cooperation with market participants and final customers and that such specifications shall include the participation of aggregated loads.

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V. Aggregation and citizens/local energy communities

While the Commission and the Parliament mentioned aggregators in the definition of "active customer" and "local energy communities" (in the final version named "citizen energy community") (Art. 2 No. 6 and 7 IEM-Dir.), as they can both act through an aggregator, the Council only mentioned aggregation when it comes to the energy community in Art. 2 No. 7 IEM-Dir. but not in the definition of the active customer. The specific Articles for final customers and local energy communities (Art. 15 and 16 IEM-Dir.) mentioned aggregators/aggregation in all of the proposals, as there is a choice to act individually or through aggregators. In addition, Art. 21 RED II determined that renewable self-consumers can operate individually or through aggregators.

The final version of the IEM-Dir. does not mention aggregation in the definition of "active customer" but contains the definition of "market participant" and defines this as a natural or legal person buying, selling or generating electricity, engaging in aggregation or storage services, including the placing of orders to trade, in one or more electricity markets including balancing energy markets.

Again, Art. 3 lit. d) IEM-Reg. requires as a principle that:

> "market participation of consumers and small businesses shall be enabled by aggregation of generation from multiple generation facilities or load from multiple demand facilities to provide joint offers on the electricity market and be jointly operated in the electricity system, subject to compliance with EU treaty rules on competition"

In contrast, a considerable difference between the Commission and the Council could be found in Art. 13 IEM-Dir. which regulates the contract between a customer and an aggregator. The Commission aimed to ensure that the final customer can conclude a contract with an aggregator without the consent of his supplier and can terminate a contract within three weeks without charging any termination fee that exceeds the direct economic loss to the aggregator. Additionally final customers should be entitled to receive all relevant demand response data or data on supplied and sold electricity at least once per year. All these guarantees should be granted in a non-discriminatory manner as regards cost, effort or time.

The Council made a more general and restricted approach to aggregation contracts. It stated that customers shall be free to purchase and sell electricity services, including aggregation, independently from their supply contract without the consent of the final customer's electricity undertaking, but allowed exceptions so that the suppliers may require such consent in cases where the customer's supplier does neither receive a regulated compensation payment in line with Art. 17 para. 3 lit. db) IEM-Dir. nor a compensation for positive imbalances and when the need for the supplier's consent is clearly specified in the contract between the customer and his supplier. Furthermore, while the customer is still entitled to receive all relevant data and the guarantees should still be granted in a non-discriminatory manner the right of termination within three weeks and the restriction of termination fee disappeared.

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The Parliament mainly wanted to follow the Commission's proposal but added that Member States shall ensure that aggregators fully inform customers of the terms and conditions of the contracts offered to them, and that suppliers do not discriminate between customers based on whether they have a contract with an aggregator. Further, it was provided that regarding the termination fee a final customer can be charged – as it must not exceed the direct economic loss to the aggregator – the burden of proof of the direct economic loss shall be on the aggregator and shall be monitored by the national regulatory authority.

The final version of Art. 13 IEM-Dir. follows the Council's proposal regarding its general approach in para. 1, but provides that the customer can conclude an aggregation contract without consent of the final customer's electricity undertaking and that the customer is entitled to receive all relevant data:

Aggregation contract

1. Member States shall ensure that all customers are free to purchase and sell electricity services, other than electricity supply, including aggregation, independently from their supply contract and from an electricity undertaking of their choice.
2. Member States shall ensure that, where a final customer wishes to conclude an aggregation contract, this shall not require the consent of the final customer's electricity undertaking.
   Member States shall ensure that market participants engaged in aggregation fully inform customers of the terms and conditions of the contracts offered to them.
3. Member States shall ensure that final customers are entitled to receive all relevant demand response data or data on supplied and sold electricity free of charge at least once every billing period if requested by the customer.
4. Member States shall ensure that the rights referred to in paragraphs 1 and 4 are granted to final customers in a non-discriminatory manner as regards cost, effort or time. In particular, Member States shall ensure that customers are not subject to discriminatory technical and administrative requirements, procedures and charges from their supplier on the basis of whether they have a contract with a market participant engaged in aggregation.

This is a positive outcome from the view of aggregators, as the Council's changes were likely to hamper the conclusion of contracts between customers and aggregators compared to the Commission's proposal.

VI. Self-consumption and local settlement of generation

Regarding a framework for local settlement of generation, energy communities and self-consumption several provisions are to consider. Art. 21 and 22 RED II concern the **renewable self-consumer** and the **renewable energy community**. Art. 2

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No. 7 and Art. 16 IEM-Dir. define the **citizen energy community**, and Art. 2 No. 6 and Art. 15 IEM-Dir. are related to the active and final customer.

1. Renewable self-consumers

Renewable self-consumers are defined in Art. 2 lit. aa) RED II and further concerned and benefited in Art. 21 RED II. The definition of renewable self-consumer is:

> "renewable self-consumer means a final customer operating within its premises located within confined boundaries or where allowed by Member States, on other premises, who generates renewable electricity for its own consumption, and may store and sell self-generated renewable electricity, provided that, for non-household renewable self-consumers, those activities do not constitute their primary commercial or professional activity"

When it comes to the benefits in Art. 21 RED II, renewable self-consumers, individually or through aggregators, are entitled to generate renewable energy, including for their own consumption, store and sell their excess production of renewable electricity. This includes power purchase agreements, electricity suppliers and peer-to-peer trading arrangements.

When it comes to electricity, they consume from or inject into the grid, they must not be subject to discriminatory or disproportionate procedures and charges and to network charges that are not cost-reflective. In relation to their self-generated renewable electricity, which remains within their premises, they even must not be subject to any charge or fee. However, exceptions are possible and regulated in Art. 21 para. 1bis lit. a) - c) RED II: If the electricity produced is effectively supported by a support scheme; if the overall share of self-consumption installations exceeds 8% of a Member States total electricity capacity installed; if the electricity is produced in installations above 30 kW.

Further, renewable self-consumers that are located in the same building, including multi-apartment blocks, are entitled to engage jointly in the aforementioned activities and are allowed to arrange sharing of renewable energy that is produced on their site or sites between themselves, without prejudice to applicable grid costs and other relevant charges, levies and taxes to each renewable self-consumer if applicable. Member States may differentiate between renewable self-consumers and jointly acting renewable self-consumers. Any different treatment towards consumers participating in joint self-consumption shall be proportionate and duly justified.

Renewable self-consumers receive a remuneration, including where applicable through support schemes, for the self-generated renewable electricity they feed into the grid. This remuneration has to reflect the market value and may take into account the long-term value of the electricity fed in to the grid, the environment and society. Moreover, Member States shall put in place an enabling framework to promote and facilitate the development of renewable self-consumption based

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on an assessment of the existing unjustified barriers to and the potential of renewable self-consumption in their territories and energy networks.

2. Citizen/Renewable energy communities

What was called local energy communities or energy communities during the Trilogue negotiations is now called "citizen energy communities" and can be found in Art. 2 No. 7 and Art. 16 IEM-Dir. In this provisions, there can be found, inter alia, a definition, the guarantee of several rights and obligations for Member States to enable a framework.

During the negotiations the Council only referred to energy communities and proposed that they can be engaged in aggregation and are subject to the provisions relevant for such activities and to the same rights and obligations when acting as final customers, generators, suppliers, DSOs, or other market participants. According to Art. 2 No. 7 a local energy community should be an association, a cooperative, a partnership, a non-profit organisation or other legal entity that has to be effectively controlled by local shareholders or members.

The Commission wanted to provide that local energy communities can access all organised markets either directly or through aggregators or suppliers in a non-discriminatory manner and are subject to fair, proportionate and transparent procedures and cost reflective charges in Art. 16 para. 1 IEM-Dir. The Council added that energy communities that supply electricity, provide aggregation or other commercial electricity services, are subject to the provisions relevant for such activities (Art. 16 para. 1 lit. d) IEM-Dir.), and that they shall be financially responsible for the imbalances they cause in the electricity system (Art. 16 para. 2 a) lit. c) IEM-Dir.), which again is a link to Art. 4 IEM-Reg. The Parliament added that they adequately contribute to the costs of the electricity system they remain connected to and operate on the market on a level playing field without distorting competition (Art. 16 para. 1 lit. ca), cb) IEM-Dir.), but also that they are entitled to share electricity from generation assets within the community between its members or shareholders through peer-to-peer trade arrangements for example (Art. 16a) IEM-Dir.).

The final version foresees, inter alia, the following relevant aspects:

- Participation in a citizens energy community is open and voluntary;
- Shareholders or members are allowed to leave a citizens energy community; in such cases Article 12 shall apply;
- Shareholders or members of a citizens energy community shall not lose their rights and obligations as household customers or active customers;

- Citizens energy communities can access all electricity markets either directly or through aggregation in a non-discriminatory manner;
- Citizens energy communities shall be financially responsible for the imbalances they cause in the electricity system. To this extend they shall be balance responsible parties or shall delegate their balance responsibility in accordance with Article 4 of the [Electricity Regulation];

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- With regard to self-consumption, citizens energy communities shall be treated like active customers (…)
- Citizens energy communities are entitled to arrange within the community sharing of electricity that is produced by the production units owned by the community subject to the provisions of this article and retaining community members' rights and obligations as consumers.
- Citizens energy communities may conclude an agreement with a relevant DSO or TSO to which their network is connected on the operation of the citizens energy community's network;

Art. 22 RED II benefits renewable energy communities. They are entitled to generate, consume, store and sell renewable energy, including through power purchase agreements; to arrange sharing of renewable energy within the community that is produced by the production units owned by the community; to access all suitable energy markets directly or through aggregation in a non-discriminatory manner. Member States shall provide an enabling framework to promote and facilitate the development of renewable energy communities.

VII. Aggregation and market participation

As mentioned above, the Commission's proposal of Art. 17 para. 4 IEM-Dir. required the balancing cost and benefits induced by aggregators to be fairly assigned to market participants. It was foreseen that Member States may exceptionally allow compensation payments between aggregators and balancing responsible parties. While the Commission aimed for compensation payments only exceptionally, the Council wanted to set the possibility of compensation payments as a principle. As already seen above, the Council's proposal found its way into the final version

Regarding balancing markets (Art. 5 IEM-Reg.) and day-ahead/intraday markets (Art. 6 IEM-Reg.) the Commission and the Parliament wanted to put aggregators on the level of other market participants with a rather general approach in respect of market access for all market players. The Council (only) mentioned aggregators in Art. 5 IEM-Reg. regarding balancing markets in the context of prequalification processes.

With the end of the Trilogue negotiations, both of the final versions of these provisions relate to aggregators.

Art. 5 IEM-Reg. states that balancing markets, including prequalification processes shall be organised in such a way as to ensure non-discriminatory access to all market participants, including electricity generated from variable renewable sources, demand response and energy storage, be it individual or through aggregation and also mentions the possibility of the participation in the procurement of balancing capacity through aggregation in para. 8.

Art. 6 para. 2 IEM-Reg. provides that day-ahead and intraday markets are organised in such a way as to ensure that all markets participants are able to access the market individually or through aggregation.

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In conclusion it can be said, that it could have been a positive aspect, if Art. 5 IEM-Reg. would still state a more general rule in respect of access to the balancing market, as the Commission and the Parliament proposed. But in the end it is positive to see that aggregation is mentioned in both of the provisions and therefore access to the balancing market as well as to the day-ahead/intraday market through aggregators is realized through a European Regulation.

VIII. Balancing services

1. The guidelines

Especially the area of balancing services is affected by the Commission's guidelines and network codes. Those legislative acts provide rules and oblige the TSOs to develop terms and conditions or methodologies which have then to be implemented on national level. These processes are in a progress of development at the moment, and are likely to offer changes, both on national and EU level, in the medium and long term. It is important to highlight that the harmonization mainly targets balancing energy. While balancing capacity procurement is likely to stay a more national topic, in comparison, balancing energy is expecting a rather extensive harmonisation on EU level.

The most important guidelines in the context of this paper are the guideline on electricity Balancing (GL-EB) and the guideline on electricity transmission system operation (SO-GL). While the SO-GL is a more technical guideline regarding the prequalification processes that are a requirement to take part on the balancing services market, the GL-EB is aiming to create a balancing market where TSOs can share the resources, and also to allow new players such as demand response and renewables to take part in this market.

It lays down a detailed GL-EB including the establishment of common principles for the procurement and the settlement of frequency containment reserves, frequency restoration reserves, replacement reserves and a common methodology for the activation of frequency restoration reserves and replacement reserves, Art. 1 of the guideline. Some of the main topics are:

- Harmonization of certain features of imbalance calculation and pricing.
- European platform for imbalance netting.
- Common platform and merit order for replacement reserve and frequency restoration reserve (mFRR & aFRR) in the sector of balancing energy.
- Standardization for balancing energy products.
- Terms and conditions related to balancing.

Thus, there is a multiple impact for aggregation. In general, common merit order lists (instead of pro rata) are positive for aggregators because demand side assets and renewables have usually higher activation costs. Especially the harmonisation helps aggregators to access a rather wide market. However, the remaining barrier is that a lot of things are not harmonized by these guidelines. For instance, how balancing capacity is procured and the details of prequalification requirements may remain national topics. Member States are not obliged to harmonize balancing

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capacity procurement on EU level, and may keep their national regulation. Therefore it is likely that the TSO will create a common balancing energy market without creating a level playing field, as in some aspects there will still be a significant difference between the Member States: While balancing energy will be harmonized, balancing capacity and prequalification processes are likely to differ from Member State to Member State.

2. The Clean Energy Package

However, there are not many provisions in the Clean Energy Package that are related to those questions in detail. The final version of Art. 5 IEM-Reg. concerns balancing markets, as mentioned above. It proposes in para. 1 that:

> "balancing markets, including prequalification processes, shall be organised in such a way as to:
>
> (a) ensure effective non-discrimination between market participants taking account of the different technical needs of the power system and the different technical capabilities of generation sources, energy storage and demand response;
> (aa) ensure a transparent and technologically neutral definition of services and their transparent, market based procurement;
> (b) ensure non-discriminatory access to all market participants, including electricity generated from variable renewable sources, demand response and energy storage, be it individual or through aggregation;
> (c) respect the need to accommodate increasing shares of variable generation as well as increased demand responsiveness and the advent of new technologies.

This is a positive aspect, as a provision on EU level concerning the prequalification processes fosters the harmonization in this area. In addition Art. 5 para. 8 IEM-Reg. states that the procurement of balancing capacity shall be market-based and organised in such a way as to be non-discriminatory between market participants in the prequalification process, whether market participants participate individually or through aggregation, which is a further positive aspect that has to be highlighted.

Regarding (non-frequency) ancillary services, in general, Art. 17 para. 2 IEM-Dir. provides that Member States shall ensure that TSOs and DSOs when procuring ancillary services, treat market participants engaging in demand response aggregation, in a non-discriminatory manner alongside generators, on the basis of their technical capabilities.

Article 31 IEM-Dir. concerns the tasks of DSOs and states that:

- Each DSO shall act as a neutral market facilitator in procuring the energy it uses to cover energy losses in its system according to transparent, non-discriminatory and market based procedures, whenever it has such a function.

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- The procurement of such products and services shall ensure the effective participation of all qualified market participants including renewable energy sources, demand response, energy storage facilities and electricity undertakings engaged in aggregation.
- Technical modalities for participation in these markets on the basis of the technical requirements of these markets and the capabilities of all market participants shall be defined.
- DSOs shall cooperate with TSOs for the effective participation of market participants connected to their grid to the balancing markets.

Art. 40 IEM-Dir. is related to the tasks of the TSO. It provides that the TSO is responsible for, inter alia:

- procuring ancillary services to ensure operational security.
- adopting a framework for the cooperation and coordination between Regional Coordination Centres.
- digitalisation of transmission systems.
- data management, including development of data management systems, cybersecurity and data protection.

Although the Clean Energy package does not especially address many of the relevant aspects regarding balancing services in detail, it has an impact on pricing, competition and market entry in general as it benefits and grants rights for aggregators (in general, or in person of a final/active customer or a citizens/renewable energy community). After all, the general provisions are likely to affect the national implementation of the aforementioned network codes and guidelines, as the Clean Energy Package will be the "lex posterior" (the younger law) and therefore override the older law.

IX. The independent aggregator

As mentioned above a definition of the "independent aggregator" can be found in Art. 2 IEM-Dir. During the negotiations this definition was quite similar in all three proposals with the Commission's proposal being a little tighter. While in the proposal of the Commission an independent aggregator did not have to be affiliated to a supplier or any other market participant the Council's and the Parliament's proposal defined an independent aggregator as every market participant that is not affiliated to its customer's supplier.

