



TOWARDS A CONSUMER-CENTRIC AND SUSTAINABLE ELECTRICITY SYSTEM

A vision paper on a consumer-centric market design to unleash competition behind the meter



In short:

- **Elia in Belgium was several years ago at the forefront of the introduction of a market design for industrial demand side response. We believe the Consumer-Centric Market Design can be just as successful.**
- **Existing and new suppliers will be able to provide better services to their customers, allowing those customers to reap the benefits of the flexibility embedded in their appliances.**
- **The Consumer-Centric Market Design will offer the energy sector an incredible opportunity. It will allow the efficient integration of more renewable energy, consumers to reap the benefits from their investments and society to fully decarbonise.**

Breaking down barriers to better services

Dear Reader,

The adoption of electric vehicles (EVs) and heat pumps is accelerating, opening the door to new ways for consumers to interact with the electricity system.

The electrification of heating and mobility are crucial for enabling Europe's transition to a net-zero society. In addition, the flexibility that is embedded in the use of electrical appliances such as car batteries and heat pumps could play an important role in maintaining the balance in a system that contains a high amount of intermittent renewables and a decreasing amount of thermal generation.

The technologies needed to encourage demand side participation - such as digital meters, cloud computing and the Internet of Things - are available today. They could offer end consumers the opportunity to capitalise on moments when there are high amounts of renewables in the grid. However, the large-scale participation of retail demand side flexibility is not yet happening.

One key reason for this is that the current market design includes several barriers which prevent the active participation of small flexibility assets.

The Consumer-Centric Market Design (CCMD) which is outlined in this vision paper addresses these barriers. Once it has been rolled out, existing and new suppliers will be able to provide their customers with better services, allowing them to reap the benefits of the flexibility embedded in their appliances.

Several years ago, Elia in Belgium was at the forefront of the introduction of a market design for industrial demand side response. This created a new ecosystem of flexibility aggregators and allowed industrial consumers to monetise their flexibility. We believe the CCMD can be just as successful. The very positive feedback we have received about it so far echoes our own enthusiasm.

In order to make the CCMD a reality, we are collaborating closely with actors across the value chain and stakeholders from across society as a whole. Throughout 2021, we will focus on addressing any remaining questions about it. After undergoing a phase of testing, the CCMD should be ready to be rolled out as early as 2023 or 2024.

The CCMD will offer the energy sector an incredible opportunity. It will allow the efficient integration of more renewable energy, will allow consumers to reap the benefits of their investments in flexible assets (such as heat pumps, EVs, solar PV and electrical boilers) and will support the decarbonisation of society.

I hope many of you will share our enthusiasm for it. Enjoy the read!

CHRIS PEETERS, CEO ELIA GROUP

Key takeaways

A CONSUMER-CENTRIC MARKET DESIGN WILL MAKE A FLEXIBLE AND MANAGEABLE ELECTRICITY CONSUMPTION THE NORM

The energy sector is undergoing deep structural changes. There has been a sharp rise in intermittent renewable energy generation, which is continuing to soar. Moreover, centralised power plants are being replaced by smaller, dispersed and local generation sources. As the share of intermittent and decentralised renewable power production grows, demand will need to be made more flexible. Indeed, the 'Clean energy for all Europeans' package outlined new rules for a consumer-centred energy transition, whilst the Green Deal aims (amongst other things) to empower consumers and give them more choice and flexibility. The need for a paradigm shift towards a market where consumption follows production is becoming increasingly clear.

Recent social, technological and policy developments have now converged to form a window of opportunity for unlocking the potential that lies in demand side participation. Electrification is spreading, encompassing the mobility, construction, industrial and heating sectors. Additionally, digitalisation is allowing the massive deployment of electrified and connected appliances that can be remotely steered and monitored (such as electrical vehicles and heat pumps). Moreover, consumer expectations are changing: increasingly, they are searching for tailor-made solutions and more traceability. The energy-as-a-service market is set to gradually replace the energy-as-a-commodity market.

These developments have created the potential for flexible and manageable electricity consumption to become the norm. Unleashing this potential will lead to greater operational security and more efficient markets, whilst supporting decarbonisation and increased comfort for consumers.

THE CURRENT MARKET DESIGN LIMITS THE RAPID DEPLOYMENT OF CONSUMER-ORIENTED SERVICES

Although consumers are currently able to switch suppliers relatively easily, it is almost impossible for them to access services offered by third parties 'behind the meter'.

Indeed, under the current market design, suppliers and Balancing Responsible Parties (BRP) have legal obligations regarding the connection points that fall within their commercial perimeters. Suppliers are therefore responsible for all offtakes and injections behind each connection point.

This implies that complex workarounds are necessary for third parties to be able to offer flexibility or energy services behind the meter; one way for competition to emerge behind the meter, for example, is through a supply split, which involves the installation of additional certified meters.

The current market design is far from ideal when flexibility and the provision of energy services are considered: it is complex, time-consuming, costly, and often requires additional layers of hardware. Both providers and consumers face hurdles which often outweigh the benefits brought about by new services.

THE CURRENT MARKET DESIGN ONLY NEEDS TWO CHANGES TO BECOME CONSUMER-CENTRIC

The Consumer-Centric Market Design (CCMD) is a market model which will place consumers at its heart, giving them the full freedom to choose services from different providers at appliance level. Its goal is to unlock active demand participation and flexibility whilst fostering innovative business models behind the meter. In other words, the CCMD will not only allow competition 'for the meter', but also competition 'behind the meter'.

Two changes to the current market design are proposed under the CCMD. The first of these is the development of a so-called 'Exchange of Energy Blocks' hub, through which the exchange of energy would occur on a fifteen-minute basis between consumers and other market parties. The second is the introduction of a robust price signal, which would reflect system conditions in real time, and give consumers a reference for their consumption and the value of services offered by third parties.

These changes will, of course, affect the roles and responsibilities of Balancing Responsible Parties, suppliers and service providers. The physical balancing obligation which applies for all connection points in the portfolio of a BRP must therefore be eased, since this constraint is incompatible with consumer freedom and unnecessary under a real-time market that involves decentralised financial responsibility. The precondition for easing this constraint is real-time pricing, which guarantees appropriate incentives to stabilise the system. A settled balancing system, which has reached a target state and has proven to be reliable, is therefore necessary.

The proposed CCMD is aligned with EU policy and is achievable in practice. Since it builds on the current market design, it entails an evolution - not a revolution - of current market arrangements.



The Green Deal and new 2030 climate targets mean an even more renewable and electric world is on its way, requiring an accelerated deployment of consumer-oriented services

Europe has put consumers at the centre of the energy transition, but this ambition has yet to be realised

As early as November 2016, in its 'Clean energy for all Europeans' announcement, the European Commission proposed new rules for a consumer-centred clean energy transition, making consumers active and central players in the energy markets of the future. This so-called Clean Energy Package solidified consumer empowerment, giving consumers the freedom to generate, store or sell both energy and services with the third party of their choice. The package supports consumers to become (renewable) self-consumers, individually and collectively, to request flexible electricity price contracts and to have access to all electricity markets.

Despite this, important enablers for placing consumers at the centre of the market are still missing. For instance, smart meter rollout is not compulsory: Member States can choose whether to carry it out. Moreover, clear legal channels for making electricity markets easily accessible to new types of service provider do not exist; such clear channels are also lacking with regard to simplifying the way consumers can engage with new services at appliance level.

Fit for 2030

With the Green Deal, Europe is committed to becoming carbon-neutral by 2050. On the path towards carbon neutrality, reducing greenhouse gas emissions by 55% by 2030 (when compared with 1990 levels) will require all sectors and all actors along the value chain to work together. Making progress in this short time frame will require the implementation of cost-effective measures, such as increasing energy efficiency, accelerating electrification and the direct use of renewables, and the involvement of the widest range of stakeholders possible.

Given that the use of renewables and electrification will already be well established across society by the end of the decade, and that access to digital technology is increasing, accelerating the deployment of solutions to harness the flexibility offered by consumers (including

at household level) is necessary. This will be fundamental for ensuring that a wide range of energy services tailored to consumer needs can be offered, and for ensuring that the power system is kept in balance.

