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change

Electricity Retail Market

- FOR ACTIVE ENERGY CONSUMERS

Fortum Energy Review, May 2017

Foreword

The era of active energy consumers

More than ever, digitalisation and new technologies are impacting the everyday lives of all people. As new types of services continue to emerge, today's customers are increasingly prioritising autonomy, personalisation, and the sharing economy.

At the same time, other megatrends such as climate change and resource efficiency are changing the energy landscape. The growing share of intermittent renewable electricity in the energy system necessitates changes not only at the system level but also at the user end. In a modern and low-emitting energy system, the timing of energy consumption is more important than how much energy is consumed. The value of flexibility is increasing. At the same time various possibilities that allow consumers to become active participants in the market are opening up.

In many countries, the electricity retail market has already been deregulated for about two decades. Nevertheless, there are still considerable differences in the market conditions within EU.

Even those countries with liberalised markets and which are regarded as the most dynamic and competitive, like in the Nordics, the overall electricity retail market is lagging behind many peer industries in terms of service development and offering. This leaves a major opportunity untapped. Existing retail market structures do not always support customer-driven service development, and involving customers is challenging when there are barriers that prevent electricity companies from offering interesting services. Therefore, the customer experience fails to meet its potential, and the positive impacts of downstream efficiency and demand response may be lost.

On the other hand, some positive developments are taking place. All throughout the Nordics, countries are developing national data hubs for efficient data exchange.¹ The European Commission is also influencing retail market development through its package of measures, "Clean Energy for All Europeans".² Furthermore, there is a growing understanding that more cooperation should be done at the regional level.

This Energy Review is Fortum's contribution to the discussion on electricity retail market development. Through this Review, we share our insights on the active energy consumers and their needs regarding energy supply and services. We also address key aspects of the retail market design that should be improved to better serve customers' requirements. Policies and legislation should create a framework where consumers would have incentives to increase their flexibility in terms of energy consumption. Retail electricity companies and other service providers, in turn, have a responsibility to develop products and services enabling their customers to do so. We believe that the companies that are able to come up with modern, personalised digital services that respond to individual customers' needs and suit their lifestyles will be the winners.

We hope this Energy Review sparks an active discussion about the future of the electricity retail market on a national, Nordic, and European level.

Fortum Corporation

¹ NorgReg, Status report on regulatory aspects of demand side flexibility, 2016

² European Commission, Clean Energy for All Europeans, 30 November 2016

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Summary and recommendations

A new energy system enables active energy consumers

There is no way to turn back the clock – the society of the future will rely more and more on renewable energy. The transition towards a so-called solar economy has already started, and an increasing share of intermittent production, such as wind and solar power, is making a major impact on the underlying power system. Intermittency makes balancing production and consumption challenging and causes stress to the power system.

Increasing volatility requires active consumers

In the new energy reality, the end users, or in other words, the demand side, need to play a bigger role in balancing the system by adapting their consumption according to the market situation. This is necessary to maintain stability in the power system. This new role of consumers simultaneously opens up new opportunities for them to participate in the market.

This is not a new phenomenon as such. Energy-intensive industry already has a long tradition of adapting its loads to the short-term market situation. This kind of load shifting has generated significant economic benefits for companies that are willing to participate, either through cost savings

or through compensation for avoiding peak hours or grid constraints. In Finland alone, some 400MW of flexibility are estimated to participate through reserve markets and 400-600MW of flexibility through intra-day and day-ahead markets.¹

While big consumers have been able to benefit from active participation in the market, smaller consumers have had significantly less of an opportunity to contribute to short-term balancing. Households and small enterprises have been encouraged to flatten their load profiles, mainly by differentiated tariffs. For example, many Nordic customers with electric heating have a lower tariff during off-peak hours at night, often with a device that switches the water heater on in the evening. Already this rather indirect and imprecise mechanism has a clear positive impact on the overall load profile and creates value by saving costs and reducing the burden on the environment, as it decreases the need for costly and high-emitting peak production. In the new retail markets, there will be more dynamic and precise methods that are based on flexibility to allow customer participation.

Although decreasing predictability may make load shifting more challenging,

In the future, the demand side needs to be able to play a bigger role in balancing the system.

the potential of a more dynamic load control is evident. For example, it has been estimated that in Finland, in terms of volume, water heaters alone could be a significant part of the continuous frequency control market, FCR-N. In Sweden, the theoretical potential capacity is even higher². Already, flexibility is available in the form of demand response from additional household sources such as electric space-heating, home batteries and charging of electric vehicles and plug-in hybrids.

Even though the Nordic countries have actively been developing flexibility and demand response, especially on the faster balancing schemes³, further work still needs to be done before retail companies can successfully launch products and services for their customers.