In Art. 17 para. 2 and 5 IEM-Dir. the Commission wanted to regulate, that Member States shall ensure access to and foster participation of demand response, including through individual aggregators in all organised markets, and that Member States shall ensure that TSOs and DSOs treat demand response providers, including independent aggregators, in a non-discriminatory manner, on the basis of their technical capabilities. The Parliament's position was very similar to the Commission's, only adding "alongside generators" in para. 2, and it proposed a new para. 3 lit. db) which provided that final customers who have a contract with independent aggregators shall not face undue payments, penalties or other undue contractual restriction from their suppliers. The Council did not make a direct reference

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to individual aggregators in both Art. 17 para. 2 and 5 IEM-Dir. but it generally stated in Art. 17 para.1 IEM-Dir. that Member States shall allow and foster participation of demand response through aggregation and in Art. 17 para. 2 IEM-Dir. that Member States shall ensure that TSOs and DSOs treat market participants engaging in demand response aggregation, in a non-discriminatory manner, on the basis of their technical capabilities. But it also placed independent aggregators under the obligation to pay compensation to other market participants or their balancing responsible party if they directly induce imbalances to these market participants (Art. 17 para. 4 lit. db) IEM-Dir.).

The final version is oriented on the Council's proposal, while only mentioning independent aggregators when it comes to access to the electricity market, the calculation method for compensation or undue payment for final customers. When it comes to the fostering of participation by Member States the non-discriminatory treatment by DSOs and TSOs or the compensation payment there are used more general terms like market participants and electricity undertakings. This of course does also contain independent aggregators but does not highlight them. What seems as a negative outcome at first sight, can also be seen from a positive point of view as it helps aggregators to be defined as regular market players on a level playing field without special status. With enough self-awareness resulting from the many positive impacts aggregators can contribute to the future energy market, this is the preferred way many aggregators want to be seen and treated.

X. Access to and protection of data

In the field of data and privacy protection the Commission proposed that Member States have to set a regulatory framework which contains transparent rules and procedures for data exchange between market participants (the Council mentioned aggregation in particular), in order to ensure easy access to data, while fully protecting commercial data (Art. 17 para 3 lit. c) IEM-Dir.). Art. 20 IEM-Dir. should highlight that the privacy and data protection of final customers and, in the area of smart metering, the highest level of cybersecurity protection has to be ensured. According to Art. 23 IEM-Dir. it was foreseen that the eligible parties which may have access to the data of the final customer should be specified and should, inter alia, include aggregators ("Eligible parties shall include at least (…) aggregators"). They should only provide data access in a given case with the customer's explicit consent (the Parliament added that those parties have to provide customers with an overview of the parties who have access to their data).

The Council made a similar approach as the Commission, but when it comes to eligible parties the Council did not mention aggregators as the Commission did. Further the customer's explicit consent was not foreseen to be mandatory to provide the data access in a given case, but it could also be possible on basis foreseen by the General Data Protection Regulation (GDPR). In the smart metering sector it demanded that the costs and principles of proportionality have to be considered (Art. 20 lit. b) IEM-Dir.).

The Parliament also followed the Commission's proposal in general, yet added a few clauses. First, regarding Art. 17 IEM-Dir., it highlighted that the rules and

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procedures in the regulatory framework not only have to be transparent but also non-discriminatory, and pointed out that not only commercial data but also customers' personal data has to be fully protected. In relation to Art. 20 and 23 IEM-Dir. the Parliament highlighted the customers' possibilities to access information and to protect themselves (However this is already regulated by the GDPR). Again the eligible parties which may have access to data of the final customer have to be specified and only provided data access in a given case with customer's explicit consent, but also have to provide customers with an overview of the parties who have access to their data if requested (Again already regulated by the GDPR).

Following the Commission's or Parliament's positions it was foreseen that a framework should ensure that it will be possible for local energy communities to conclude an agreement with a DSO to which their network is connected, without limitations (Art. 16 para. 2 lit. f) IEM-Dir.). The Council wanted to offer this possibility only if the Member State grants the right to manage distribution network in their area of operations and to define the relevant procedures (Art. 16 para. 2 b) lit. a) IEM-Dir.).

The outcome of the Trilogue negotiations is the following:

Art. 17 para 3 lit. c) IEM-Dir. follows the Parliament's proposal by highlighting the importance of the protection of customers' personal data. It foresees that the Member States' relevant regulatory framework contains non-discriminatory and transparent rules and procedures for data exchange between market participants engaged in aggregation and other electricity undertakings that ensure easy access to data on equal and non-discriminatory terms while fully protecting commercial data and customers' personal data.

Art.20 IEM-Dir. follows the Council's approach and mentions the costs and principles of proportionality when highlighting the security of the smart metering systems and data communication.

Art. 23 IEM-Dir. did also follow the Council's proposal as aggregators are not mentioned in the final version anymore. It is, inter alia, stated that Member States or competent authorities shall specify the rules on the access to data of the final customer by eligible parties according to the provisions of this Article and the applicable European Union legal framework, and that 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.

This is somewhat of a let down from the view of aggregators as the guarantee to be an eligible party would have had a positive impact on the access and exchange of data, which is crucial for many aggregators' business models. Especially Art. 23 para. 2 states that independently of the data management model applied in each Member State, the party or parties responsible for data management shall provide to any eligible party access to the data of the final customer in accordance with the provisions of paragraph 1 of this Article. Eligible parties should have at their disposal in a non-discriminatory manner and simultaneously the requested data. Access to data shall be easy, while relevant procedures shall be made publicly

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available. Further, Art. 34 IEM-Dir. mentions that Member States shall ensure that all eligible parties have non-discriminatory access to data under clear and equal terms, in compliance with the relevant data protection legislation.

It is understandable that a provision that only allows specific market players to be eligible parties is too restrictive and does not satisfy the needs of a future energy markets and its possibly new market players. However, it would have been a positive approach to follow the Commission's proposal in Art. 23 IEM-Dir. and include a guarantee for "at least" specific market players to be eligible parties. This would have still been an open provision, to include further actors as eligible parties in the future.

Regarding Art. 16 IEM-Dir. the final version again follows the Council and foresees that citizens energy communities may only conclude an agreement with a relevant DSO or TSO to which their network is connected on the operation of the citizens energy community's network if Member States decided to grant citizens energy communities with a right to manage a distribution network.

When it comes to the tasks of the DSO, Article 31 para. 3 IEM-Dir. states that the DSO has to provide system users with the information they need for efficient access to, including use of, the system. Further, DSOs and TSOs shall exchange all necessary data (Art. 53 para. 1 IEM-Reg.). EU DSO and ENTSO for electricity have to adopt best practices regarding data exchange (Art. 51 para. 2 lit. b) IEM-Reg.).

The task of the EU DSO entity according to Art. 51 para 1 IEM-Reg. are, inter alia:

- Facilitating the integration of renewable energy resources, distributed generation and other resources embedded in the distribution network such as energy storage;
- Facilitating demand side flexibility and response and distribution grid users' access to markets;
- Contributing to the digitalisation of distribution systems including deployment of smart grids and intelligent metering systems;
- Supporting the development of data management, cybersecurity and data protection in cooperation with relevant authorities and regulated entities;

According to Art. 55 IEM-Reg. the Commission is empowered to adopt implemented acts regarding rules on demand response, including aggregation and energy storage, and delegated acts in the area of data exchange and settlement rules.

Prospective, Member States will have to set a framework regarding data access and exchange and will have to ensure a cooperation of DSOs, demand service providers and final customers in order to define modalities for participation of demand response, aggregators included, and to ensure efficient data access and exchange. However, regarding data protection, most of the provisions in the Clean Energy Package might only be a link to the already existing rules on data protection like in the GDPR. Anyhow, it is a positive aspect that the importance of data protection is highlighted in the Clean Energy Package as well.

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D. Classification of the barriers mentioned in D4.1 and the corresponding provisions in the Clean Energy Package

After summarizing the legal and regulatory barriers, spotted in D4.1, and the provisions in the Clean Energy Package that are important for aggregators, the following part introduces four categories related to the BMs in the BestRES project: Barriers, which are classified as "not substantial" (I.), manageable barriers (II.), barriers that lead to Group 2 (III.), and significant barriers that lead to Group 3 (IV.) (see figure 3). This helps to compile and explain the relevant provisions that can be found in the Clean Energy Package.

I. Legal barriers which are classified as "not substantial"

1. Overview of mentioned barriers

Although seven of the improved BMs are ready for implementation there are still legal and regulatory barriers which may not be substantial but exist anyhow and therefore should be mentioned. It is noticeable that in eight BMs (five of them are group 1 BMs) the data and privacy protection is highlighted when it comes to legal and regulatory barriers. Another barrier that is mentioned twice is the data exchange and collaboration with DSO. Thus the mentioned barriers, classified as "not substantial", are:

- Data and privacy protection (mentioned in 8 BMs)
- Data exchange/collaboration with DSO (mentioned in 2 BMs)
- Contractual definition of legal persons obliged charged with costs related to flexibility not defined
- Lack of stable grid charges
- Value of aggregation regarding grid charges is limited
- Market mechanisms and ancillary services require guaranteed flexibility Grid tariffs incentivize steady consumption in many cases
- TSO will change rules with respect to reserve power markets
- Competing discussions around the need of smart charging for EVs (driven by TSO, DSO, OEM, charge point installers)
- Fixed components dominate a relative high share of the end consumer price such as EEG-surcharge and taxes
- System green certificates is complex and changing quickly
- The validation of certificates happens with long delays and thus can result in negative cash flows if certificates need to be prefinanced
- The current BRP needs to give his consent – with a few exceptions for some reserve power products and a price for activating the volume needs to be agreed on
- Not all reserve power products are open for demand, pools and DSO connected units

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2. Reference in the Clean Energy Package

In conclusion to the identified barriers an important question regarding these "not substantial" barriers in connection with the Clean Energy Package is:

- *How is data and privacy protection and data exchange/collaboration addressed by the Clean Energy Package?*

This subject is concerned by several provisions in the IEM-Dir. as well as some provisions in the IEM-Reg. Hereinafter the relevant provisions are pointed out and explained shortly from the Commission's point of view. Following, a table below offers an overview of the three positions by the Commission, the Council and the Parliament regarding the Trilogue negotiations and points out the differences as well as the similarities.

a) Overview

Art. 23 and 24 IEM-Dir. refer to data management, the exchange of data, and data format in particular. Art. 23, inter alia, sets that when setting up the rules regarding the management and exchange of data, Member States or, where a Member State has so provided, the designated competent authorities shall specify the rules on the access to data of the final customer by eligible parties according to the provisions of this Article and the applicable European Union legal framework.

Further it is regulated that 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.

It is prohibited that additional costs shall be charged to final customers for access to their data or for a request to make their data available. Member States shall be responsible for setting the relevant costs for access to data by eligible parties.

Art. 16 para. 2 lit. f) IEM-Dir. states that Member States shall provide an enabling regulatory framework for citizens energy community and that those communities may conclude an agreement with a DSO to which their network is connected under the given circumstances.

Art. 17 para 3 lit. c) IEM-Dir. concerns data exchange between market participants and protecting commercial and customers' data in the area of demand response. This provision obliges Member States to set a relevant regulatory framework that contains non-discriminatory and transparent rules and procedures for data exchange between market participants engaged in aggregation and other electricity undertakings that ensure easy access to data on equal and non-discriminatory terms while fully protecting commercial data and customers´ personal data.

Art. 17 para. 2 and 4 IEM-Dir., again in the area of demand response, concern DSOs and state that a) Member States shall ensure that TSOs and DSOs when procuring ancillary services, treat market participants engaging in demand response aggregation, in a non-discriminatory manner alongside generators, on the basis of their

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technical capabilities, and b) that Member States shall ensure that national regulatory authorities or, where their national legal system so requires, TSOs and DSOs in close cooperation with market participants and final customers define technical characteristics for participation of demand response in all electricity markets on the basis of the technical requirements of these markets and the capabilities of demand response. Such specifications shall include the participation of aggregated loads.

Art. 20 lit. b) and c) IEM-Dir. highlight data protection in relation to smart metering:

> "Where smart metering is positively assessed as a result of cost-benefit assessment referred to in Article 19(2), or systematically rolled out after the entry into force of this Directive, Member States shall implement smart metering systems in accordance with European standards, the provisions in Annex III, and in line with the following principles:
>
> (b) the security of the smart metering systems and data communication is ensured in compliance with relevant Union security legislation having due regard of the best available techniques for ensuring the highest level of cybersecurity protection whilst bearing in mind the costs and principles of proportionality;
> (c) the privacy and data protection of final customers is ensured in compliance with relevant Union data protection and privacy legislation."

Art. 2 No. 21 IEM-Dir. defines "best available techniques" as the most effective and advanced stage in the development of activities and their methods of operation, which indicates the practical suitability of particular techniques, designed to prevent or mitigate risks on privacy, personal data and security, for providing in principle the basis for complying with the Union data protection framework.

Art. 31 para. 3 IEM-Dir. states that the DSO has to provide system users with the information they need for efficient access to, including use of, the system.

Art. 34 IEM-Dir. concerns the tasks of DSO in data management and regulates that Member States have to ensure that all eligible parties have non-discriminatory access to data under clear and equal terms, in compliance with the relevant data protection legislation.

Art. 13 para. 3 IEM-Dir. regulates that Member States shall ensure that final customers are entitled to receive all relevant demand response data or data on supplied and sold electricity free of charge at least once every billing period if requested by the customer.
Art. 51 IEM-Reg. concerns the tasks of the EU DSO entity and regulates in para. 1 lit. e) that supporting the development of data management, cybersecurity and data protection is one of those tasks.

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Art. 51 para. 2 lit (b) and Art. 53 para. 1 IEM-Reg. concern best practices of data exchange between operators.

Art. 55 IEM-Reg. empowers the Commission to adopt implemented acts regarding rules on demand response, including aggregation and energy storage, and delegated acts in the area of data exchange and settlement rules.

Recital 38 IEM-Dir. highlights data protection and states that: "it is important that Member States put in place transparent rules under which data can be accessed under non-discriminatory conditions and ensure the highest level of cybersecurity and data protection as well as the impartiality of the entities which handle data."

b) Comparison of the important positions

aa) Demand response and smart metering in general

Regarding demand response it has to be highlighted again, that especially the Parliament wanted that Member States have to set a framework that contains non-discriminatory and transparent rules and procedures for data exchange that ensure easy access to data while fully protecting commercial data and customers´ personal data, including minimum information requirements for the aggregator, as well as minimum criteria for the protection of commercially sensitive data for all parties concerned in Art. 17 para. 3 IEM-Dir.

When it comes to smart metering the Parliament followed the Commission's proposal in Art. 20 IEM-Dir. and proposed that the security of the smart metering systems and data communication has to be ensured in compliance with relevant Union security legislation having due regard of the best available techniques for ensuring the highest level of cybersecurity protection but added that it shall in particular be possible for the final customer to have access to information on the identity of other parties which access their personal data, and on the moment of access.

The Council favoured a different approach in the area of smart metering as it provided that, regarding the security of the smart metering systems and data communication, the costs and principles of proportionality have to be considered as well.

bb) Eligible parties

Regarding eligible parties, Art. 23 para. 1 IEM-Dir. has to be focused. The Commission and the Parliament wanted to ensure that when authorities shall specify the eligible parties which may have access to data of the final customer with their explicit consent, that these eligible parties include aggregators and DSOs. The Council, on the other hand, did not specify which parties shall be included.

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cc) Customer's rights and consent

The Parliament added rights for the customer that were not included in the other positions. In Art. 20 and Art. 23 IEM-Dir. (smart metering and data management/eligible parties) it foresaw that the customer has the right to access to information on the identity of other parties which access their personal data, and on the moment of access/ that eligible parties have to provide customers with an overview of the parties who have access to their data. These provisions were likely to give the customer an overview and a position of control because he gets information back and does not only provide his information.

In this context it has to be highlighted that the General Data Protection Regulation already grants this rights in Art. 13 and 15. It says in Art. 13 para. 1 that where personal data relating to a data subject (i.e. the customer) are collected from the data subject, the controller shall, at the time when personal data are obtained, provide the data subject with all of the following information: the identity and the contact details of the controller and, where applicable, of the controller's representative; the contact details of the data protection officer, where applicable, etc. It further foresees in Art. 15 para. 1 that the data subject shall have the right to obtain from the controller confirmation as to whether or not personal data concerning him or her are being processed, and, where that is the case, access to the personal data and the following information: the purposes of the processing; the categories of personal data concerned; the recipients or categories of recipient to whom the personal data have been or will be disclosed, in particular recipients in third countries or international organisations, etc.

With respect to the customer's consent the Commission and the Parliament foresaw in Art. 23 para. 2 IEM-Dir. that access to the data of the final customer shall be provided to any eligible party with the explicit consent of the final customer, while the Council regulated that this is also possible on other basis, referring to the General Data Protection Regulation.

dd) Agreement with a TSO or DSO

The Council provided that local energy communities could conclude an agreement with a TSO or DSO only if the Member State grants the right to manage distribution network in their area of operations and to define the relevant procedures. The Commission and the Parliament did not foresee such a restriction.

Table 3: Overview of provisions regarding data protection and data access.