Throughout 2021, Europe's focus will be on passing legislation that supports the new 2030 climate targets and boosts economic recovery. In addition, transversal legislation in terms of data will aim to improve data interoperability, data sharing across sectors, data governance, and the use of digital technologies in a trusted and secure way.

This means consumers will soon be presented with increasing opportunities to generate renewable energy, will have access to electrical devices such as heat pumps and electric vehicles (EVs) and will have access to more digital capabilities.



Decarbonisation



-55%
GHG emissions
by 2030

Renewable electricity



65%
of total electricity
production
by 2030

Offshore wind



60GW
by 2030

Investing in green and digital solutions will be crucial for economic recovery and for accelerating consumer access to key enabling technologies

Despite the massive impact COVID-19 has had on society and people's health, the objectives of the Green Deal were not called into question. On the contrary, Europe recognises the need to invest heavily in realising the green and digital transitions as a way to help the European economy to recover and to achieve its long-term goals. Europe has dedicated some 30% of its total €1.8 trillion long-term budget for the period 2021-27 to fighting climate change. Moreover, Europe has earmarked €672.5 billion under the Recovery and Resilience Facility (RFF) for supporting Member States as they implement their National Recovery and Resilience Plans, provided

that at least 37% of their expenditure on such plans is used for climate investments and 20% is used to enable the digital transition.

This European funding, when coupled with support from Member States, will help to accelerate the deployment of critical enabling technologies and infrastructure, including smart metering devices, EV charging infrastructure, smart and efficient buildings, and increasingly electrified and carbon-neutral industrial processes. The adoption of new digital technologies (such as 5G, cloud computing, AI, cybersecurity, etc.) will also be accelerated.

The ambitious climate goals and necessary green and digital investments have to translate into real consumer benefits in the next few years.

These huge investments will need to be accompanied by an update and fine-tuning of the current market design. This will be the only way to ensure that consumers are truly empowered and are able to enjoy the benefits of the green and digital transitions.

“A new world is being established through digitalisation (including through the Internet of Things); decarbonisation (including of the mobility, heating and cooling sectors); and widespread use of decentralised energy resources. Active consumers have the right to be given access to new services “behind the meter” for e.g. electric vehicles, heat pumps, demand response, guaranteed green injections, decentralised self-generation, etc. Elia Group's ‘Consumer-Centric Market Design’ enables both commercial value propositions as well as peer-to-peer trading and energy communities, while also allowing those customers that wish so to stay with current arrangements. European wholesale centralised markets opened in 1990. Retail centralised markets opened after 2000. We are now beyond 2020: the time has come to facilitate EU ‘consumer-centric’ decentralised markets.”

PROFESSOR J-M GLACHANT,
DIRECTOR FLORENCE SCHOOL OF REGULATION

What is preventing us today from delivering consumer-oriented services?

Today, consumers cannot easily access competitive energy services which are tailored to their needs

Active consumer participation and competition behind the meter will not develop at a speed fast enough to meet the goal of decarbonisation unless the consumer journey for accessing energy services is made simple and attractive, by leveraging all the possibilities that new digital and clean technologies can offer.

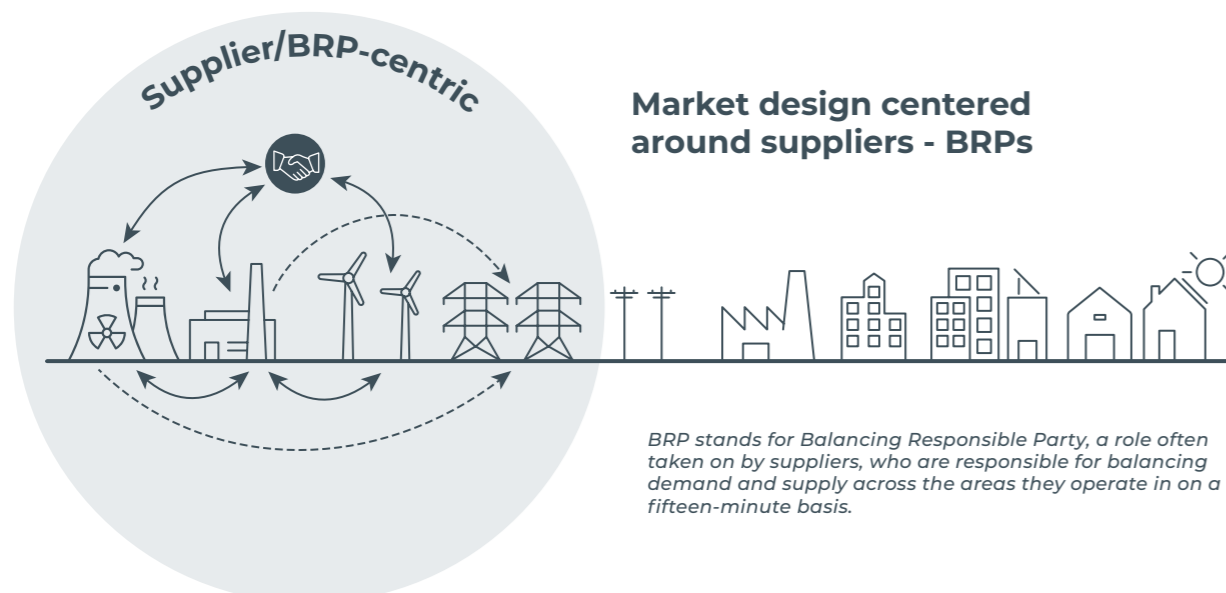
The design of and access rules for the current market model, which is centrally organised, were largely defined using a one-sided approach which focused on the supply side, as large centralised plants traditionally provided the bulk of the operational flexibility required to run the power system. End consumers – except the larger ones such as big industrials – are typically not considered to be active participants as they were historically not able to actively respond to prices, given the fact that smart meters, connected appliances and exposure to real-time pricing were not yet available.

In practice, stringent access rules translate into onerous financial constraints and physical balancing requirements. The allocation of energy volumes between market parties relies on a heavily regulated hardware-based metering approach. These factors are now becoming barriers to maximum participation and the opening up of the market behind the meter to third parties, slowing down the development of innovative and differentiated services.

The specific obstacles to active consumer participation under the current market organisation are as follows:

- In many markets, consumers cannot engage with third parties for the delivery of services behind the meter if not approved or facilitated by the main supplier.
- When this is possible, the workaround needed to enable consumers to engage with services delivered by third parties while preserving the role and responsibility of the supplier/BRP is complex. In practice, this requires neutralising all the “impacts” of the services provided by independent third parties, by correcting the supplier’s portfolio and financially compensating it after the fact.
- The current one-size-fits-all certification approach to monitoring and settlement, which often results in unnecessary regulations and hardware-intensive solutions behind the meter (when compared with the possibilities offered by tailored digital solutions made possible by connected appliances).

