

CEER

**Council of European
Energy Regulators**



Fostering energy markets, empowering **consumers**.

Flexibility Task Force

Principles for valuation of flexibility

Position Paper

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Abstract

This document (C16-FTF-09-03) seeks to support discussions on CEER's input to the Energy Union (Winter Package). It is intended to serve as a position paper stating the principles for further valuation of flexibility in the European electricity market.

Target Audience

European Commission, NRAs; network operators, energy market participants, Member States and other interested parties.

Keywords

Electricity, flexibility, reliability, demand side response, demand side flexibility

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Related Documents

CEER documents

- [Scoping of Flexible Response](#), 3 May 2016, Ref. C16-FTF-08-04
- [Final CEER 2016 Work Programme](#), 6 January 2016, Ref. C15-WPDC-27-06
- [The Future Role of DSOs – A CEER Conclusions Paper](#), 13 July 2015, Ref: C15-DSO-16-03
- [Advice on Customer data management for better retail market functioning](#), 19 March 2015, Ref: C14-RMF-68-03
- [Final CEER 2015 Work Programme](#), 9 January 2015, Ref. C14-WPDC-26-05
- [CEER Advice on Ensuring Market and Regulatory Arrangements help deliver Demand Side Flexibility](#), 26 June 2014, Ref: C14-SDE-40-03

Agency for the Cooperation of Energy Regulators documents

- [ACER in cooperation with CEER, Energy regulation: A Bridge to 2025](#), September 2014
- [Recommendation of the Agency for the Cooperation of Energy Regulators no. 03/2015 on the network code on electricity balancing and Annexes](#), 22 July 2015
- [ACER Market Monitoring Report 2015](#), November 2015.
- [Joint ACER-CEER response](#) to the European Commission's Consultation on a new Energy Market Design, 7 October 2015.

External documents

- [Demand Side Flexibility: The Potential Benefits and State of Play in the European Union \(finale report for ACER\)](#), Cambridge Economic Policy Associates Ltd, TPA Solutions & Imperial College London, 29 September 2014
- [Regulatory Recommendations for the Deployment of Flexibility – EG3 Report](#), Smart Grid Task Force, January 2015
- [Refinement of Recommendations – Annex to EG3 Report](#), Smart Grid Task Force, September 2015
- [Mapping Demand Response in Europe Today 2015](#), SEDC, 30 September 2015
- [Directive 2012/27/EU](#) of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC
- [Commission Regulation \(EU\) 2015/1222](#) of 24 July 2015 establishing a guideline on capacity allocation and congestion management
- [Draft Regulation establishing a network code on demand connection \(DCC\)](#), 16 October 2015
- [Draft Regulation establishing a Network Code on Requirements for Grid Connection of Generators \(RfG\)](#), 26 June 2015
- [Draft Regulation establishing a guideline on electricity transmission system operation](#), 22 January 16)
- [Launching the public consultation process on a new energy market design](#), Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, European Commission, 15 July 2015
- [2014 Survey on Ancillary Services Procurement and Electricity Balancing Market Design](#), ENTSO-E, January 2015
- [Capacity mechanisms in individual markets within the IEM](#), Cowi, E3M-Lab and , THEMA Consulting Group for DG ENER, June 2013



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EXECUTIVE SUMMARY

Background

Following CEERs discussion paper “Scoping of flexible response¹”, this paper investigates different regulatory arrangements for flexibility, with a focus on regulatory arrangements for the participation of demand response and decentralised flexibility.

Objectives and Contents of the Document

The regulatory framework should allow all grid users to draw value from their flexibility, including through demand response and decentralised generation. This paper introduces principles that support the efficient valuation of flexibility. Although the focus in this paper is on demand response, many of the principles are general.

The paper aims to provide a common understanding of obstacles and possibilities for increased flexibility, and to contribute positively to any possible upcoming proposals affecting the regulatory framework.

Level playing field and market access for all forms of flexibility should be established, that demand response becomes really a choice for all customers. In the different MSs the conditions differ, therefore different measures may be needed.

The main principles to overcome barriers to flexibility are general and include aspects like market arrangements, product requirements, metering and settlement, aggregation, proper verification and information sharing and exchange.