COM	Council	Parliament
Framework		
MS have to set a framework that contains transparent rules and procedures for **data exchange** that **ensure easy access** to data while **fully protecting commercial data** (Art. 17 para. 3 lit. c) IEM-Dir.). A framework has to ensure that **a local energy community may conclude an agreement with a**	MS have to set a framework that contains non-discriminatory and transparent rules and procedures for **data exchange for market participants engaged in aggregation and other electricity undertakings** that ensure easy access to data while fully protecting commercial data (Art. 17 para. 3 lit. c) IEM-Dir.).	MS have to set a framework that contains non-discriminatory and transparent rules and procedures for data exchange that ensure easy access to data while fully protecting commercial data **and customers´ personal data, including minimum information requirements for the aggregator**, as well as minimum criteria

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DSO to which their network is connected (Art. 16 para. 2 lit. f) IEM-Dir.).	The **possibility to conclude an agreement with a DSO is not ensured by the framework**. Local energy communities can conclude such an agreement **only if the MS grants the right** to manage distribution network in their area of operations and to define the relevant procedures (Art. 16 para. 2 b) lit. a) IEM-Dir.).	for the protection of commercially sensitive data for all parties concerned (Art. 17 para. 3 lit. c) IEM-Dir.). A Framework has to ensure that a local energy community may conclude an agreement with a DSO to which their network is connected (Art. 16 para. 2 lit. f) IEM-Dir.).
Final versions		
MS have to set a relevant regulatory framework that contains non-discriminatory and transparent rules and procedures for data exchange between market participants engaged in aggregation and other electricity undertakings that ensure easy access to data on equal and non-discriminatory terms while fully protecting commercial data and customers´ personal data (Art. 17 para 3 lit. c) IEM-Dir.). The possibility to conclude an agreement with a DSO or TSO is not ensured by the framework. Citizens energy communities can conclude such an agreement only if the MS grants the right to manage distribution network in their area of operations and to define the relevant procedures (Art. 16 para. 2 b) lit. a) IEM-Dir.).		
Privacy of final customers		
Eligible parties which may have access to data of the final customer shall be specified with their **explicit consent** (Art. 23 para. 1 IEM-Dir.).	The rules on the access to data of the final customer by eligible parties shall be specified, either **on the basis of the consent of the final customer or other basis i.e. the GDPR (EU) 2016/679**. (Art. 23 para. 1 IEM-Dir.).	Addition to COM's proposal: (…) and if requested these **parties have to provide customers with an overview of the parties who have access to their data** (Art. 23 para. 1 IEM-Dir.).
Final versions		
When setting up the rules regarding the management and exchange of data, MS or, where a MS has so provided, the designated competent authorities shall specify the rules on the access to data of the final customer by eligible parties according to the provisions of this Article and the applicable European Union legal framework (Art. 23 para. 1 IEM-Dir.).		
Data access		
Eligible parties shall include at least customers, suppliers, transmission and distribution system operators, **aggregators** (…) (Art. 23 para. 1 IEM-Dir.). **All eligible parties have non-discriminatory access to data under clear and equal terms** (Art. 34 IEM –Dir.). MS have to ensure efficient data access and exchange and that the party or parties responsible for data management shall provide to any eligible party **with the explicit consent of the final customer**, access to the data of the final customer (Art. 23 para. 2 IEM-Dir.). The DSO has to **provide system users with the information they need for efficient access** to, including use of, the system (Art. 31 para. 3 IEM-Dir.) **DSO and TSO** shall exchange all necessary data (Art. 53 para. 1 IEM-Reg.).	**Eligible parties are not specified** (Art. 23 para. 1 IEM-Dir.). All eligible parties have non-discriminatory access to data under clear and equal terms **but only in compliance with applicable data provisions regulations** (Art. 34 IEM –Dir.). MS have to ensure efficient **and secure** data access and exchange and that the party or parties responsible for data management shall provide access to the data of the final customer to any eligible party, again either **on the basis of the consent of the final customer or other basis** (i.e. the Data Protection Regulation (EU) 2016/679). Therefore the explicit consent is not mandatory (Art. 23 para. 2 IEM-Dir.). The DSO has to **provide system users with the information they need for efficient access** to, including use of, the system (Art. 31 para. 3 IEM-Dir.). **DSO and TSO** shall exchange all necessary data (Art. 53 para. 1 IEM-Reg.).	Eligible parties shall include, inter alia, **DSOs and aggregators** (Art. 23 para. 1 IEM-Dir.). All eligible parties have non-discriminatory access to data under clear and equal terms **but only in compliance with applicable data provisions regulations**. (Art. 34 IEM –Dir.). MS have to ensure efficient data access and exchange, **data protection, data security, transparency, neutrality and data integrity** and that the party or parties responsible for data management shall provide to any eligible party **with the explicit consent of the final customer**, access to the data of the final customer (Art. 23 para. 2 IEM-Dir.). The DSO has to **provide system users with the information they need for efficient access** to, including use of, the system (Art. 31 para. 3 IEM-Dir.). **DSO and TSO** shall exchange all necessary data (Art. 53 para. 1 IEM-Reg.).

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EU DSO and ENTSO for electricity have to adopt best practices regarding data exchange (Art. 51 para. 2 lit. b) IEM-Reg.).	**EU DSO and ENTSO** for electricity have to adopt best practices regarding data exchange (Art. 51 para. 2 lit. b) IEM-Reg.).	**EU DSO and ENTSO** for electricity have to adopt best practices regarding data exchange (Art. 51 para. 2 lit. b) IEM-Reg.).
Final versions		
Eligible parties are not specified (Art. 23 para. 1 IEM-Dir.). All eligible parties have non-discriminatory access to data under clear and equal terms but only in compliance with the relevant data protection regulation (Art. 34 IEM –Dir.). MS 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 MS, the party or parties responsible for data management shall provide to any eligible party access to the data of the final customer in accordance with the provisions of paragraph 1 of this Article. Eligible parties should have at their disposal in a non-discriminatory manner and simultaneously the requested data. Access to data shall be easy, while relevant procedures shall be made publicly available (Art. 23 para 2 IEM-Dir.). **DSO and TSO** shall exchange all necessary data (Art. 53 para. 1 IEM-Reg.). **EU DSO and ENTSO** for electricity have to adopt best practices regarding data exchange (Art. 51 para. 2 lit. b) IEM-Reg.)		
Smart metering		
The privacy and data protection of final customers has to be ensured **in compliance with relevant Union data protection and privacy legislation** (Art. 20 lit. c) IEM-Dir.) The security of the smart metering systems and data communication has to be ensured in compliance with relevant Union security legislation having due regard of the best available techniques for **ensuring the highest level of cybersecurity protection** (Art. 20 lit. b) IEM-Dir.).	The privacy and data protection of final customers has to be ensured **in compliance with relevant Union data protection and privacy legislation** (Art. 20 lit. c) IEM-Dir.) The security of the smart metering systems and data communication has to be ensured in compliance with relevant Union security legislation having due regard of the best available techniques for **ensuring the highest level of cybersecurity protection**, **but also the costs and principles of proportionality have to be considered** (Art. 20 lit. b) IEM-Dir.).	Addition to COM's proposal: It shall in particular be possible for the final customer to **have access to information on the identity of other parties which access their personal data, and on the moment of access** (Art. 20 lit. c) IEM-Dir.).
Final versions		
The privacy and data protection of final customers is ensured in compliance with relevant Union data protection and privacy legislation (Art. 20 lit. c) IEM-Dir.). The security of the smart metering systems and data communication is ensured in compliance with relevant Union security legislation having due regard of the best available techniques for ensuring the highest level of cybersecurity protection whilst bearing in mind the costs and principles of proportionality (Art. 20 lit. b) IEM-Dir.).		
Other:		
One **task of the EU DSO entity** is data management, cybersecurity and data protection (Art. 51 para. 1 lit. e) IEM-Dir.) The COM is empowered to **adopt delegated acts** in the area of data exchange and settlement rules (Art. 55 IEM-Reg.).	One task of the EU DSO entity is to support the development of data management, cybersecurity and data protection in cooperation with relevant authorities and regulated entities (Art. 51 para. 1 lit. f) IEM-Dir.). The COM is empowered to **adopt implemented acts** in the area of data exchange and settlement rules (Art. 55 IEM-Reg.) Council exclusive: MS shall ensure that electricity undertakings are subject to transparent, proportionate and non-discriminatory rules, fees and treatment, in particular in the	One task of the EU DSO entity is to **guarantee non-discriminatory and neutral access** to data regardless of the data management model, and **promote** standardization, **cross-border data exchange**, in particular with ENTSO for Electricity where relevant to **facilitate data exchange, cybersecurity and data protection.** (Art. 51 para. 1 lit. e) IEM-Dir.) The COM is empowered to adopt delegated acts in the area of data exchange and settlement rules (Art. 55 IEM-Reg.).

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	fields of (…) access to data (…) (Art. 3 para. 2 a) IEM-Dir.). For smart metering: The processing of personal data carried out within the framework of this Directive including access to data and data storage shall be carried out in compliance with Regulation (EU) 2016/679 8 (Art. 23 para. 2 a) IEM-Dir.).	
Final versions		
One task of the EU DSO entity is to support the development of data management, cybersecurity and data protection in cooperation with relevant authorities and regulated entities (Art. 51 para. 1 lit. e) IEM-Dir.). The COM is empowered to adopt implemented acts in the area of demand response, including aggregation and energy storage, and delegated acts in the area of data exchange and settlement rules (Art. 55 IEM-Reg.). MS shall ensure a level-playing field where electricity undertakings are subject to transparent, proportionate and non-discriminatory rules, fees and treatment, in particular in the fields of balancing responsibility, access to wholesale markets, access to data, customer switching and billing and, where applicable, in the MS licensing (Art. 3 para 2 a) IEM-Dir.). The processing of personal data carried out within the framework of this Directive including access to data and data storage shall be carried out in compliance with Regulation (EU) 2016/679 (Art. 23 para. 2 b) IEM-Dir.).		

3. Excursus: the General Data Protection Regulation

a) In general

The GDPR regulates the processing by an individual, a company or an organisation of personal data relating to individuals (not: legal entities) in the EU (for professional or commercial activity). Personal data is any information that relates to identified or identifiable living individuals, also different pieces of information, which can lead to the identification (regardless of the technology used for processing that data). Processing covers a wide range of operations performed on personal data, including by manual or automated means (Collection, recording, organisation, structuring, storage, adaptation or alteration, retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment or combination, restriction, erasure or destruction of personal data).

A company/organisation can only process personal data in the following circumstances:

- with the consent of the individuals concerned;
- where there is a contractual obligation (a contract between your company/organisation and a client);
- to meet a legal obligation under EU or national legislation;
- where processing is necessary for the performance of a task carried out in the public interest under EU or national legislation;
- to protect the vital interests of an individual;
- for the organisation's legitimate interests;

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b) Grounds of legitimate interest

As a company/organisation, you often need to process personal data in order to carry out tasks related to your business activities. The processing of personal data in that context may not necessarily be justified by a legal obligation or carried out to execute the terms of a contract with an individual. In such cases, processing of personal data can be justified on grounds of legitimate interest.

Important:

- Your company/organisation must inform individuals about the processing when collecting their personal data.
- The rights and freedoms of individuals must not be seriously impacted; otherwise, your company/organisation cannot rely on grounds of legitimate interest.

c) When is consent valid?

When consent is required to process personal data, for that consent to be valid the following conditions must be met:

- it must be freely given and must be informed;
- it must be given for a specific purpose;
- all the reasons for the processing must be clearly stated;
- it is explicit and given via a positive act (for example an electronic tick-box that the individual has to explicitly check online or a signature on a form);
- it uses clear and plain language and is clearly visible;
- it is possible to withdraw consent and that fact is explained (for example an unsubscribe link at the end of an electronic newsletter email).

4. Conclusion

Data protection and access to data in general was addressed by all three positions during the Trilogue negotiations. Both topics found their way into the final IEM-Directive and Regulation. In the future energy market Member States are obliged to provide an appropriate framework that concerns access and protection aspects of commercial and customers' data.

Regarding data access in particular, the positions were also similar in several aspects, as all parties proposed that data access has to be provided to any eligible party, and all eligible parties have non-discriminatory access to data under clear and equal terms. During the negotiations only the Commission and the Parliament wanted a guarantee that aggregators are among those eligible parties. However, in the end, the Council's position got through, which means that aggregators are not mentioned when it comes to eligible parties.

Nevertheless it is a positive aspect that data access and protection are an important topic, which can be also seen by the several EU DSOs tasks that are concerned with these aspects.

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II. Manageable Barriers (therefore sorted in Group 1)

1. Mentioned barriers for BM 6: Next Kraftwerke Germany (Italy); market renewables on multiple market places (p. 57 ff.)

In Italy the participation on the MSD market (ancillary services market in Italy) is currently limited to production units > 10 MVA, whereas participation in the pilot projects on aggregators/demand response is possible with a capacity lower than 10 MVA. Aggregation of units is restricted locally and, therefore, the minimum bid sizes might be difficult to achieve. In this context, aggregators cannot pool units across different regions. A market design update is however foreseen to open the market for aggregators. More specifically, it is expected that the reserve power markets will be open for aggregated non-enabled production and consumption units larger than 55 kW. Terna (the TSO in Italy) is currently planning demonstration projects allowing the participation of aggregated units. The main purpose is to investigate what market design is required for aggregated units to participate. Also, this new market design should contribute to cost-efficient developments of the Italian electricity grid and enable new market participants to enter the market. The market rules for the pilot project have already been defined. The pilot phase consists of two pilots. The first one is targeting Demand-Side aggregators. The second one focuses on pooling of generation units.[2]

It could be beneficial to extend the local perimeters (or areas) in which aggregation is allowed so that minimum bid sizes can be achieved more easily. Besides, the authorities should consider lowering the limits for participation in terms of decreased minimum capacity for participation in specific areas. Furthermore, in the future, it should also be possible to provide aFRR with aggregated units, which is not covered in the pilot phase. It is crucial to set a clear framework regarding the impact of flexibility activation and granting subsidies. Therefore the mentioned barriers that are manageable but should be discussed are:

- Only in pilot phase
- Providing aFRR not possible during pilot phase
- Uncertainty about compatibility of subsidies and MSD Market participation

2. Reference in the Clean Energy Package regarding BM 6

Looking at the Clean Energy Package, these barriers lead to the following question:

- *(How) does the Clean Energy Package affect the problem that the aFRR markets are not open for all production units?*

[2] Autorita per l'energia, PRIMA APERTURA DEL MERCATO PER IL SERVIZIO DI DISPACCIAMENTO (MSD) ALLA DOMANDA ELETTRICA ED ALLE UNITÀ DI PRODUZIONE ANCHE DA FONTI RINNOVABILI NON GIÀ ABILITATE NONCHÉ AI SISTEMI DI ACCUMULO. ISTITUZIONE DI PROGETTI PILOTA IN VISTA DELLA COSTITUZIONE DEL TESTO INTEGRATO DISPACCIAMENTO ELETTRICO (TIDE) COERENTE CON IL BALANCING CODE EUROPEO, May 2017, Available at: http://www.autorita.energia.it/allegati/docs/17/300-17.pdf.

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a) Market access

When it comes to market access (in general and on the ancillary services/balancing market in particular) there are several provisions in the Clean Energy Package that foresee non-discriminatory market access and participation individually or through aggregators/aggregation.

The Commission's and the Parliament's position to Art. 5 para. 1 IEM-Reg. guaranteed access to the balancing market to all market participants, be it individually or through aggregation. The Council specified this guarantee to prequalified market participants. Art. 6 para. 3 IEM-Reg. ensures that all market operators are able to develop products and trading opportunities that suit market participants' demand and needs and ensure that all market participants are able to access the market individually or through aggregation.

As stated above, the final versions state that balancing markets, including prequalification processes shall be organised in such a way as to ensure non-discriminatory access to all market participants, including electricity generated from variable renewable sources, demand response and energy storage, be it individual or through aggregation and also mention the possibility of the participation in the procurement of balancing capacity through aggregation. Further all markets participants shall be able to access the market individually or through aggregation. Day-ahead and intraday markets are organised in such a way as to ensure that.

Particularly regarding ancillary services, Art. 17 IEM-Dir. sets rules for demand response, including aggregators in para. 2 the provision says:

> "Member States shall ensure that transmission system operators and distribution system operators when procuring ancillary services, treat market participants engaging in demand response aggregation, in a non-discriminatory manner alongside generators, on the basis of their technical capabilities."

