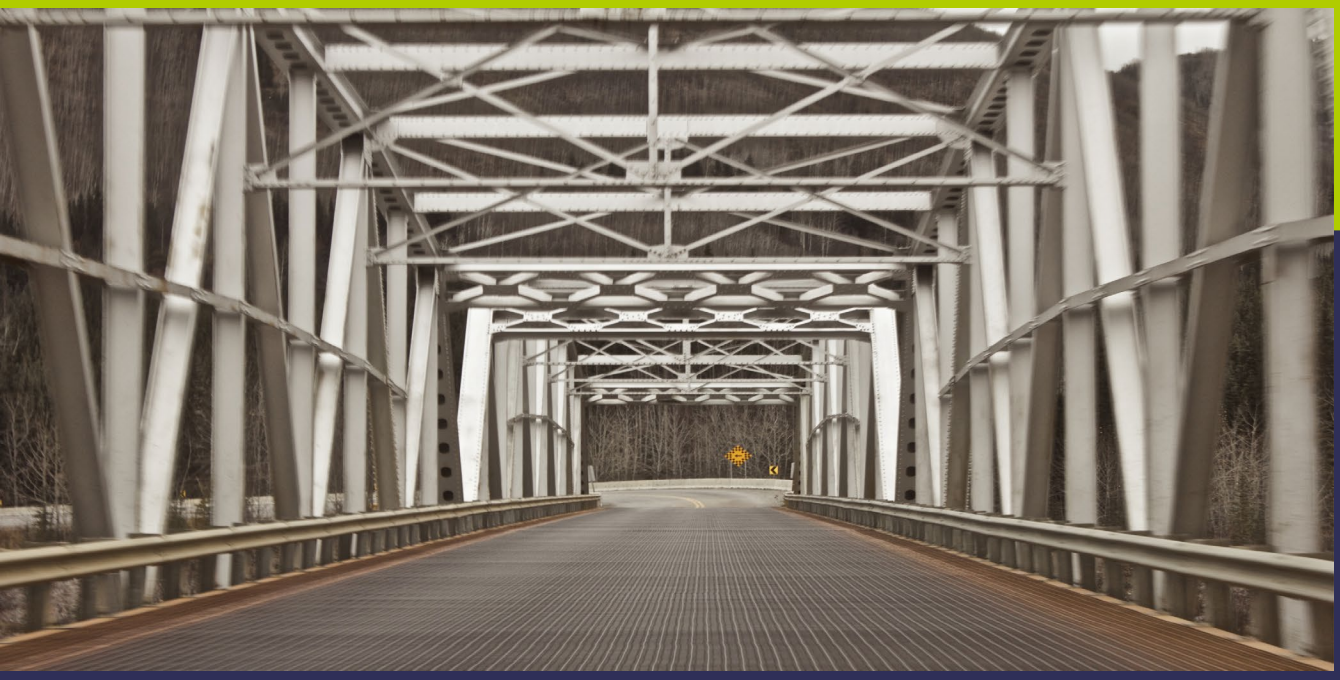
European Commission

EUROPEAN BARRIERS IN RETAIL ENERGY MARKETS



AUSTRIA
Country Handbook

Prepared by vaasa ETT REKK MRC CONSULTANTS AND TRANSACTION ADVISERS A member of the MRC Group of Companies THE ADVISORY HOUSE LISTEN-ADVISE-SUCCEED

Energy

EUROPEAN BARRIERS IN RETAIL ENERGY MARKETS PROJECT: Austria Country Handbook

VaasaETT
REKK
MRC
The Advisory House

Contact:
Philip Lewis, VaasaETT, philip.lewis@vaasaett.com
Balazs Felsmann, REKK, balazs.felsmann@rekk.hu
Chema Zabala, MRC, jmlopez@mrc-consultants.com
Florian Hirschbichler, The Advisory House, florian.hirschbichler@advisoryhouse.com

Manuscript completed in July 2020

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Luxembourg: Publications Office of the European Union, 2021

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PDF ISBN 978-92-76-30235-3 | doi:10.2833/214989 | MJ-02-21-166-EN-N

How to cite this report: Hirschbichler, F., Löw, R., & Presch, D. (2021). European Barriers in Retail Energy Markets Project: Austria Country Handbook. Luxembourg: Publications Office of the European Union. ISBN 978-92-76-30235-3, doi:10.2833/214989.

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This document has been prepared for the European Commission however it reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Please note that this and the other country handbooks form just part of the deliverables of the "European Barriers in Retail Energy Markets" project. For more detail on methodology, Europe-wide results and the Barriers Index, please refer to the following associated reports: "Final Report of the European Barriers in Retail Energy Markets Project"; "Report on the European Retail Energy Market Barriers Index"

SUMMARY

Project Outline

The following project outline describes the overall European Barriers in Retail Energy Markets Project. It relates to all the countries and markets which are the focus of the project.

The Context

European retail energy market liberalization is now well into its third decade in the most mature markets. Customers of electricity and gas are now free to choose their electricity and gas suppliers in nearly all markets across the EU and in a number of other European markets. At the same time, the European Commission and national European regulators have created a basis for non-discriminatory market access for energy suppliers through a series of regulations and directives. In theory at least, the European retail energy market is a place where new suppliers and providers of retail services can enter the market and compete relatively freely and on equal terms for customers in the market; a place where formerly incumbent electricity suppliers can compete for gas customers and where gas suppliers can compete for electricity customers; a place where a supplier from one region or jurisdiction can compete in another, without facing unreasonable or excessive barriers; a place where a capacity aggregator or other innovative business model can compete to provide its services to retail energy customers.

Objective

The European Barriers in Retail Energy Markets project was established to research the extent to which the theory is the case in practice; the extent to which energy suppliers across Europe face a variety of barriers to enter and compete in the market; to identify which barriers exist and to provide some suggested solutions to those barriers. The project thereby aims to support the European Commission and Member States in developing policy and implementing actions to reduce barriers.

This project has also designed and calculated a performance index that ranks different countries according to how easy it is to do business in the retail energy segment by combining a selection of measurements into a single score. The project is on the other hand, not intended as a measure or indicator of the ‘competitiveness’ of any given market, and it does not in this respect judge the effectiveness of regulatory authorities or governments, many of which have put great effort into developing their markets.

It is also important to note that all the markets included in this research are continuously evolving. Changes are being planned and improvements (and in some cases additional barriers) are possible as a result. While this project highlights and considers known future changes, it cannot make assumptions as to the effectiveness and outcomes of those changes. This project is therefore weighted in the present, based on the actual context in the market, whilst accepting that the present context may change, in some cases imminently.

Competitor Perspective

What sets this project apart from previous Europe-wide projects looking at the issue of barriers is above-all that it primarily takes the perspective of the competitor rather than any objective view of regulators, economists or academics. This is an important distinction since it requires an acceptance that even if the existence of specific barriers may not seem logical or rational, and even if they are not permitted or legal, even if they were supposed to have been eradicated, those barriers are significant at least in the experience or expectations of competitors in the market.

Notwithstanding this however, the project does not simply accept whatever competitors claim. On the contrary, the researchers have gone to great lengths to ensure that claims are challenged and justified. Cooperation with regulatory authorities to understand the regulatory context of claims, along with survey and interview feedback from competitors (including incumbent suppliers) with alternative perspectives or points of view, have also been considered to ascertain a balanced evaluation of the barriers in any given market. This approach may therefore be of value to policy makers, and complementary to other studies addressing market outcomes.

In some cases, claims by respondents have been made which cannot be corroborated. For instance, there have been claims by many respondents across Europe about integrated utility behaviours that represent barriers to independent suppliers in the markets. Barriers apparently resulting from a lack full ownership unbundling. Such behaviours may well be regulated against, may even be considered illegal, and authorities may have powers to investigate them – and maybe do so. They are impossible to prove given the mandate and resources of the researchers of this project, yet they are widely reported by respondents and broadly documented in other researches. Such barriers may be considered allegations by the respondents, but where they appear to merit further consideration they have been raised since their potential impact on competition is substantial.

Scope & Scale of Research

The project focuses on electricity and (in most cases) gas markets in 30 European countries, namely the EU27 states plus Great Britain, Norway and Switzerland. It was conducted over the course of more than a year with the cooperation and assistance of nearly all of the relevant national regulatory authorities (the report does not however represent their views and has not been ratified by them), around 150 suppliers and many other stakeholder organizations, across all focus markets. Great Britain was included in the project and cooperation was received from numerous suppliers, the regulator (OFGEM) and other stakeholders. Switzerland and Malta were included to a lesser extent since they are not yet open markets for household customers.

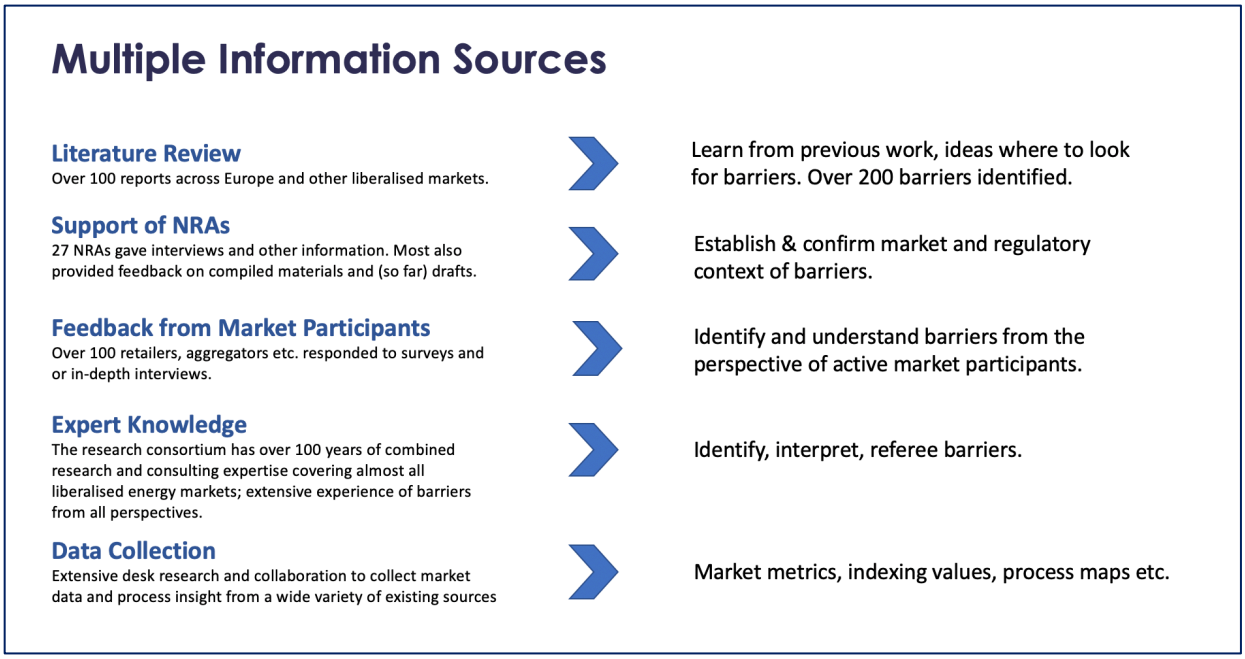
The project focuses on retail (supply), including also demand aggregation services, other additional offerings and new model retail, especially relating to the household segment customers (in some markets households and smaller SMEs may be difficult to distinguish). The project additionally concentrates primarily on barriers that are specific to the energy (electricity and gas) retail market – as opposed to barriers that are true of most markets, such as basic business costs and risk - and it gives priority to barriers for which a potential solution might be sought, as opposed to barriers which are a fact of any energy market and which could not realistically be overcome (such as the barriers relating to the core price volatility of energy as a commodity). The project does not aim to list every possible barrier in the market, however small.

Sources of Information

Many sources of information were used as part of the project. These included an extensive literature review of over 100 public reports, to assist in the targeting of survey questions; interviews with national regulatory authorities (NRAs) to understand the regulatory context in markets; feedback from market participants (suppliers and other competitors) and extensive data gathering for the purpose of collecting market metrics, market processes and

index values. For the latter the task of identifying sources that could deliver comparable and reliable index values was a key challenge of the researchers. The expert knowledge of the project consortium (which has extensive experience from the markets and issues concerned was also used to add judgement to the process. Specifically, the core project team comprised over a dozen researchers and experts from nine European countries, including international experts who have analysed Europe's energy markets since even before they liberalized.

Figure 1 – Multiple Information Sources



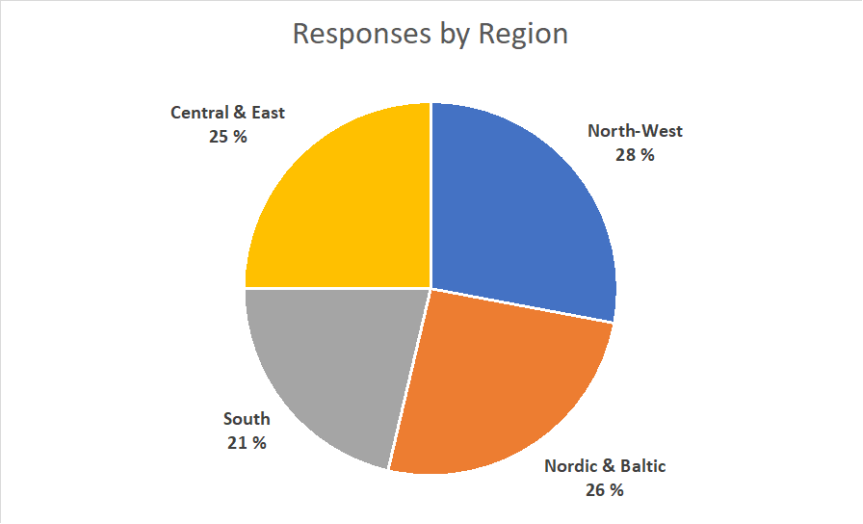
Surveys & Interviews

The primary research mediums used in the project were an extensive questionnaire and in-depth interviews. The purpose of the questionnaire, which contained separate questions depending on the type of respondent, was to provide a comprehensive and structured identification, weighting and magnitude of the barriers as experienced and perceived by suppliers and other competitors. Questions were categorized and broken down according to what was known through the body of existing literature and the experience of the project consortium, ensuring that all known barriers were addressed by the questionnaire. The questionnaire additionally facilitated the identification of barriers that hitherto had not been revealed by the literature review, or which were country specific. Interviews provided additional support and clarification to the findings from the questionnaire as well as allowing respondents to focus on top-of-mind barriers and the interviewers to dig deeper into key and / or unclear issues. While some respondents provided both questionnaire and interview responses, many provided one or the other.

The survey was publicly and widely promoted (via web sites, social media and by other direct means) to potential respondents from 17th June until late October 2019 but remained open until late February 2020 so that stakeholders contacted during Country Handbook development had the chance to respond. The dissemination of information on the project was further facilitated by a widely promoted public website through which over 300 people subscribed.

The Competitor Sample

143 questionnaire and interview responses were received representing 120 unique market-specific responses covering 28 focus markets. 71% of responses were through questionnaires versus 29% through interviews. Malta (a closed market for household customers) and Slovakia were the only markets from which responses were not received, although three additional markets received a level of response which was considered insufficient on which to conclude barriers based solely or primarily on respondent feedback. In these markets, namely Bulgaria, Cyprus, Czech Republic, the project consortium applied their expert insight and additional desk research to support the analysis of the markets. Switzerland, also a closed market for household customers, also naturally received insufficient response. The responses from 24 markets were therefore considered sufficient for the purpose of interpreting the barriers within those markets primarily based on respondent feedback. It is important to note that the response rate in no way impacted the index, which is not dependent on responses.



Analysis of the sample shows that responses were spread evenly among the regions. 66% of responses were non-incumbent competitors compared with 34% which were former incumbents in the markets concerned. In many cases the former incumbents are only former incumbents in one region within the overall country they are in. A large proportion of the former incumbents are furthermore active across multiple regions and countries, and therefore are both incumbents and non-incumbents, defenders and challengers. Among the non-incumbent players were a mix of more established competitors and more recent new entrants, along with more traditional supplies, new model suppliers and aggregators.

More information on the nature of the sample and responses can be found in the Final Report for this project.

Confidentiality

The importance of data protection and anonymity within the project cannot be stressed enough. Most respondents provided information on condition of anonymity. It was promised by default to questionnaire respondents and was in most cases explicitly requested by interviewees. Many participants additionally stated that they were nervous to respond at all since they were active in a market where there were only a handful of suppliers (or at least independent suppliers) which they felt meant that their responses could easily identify them. This risk was perceived as even greater in cases where the participant had made public statements on issues that would be contained in the research (the risk of readers putting two and two together was a concern). In some cases,

respondents stated that they even feared a backlash from other stakeholders if their identity was revealed, or (for e.g. a brand-new entrant in a market with one brand-new entrant) stated that if we revealed that they were a new entrant the market authority would instantly know who they were and that they were afraid it might inhibit their entry process.

Under such circumstances, it was decided that not only would all responses be anonymous, but also that the type of respondents would not be revealed in connection with given responses on a country level. It has been claimed by a handful of market authorities that this policy reduces the value of the research. The researchers feel that it in fact increases the value of the research since it has allowed respondents to provide information in an uninhibited fashion in a European market where, by and large, independent suppliers – and especially independent new entrant suppliers – are few and far between.