FIGURE 1: CURRENT POWER MARKETS ARE CENTRED AROUND GENERATORS AND SUPPLIERS, RATHER THAN CONSUMERS



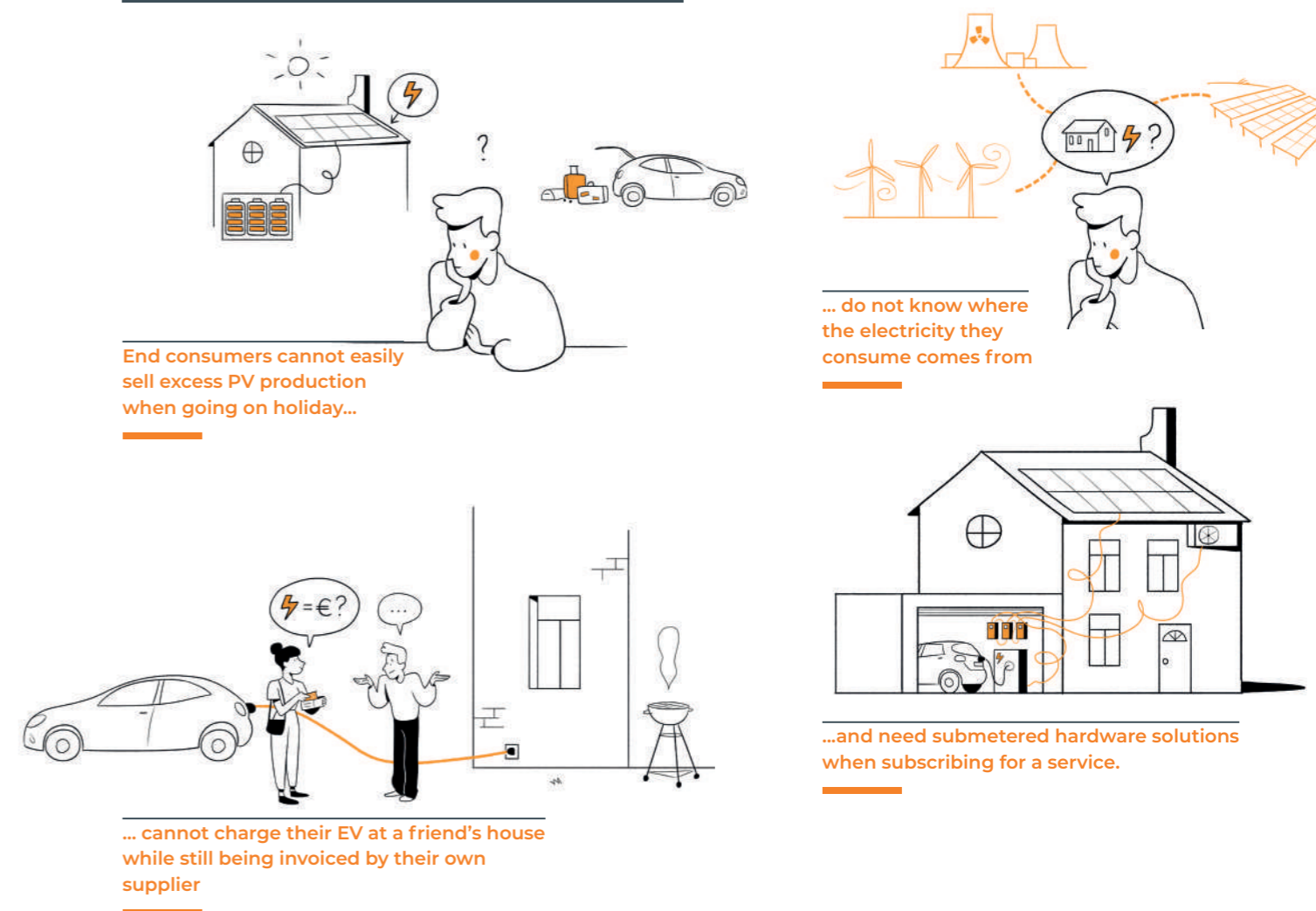
The benefits remain largely inaccessible under the current market organisation

The bottom line is that end consumers cannot easily access the panel of innovative services behind the meter unless (i) these services are offered by their main supplier; (ii) access points are duplicated, by installing more than one regulated smart meter in every household; or (iii) complex administrative arrangements¹ are implemented to neutralise all the impacts of the services provided by third parties on the main supplier. This often

results in relatively high transaction costs and barriers which prevent end consumers and independent service providers from engaging with new services².

This is all the more damaging as social and technological developments have created an unprecedented window of opportunity for releasing the potential of active demand participation and competition behind the meter.

FIGURE 2: LIMITED CONSUMER EXPERIENCE



¹ Patchy ad hoc solutions are being deployed across Europe to get round these barriers and increase demand side response (DSR). Examples include the Transfer of Energy (ToE) in Belgium or Notification d'Échange de Blocs d'Effacement (NEBEF) in France, virtual allocation points on the DSO grid and so on. Most of the time, however, these workaround solutions based on the current market model create even more complexity.

² Our studies show that smart charging will reduce the annual electricity cost for consumers by between €30 and €55 by 2030 (see “Elia, Accelerating to net-zero: redefining energy and mobility”).

Our vision

A consumer-centric market design to create value for all and trigger innovation for decarbonisation

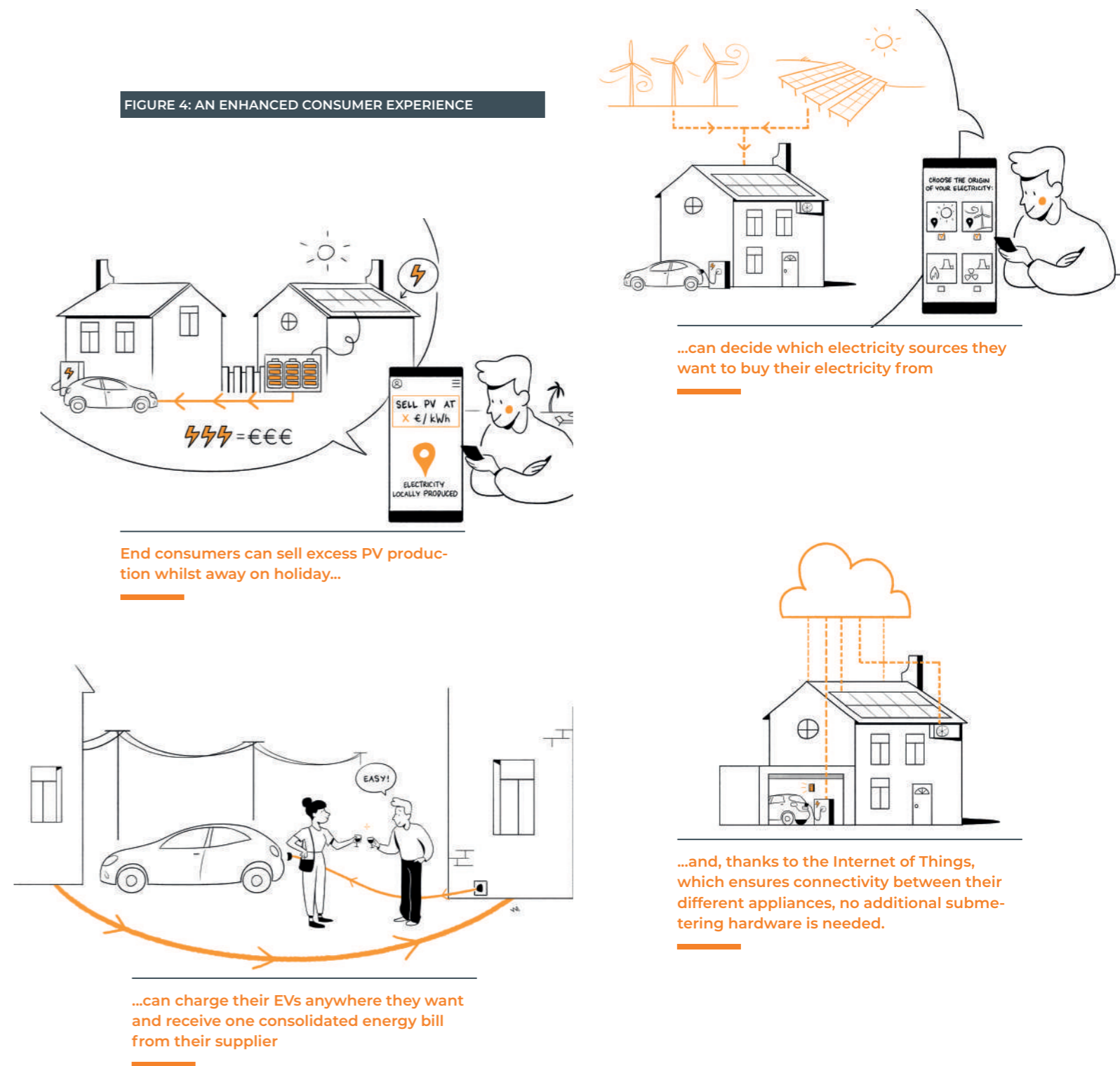
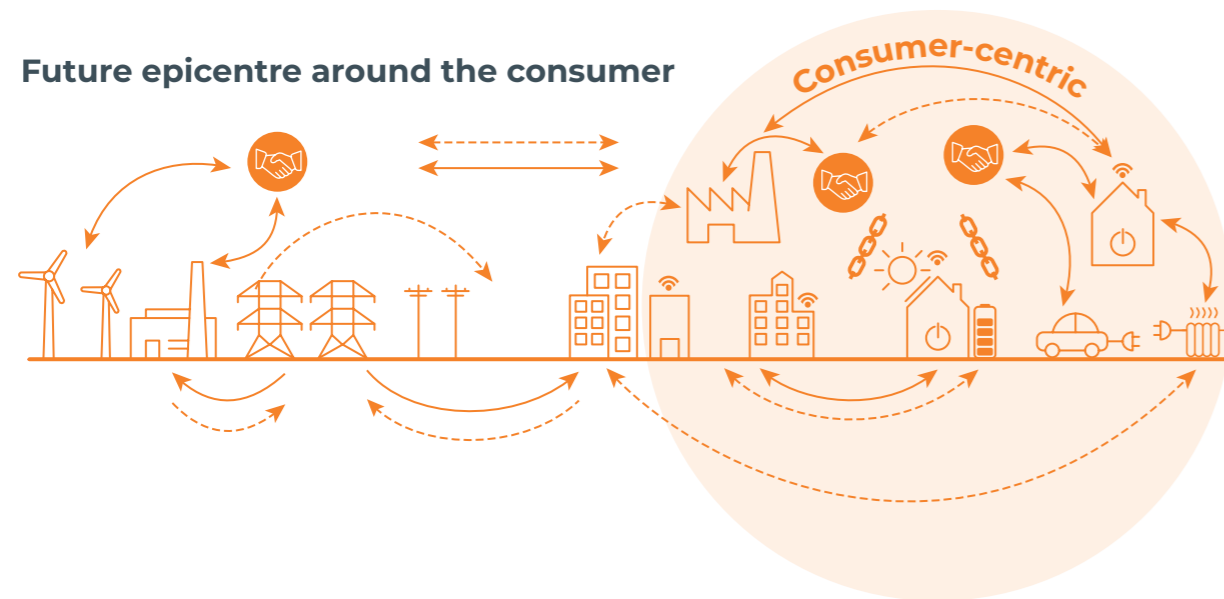
Now more than ever, a consumer-centric market design (CCMD) is needed to facilitate and accelerate the active participation of consumers. This requires putting demand on an equal footing with supply and releasing the potential for flexibility by relaxing some of the current centralised market design hurdles.