Further Art. 31 IEM-Dir. provides that a DSO shall act as a neutral market facilitator in procuring the energy it uses to cover energy losses in its system according to transparent, non-discriminatory and market based procedures, whenever it has such a function. The procurement of such products and services shall ensure the effective participation of all qualified market participants including renewable energy sources, demand response, energy storage facilities and electricity undertakings engaged in aggregation, in particular by requiring regulatory authorities and DSOs in close cooperation with all market participants, including TSOs, to define technical modalities for participation in these markets on the basis of the technical requirements of these markets and the capabilities of all market participants. The DSO shall procure the non-frequency ancillary services needed for its system according to transparent, non-discriminatory and market-based procedures, unless the regulatory authority has assessed that the market-based provision of non-frequency ancillary services is economically not efficient and has granted a derogation

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Art. 40 IEM-Dir. foresees that TSO operators shall procure balancing services according to transparent, non-discriminatory and market-based procedures, and participation of all qualified electricity undertakings and market participants including renewable energy sources, demand response, energy storage facilities and market participants engaged in aggregation. For that purpose, regulatory authorities and TSOs shall, in close cooperation with all market participants, define technical modalities for participation in these markets on the basis of the technical requirements of these markets. These requirements shall apply to the provision of non-frequency ancillary services by TSOs, unless the regulatory authority has assessed that the market-based provision of non-frequency ancillary services is economically not efficient and has granted a derogation.

Table 4: Provisions regarding market access (in particular to balancing markets)

COM	Council	Parliament
Market access in general		
Art. 5 para. 1 IEM-Reg. **guarantees access to the balancing market to all market participants**, be it individually or **through aggregation.**	Art. 5 para. 1 IEM-Reg. guarantees access to the balancing market to all **prequalified** market participants, be it individually or through aggregation.	Same as COM's proposal.
Art. 6 para. 3 IEM-Reg. ensures that all market operators are able to develop products and trading opportunities that suit market participants' demand and needs and ensure that all market participants are able to access the market **individually or through aggregation.**	Art. 6 para. 3 IEM-Reg.: deleted.	Same as COM's proposal.
Final versions		
Art. 5 IEM-Reg. guarantees non-discriminatory access to all market participants, including electricity generated from variable renew-able sources, demand response and energy storage, be it individual or through aggregation to balancing markets, including prequalification processes, and also mentions the possibility of the participation in the procurement of balancing capacity through aggregation. Art. 6 para. 2 IEM-Reg. guarantees that all markets participants are able to access the market individually or through aggregation.		
Ancillary services		
TSOs and DSOs when procuring **ancillary services**, have to treat demand response providers, including **independent aggregators**, in a **non-discriminatory** manner, on the basis of their technical capabilities (Art. 17 para. 2 IEM-Dir.).	TSOs and DSOs when procuring ancillary services, have to treat **market participants engaging in demand response aggregation**, in a non-discriminatory manner, on the basis of their technical capabilities (Art. 17 para. 2 IEM-Dir.).	Addition to COM's proposal: **"alongside generators"**

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DSO shall procure the energy it uses to cover the **non-frequency ancillary services** in its system according to transparent, non-discriminatory and market based procedures. **Unless justified** by a cost-benefit analysis, the procurement of **non-frequency ancillary services** by a DSO shall be transparent, non-discriminatory and market based **ensuring effective participation of all market participants including aggregators**, in particular by requiring regulatory authorities or DSOs in close cooperation with all market participants, to define technical modalities for participation in these markets on the basis of the technical requirements of these markets and the capabilities of all market participants. (Art. 31 para. 5 IEM-Dir.).	Where a DSO is responsible for the procurement of products and services necessary for the efficient, reliable and secure operation of the distribution system, **it shall procure the non-frequency ancillary services needed for its system according to transparent, non-discriminatory and market-based procedures, unless the regulatory authority has assessed that the market-based provision of non-frequency ancillary services is economically not efficient and has granted a derogation.** This obligation to procure non-frequency ancillary services does not apply to fully integrated network components (Art. 31 para. 5 a), 5 b) IEM-Dir.). **Ensuring effective participation of all market participants including aggregators is not mentioned.**	DSO shall act as a neutral market facilitator in procuring the energy it uses to cover the non-frequency ancillary services in its system according to transparent, non-discriminatory and market based procedures. Unless justified by a cost-benefit analysis **(the methodology of which shall be developed in a transparent manner by the national regulatory authority in accordance with point c of Article 59 (1))**, the procurement of non-frequency ancillary services by a DSO shall be transparent, non-discriminatory and market based ensuring effective participation of all market participants including aggregators, in particular by requiring regulatory authorities or DSOs in close cooperation with all market participants, to define technical modalities for participation in these markets on the basis of the technical requirements of these markets and the capabilities of all market participants. (Art. 31 para. 5 IEM-Dir.).
TSO shall ensure that the procurement of balancing services and, **unless justified** by a cost-benefit analysis, **non-frequency ancillary services**, is transparent, non-discriminatory and market-based and **ensures effective participation of all market participants** including **renewable energy sources**, demand response, energy storage facilities and **aggregators**, in particular by requiring regulatory authorities or TSOs in close cooperation with all market participants, to define technical modalities for participation in these markets on the basis of the technical requirements of these markets and the capabilities of all market participants (Art. 40 para. 1 lit i), para. 4 IEM-Dir.).	TSO shall procure balancing services **according to transparent, non-discriminatory and market-based procedures** and **ensures effective participation of all qualified electricity undertakings and market participants** including renewable energy sources, demand response, energy storage facilities and **market participants engaged in aggregation**. For that purpose, regulatory authorities and TSOs shall, in close cooperation with all market participants, define technical modalities for participation in these markets on the basis of the technical requirements of these markets in accordance with the COM Regulation 2017/1485 establishing a guideline on electricity transmission system operation (Art. 40 para. 1 lit. i), para. 4 IEM-Dir.)	TSO shall ensure that the procurement of balancing services and, unless justified by a **cost-benefit or technical viability analysis and approved by the competent authority**, **non-frequency ancillary services**, is transparent, non-discriminatory and market-based and ensures effective participation of all market participants including renewable energy sources, demand response, energy storage facilities and aggregators, in particular by requiring regulatory authorities or TSOs in close cooperation with all market participants, to define technical modalities for participation in these markets on the basis of the technical requirements of these markets and the capabilities of all market participants (Art. 40 para. 1 lit i), para. 4 IEM-Dir.).
Final versions		
Art. 17 para. 2 IEM-Dir.: TSOs and DSOs when procuring ancillary services, have to treat market participants engaging in demand response aggregation, in a non-discriminatory manner alongside generators, on the basis of their technical capabilities. Art. 31 IEM-Dir.: DSO shall act as a neutral market facilitator in procuring the energy it uses to cover energy losses in its system according to transparent, non-discriminatory and market based procedures, whenever it has such a function. The procurement of such products and services shall ensure the effective participation of all qualified market participants including renewable energy sources, demand response, energy storage facilities and electricity undertakings engaged in aggregation, in particular by requiring regulatory authorities and DSOs in close cooperation with all market participants, including transmission system opera-tors, to define technical modalities for participation in these markets on the basis of the technical requirements of these markets and the capabilities of all market participants. The DSO shall procure the		

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non-frequency ancillary services needed for its system according to transparent, non-discriminatory and market-based procedures, unless the regulatory authority has assessed that the market-based provision of non-frequency ancillary services is economically not efficient and has granted a derogation

Art. 40 IEM-Dir.: TSO shall procure balancing services according to transparent, non-discriminatory and market-based procedures, and participation of all qualified electricity undertakings and market participants including renewable energy sources, demand response, energy storage facilities and market participants engaged in aggregation. For that purpose, regulatory authorities and TSOs shall, in close cooperation with all market participants, define technical modalities for participation in these markets on the basis of the technical requirements of these markets. These requirements shall apply to the provision of non-frequency ancillary services by TSOs, unless the regulatory authority has assessed that the market-based provision of non-frequency ancillary services is economically not efficient and has granted a derogation.

Thus, it can be concluded that the Clean Energy Package does not address aFRR in particular, and that there are no particular provisions that prohibit the connection between the participation on ancillary services market and a limit of aggregated capacity. However, access to balancing markets has to be guaranteed, inter alia through aggregators, and TSOs and DOSs are obliged to a transparent, non-discriminatory and market-based treatment. Therefore, if the mentioned restriction in the Italian market is likely to hinder market access or results in a discriminatory treatment, it could be colliding with EU law in the future.

b) The pooling aspect in particular

Another possibility for aggregators to achieve the required capacity is to pool several loads. There are provisions in the Clean Energy Package that concern pooling, and shall be discussed, especially for it is not allowed for aggregators to pool units across different regions in Italy.

Art. 3 para. 1 lit. d) IEM-Reg. foresees that market participation of consumers and small businesses shall be enabled by aggregation of generation from multiple generation facilities or load from multiple demand facilities to provide joint offers.

Art. 21 RED II sets rules for the jointly engagement in self-consumption and defines areas where generated electricity can be pooled and therefore counts as one cohesive load. Throughout the Trilogue negotiations the Parliament referred this jointly self-consumption not only to renewable self-consumers that are living in the same multi-apartment block, located within the same commercial, or shared services, site or in the same closed distribution system, as the Commission and the Council did. It also wanted to include those who are living in the same residential area, or are located in within the same industrial site.

However, the final version of the RED II does not specify the area and generally speaks of “a final customer operating within its premises located within confined boundaries or where allowed by Member States, on other premises” in Art. 2 RED II. In Art. 21 para. 2 RED II it is stated that Member States shall ensure that renewable self-consumers located in the same building, including multi-apartment blocks, are entitled to engage jointly in activities and are allowed to arrange sharing of renewable energy. Further, Member States may differentiate between renewable self-consumers and jointly acting renewable self-consumers (These are defined in Art. 2 para. 2 lit. aaa) RED II).

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Thus, Art. 2 and 21 RED II leave certain room for the Member States to decide what the spatial limits to count as renewable self-consumer are. Connected to this it is important to highlight again that Art. 21 RED II addresses renewable self-consumers only. Thus, an aggregator may only benefit from these provisions if it can be defined as a renewable self-consumer in the given case (This definition is further concerned in D. III. 2. B) aa) and in Table 7).

Table 5: Provisions that concern pooling

COM	Council	Parliament
Pooling		
Market participation of consumers and small businesses shall be enabled **by aggregation of generation from multiple generation facilities or load from multiple demand facilities to provide joint offers** (Art. 3 para. 1 lit. d) IEM-Reg.).	Same as COM's proposal.	Same as COM's proposal.
Renewable self-consumers consume and may store and sell renewable electricity which is generated **within his or its premises**, including a **multi-apartment block, a commercial or shared services site or a closed distribution system** (Art. 2 para. 2 lit. aa) RED II). Renewable self-consumers living in the **same multi-apartment block, or located in the same commercial, or shared services, site or closed distribution system**, are allowed to **jointly engage in self-consumption** as if they were an individual renewable self-consumer (Art. 21 para. 2 RED II).	Renewable self-consumers generate renewable electricity for its own needs and may store and sell self-generated renewable electricity **within confined boundaries**. (Art. 2 para. 2 lit. aa) RED II). Renewable self-consumers living in the same multi-apartment block, or located in the same commercial, or shared services, site or closed distribution system, are **allowed to arrange** sharing of renewable energy that is produced on their site or sites between themselves. (Art. 21 para. 2 RED II).	Renewable self-consumers consume and may store and sell renewable electricity which is generated within their premises, including a multi-apartment block, **residential area**, a commercial, **industrial** or shared services site or **in the same** closed distribution system (Art. 2 para. 2 lit. aa) RED II). Renewable self-consumers living in the same multi-apartment block, **residential area** or located **within** the same commercial, **industrial** or shared services, site or **in the same** closed distribution system, are allowed to **jointly engage in self-consumption** as if they were an individual renewable self-consumer (Art. 21 para. 2 RED II).
Final version of Art. 3 para. 1 lit d) IEM-Reg.		
Market participation of consumers and small businesses shall be enabled by aggregation of generation from multiple generation facilities or load from multiple demand facilities to provide joint offers (…) (Art. 3 para. 1 lit. d) IEM-Reg.).		
Final version of Art. 2 para. 2 lit aa) and aaa) RED II		
'renewable self-consumer' means a final customer operating within its premises located within confined boundaries or where allowed by MS, on other premises, who generates renewable electricity for its own consumption, and may store and sell self-generated renewable electricity, provided that, for non-household renewable self-consumers, those activities do not constitute their primary commercial or professional activity. 'jointly acting renewable self-consumers' means a group of jointly acting renewable self-consumers according to definition (aa) who are located in the same building or multi-apartment block.		
Final version of Art. 21 para. 2 RED II		
MS shall ensure that renewable self-consumers located in the same building, including multi-apartment blocks, are entitled to engage jointly in activities set out in paragraph 1 and are allowed to arrange sharing of renewable energy that is produced on their site or sites between themselves, without prejudice to applicable grid costs and other relevant charges, levies and taxes to each renewable self-consumer if applicable. MS may differentiate between renewable self-consumers and jointly acting renewable self-consumers. Any different treatment towards consumers participating in joint self-consumption shall be proportionate and duly justified.		

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3. Conclusion

In fact, the Clean Energy Package is not exactly fitting on the mentioned barriers in BM 6, but nevertheless it offers several provisions that are likely to reduce or even eliminate the barriers anyhow. Non-discriminatory market access (in general and on the balancing market) is an important topic in the IEM-Reg. and IEM-Dir. As well is pooling, as seen in particular by looking at Art. 2 and 21 RED II.

III. Barriers which lead to Group 2

1. BM 3: Next Kraftwerke Germany (Germany); Dispatch flexible generation under changing market design on multiple market (p. 52 ff.)

a) Mentioned barriers for BM 3

In the future, it is expected that the market design for aFRR products will change from weekly products towards shorter availability-periods and daily procurements. These changes entered into force only at the mid of the Best Res implementation period. Therefore, the consortium decided to assign this BM to Group 2. The changes offer new possibilities for controllable decentralized units for balancing market participation. The key activities of the current BM could be further improved by taking advantage of the changed market design and using the assets flexibility in the market where it is valued the most. The barriers, which were investigated in the beginning of 2018 were:

- It is not clear how exactly prequalifications for aFRR will change and it is only planned for 2018 by the "Bundesnetzagentur"[3]
- Another topic regarding this improved BM is the decreasing prices on reserve power markets in Germany. The lower prices are mainly due to increased competition because there are significantly more market participants. If availability periods (weekly to daily products) are decreased, market entry barriers will again be lowered and, therefore, prices could further drop. However such a market design change would also be favourable if we consider the evolution of the structure of balancing service assets such as

[3] Bundesnetzagentur, Bundesnetzagentur verbessert die Bedingungen zur Teilnahme an den Regelenergiemärkten Strom, 28 June 2027, https://www.bundesnetzagentur.de/SharedDocs/Pressemitteilungen/DE/2017/28062017_Regelenergie.html?nn=265778: "Die Systemdienstleistungen Sekundärregelleistung und Minutenreserve sollen nicht mehr überwiegend durch konventionelle Erzeugungsanlagen, sondern zunehmend durch Erneuerbare-Energien-Anlagen bereitgestellt werden. Die neuen Ausschreibungsbedingungen ermöglichen künftig Windenergie- und Photovoltaikanlagen den Eintritt in diesen Markt, erleichtern aber auch steuerbaren Verbrauchern und Speichern, ihre Flexibilität für Sekundärregelleistung und Minutenreserve zur Verfügung zu stellen.") (Bundesnetzagentur, Bundesnetzagentur schlägt Änderungen für Ausschreibungen zur Regelenergie vor, https://www.bundesnetzagentur.de/SharedDocs/Pressemitteilungen/DE/2018/20180202_regelenergie.html: "Die Bundesnetzagentur schlägt die Änderungen der Ausschreibungsbedingungen für Regelenergie aufgrund der sehr hohen Arbeitspreisgebote vor. Diese haben zu den bisher höchsten Ausgleichsenergiepreisen geführt", sagt Jochen Homann, Präsident der Bundesnetzagentur. "Wir möchten Wettbewerb um die Arbeitspreise schaffen, für mehr Effizienz im Ausgleichs- und Regelenergiemarkt.".

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the shut-down of conventional power plants because renewables can provide the aFRR services.

In particular the mentioned barriers are related to a document the German TSOs published, which should provide the framework for a preliminary consultation process. Two points shall be discussed in detail:

- Transitional scheme for existing installation: The SO-GL requires a further check of each installation each five years. However, existing installation already prequalified needs to update its prequalification when the test was done above 12 month ago. This procedure may not be consistent and therefore discriminate pools with decentral assets since the workload is very high.
- Data provision: The requirements of the TSO concerning data provision is pretty vague. It would be favoured that delivery of data should only happen when requested. In case there is the obligation to deliver data for each technical on a regular basis it could be quite challenging for VPP system since the IT-requirements are very high.

b) Reference in the Clean Energy Package regarding BM 3

In view of the barriers that concern BM 3, the following question arises:

- *(How) does the Clean Energy Package affect the prequalifications for aFRR?*

Regarding more technical details like prequalification etc. the Clean Energy Package does not set rules that concern such detailed aspects but network codes and guidelines exist to concern and regulate these questions.