Deliverables

The project has three key deliverables:

- **28 country specific handbooks** detailing the barriers identified in each country together with suggestions for possible solutions. While most of the handbooks cover electricity and gas markets, some only cover electricity or cover gas to a lesser extent due to the absence or limited presence of gas. Additionally, two countries, Malta and Switzerland do not have country reports due to their closed nature with respect to household customers.
- **A robust, peer-reviewed barriers index** of how easy it is to do business in each country. The European Retail Energy Market Barriers Index, contained in the separate European Retail Energy Market Barriers Index Report, allows the objective comparison of market barriers across the focus markets. The report also includes a ranking of the focus markets.
- **An overall Final Report** containing a full project description and bringing together the findings and common learnings from all countries.

The Barrier Index and Ranking

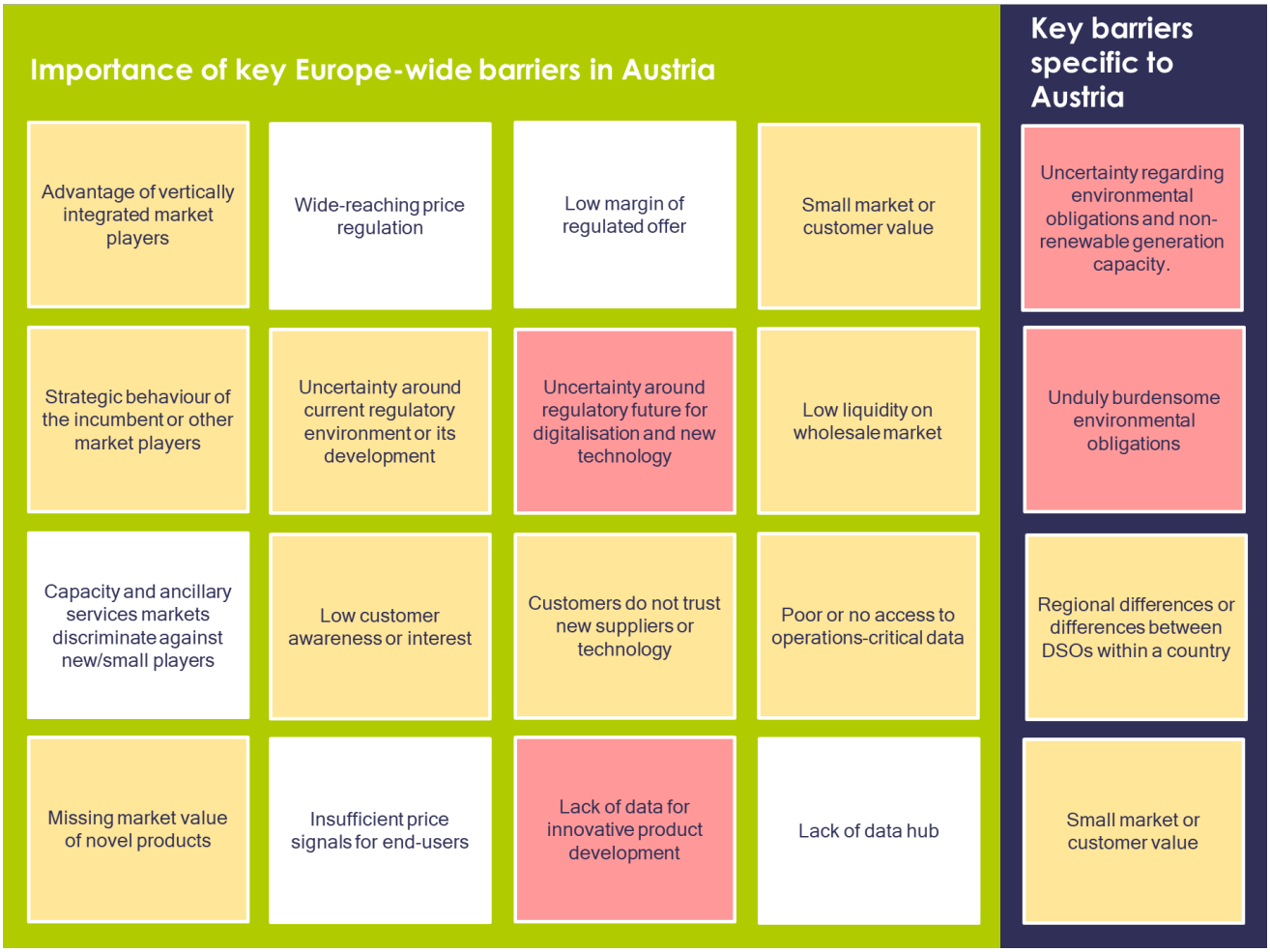
The purpose of the 'European Retail Energy Market Barriers Index' is to enable a degree of comparability between the barriers' context in each of the markets. It is based on metrics that can be collected for all markets, metrics for which available data currently exists. As such it provides a simple, best-available proxy benchmark measure for each of the categories of barriers identified by the project, for each market, and thereby ranks each market. It is intended to be used as an evolving periodical index and ranking on a European and national level.

The index and ranking should, however, presently be considered more of an approach and an indication than an absolute or definitive ranking. It represents the current state of market monitoring data in Europe and will evolve over time as data availability improves. Over time we would expect and recommend that governments and NRAs advance new metric collection to better enable future editions of the index and ranking.

A full description of the Index, its methodology and detailed findings and the ranking can be found in the separate Index report for this project. Within each country handbook the index values for that given country is presented.

Key barriers in the Austrian market

The following figure highlights the key barriers in the Austrian market.



Key recommendations

- **Regulatory uncertainty**. Although to some extent unavoidable in an evolving market, uncertainty around upcoming environmental obligations and non-renewable generation makes it difficult for businesses to plan. Clearer communication of plans and schedules, along with increased consultation with market actors, could improve this issue. If not present, a long-term plan can also lower this barrier.
- **Unduly environmental obligations**. The transposition of the energy efficiency directive (EED), the Austrian EEffG (Energy Efficiency Law), was raised as barrier in the country. Currently, the effectiveness is being reviewed in order to design a fitting legal framework. It is recommended to design the associated supplier obligations and bureaucracy in an efficient and effective way and for a long time-period, to reduce uncertainty.
- **Lack of data.** Optimized governance of the decentral market communication system can help in eliminating this specific barrier.
- **Regional differences between DSOs.** Standardizing the customer consent process to access Smart-Meter data, which is currently not the same for each DSO and sometimes not properly digitalised, could help in eliminating this barrier.

MARKET OVERVIEW

For historical reasons, the Austrian electricity and gas industry is characterized by a high proportion of public ownership and strong vertical and horizontal interdependencies. Most companies have direct or indirect ownership interests in other market participants.

Market background

Prior to market liberalisation, the major regional and the municipal utilities were mainly responsible for grid operation and energy supply to customers without a choice. For electricity, there was one company mainly responsible for power production.

Based on the EU's 1st Internal Energy Market Package, the energy market in Austria was progressively opened. Austria's adoption of the "first energy package", partially opening the electricity market for large customer and introducing accounting unbundling, came into force in 1999. Therefore, earlier than in other European countries, large electricity customers (consumption > 40GWh) had free choice of their suppliers. In 2001, the adoption of the "second energy package" followed, establishing the NRA, E-Control, to promote and monitor fair competition on the electricity and gas market. As independent authority, E-Control is responsible for establishing and ensuring compliance with market rules and its main duty is to "oversee and control the Austrian gas and electricity market in the best interest of the customer". This includes also the regulation of electricity and gas grids which are not opened for competition. E-Control is also responsible for dispute settlement, market monitoring (also in regards to renewables), equalization payments and correct market functioning. Further information on the NRA´s duties can be found on their homepage[1]. Furthermore, the second energy package introduced organizational and legal unbundling and completely opening the electricity market for all customers. One year later, on October 1st 2002, also gas customers were free to choose their supplier. In 2010, the adoption of the "third liberalization package" was introduced, focusing on the strengthening of consumer rights and the regulatory authority, European harmonization regarding grid access and TSO ownership unbundling. Most of the regulations of the European regulatory framework were implemented in the Electricity Act (EIWOG) and the Gas Act ("Gaswirtschaftsgesetz – GWG"). In general, legislation in the energy industry is carried out at federal level. In some areas of the electricity industry, only enabling provisions are issued at federal level, which are then developed by federal states in their relevant laws.

Many independent suppliers were established after market liberalisation. Since 2012, the number of suppliers and products offered have increased substantially. In 2018 154 electricity and 46 gas suppliers were active in the household market of Austria. Competition is characterized by price competition through discounts for new customers and the positioning of the suppliers in publicly available comparison tools. About half of the customers wishing to change, choose one of the best positioned suppliers in these tools. Green products (in electricity) are very common, but are no longer seen as innovative. On the other hand, bio gas products are not very relevant for the retail customer (yet).Gross retail margins remain relatively high, as is price dispersion across suppliers.

1 https://www.E-Control.at/en/econtrol

Market structure

By taking a look at the Austrian energy market structure the large number of 154 different electricity suppliers and around 64 different gas suppliers stands out immediately. The electricity suppliers can be divided into the following groups: 50 national wide active, 10 regionally active, former VIUs (vertically integrated utilities) and 94 regional suppliers. The largest Austrian electricity suppliers are: Verbund, EVN, Energie Steiermark, Wien Energie, KELAG, Energie AG Oberösterreich and TIWAG. 23 out of the 50 gas suppliers are operating nation-wide. The Austrian DSO landscape shows 133 electricity DSOs (one regional, local player per federal state + local grid operators) and 21 gas DSOs in 2019. In electricity sector Austria has two TSOs, namely Austrian Power Grid (APG) and Vorarlberger Übertragungsnetz GmbH (VÜN) with only one Austrian wide control area, managed by APG. The Austrian gas market consists of the two TSOs Gas Connect Austria GmbH and Trans Austria Gasleitung. Austria's NRA for electricity as well as gas, is EnergiE-Control (E-Control). E-Control's main duty is to "oversee and to control the Austrian gas and electricity market in the best interest of the customer". Besides that, associations represent the interests of market players, where for electricity "Oesterreichs Energie" (Association of Electricity Companies) and for gas "Fachverband der Gas- und Wärmeversorgungsunternehmungen" (Association of Gas- and District Heating Supply Companies – FWG) are the most important ones.
Based on a cost benefit analysis, Austria decided to roll out Smart Meters to 95% of all electricity customers by 2022. In 2020, in accordance with EU regulation, 80% of the customers should be equipped, a target that was marked as too ambitious by DSOs and therefore is not expected to be reached. By December 2018, the penetration rate stands at 15,4%, compared to 11,9% in 2017[2].

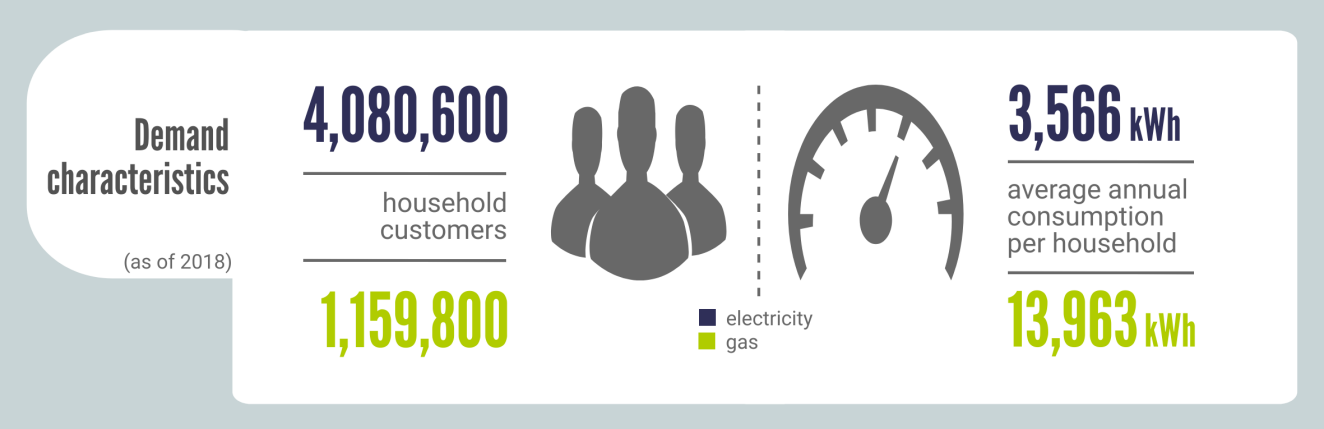
In 2018 Austria's total electricity supply was around 96 TWh consisting of around 68 TWh gross production and around 28 TWh physical imports. In order to cover the 71.8 TWh of national electricity demand, plus pump storage (5.1 TWh) and exports (19.1 TWh), 41.2 TWh of the gross production were produced by hydroelectric power plants, 14.3 TWh by conventional thermal power plants (coal, gas, biofuels) and 6.9 TWh by other renewables (Wind, PV, Geothermal), leading to a share of renewable electricity production of around 73% (large hydropower plants included). The gas market is characterized by high imports (528TWh) and exports (443TWh), compared to the level of gross national consumption (96 TWh) [3].
The biggest part of energy procurement of Austrian suppliers still happens mainly OTC or through non-standard contracts in Austria. Especially suppliers with high trading know-how can take advantage of energy procurement via the exchanges. The most important exchanges referring to power suppliers in Austria are the EEX (European Energy Exchange) which mainly focuses on power futures and the EPEX Spot (European Power Exchange) & EXAA (Energy Exchange Austria) which are specialized in the power spot market. In addition, for gas suppliers the gas exchange PEGAS is relevant for spot and future market products. Furthermore, there is the CEGH (Central European Gas Hub) which is set up as a virtual trading point and is used for buying and selling gas on the OTC and also on the spot market. In contrast to energy exchange operating companies and the participants of the OTC market, Austrian suppliers are also able to partially or fully outsource their energy procurement activities. In between there are many hybrid forms possible, meaning that only single or many trading activities

[2] https://www.E-Control.at/documents/1785851/1811528/2018_Monitoringbericht_public.pdf/24c56fdb-ef51-fae7-77e4-22a5725ae059?t=1572513357669
[3] https://www.E-Control.at/en/betriebsstatistik2018

can be outsourced (most expensive) to third parties (individual agreements). This method is often used by energy suppliers with no or less trading competence.

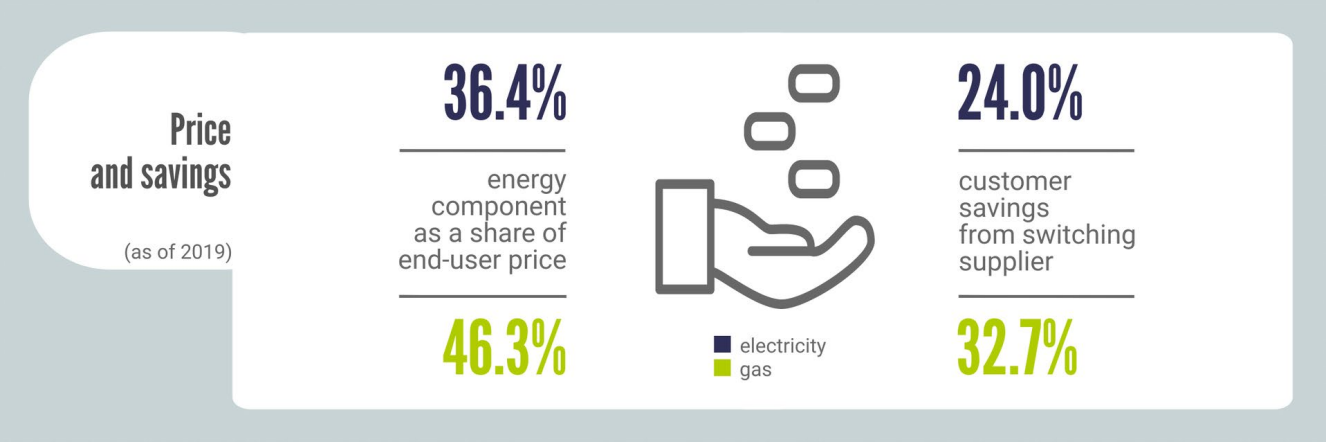
With regards to the current state of unbundling, the Austrian market does not show any specific design that would differ significantly from other EU member states. The two Austrian electricity TSOs and the two gas TSOs have been certified as compliant with one of the 3rd Package's unbundling models by the NRA[4]. Like in most EU member states, electricity and gas DSOs have to be legally and functionally unbundled – ownership unbundling is not required. Due to the "de minimis rule", many local electricity companies in Austria are still exempted from the unbundling requirements as they are serving less than 100,000 customers. Gas DSOs are exempted from these requirements, if they serve less than 50,000 service connection points.

The Austrian market consists of around 4.1 million household electricity customers with an average annual consumption of 3,566 kWh.



The 1.2 million household gas customers are consuming 13,963 kWh on average, annually.
On average for 2019, the energy component of the electricity bill accounted for 36.4% for electricity and 46.3% for gas customers, the rest of the bill comprised grid tariffs, taxes and duties. Average savings for customers switching their supplier are 24.0% for electricity and 32.7% for gas. The energy component as share of total price was calculated as annual average 2019 from data with monthly granularity (HEPI data were used). The average savings are based on a switch from the by-default supplier. These values are an average of three different times of the year and correspond to a typical household in the capital city, Vienna. The focus on the capital was taken to ensure comparability throughout all the participating countries.
Looking at the whole of Austria, the numbers differ slightly, with a 34% energy component for the electricity bill and an average saving of 26%. For gas there is a 47% energy component share and potential savings of 32%.