If models for *independent flexibility providers* (IFP) are chosen in national frameworks further principles and recommendations are needed. This principles for markets with IFP are only relevant if models for IFPs are introduced in national markets and cover aspects like the clarification of the role in the market arrangements, balance responsibility, assignment and correction of change in consumption/ production and imbalances but also payments and extended information exchange.

Brief summary of the conclusions

Market conditions vary across MSs. These differences have to some extent driven the adoption of different measures across MSs to support flexibility. NRAs agree that the balance of benefits and costs of regulatory models for the introduction of an IFP are related to these market conditions. Because of these differences, a uniform EU-wide solution on how to improve flexibility may not be cost-efficient for all markets. NRAs have agreed more detailed principals that should be adhered to where regulatory models for IFPs are introduced.

More work is needed, especially in the area of capacity remuneration mechanisms and strategic reserves as well as (local) grid use of flexibility deliverables are planned.

¹ [Scoping of Flexible Response](#), 3 May 2016, CEER, Ref. C16-FTF-08-04



1 Introduction

This paper is a follow up to the CEER discussion paper “Scoping of flexible response”², and investigates different regulatory arrangements for flexibility, with a focus on regulatory arrangements for the participation of demand response and decentralised flexibility. The paper aims to provide a common understanding of obstacles and possibilities for increased flexibility, and to contribute positively to any possible upcoming proposals affecting the regulatory framework. Although the focus in this paper is on demand response, many of the principles are general.

1.1 Level playing field and market access – demand response as a choice for all customers

From an efficiency point of view, it is vital that resources from both the generation and demand side have access to the market on equal terms, and that the barriers for market access are as low as possible. With an efficient market design, this should ensure that the most efficient resources are utilised first in serving the system’s need for flexibility.

Traditionally, the systems’ flexibility needs have mostly been served by flexibility from the generation side. In the past, this has served the needs. But taking into account ongoing changes in the energy system, it is increasingly important that all forms of flexibility have market access and are able to compete on equal terms.

A dominant provision of flexibility from the generation side could in theory merely reflect the lower cost provision of flexibility from the generation side compared with other forms of flexibility. On the other hand, if the limited use of flexibility from the demand side is caused by unjustifiable barriers, regulators should try to identify those barriers and investigate what could be done to reduce them.

This paper aims to give some guidance of what those barriers could be, how they can be identified, and what regulators could do to reduce them, in order to ensure that all resources have access to the markets on equal terms.

From CEER’s point of view, the main principle which needs to be fulfilled in order for demand side flexibility to be efficiently utilised, is that all customers have the **ability** to take actively part in the market, through implicit and/or explicit participation. Further, CEER acknowledge that the decision whether or not to take an active part in the market should be left for the customer’s own **choice**.

In this paper we view demand response from the market perspective³, noting the distinction between implicit demand response and explicit demand response may differ from the customer perspective.

² Scoping of Flexible Response, 3 May 2016, Ref. C16-FTF-08-04

³ From the customer perspective though, explicit and implicit demand response may be viewed differently than from the market perspective. From the customer perspective, demand response may be regarded as explicit if the customer receives an explicit payment for the change of its load. Thus, if e.g. a BRP explicitly controls and changes the load of the customer in order to optimise its imbalances against the imbalance settlement price, and remunerates the customer for this action, it can be regarded as implicit demand response for the market perspective, but explicit demand response from the customer perspective.



By **explicit demand response**, we mean demand response sold as an explicit product (volume) in the different market segments, or as network related services to system operators. Prominent examples are the sale of balancing energy to the Transmission System Operator (TSO) and services for congestion management purposes. But also energy in the day ahead and intraday markets and capacity in various capacity markets can be regarded as explicit demand response. In order to sell explicit demand response, an explicit control and verification of the load is typically required.

By **implicit demand response**, we mean demand response not sold as an explicit product. Instead, the demand response is implicitly utilised in order for the customer and/or its balancing responsible party to optimise its network costs, energy costs or imbalance charges. Prominent examples are optimisation of imbalances against the imbalance settlement price or optimising network costs against dynamic network tariffs. Implicit demand response can either be realised by provision of price signals to the customer, such as time-of-use retail pricing and dynamic network tariffs, but also by an explicit control and change of the load.