The proposed vision relies on opening the door to much simpler, fundamental and unbiased market access conditions for all. It provides every single consumer with the right to use multiple services and exchange energy freely and easily with others, without any constraints (such as heavy submetering requirements and obtaining consent from their main supplier). This comes along with implementing adequate financial incentives to efficiently manage individual consumption in real time.

The proposed CCMD aims to unlock innovation. It is not prescriptive, but rather an agile and adaptive software-based framework enabling new business models and services which fit heterogeneous consumer expectations. It aims to lower barriers to market entry behind the meter for third parties, thus avoiding a lock-in with one single supplier acting as the gatekeeper.

Because the CCMD offers an agile framework, current business models and contractual arrangements can continue to exist alongside it. They might also be supplemented or replaced by more innovative arrangements – depending on consumers' needs and expectations.

FIGURE 3: PARADIGM SHIFT TO FOCUS ON THE CONSUMER



Opening the door to new opportunities and creating significant value

We believe that releasing consumer participation through the CCMD will open the door to new opportunities and create significant value:

- consumers will be empowered as innovation and differentiation in services is made easier in areas such as mobility, heat and traceability and choice of supply origin;
- innovative energy services will allow energy consumption to be optimised, while global power system optimisation resulting from consumer participation will bring wholesale prices down;
- as low-cost flexibility will be available in the system, operational security can be maintained at a very high level – at an equivalent or even lower cost – while more and more renewable energy sources will be integrated, thus making it effective in terms of cost and decarbonisation.

If a prompt shift towards a consumer-centric market design does not occur, there is a risk that market organisation will lag behind system transformation, turning opportunities into burdens for the power system and consumers. The consequence will be the slowing down of innovation and decarbonisation.

“User centricity means providing seamless climate and energy solutions instead of “just” single hardware products. Concepts like our electricity tariffs, tailored to match our hardware offering, help our users access a fully optimised energy supply by reducing complexity (for instance). This shall be both cost efficient and environmentally sustainable. We are looking forward to seeing how the market design can be changed to facilitate such services.”

DR. HANS SCHERMEYER, PRODUCT OWNER ENERGY SERVICES, VIEMANN



ACER in the smartEn report

“The 2019 Energy Retail and Consumer Protection volume of the ACER Market monitoring report recognises the importance of the active energy consumer, relying on near real-time information. Such information can lead to increased switching rates, which drives increased competition between suppliers, and thus places downward pressure on the price that the energy consumer ultimately pays.

This downward pressure will be important as electricity consumption patterns change: the penetration of electric cars is proliferating, there is an increased focus on renewable heating and cooling, and so forth. [...]

This warrants a closer look at price dynamics and whether market frameworks remain fit for purpose, in addition of course to how network tariffs will further evolve”.

“For us at Volkswagen, the best customer experience always comes first. An increasing amount of customers are turning to electric cars and installing PV systems, wondering how these assets can be intelligently connected as they do so. Flexible storage (offered by assets including electric vehicles) and volatile generators (which include PV systems) are ideally matched and, together, can contribute to an energy system which is more sustainable overall than the one which currently exists. We have the technological means to use these assets today, but in order to be able to deploy them, we need a market design that enables the effective and smart integration of small, decentralised energy assets into the system. With the right framework, we will be able to create and offer our customers energy products and services which are both more transparent and sustainable. The Volkswagen Group stands by its commitment Way-To-Zero.”

DR. NIKOLAI ARDEY, EXECUTIVE DIRECTOR INNOVATION, VOLKSWAGEN GROUP

Two key building blocks delivering major benefits, with limited changes to the current design