¹ <http://www.fingrid.fi/fi/sahkomarkkinat/Kysyntajousto/Sivut/default.aspx>

² Swedish Energy Markets Inspectorate, "Åtgärder för ökad e erfråge exibilitet i det svenska elsystemet", 2015

³ <http://www.smartenergydemand.eu/wp-content/uploads/2017/04/SEDC-Explicit-Demand-Response-in-Europe-Mapping-the-Markets-2017.pdf>

Case: Virtual power plant as a demand response solution

The power system needs to be in balance at every moment, meaning that production should equal consumption. The adjustments have traditionally been made on the production side. As the share of intermittent electricity production, such as wind and solar power, grows in the electricity system, new solutions are needed to maintain the power balance. One of Fortum's solutions is the virtual power plant, which also involves the consumption side in the balancing.

In the virtual power plant, both business and private customers lease their unused assets, such as mobile base station and data center reserve power, allowing them to be used to

balance the grids. In much the same way, private Fortum customers in Finland and Sweden already lease their water heaters out for momentarily lowering the output of hot water tanks during peak electricity consumption periods. In Sweden, batteries in solar powered homes will soon be connected to the virtual power plant as well.

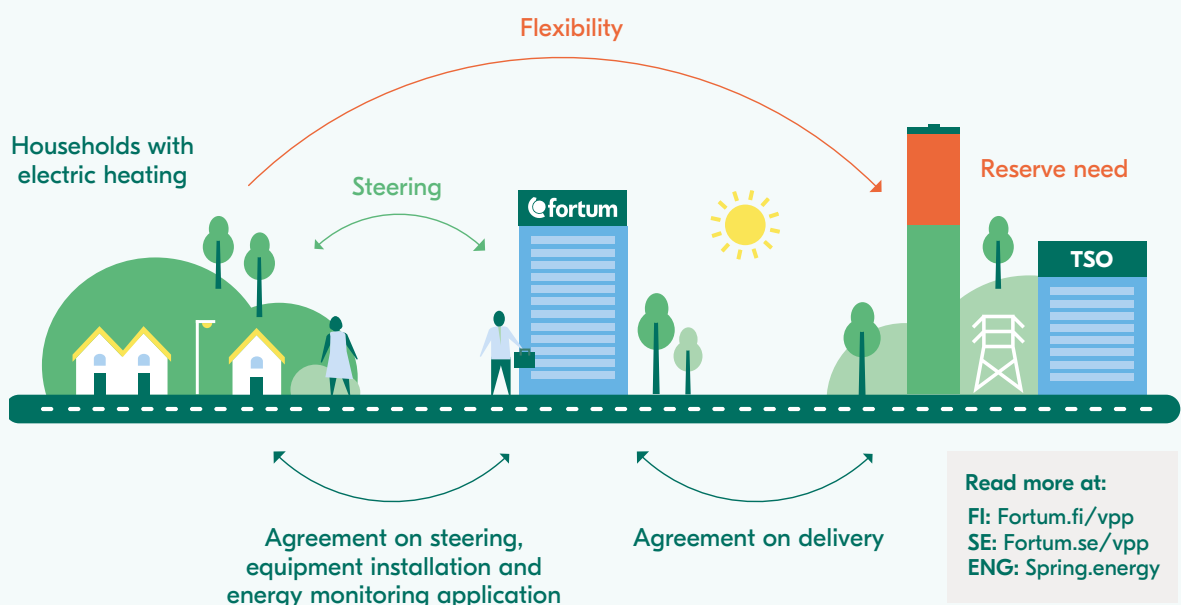
The virtual power plant creates a reserve that can be sold to a local transmission system operator that is responsible for the balance – such as to Fingrid in Finland and Svenska Kraftnät in Sweden – to cover the balancing needs of the electricity system. Turning off the water heater temporarily for short periods of time does not have

any impact on the availability of hot water in the participating households. Similarly, Fortum assures telecom operators and data centers that their reserve power will be at their disposal should they need to use it themselves.

Fortum's first pilot of the virtual power plant started in Finland in spring 2016, involving 100 electrically heated households and their water heaters. In the initial pilot, we provided real-time balancing amounting to about 100 kilowatts. The reserves will grow exponentially as a result of the upcoming commercial launches in Finland and the recently launched pilot in Sweden.

Virtual power plant supply relations

Example





Consumers' expectations are also changing

Customers' expectations are being influenced by digitalisation and mobility, which have already had a major impact on service development in some forerunner industry sectors, such as telecoms and banking. In comparison, energy utilities have been more passive, and so have consumers in the sector, and there has not been any meaningful demand for digital services. But this is all about to change, and there is no reason to assume that the demand and expectations related to customer experience in other industries would not apply to the energy field.