As discussed above, the most relevant guidelines in the context of this paper are the GL-EB and the SO-GL, but while balancing energy will be harmonized, balancing capacity and prequalification processes are likely to differ from Member State to Member State.

Further, there are not many provisions in the Clean Energy Package that are related to those questions in detail. Art. 5 para. 1 and 8 IEM-Reg. concern balancing markets, the prequalification processes and the procurement of balancing, as mentioned above. This is a positive aspect, as a provision on EU level concerning these aspects fosters the harmonization in this area. In addition it would be favourable to have a European legislation that is harmonizing the aforementioned aspects more in detail. Regarding (non-frequency) ancillary services, market participants engaging in demand response aggregation have to be treated by the DSO and TSO in a non-discriminatory manner alongside generators, on the basis of their technical capabilities (Art. 17 para. 2 IEM-Dir.).

The DSO shall act as a neutral market facilitator in procuring the energy it uses to cover energy losses in its system according to transparent, non-discriminatory and market based procedures. The procurement shall ensure the effective participation of all qualified market participants including electricity undertakings engaged in aggregation. The DSO shall procure the non-frequency ancillary services needed

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for its system according to transparent, non-discriminatory and market-based procedures, unless the regulatory authority has assessed that the market-based provision of non-frequency ancillary services is economically not efficient and has granted a derogation (Art. 31 IEM-Dir.). Also, the TSO shall procure balancing services according to transparent, non-discriminatory and market-based procedures, and participation of all qualified electricity undertakings and market participants including market participants engaged in aggregation. These requirements shall apply to the provision of non-frequency ancillary services by TOSs, unless the regulatory authority has assessed that the market-based provision of non-frequency ancillary services is economically not efficient and has granted a derogation (Art. 40 IEM-Dir.).

Regarding the problem that the SO-GL requires a further check of each installation each five years, but existing installations already prequalified need to update their prequalification when the test was done above 12 months ago, such detailed standards are not regulated in the Clean Energy Package, and therefore the problem is not addressed directly. But it is possible that the mentioned part in the SO-GL is a violation of non-discriminatory market access for all market participants as provided in the Clean Energy Package. If it comes to this conclusion, the said part of the provision is no longer applicable as the Clean Energy Package comes into force, as the Clean Energy Package will be the "lex posterior" (the younger law) and therefore override the older law.

The same is true for the data provision problem. Even though a detailed regulation that specifically addresses the mentioned aspects, the more general provisions regarding data protection and data access/exchange which were already discussed could reduce or even eliminate said barriers. The following table shows an overview of provisions that come into consideration:

Table 6: Provisions regarding market access, data protection and data access/exchange

COM	Council	Parliament
Market access		
Art. 5 para. 1 IEM-Reg. **guarantees access to the balancing market to all market participants**, be it individually or **through aggregation.**	Art. 5 para. 1 IEM-Reg. guarantees access to the balancing market to all **prequalified** market participants, be it individually or through aggregation.	Same as COM's proposal.
Art. 6 para. 3 IEM-Reg. all market operators are able to develop products and trading opportunities that suit market participants' demand and needs and ensure that all market participants are able to access the market **individually or through aggregation**.	Art. 6 para. 3 IEM-Reg.: deleted.	Same as COM's proposal.
Final versions		
Art. 5 IEM-Reg. guarantees non-discriminatory access to all market participants, including electricity generated from variable renew-able sources, demand response and energy storage, be it individual or through aggregation to balancing markets, including prequalification processes, and also mentions the possibility of the participation in the procurement of balancing capacity through aggregation. Art. 6 para. 2 IEM-Reg. guarantees that all markets participants are able to access the market individually or through aggregation.		
Final customers are entitled to… (Art. 15 IEM-Dir.)		

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… generate, store, consume and sell self-generated electricity in all organised energy markets, individually or through aggregators; They must not be subject to disproportionately burdensome procedures and charges that are not cost reflective.	**… act as active customers, without** being subject to **discriminatory** technical and administrative requirements, procedures and charges. **Active customers are entitled, directly or through aggregation, to sell self-generated electricity (…)** to participate in demand response and energy efficiency schemes (…). **are financially responsible** for the imbalances they cause in the electricity system. MS may have different governing provisions for individual and jointly acting final customers (…).	… generate, store, consume and sell self-generated electricity in all organised energy markets, individually or through aggregators. They must not be subject to **discriminatory** or disproportionately burdensome procedures and charges that are not cost reflective.
Final version of Art. 15 IEM-Dir.		
Final customers… are entitled to act as active customers, without being subject to disproportionate or discriminatory technical and administrative requirements, procedures and charges and network charges that are not cost reflective. Active consumers… are entitled to operate either directly or through aggregation. are financially responsible for the imbalances they cause in the electricity system. MS may have different governing provisions for individual and jointly acting final customers (…).		
Demand response (Art. 17 IEM-Dir.)		
National regulatory authorities have to **encourage final customers, including those offering demand response through aggregators, to participate** alongside generators in a **non-discriminatory manner in all organised markets.** Aggregators shall not be required to pay compensation to suppliers or generators.	Final customers, including those offering demand response through aggregation, **are allowed to participate** alongside electricity generators in a non-discriminatory manner in all **electricity markets.** <u>But:</u> **Aggregators are financially responsible** for the imbalances they cause in the electricity system. MS may require undertakings, including **independent aggregators to pay compensation** to other market participants (…).	National regulatory authorities have to encourage final customers, including those offering demand response through aggregators, to participate alongside generators in a non-discriminatory manner in all organised markets **and capacity mechanisms.** <u>But:</u> **Aggregators are financially responsible** for the imbalances they cause in the electricity system.
Final version of Art. 17 IEM-Dir.		
MS shall allow and foster participation of demand response through aggregation. MS shall allow final customers, including those offering demand response through aggregation, to participate alongside electricity generators in a non-discriminatory manner in all electricity markets. Market participants engaged in aggregation shall be financially responsible for the imbalances they cause in the electricity system. MS may require electricity undertakings or participating final customers to pay compensation to other market participants or their balancing responsible party that are directly affected by demand response activation. Such payments shall not create a barrier for market entry of market participants engaged in aggregation or a barrier for flexibility.		
Data protection and data access		
MS have to set a framework that contains transparent rules and procedures for **data exchange** that **ensure easy access** to while **fully protecting commercial data** (Art. 17 para. 3 lit. (c) IEM-Dir.).	MS have to set a framework that contains non-discriminatory and transparent rules and procedures for **data exchange for market participants engaged in aggregation and other electricity undertakings** that ensure easy access to	<u>Addition to COM's proposal:</u> **"and customers´ personal data, including minimum information requirements for the aggregator** as well as minimum criteria for the protection of commercially

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	while fully protecting commercial data (Art. 17 para. 3 lit. (c) IEM-Dir.).	sensitive data for all parties concerned**”.**
(Smart metering) The privacy and data protection of final customers has to be ensured **in compliance with relevant Union data protection and privacy legislation** (Art. 20 lit. (c) IEM-Dir.). The security of the smart metering systems and data communication has to be ensured in compliance with relevant Union security legislation having due regard of the best available techniques for **ensuring the highest level of cybersecurity protection** (Art. 20 lit. (b) IEM-Dir.).	(Smart metering) The privacy and data protection of final customers has to be ensured **in compliance with relevant Union data protection and privacy legislation** (Art. 20 lit. (c) IEM-Dir.). The security of the smart metering systems and data communication has to be ensured in compliance with relevant Union security legislation having due regard of the best available techniques for **ensuring the highest level of cybersecurity protection, but also the costs and principles of proportionality have to be considered** (Art. 20 lit. (b) IEM-Dir.).	(Smart metering) Addition to COM’s proposal: It shall in particular be possible for the final customer to **have access to information on the identity of other parties which access their personal data, and on the moment of access** (Art. 20 lit. (c) IEM-Dir.)
Final versions		
MS shall ensure that their relevant regulatory framework contains non-discriminatory and transparent rules and procedures for data exchange between market participants engaged in aggregation and other electricity undertakings that ensure easy access to data on equal and non-discriminatory terms while fully protecting commercial data and customers´ personal data (Art. 17 para. 3 IEM-Dir.). The privacy and data protection of final customers is ensured in compliance with relevant Union data protection and privacy legislation (Art. 20 lit. c) IEM-Dir.). The security of the smart metering systems and data communication is ensured in compliance with relevant Union security legislation having due regard of the best available techniques for ensuring the highest level of cybersecurity protection whilst bearing in mind the costs and principles of proportionality Art. 20 lit. b) IEM-Dir.).		

c) Conclusion

To sum up, it can be said that when it comes to network codes and guidelines the general rules in the Clean Energy Package are of importance as they are likely to modify or overlay those already existing provisions.

2. BM 10: oekostrom (Austria); Valorise distributed generation of customers in apartment houses (p. 63 f.)

a) Mentioned barriers for BM 10

In the case of BM 10 the huge potential of installing PV systems in multi-apartment houses is exploited. The most important barrier for the implementation of this BM is on the legal and regulatory side. The current legal situation does not allow auto-consumption by multiple parties in apartment blocks (i.e. the produced energy needs to be put on the grid and to be consumed from the grid), and the construction of decentralized renewable plants in apartment blocks requires an agreement amongst all participants which is harder to achieve the more parties are involved.

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A new law that was passed in July 2017,[4] allows for a model where consumption of the PV production from the roof is voluntary (not all parties of the block need to take part) and energy and costs are split and billed, based on measured smart meter data amongst the parties taking part. The excess production is put on the grid and cleared in the balancing group of the contracted supplier. However, a more detailed regulation is not yet defined and published. Possibly the DSOs will have the key role for the calculations and communication to the supplier. Thus the barriers that exist at the moment are:

- The details of new law that was passed in July 2017 need to be defined.
- Data and privacy protection is a problem because the customers are concerned about their personal data being collected.
- There are difficulties to work with DSO.

b) Reference in the Clean Energy Package regarding BM 10

Regarding BM 10, the following questions, related to the Clean Energy Package, arise:

- *(How) does the Clean Energy Package address PV systems in multi-apartment houses?*
- *(How) does the Clean Energy Package concern the work with DSOs (especially in the areas of smart metering and calculating the allocation of generation)?*

aa) Renewable self-consumers

Regarding BM 10 it has to be checked if the different customers in multi-apartment houses can be defined as one renewable self-consumer and therefore benefit from special provisions in the Clean Energy Package, and in particular are allowed to auto-consume their produced energy.

As already seen above, renewable self-consumers are concerned in Art. 2 para. 2 lit. aa), aaa) and Art. 21 RED II. Art. 2 para. 2 lit aa) defines the renewable self-consumer as a final customer operating within its premises located within confined boundaries or where allowed by Member States, on other premises, who generates renewable electricity for its own consumption, and may store and sell self-generated renewable electricity, provided that, for non-household renewable self-consumers, those activities do not constitute their primary commercial or professional activity.

Art. 2 para. 2 lit aaa) RED II defines jointly acting renewable self-consumers as a group of jointly acting renewable self-consumers according to definition aa) who are located in the same building or multi-apartment block;

The definition of active customers in Art. 2 IEM-Dir. includes a group of jointly acting customers who consume or store electricity generated on their premises.

[4] https://www.parlament.gv.at/PAKT/PR/JAHR_2017/PK0268/; https://www.parlament.gv.at/PAKT/VHG/XXV/I/I_01519/fname_618840.pdf.

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Table 7: Renewable self- and active customer (Definitions)

Definition: Renewable self-consumer means:
a final customer operating within its premises located within confined boundaries or where allowed by MS, on other premises, who generates renewable electricity for its own consumption, and may store and sell self-generated renewable electricity, provided that, for non-household renewable self-consumers, those activities do not constitute their primary commercial or professional activity.
Definition: Jointly acting renewable self-consumers means:
a group of jointly acting renewable self-consumers according to definition (aa) who are located in the same building or multi-apartment block.
Definition: Active customer means:
a final customer or a group of jointly acting final customers who consume or store electricity generated within their premises located within confined boundaries or where allowed by MS, on other premises, or sell self-generated electricity or participate in flexibility or energy efficiency schemes, provided that these activities do not constitute their primary commercial or professional activity.

Thus, several parties in a multi-apartment house are not likely to count as one renewable self-consumer but as a group of jointly acting renewable self-consumers.

During the negotiations, the Parliament proposed that renewable self-consumers are entitled to consume their self-generated renewable electricity which remains within their premises without liability for any charge, fee, or tax and are also entitled to install and operate electricity storage systems combined with installations generating renewable electricity for self-consumption without liability for any charge, including taxation and double grid fees for stored electricity which remains within their premises.

The final version foresees another structure (as shown above), and separates between electricity consumed from or injected into the grid and self-generated renewable electricity, which remains within the renewable self-consumers' premises. As also shown above, even if the electricity remains within the renewable self-consumers premises it is possible that they are subject to charges or fees.

Art. 21 para. 2 RED II foresees that Member States shall ensure that renewable self-consumers located in the same building, including multi-apartment blocks, are entitled to engage jointly in activities set out in paragraph 1 and are allowed to arrange sharing of renewable energy that is produced on their site or sites between themselves, without prejudice to applicable grid costs and other relevant charges, levies and taxes to each renewable self-consumer if applicable.

But it also allows that Member States may differentiate between renewable self-consumers and jointly acting renewable self-consumers. Any different treatment towards consumers participating in joint self-consumption shall be proportionate and duly justified.

Art. 21 para. 3 RED II states that if subject to the instructions of the renewable self-consumer, the renewable self-consumer's installation may be owned by a

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third party or it may be managed by a third party for installation, operation, including metering, and maintenance. The third party shall not be considered a renewable self-consumer itself.

Regarding the remuneration for the self-generated renewable electricity, while the Commission proposed a remuneration which reflects the market value of the electricity fed in, the Parliament wanted that the remuneration has to be equivalent to at least the market price and may take into account the long-term value to the grid, the environment and society in line with the cost benefit analysis of distributed energy resources (but does not clarify what this phrase means in detail). The Council only wanted a provision that foresees that renewable self-consumers are able to be remunerated appropriately for the self-generated renewable electricity they feed in-to the grid, reflecting the market value of the electricity fed in and the relevant support schemes.

The final version foresees a combination of the Commission's and the Parliament's proposal, as "renewable self-consumers receive a remuneration, including where applicable through support schemes, for the self-generated renewable electricity they feed into the grid which reflects the market value and may take into account the long-term value of the electricity fed in to the grid, the environment and society." It follows the Parliament's proposal to oblige the Member States to put in place an enabling framework to promote and facilitate the development of renewable self-consumption based on an assessment of the existing unjustified barriers to and the potential of renewable self-consumption in their territories and energy networks. That enabling framework shall inter alia address accessibility of self-consumption to all final customers, including those in low-income or vulnerable households, address unjustified regulatory barriers to renewable self-consumption, including for tenants, address incentives to building owners to create opportunities for self-consumption, including for tenants. Furthermore, it shall ensure that renewable self-consumers contribute in an adequate and balanced way to the overall cost sharing of the system when electricity is injected into the grid.

In conclusion, all three proposals provide the possibility of self-consumption in multi-apartment blocks without being subject to disproportionate procedures but the Parliament's position is the one that foresees the most benefits for renewable self-consumers.