CEER considers it essential that market arrangement and regulations provide all customers with the ability to provide demand response to the market, both implicit and explicit. This ensures a level playing field for all types of flexibility and allows the system's flexibility needs to be met at lowest cost. CEER proposes that the following principles should be met in order to ensure that all customers have the ability and choice to take an active part in the market, and to efficiently provide implicit and explicit demand response⁴.

Principles to ensure consumers have the ability to offer their flexibility:

1. Customers should at least have the choice to be ***metered and settled*** at the same time resolution as the imbalance period in national markets⁵when it is technically possible;
2. Customers should not face any undue barriers if they chose to be exposed to ***time-of-use retail price contracts***;
3. Customers should have access to ***easy supplier switching*** procedures, and supplier switching should be performed in a timely manner;
4. ***Product requirements*** should be designed to support system efficiency, taking into account the extent to which requirements (for instance lower bid size thresholds) may enable a wide range of flexibility resources;
5. ***Aggregation of resources*** should be allowed, to the extent considered efficient and secure; and
6. Customers ***connected to the distribution network*** should have the possibility to participate in all market arrangements, to the extent considered efficient and secure.

⁴ For further information see also CEERs publication on [Well-functioning retail markets](#), 14 October 2015, CEER, Ref: C15-SC-36-03.

⁵ E.g. 15, 30 or 60 minutes.



In the following chapters these principles will be further elaborated on

1.2 Different conditions – different measures

CEER recognises that the different national retail markets throughout Europe currently differ to a large extent, both in degree of competitiveness and development. The difference can to some degree be explained by the organisational structure which was in place before the deregulation of power markets.

Figure 1 below illustrates that some European retail markets may be characterised by one or a few dominant suppliers, various degrees of regulated prices, a high prevalence of fixed prices, low rates of supplier switching, high transaction costs, low availability of information and low shares of flexible consumption, while other retail markets may be characterised by a large number of suppliers, fully deregulated retail prices, a high share of time-of-use price contracts, a high supplier switching rate, low transaction costs and high availability of information and a high share of flexible consumption. In reality, most national retail markets are probably somewhere between these extremes.

Characteristics	Variation between national retail markets	
Market structure	Few suppliers	Many suppliers
Price formation	Regulated	Deregulated
Dominant type of contracts	Fixed price	Time-of-use price
Switching rates	Low frequency	High frequency
Transaction cost	High costs	Low costs
Information availability	Low availability	High availability
Share of flexible consumption	Low share	High share

Figure 1 – Characteristics of national retail markets



These varying characteristics of the different national retail markets may help to explain why different measures to improve demand side flexibility are chosen in the different markets. These different characteristics may mean the costs and benefits of the same measure may significantly differ across Member States (MSs). CEER therefore acknowledges that National Regulatory Authorities (NRAs) justifiably have different views concerning which regulatory measures are considered efficient to implement in order to improve demand response. As an example, there may be lower incentives to develop innovative solutions in a market with only a few suppliers. And in other markets with numerous suppliers and high switching rates, the competition between suppliers may be sufficient to create incentives for such demand side flexibility solutions.

While CEER fully supports a target that regulatory and market arrangements should ensure that both implicit and explicit demand response are available as choices for all consumers, CEER also supports the right of each NRA to assess, choose and implement those measures which are considered relevant and cost-efficient for their national markets.

A case in point is the implementation of regulatory models for *independent flexibility providers* (IFP)⁶. These are considered efficient and necessary by some NRAs, and have now been implemented in a few MSs already, with the aim to ensure that customers are able to value their flexibility in the markets. In this paper, CEER therefore proposes some principles and recommendations, which NRAs could use as guidance if models for independent flexibility providers are chosen in their national framework.

At the same time, CEER acknowledges that the same measures to improve flexibility may not necessarily be cost-efficient for all national markets, given the fact that the national market characteristics still vary to a large extent. This is exemplified by the case that some NRAs believe that both implicit and explicit demand response can be developed at least equally efficiently through well-functioning retail market competition, without the implementation of specific regulatory measures for IFPs.