[4] https://www.ceer.eu/documents/104400/3731907/C15-LTF-43-04_TSO-Unbundling_Status_Review-28-Apr-2016.pdf/a6a22f89-3202-4f8b-f9ed-adf705185c33



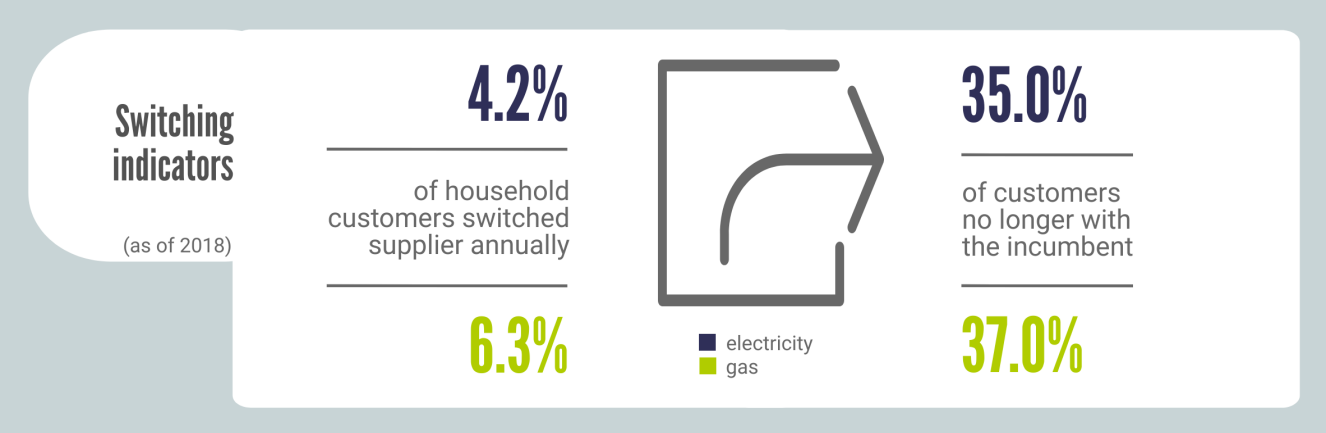
59 electricity and 36 gas suppliers were active in Austria in the year 2019. Not all of them where nationwide active and so depending on the region, a household could choose among 50 electricity suppliers and 115 products.

On the gas market there are approximately 40 gas suppliers active with around half of them, being alternative suppliers. Depending on the region in 2018, a household could choose among 33 gas suppliers and 95 products. The number of gas suppliers for household customers is still increasing. A peak of entrances was in 2016 with 8 new gas suppliers. The provided numbers are representative for the capital, Vienna.

The status of electricity market competition in Austria is best described by focusing on the key topics market share, new market entries and churn. In 2018 the nationwide market share of the three largest electricity suppliers (CR3) on the household market was 51%. At the same time five electricity suppliers with a market share above 5% existed. On the other side, the number of overall suppliers with a market share below 1%, was 125 (out of 154), highlighting the strong differences in the Austrian electricity market. These figures show that there is still a quite high number of suppliers with low market shares, which on the other hand are active only on regional level. On the other hand, the large number of electricity suppliers with a low market share (<1%) might also reflect the high number of new nationwide active suppliers that have entered the market very recently. When referring to the gas sector, the largest suppliers cover a market share of about 69% (2018) of the household market. These suppliers

all have a share of above 5 %, also indicating the strong market position of incumbent suppliers in the whole retail market.[5] Most of the suppliers with a market share above 5% supply to non- households but not to household.

Customer switching rates increased since 2012 and stagnated in the last two years at a level of 4.2% for electricity and 6.3% for gas (households, 2018). At this time 35% of the electricity customers and 37% of the gas customers were no longer supplied by the incumbent.



Compared to other markets in Europe, switching rates in Austria for electricity as well as gas, are still relatively low.[6]

Political and regulatory orientation

With regards to the policital orientation, the first point to consider, when evaluating, is public spending in Austria on energy research. Referring to the publication “Energieforschungserhebung 2016” published by the Austrian Energy Agency (AEA), public spending in Austria on energy research amounted to 144.6 Mio. Euros. The membership of the International Energy Agency (IEA) obliges Austria to record annually all research, development and demonstration projects in the field of energy financed by the funds.

Here is a short overview in which topics referring to energy research has been invested most of the money in 2016:

- Energy efficiency: about 66 Mio Euros
- Transmission- and Storage Technologies: about 22 Mio. Euros
- Renewable Energies: about 20 Mio. Euros
- The rest goes into fuel cell technology, nuclear energy, fossil energy and other interdisciplinary technologies

The biggest part is founded by the Austrian Bundesministerium and the KLIEN[7] (Klima- und Energiefonds) – they are responsible for the funding of 58.2% of the 144.6 Mio Euros for energy research.

5 Eurostat 2018
6 CEER Report – Retail Markets Monitoring Report (21. Nov. 2017)
7 https://www.klimafonds.gv.at/

Another important topic in the field energy competition and political orientation are the national goals for energy retail competition which can be found in the Austrian Climate and Energy Strategy - #mission2030[8]:

- Reduce greenhouse gas emissions by 2030 by 36% compared to 2005
- Improve primary energy intensity by 25-30% compared to 2015 (efficiency)
- Covering 100% of total national electricity consumption (national balance) from renewable energy sources by 2030
- Increase the ratio of renewable energy to gross final energy consumption to 45-50% by 2030. That ratio is currently 33.5% (2019), meaning that the interim target of 34% by 2020 is already in sight.
- Increase of decentral, renewable generation with PV as one of the core technologies ("100.000 roofs" programme)

The focus in coming years will need to shift to the transport and space heating sectors, to maximize the results from the resources invested. These two sectors have the greatest potential for savings and cuts, referring to the Austrian Climate and Energy Strategy.

Regulatory market characteristics

Electricity prices are not regulated in Austria, neither for households nor for industrial customers. No license is required, in order to start as an energy supplier in Austria, but a registering process needs to be followed including notification with two relevant provincial governments.

More detailed information on the registering process and the difference between registering in the gas- or electricity market can be found in the appendix under the chapter "Licenses, registrations and contracts".

Another market characteristic is, that in Austria so called combined billing is allowed, but it's not mandatory. Combined billing is the combination of gas and electricity bills, as well as network costs in a single invoice. Installing a billing system can be of an effort, depending on whether a supplier wants to issue combined bills, the existing IT infrastructure and/or how quickly an external service provider can be contracted. In any case, adopting the sample bill (or parts thereof) will considerably shorten the entire process and potential post-processing time (e.g. E-Control provides a sample invoice which fulfills all legal aspects).

More information about the billing process can be found in chapter "Operational obligations/duties" in the Appendix 1 "Processes".

Since the introduction of energy efficiency law "Energieeffizienzgesetz" in 2015, federal behaviour can be considered as proactive in its regulatory orientation. The building renovation strategy and the renovation of federal buildings are two topics which are considered crucial for driving the overall energy efficiency and contribute to the fulfillment of the energy efficiency targets.

The authors are not aware of any substantial changes to the current Austrian regulatory framework, in the near future.

[8] https://mission2030.info/wp-content/uploads/2018/10/Klima-Energiestrategie_en.pdf

Other market characteristics

Due to split of the German-Austrian power price zone in October 2018, there is limited transmission capacity for the day-ahead market available, which is calculated via a flow-based domain. Additionally, there are 4.900 MW of financial transmission rights in place, allowing spread hedging between Austrian and German prices. and trading between the two countries through long-term capacities, with additional day-dependent residual capacities.
The idea of the power zone splitting is aimed at preventing German power travelling in so-called loop flows through Poland, the Czech Republic and Austria back into Germany, which the industry came to find costly and disruptive. This unusual transport route resulted from the fact that transmission lines to deliver power from northern Germany wind parks to industrial consumers in south Germany or even in Austria are years behind implementation.
Austrian customers benefited because of the common bidding zone between Austria and Germany which enabled unrestricted trading between the countries and therefore also low prices for Austria.
According to the consultation response by EEX and EPEX SPOT on the First Edition of the “Bidding Zone Review” following key message can be summarized:
“This development has the potential to weaken the market price signal and decrease liquidity, meaning higher trading costs for all market participants and ultimately a less efficient market”.
The Austrian power future market has virtually dried out, with only 0.119 TWh traded in EEX’s Austria Power Future in 2018. However, many Austrian market participants found alternatives on other OTC markets.

Context for aggregation/demand response

On the wholesale market (intraday and day ahead), participation with aggregated generation is possible. Load access & participation, aggregated load are accepted via a balance group.

Generally, participation in the balancing markets is open to all market players, either independently or by pooling of participants. Nevertheless, there are mainly technical prequalification requirements (accreditation is valid for 3 years) which are hindering Demand Response Aggregators from participating in specific markets:

- FCR (Frequency Containment Reserve - Primary Control): FCR is open for generation and consumption facilities and currently, there are 6 market players prequalified for this market. The permanent primary reserve capacity is 68 MW for the year 2020.
- aFRR (Automatic Frequency Restoration Reserve - Secondary Control): aFRR is allowing pumped storage, generation and load management and currently, there are 13 market players prequalified for this market
- mFRR (Manually activated Frequency Restoration Reserve - Tertiary Control): Although, mFRR, allows pumped storage, generation and load management, due to technical criteria (duration of activation = 4 hours),. 15 market players are currently prequalified for this market.

The above-mentioned number of participants highlights the fact that aFRR is attractive due to the relatively low technical requirements (quick response times, simple implementation, automatic activation) and mFRR due to economic reasons (prices and number of activations). The market is always prone to changes through fluctuating prices and adapted requirements which can have a significant impact on participant´s market activities.

BARRIERS

The European Barriers to Entry and Competition in Retail Energy Markets project has researched barriers across 30 European markets. From this research, barriers to entry have been identified and grouped into four over-arching pan-European barriers' blocks.

Over-arching pan-European barrier blocks

Barrier Blocks	1	Regulatory disincentivisation
	2	Market inequality
	3	Operational and procedural hinderance
	4	Customer inertia

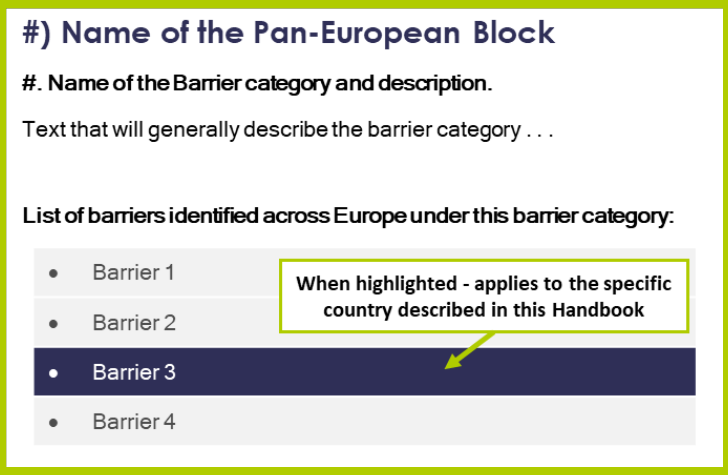
Description of the four-over-arching pan-European barrier blocks:

1. **Regulatory disincentivisation:** barriers arising as a consequence of the general regulatory framework of the natural gas and electricity retail markets. We address the impact of price regulation, burden (-sharing), regulatory unpredictability and access to innovation. All these items may disincentivize competition within the natural gas and electricity retail markets, as well as entrance by new suppliers.
2. **Market inequality:** barriers arising from an uneven playing field for different types of suppliers. Often, certain market players already have a competitive advantage by being very close to the formerly integrated DSO (or still being vertically integrated in case the de-minimis rule applies), controlling a large amount of generation capacity or having a large market share. If appropriate market rules are not in place to prevent this, such players can exercise their market power to treat other market players in a discriminatory way, creating market barriers. We examine issues related to unbundling, historical roles and access to market mechanisms.
3. **Operational and procedural hindrances:** barriers arising as a consequence of the complexity and national/regional differences in standards and procedures in different process areas, affecting how easily new entrants can enter and operate in the energy retail market. We look at issues and differences in licensing, signing up and operations compliance, as well as data access, processes and data management from the suppliers' point of view.
4. **Customer inertia:** barriers arising due to customer behavior and attitude. For the energy market to function, end-users must be willing and able to switch supplier. If customers do not switch supplier, suppliers need not worry about losing customers, so there is no incentive for suppliers to improve their services, minimize prices or innovate to compete for customers. We examine barriers related to customer inactivity or disinterest in the energy markets.

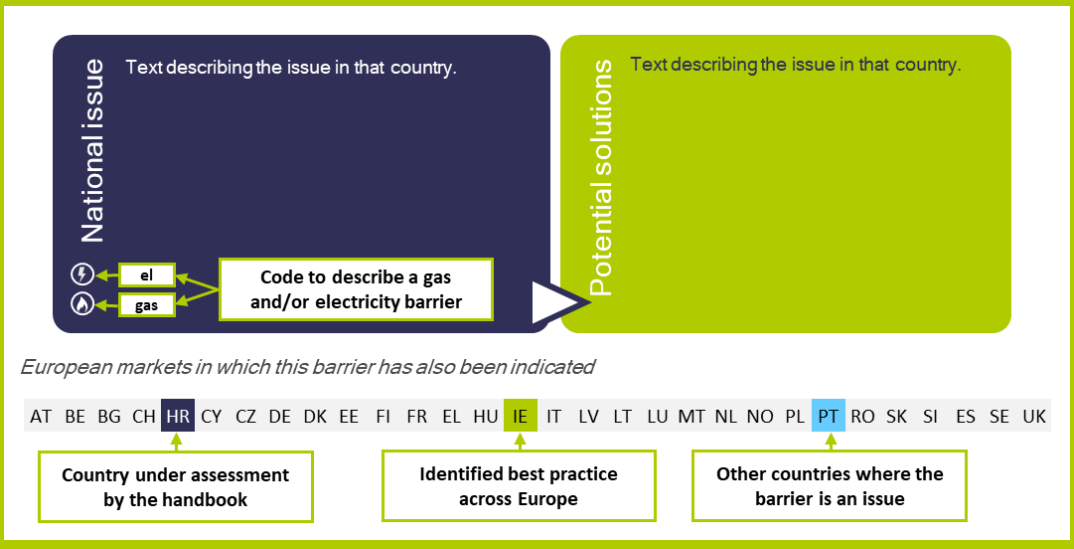
Within each of these high-level blocks are contained sub-categories, which are also mostly pan-European in nature. Each of these sub-categories contain the specific barriers which relate to individual markets as described in the following chapter. Altogether, we identified 45 barriers, most of which broadly across Europe. Only a selection of them apply to the Austrian case as reported in the following chapters of this handbook.

HOW TO READ AND INTERPRET THE FOLLOWING SECTIONS

Each of the following four chapters explores one of the four pan-European blocks of barriers and report how each sub-category barrier apply to Austria. When a barrier applies to Austria, it will be highlighted in the table following a general description of the barrier itself as shown in the example below:



As showed in the above figure, the table lists all the barriers we have identified in Europe within the specific barrier category. Only if a sub-category barrier is highlighted in the table, it means that suppliers raised it as a barrier, and it is a prevalent issue in Austria. Highlighted sub-category barriers are then briefly described following a twofold methodology which reports what the suppliers are experiencing in the market as a national issue and suggests potential solutions to the problem as depicted in the below figure



At the end of each chapter, Country's performance within the category, according to quantitative indicators, is then presented. For additional market context, please see Appendix 1: Process Maps, which gives a high-level graphical overview of the most critical steps involved in establishing and operating as a supplier in the national market.

1) Regulatory disincentivisation

Within regulatory disincentivisation, barriers across Europe have been sub-categorised into four areas encompassing 17 specific barriers[9]:

1. **Price regulation.** Regulated prices usually refer to regulation or control of end-user's prices by a public authority, usually the National Regulatory Authority (NRA). Price regulation can take different forms, such as setting or approval of prices, price caps or various elements of these. In Europe, there still exist Member States which have maintained end-user regulated prices during the market opening process and after, in the intention of protecting households or even non-household customers from significant increases in energy prices, especially in a context of limited competition. In some cases, this regulation has led to below cost prices and to low margin to cover the supplier activity risk, discouraging investments and the emergence of newcomers.
   In the majority of the 30 analyzed countries, energy prices are no longer regulated. Where regulated prices remain, NRAs tend to consider them as a significant barrier to entry for alternative suppliers. All Member States, where NRAs consider regulated prices as a significant barrier, are planning to remove them, at least for non-household customers.[10] Across Europe, the following specific barriers related to "price regulation" were detected by this study. Those highlighted in blue have been raised, indicated or identified as barriers in Austria:

   - Price regulation discriminates against certain suppliers.
   - High penetration of price regulation
   - Low margin of regulated offer (margin squeeze)

2. **Burden sharing.** Energy suppliers across Europe are often required to collect payments for services not part of their business, or to provide other services such as services related to energy efficiency, or to manage assets such as those of the metering system. These requirements can pose a barrier for suppliers' operation on the retail market by raising their costs and distracting focus from their core business and might deter entry into the retail market by newcomers. Across Europe, the following specific barriers related to "burden(-sharing)" were detected by this study. Those highlighted in blue have been raised, indicated or identified as barriers in Austria:

   - Obligation to keep a minimum-security stock as a gas reserve
   - Low margin of regulated offer (margin squeeze)

[9] Please note: these definitions are Europe focused, not Austria specific. Highlighted barriers have been identified as country specific.
[10] CEER Benchmarking report on removing barriers to entry for energy suppliers in EU retail energy markets. April 2016 [footnote wording and format to be improved].