Table 8: Rights of renewable self-consumers

COM	Council	Parliament
Renewable self-consumers		
individually or **through aggregators** are entitled to carry out self-consumption and sell, including through power purchase agreements, their excess production of renewable electricity **without being subject to disproportionate procedures** (Art. 21 para. 1 lit. a) RED II)	are entitled to generate renewable energy, including for their own consumption; store and sell, including **through** power purchase agreements, **aggregators** and electricity suppliers, their excess production of renewable electricity without being subject to disproportionate procedures **but they have to contribute in an adequate and balanced way to the overall cost sharing of the**	individually or through aggregators are entitled to carry out self-consumption and sell, including **through** power purchase agreements and **peer-to-peer trading arrangements**, their excess production of renewable electricity without being subject to **discriminatory** or disproportionate procedures and charges that are not

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receive a remuneration for the self-generated renewable electricity they feed into the grid **which reflects the market value of the electricity fed in** (Art. 21 para. 1 lit. d) RED II) Renewable self-consumers **living in the same multi-apartment block**, or located in the same commercial, or shared services, site or closed distribution system, are allowed to jointly engage in self-consumption as if they were an individual renewable self-consumer (Art. 21 para. 2 RED II)	**system** (Art. 21 para. 1 lit. a) RED II) are **able to be remunerated appropriately** for the self-generated renewable electricity they feed into the grid, reflecting the market value of the electricity fed in and the relevant support schemes (Art. 21 para. 1 lit. d) RED II) Renewable self-consumers living in the same multi-apartment block, or located in the same commercial, or shared services, site or closed distribution system, are, **without prejudice to applicable grid costs and other relevant charges, levies and taxes applicable,** are allowed to **arrange sharing of renewable energy that is produced on their site or sites between themselves. MS may have different governing provisions for individual and jointly acting renewable self-consumers in their national legislation** (Art. 21 para. 2 RED II)	cost-reflective (Art. 21 para. 1 lit. a) RED II) are entitled to **consume their self-generated renewable electricity**, which remains within their premises, **without liability for any charge, fee, or tax** (Art. 21 para. 1 lit. aa) RED II) receive a remuneration for the self-generated renewable electricity they feed into the grid which is equivalent to **at least the market price** and **may take into account the long-term value to the grid, the environment and society in line with the cost benefit analysis** of distributed energy resources (Art. 21 para. 1 lit. d) RED II). Renewable self-consumers living in the same multi-apartment block, **residential area** or located **within** the same commercial, **industrial** or shared services, **site** or **in the same** closed distribution system, are allowed to jointly engage in self-consumption as if they were an individual renewable self-consumer (Art. 21 para. 2 RED II) MS shall carry out an assessment of the existing barriers to and development potential of self-consumption in their territories in order to put in place an **enabling framework to promote and facilitate the development of renewable self-consumption.** That enabling framework shall include, inter alia: (a) specific measures to ensure that self-consumption is accessible to all consumers, including those in low-income or vulnerable households, or those living in social or rented housing; (b) tools to facilitate access to finance; (c) incentives to building owners to create opportunities for self-consumption for tenants; (d) the removal of unjustified regulatory barriers to renewable self-consumption, including for tenants. (Art. 21 para. 2 a) RED II)
Final version: Renewable self-consumers		
individually or through aggregators, are entitled to: (a) generate renewable energy, including for their own consumption, store and sell their excess production of renewable electricity, including through power purchase agreements, electricity suppliers and peer-to-peer trading arrangements, without being subject: i) in relation to the electricity they consume from or inject 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 renewable electricity which remains within their premises, to discriminatory or disproportionate procedures and any charge or fee;		

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(b) install and operate electricity storage systems combined with installations generating renewable electricity for self-consumption without liability for any double charge, including grid fees for stored electricity which remains within their premises;

(c) maintain their rights and obligations as final consumers;

(e) receive a remuneration, including where applicable through support schemes, for the self-generated renewable electricity they feed into the grid which reflects the market value and may take into account the long-term value of the electricity fed in to the grid, the environment and society.

1-bis. MS may apply non-discriminatory and proportionate charges and fees to renewable self-consumers, in relation to their self-generated renewable electricity which remains within their premises in the following cases:

(a) if the electricity produced by the self-consumer is effectively supported via support schemes, only to the extent that the economic viability of the project and incentive effect of such support are not undermined; or

(b) starting from December 2026, if the overall share of self-consumption installations exceeds 8% of a MS total electricity capacity installed, the national regulatory authority may perform a cost-benefit analysis through an open, transparent and participatory process and if the result of this analysis demonstrates that the provision set out in paragraph 1(a)(ii) resulted in significant disproportionate burden on the long-term financial sustainability of the electric system or creates an incentive exceeding what it is objectively needed to achieve cost-effective deployment of renewable energy, and that such impact could not be minimised by taking other reasonable actions; or

(c) if the electricity is produced in installations above 30 kW of total installed capacity.

2. MS shall ensure that renewable self-consumers located in the same building, including multi-apartment blocks, are entitled to engage jointly in activities set out in paragraph 1 and are allowed to arrange sharing of renewable energy that is produced on their site or sites between themselves, without prejudice to applicable grid costs and other relevant charges, levies and taxes to each renewable self-consumer if applicable. MS may differentiate between renewable self-consumers and jointly acting renewable self-consumers. Any different treatment towards consumers participating in joint self-consumption shall be proportionate and duly justified.

3. If subject to the instructions of the renewable self-consumer, the renewable self-consumer's installation may be owned by a third party or it may be managed by a third party for installation, operation, including metering, and maintenance. The third party shall not be considered a renewable self-consumer itself.

4. MS shall put in place an enabling framework to promote and facilitate the development of renewable self-consumption based on an assessment of the existing unjustified barriers to and the potential of renewable self-consumption in their territories and energy networks. That enabling framework shall, inter alia:

(a) address accessibility of self-consumption to all final customers, including those in low-income or vulnerable households;

(b) address unjustified barriers to the financing of projects in the market and measures to facilitate access to finance;

(c) address other possible unjustified regulatory barriers to renewable self-consumption, including for tenants

(d) address incentives to building owners to create opportunities for self-consumption, including for tenants;

(e) grant self-consumers for self-generated renewable electricity they feed into the grid, non-discriminatory access to relevant support schemes in place as well as all electricity market segments,

(f) ensure that renewable self-consumers contribute in an adequate and balanced way to the overall cost sharing of the system when electricity is injected into the grid.

MS shall include a summary of the policies and measures under the enabling framework and an assessment of their implementation respectively in their integrated national energy and climate plans and in their progress reports pursuant to Regulation ... of the European Parliament and of the Council [on the Governance of the Energy Union, 2016/0375(COD)].

This Article shall be without prejudice to Article 107 and 108 TFEU.

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bb) Citizens energy community

Citizens energy communities are concerned in Art. 2 and Art. 16 IEM-Dir. According to Art. 2 citizens energy community is:

- a legal entity
- which is based on voluntary and open participation,
- effectively controlled by shareholders or members who are natural persons, local authorities, including municipalities, or small enterprises and micro-enterprises.
- The primary purpose of a citizens energy community is to provide environmental, economic or social community benefits for its members or the local areas where it operates rather than financial profits.
- A citizens energy community can be engaged in electricity generation, distribution and supply, consumption, aggregation, storage or energy efficiency services, generation of renewable electricity, charging services for electric vehicles or provide other energy services to its shareholders or members.

Thus, the participants in a multi-apartment house may count as a (local) energy community if several aspects apply. If this is the case, Art. 16 IEM-Dir. is applicable and offers several rights.

Auto-consumption:
With respect to auto-consumption the Parliament wanted to provide in a new Art. 16 a) IEM-Dir. that local energy communities are entitled to share electricity from generation assets within the community between its members or shareholders based on market principles, including applying existing or future ICT technologies such as virtual net metering schemes and those based on distributed ledger technologies, as well as through power purchase agreements or peer-to-peer trade arrangements for example.

The final version of Art. 16 IEM-Dir. provides that citizens energy communities are entitled to arrange within the community sharing of electricity that is produced by the production units owned by the community subject to the provisions of this article and retaining community members' rights and obligations as consumers. Where electricity is shared, this shall be without prejudice to applicable network charges, tariffs and levies, in line with a transparent cost-benefit analysis of distributed energy resources developed by the national competent authority.

Consent of all participants:
Regarding the problem that all participants have to give their consent, as stated above, the participation in citizens energy community is voluntary and open. This aspect is mentioned again in Art. 16 IEM-Dir. as Member States have to provide an

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enabling regulatory framework that ensures that participation is open and voluntary.

Work with DSOs:
In respect of the work with the DSOs, in Art. 16 para. 2 lit. f) IEM-Dir. the Commission proposed that Member States shall provide an enabling regulatory framework that ensures that a local energy community may conclude an agreement with a relevant DSO to which their network is connected on the operation of the local energy community's network. The final version includes right for citizens energy communities but also includes the Council's proposal that this right shall only be granted if a Member State decides, to grant energy communities with a right to manage distribution network in their area of operation and defined the relevant procedures.

Further citizens energy are subject to appropriate network charges at the connection points between the community network and the distribution network outside the citizens energy community. Such network charges shall account separately for the electricity fed into distribution network and the electricity consumed from the distribution network outside the citizens energy community in line with Article 59(8), and citizens energy communities do not discriminate or harm customers remaining connected to the distribution system. But again, only if a Member State decides, to grant energy communities with a right to man-age distribution network in their area of operation and defined the relevant procedures.

Art. 59 para. 8 provides:

> "With a view to increasing transparency in the market and provide to all interested parties all necessary information, decisions or proposals for a decision concerning transmission and distribution tariffs as referred in Article 60(3), regulatory authorities shall make available to market parties the detailed methodology and underlying costs used for the calculation of the relevant network tariffs, while preserving the confidentiality of commercially sensitive information."

Table 9: Rights of citizens energy communities

COM	Council	Parliament
(Local) Energy communites, Art. 16 IEM-Dir.		
--	--	are entitled to **share electricity from generation assets within the community between its members or shareholders** based on market principles, including applying existing or future ICT technologies such as virtual net metering schemes and those based on distributed ledger technologies, as well as through power purchase agreements or peer-to-peer trade arrangements for example (Art. 16 a) IEM-Dir.)

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Participation is voluntary and open (Art. 16 para. 2 lit. a) IEM-Dir.)	Participation is voluntary and open (Art. 2 para. 1 No. 7, Art. 16 para. 1 lit. a) IEM-Dir.)	Participation is voluntary and open (Art. 2 para. 1 No. 7, Art. 16 para. 2 lit. a) IEM-Dir.)
may conclude an agreement with a DSO to which their network is connected on the operation of the local energy community's network (Art. 16 para. 2 lit. f) IEM-Dir.)	may conclude an agreement with a DSO to which their network is connected on the operation of the local energy community's network, **if a MS decides, to grant energy communities with a right to manage distribution network** in their area of operation and defined the relevant procedures (Art. 16 para. 2 b) IEM-Dir.)	a framework has to ensure that conditions for creating, operating and dissolving local energy networks are well defined (Art. 16 para. 2 lit. –a) IEM-Dir.) may conclude an agreement with a DSO to which their network is connected on the operation of the local energy community's network (Art. 16 para. 2 lit. f) IEM-Dir.)
Final version: Citizens energy communities…		
are entitled to arrange within the community sharing of electricity that is produced by the production units owned by the community subject to the provisions of this article and retaining community members' rights and obligations as consumers. Where electricity is shared, this shall be without prejudice to applicable network charges, tariffs and levies, in line with a transparent cost-benefit analysis of distributed energy resources developed by the national competent authority. Participation is voluntary and open. may conclude an agreement with a DSO to which their net-work is connected on the operation of the local energy community's network, if a MS decides, to grant energy communities with a right to manage distribution network in their area of operation and defined the relevant procedures		

cc) Renewable energy communities

Regarding renewable energy communities Art. 22 RED II has to be focused. Initially the Commission defined the renewable energy community in Art. 2 para. 2 lit. ww) RED II as, inter alia, a SME or a non-profit organisation, the shareholders or members of which cooperate in the generation, distribution, storage or supply of energy from renewable sources.

Table 10: Renewable energy communities

COM	Council	Parliament
Renewable energy communities		
4 of the 5 following criteria have to be fulfilled: shareholders/members are natural persons, local authorities/municipalities or SMEs operating in the fields of renewable energy. at least 51% of the shareholders or members with voting rights of the entity are natural persons. at least 51% of the shares or participation rights of the entity are owned by local members at least 51% of the seats in the board of directors or managing bodies of the entity are reserved to local members. the community has not installed more than 18 MW of renewable capacity as a yearly average in the previous 5 year.	The shareholders/members are natural persons, local authorities/municipalities or SMEs operating in the fields of renewable energy, <u>but:</u> **not required** that a majority of the shareholders or members with voting rights of the entity are natural persons. **not required** that a majority of the seats in the board of directors or managing bodies of the entity are reserved to local members **not required** that a majority of the seats in the board of directors or managing bodies of the entity are reserved to local members. **no restriction** of the installed renewable capacity.	It is **mandatory** that the majority of the seats in the board of directors or managing bodies of the entity has to be reserved for local members **and 3 of the 4** following criteria have to be fulfilled: shareholders/members are natural persons, local authorities/municipalities or SMEs (do **not** have to operate in the fields of renewable energy). at least 51 % of the shareholders or members with voting rights of the entity are natural persons **or public bodies.** at least 51 % of the shares or participation rights of the entity are owned by local members. the community has not installed more than 18 MW of renewable

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	Art. 2 para. 2 lit. vv) RED II defines renewable energy community as a legal entity which, according to applicable national law, **is effectively controlled by shareholders or members** who are natural persons, local authorities, including municipalities, or SMEs located in the proximity of the renewable energy projects owned and developed by that community.	capacity as a yearly average in the previous 5 year.
Final version: Renewable energy community		
means a legal entity; i. which, according to applicable national law, is based on open and voluntary participation, is autonomous, and is effectively controlled by shareholders or members that are located in the proximity of the renewable energy projects owned and developed by that community; ii. whose shareholders or members are natural persons, local authorities, including municipalities, or SMEs; iii. whose primary purpose is to provide environmental, economic or social community benefits for its members or the local areas where it operates rather than financial profits.		

The participants in a multi-apartment house may be a renewable energy community, therefore Art. 22 RED II may be applicable. It offers the following benefits: Renewable energy communities

(…)

2. Member States shall ensure that renewable energy communities are entitled:

(a) to generate, consume, store and sell renewable energy, including through power purchase agreements;

(b) to arrange sharing of renewable energy within the community that is produced by the production units owned by the community, subject to the provisions of this article and retaining community members' rights and obligations as customers;

(c) to access all suitable energy markets both directly or through aggregation in a non-discriminatory manner;

(…)

4. Member States shall provide an enabling framework to promote and facilitate the development of renewable energy communities. The framework shall ensure, inter alia, that:

(a) unjustified regulatory and administrative barriers to renewable energy communities are removed;

(b) renewable energy communities that supply energy, provide aggregation or other commercial energy services are subject to the provisions relevant for such activities;

(c) the relevant distribution system operator cooperates with renewable energy communities to facilitate energy transfers within renewable energy communities;

(d) renewable energy communities are subject to fair, proportionate and transparent procedures, including registration and licensing, and cost reflective network charges, as well as relevant levies and taxes, ensuring they contribute in an adequate, fair and balanced

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way to the overall cost sharing of the system in line with a transparent cost-benefit analysis of distributed energy sources developed by the national competent authorities;

(e) renewable energy communities are subject to a non-discriminatory treatment with regard to their activities, rights and obligations as final customers, generators, suppliers, distribution system operators, or as other market participants;

(f) the participation in the renewable energy communities is accessible to all consumers, including those in low-income or vulnerable households;

(g) tools to facilitate access to finance and information are available;

(h) regulatory and capacity-building support is provided to public authorities in enabling and setting up renewable energy communities, and in helping authorities to participate directly;

(i) rules to secure the equal and non-discriminatory treatment of consumers that participate in the renewable energy community.

(…)

c) Conclusion

Concluding it can be said that in respect of BM 10 the provisions regarding renewable self-consumption (Art. 21 RED II), citizens energy communities (Art. 16 IEM-Dir.), and renewable energy communities (Art. 22 RED II) have to be focused. The participants in a multi-apartment house are likely to be defined as jointly acting renewable self-consumers, and they may be a citizens/renewable energy community.

IV. Significant barriers which lead to Group 3

1. BM 2: Good Energy (UK); peer-to-peer energy matching (D4.1, p. 50 ff.)

a) Mentioned barriers for BM 2

A first principal barrier is the lack of mechanisms to promote local self-consumption. In the United Kingdom, smaller generators get paid for their "deemed expert" because the assumption is that they export 50% of produced power. Thus they are not encouraged to self-consume as much as possible.

A second important legal barrier is the lack of mechanisms that allow for the local settlement of generation and demand portfolios. Nowadays, benefits and charges are levied on energy suppliers based on their generation-to-demand ratios in each of the 14 supply groups at the national level. In this context, there are no mechanisms in place benefiting subregional generation and demand matching. In conclusion the relevant barriers for this BM are:

- No mechanism to promote local self-consumption
- Lack of mechanisms that allow for the local settlement of generation and demand portfolios (EU level)
- Lack of mechanisms in the UK that allow for the local settlement of generation and demand portfolios (national level)

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b) Reference in the Clean Energy Package regarding BM 2

Questions regarding BM 2 are:

- *Does the Clean Energy Package set a framework for the local self-consumption, for the local settlement of generation and for local demand portfolios?*

aa) Renewable-self consumers

Renewable self-consumers are defined in Art. 2 para. 2 lit. aa) RED II and further concerned and benefited in Art. 21 RED II. Regarding the peer to peer community in BM 2 there are two possible starting points. The peer to peer community could be seen as a renewable self-consumer or as jointly acting renewable self-consumers and therefore have particular rights, or if not, the named provisions could just facilitate the consumers' participation in the energy markets and therefore support the idea of such a BM.

As stated above the final version for the definition of renewable self-consumer is:

> "a final customer operating within its premises located within confined boundaries or where allowed by Member States, on other premises, who generates renewable electricity for its own consumption, and may store and sell self-generated renewable electricity, provided that, for non-household renewable self-consumers, those activities do not constitute their primary commercial or professional activity."

Thus, the independent generator and the customer inside the peer to peer community could hardly be viewed as a renewable self-consumer if the independent generator is not a final customer who is jointly acting with the customer, and/or if its activities do constitute their primary commercial or professional activity. In conclusion if the peer to peer community should be benefited as renewable self-consumers are benefited in Art. 21 RED II it would be necessary for the independent aggregator at least to be a wholesale or final customer. This also applies to the possibility to be seen as jointly acting renewable self-consumers (Art. 2 para 2 lit. aaa) RED II).