A growing number of data natives expect digital services to develop constantly, become increasingly personalised to suit their individual profiles, and invite some kind of

emotional attachment. Energy price is no longer the only criterion for customer choice. There are also other aspects that matter: services need to be relevant for each individual customer, and they must come with a positive customer experience as well as an economic incentive. For customers, the benchmark for a good experience is set by the best company, regardless of the industry.

Energy consumers are also increasingly looking for autonomy and self-sufficiency. They can start producing electricity themselves, participate in energy communities, peer-to-peer cooperation or micro grids – new models that also allow customers to have direct access to relevant information and references. With smart solutions, customers can start managing their energy use more efficiently than they can at present under traditional contracts.

Not all customers, however, want to be active, nor would they invariably be interested in availing of extensive services. Nevertheless, all customers will benefit from the changes driven by digitalisation, through automated processes or mobile applications.

Consumers are expecting the most basic processes to work seamlessly with the help of digital tools. Basic processes include, for example, signing up for a new electricity contract, changing suppliers, analysing one's consumption, choosing payment methods or contacting customer service. The current regulation of the retail market is not tailored to this new digital world. Current regulation still assumes that customers are willing to take several steps to change a supplier and receive their invoices in paper format. Regulation needs to be updated to take the digital environment into account.

⁴ PVinsight, <http://pvinsights.com>

New solutions make demand response and other smart services more attractive

From the consumers' point of view, decentralised and non-emitting energy sources such as solar panels and heat pumps are becoming more interesting, mainly due to the lower cost of the equipment. For example, the prices of solar modules decreased globally around 60% during last 5 years.⁴

In many cases, however, decreasing energy consumption would still be the most efficient way to reduce costs and emissions, but this situation is likely to change in the future when an increasing share of electricity production is based on non-emitting sources with very low marginal costs. The timing of consumption is becoming more important than the volume of consumption, and therefore new service offerings will be needed.

Smart home solutions have already been on the market for some time, but for the most part, they have not been designed to capture the flexibility potential that could be used to balance the system as interoperability and overview are lacking. The cost-benefit ratio of involving smaller loads in the demand response market has not been attractive because the steering of devices may require expensive technical solutions in the customers' premises. Furthermore, the customer experience is often poor and many synergies remain unused.

The tools enabling customers to manage energy use in their homes are developing rapidly. The evolution

of appliances involving the Internet of Things (IoT) ensures that a lack of technical solutions will not be the bottleneck hindering the smarter use of energy. The most critical aspects which would involve a bigger share of households as active participants in the market have more to do with overall service design and customer experience than technology. Customers need to find that a service offering is interesting and easy to adopt, and that it also brings added value to their everyday lives. Besides services, there is also a need to develop market mechanisms further.

Digitalisation expands service offering potential

To reach a broad share of consumers, service development should be based on in-depth customer knowledge. Digital solutions and data collection tools enable the development of more sophisticated and complex but easy-to-use services that respond to the precise needs and preferences of each individual customer. Parameters that might need to be taken into account are numerous – volume and timing of on-site production; alternative fuels or energy sources, such as heat pumps; storage solutions; handling of flexible and steerable loads; physical restrictions and contract terms related to the distribution grid; electric vehicles in which the charging and use of battery as storage can be timed; taxes; and also, contracts relating to electricity supply and other external energy.

These energy-related services can also complement other non-energy related ones. The customer evaluates services from the perspective of how these

support their lifestyles in general, how well they align with their preferences, and how they impact the overall economy.

In many cases the service provider will need in-depth customer insight and a large amount of customer data to develop services that are attractive enough. For that reason it is apparent that commercial energy companies would be better placed to develop the services than entities from regulated sectors such as distribution.

The timing of electricity consumption is becoming more important than the volume of consumption.

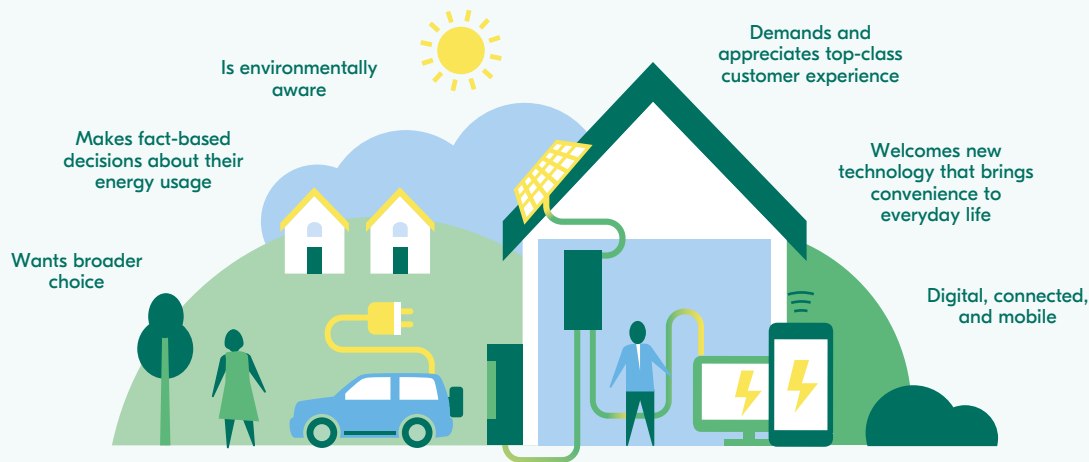
Case: Services for the energy-smart consumer