In the following chapters of this paper, CEER will elaborate on these perspectives, and describe the necessary conditions for an efficient provision of flexibility.

1.3 Overview and definitions

Flexibility is the ability of the power system to adapt to the growing fluctuations of supply and demand, while at the same time maintaining system reliability. Any power system presents some degree of flexibility, mostly based on historic system structures.

Flexibility can be considered from the top-down, identifying the challenges at system level and the instruments (as market arrangements) to cope with those challenges. Flexibility can also be considered bottom-up, at a more individual level (e.g. generator or consumer perspectives), to identify flexibility resources and their capabilities.

illustrates the various roles of flexibility in the electricity system.

⁶ Definition of “independent flexibility provider” which is a special form of an aggregator from CEER discussion paper “Scoping of flexible response”, 3 May 2016: A market player that values the flexibility of a consumer (implicitly or explicitly) independently from the customer’s retailer

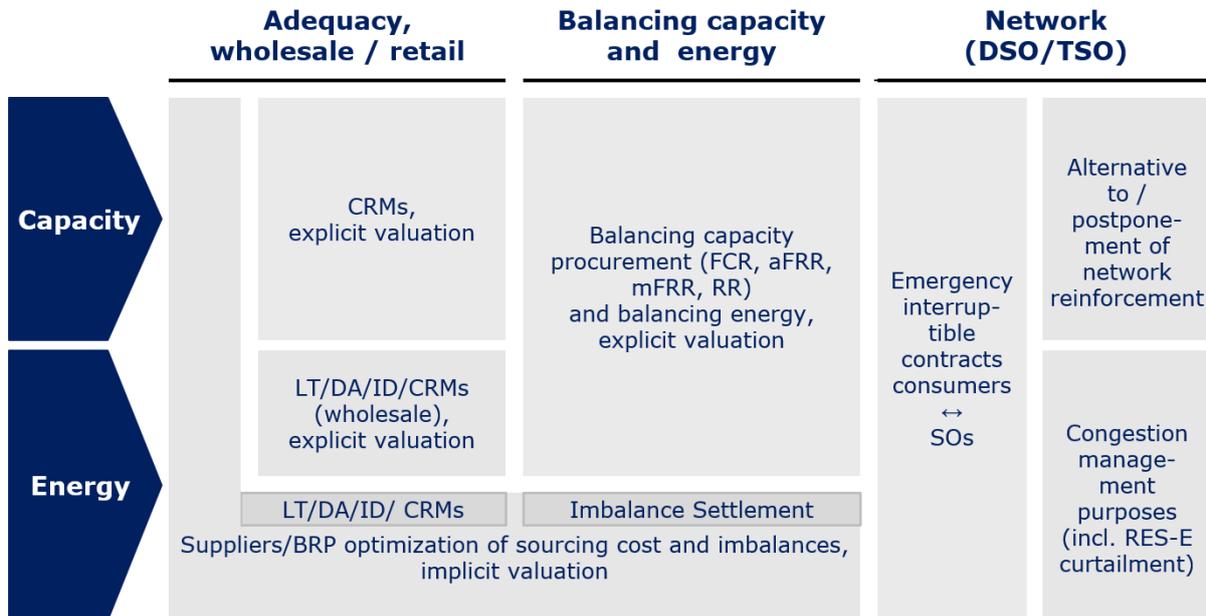


Figure 2 - Segments of the electricity system where flexibility may derive value

The next sections of this paper deal with general aspects of valuating flexibility, covering aspects applicable to all columns, and investigate in sub sections more detailed aspects related to markets and balancing.

2 Principles for valuing flexibility

It is vital to ensure a level playing field for all types of flexibility for all market participants, in order to maximise economic welfare and overall market efficiency. This section outlines options for valuing flexibility.

Barriers impeding the use of flexibility resources are multiple and complex. Principles to help to overcome these barriers are already listed in the introductory section. The following sections present these principles in more detail, introduce new principles from the market point of view, and elaborate on why these principles are necessary to give all customers a choice to provide both explicit and implicit demand response.