Secondly the independent generator and the customer would have to be settled in an area that counts as "their premises" regarding to the definition in Art. 2 para. 2 lit. aa) RED II. Thus the customer could only connect to local generators that are in a close spatial connection. In the case of a jointly acting renewable self-consumers they would have to be in the same building or multi-apartment block.

Concluding it can be said that the effects of Art. 21 RED will not be directly applicable to such a BM. Therefore the possible benefits for renewable self-consumers in general have to be focused, as they are likely to activate more people to participate in the energy market and therefore create possible customers for services of aggregators.

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bb) Citizens energy communities

As already discussed above, citizens energy communities are concerned in Art. 2 and Art. 16 IEM-Dir. Regarding BM 2 it is problematic, because the independent generator and customer do not fit under this definition, as they are not controlled by local shareholders or members. The peer to peer community is a different approach than the (local) energy community. The Council and the Parliament do not make a change regarding this requirement and therefore cannot help in respect of BM 2.

In conclusion it can be said that due to not fulfilling the requirements the peer to peer community in BM 2 is not a (local) energy community according to the Clean Energy Package and therefore cannot benefit from any specific provisions in Art. 16 IEM-Dir.

cc) Renewable energy communities

Regarding renewable energy communities Art. 22 RED II has to be focused. Again, the definition does not fit to the peer to peer community in BM 2 (Neither in the Council's or the Parliament's position). Therefore, BM 2 cannot benefit from any specific provisions.

c) Conclusion

In conclusion it can be said that the Clean Energy Package sets mechanisms for renewable self-consumers, citizens energy communities and demand response through aggregators, but not all of them are applicable to the peer to peer community in BM 2. A peer to peer community most likely is no (local) energy community nor a renewable self. Anyhow, the named provisions may help aggregators to acquire new customers in the future. Regarding demand response, Art. 17 IEM-Dir. has to be focused and provides mechanisms for aggregators but is also not aimed at local peer to peer communities in particular.

2. BM 5: Next Kraftwerke Germany (France); providing decentralized units access to balancing markets (p. 55)

a) Mentioned barriers for BM 5

Many important barriers in France are related to the law and regulation. One key element is that generators in France who own generation assets of more than 120 MW are obliged to participate on aFRR (obliged providers). The obliged providers can trade their obligations on a secondary market.

The total market need on aFRR is generally between 500MW and 1180MW and volumes of these large-scale generators will be activated pro-rata so all bids are activated in/proportional with the bid size. Since Next Kraftwerke is developing a portfolio of controllable renewable generation assets, these are disadvantages due to the market power of conventional power plant operators and because pro rata activation hinders to bid with diverging activation costs of new flexibility

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options. If merit order activation would be applied, it could be argued that a more cost-efficient market with heterogeneous providers can be expected. To enter aFRR, it would be necessary to get an obligation from one of the obliged providers and get a certification from RTE, the French TSO.

Furthermore, RTE does not accept mixed offers so bids should include (aggregated) generation only or aggregated demand only and demand response and generation cannot be mixed into a single VPP offer. This can potentially limit the activities since pooling of demand side and generation assets could enable aggregators to bid symmetrical.

Thus the following barriers were determined:

- Obligation of conventional power plants to offer reserve power (national level)
- Pro rata activation instead of merit order on aFRR
- Symmetrical products on primary market for aFRR
- RTE (the French TSO) does not accept mixed offers of pooled generation and demand-side assets

b) Reference in the Clean Energy Package regarding BM 5

The question that arises from the barriers above is:

- *(How) does the Clean Energy Package concern the problem that only conventional power plants are obliged to offer reserve power, that volumes of these large-scale generators are activated pro-rata, and that pooled generation and demand-side assets are not accepted?*

The general provisions regarding non-discriminatory market access (especially to ancillary/balancing markets) can have an impact on the possibility to offer reserve power and the kind of activation, if the current situation constitutes a discriminatory behaviour for aggregators.

Pooling, as mentioned above, is regulated, and to a certain extent guaranteed, in the Clean Energy Package. However these provisions do not set an obligation for a TSO to accept mixed offers of pooled generation and demand side assets.

Especially the combination of the fact that only generators in France who own generation assets of more than 120 MW are obliged to participate on aFRR, that there is no merit order activation, and that the French TSO does not accept mixed offers of pooled generation and demand-side assets could lead to a situation where aggregators cannot access the balancing markets in a non-discriminatory way, compared to other (bigger) market participants.

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c) Conclusion

Even though the observed barriers are not directly addressed in the Clean Energy Package, the general provisions regarding non-discriminatory market access are likely affect the access to aFRR markets for aggregators. In particular the combination of the mentioned problems could lead to a discriminatory behaviour towards aggregators and therefore collide with the upcoming EU law.

3. BM 13: Foss (Cyprus); pooling flexibility for local balancing market and energy service provision (p. 66)

a) Mentioned barriers for BM 13

On 1st July 2019, when market players could potentially enter the market, an important barrier will be that there is no framework for aggregators and offering grid services (frequency control) including the implied demand response through the aggregated flexibilities.

- No framework for aggregation
- No framework for grid services
- Data and privacy protection
- No framework for installation and use of storage

b) Reference in the Clean Energy Package regarding BM 13

Because of the expansive lack of national regulation the relevant questions regarding the Situation in Cyprus are rather general:

- *Does the Clean Energy Package set a framework for aggregators, grid services, data and privacy protection and installation and use of storage? What is mandatory and therefore affects the national level?*

Regarding a framework for aggregators/provisions concerning aggregators it can be referred to the already discussed provisions under C.

Storage is mentioned in a few provisions in the Clean Energy Package. Art. 2 No. 47 IEM-Dir. defines “energy storage” as deferring the final use of electricity to a later moment than when it was generated or the conversion of electrical energy into a form of energy which can be stored, the storing of that energy, and the subsequent reconversion of that energy back into electrical energy or use as another energy carrier. Art. 2 IEM-Dir. defines “energy storage facility” as a facility where energy storage occurs.

The “ownership of energy storage facilities by distribution operators” is regulated in Art. 36 IEM-Dir; the “ownership of energy storage facilities by TSOs” is regulated in Art. 54 IEM-Dir.

In Art. 21 para. 1 lit. b) RED II it is regulated that renewable self-consumers, individually or through aggregators, are entitled to install and operate electricity storage systems combined with installations generating renewable electricity for self-

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consumption without liability for any double charge, including grid fees for stored electricity which remains within their premises;

c) Conclusion

Although there are several provisions in the Clean Energy Package which address the observed barriers it could remain a problem on national level if the EU legislation is not applied or implemented. However this is a Problem that is discussed in the context of national recommendations (See D5.2).

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E. Remaining barriers

Thus, the upcoming legal acts on EU level are likely to reduce several barriers for the aggregators' BMs, there are still barriers that are not (or not sufficiently) addressed by European law. The following overview shows these barriers (related to the country they occur) and only gives a short explanation on the topic. The detailed assessment on these remaining barriers can be found in D5.2 (national recommendations)

I. Germany

The Problem in Germany is related to the grid tariff design. The current grid tariffs in Germany are rather fitted to a steady consumption than the use of flexibility. That means that consumers are charged both, an energy based fee and a yearly capacity fee, if they exceed a particular threshold (e.g. 100 MWh yearly consumption). Such a grid tariff design is likely to hinder BMs that work with customers' flexibility.

II. France

The main topic is access to the aFRR market for smaller market players (aggregators) and possible or existing national regulations related to this. In this context the national developments with a view on the upcoming IEM-Reg. and GL-EB etc. is important. Especially how and when the GL-EB will be implemented in the French market.

The problem that aggregators have to rely on conventional power plants to buy an obligation if they want to offer reserve power in France is only addressed in general by the Clean Energy Package. Inter alia, as the Commission and the Parliament highlight that final customers are entitled to generate, store, consume and sell self-generated electricity in all organised energy markets, individually or through aggregators.

It is questionable if the thresholds to enter this market can be lowered or changed on national level, or if the aFRR product will be open to all technologies and therefore a change to the current obligations-model seems possible.

III. Italy

The main topic in Italy is the central dispatch system and the implementation of the upcoming legislation, especially the GL-EB, which could lead to a special challenge. In particular the claim to harmonization and standardization regarding the aFRR market in the EU is likely to become a problematic aspect with different general systems in the Member States. Thus it is questionable how the possibilities of access to the aFRR market for aggregators will be designed in the future in the Italian energy market.

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IV. Belgium

The main topic is access possibilities to the aFRR market for smaller market players (aggregators) and possible or existing national regulations related to this. With a view on the newest document by Elia, it seems likely that in the (near) future there will be a merit order instead of pro rata activation. The document also speaks of a proposal to have a separated procurement for FCR and aFRR. Further the importance to open the aFRR product to other technologies, and more specifically to non-CIPU flexibility, is a topic.

Regarding the grid tariff flexibility the current situation is that prosumers are charged a fixed payment of a specific amount per year per kW of solar panel. But such a system is not likely to encourage flexibility as well. The aspect that the remuneration which is achieved could cover the peak costs, actually does not work.

V. Austria

At the moment it is very time-consuming to gather data because there are many different market participants (especially local players) which are not really interested in a functioning system for supplier change. Moreover there are ca. 120 DSOs using different technical systems, which leads to the effect that every process has to be planned and tested individually, which again is very time-consuming. Especially the development of the new platform – EDA – next to ENERGYlink is problematic in this context.

Thus it is necessary to analyse what national legal principles on data access in general exist, that are relevant for this topic, and if this legislation could be utilised in order to standardise the modalities of data access and data transfer. Especially with a view on the implementation of the existing “customer processes”.

VI. Portugal/Spain

The main problem is that (due to technical reasons?) the data which is forwarded by EDP distribution is not real time data. This leads to a situation where the retailers have no idea about the customers’ real time behaviour, so the implementation of innovative BMs using flexibility is hindered. EDP Distribution is the only relevant DSO in Portugal and is a regulated entity. Therefore it depends on the remuneration received from the national regulator (ERSE). In order to improve the systems and to receive quality customers’ data, more money has to be spent on this purpose.

The problem in the aFRR sector is that the TSO requires very strict rules to participate in the reserves, which can only be complied by the thermal and hydro power plants.

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F. Sum up & overview of relevant aspects in the new EU legislation

I. In general

- When it comes to the definitions in Art. 2 IEM-Dir. it is a positive aspect that the market participant is defined and includes aggregation. However, the definition of active customers does not include aggregation as proposed by the Commission. Further it is a positive aspect that aggregation is highlighted in Art. 2 IEM-Dir. No. 13 and 45.

- The Council's proposal in Art. 12 IEM-Dir. is also favourable as it expands the right to switch the supplier to aggregators.

- The final version of Art. 13 IEM-Dir. follows the Council's proposal regarding its general approach in para. 1, but provides that the customer can conclude an aggregation contract without consent of the final customer's electricity undertaking and that the customer is entitled to receive all relevant data. This is a positive outcome from the view of an aggregator, as the Council's changes were likely to hamper the conclusion of contracts between customers and aggregators compared to the Commission's proposal.

- Aggregation is not mentioned within the comparison tool mechanism in Art. 14 IEM-Dir, as proposed by the Parliament, and also did not make it in the provisions regarding smart metering and data management.

- Regarding Art. 16 IEM-Reg. it is a positive aspect, that charges for access to networks shall not discriminate either positively or negatively against energy storage and aggregation and shall not create disincentives for self-generation, self-consumption and for participation in demand response. This is likely to highlight the important position of aggregators in the future energy market.

II. Data and privacy protection/data access

- Art. 17 para 3 lit. c) IEM-Dir. follows the Parliament's proposal by highlighting the importance of not only protection of commercial data but also customers' personal data. This is a positive aspect, as it is likely to point out the important area of tension between data access and data protection.

- It is a negative outcome that the final version of Art. 23 IEM-Dir. follows the Council's proposal as aggregators are not mentioned as eligible parties. Regarding the specification of eligible parties. Art. 23 IEM-Dir. only foresees that that Member States or competent authorities shall specify the rules on the access to data of the final customer by eligible parties according to the provisions of this Article and the applicable European Union legal framework. This is somewhat of a let down from the view of aggregators as the

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guarantee to be an eligible party would have had a positive impact on the access and exchange of data, which is crucial for many aggregators' business models.

- It would have been positive if a citizen energy community could conclude an agreement with a DSO to which their network is connected without limitations, as the Commission and the Parliament proposed in Art. 16 para. 2 lit. f) IEM-Dir. In the end the final version follows the Council and foresees that citizens energy communities may only conclude an agreement with a relevant DSO or TSO to which their network is connected on the operation of the citizens energy community's network if Member States decided to grant citizens energy communities with a right to manage distribution network.

- It is a positive aspect that Art. 31 para. 3 IEM-Dir. foresees that the DSO has to provide system users with the information they need for efficient access to, including use of, the system, and that DSOs and TSOs shall exchange all necessary data, according to Art. 53 para. 1 IEM-Reg.

- It is positive that the task of the EU DSO entity according to Art. 51 para 1 IEM-Reg. contain, inter alia, the contribution to the digitalisation of distribution systems including deployment of smart grids and intelligent metering systems, and the support of the development of data management, cybersecurity and data protection in cooperation with relevant authorities and regulated entities.

III. Market access

- Regarding Art. 5 it can be highlighted that non-discriminatory access for all market participants, including electricity generated from variable renewable sources, demand response and energy storage, be it individual or through aggregation is ensured, as well as the possibility of the participation in the procurement of balancing capacity through aggregation.

- Art. 6 para. 2 IEM-Reg. provides that day-ahead and intraday markets are organised in such a way as to ensure that all markets participants are able to access the market individually or through aggregation.

- Although the Clean Energy package does not address aFRR in particular, according to Art. 17, 31 and 40 IEM-Dir., access to balancing markets has to be guaranteed, inter alia through aggregators. TSOs and DOSs are obliged to a transparent, non-discriminatory and market-based treatment, which is a positive aspect for aggregators working in this area.

- It can be highlighted positively that Art. 15 IEM-Dir. did follow the Parliament's position as the final version regulates that final customers are entitled to act as active customers either directly or through aggregation, with-

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out being subject to disproportionate or discriminatory technical and administrative requirements, procedures and charges and network charges that are not cost reflective.

- It is a positive aspect that Art. 17 para. 3 lit. a) IEM-Dir. guarantees the right for each market participant engaged in aggregation, including independent aggregators, to enter electricity markets without consent from other market participants.

- It is positive that regarding to Art. 17, Member States shall ensure that technical characteristics for participation of demand response in all electricity markets on the basis of the technical requirements of these markets and the capabilities of demand response are defined, and that these have to include the participation of aggregated loads.

- Related to the financial responsibility for imbalances for active consumers and market participants through aggregators (Art. 15 and 17 IEM-Dir.), and the possible compensation payment induced imbalances (Art. 17 para. 3 lit. db) IEM-Dir.), one can say that although on the one hand financial responsibility is crucial for a balanced energy market, on the other hand, aggregators shall not be target of disproportional costs. In this context it is positive that in respect of compensation payments, Art. 17 provides that such payments shall not create a barrier for market entry of market participants engaged in aggregation or a barrier for flexibility.

IV. Self-consumption

- Art. 21 RED II creates several rights for renewable self-consumers, renewable self-consumers, individually or through aggregators, as self-consumers are guaranteed to not be subject to, in relation to the electricity they consume from or inject into the grid, to discriminatory or disproportionate procedures and charges and to network charges that are not cost-reflective, and in relation to their self-generated renewable electricity which remains within their premises, to discriminatory or disproportionate procedures and any charge or fee. (However, exceptions are possible under given circumstances).

- Although the promotion of self-consumption is favourable, it possibly would have been too far going to exempt self-consumers from any charge, fee, or tax in the long view in reference to market distortions etc., as the Parliament proposed.

- The proposal by the Parliament that Member States shall put in place an enabling framework to promote and facilitate the development of renewable self-consumption based on an assessment of the existing unjustified barriers to and the potential of renewable self-consumption in their territories and energy networks. Found its way in the final version, which is a positive aspect.

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- Regarding the spatial limits, it can be highlighted that renewable self-consumers located in the same building, including multi-apartment blocks, are entitled to engage jointly and are allowed to arrange sharing of renewable energy that is produced on their site or sites between themselves, without prejudice to applicable grid costs and other relevant charges, levies and taxes to each renewable self-consumer if applicable. But Member States are allowed to differentiate between renewable self-consumers and jointly acting renewable self-consumers. However, any different treatment towards consumers participating in joint self-consumption shall be proportionate and duly justified.

V. (Citizens/Renewable) Energy Communities

- Citizens energy communities and renewable energy communities are benefited in Art. 16 IEM-Dir. and Art. 22 RED II. It would have been a positive aspect, if it would be highlighted in Art. 16 IEM-Dir. that citizens energy communities can access all organised markets either directly or through aggregators.