Today's consumers have the opportunity to be energy smart and increase their autonomy. They can produce their own energy with solar panels and utilise the heat in the ground or in the air with the help of heat pumps. They can choose to cover their energy demand by grid-connected energy sources such as electricity,

gas or heat, or a combination of these. They can travel in an electric vehicle that is charged with renewable electricity. They can use their car's battery or another form of electricity storage to capture the surplus energy from their solar panels and decrease their procurement from the grid, or they can choose to sell their excess

The digitally empowered customer will require smart and easy-to-use services.

The active energy consumer



Efficient, customer-oriented energy services require a holistic view on customers' energy use costs and environmental footprint

Services				Optimisation parameters			
Enabling customers to become active participants in the market							
On-site production such as solar panels, including management and services	Storage solutions	Handling of flexible and steerable loads	Alternative fuels or energy sources, such as heat pumps	Electric vehicles in which the charging and use of battery as storage can be timed	Contracts relating to electricity supply and other external energy sources	Physical restrictions and contract terms related to the distribution grid	Taxes
Customer interface digitalisation							

electricity back to the grid. They can switch their heating and lighting on and off using smart home solutions. Their white goods and other devices can be connected and interact with monitoring and steering applications.

Several factors impact the optimisation of a home's energy-

related ecosystems – the fixed and dynamic price components of the different external energy sources and their related distribution tariffs; the compensation for demand flexibility sold to, for example, the frequency regulation market; taxes; the level of flexibility regarding the time-of-use for the loads, and so forth.

This complexity will grow even further in the future. The digitally empowered customer will require smart, efficient, and easy-to-use services that utilise a large amount of data without compromising convenience.

Fortum's current products for active customers:

- **HOURLY PRICED ELECTRICITY PRODUCT.** Electricity prices are based on the hourly prices in the Nord Pool electricity exchange. Because of the hourly metering of electricity use in Finland, the electricity product based on hourly pricing has been one of the contract alternatives for private customers for the past three years. Each hour in a 24-hour period has its own electricity price.
- **ENERGY-EFFICIENCY SERVICES:**
 - **Consumption monitoring service** lets the customer monitor their energy consumption by the year, month, day, or even by the hour. Works with a web browser or a smart phone app.
 - **Remote service to control smart-home electric devices** operates automatically based on the daily or weekly profile set by the user. Combined with an hourly priced electricity contract, the service chooses the most economic heating hours based on the consumer's needs. Works as a remote service through a computer, tablet or smart phone.
- **SOLAR PANELS.** A turnkey service solution for households that want to start producing solar electricity, and an electricity contract that enables the consumer to sell the surplus electricity they have produced with the solar panels to Fortum. The customer is compensated for the surplus production they don't need. The amount of surplus electricity transferred to the grid can be monitored in the online monitoring service.

Market design in support of a customer-centric electricity retail market

The future electricity retail market must fulfil many expectations. At the same time, it must accommodate many actors in addition to the retailers and Distribution system operators (DSOs) – particularly, customers who want to participate actively in the market, aggregators taking care of loads on behalf of more passive customers, and new technologies such as electricity storage. The electricity retail market, which has been more focused on commodity sales, will transform towards a service business. Basic electricity sales will, however, remain an important part of the package. All these set different demands on the market design.

Key principles for retail market development

As we see it, a competitive market brings the most value to society and consumers. It keeps prices fair and rewards efficient suppliers. Competition and the creation of a genuinely level playing field should be the starting point for developing the retail market design on the national level as well as on the EU level.