Building on current market arrangements whilst limiting the changes required

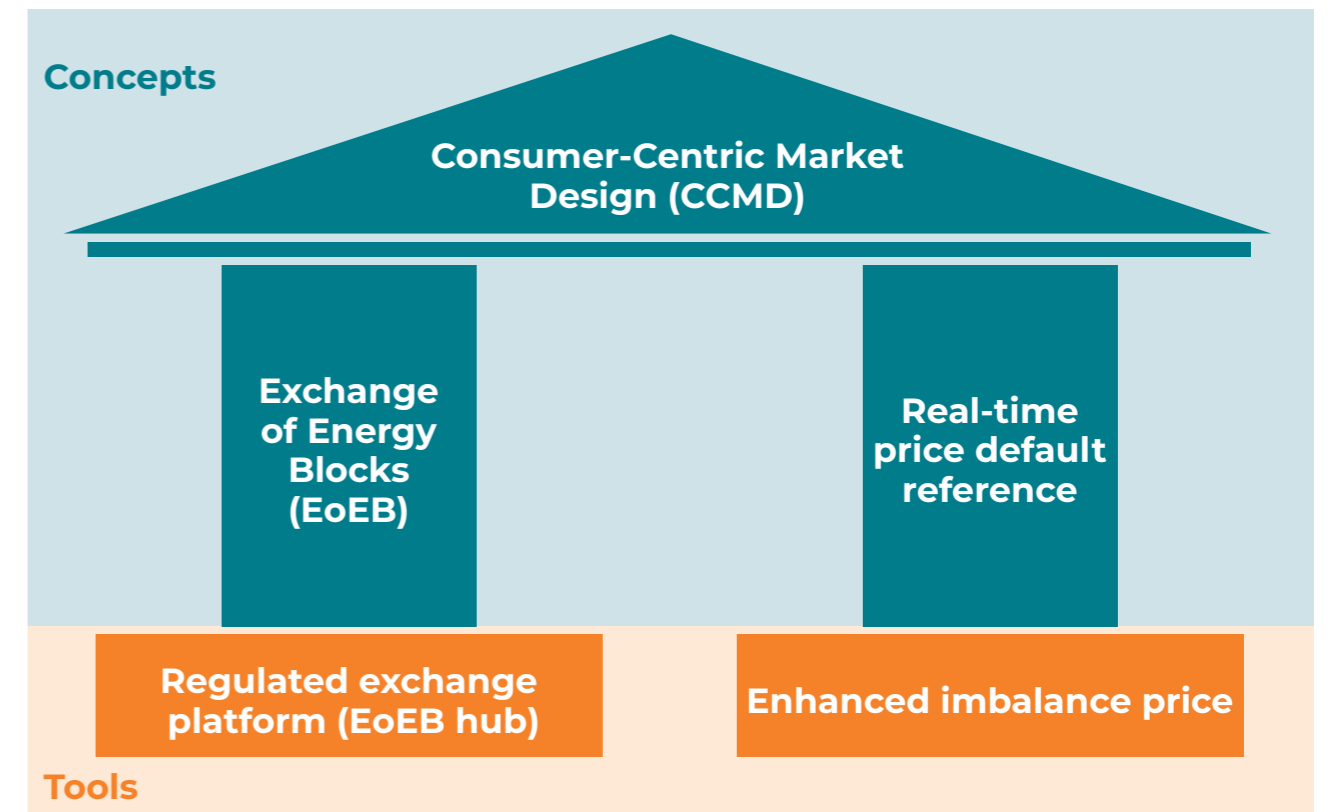
The beauty of the proposed Consumer-Centric Market Design lies in the fact that small changes in design will lead to the customer being put at the very centre of the market, so releasing the potential of decentralised flexibility and competition behind the meter.

The proposed changes are straightforward. They consist of providing end consumers with the freedom to choose which service providers or suppliers to sign contracts with behind the access point. In practice, this means that consumers won't need to delegate all responsibilities to one single party before they get access to the electricity grid. This can be done simply by:

- allowing the decentralised exchange of energy on a 15-minute basis between consumers and various suppliers and service providers; and
- implementing a robust price signal which reflects the system conditions in real time, which consumers can use as a default reference for consumption optimisation, decentralised trading or for estimating the value of services offered by third parties.

These two enablers are summarised in Figure 5 below. The tools allowing their practical implementation are outlined later in this paper.

FIGURE 5: CCMD KEY BUILDING BLOCKS



These two pillars, a real-time pricing reference and the exchange of energy blocks on a 15-minute basis within a single hub, are changes to the current market design that will provide a unique framework for multi-

ple decentralised services. These changes will make it possible to move away from the current patchwork of complex ad hoc solutions.

FIGURE 6: A UNIQUE FRAMEWORK THAT ENABLES THE DEVELOPMENT OF VARIOUS CONSUMER-CENTRIC SERVICES

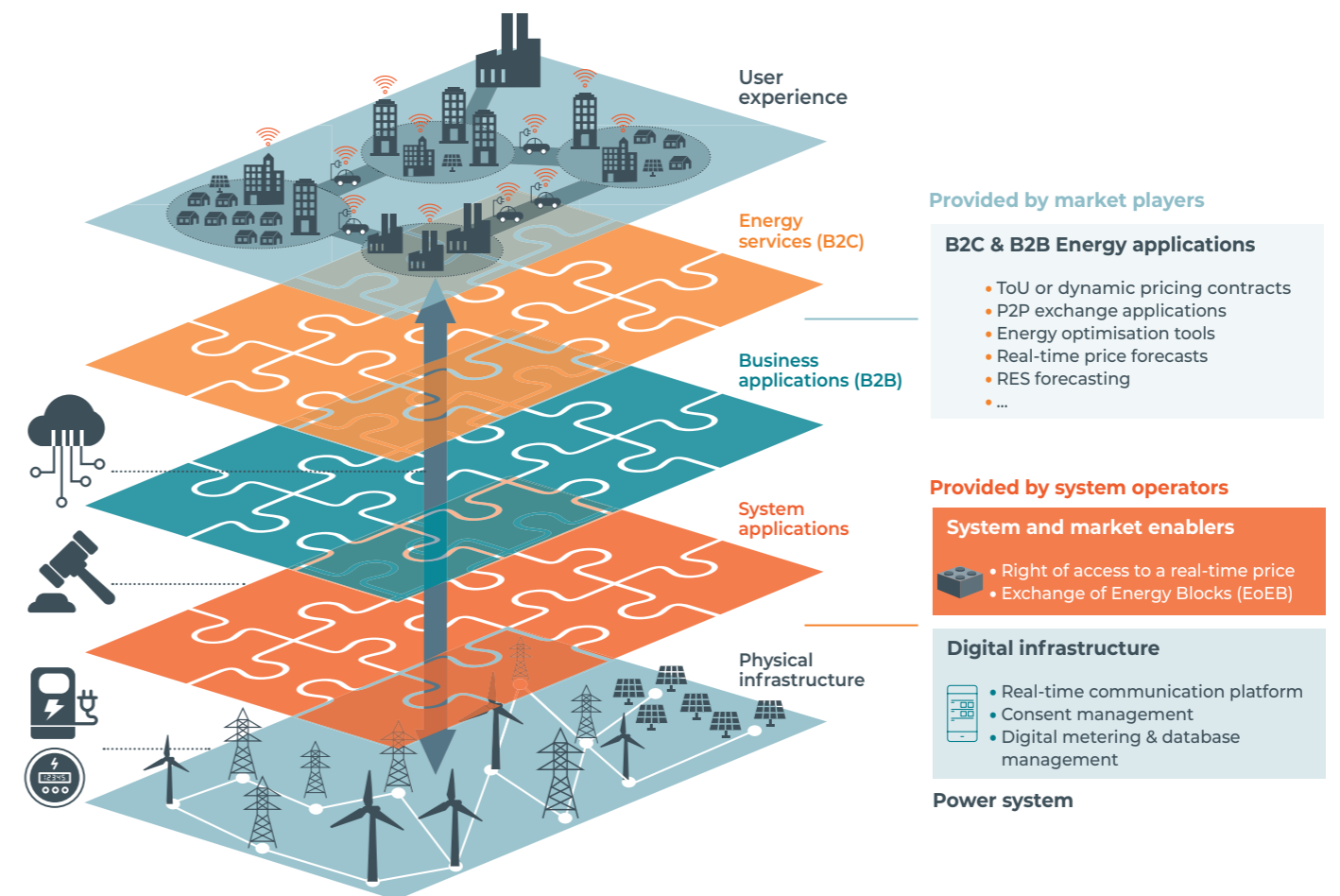


The emergence of a new ecosystem that fosters innovation

If the provision of independent services behind the meter is simplified, a new ecosystem of commercial applications, services and market players will naturally emerge. This will work hand in hand with (i) the digital infrastructure that collects, stores, processes and

broadcasts all relevant data, while ensuring data security and privacy, and (ii) the regulated market design, which allows the decentralised exchange of energy blocks and real-time pricing (Figure 7).

FIGURE 7: THE INFRASTRUCTURE WHICH WILL ENABLE THE CONSUMER-CENTRIC MARKET DESIGN



“All our products focus on the customer. We value practical solutions that meet their personal needs and bring mobility and energy together. With concepts like Vehicle-to-Grid and our battery storage systems, we want to unleash the potential of decentralised flexibility and revolutionise the world of energy. That provides added value for both the customer and the energy system. We welcome adaptations to the market design that facilitate our services.”

DR. MICHAEL SCHREIBER, HEAD OF VIRTUAL BATTERY PLANT, THE MOBILITY HOUSE

“An open and inclusive approach to innovation should ensure the replication and scalability of commercial offers that enable every European to benefit from playing an active part in the digital and green transition. In a consumer-centric system, end users should have the choice to react to real-time prices and be rewarded to unleash their flexibility. It is a win-win, for consumers and for the system as a whole.”