- Regarding citizens energy communities it can be highlighted that they are entitled to share electricity from generation assets within the community, and that participation is open and voluntary.

- Regarding renewable energy communities, it is important to point out that the Council's position found its way in the final version, being the only one mentioning aggregators and, in particular that renewable energy communities shall be able to access all energy markets either directly or through aggregation in a non-discriminatory manner in Art. 22 para. 1 lit. i) RED II, which is a favourable addition to Art. 22 RED II. Moreover renewable energy communities have the right to generate, consume, store and sell renewable energy, including through power purchase agreements, and to arrange sharing of renewable energy within the community that is produced by the production units owned by the community.

  It shall be mentioned that Art. 22 RED II provides that Member States shall provide an enabling framework to promote and facilitate the development of renewable energy communities.

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Annex I: Definitions

The following chapter provides an overview of relevant definitions regarding the discussed topics in the BestRES project. It shall help to understand the following analysis.

I. IEM-Reg./Dir.

In general:
(…) this is because most generation from renewables can only be accurately forecasted shortly before the actual production (due to weather uncertainties). **The creation of markets which allow participation at short notice before actual delivery (so-called "intraday" or "balancing" markets)** are a crucial step to enable RES-E producers to sell their energy at fair terms and it will also increase liquidity in the market. (…)

(…) It also sets out the main legal principles for electricity trading rules within **different trading timeframes (balancing, intraday, day-ahead and forward markets)** (…)

Recital 7 IEM-Reg.:
Regulatory frameworks have developed, allowing electricity to be traded across the Union. That development has been supported by the adoption of several network codes and guidelines for the integration of the electricity markets. Those network codes and guidelines contain provisions on market rules, system operation and network connection. To ensure full transparency and increase legal certainty, the main principles of market functioning and capacity allocation in the balancing, intraday, day-ahead and forward market timeframes should also be adopted pursuant to the ordinary legislative procedure and incorporated in a single act.

Art. 2 No. 37 IEM-Dir.:
'**Ancillary service**' means a service necessary for the operation of a transmission or distribution system **including balancing and non-frequency ancillary services** but not congestion management;

Art. 2 No. 38 IEM-Dir.:
'**Non-frequency ancillary service**' means a service used by a transmission or distribution system operator for steady state voltage control, fast reactive current injections, inertia for local grid stability, short-circuit current, and black start capability and island operation capability;

Art. 2 para. 2 lit. i) to m) IEM-Reg.:
'**balancing**' means all actions and processes, in all timelines, through which transmission system operators ensure, in a continuous way, maintenance of the system frequency within a predefined stability range and compliance with the amount of reserves needed with respect to the required quality;

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'**balancing service provider**' means a market participant providing either or both balancing energy and balancing capacity to transmission system operators;

'**balancing energy**' means energy used by transmission system operators to perform balancing;

'**balancing capacity**' means a volume of capacity that a balancing service provider has agreed to hold to and in respect to which the balancing service provider has agreed to submit bids for a corresponding volume of balancing energy to the transmission system operator for the duration of the contract;

'**balance responsible party**' means a market participant or its chosen representative responsible for its imbalances in the electricity market;

Art. 4 para. 1 IEM-Reg.:
All market participants shall be responsible for the imbalances they cause in the system. To that end, the market participants **shall either be balance responsible parties or contractually delegate their responsibility to a balance responsible party of their choice**. Each balance responsible party shall be financially responsible for its imbalances and strive to be balanced or help the power system to be balanced

Art. 2 para. 2 lit. q) IEM-Reg.:
'**prequalification process**' means the process to verify the compliance of a provider of balancing capacity with the requirements set by the transmission system operators;

Art. 2 para. 2 lit. r) IEM-Reg.:
'**reserve capacity**' means the amount of frequency containment reserves, frequency restoration reserves or replacement reserves that needs to be available to the transmission system operator;

Conclusion:

- Ancillary service includes balancing services and non-frequency ancillary services.
- Balancing services in the earlier regulation and directive are now called ancillary services.
- Ancillary service' means a service necessary for the operation of a transmission or distribution system.
- Balancing markets (as well as intraday markets) are markets which allow participation at short notice before actual delivery.
- Balancing, day-ahead, intraday markets and forward markets are markets that have different trading timeframes.

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- To enter balancing markets, a prequalification is necessary ('prequalification process' means the process to verify the compliance of a provider of balancing capacity with the requirements set by the transmission system operators).

- 'Non-frequency ancillary service' means a service used by a transmission or distribution system operator for steady state voltage control, fast reactive current injections, inertia and black start capability.

- aFRR = automatic frequency restoration reserve.

- 'reserve capacity' means the amount of, inter alia, frequency restoration reserves that needs to be available to the transmission system operator.

II. The guideline on electricity transmission system operation (SO-GL)

The terms FCR, aFRR and mFRR are defined/mentioned in the SO-GL by the Commission. It says:

In Art. 3 para. 2:
No. 6: ’frequency containment reserves’ or **‘FCR’** means the active power reserves available to contain system frequency after the occurrence of an imbalance;

➔ This is the first step, activated within seconds, to contain the system frequency.

No. 7: ‘frequency restoration reserves’ or **‘FRR’** means the active power reserves available to restore system frequency to the nominal frequency and, for a synchronous area consisting of more than one LFC area, to restore power balance to the scheduled value;

aFRR = automatic frequency restoration reserve

➔ This is the second step, activated within a few minutes, to restore the system frequency.

mFRR = manual frequency restoration reserve

➔ This is the third step, if aFRR is not sufficient to restore the system frequency; mFFR requires a manual activation.

No. 12: ‘load-frequency control area’ or **‘LFC area’** means a part of a synchronous area or an entire synchronous area, physically demarcated by points of measurement at interconnectors to other LFC areas, operated by one or more TSOs fulfilling the obligations of load-frequency control;

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No. 42: 'frequency restoration process' or **'FRP'** means a process that aims at restoring frequency to the nominal frequency and, for synchronous areas consisting of more than one LFC area, a process that aims at restoring the power balance to the scheduled value;

Article 145: Automatic and manual frequency restoration process:

- para. 1: Each TSO of each LFC area shall implement an automatic frequency restoration process ('aFRP') and a manual frequency restoration process ('mFRP').

- para. 4: The aFRP shall be operated in a closed-loop manner where the FRCE is an input and the setpoint for **automatic FRR** activation is an output. The setpoint for automatic FRR activation shall be calculated by a single frequency restoration controller operated by a TSO within its LFC area. For the CE and Nordic synchronous areas, the frequency restoration controller shall: (…)

- para. 5: The mFRP shall be operated through instructions for **manual FRR** activation in order to fulfil the control target in accordance with Article 143(1).

Primary balancing power:
In the event of a power imbalance within the entire UCTE network system, the primary balancing power is enabled automatically according to standardised criteria. Consequently, there is no information on the primary balancing power actually accessed by TenneT TSO GmbH.

Secondary balancing power:
The secondary balancing power for a control area is requested by automatic access by the transmission grid operator that is affected. The amount of secondary balancing power accessed by TenneT TSO GmbH is shown under the actually accessed secondary balancing power.

Tertiary control reserve:
The tertiary control reserve is requested by telephone and based on a timetable by the affected transmission grid operator. The amount of tertiary control reserve accessed by TenneT TSO GmbH is shown under the actually accessed tertiary control.[5]

Primary control reserve (PCR) is the product that can be activated the soonest. Activation is automatic, decentralised and frequency-controlled. The primary control energy provided is not measured and settled. In case of an power plant outage all supplliers of PCR within the european synchronious area activate PCR without an intervention of the TSO. The balancing area with the outage receives the missing energy from the other PCR delivering balancing areas. This results in a system balance deviation.

[5] https://www.tennettso.de/site/en/Transparency/publications/network-figures/use-of-balancing-power.

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In case of system balance deviations, the **secondary control reserve** (SCR) is used. This is a central and automated process (load-frequency controller) controlled by the (German) transmission system operators. The use of secondary control energy should not only result from the complete failure of installations. Continuously occurring deviations between forecast and actual current are also covered with secondary control energy. If the demand for secondary control reserve is too great or if it does not decrease, **tertiary control reserve** (TCR) is activated. SCR is then available again. The interaction between the different control reserves and the procurement process are described on regelleistung.net.[6]

[6] https://www.50hertz.com/en/Markets/Balancing.

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Annex II: Current provisions

The following chapter offers a compendium of the relevant current provisions related to market access and participation, self-consumption and local settlement, and data protection and access. The aim is to get a better perspective on the changes resulting from the Clean Energy Package.

I. Market access and participation

1. REGULATION (EC) No 714/2009

Recital 3:
(…) In particular, non-discriminatory network access and an equally effective level of regulatory supervision do not yet exist in each Member State, and isolated markets persist.

Article 14 - Charges for access to networks:
Charges applied by network operators for access to networks shall be transparent, take into account the need for network security and reflect actual costs incurred insofar as they correspond to those of an efficient and structurally comparable network operator and are applied in a non-discriminatory manner. Those charges shall not be distance-related.

Article 24 - Commission report:
The Commission shall monitor the implementation of this Regulation. (…) In particular the report shall examine to what extent this Regulation has been successful in ensuring non-discriminatory and cost-reflective network access conditions for cross border exchanges of electricity in order to contribute to customer choice in a well-functioning internal market in electricity and to long-term security of supply, as well as to what extent effective locational signals are in place.

2. DIRECTIVE 2009/72/EC

Recital 35:
In order to ensure effective market access for all market players, including new entrants, non-discriminatory and cost-reflective balancing mechanisms are necessary. As soon as the electricity market is sufficiently liquid, this should be achieved through the setting up of transparent market-based mechanisms for the supply and purchase of electricity, needed in the framework of balancing requirements. In the absence of such a liquid market, national regulatory authorities should play an active role to ensure that balancing tariffs are non-discriminatory and cost-reflective. At the same time, appropriate incentives should be provided to balance the in-put and off-take of electricity and not to endanger the system. Transmission system operators should facilitate participation of final customers and final customers' aggregators in reserve and balancing markets.

Article 1 - Subject matter and scope:
This Directive establishes common rules for the generation, transmission, distribution and supply of electricity, together with consumer protection provisions,

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with a view to improving and integrating competitive electricity markets in the Community. It lays down the rules relating to the organisation and functioning of the electricity sector, open access to the market (…)

Art. 15 - Dispatching and balancing:
Para. 7: Rules adopted by transmission system operators for balancing the electricity system shall be objective, transparent and non-discriminatory, including rules for charging system users of their networks for energy imbalance.

Art. 25 – Tasks of distribution system operators:
Para. 6: Where a distribution system operator is responsible for balancing the distribution system, rules adopted by it for that purpose shall be objective, transparent and non-discriminatory, including rules for the charging of system users of their networks for energy imbalance.

Article 32 - Third-party access:
Member States shall ensure the implementation of a system of third party access to the transmission and distribution systems based on published tariffs, applicable to all eligible customers and applied objectively and without discrimination between system users.

Article 36 - General objectives of the regulatory authority:
In carrying out the regulatory tasks specified in this Directive, the regulatory authority shall take all reasonable measures in pursuit of (…) facilitating access to the network for new generation capacity, in particular removing barriers that could prevent access for new market entrants and of electricity from renewable energy sources; (…)

Art. 37 - Duties and powers of the regulatory authority:
The regulatory authorities shall be responsible for fixing or approving sufficiently in advance of their entry into force at least the methodologies used to calculate or establish the terms and conditions for: (…) the provision of balancing services which shall be performed in the most economic manner possible and provide appropriate incentives for network users to balance their input and off-takes. The balancing services shall be provided in a fair and non-discriminatory manner and be based on objective criteria; (…)

Article 47 – Reporting:
The Commission shall monitor and review the application of this Directive and submit an overall progress report to the European Parliament and the Council (…)
The progress report shall cover at least: (…) the extent to which the unbundling and tarification requirements contained in this Directive have been successful in ensuring fair and non-discriminatory access to the Community's electricity system and equivalent levels of competition, as well as the economic, environmental and social consequences of the opening of the electricity market to customers; (…)
The Commission shall, by 1 January 2006, forward to the European Parliament and Council, a detailed report outlining progress in creating the internal electricity market. That report shall, in particular, consider: the existence of non-discriminatory network access, (…)

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II. Self-consumption, local settlement and aggregation

DIRECTIVE 2009/72/EC

Article 3 - Public service obligations and customer protection:
(…) Nothing in this Directive shall prevent Member States from strengthening the market position of the household, small and medium-sized consumers by promoting the possibilities of voluntary aggregation of representation for that class of consumers.
The first subparagraph shall be implemented in a transparent and non-discriminatory way and shall not impede the opening of the market (…)

Article 6 - Promotion of regional cooperation:
Member States as well as the regulatory authorities shall cooperate with each other for the purpose of integrating their national markets at one or more regional levels, as a first step towards the creation of a fully liberalised internal market. (…)

III. Data protection and access

1. REGULATION (EC) No 714/2009

Article 15 - Provision of information:
Para. 4: Transmission system operators shall publish relevant data on aggregated forecast and actual demand, on availability and actual use of generation and load assets, on availability and use of the networks and interconnections, and on balancing power and reserve capacity. For availability and actual use of small generation and load units, aggregated estimate data may be used.
Para. 5: The market participants concerned shall provide the transmission system operators with the relevant data.

Article 20 - Provision of information and confidentiality:
(…) regulatory authorities shall, on a regular basis, provide information on the actual costs incurred by national transmission system operators, as well as data and all relevant information relating to the physical flows in transmission system operators' networks and the cost of the networks. (…)

2. DIRECTIVE 2009/72/EC

Article 3 - Public service obligations and customer protection:
Para. 5: Member States shall ensure that: (…) customers are entitled to receive all relevant consumption data. (..)

Article 36 - General objectives of the regulatory authority:
(…) the regulatory authority shall take all reasonable measures in pursuit of (…) helping to achieve high standards of universal and public service in electricity supply, contributing to the protection of vulnerable customers and contributing to the compatibility of necessary data exchange processes for customer switching.

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Article 37 - Duties and powers of the regulatory authority:
The regulatory authority shall have the following duties: (…) ensuring access to customer consumption data, the provision, for optional use, of an easily understandable harmonised format at national level for consumption data, and prompt access for all customers to such data under point (h) of Annex I; (…) contributing to the compatibility of data exchange processes for the most important market processes at regional level. (…)

3. GUIDELINES ON THE MANAGEMENT AND ALLOCATION OF AVAILABLE TRANSFER CAPACITY OF INTERCONNECTIONS BETWEEN NATIONAL SYSTEMS

5.1. TSOs shall publish all relevant data related to network availability, network access and network use, (…)

5.5. TSOs shall publish all relevant data concerning cross-border trade on the basis of the best possible forecast. In order to fulfil that obligation the market participants concerned shall provide the TSOs with the relevant data. (…)

5.9. All information published by the TSOs shall be made freely available in an easily accessible form. All data shall also be accessible through adequate and standardised means of information exchange, to be defined in close cooperation with market participants. The data shall include information on past time periods with a minimum of two years, so that new market entrants may also have access to such data.

5.10. TSOs shall exchange regularly a set of sufficiently accurate network and load flow data in order to enable load flow calculations for each TSO in their relevant area. The same set of data shall be made available to the regulatory authorities and to the Commission upon request. The regulatory authorities and the Commission shall ensure the confidential treatment of that set of data, by themselves and by any consultant carrying out analytical work for them on the basis of those data.

IV. Result

In conclusion it can be said that effective and open non-discriminatory market access for all market players (even mentioning the participation of final customers and final customers' aggregators in reserve and balancing markets), and removing barriers that could prevent access for new market entrants and of electricity from renewable energy sources is an important topic in the current EU legislation. However, the provisions are not particularly related to aggregators, self-consumers or local market participants as the upcoming Clean Energy Package is. Thus, the discussed provisions regarding the improved BMs are likely to facilitate the participation of these actors to a completely new level.

In the area of protection and access to data, there are also relevant current provisions regarding the publishing of relevant data, and the access to consumption data. Again they are not related to aggregators and do not refer to the exchange

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of data as much as the Clean Energy Package does. Particularly eligible parties that include aggregators or DSOs do not exist.

Thus in comparison with the current EU legislation the Clean Energy Package is likely to set more detailed obligations for Member States and expand guarantees that are helpful with respect of the legal and regulatory barriers impeding the implementation of the improved BMs.

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Technical References

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Project Coordinator	Silvia Caneva WIP silvia.caneva@wip-munich.de
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* PU = Public

PP = Restricted to other programme participants (including the Commission Services)

RE = Restricted to a group specified by the consortium (including the Commission Services)

CO = Confidential, only for members of the consortium (including the Commission Services)

v	Date	Beneficiary	Authors
1.0	21/02/2019	SUER	Fabian Pause and Maximilian Wimmer
2.0	25/02/2019	WIP	Silvia Caneva

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