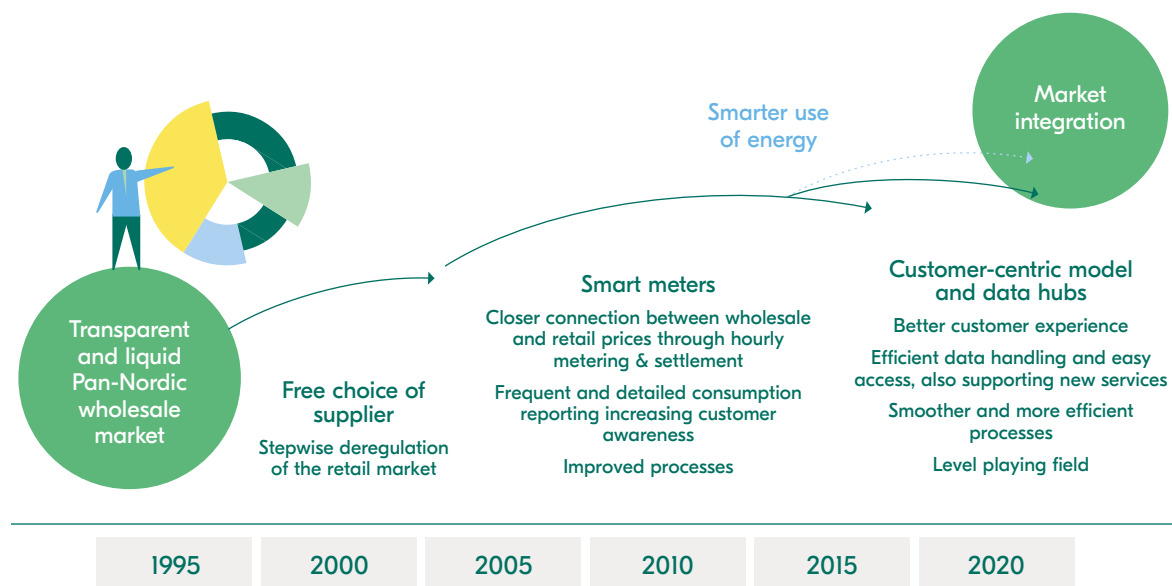
In essence, retail market development should be based on the following key principles:

- Wholesale market signals visible in retail market prices
- Market design rewarding flexibility through scarcity pricing
- A level playing field for commercial players with regard to basic market processes and data
- Clear unbundling between regulated and competitive activities
- Grid operators to act as neutral market facilitators, not participating in competitive activities

A competitive market brings the most value to society and consumers.



Development waves of the electricity retail market in Nordics



Room for development in the Nordics

The liberalisation of the Nordic electricity market started in the early 1990s. In recent years, the Baltic states' power markets have opened for competition as well. As a result, four Nordic and three Baltic countries operate in a common power exchange under the name Nord Pool.

The Nordic retail market is very scattered, with around 350 sales companies serving 15 million customers. However, the share of retailers that actively participate in national markets is smaller. For example, in Finland where there are approximately 70 retailers, less than 20 are active outside their traditional

local area, providing the same offers throughout the country. A handful of new entrants have penetrated and remained in the market.

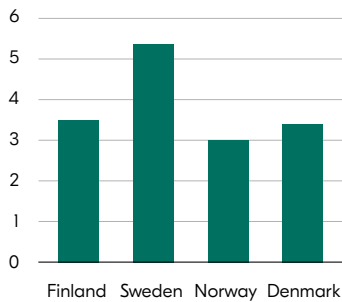
Even in the Nordic retail markets, there are still many customers who show very little interest in actively participating in the electricity markets. Electricity can be seen as a low interest product. Also, the fact that a lion's share of the electricity bill is based on components that are not subject to competition – and that consumers are therefore unable to influence – can lower the interest further.

In addition, there are still various outdated features in the present market structure that distort the market and

A lion's share of the electricity bill is based on components that are not subject to competition.

Customers in the Nordic electricity retail markets

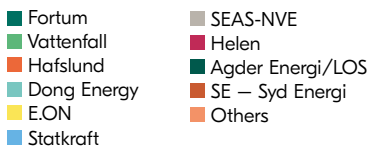
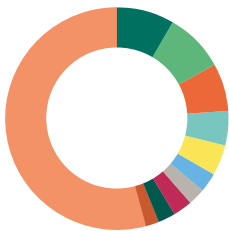
Million



Note: Figures 2015

Source: Finnish Energy, SCB, NVE, Dansk Energi

Nordic electricity retail, 15 million customers, ~350 companies



Source: Fortum, company information, 2015 figures pro forma

prevent natural development even towards fully nationwide markets, not to mention regional ones. In most countries, local, vertically integrated energy grid and sales companies still enjoy significant structural advantages over other players, both in the customer interface and through shared IT-systems.

A new customer interface model enhancing the market

The present deficiencies in the retail market structure lead to lower efficiency in the market processes and higher overall costs that are not visible to customers. At the same time, they also prevent the development of customer service. The main shortcomings are the present bilateral data exchange model between the parties (see the Case story) and the dual customer interface, where both the supplier and the grid company are involved in the customer interaction related to electricity retailing.

Today, it is mostly local, integrated players that are able to offer combined invoicing and related services for electricity supply and distribution. It is a well-known fact that customers appreciate integrated service, and the energy market authorities in all the Nordic countries have stated that retailers should be able to provide integrated services. This would create a more level playing field and also lower the barriers for switching.