MICHAEL VILLA, SECRETARY GENERAL, SMARTEN

The 'Exchange of Energy Blocks' (EoEB)

The EoEB consists of the decentralised exchange of energy on a 15-minute basis between consumers and any other market party (including suppliers and service providers), giving them the freedom to manage their electricity offtakes and injections.

- Transactions between households and different parties will be registered on a platform (the EoEB hub), whether they consist of the usual supply/offtake relations or whether they are the product of various flexibility optimisations. An illustration of how the EoEB hub will operate is presented in Figure 9 below.
- Of course, no consumer will be forced to engage in the EoEB hub and actively manage offtake and injection on a 15-minute basis to source their needs. Some consumers will likely continue to source their needs through a traditional contract signed with their supplier. However, for those consumers who want to be able to manage their offtakes and injections, the EoEB is a first step towards making such tailored solutions possible.

From a technical point of view, the regulated platform or EoEB hub is a software-based solution that does not require any specific hardware. Nevertheless, in order to facilitate transactions, parties can voluntarily decide to use additional private or embedded metering to reinforce trust. The EoEB hub can be made accessible to

residential consumers very simply through a dedicated mobile app (developed by a commercial third party), coupled with an online payment system. This makes it a very economical solution.

From an organisational point of view, a legal and regulated framework needs to be established determining the access rules for consumers and service providers to the EoEB hub. Transactions carried out by consumers should be limited to match the capacity of appliances in their houses and service providers should comply with specific rules. Furthermore, privacy and security should be guaranteed. Finally, the framework for using sensor-based solutions in addition to certified meters also has to be set in such a way that it does not unnecessarily put the consumer at risk.

In most EU countries at the moment, a hub already exists for facilitating energy transactions between BRPs. All transactions confirmed by both counterparties are considered in the settlement by the TSO. In practice, the proposed EoEB hub can be implemented by making it accessible to any interested party, including households.

The real-time market/price

The main goal of a real-time price reference is to reveal the true value of flexibility to consumers, alongside hedging products offered by commercial parties. Conversely, no financial or legal responsibility will be taken on by third parties, unless they enter into a contract with a household to provide it with a service.

The CCMD offers the possibility of exposing consumption to a real-time price reference. Consumers opting for this will receive the right signals and financial incentives to contribute to balancing the system.

Consumers can, however – just like today – still opt for a fixed price contract with third parties if they do not want to be exposed directly to the real-time price. We expect most end consumers to adopt various hedging strategies, such as traditional fixed-price or peak/off-peak contracts offered by their supplier, fixed price services, participating in an energy community with shared generation or storage asset ownership, and so on.

Consumers who deliberately choose to be settled at a real-time price should be protected against excessive energy bills, for instance through insurance. Moreover, clear and transparent communication about the risks related to certain contracts is necessary.

Practically, the real-time price can simply be an extension of the existing imbalance pricing based on the system marginal price (SMP), even though some changes will be needed in countries where imbalance pricing still relies on average pricing.

However, the price needs to give appropriate incentives for stabilising the system at any time and in all market situations. Past experience shows that it is particularly difficult to foresee the interaction of price signals and market reactions when market rules are changing. Therefore, relaxing the physical balancing obligation can only be implemented in a settled balancing system, which has reached a target state and has proven to be reliable.

The way the wholesale markets are organised will remain unchanged. The real-time market will indeed be largely built on the existing suite of forward, spot, and balancing markets developed over the last 20 years. A gradual shift in trading and liquidity closer to real time is expected, with service providers using current markets to offer hedges for end consumers against real-time price risks.

FIGURE 8: STACKING ENERGY BLOCKS TO MEET DEMAND WHILE SHARING INFORMATION WITH ALL PARTIES IN REAL TIME

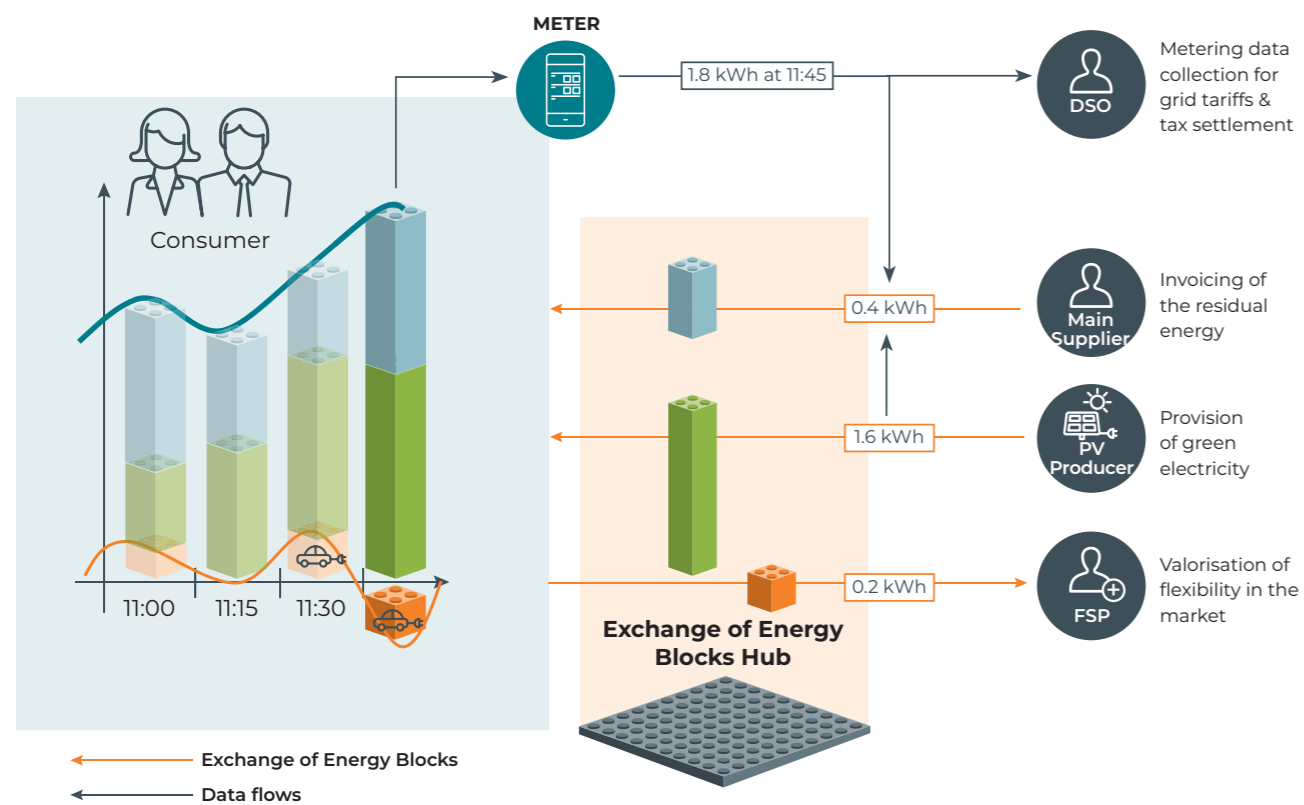


FIGURE 9: A REAL-TIME PRICE REFERENCE REVEALING THE TRUE VALUE OF FLEXIBILITY TO CONSUMERS



“ I share Elia Group’s vision that facilitating access to the market for a more diversified set of participants and increasing the range of services on the basis of reliable price signals will bring more value to end consumers. I hope that Elia Group’s vision will be adopted in many countries in order to ensure scale for the development of innovative solutions, in the interest of end consumer.”

RALPH DANIELSKI, CEO, EPEX SPOT

Making it possible to deliver true consumer-oriented services

Various use cases conducted by Elia Group with partners in Belgium and Germany demonstrate that the CCMD is not simply a theoretical exercise – it is within reach for practical application. The use cases outlined on these pages highlight the diversity of ongoing initiatives around the CCMD, gathering together various types of participants such as residential and industrial customers, energy communities, building owners, renewable energy developers and service providers.