3. **Regulatory unpredictability.** The establishment of an internal natural gas and electricity market in the European Union is an ongoing process. European legislative packages are boosting this process, making market regulation evolve rapidly. Transposition of regulation into the national regulatory frameworks is not always smooth and NRAs' actions are sometimes unpredictable. This leads to uncertainties for suppliers related to unclear and unknown future developments of the regulatory framework, including the attitude of the institutions that regulate the retail market and oversee market operation and organization. This uncertainty is a barrier that impacts suppliers' business, preventing their entrance in the market, making strategic business planning difficult or forcing them to adopt different approaches during operation. Across Europe, the following specific barriers related to "unpredictability of regulatory framework" were detected by this study. Those highlighted in blue have been raised, indicated or identified as barriers in Austria:

- Suppliers face uncertainty because of a new regulatory environment or uncertain future development of the regulatory framework
- Uncertainty caused by industry actors influencing legislation, e.g. incumbent or associations shape legislation
- Uncertainty regarding future regulatory developments, especially in the field of digitalization and new technology
- Attitude of authorities hinders development of the market
- Uncertainty regarding environmental obligations and non-renewable generation capacity

4. **Access to innovation.** Most European energy market are currently designed based on practices as they were during the period of national monopolies by what today are incumbent suppliers. Allowing suppliers and new entrants to be innovative depends not only on the opportunity to compete on prices, but also to diversify, welcoming new products, market actors and business models. When national regulatory frameworks do not take into account innovation in the retail market (regarding e.g. availability and functionality of smart metering, the possibility of flexible contracting and tariffs, or whether the demand side can bid in the balancing system), this may pose a barrier for new market entries, particularly more modern players. If new entrants are to be enabled in order to increase the level of competition in the retail market, regulations must accommodate future developments on the energy markets, especially considering that in the future new entrants may not only be electricity and gas suppliers but also act as aggregators or energy service companies (ESCOs). Across Europe, the following specific barriers related to "innovation-friendliness" were detected by this study. Those highlighted in blue have been raised, indicated or identified as barriers in Austria:

- Data protection issues
- Lack of incentivisation for novel pilot projects or post-pilot market rollout
- Lack of data for innovative product development
- No fit between new business models and existing regulation/obligations
- Missing flexibility in tariff structures
- Missing information and incentives for demand-side grid management

- Market structures do not incentivize novel products (missing perceived value)

1.1 Description of regulatory disincentivisation barriers in Austria: Price regulation

No barriers around price regulation were identified in Austria.

1.2 Description of regulatory disincentivisation barriers in Austria: Burden (-sharing)

No barriers around regulatory disincentivisation were identified in Austria.

1.3 Description of regulatory disincentivisation barriers in Austria: Regulatory unpredictability

Suppliers face uncertainty because of a new regulatory environment or uncertain future development of the regulatory framework. In the research this barrier was raised as an issue in Austria. Uncertainty can arise from a brand-new regulatory environment, which may include poorly defined responsibilities between actors, lack of or understaffed responsible departments/authorities that the supplier must communicate with or a lack of clarity regarding the practical implementation of new obligations, besides others.

National issue

The future implications of **energy communities** was raised as a source of uncertainty as the future roles in the system are not clearly defined yet.
It was also raised by some participants that **additional supplier obligations**, arising from new regulation such as a successor of the Austrian "Energieeffizienzgesetz", are considered another uncertainty factor. Especially **the way how the obligations are implemented** is causing concerns.

Potential solutions

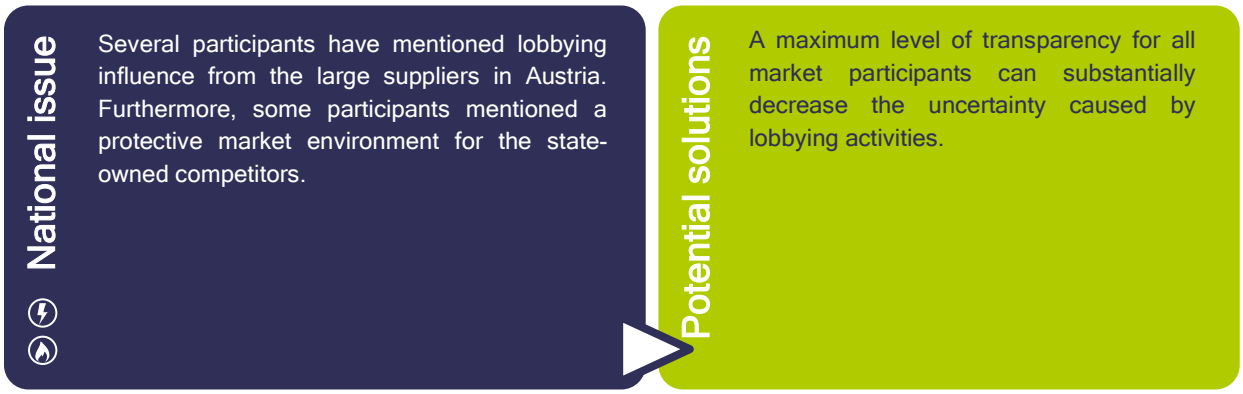
See „Uncertainty regarding future regulatory developments, especially in the field of digitalisation and new technology" and "Uncertainty regarding environmental obligations and non-renewable generation capacity"

European markets in which this barrier has also been indicated

AT	BE	BG	HR	CY	CZ	DE	DK	EE	FI	FR	EL	HU	IE	IT	LV	LT	LU	NL	NO	PL	PT	RO	SK	SI	ES	SE	UK

Uncertainty caused by industry actors influencing legislation, e.g. incumbent or associations shape legislation. In the research this barrier was raised as an issue in Austria. While cooperation between authorities and market actors is essential for functioning and lasting market developments, industry bodies or actors may be given too much power to shape legislation, allowing the legislation to be shaped for the benefit of these actors to the

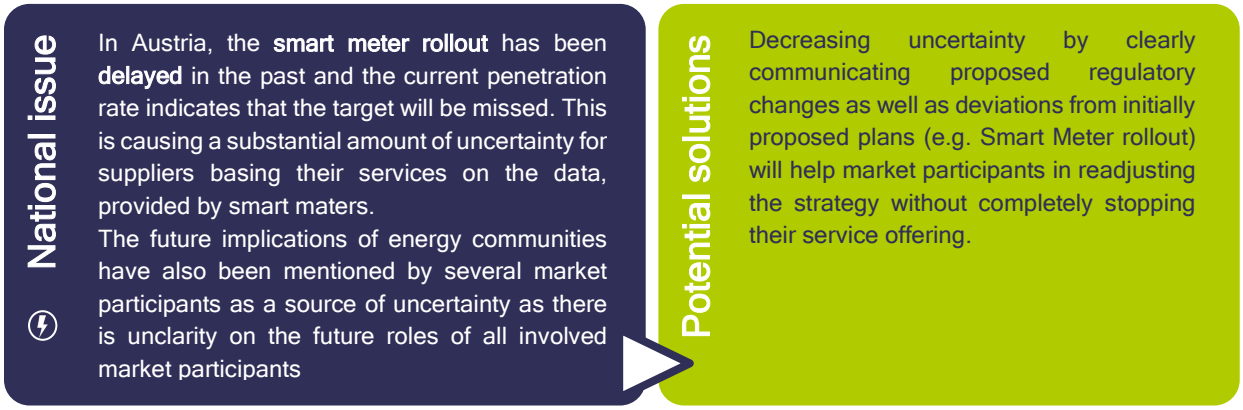
detriment of other actors or customers or market competitiveness. This also increases uncertainty for market players around what the legislation will look like when complete.



European markets in which this barrier has also been indicated

AT BE BG HR CY CZ DE DK EE FI FR EL HU IE IT LV LT LU NL NO PL PT RO SK SI ES SE UK

Uncertainty regarding future regulatory developments, especially in the field of digitalisation and new technology. In the research this barrier was identified as an issue in Austria. New technological advances require regulatory frameworks in order to be fully rolled out without excessive business risk for suppliers. Smart meter rollout targets, progress and associated rights and obligations can be a main source of uncertainty. Also, regulatory uncertainty regarding the future of demand response aggregation or other novel services can hinder investment/innovation in these areas.



European markets in which this barrier has also been indicated

AT BE BG HR CY CZ DE DK EE FI FR EL HU IE IT LV LT LU NL NO PL PT RO SK SI ES SE UK

Uncertainty regarding environmental obligations and non-renewable generation capacity. In the research this barrier was identified as an issue in Austria. Environmental obligations such as energy efficiency schemes and certificates of origin may present a barrier as they lead to an increasing amount of bureaucracy and costs, and must therefore be incorporated into suppliers' business planning. In many cases, the obligation itself does not present a barrier, but the main driver for a barrier is the way the obligations are implemented.

National issue

Based on the EED (energy efficiency directive), the Austrian EEffG (Energieeffizienzgesetz) came into force in 2015 and its effectiveness is currently being reviewed in order to design a subsequent legal framework.
The way how the obligations were implemented and the associated bureaucracy was raised by several survey participants and is covered in section "Unduly burdensome environmental obligations "

Potential solutions

Long-term regulatory planning will reduce the level of uncertainty in the market. Specific supplier obligations should be designed for a relatively long time period (still allowing for review and adjustment) and the cornerstones of a subsequent regulation should be defined as soon as possible (e.g. carrying over energy efficiency measures into the next framework)

European markets in which this barrier has also been indicated

AT	BE	BG	HR	CY	CZ	DE	DK	EE	FI	FR	EL	HU	IE	IT	LV	LT	LU	NL	NO	PL	PT	RO	SK	SI	ES	SE	UK
AT	BE		HR		CZ	DE				FR					LV					PL							

1.4 Description of regulatory disincentivisation barriers in Austria: Access to innovation

Data protection issues. In the research this barrier was raised as an issue in Austria. GDPR and national data protection regulation can present a barrier to innovative product development due to difficulties in obtaining information on e.g. consumption patterns that would allow companies to develop market-relevant services.

National issue

Especially in the field of new services, based on smart meter data, data protection is frequently seen as a barrier by the suppliers. Lack of information and a missing customer consent on the use of the data are only two of the root causes for this barrier. In the light of this uncertainty, suppliers tend to not offer services, which could provide substantial benefits to the customers.

Potential solutions

Clear guidelines on how to handle data protection with regards to energy related data could reduce the number of different interpretations of the various market participants and therefore contribute to the elimination of the barrier.

European markets in which this barrier has also been indicated

AT	BE	BG	HR	CY	CZ	DE	DK	EE	FI	FR	EL	HU	IE	IT	LV	LT	LU	NL	NO	PL	PT	RO	SK	SI	ES	SE	UK
AT	BE									FR																	

Lack of incentivisation for novel pilot projects or post-pilot market rollout. In the research this barrier was raised as an issue in Austria. Lack of financial incentives as well as missing technical support can be a major barrier for conducting pilots in DR and other novel technologies, as the piloting firm then bears all the risk for this experimental work. Projects started as pilots may even be tied by explicit conditions that they cannot remain on market after the completion of the pilot. This discourages participation, as there is no immediate commercial reward.

National issue

Although, Austrian suppliers are frequently involved in piloting new technology and new business models, only some of those pilots actually reach market maturity and are being rolled out countrywide.

Potential solutions

In order to further increase the number of pilots, some participants pointed out, that dedicated testing environments could be very beneficial. Also, additional funding could help bridging the gap between successful pilot and market introduction. A general lack of information regarding the already existing regulatory opportunities can be addressed by setting up centralised information points (eg. help desk) which provide all the necessary information regarding new business models and the fit with the current regulatory framework

European markets in which this barrier has also been indicated

AT BE BG HR CY CZ DE DK EE FI FR EL HU IE IT LV LT LU NL NO PL PT RO SK SI ES SE UK

FINLAND BEST PRACTICE CASE: Incentivizing novel projects

Finland was raised by respondents as the best example among the Nordic countries of authorities encouraging pilot projects in novel services/products. The high opinion was mainly due to the practice of encouraging post-market roll-out of the service/product upon project completion. This raises market players' confidence that the authorities take seriously the need for integrating novel players into the system, and the potential for soon becoming commercially active naturally acts as a strong attraction for companies to get involved in such pilots. Encouraging participation in this way benefits the energy system by making it more likely that projects and players providing crucial new developments will be found. Under the Finnish approach, with good opportunities for suppliers to cooperate with the TSO, flexibility development happens through pilots. Indeed, Finland's energy system is felt to be the most conducive (at least in the Nordics) for products such as DR and aggregation, indicating that lessons have been learnt effectively from pilots.

Lack of data for innovative product development. In the research this barrier was identified as an issue in Austria. Smart meters open up opportunities for novel demand-side and aggregation services that rely on almost real-time consumption data to be able to match grid requirements and balancing product bids. Aggregators must be able to access customers and their data independently of suppliers, who in effect constitute a competitor for the DR provider/aggregator.

National issue

Although 3rd party access to smart meter data is (based on the consumers consent) allowed in Austria, the technical implementation can be challenging. Currently service providers need to contract with each DSO individually (afterwards, data should be shared via standardized data and processes). Due to the large number of DSOs, this can be a very challenging task and is therefore presenting a barrier. This is further elaborated on in "Regional differences or differences between DSOs within a country" and "Missing access or poor quality of operations-critical data"

Potential solutions

Optimizing the governance of the decentral market communication system can help in eliminating this specific barrier. See also "Regional differences or differences between DSOs within a country" and "Missing access or poor quality of operations-critical data"

European markets in which this barrier has also been indicated

AT BE BG HR CY CZ DE DK EE FI FR EL HU IE IT LV LT LU NL NO PL PT RO SK SI ES SE UK

No fit between new business models and existing regulation/obligations. In the research this barrier was indicated as an issue in Austria. Regulatory frameworks need to provide an environment for not only piloting new business models but also allow for further advancements without risking any grid stability. Unclear current regulation around demand response aggregation, such as missing role definitions, makes it challenging for novel services to enter and grow.

National issue

It was raised by some participants that the current legislation does not provide enough clarity regarding the introduction of new business models and technology. Regarding aggregated demand response, the BRP-aggregator relationship was specifically named as a barrier because the aggregator has to make individual bilateral contractual arrangements with all relevant BRPs

Potential solutions

In order the tackle the BRP-aggregator issue, an expert pool at "Österreichs Energie" has now published a standardised contract between all the parties (supplier, BRP and aggregator). The success of this approach will be determined by the number of market participants who agree on using these standard terms.
The implementation of Article 17 of the electricity directive (independent aggregator) will help eliminating this barrier.

European markets in which this barrier has also been indicated

AT BE BG HR CY CZ DE DK EE FI FR EL HU IE IT LV LT LU NL NO PL PT RO SK SI ES SE UK

Missing flexibility in grid tariff structures. In the research this barrier was raised as an issue in Austria. Tariff structures' potential to be flexible is a main driver of demand flexibility as it allows the design of incentive-based tariffs with several Time-Of-Use tariff zones, encouraging customers to consume when it is cheaper. This is true for grid as well as energy components. Rigid or flat structures, which are defined by regulation, hinder new and innovative demand-shifting offerings on the market.

National issue

In Austria, for household customers, TOU tariffs can only be applied to the energy component but the grid component is based on a single price per kWh. As the energy component only accounts for around 30% of the total bill, the possible incentivisation for shifting demand is limited.

Potential solutions

Upcoming changes in the grid tariff regulation should fully consider all relevant demand response aspects

European markets in which this barrier has also been indicated

AT BE BG HR CY CZ DE DK EE FI FR EL HU IE IT LV LT LU NL NO PL PT RO SK SI ES SE UK

LATVIAN BEST PRACTICE CASE: Grid tariff flexibility

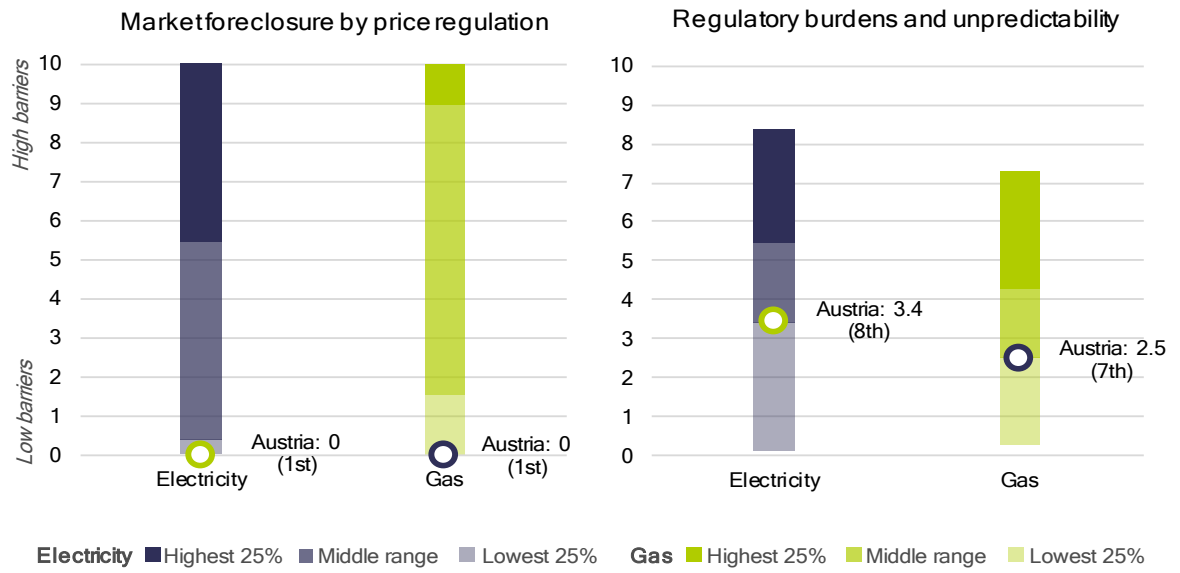
Inflexible tariffs can **no longer pose a barrier** to innovative products in Latvia, as recent regulatory changes enabled networks to charge more dynamically for distribution. In 2016 **differentiated distribution tariffs** were introduced for electricity market, which have been shown to **reduce end-user costs**. In 2019 differentiated distribution tariffs were introduced in natural gas market. Through these tariffs, end users are incentivised to decrease their connection capacities if appropriate, reducing their distribution costs and freeing up system capacity both for security and efficiency of supply and new connections.