Corrective measures to remove the existing market distorting factors have been taken in Denmark, Norway and Sweden with the establishment or setting up of road-maps towards a customer-centric model with mandatory combined invoicing. A decision is also needed in Finland in the near future to ensure sufficient prerequisites for ongoing practical development of ICT systems, for instance. It would not be wise for Finland to apply a completely different solution in this key issue, which also has an extensive indirect impact on the markets.

Data hubs and combined invoicing lead to clearer interfaces and reduce potential grey zones in the division between regulated and competitive business areas, thus also decreasing the risk for cross-subsidies. The new structure would also facilitate the co-operation between DSOs in the development of new services.

Local energy companies still enjoy significant structural advantages over other players.

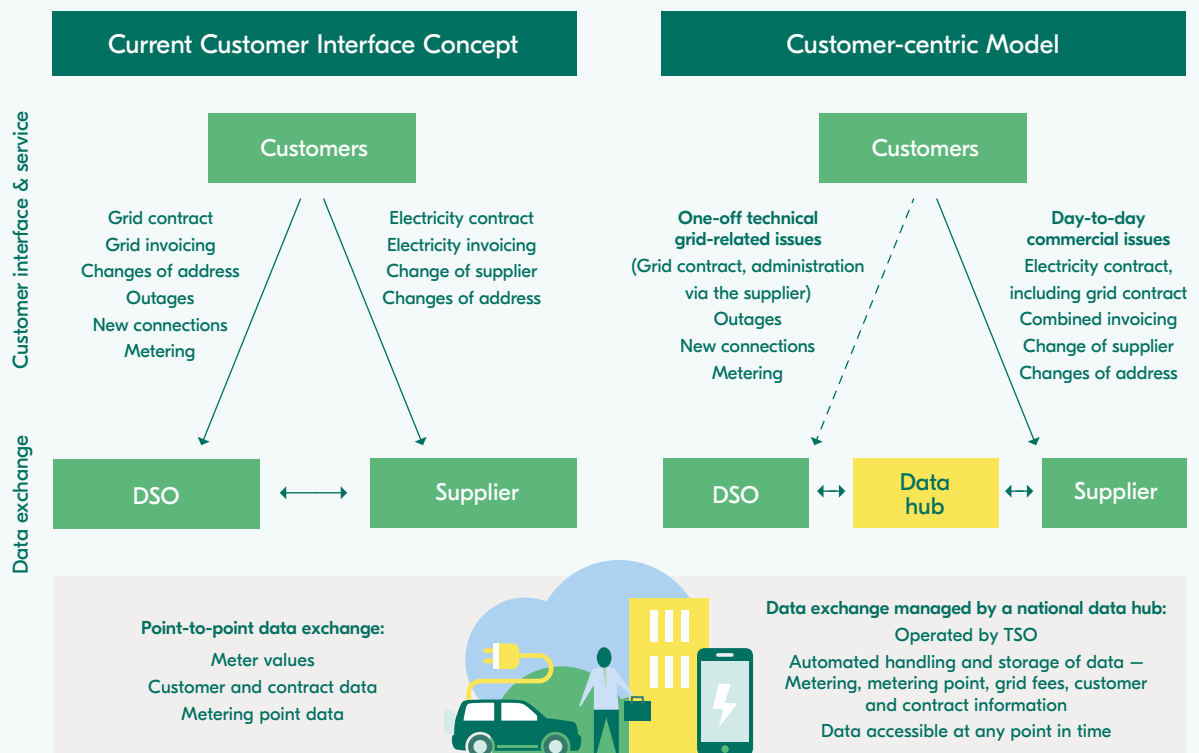
Case: Restructured data exchange through data hubs

The suppliers and the DSO need to exchange customer data, for instance, when a customer changes their address or changes suppliers. Also, the customer's consumption data is sent from the DSO – which in the Nordics is responsible for metering – to the supplier. The data then serves as the basis for the supplier's invoicing and customer service. In the current situation, data is exchanged on a bilateral basis. Although

standards exist and many players use service providers that package the information, thereby decreasing the number of counterparties, there are still a variety of differing practices that complicate operations. This is especially true for companies that are active throughout the national market. The present model is inefficient and triggers errors. These problems are further accentuated by the increasing data flow from smart meters.

Especially in the highly fragmented Nordic markets, a centralised data exchange is a logical solution. The data will be sent to the hub in a uniform manner and delivery quality would be monitored. The information would be made available to the parties with access rights, and in accordance with agreed standards that support the market processes and ensure data security.

Customer-centric Model and Data Hubs





A data hub facilitates the implementation of a consumer-friendly customer interface model.

The present structure is built with integrated grid and sales companies, which have limited data exchange outside the own corporations. This was a pragmatic solution before the deregulation process began. However, as the markets have evolved, all the Nordic countries have in practice decided to move towards centralised data exchange through data hubs run by national Transmission System Operators (TSOs) such as Fingrid in Finland, for example. In Denmark, the data hub has been in use since 2014, and Norway will launch their solution in autumn 2017. The Finnish project is at a good momentum with implementation set for 2019, while the Swedish hub is expected to be taken into use in 2020.