These use cases show that consumer-centric solutions are ready to address the current challenges faced by consumers and market players, and thus create value for stakeholders and society.

An overview of each use case undertaken by Elia Group is provided below.

- E-mobility's need for portability and flexibility management was tested with KBC and ubitricity. The trial demonstrated that the EoEB hub allows the allocation of EV charging to suppliers other than the one attached to the charging pole (Figure 10).
- Green energy sourcing and active participation in energy communities were tested through COCITER's project. The trials showed that the EoEB hub allows the tracking, tracing and direct sourcing of energy from a variety of stakeholders and local green power producers (Figure 11).
- Smart building consumption optimisation and green sourcing were trialled through the Yuso/Smapee project (Figure 12).

FIGURE 10: SIMPLE PORTABILITY AND FLEXIBILITY MANAGEMENT SOLUTION FOR EV USERS

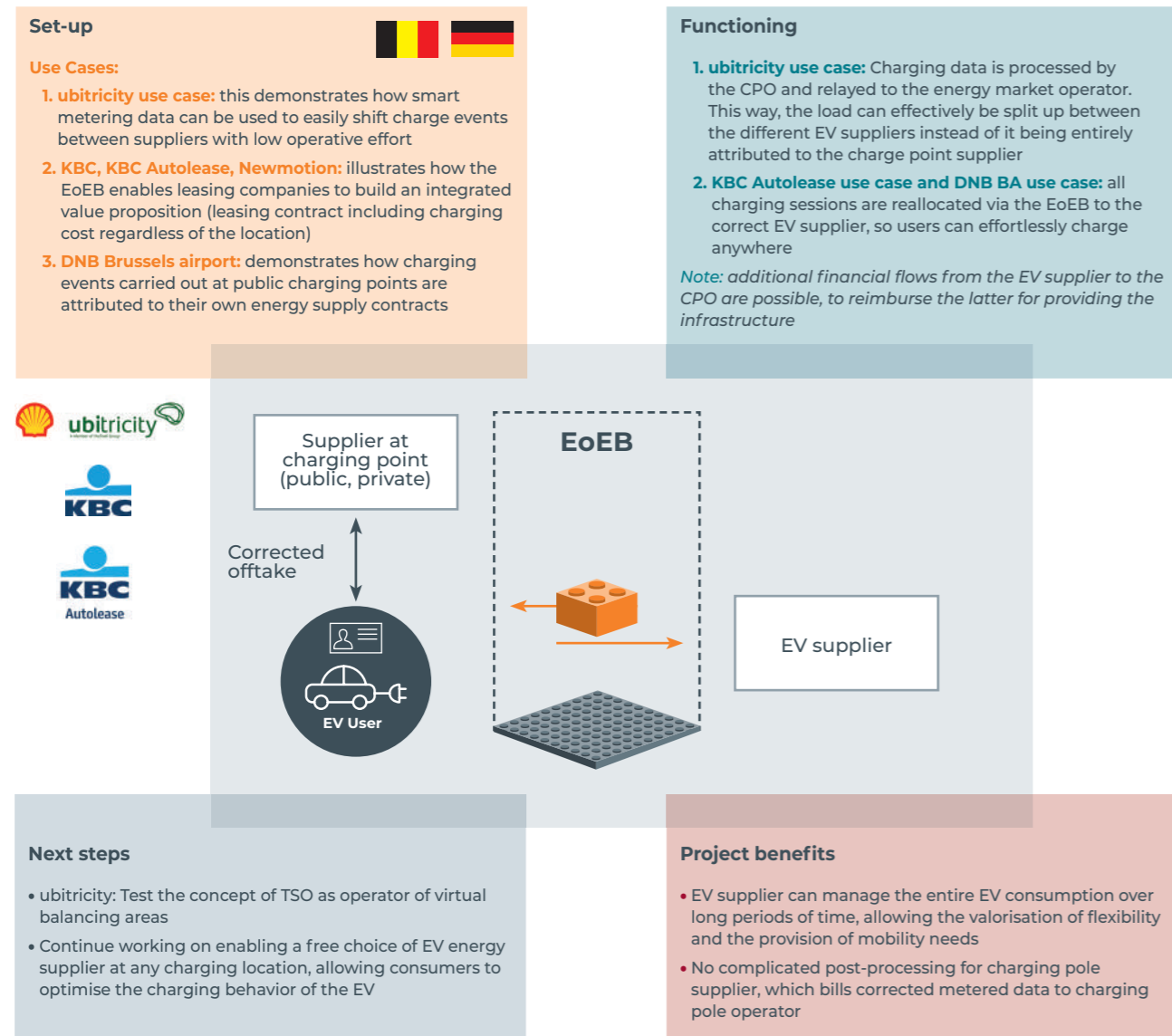


FIGURE 11: ENABLING DIRECT ACCESS TO ENERGY COMMUNITY ASSETS AND GREEN SOURCING

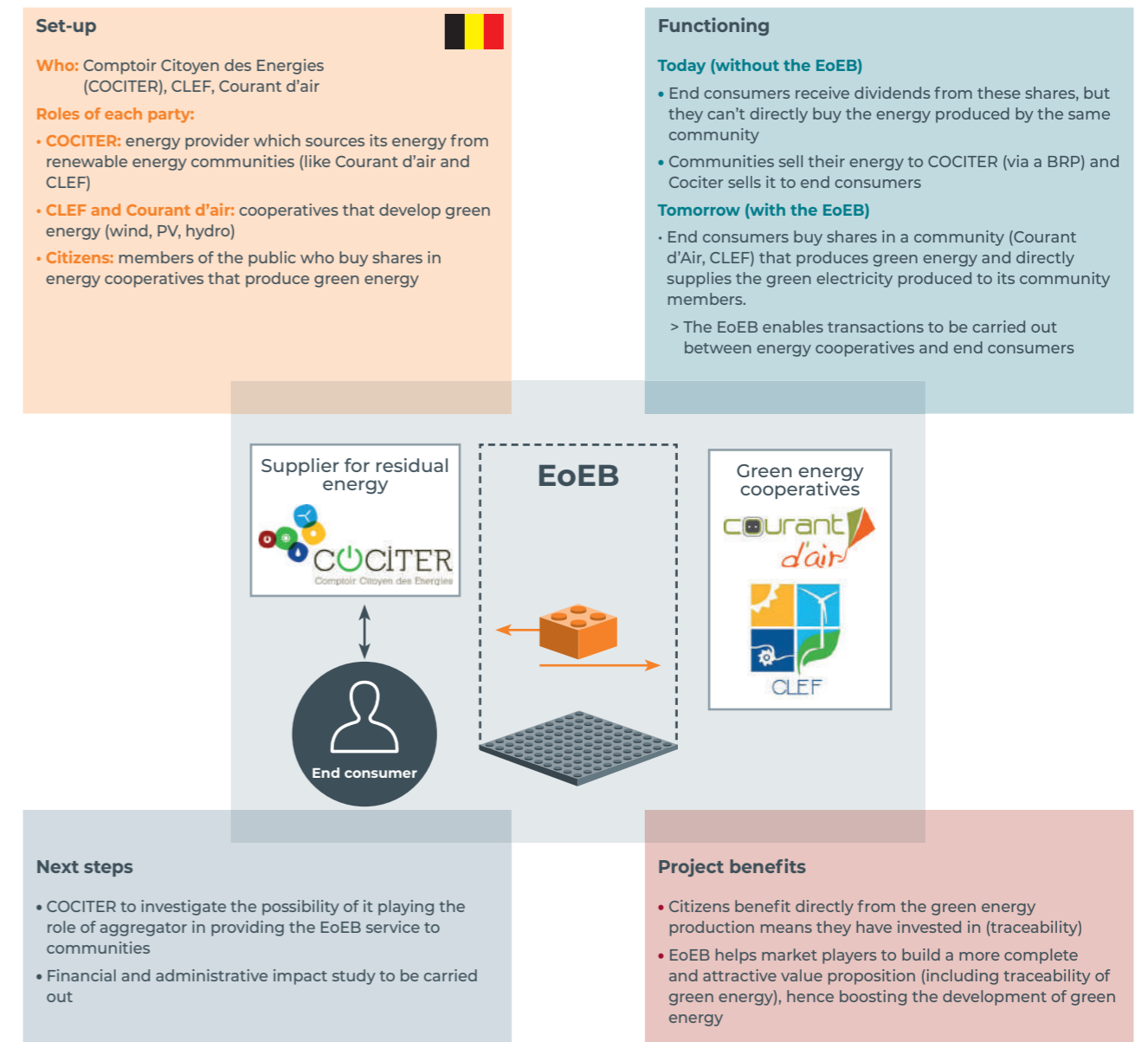
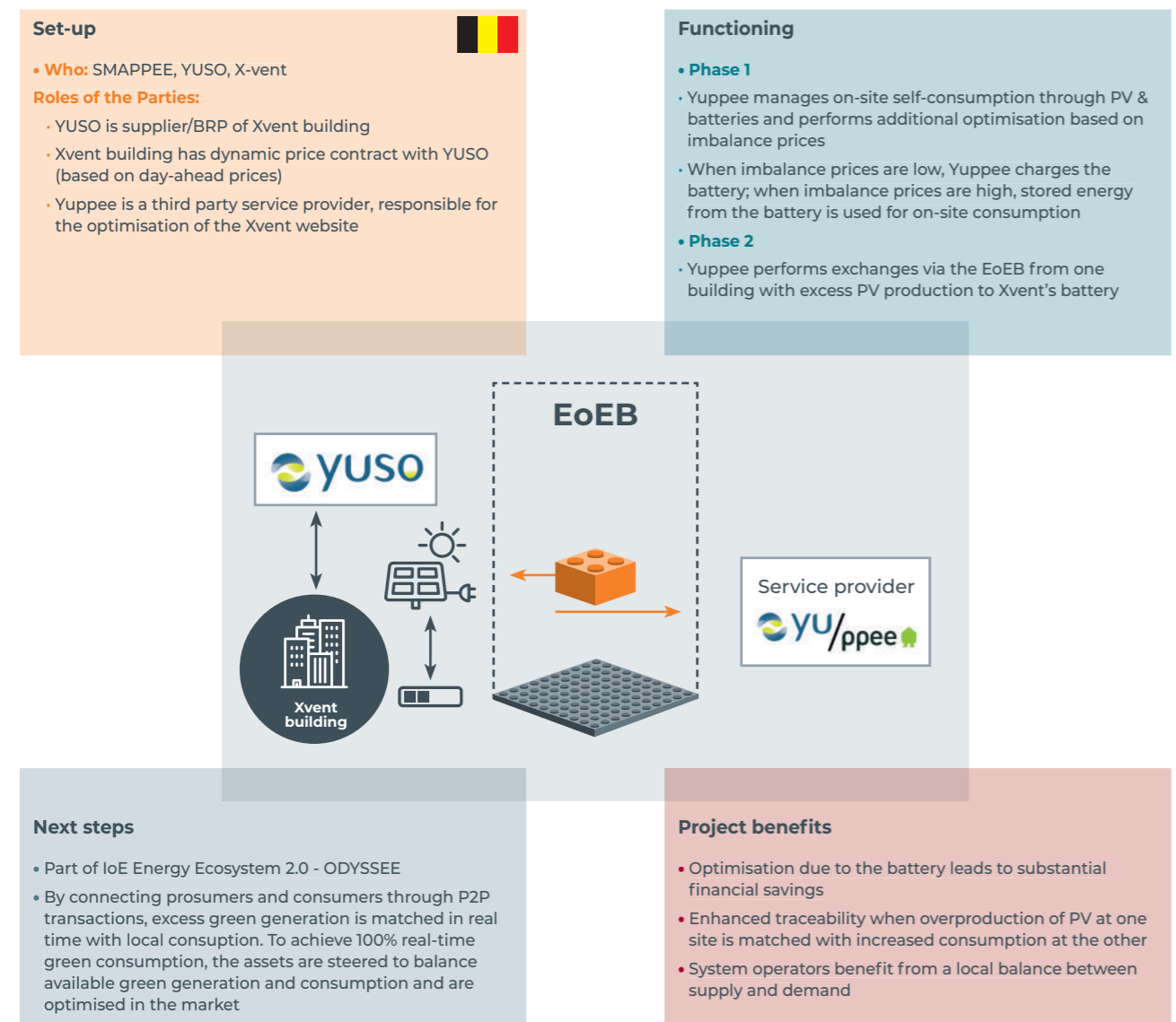


FIGURE 12: OPTIMISING SELF-CONSUMPTION AND LOCAL GREEN SOURCING MADE EASY



Delivering gains for all stakeholders

By opening up the market behind the meter and unlocking new applications, the proposed CCMD creates opportunities for all stakeholders: service providers, suppliers, distribution and transmission system operators, small and large consumers, policymakers, and regulators. These gains are summarised in the table below.

FIGURE 13: HOW THE CCMD COULD BENEFIT DIFFERENT STAKEHOLDERS

Stakeholder	
Independent service providers/ aggregators	<ul style="list-style-type: none"> • Proposed model could become a generic EU solution for independent flexibility BSPs and service providers, in particular new entrants from other sectors (the heating, technology, telecommunications, retail and other sectors, to example) • Alternative solution to split supply • Lower entry barriers and innovation made easier • Creates a new market behind the meter, which is accessible to third parties
DSO	<ul style="list-style-type: none"> • The proposed model is compatible with local redispatch managed by the DSO, or local flexibility platforms, allowing for efficient local congestion management • Data visibility with regard to what is happening • Agile model which can be delivered fast
TSO	<ul style="list-style-type: none"> • Proposed model will facilitate demand side response (DSR), increase flexibility and improve system operation in general • Easier integration of renewable energy sources, more visibility on grid • Compatible with any congestion management model