1.5 Austria's performance in this barrier category

The following figure shows quantitative indicators of how far regulatory disincentivisation acts as a barrier in this market. The values for Austria are shown against the range across all analyzed countries. These scores contribute to the performance index. The performance indicators of regulatory disincentivisation are the followings:

- **Market foreclosure by price regulation:** The index consists of sub-indicators, the penetration of price regulation (among residual customers), and the mark-up of the regulated offer. High score is attributed if the penetration is high, and the mark-up is significantly lower than the average mark-up on the competitive markets.
- **Regulatory burdens and unpredictability:** The index consists of two sub-indicators. Regulatory burdens reflects to the non-energy share of the energy bill in an average household, which are regulated (taxes, network fees). Regulatory unpredictability was measured with the related question in the supplier's survey. High score is attributed if the share of the non-energy elements is high, and the survey respondents gave high score for the question.

Performance indicators



There is no price regulation in place in Austria. Regarding regulatory burdens and unpredictability Austria's score is 3.4 for electricity (8th place) and 2.5 for gas (7th place).

2) Market inequality

Within market inequality, barriers across Europe have been sub-categorised into two areas encompassing 8 specific barriers[11]:

1. **Unbundling and market power.** In order to facilitate better competition and improve performance of the individual parts of the energy companies, the Electricity Directive introduced rules for legal, functional and accounting unbundling between DSOs and supplier. Although legal unbundling has been implemented throughout all EU member states, barriers arising from vertical integration can still be observed in many markets, raising the question if the required level of unbundling is sufficient in order to meet the goal of a fair and competitive retail market. Companies serving less than 100 000 electricity customers or less than 50.000 service connection points are only obliged to implement accounting unbundling.

   In order to avoid confusion among end customers between the separate parts of integrated energy businesses, brand unbundling has been a focus area for NRAs over the last years. Nevertheless, in several EU countries, the difference in the branding of the supplier and the DSO is perceived as insufficient. Strategic and unfair advantages for incumbent suppliers around transparency, pricing and access to information and data occur in most of the European countries studied. Access to production

[11] Please note: these definitions are Europe focused, not Austria specific. Highlighted barriers have been identified as country specific.

capacities can also be limited for small suppliers if market players with a large generation portfolio can withdraw production capacity from the accessible markets. Balancing and ancillary services markets can also be distorted as they are often still designed to mainly benefit large-scale generation, discriminating against smaller market participants. Below, we describe these barriers related to market power in more detail.

Across Europe, the following specific barriers related to "unbundling and market power" were detected by this study. Those highlighted in blue have been raised, indicated or identified as barriers in Austria:

- Lack of brand unbundling
- Discriminating, strategic behaviour of incumbent, and obstruction by other market players.
- Strategic, unfair advantage of vertically integrated market players and lack of transparency.
- Limited or biased access to production.
- Discrimination against new and small market players in capacity and ancillary services markets.

2. **Equal access to and maturity of wholesale market.** The wholesale markets present one of the most important sources for energy procurement for all market participants. New and small suppliers tend to have weaker bargaining position in bilateral negotiations, which occurs higher sourcing costs, therefore leading to a competitive disadvantage. Access to a well-functioning wholesale market (an energy exchange) therefore enables smaller suppliers to buy energy for competitive prices.

   Barriers related to the wholesale market can arise by discriminatory market platform access and the absence of any viable alternative. Furthermore, a lack of available products and low liquidity can both lead to an increase in risk, disadvantaging small market participants substantially more than large, established suppliers. Across Europe, the following specific barriers related to "equal access to and maturity of wholesale market" were detected by this study. Those highlighted in blue have been raised, indicated or identified as barriers in Austria:

- Discriminatory market platform access (standards, guarantees, etc.)
- Low liquidity in the wholesale market
- High price or volume risk in energy procurement

2.1 Description of market inequality barriers in Austria: Unbundling and market power

Lack of brand unbundling. In the research this barrier was raised as an issue in Austria. Similarities in the name and logo of the incumbent supplier and the DSO negatively impact the retail market in terms of competition, as customers are unaware that they are two separate entities and hence of their opportunity to choose supplier. Therefore, the DSOs, which are not falling under the de-minimis exemption had to change their logo. As the

retailers are not obliged to change their branding, some market participants consider this an unfair advantage as the former monopolies can utilize on the existing brand.

National issue

Over the last years the Austrian NRA, E-Control reported several cases of insufficient brand unbundling. DSO and supplier information was not clearly separated in the annual reports to E-Control, on letters to the customers, websites and in press related activities. All current brand unbundling cases were corrected and are in accordance with the relevant regulation.

Potential solutions

The Austrian NRA, E-Control has issued three decisions and directed that the compliance with the law must be restored. In case, the associated companies are not complying within the given timeframe, E-Control has limited power to further escalate as in contrast to other EU member states. However. Austrian jurisdiction can be imposed by local authorities.

European markets in which this barrier has also been indicated

AT BE BG HR CY CZ DE DK EE FI FR EL HU IE IT LV LT LU NL NO PL PT RO SK SI ES SE UK

PORTUGUESE BEST PRACTICE CASE: Brand unbundling.

Inefficient brand unbundling between distribution and supply companies, such as similarities in the name and logo of the incumbent supplier and the DSO had a negative impact on the Portuguese retail market, in terms of competition until early 2019. However, during the second half of 2019, ERSE approved a new image and name for *EDP Serviço Universal*, which is now called *SU Eletricidade*. The measure aims to avoid confusion with the other EDP group brands and implies the complete distinction of the graphic, chromatic, symbolic and communicational elements of that last resort supplier. Finally, the DSO image is also changing, for a new image (new designation, new logo and different color).
Notwithstanding the above measures, the level of consumer awareness and ability to distinguish between DSO and suppliers remains low, due to either the recent application of this legal binding decision by the regulator or due to the scarce level of information among customers. Keeping high the competition advantage of incumbent suppliers.

SPANISH BEST PRACTICE CASE: Brand unbundling.

Inefficient brand unbundling between distribution and supply companies, such as similarities in the name and logo of the incumbent supplier and the DSO had a negative impact in terms of competition on the Spanish retail market, until 2018. In 2018, the CNMC approved a legally binding decision obliging several companies of the main integrated energy groups to change their DSOs corporate name, to change their brand image and to identify unequivocally the company when informing customers so that consumers can clearly identify the company. This measure has already been implemented by all Spanish DSOs, vertically integrated with supplying activity. However, the level of customer awareness regarding this point remains low due to either the recent application of this legal binding decision by the regulator or due to the scarce level of information and of knowledges among customers. As in other industries, companies operating in the sector for long time, always keep a competitive advantage over the others.

Discriminating, strategic behaviour of incumbent, and obstruction by other market players. In the research this barrier was raised as an issue in Austria. The incumbent/existing suppliers are able to use tactics in pricing, customer access, combined billing (including the cost of social tariffs) etc. not available to or not economically feasible for new entrants. For example, large established players can afford to apply very aggressive pricing strategies for certain customers to retain them. Market players with a lot of power, i.e. market share, may act in an obstructive way, especially around data exchange. This can especially disadvantage small suppliers with only a limited customer base to draw data from. If regulated DSOs are involved in other areas of activity such as customer care or flexibility services, it can narrow deregulated suppliers' potential to expand into these areas.

National issue

Several suppliers reported activities around **aggressive pricing strategies** from specific market players. High discounts are being offered for new customers with a sharp increase in prices after the first year, taking advantage of a **lack of transparency** for the customer. The main information source besides the supplier websites are price comparison platforms. Depending on the available options, these platforms determine the level of transparency.

Potential solutions

The **"Tarifkalkulator"**, operated by E-Control provides options to compare offers without any special discounts and with different time horizons and is therefore creating the necessary transparency. Other platforms are lacking some of this critical functionality. A **certification scheme for price comparison tools**, as mentioned in "clean energy for all Europeans" could help establishing those functionalities

European markets in which this barrier has also been indicated

AT	BE	BG	HR	CY	CZ	DE	DK	EE	FI	FR	EL	HU	IE	IT	LV	LT	LU	NL	NO	PL	PT	RO	SK	SI	ES	SE	UK
■		■	■	■		■	■	■	■	■	■	■	■	■	■	■	■		■	■		■		■	■	■	

Strategic, unfair advantage of vertically integrated market players and lack of transparency. In the research this barrier was raised as an issue in Austria. DSOs are required to separate distribution activities from supply both legally and in practice, so that unregulated distribution activities do not cross-subsidise any supply business. However, co-ownership is allowed, and small DSO/supplier companies are often exempted from any unbundling due to the de-minimis rule (grid tariffs are still subject to regulator review). This can lead to a strategic (unfair) advantage of those market players.

National issue

Several respondents reported that vertically integrated market players are **indirectly** or in case the "de minimis rule" can be applied, **directly benefitting from the closeness to the DSOs**. Based on the comments, this includes **prime access to metering data** and delivering the grid contract at the same time as the supplier contract, when customers are moving into new properties (facilitated by real estate and facility management companies).

Potential solutions

One potential option to address this barrier is to reduce the cap of the "de minimis rule" (100.000 customers)

European markets in which this barrier has also been indicated

AT	BE	BG	HR	CY	CZ	DE	DK	EE	FI	FR	EL	HU	IE	IT	LV	LT	LU	NL	NO	PL	PT	RO	SK	SI	ES	SE	UK
■	■	■	■		■	■	■	■	■	■	■	■	■	■	■	■	■		■	■		■	■		■	■	■

GREAT BRITAIN BEST PRACTICE CASE: Unbundling of DSOs and supply businesses

Great Britain provides an example of well-functioning separation between distribution and supply. Ten of the 14 electric DNOs (distribution network operators) are free standing companies, while 4 are part of groups that include generation and supply businesses. Of the 4 companies that distribute gas, only 1 is part of a group that also owns a gas supply business. The companies that have generation or gas supply affiliates are effectively unbundled. In this study, we found no evidence of incomplete unbundling presenting a problem in Great Britain. DNOs are prohibited from providing end-user services, they are invisible to the customer, and no suppliers in the study had experience of the supplier/DNO relationship being exploited.

2.2 Description of market inequality barriers in Austria: Equal access to & maturity of wholesale market

Low liquidity in the wholesale market. In the research this barrier was indicated as an issue in Austria. A lack of liquidity in the wholesale market is a barrier to operation as it leads to higher prices and risks, and therefore increases sourcing costs. The (partial) decoupling of the Austrian and German market caused a high level of uncertainty among the market participants. Nonetheless it is important to raise that both markets are still coupled via flow-based market coupling on the day ahead market as well as the single intraday coupling (xbid) on the intraday market. Decoupling therefore only occurs when the available cross-border capacities are exhausted.

National issue

Several respondents raised concern regarding the liquidity on the wholesale market, specifically since the (partial) market decoupling in October 2018 and the missing access to the Germany-Luxembourg price zone. As described in the "market overview", liquidity in specific areas of the Austrian market dropped after (partial) decoupling.

Potential solutions

Besides completely reversing the decision and re-coupling the market which is now being tried via discussions and an ongoing lawsuit, securing the agreed transmission rights will be crucial for not further reducing the liquidity on the Austrian market.
Also, as the market is now substantially smaller, the risk of a dominant market position of one of the largest market participants increases and has to be monitored closely. In 2019 price spreads between Austrian and Germany were relatively low, therefore not indicating an issue at the moment.

European markets in which this barrier has also been indicated

AT BE BG HR CY CZ DE DK EE FI FR EL HU IE IT LV LT LU NL NO PL PT RO SK SI ES SE UK

High price or volume risk in energy procurement. In the research this barrier was identified as an issue in Austria. Volume and price risk, due to the difference in time and volume between procurement and billing, raises risks for market participants and therefore presents a barrier. This is a particular problem in combination with a lack of hedging opportunities that would allow companies to insure against wholesale price fluctuations.

National issue

This barrier is closely linked to the barrier mentioned above, referring to the liquidity and available products for hedging the risk on the market. As Smart Meters and therefore the possibility of exact monthly billing is not widely available yet, a high price and volume risk in energy procurement results in a barrier for the Austrian market

Potential solutions

The comprehensive rollout of Smart Meters can help, reducing the risk as settlement of the customer bill based on real consumption can be done monthly, therefore decreasing the timespan between procurement and settlement. Additional affordable hedging options should always be available to all market participants

European markets in which this barrier has also been indicated

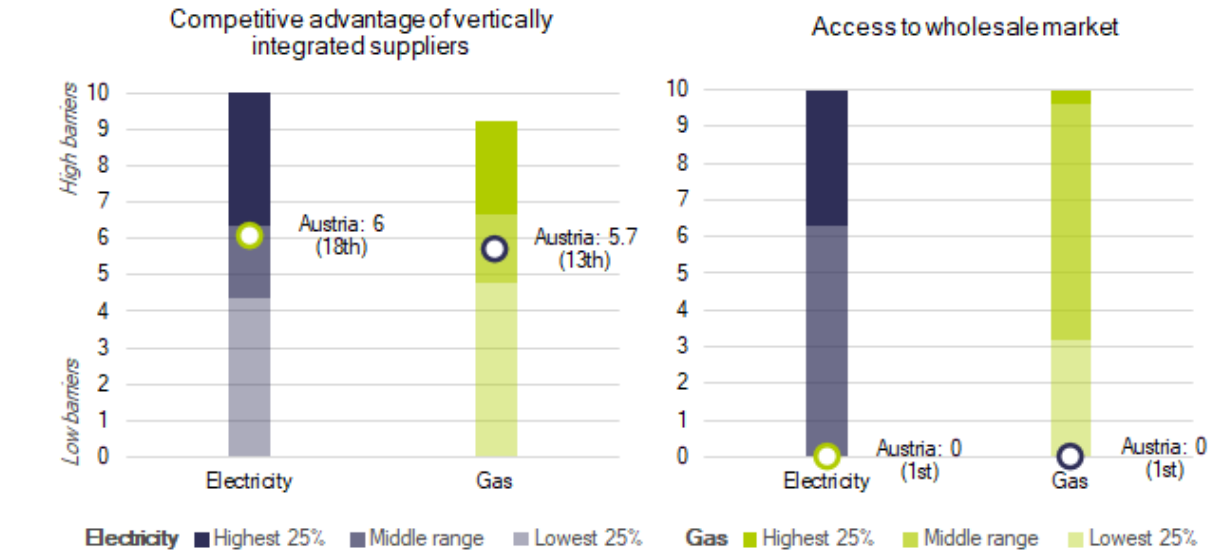
AT BE BG HR CY CZ DE DK EE FI FR EL HU IE IT LV LT LU NL NO PL PT RO SK SI ES SE UK

2.3 Austria's performance in this barrier category

The following figure shows quantitative indicators of how far market inequality acts as a barrier in this market. The values for Austria are shown against the range across all analyzed countries. These scores contribute to the performance index. The performance indicators of market inequality are the followings:

- **Competitive advantages of vertically integrated players:** The index consists of sub-indicators, the market share of vertically integrated suppliers (on the residential competitive market), and the strictness of DSO unbundling. High score is attributed if the vertically integrated suppliers have a high aggregated market share, and the unbundling regime is not very strict (brand unbundling is not in force, high share of local, integrated companies).
- **Access to wholesale market:** The indicator measures the accessibility of wholesale market by quantifying the liquidity of wholesale markets. High score is attributed if the traded volume is relatively low compared to the consumption of the country (churn rate). Traded volume includes volumes that are traded at hub as recorded by brokers (OTC) or exchanges and does not include 'contracted' (LTC or other bilateral deals) volumes which are conducted 'off market'.

Performance indicators



Austria's score regarding competitive advantage of vertically integrated suppliers is 6 for the electricity market (18th place) and 5.7 for the gas market (13th place). Regarding access to wholesale market, Austria's score is 0 for electricity (1st place) and 0 for gas (1st place).

3) Operational and procedural hindrances

Within operational and procedural hindrances, barriers across Europe have been sub-categorised into two areas encompassing 13 specific barriers[12]:

1. **Sign-up & operations compliance.** Sign-up, licensing or registration, along with other administrative requirements or system establishment such as arranging contracts with relevant stakeholders (TSOs, DSOs, BRPs) are among the first steps that a new supplier undergoes to enter and operate in a retail energy market. To deliver natural gas or electricity to final consumers in Europe, an energy supplier usually needs to be registered to a certain institution list, or to proceed with a notification, or follow a process to grant a license. Entrance processes for suppliers often requires commitments such as a minimum standard of customer service obligations, requirements on service quality, to provide financial guarantees or to have a communication system in place.

   In most responding NRA countries, suppliers need to register and make contracts with certain stakeholders (mainly TSOs and DSOs) to procure the access to the energy grid: transport capacity, balancing. This procedure can be very different from a country to another. Accessing wholesale markets and balancing may also require a license or prior agreement/registration with the market operator. In some

[12] Please note: these definitions are Europe focused, not Austrian specific. Highlighted barriers have been identified as country specific.

markets, business processes to enter and operate in the retail market can be extremely detailed and burdensome. The lack of a functioning national wholesale market may also hinder the entrance of retail companies that are not vertically integrated.