Table 1 lists the relevant principles for valuing flexibility. The first one, an overarching principle for achieving a level playing field, allows the value of flexibility to be efficiently realised from all resources. The other principles go into more detail in areas identified as high priority. All principles are applicable to the segments in Figure 2, though principles 2 and 5 apply to explicit valuation only and not to implicit valuation.



Table 1 - Principles to overcome barriers to flexibility

No.	Principle
1	Market arrangements (procurement conditions, market rules, market processes etc.) should not create undue barriers for efficient provision of flexibility.
2	Product requirements (bid size thresholds, duration etc.) should not create undue barriers for efficient provision of flexibility.
3	All national market systems should allow the metering and settlement of all grid users (independent from size) at the same time resolution as the imbalance settlement period.
4	Aggregation should be supported to the level considered as efficient and secure, independent from connection (DSO and TSO) and size of unit.
5	All explicit sale of flexibility must be subject to proper verification , meaning that measures are put in place to assure the proper delivery of the sold flexibility.
6	All consumers should have the right to share information to parties needing this information. If necessary to avoid negative effects of activated flexibility efficient methods for sharing of information exchange between market parties should be implemented.

The following sections give more detail on each principle including background information, consideration to the way forward for implementation, and where applicable, concrete recommendations.

Some of the aspects are already covered by Network Codes or Guidelines, notably in the guideline on electricity balancing (awaiting validation by EU MSs) and the guideline on electricity transmission system operation⁷ (load frequency control), which is validated by MSs and currently awaiting validation by European Parliament and Council). The principles below build upon these guidelines and highlight some further aspects in the light of creating a level playing field for all forms of flexibility.

2.1 Principle 1: Market arrangements should not create undue barriers

This overarching principle supports a level playing field for all kinds of resources. Current market arrangements often still suffer from a bias to the characteristics of flexibility sources of the past, and often they introduce undue barriers especially for decentralised flexibility. Additionally, the processes for valuing flexibility are mostly not standardised, and established market processes do not include the necessary arrangements to ensure a level playing field. There is a high risk that this may cause inefficiencies and hamper a cost efficient use of all available flexibility resources.

Looking forward, a detailed analysis in every market and for every segment should be considered, taking into account experiences from (new) market players valuing decentralised flexibility. As an aim, market arrangements should be designed to support system efficiency, taking into account the extent to which requirements facilitate the broadest range of flexibility resources.

2.1.1 Focus: balancing

We note the importance of the principle below, established in the draft guideline on electricity balancing, which is needed to support an efficient balancing of the system.

⁷ https://ec.europa.eu/energy/sites/ener/files/documents/Draft%20GLSysOP_230216_for%20website.pdf



The balancing markets should be open to all types of flexibility resources (demand, generation, storage) in any timeframe on a level playing field.

In some MSs, the procurement framework may still be designed to take into account only “traditional” sellers of balancing services (power plants). This may cause inefficiencies. It is therefore important that all conditions to deliver balancing services to the TSO are analysed and reformed in order to accommodate all kinds of flexibility on a level playing field, whenever efficiently possible.

Examples could include auction frequency and timing for balancing capacity, the possibility of submitting short term energy only bids, etc. Other important considerations may include the efficient accommodation of small generation and consumption units in terms of prequalification for similar units and for pool enhancement, etc.

2.2 Principle 2: Product requirements should not create undue barriers

As a complement to the need for general market arrangements supporting a level playing field for all kind of flexibility resources, special attention should be given to product requirements and their influence on different flexibility resources possibility to compete on the market. For distributed resources and especially for demand side flexibility, bid size thresholds often constitute an important barrier. Other flexibility resources, such as battery storage, are sensitive to activation requirements (frequency and duration). Examples of measures which might be needed to avoid undue barriers include:

- Lowering bid sizes to the extent necessary for efficient market processes or caused by technical reasons; and
- Reconsidering time characteristics (duration, availability windows, frequency of activations, requirements for symmetric bidding) which have primarily been specified to meet characteristics of conventional generation.