Suppliers	<ul style="list-style-type: none"> • Opportunity for end consumers to engage in new services with other suppliers, opening up new markets behind the meter
Small consumers	<ul style="list-style-type: none"> • Very easy to engage in innovative services (energy-as-a-service, mobility-as-a-service, heat/comfort as a service) with multiple third parties, with low entry barriers, freedom of choice • Opportunity to directly exchange energy with other consumers or renewable energy producers, and to engage in energy communities • Consumers are still offered alternative contracts (e.g. fixed-prices contracts) so that they are not directly exposed to the real-time price • System optimisation will contain wholesale prices
Large / industrial consumers	<ul style="list-style-type: none"> • Proposed model will facilitate DSR, increase revenues from flexible demand • System optimisation will contain wholesale prices • Green power sourcing made easier, especially at small scale
Policymakers/ governments	<ul style="list-style-type: none"> • Proposed model will facilitate DSR, alleviate system tension and contain price • It will be easier to reach energy and climate targets • Consumers are still offered fixed-price contracts • Compatible with public service obligations and tax measures with track and trace made easier • Proposed model is an evolution (not a revolution): it can be easily built based on existing market arrangements
Regulators	<ul style="list-style-type: none"> • Increased competition on the wholesale market (every individual becomes a market participant) and the retail market (avoids supplier lock-in with competition for services behind the meter) • Increased transparency • Proposed model is an evolution (not a revolution): it can be easily built based on existing market arrangements

This list of stakeholders, opportunities and benefits is far from exhaustive, as all the possibilities and advantages offered by the proposed model have yet to be revealed and exploited.

The new consumer-centric market design is within our reach



Considering its compatibility with European legislation, the very positive feedback received in relation to both completed and ongoing use cases, and the limited changes needed to be applied to the current market design, we believe CCMD implementation is within our reach. Indeed, it could be implemented as soon as 2023 or 2024, providing all stakeholders work hand in hand to make it happen.

With this goal in mind, Elia Group intends to consult and engage with all stakeholders in 2021, to develop a comprehensive view of the remaining questions and issues to address.

It is our goal for the CCMD to be used across Europe. Elia Group wants to partner with allies who are keen to make it a reality as soon as possible - whether they are based in Belgium and Germany, the countries we operate in, or any other European country.