Across Europe, the following specific barriers related to "sign-up & operations compliance" were detected by this study. Those highlighted in blue have been raised, indicated or identified as barriers in Austria:

- Poor availability of information for market entrants & active participants
- Heavy administrative process for entry (registration / licensing)
- High financial requirements (incl. long working capital cycles) and forced risk during operations
- Excessive reporting requirements during operations
- Excessive information requirements around billing and energy labelling
- Highly complex or country-specific systems & processes
- Regional differences or differences between DSOs within a country
- Cumbersome or biased switching process
- Unduly burdensome environmental obligations
- Unduly burdensome or insufficiently regulated market exit

2. **Data access & processes.** Data access and management refers to the processes by which data are sourced, validated, stored, protected and processed and by which it can be accessed by suppliers or customers. In a well-functioning energy retail market, it is important that the information required to operate in the market is available to newcomers (subject to applicable legislation on data protection). This may include information on, for example, individual consumption or more specific meter details. This data is required in order for suppliers to carry out their market role, such as initiating a switch, or billing a customer. A standardized approach to the provision and exchange of data creates a level playing field among stakeholders and helps to encourage new, challenging market actors to enter the market. In order to avoid data management and access processes acting as a significant barrier to entry, Member States' initiatives to standardize data format and processes, including investments in data hub infrastructure, have the potential to make a positive impact.

Across Europe, the following specific barriers related to "data access & processes" were detected by this study. Those highlighted in blue have been raised, indicated or identified as barriers in Austria:

- Lack of data hub
- Complex, heterogenous IT infrastructure and/or low level of digitalisation
- Missing access or poor quality of operations-critical data

3.1 Description of operational and procedural hindrances barriers in Austria: Sign-up & operations compliance

Availability of information for market entrants & active participants. From our studies of this market, it appears that this presents a "best practice" in Austria.

The Austrian NRA, E-Control offers a comprehensive "starter kit" with all the necessary information for new market entrants in German and English language (see chapter "Information gathering before market entry" in the Appendix 1 "Processes".). Furthermore, statistical data, covering switching rates, price levels, smart metering rollout progress and others is frequently being published. Therefore, a barrier is not only non-existing, but even more, the situation in Austria can be regarded as a best practice.

Highly complex or country-specific systems & processes. In the research this barrier was identified as an issue in Austria. The systems landscape (forecasting, customer service etc.) can require significant costs, especially when first being established. Limits to or costs of outsourcing can fall disproportionately on smaller suppliers with less expertise in-house. If these systems are similar to those required in other markets, this investment can be capitalised on when expanding to other markets; if they are country-specific, expansion requires the same investment again in the new market.

National issue

As detailed in "Unduly burdensome environmental obligations", the Austrian **energy efficiency scheme "Energieeffizienzgesetz"** is not only considered unduly burdensome but it is also very country specific. Foreign market players might decide not to enter the market because of this specific obligation and Austrian market participants can not utilise the related processes and systems in other countries, therefore presenting a barrier.

Potential solutions

An increasing level of harmonisation regarding energy efficiency obligations throughout Europe could be very beneficial. This would not only benefit market players which are active in several member states, it would also benefit local market players because it will lead to lower associated costs for processes and systems.

European markets in which this barrier has also been indicated

AT BE BG HR CY CZ DE DK EE FI FR EL HU IE IT LV LT LU NL NO PL PT RO SK SI ES SE UK

Regional differences or differences between DSOs within a country. In the research this barrier was raised as an issue in Austria. Different regions within the country or different DSOs' grid areas have different processes, data formats etc. This requires more effort from the supplier to be active across many regions, compared to if there were national standardisation. Examples of such difference include DSOs' reporting on operational data and non-transparent forecasting methodology.

National issue

For suppliers, in order to get 15 min resolution Smart Meter data, **customer consent** (Opt-In) has to be provided. As there is **no standardised and digitalised process in place**, suppliers need to individually address all relevant DSOs with diverging demands in order to prove the consent. This presents a barrier for market players, trying to offer new services based on Smart Meter data.

Potential solutions

Although a standardized process is already in place (via ebutilities), some DSOs are requesting additional documents because they are interpreting the existing legal framework in a different way. Therefore, a clearer legal framework can help in eliminating this barrier.

European markets in which this barrier has also been indicated

AT	BE	BG	HR	CY	CZ	DE	DK	EE	FI	FR	EL	HU	IE	IT	LV	LT	LU	NL	NO	PL	PT	RO	SK	SI	ES	SE	UK
AT	BE		HR			DE	DK		FI	FR	EL									PL		RO			ES		

Unduly burdensome environmental obligations. In the research this barrier was identified as an issue in Austria. Environmental obligations such as energy efficiency schemes and certificates of origin may present a barrier as they can lead to increased bureaucracy and costs. Such obligations can be perceived as a barrier particularly if their relevance to the market is not clear to suppliers or if their implementation is felt to be unfair.

National issue

Several respondents raised concerns about the current energy efficiency obligations for suppliers, stemming from the energy efficiency law (Energieeffizienzgesetz). The country-specific obligations are associated with a high level of bureaucracy and considered unduly burdensome. Therefore, the current implementation of the European energy efficiency directive in Austria is considered a barrier

Potential solutions

In order to design a subsequent legal framework, the effectiveness of the Energieeffizienzgesetz is currently being reviewed. Besides decreasing the amount of bureaucracy, it is also important to consider further harmonisation, as pointed out in “Highly complex or country-specific systems & processes”

European markets in which this barrier has also been indicated

AT	BE	BG	HR	CY	CZ	DE	DK	EE	FI	FR	EL	HU	IE	IT	LV	LT	LU	NL	NO	PL	PT	RO	SK	SI	ES	SE	UK
AT	BE																	NL						SI			UK

3.2 Description of operational and procedural hindrances barriers in Austria: Data access & processes

Missing access or poor quality of operations-critical data. In the research this barrier was identified as an issue in Austria. Non-availability, delayed or low quality of operations-critical data (incl. smart meter data), presents a main barrier as it increases the need for manual processing and therefore costs. Especially in combination with information advantage, this can give of certain market participants such as DSOs and incumbents a major advantage in providing the required service level to the customers.

National issue

Missing or delayed access to and a low quality of Smart Meter data was raised by several survey participants as a barrier. System or process issues including communication issues with the Smart Meters as well as destructive behaviour of other market participants are just some of the potential reasons for this barrier.

Potential solutions

Generally, the data exchange process as well as formats for the communication between DSOs and supplier is well defined via ebutilities in Austria. The technical issues, leading to data gaps or false data need to be solved on the individual DSO level. This can lead to a substantial reduction in this barrier.

European markets in which this barrier has also been indicated

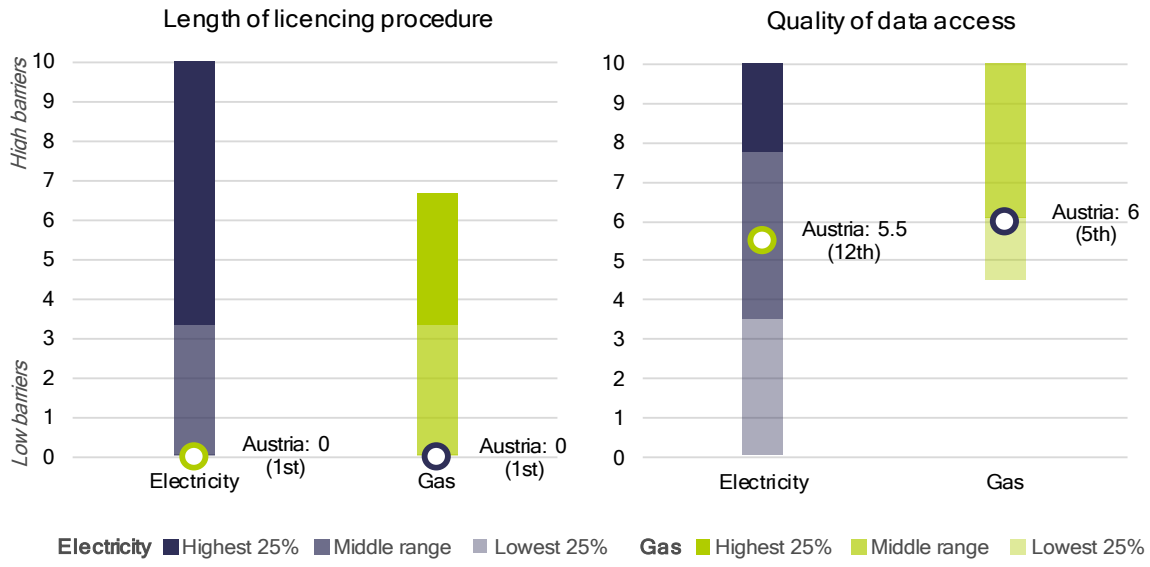
AT BE BG HR CY CZ DE DK EE FI FR EL HU IE IT LV LT LU NL NO PL PT RO SK SI ES SE UK

3.3 Austria's performance in this barrier category

The following figure shows quantitative indicators of how far operational and procedural hindrances act as a barrier in this market. The values for Austria are shown against the range across all analyzed countries. These scores contribute to the performance index. The performance indicators of operational and procedural hindrances are the followings:

- **Length of licensing procedure:** The complexity of the licensing procedure is quantified with the legal deadline of the licensing procedure. High score if attributed if the regulator has more moths for authorization, while 0 score is attributed if there is no licensing obligation in the country,
- **Quality of data access**: The barriers relating to the quality of data access are measured with a checklist indicator, which focuses on the DSO's practices regarding data collection and access provision to suppliers. High score is attributed if the format of the data provision is not standardised, third party access is not available via website or data hub, and the smart meter rollout is small.

Performance indicators



Austria does currently not have a licensing procedure in place. Regarding quality of data access, Austria's score is 5.5 for electricity (12th place) and 6 for gas (5th place).

4) Customer inertia

Within operational and procedural hindrances, barriers across Europe have been sub-categorised into one area encompassing 6 specific barriers[13]:

1. **Customer orientation.** Whether customers want to or can engage with the market depends on a broad range of market characteristics, including how well authorities inform and support customers and how energy companies are viewed by the customer. For example, if there is no trusted central place to compare offers from different suppliers, customers may struggle to make an informed choice; or if customers perceive all energy companies as irresponsibly profit-driven, or providing a poor service, they may feel there is nothing to be gained from switching. Moreover, across Europe, most energy markets have been liberalized relatively recently (last 20 years, some only a few years ago), so for a considerable portion of customers the potential for them to engage may still feel unfamiliar.
   Across Europe, the following specific barriers related to "customer orientation" were detected by this study. Those highlighted in blue have been raised, indicated or identified as barriers in Austria:

   - Lack of information regarding available offers and switching possibilities
   - **Low customer awareness or interest makes it difficult to attract customers**
   - Insufficient price signals for end-users
   - Changing supplier is cumbersome or has little pay-off for the customer
   - Consumers prefer status quo
   - **Lack of trust in new or foreign suppliers and in new technology**

4.1 Description of customer inertia barriers in Austria: Customer orientation

Low customer awareness or interest makes it difficult to attract customers. In the research this barrier was identified as an issue in Austria. If customers are not well informed about their opportunities to participate in the market or are not motivated to use them, or find the market too complex to access, they are not driven to seek out or engage with new energy suppliers. If energy is not a core priority for customers in their lifestyle (due to e.g. low prices, lack of interest/"sexiness" etc.), it is difficult to engage them in the market overall. This barrier also prevents uptake of novel services such as DR, as the benefits are difficult to promote to customers who do not already value energy or their role in the market.

[13] Please note: these definitions are Europe focused, not Austria specific. Highlighted barriers have been identified as country specific.

National issue

Based on the input of several market participants, **low customer awareness and a lack of interest in the topic "energy"** per se, is considered a general issue and therefore presents a main barrier in the Austrian market.

Potential solutions

Advertising by switching platforms and by suppliers themselves are currently the only observable sources for raising awareness

European markets in which this barrier has also been indicated

AT	BE	BG	HR	CY	CZ	DE	DK	EE	FI	FR	EL	HU	IE	IT	LV	LT	LU	NL	NO	PL	PT	RO	SK	SI	ES	SE	UK
■	■	■			■	■	■	■		■	■		■		■	■	■		■	■		■	■	■	■	■	

Lack of trust in new or foreign suppliers and in new technology. In the research this barrier was indicated as an issue in Austria. Lack of trust in new and/or foreign suppliers can be caused by previous bankruptcies in the market or simply customer unfamiliarity with the new supplier's quality of service. This presents a barrier for new suppliers trying to attract customers, as they have to invest heavily in building a new relationship. Customers and hence retailers may also mistrust new technology, at least until they have been convinced that it is useful and will not disrupt their lifestyle, which is difficult to do until enough people use the technology.

National issue

Several market participants raised concerns that there is a **lack of trust in foreign suppliers and new technology** (including "online only" offers). This especially presents a barrier for new market entrants, which are trying to differentiate their offering by reducing costs (online only and limited marketing expenses) or offering a unique product which is enabled by new technology.

Potential solutions

Depending on the root causes of the lack of trust, this barrier can potentially be addressed by information campaigns.

European markets in which this barrier has also been indicated

AT	BE	BG	HR	CY	CZ	DE	DK	EE	FI	FR	EL	HU	IE	IT	LV	LT	LU	NL	NO	PL	PT	RO	SK	SI	ES	SE	UK
■			■	■	■	■	■	■		■	■							■				■		■	■	■	

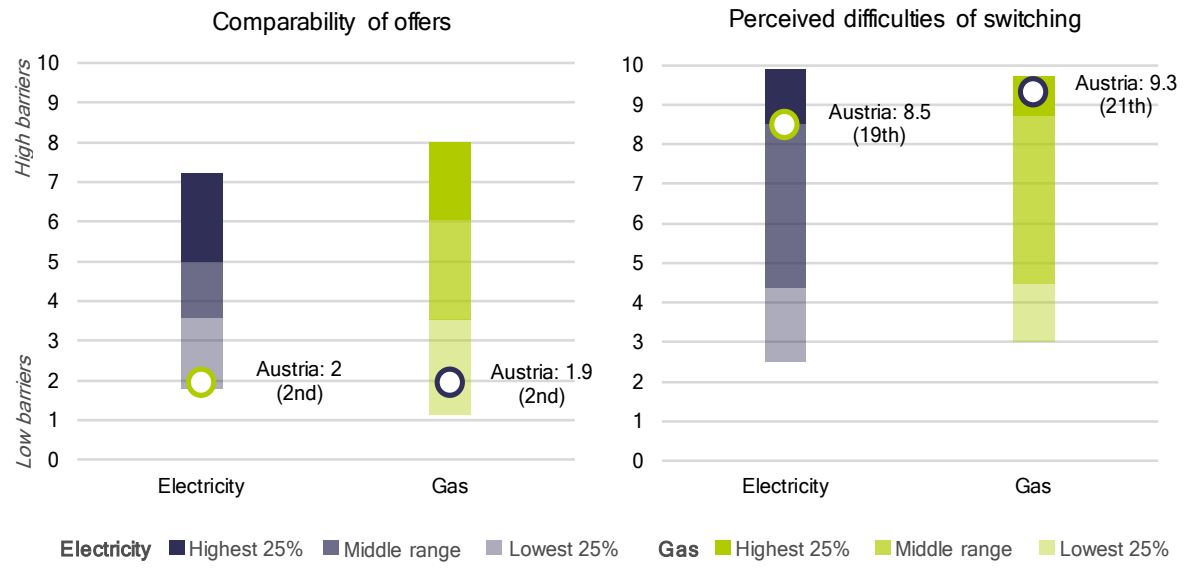
4.2 Austria's performance in this barrier category

The following figure shows quantitative indicators of how far customer inertia acts as a barrier in this market. The values for Austria are shown against the range across all analyzed countries. These scores contribute to the performance index. The performance indicators of customer inertia are the followings:

- **Comparability of offers:** The index consists of sub-indicators. The first measures consumer's ability to compare offers, based on a survey commissioned by the DG Justice and Consumers. The second is a checklist indicator which quantifies the availability of comparison websites, based on their number and functionalities. High score is attributed if the consumers gave low scores for comparability, and there are no comparison websites in the country.

- **Perceived cost of switching:** The difficulties of the switching process is also measured based DG Justice's survey. The indicator incorporates the experience and opinions of customers who have switched, and also of those who haven't because they faced obstacles or thought it might be too difficult. High score is attributed if the high share of consumers has bad experience or opinion on switching process among all customers who considered to switch.

Performance indicators



Austria is in second place with a score of 2 (electricity) and 1.9 (gas) when it comes to comparability of offers in the gas and electricity market. Regarding perceived difficulties of switching, Austria's score is 8.5 for electricity (19th place) and 9.3 for gas (21st place).[14]

5) Other

Other aspects of the market not directly related to its functions, as addressed above, may also impact suppliers' ease to enter and operate in the market. These relate to characteristics of the market that are not necessarily a barrier per se, but their impact on the energy retail environment could be minimized to benefit market function.

5.1 Description of other barriers in Austria: Other

Small market or customer value. In the research this barrier was identified as an issue in Austria. A small population and/or low consumption hinders profitability. Market size as a barrier could be ameliorated by better harmonization of markets.

[14] Other studies, commissioned by the NRA, also investigating the perceived difficulty of switching, show substantially different results

National issue

As raised by several respondents, the Austrian market is relatively small and in combination with country-specific obligations (as outlined in "Highly complex or country-specific systems & processes"), the market itself can become unattractive. This presents a barrier for new entrants.

Potential solutions

Further steps towards harmonisation can help in eliminating this barrier as the country-specific processes and system requirements will be diminished.