A data hub is not only beneficial from a data exchange process perspective. It also fulfils a very important role as a neutral market facilitator, ensuring a level playing

field, for example, regarding data access to equal standards and terms. It also eases the execution and follow-up of the unbundling of regulated and competitive operations within integrated companies. Furthermore, a data hub facilitates the implementation of a consumer-friendly customer interface model with combined invoicing. These aspects are increasingly important in ensuring a good customer experience and new, enhanced services.

The standardised interfaces would also promote more cost-efficient ICT-solutions and new services related to the handling of metering data, for instance. This will improve overall efficiency and ease the entry of new players into the market. Moreover, the national hubs can also facilitate the formation of regional markets by encouraging co-operation between the hubs.

Less active customers would also benefit

Naturally, there may be customers who have no interest in becoming direct and active participants in the market. But even these customers, as well as the environment and society as a whole, would benefit from a more well-developed market. The advantages are linked primarily to increased overall cost efficiency in the system and quicker and more transparent switching. Automated use of flexible demand side resources would also be easier, enabling customers to participate in the market without having to do anything themselves.

In addition, the more efficient and standardised processes lower the threshold for non-utility service providers to integrate the basic delivery of electricity into their services, benefitting all customers.

Level playing field to foster development of new services

Retail energy companies have typically been, and many still are, vertically integrated. This makes it even more important to ensure that the roles and responsibilities of different market players are clear. It is especially critical to make a clear distinction between competitive and regulated businesses.

A market model that is genuinely customer-driven and where the consumer interface is managed by a competitive supplier or service provider is a key tool to ensure a level field for market players. An essential additional component of such a market model is a data exchange model that

ensures equal conditions for all players. These factors are valuable elements in the traditional electricity sales environment, and will be even more vital in the evolution of new services and business models.

The international service market is open for growth

There is a big potential for service market development, but the incentive to develop sophisticated digital services only for small national markets is not that great. Individually, Nordic and Baltic countries' electricity retail markets are too small on their own. If combined, however, they would make a sizeable area where launching new digital services would be more reasonable. Although a fully harmonised regional electricity retail market is an unrealistic objective even on a medium-term perspective, there are a number of basic features that can be implemented in all countries in the Nordic market and across the EU.

Roles and responsibilities between commercial and regulated market players need to be clear.



Fortum's view on topical regulatory issues related to the retail market

Thus far, EU energy policy has focused on wholesale electricity and gas market liberalisation as well as decarbonisation. The case for electricity retail market development at the EU level, or even at a regional level, has been more complicated. The maturity of the national electricity retail markets in Europe varies greatly, and there are many sensitive aspects related to retail customers, such as energy poverty.

The European discussion follows a few steps behind

In recent years, the European Commission has put more focus on the consumer angle. In 2015, the EC presented a so-called new deal for energy consumers, with the target of giving households and business consumers a central role in Europe's energy transition⁵. The Clean Energy for all Europeans Package⁶ contains a number of proposals in areas linked to demand-side participation and the smarter use of energy. The package also takes a welcome step towards defining the roles and responsibilities of key market players in the new energy system, suggesting that owning and operating energy storage as well as EV charging businesses must be a function of the commercial, and not the regulated, market.

Key regulatory topics

From Fortum's perspective, the most important regulatory issues that should be clarified and defined in the short-term future are the following:

Retail market model

- Adopting a customer-centric model as it is a crucial element for consumer participation and evolution of new services, and a combined invoicing as key component of it.
- Ensuring a level playing field between all commercial players, regardless of e.g., vertical integration.

Unbundling

- Unbundling rules should apply equally to all companies with grid asset/operation and apply regardless of their size. This is especially important in markets where the share of small companies is large, such as in the Nordics.

Price regulation

- All regulated prices should be removed and price signals should be visible for end-consumers.
- All consumers should be entitled to avail of dynamic contracts.
- Energy poverty to be addressed through social policy measures.

Smart meters

- Key facilitator when making wholesale market signals visible in retail market prices.
- Hourly metering and settlement should be an industry standard.

Dynamic network tariffs & taxes

- Moving from fixed network tariffs to dynamic tariffs would support demand response development.
- The same could partially apply for the energy tax applied for electricity.

Issues relating to consumer data

- Data security must be safeguarded.
- Interaction between Nordic data hubs should be ensured.

Billing and Switching

- Ensure that consumers' expectations of digitally seamless processes are not hindered by regulation not fit for the digital era.
- Too detailed regulation on billing or switching should be avoided.

On-site production by consumers

- All consumers should have a right to produce electricity themselves and sell their excess electricity back to the grid based on market price.
- Also small producers should have the same responsibilities e.g. in terms on balancing.