2.2.1 Focus: balancing

In relation to the development of the guidelines on electricity balancing, requirements for standard products for balancing energy have been discussed; they should ensure a level playing field for all kinds of flexibility resources.

2.3 Principle 3: Metering and settlement at same time resolution as imbalance settlement period

In some market systems, metering and settlement is not facilitated at the same interval as the imbalance settlement period for all grid connected users. In many MSs there is a threshold for power or yearly consumption, which may imply that only larger grid users have the possibility to be metered and settled at the same time resolution as the imbalance settlement period. Even when smart meters are installed, they might not be systematically used to remotely read the consumption and serve as basis for imbalance settlement.



Without a choice for the market participants to be properly metered and settled, consumers and producers will not have correct incentives to adapt to price signals (e.g. market prices), and to provide their flexibility. If this is not a choice, most of the mechanisms for valuing flexibility will not work properly, since standard load profiles are not able to correctly take changes of consumption and production into account⁸.

Metering and settlement at the same time resolution as the imbalance settlement period should at least be available as a possibility for those customers with a clear wish to do so, though a full roll-out of smart meters may be subject to a cost benefit analysis, and the distribution of cost related to installation of smart meters should be left for national decisions.

2.4 Principle 4: Aggregation should be supported

Aggregation may play a major role in allowing access to the market, especially for smaller and decentralised market participants, e.g. through helping to overcome minimal bid sizes and time requirements (e.g. ramp, duration). Currently aggregation is often limited (e.g. only in DSO-perimeter, minimum size of units, etc.).

Some limits of aggregation may have technical or organisational justification (e.g. pooling only inside the same control area) and thus may require more time to be overcome, but all limitations which are not justified by system efficiency reasons or other valid reason should be removed.

2.4.1 Focus: balancing

To support the utilisation of new kinds of flexibility, the costs and benefits of modification of current rules such as requirements for real time monitoring, product design elements (for example ramp rates or duration at pool level rather than each individual unit) should be considered. However, large individual customers should be able to participate without the need for an aggregator, provided they meet the requirements.

2.5 Principle 5: Explicit sale of flexibility should be subject to verification

Valuing flexibility can introduce a risk of undue behaviour if market processes are not designed to facilitate all forms of flexibility. To guarantee proper verification a change of framework may be necessary. In other cases verification is already implicitly provided by current arrangements, e.g. in balancing.

Specific verification processes should only be implemented when this is necessary to ensure a secure system operation and proper response from the provider, and to avoid unnecessary costs for the system or other market participants.

2.5.1 Focus: markets

Customers can draw value from their flexibility in wholesale markets. Yet, to be developed at a massive scale, several requirements are needed. As opposed to balancing, the affected amount of energy is not limited. Therefore an analysis of the market arrangements and ongoing monitoring of behaviour of market participants should be done to prevent misuse.

⁸ In some MSs measurements from private metering devices or other measures are used to facilitate demand response with standard load profiles.



If further measures are deemed necessary, then processes could be implemented that are for instance analogous to prequalification in balancing. Another example of a potential measure to prevent misuse would be a limit for changed energy consumption/production per metering point, e.g. historical max load/generation or a part of that.

2.5.2 Focus: balancing

To emphasise a point already included in the network code, it may be appropriate to ensure that purchasing conditions (prequalification rules), monitoring and market processes safeguard proper verification to prevent additional verification measures.

2.6 Principle 6: Efficient methods for sharing information are required

For efficient valuation of flexibility there is a need for information, e.g. measured values per imbalance settlement period for the grid user (to compare offers, for monitoring, etc.). Additionally, the change of consumption/production can have adverse effects, e.g. for the system operator, which can be abated or at least reduced through efficient data exchange.

When additional data exchange is established for this reason, only necessary information should be included, so far as possible aggregated and with minimum time requirements⁹, to ensure efficient market processes and ensure confidentiality between market participants competing over flexibility services. This is at least the case for the connected system operator (DSO or TSO). The information exchanged could include energy more/less consumed per imbalance settlement period as schedule after real time or in real time for the system operator and only where justified.