European markets in which this barrier has also been indicated

AT	BE	BG	HR	CY	CZ	DE	DK	EE	FI	FR	EL	HU	IE	IT	LV	LT	LU	NL	NO	PL	PT	RO	SK	SI	ES	SE	UK

FINDINGS & RECOMMENDATIONS

This handbook provides a high-level framework of relevant barriers to entry and operate for energy suppliers into the **Austrian** retail electricity and gas markets, as well as examples of actions that relevant institutions as NRAs, ministries, etc., have taken, are taking or could take in the future to remove them.

In particular, the handbook groups the barriers to entry and operate in the energy retail market into four different categories as listed below.

1. Regulatory disincentivisation.
2. Market inequality.
3. Operational and procedural hindrances.
4. Customer inertia.

In this section we report the main findings and recommendations for each category.

Under the first group, **regulatory disincentivisation**, suppliers did not raise any concerns regarding "price regulation" (as there is no price regulation in place) and "burden sharing". The main concerns relate to "regulatory unpredictability" and "access to innovation".

Several causes for uncertainty have been raised, including the future development of the regulatory framework, industry actors influencing legislation, regulatory developments in the field of digitalization and new technology and environmental obligations. Long term regulatory planning, clear communication of proposed regulatory changes as well as full transparency on deviations from initially proposed plans, can substantially reduce the level of uncertainty.

Raised barriers regarding access to innovation are mainly driven by data availability and data security aspects. Also, a perceived missing fit between new business models and existing regulation as well as missing flexibility in tariff structures has been indicated. Clear guidelines on how to handle data protection, optimizing the governance of the decentral market communication system and the implementation of Article 17 of the electricity directive (independent aggregator) will help in eliminating those barriers.

Regarding **market inequality**, barriers have been identified arising from a perceived uneven playing field for different types of suppliers. Suppliers responding to the survey or interviewed, reported barriers regarding "unbundling and market power" as well as "equal access to and maturity of wholesale market".

The respondents raised that market power barriers arise from "discriminating, strategic behaviour of incumbent, and obstruction by other market players" as well as "strategic, unfair advantage of vertically integrated market players and lack of transparency". A certification scheme for price comparison tools and reducing the cap of the "de minimis rule" can help in eliminating those barriers.

"Discriminatory market platform access", "low liquidity in the wholesale market" as well as "high price or volume risk in energy procurement" have been raised as issues around equal access to and maturity of wholesale market. Securing the agreed transmission rights will be crucial for not further reducing the liquidity on the Austrian market.

Furthermore, rolling out and enabling clearing based on Smart Meter data throughout Austria can substantially lower those barriers.

Operational and procedural hinderances are regarded as barriers by some of the suppliers responding to the survey or being interviewed. Barriers have been raised regarding “Sign-up and operations compliance” and “Data access & processes”.

“Highly complex or country-specific systems & processes”, “differences between DSOs within the country” and “unduly burdensome environmental obligations” are issues indicated with respect to operational compliance. For the Austrian EEffG, decreasing the amount of bureaucracy, and considering further European harmonisation can substantially lower this barrier. A standardized, digitized and automized process (over all DSOs) for gathering consumer consent for Smart Meter data is also recommended.

“Missing access or poor quality of operations-critical data” also presents a relevant barrier in the market. The technical issues, leading to data gaps or false data need to be addressed and solved on the individual DSO level.

The comprehensive “starter kit”, provided by E-Control, with all the necessary information for new market entrants in German and English, represents a best practice example in Europe.

Customer inertia barriers category, groups all those issues related to customer behaviour and attitude within the retail energy market.

“Low customer awareness or interest makes it difficult to attract customers” and “lack of trust in new or foreign suppliers and in new technology” have been raised specifically in this category. Raising awareness and the overall information level will help in reducing those barriers.

APPENDIX 1: PROCESSES

This section describes market processes in energy retail in Austria. This provides context for the market barriers described above by giving a high-level overview of the most critical aspects involved in establishing and operating as a supplier in the national market. The stages of market entry and operation are described in sequence, each with an illustration ("process map") showing that stage's various processes together with comments/details on market specifics.

1) Information gathering before market entry

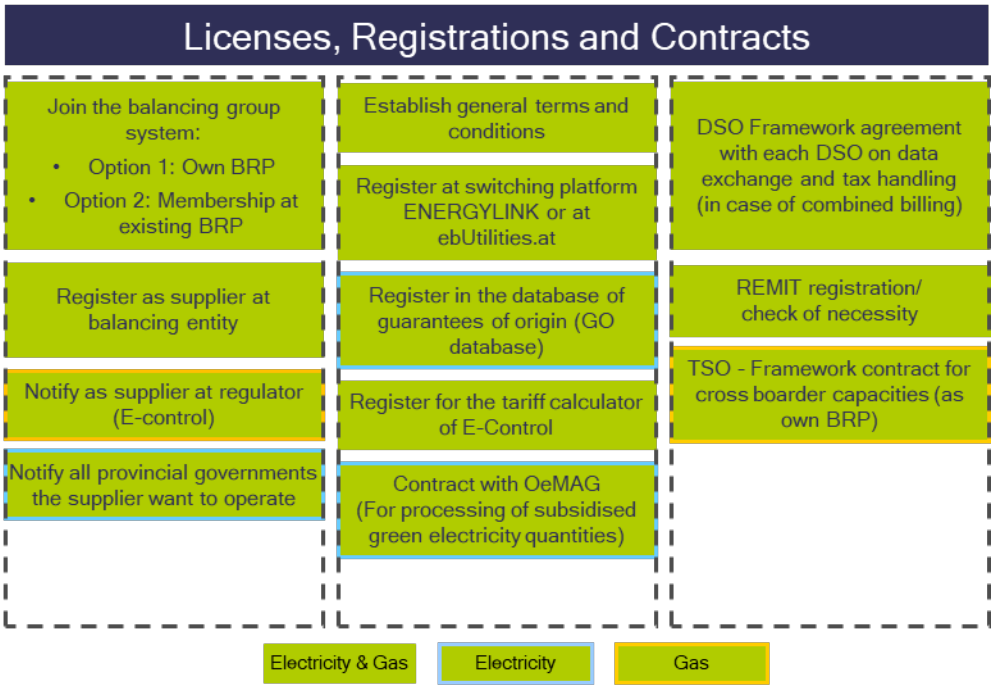
Further comments

- E-Control as first point of contact with the most comprehensive information on the Austrian electricity and gas market
- E-Control publishes a detailed guideline on market entry for energy trader and suppliers, covering:

  - step-by-step instructions for market entry, compiling all necessary information respectively provide links to the relevant online resources
  - lists the duties suppliers have during operations
  - available in German and English[15][16]
- Questions regarding market entry can be send to the E-Control help-desk (entry.info@E-Control.at). If required complex business cases or questions can be discussed in physical work-meetings at E-Control premises.
- E-Control operates an official tariff calculator covering all standardized products of all suppliers (up to date retail prices and tariff descriptions); suppliers are obliged to report their offers; a standardized product means a product available to multiply customers
- TSO with more information on physical infrastructure, trans-national transport and grid services (e.g. balancing energy).
- The APG Marktforum serves as a platform for regular and joint interaction between the Austrian national electricity TSO, APG, and stakeholders from the Austrian and European energy sector. It takes place on a regular basis 2-4 times a year. The goal of the APG Marktforum is to inform about and further develope the framework for wholesale markets and grid service markets, with emphasis, but not limited to balancing reserve. In gas the AGORA event series of AGGM as gas market area manager serves a similar purpose.
- The two main associations in the Austrian energy market are “Oesterreichs Energie” for electricity and “FGW” for gas (Association of Gas- and District Heating Supply Companies).
- ebUtitlities[17] is a platform for market actors to inform, consult and elaborate technical documentation on business processes, data formats and communication. Documents published on this platform under the market rules chapter 5 are binding for all market players (after following the process outlined in SoMa 5 including a consultation process)
- The ENERGYlink[18] is the central communication hub of the Austrian energy industry for any end consumer change as well as registration and deregistration of end consumers and serves the necessary communication between suppliers and DSOs (as well as BKO)
- The Austrian Energy Agency[19] is an energy research and policy institution in which the Federal Government and states, around 30 institutions and companies from various economic sectors work together. Suppliers can find here more information on energy efficiency goals and measures

[15] https://www.E-Control.at/en/marktteilnehmer/strom/markteintritt-leitfaden
[16] https://www.e-control.at/marktteilnehmer/gas/leitfaden-neue-gaslieferanten
[17] https://ebutilities.at/home.html
[18] https://www.energylink.at/de
[19] https://www.energyagency.at/

2) Licences, registrations and contracts

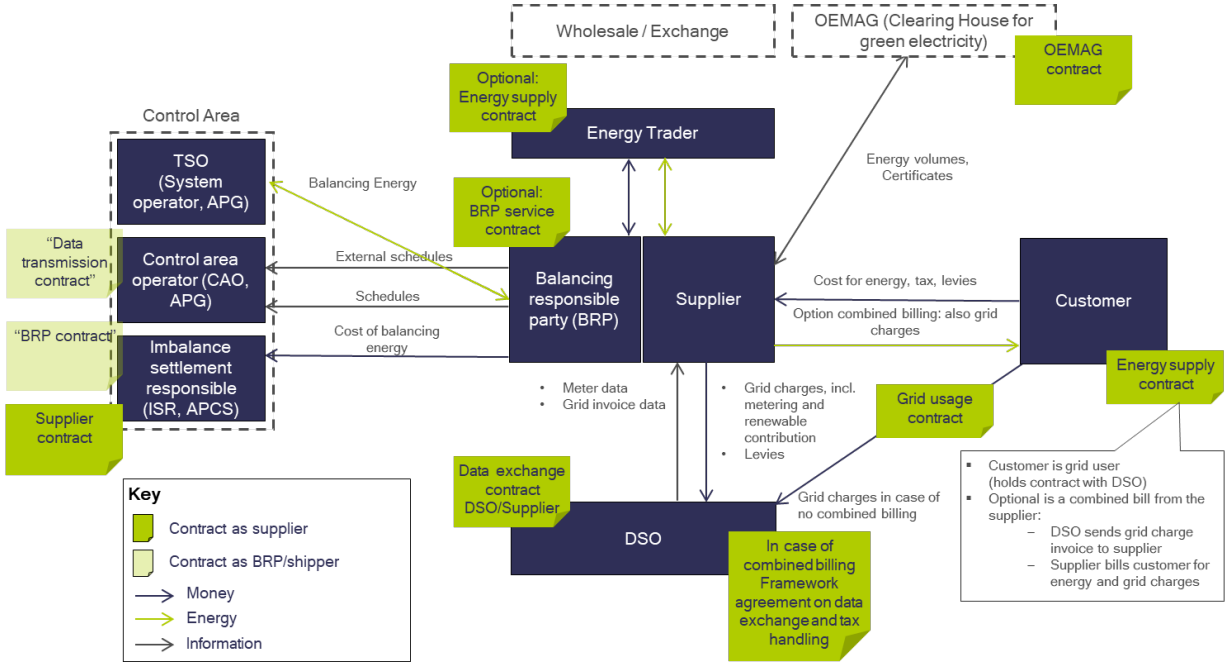


Further comments

- Each supplier must join the balancing system in the energy market. Supplier can do that by either:
  - Get licensed as a balance responsible party themselves (Option1)
  - Or get affiliated with an already existing balancing group (service contract with another BRP)
- Each supplier must register at the balancing entity (APCS for electricity; AGCS for gas)
- Gas supplier must notify E-Control whereas electricity suppliers must inform all provincial governments of the states they plan to operate in20
- Each supplier must elaborate general terms and conditions and inform E-Control about it. E-Control checks and approves these. Also, any future changes to the general terms and conditions must be notified to E-Control prior to activation.
- Suppliers must label their energy provided to consumers, i.e. disclose how it was produced. Labelling proof consists in guarantees of origin (GOs) that are created, traded and cancelled in a dedicated GO database
- E-Control operates an official price comparison tool ("tariff calculator"). Supplier must publish the tariff information of their standardized offers in that tool
- Electricity suppliers must sign a contract with OeMAG (green power settlement agent) about how to handle subsidised green power quota.
- For market communication processes a registration with the ENERGYLink or ebUtitilities platform is needed

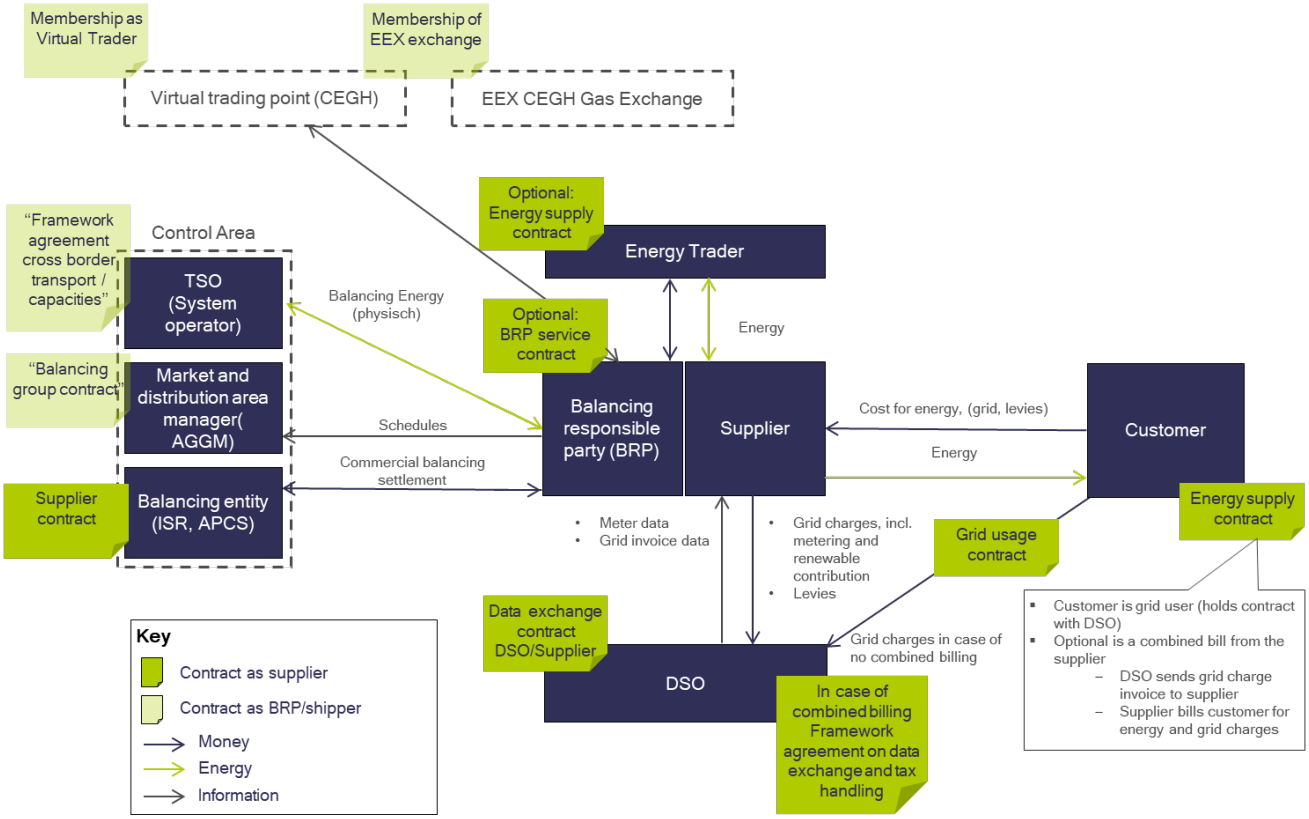
Overview of contracts to be closed as electricity supplier:

[20] In theory electricity supplier do not have to notify E-Control about being a supplier. In praxis suppliers do that implicitly when complying with other obligations (e.g. register at the tariff calculator)



More information can be found in the E-Control market entry guideline and on the website[21]

Overview of contracts to be closed as gas supplier:



[21] Market actors: https://www.E-Control.at/en/marktteilnehmer/strom/strommarkt/marktteilnehmer
Main processes: https://www.E-Control.at/marktteilnehmer/strom/strommarkt/wesentliche-prozesse
Electricity market model: https://www.E-Control.at/marktteilnehmer/strom/strommarkt/strommarktmodell

3) Balancing

Electricity*

Establishing Balancing Capabilities

Own BRP

1) Register at balancing entity	2) Register at Control area operator	3) Obtain license from e-control
• Extract from commercial register, annual reports, ...	• Successful test of transmitting external schedules	• BRP and data transmission contract from ISR and CAO
• Energy quantity forecast	• Data transmission contract	• Proof of technical qualification to act as BRP (knowledge)
• Deposit Account and Minimum Collateral (in line with risk)	Deposit allowable against equity capital; deposit is requested by APCS (risk mngt.) and aims to protect other BRPs in case of bankrupcy of a BRP	• Minimum liable equity capital of EUR 50,000
• Technical requirements (Data test)		• "BRP license"
• EIC code		
• BRP contract		

Membership to existing BRP

- Contract with BRP
- Get EIC number
- Register as supplier at ISR

Gas*

Establishing Balancing Capabilities

Own BRP

1) Register with system operators	2) Obtain BRP license from e-Control
Market area and distribution area manager: • Communication test • EIC Code	• Contracts from system operator
	• Proof of technical qualification to act as BRP (knowledge)
Operator of the virtual trading point (CEGH) / natural gas exchange: • CEGH membership & collateral deposit • Membership powernext / PEGAS for trading at virtual trading point • Membership clearing house • Contract clearing bank	• Company documents (balance sheet, certificate of registration)
	• Minimum liable equity capital of EUR 50,000
Imbalance settlement responsible (AGCS): • Credit assessment	