⁵ Delivering a New Deal for Energy Consumers: COM(2015) 339 final, July 15, 2015

⁶ European Commission: Clean Energy for All Europeans: COM(2016) 861 final, November 30, 2016 and COM(2016) 864 final, November 30, 2016

Demand response

- Demand response activities should be left for commercial market players.

Aggregation

- Aggregators are important parties in the new energy system through which e.g., prosumers can buy balancing services.
- No exemption from market obligations. Aggregators should be balance responsible when acting on market.
- Compensation for aggregation services should be derived from the market, not from subsidies.

Energy storage

- Energy storage should be part of competitive business, not part of regulated network business.
- Taxation of energy storage should be clarified. Although taxation is a national issue, it would be useful to agree on EU level principles. Charging storage from the grid is not consumption.
- Technical and regulatory details relating to household size storage should be clarified.

EV charging

- The charging of electric vehicles should be part of competitive business, not part of regulated network business.

Energy efficiency

- Energy efficiency policies and legislation should promote flexibility instead of static savings, as the timing of electricity consumption is more important than how much electricity is consumed.



Summary and recommendations

The transition towards a so-called solar economy has already started, and an increasing share of intermittent production, such as wind and solar power, is making a major impact on the underlying power system.

In this new energy reality, the demand side, or in other words, end users, need to play a bigger role in balancing the system by adapting their consumption according to the market situation.

The timing of energy consumption is becoming to be more important than how much energy is consumed. Flexibility is increasing in value.

At the same time various possibilities that allow consumers to become active participants in the market are opening up. There is still a lot of work to do in developing policies and legislation to create a framework that would give consumers incentives to increase their flexibility and enable companies to better serve their customers' requirements.

Policies and legislation should create a framework where consumers have incentives to increase their flexibility in energy consumption.

Below is a summary of Fortum's views on electricity retail market development:

- **Digitalisation and new technologies** are changing the way we produce and use energy. Regulation concerning and related to the electricity retail market model needs to be updated in order to support this transition. A customer-centric market model should be the starting point for all electricity retail market development.
- **A future energy system** that is increasingly based on variable renewable energy requires the availability of flexible resources, such as demand response and electricity storage. These flexibility services should be provided primarily by commercial market players. Policies and legislation should promote developing flexibility on a commercial basis and ensure the clear unbundling of regulated and competitive activities.
- **Consumers should be encouraged** to become active participants in the electricity market. Policies and legislation should create a framework where consumers have incentives to increase their flexibility in energy consumption. For that purpose it is important that wholesale market signals are visible in retail market prices.
- **Free price formation** should be ensured for all consumers. Pre-existing regulated end-user electricity prices should be eliminated. The rest of the Europe should follow the example of the Nordic countries where consumer prices have been liberalised since the 1990s.
- **In the future energy system** wholesale and retail markets need to be better connected to ensure that benefits from demand response to the system's stability can be fully utilised. All consumers should have the right to have a dynamic contract.
- **Smart meters** provide the technological means for development of innovative energy services to end-consumers. Roll-out of smart meters should be completed as soon as possible in all EU countries.
- **Competition also creates the best innovations** in the energy service sector. Barriers preventing electricity companies from offering interesting services to the market and end-consumers should be abolished. For example, grid tariff data should be available on equal terms to all market players.
- **Energy efficiency policies** and legislation should promote flexibility instead of static savings as when electricity is consumed is more important than how much is consumed.

Fortum's key recommendations to further improve the electricity retail market and to foster the development of smart energy services:

- Customers should be able to get all the services they choose to have from one provider.
- Efficient data exchange, ensuring that the players have access to the data on equal terms, is a key enabler of the modern electricity retail market.
- The distinction between the commercial and regulated activities must be clear – regulated companies should not participate in commercial activities.
- The electricity retail market model must incentivise the utilisation of demand flexibility potential and ensure that the same rules apply for all players.

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on the Electricity Retail Market, May 2017

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The energy sector is in the midst of a transition. Megatrends — such as climate change, emerging technologies, changes in consumer behaviour, and questions regarding resource efficiency — have a major influence on the global energy sector. Fortum intends to participate actively and offer solutions in this evolving market.

It is our wish to engage our stakeholders in a dialogue about the future. The Fortum Energy Review series highlights the challenges and opportunities we see in the energy sector and outlines our solutions to them.



Electricity retail market — Fortum's key messages

- Customers should be able to get all the services they choose to have from one provider.
- Efficient data exchange, ensuring that the players have access to the data on equal terms, is a key enabler of the modern electricity retail market.
- The distinction between the commercial and regulated activities must be clear — regulated companies should not participate in commercial activities.
- The electricity retail market model must incentivise the utilisation of demand flexibility potential and ensure that the same rules apply for all players.