3 Principles if independent flexibility providers are introduced

As elaborated in section 1.2 **Error! Reference source not found.**, one uniform EU-wide solution on how to improve flexibility may not be cost-efficient for all markets, and there should therefore be optionality, for example on whether models for IFPs should be introduced in the national framework. Below we define some principles which could be necessary to implement if models for IFP are introduced, and which need to supplement the general principles from the previous chapter. These additions are listed in Table 2. The number of the principle corresponds with the number of the general principle in Table 1.

Table 2 - Principles for markets with IFPs

No.	Principle
1a	When IFPs are introduced in the national market, their role should be clarified in the market arrangements.
1b	When IFPs are introduced in the national market, they must have balance responsibility , either through their own balancing perimeter or as a part of an existing balancing perimeter (or balance group).
1c	When IFPs are introduced in the national market, based on proper verification, assignment and correction of change in consumption/ production and imbalances but also payments between all balance responsible parties and optionally involving the customer, in all imbalance settlement periods, has to be guaranteed (e.g. through definition of baseline), taking into account at least:

⁹ Time requirements relates to moment of providing data (before/in/after real time and timespan), frequency of data transfer (seconds, minutes, daily, weekly, monthly) and resolution (fragments/multiples of imbalance settlement period)



No.	Principle
	<ul style="list-style-type: none"> • Catch-up effects (the shift of energy consumption) – potentially either direction • Proper place of measurement (not necessarily metering point) • If more than one IFP is possible, the flexibility has to be assigned to the responsible IFP • Other costs based on metered values, if treated as efficient.
6a	If models for IFPs are introduced in the national market, every affected Balance Responsible Party(BRP)/supplier should get the absolutely necessary information from IFP, but aggregated to maximal possible level and with minimum time requirements ³ .

The following sections give more details to each principle including background information and aspects for the way forward and for implementation, and where applicable concrete recommendations.

3.1 Principle 1a: Clarification of the role

Understanding of roles¹⁰ and responsibilities can differ between market players and hamper efficiency of the electricity system. Without clear rules, a clarification process between market players is often necessary. This may be achieved through bilateral agreements. But because of potentially unbalanced starting positions – which may lead to unfair terms – an efficient outcome is not guaranteed.

This principle aims to facilitate the development of that role and to fully realise the potential, through lowering barriers and allowing efficient market entry for new players. Thus allowing IFPs, under a clear definition on roles and responsibilities of all markets players, may increase competition and facilitate small demand facilities to find their way to the markets and regulated products.

3.2 Principle 1b: IFPs must have balance responsibility

Every supplier is responsible for the balance at a metering point in his perimeter and calculates all costs arising from risks of imbalances. When IFPs are introduced in markets (there is a possibility for IFP to participate in the market without an agreement with the suppliers), there is a risk that the imbalance of the BRP of the supplier at the metering point is influenced by the IFP. To prevent such undue effects where they may be material, one important measure is that all market participants are balance responsible. This can also be implemented through an agreement with an existing BRP.

3.3 Principle 1c: Assignment and correction

Through actions of IFPs, different impacts for the BRP/supplier can occur, e.g. catch up effects (depending on the application delivering flexibility, e.g. in case of fuel switch different than when warming water or heating with electricity only). Coherent baseline methodologies that limit the ability for gaming are needed. Drawing on experiences from elsewhere around the world may be helpful in development of baseline methodologies.

¹⁰ Need for clearly defined roles for market participants: this is clearly an issue which presents stakeholders with difficulties, though there are differing views among them on the exact delineation between roles. The lack of clarity regarding the role of aggregators as well as the relationship between TSOs, DSOs and market operators is problematic.(CEER, C14-SDE-40-03, Ensuring market and regulatory arrangements help deliver demand-side flexibility, p18)



A fair remuneration has to be implemented between involved actors – supplier, IFP and customer - based on metered values. When an IFP sells its flexibility as energy on the markets, there is a transfer of energy from the perimeter of the BRP who has kept unchanged its level of injections and the IFP who can then sell the energy bought to other BRP. The level of the payment made to the BRP in return for the transfer of energy shall be fair and representative of the costs incurred by the retailer for the energy that should have been consumed by the customer. A lack or an inappropriate level of compensation between the involved actors and in both directions (energy more and less) could give an undue advantage/disadvantage to an actor. In all cases, fair monetary flows between actors can only be achieved with proper data, which may require retreatment in order to avoid financial shift.