Membership to existing BRP

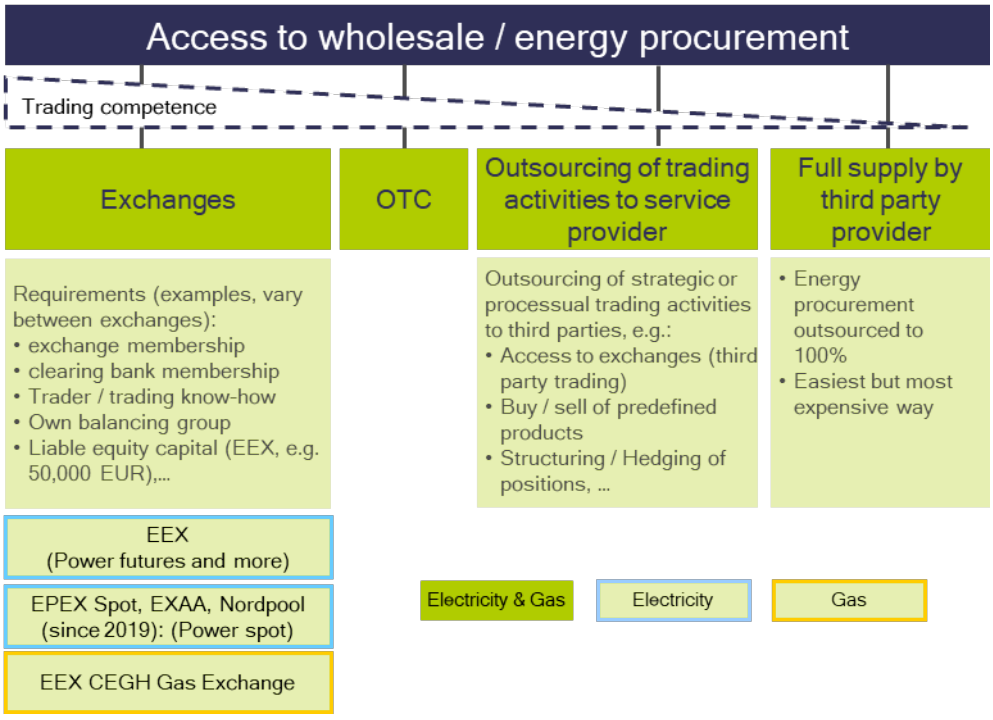
- Contract with BRP
- Get EIC number
- Register as supplier at ISR

*these pictures represent an overview and do not claim to show the complete process in detail

Further comments

- Option I (be your own BRP) is more complicated, technically more difficult and more expensive than option II. On the other hand, no business-critical information (e.g. purchasing strategy, channels etc.) have to be passed to a third party, who might be even active on the same market.
- BRPs are not obliged to offer balance group management as a service
- The preferred option depends on trading knowledge, business model and resources

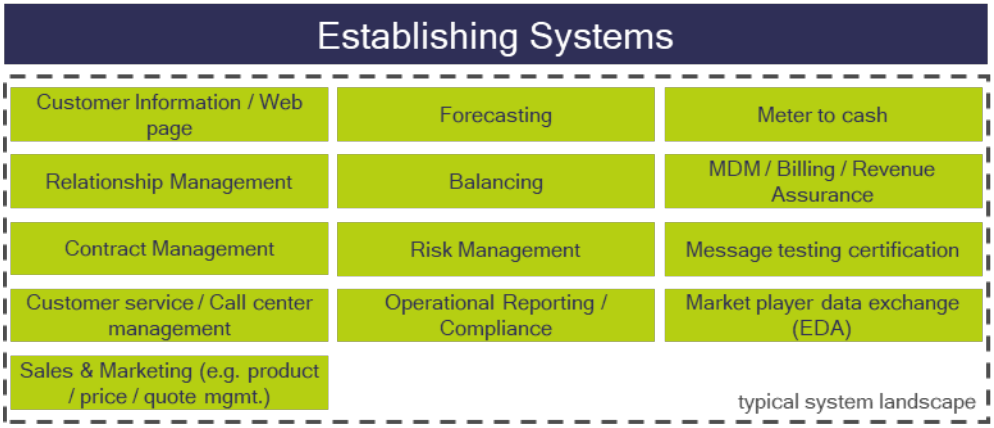
4) Wholesale



Further comments

- Energy procurement and related risks can be fully outsourced to external service provider (most expensive)
- Trading on behalf of supplier can be done by the BRP or other third parties (e.g. brokers, financial inst., …)
- Procurement of suppliers still happens mainly OTC or through non-standard contracts
- Depending on business model and internal trading know-how suppliers can procure energy directly on wholesale markets (exchange, OTC)
- In between there are many hybrids forms possible, meaning that only single or many trading activities can be outsourced to third parties (individual agreements)
- There are no obligations in the way of procuring energy
- Own generation capacities are not mandatory

5) System landscape

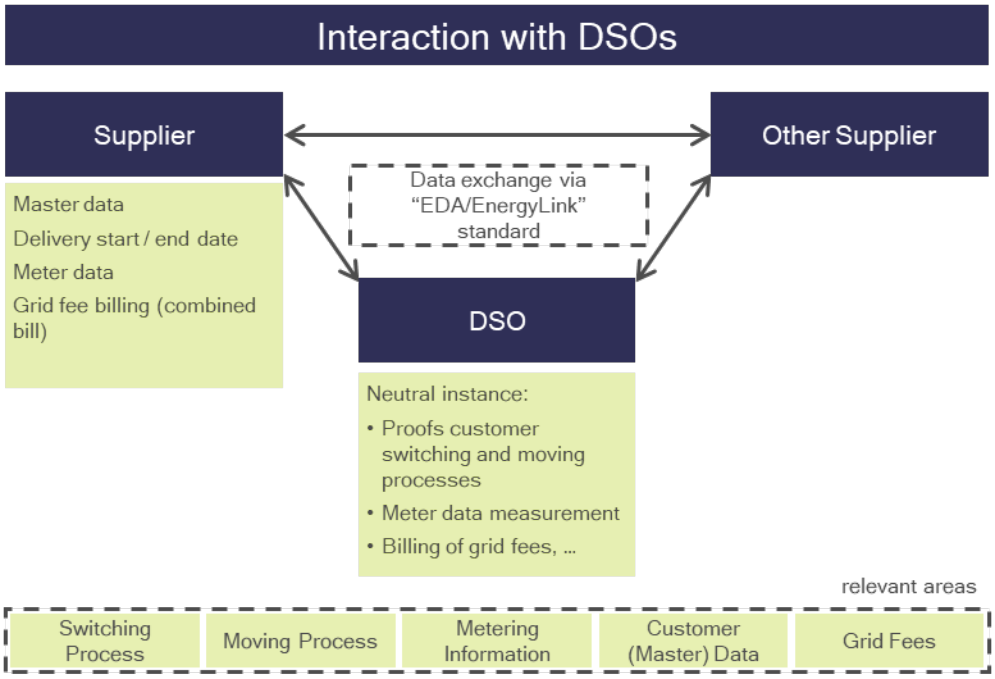


Further comments

- In general, there is no obligation to run specific systems in-house everything could be outsourced to third parties[22]
- Data exchange with market players is standardized using EDA/ENERGYlink communication standard. There are three different ways to implement/fulfill this standard:
  1) Integration of communication solution into own IT system (basic version of the data exchange software package free of charge for suppliers)
  2) Contracting an IT service provider
  3) Using self-storage service (web service) from ENERGYlink (no installation needed, but manual effort)

6) DSO-related operations & market communications

[22] Activities can be outsourced but not legal responsibility. Supplier is responsible to fulfil his obligation as a supplier



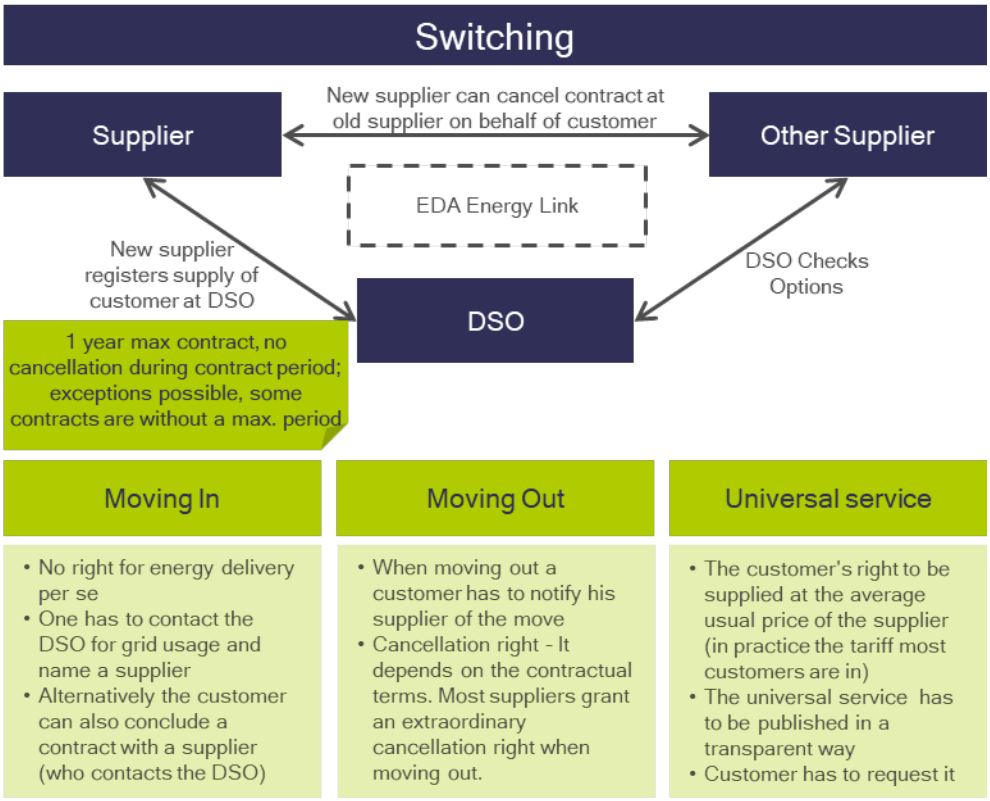
Further comments

- Business processes between market actors are standardized and publicly available on "ebUtilities.at" (Technical documentation, based on market rules)
- A supplier must contact the DSO for each customer that it wins from that distribution area. The communication runs automatically with the start of the switching process
- For the delivery of energy to end customers the supplier must not sign a contract with the DSO (network user is the end customer)
- However, a contract between supplier and DSO is needed for data exchange and in case of combined billing for tax handling
- Market standards are continuously developed by market participants:
    - Chapter 5 of the "other market rules" (Sonstige Markregeln) defines general conditions for the development of technical documentation of business processes, data formats and data transfer
    - The content is elaborated by the market players with ebUtilities as the main platform for collaboration and consultation
    - All registered market players of ebUtilities have the right to take part in any consultations and to propose changes to technical documents
    - E-Control provides advice, makes proposals for changes and monitors compliance with the framework conditions

Smart Metering for electricity:

- Rollout and data processing are managed by DSOs
- Customers can decide on the functionalities of the smart meter. In the standard configuration the smart meter sends once a day a consumption value. Customers can opt-in to receive ¼ h values or opt-out of any smart meter functionalities (the meter is configured as digital meter)
- Access to any data only with mandate of the customer

7) Customer switching & moving

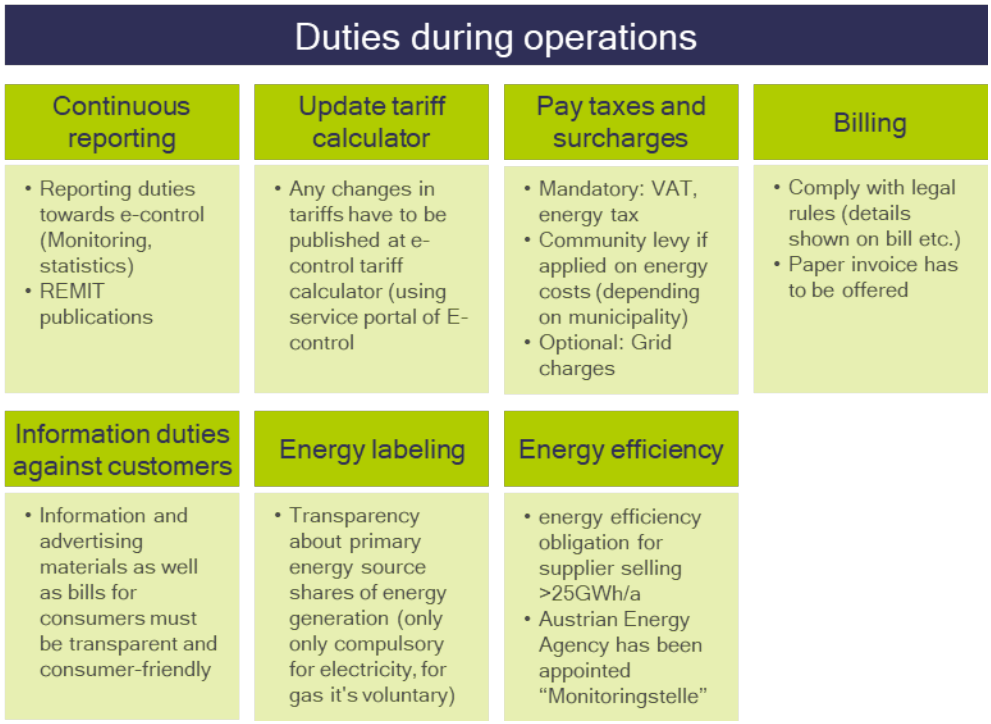


Further comments

Switching

- It is possible to change suppliers during the month on any day of the week
- Uniform cancellation periods have been in effect since March 2011 – 2 weeks for customers and eight weeks for suppliers
- Open end contracts with no binding period are popular in Austria
- Fixed-term contracts are also offered. Customer can switch these after one year, regardless of the agreed price binding period, which can be longer than one year
- Supplier are free to define their pricing model (including bonuses and other special discounts) if transparency and clarity of the tariff are given for the customer
- Suppliers can reject requests for supply, except requests from customer who rely on universal service (must be served). Universal service is a mandatory task for each supplier (§ 77 ElWOG, Electricity Act).
- When moving in, customers must contact the DSO to request grid usage and name a supplier. Otherwise there is the risk of energy cut-off (there is on per se right for energy supply without contract

8) Operational obligations/duties



Further comments

Billing

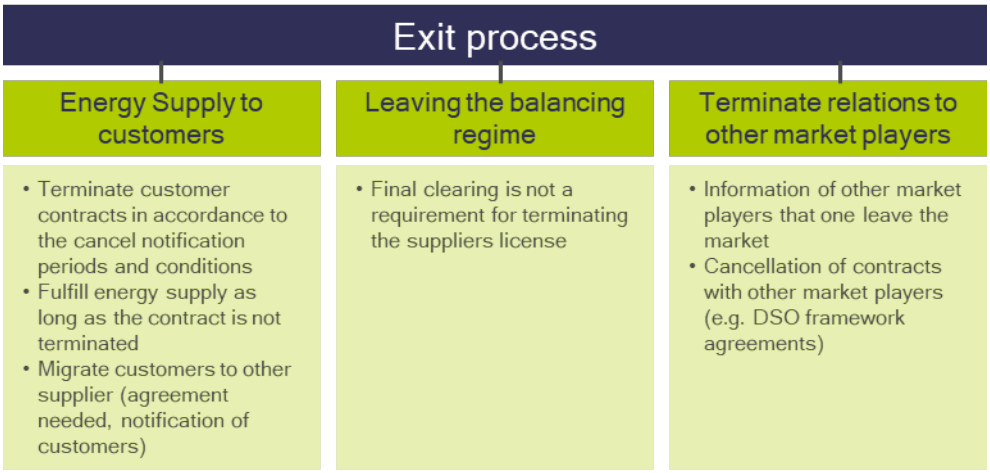
- E-Control provides a sample invoice which fulfils all legal aspects
- Installing a billing system can be more or less of an effort depending on whether a supplier wants to issue combined bills, the existing IT infrastructure and/or how quickly an external service provider can be contracted. In any case, adopting the sample bill (or parts thereof) will considerably shorten the entire process and potential post-processing time
- Customers have a right to receive a paper invoice
- If a customer breaks his contract, there is a dunning procedure the supplier must follow before he can terminate the contract
- The amount of the community levy and calculation method (applied on energy costs or grid charges) varies amongst municipalities. The supplier needs to integrate the different levels of community levy into his accounting and billing system

Reporting

- Reporting can be more or less of an effort depending on the business activities (i.e. how much data the supplier must report) and depending on the automation of data collection
- Energy efficiency: Suppliers selling more than 25 GWh of energy to consumers in Austria during a given year must fulfil an energy efficiency obligation the year after (section 10(1) Energy Efficiency Act): supplier must provide proof that they have taken energy efficiency measures in the amount of 0.6% of last year's sales to

domestic consumers; of these 0.6%, 40% must be energy efficiency measures for households → Report duties to Austrian Energy Agency

9) Market exit



Further comments

- Energy suppliers can leave the market, but they must fulfill their obligations in the role as energy supplier
- There are no penalties for leaving the market per se. Penalties might arise in case legal obligations are violented.
- Conditions for cancellation of bilateral contracts (e.g. with service providers or balancing responsible parties) are depending on the individual contracts
- E-Control provides a guide for leaving the natural gas market in English. An equivalent for the electricity market is coming soon
- Note:
- In case of bankruptcy of a supplier, E-Control chooses a new supplier for every network area by „lottery“(for those who haven‘t changed their supplier up to the day, the supplier is no longer able to supply).

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MJ-02-21-166-EN-N

Publications Office
of the European Union

ISBN 978-92-76-30235-3