3.4 Principle 6a: Information exchange

Absence of information can lead to negative effects for an affected BRP/supplier. For example uncorrected or late-delivered measurements may affect the BRP/supplier's ability to conduct proper forecasting. Therefore more data exchange may be needed, but requires careful consideration so as not to introduce inefficiencies¹¹. Care has to be taken especially in tackling situations where competitors (e.g. in balancing market) have to exchange data: this should be strictly limited, ensuring confidentiality of competition relevant data e.g. through aggregation done by an independent player like the TSO.

4 Summary and outlook

The regulatory framework should allow all grid users to draw value from their flexibility, including through demand response and decentralised generation. This paper introduces principles that support the efficient valuation of flexibility.

Market conditions vary across MSs. These differences have to some extent driven the adoption of different measures across MSs to support flexibility. NRAs agree that the balance of benefits and costs of regulatory models for the introduction of an IFP are related to these market conditions. Because of these differences, a uniform EU-wide solution on how to improve flexibility may not be cost-efficient for all markets. NRAs have agreed more detailed principals that should be adhered to where regulatory models for IFPs are introduced; these are also presented in this paper. More work is needed, especially in the area of capacity remuneration mechanisms and strategic reserves as well as (local) grid use of flexibility. DSOs and TSOs may use flexibility for a wide variety of reasons, e.g ancillary services. This includes deferring or avoiding grid reinforcement (including through management of voltage, reactive power and congestion), managing distribution network issues (such as faults), managing losses and potentially also accessing flexibility for wider system benefit. The DSO and TSO should have the right to access grid user flexibility (demand, generation and storage) where the use of this flexibility is considered to be the most economical solution, and avoids undue distortion to markets and competition. Following deliverables which will include more information are planned: "Guidelines for Flexibility Use at Distribution Level", "Guidelines of Good Practice on Incentives Schemes for DSOs" and "Future of DSO-TSO relationship".

¹¹ [Advice on Customer data management for better retail market functioning](#), 19 March 2015, CEER, Ref: C14-RMF-68-03



CEER will continue to monitor the discussions and developments regarding the topic of flexibility, be offer a forum for national regulators to share and exchange experience on the topic, and develop recommendations and guidance for an efficient development of flexibility in the internal energy market. CEER will also closely follow and consider any upcoming legislative proposals from the European Commission, in relation to the communication on new Energy Market Design.



Annex 1 – List of abbreviations

Term	Definition
BRP	Balance Responsible Party
CEER	Council of European Energy Regulators
DSO	Distribution System Operator
DSR	Demand Side Response
IFP	Independent Flexibility Provider
MS	Member State
NRA	National Regulatory Authority
TSO	Transmission System Operator



About CEER

The Council of European Energy Regulators (CEER) is the voice of Europe's national regulators of electricity and gas at EU and international level. CEER's members and observers (from 33 European countries) are the statutory bodies responsible for energy regulation at national level.

One of CEER's key objectives is to facilitate the creation of a single, competitive, efficient and sustainable EU internal energy market that works in the public interest. CEER actively promotes an investment-friendly and harmonised regulatory environment, and consistent application of existing EU legislation. Moreover, CEER champions consumer issues in our belief that a competitive and secure EU single energy market is not a goal in itself, but should deliver benefits for energy consumers.

CEER, based in Brussels, deals with a broad range of energy issues including retail markets and consumers; distribution networks; smart grids; flexibility; sustainability; and international cooperation. European energy regulators are committed to a holistic approach to energy regulation in Europe. Through CEER, NRAs cooperate and develop common position papers, advice and forward-thinking recommendations to improve the electricity and gas markets for the benefit of consumers and businesses.

The work of CEER is structured according to a number of working groups and task forces, composed of staff members of the national energy regulatory authorities, and supported by the CEER Secretariat. This report was prepared by the Agency's and CEER's joint Flexibility Task Force of CEER's Electricity Working Group.

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