



EUROPEAN BARRIERS IN RETAIL ENERGY MARKETS



CROATIA Country Handbook

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EUROPEAN BARRIERS IN RETAIL ENERGY MARKETS PROJECT: Croatia Country Handbook

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TABLE OF CONTENTS

SUMMARY	4
Project Outline	4
Key barriers in the Croatian market	12
Key recommendations	13
MARKET OVERVIEW	14
Introduction	14
Background	14
Market structure	16
Political and regulatory orientation	16
Regulatory market characteristics	17
Other market characteristics	17
Context for aggregation/demand response	17
BARRIERS	20
1) Regulatory disincentivisation	22
2) Market inequality	30
3) Operational and procedural hindrances	36
4) Customer inertia	42
5) Other	45
FINDINGS & RECOMMENDATIONS	46
APPENDIX 1: PROCESSES	48
1) Information gathering before market entry	48
2) Licences, registrations and contracts	49
3) Balancing	50
4) Wholesale	50
5) System landscape	51
6) DSO-related operations & market communications	51
7) Customer switching & moving	52
8) Operational obligations/duties	53
9) Market exit	53

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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.

Focus Markets



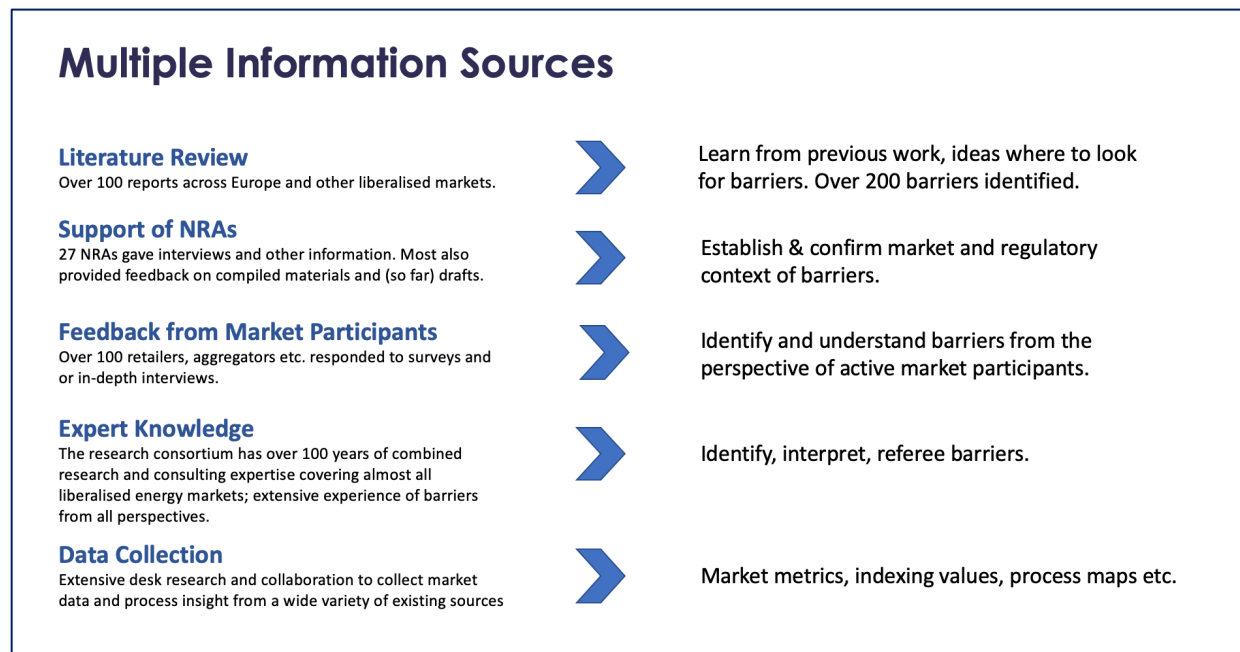
The project focuses on retail (supply), including also demand aggregation services, other additional offerings and new model retail, especially relating to the household segment customers (in some markets households and smaller SMEs may be difficult to distinguish). The project additionally concentrates 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.

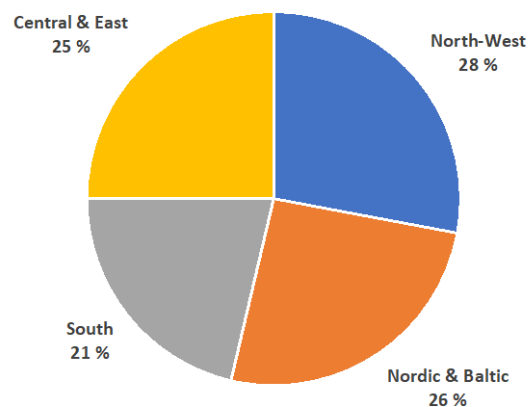
The Competitor Sample

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.

Responses by Region



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

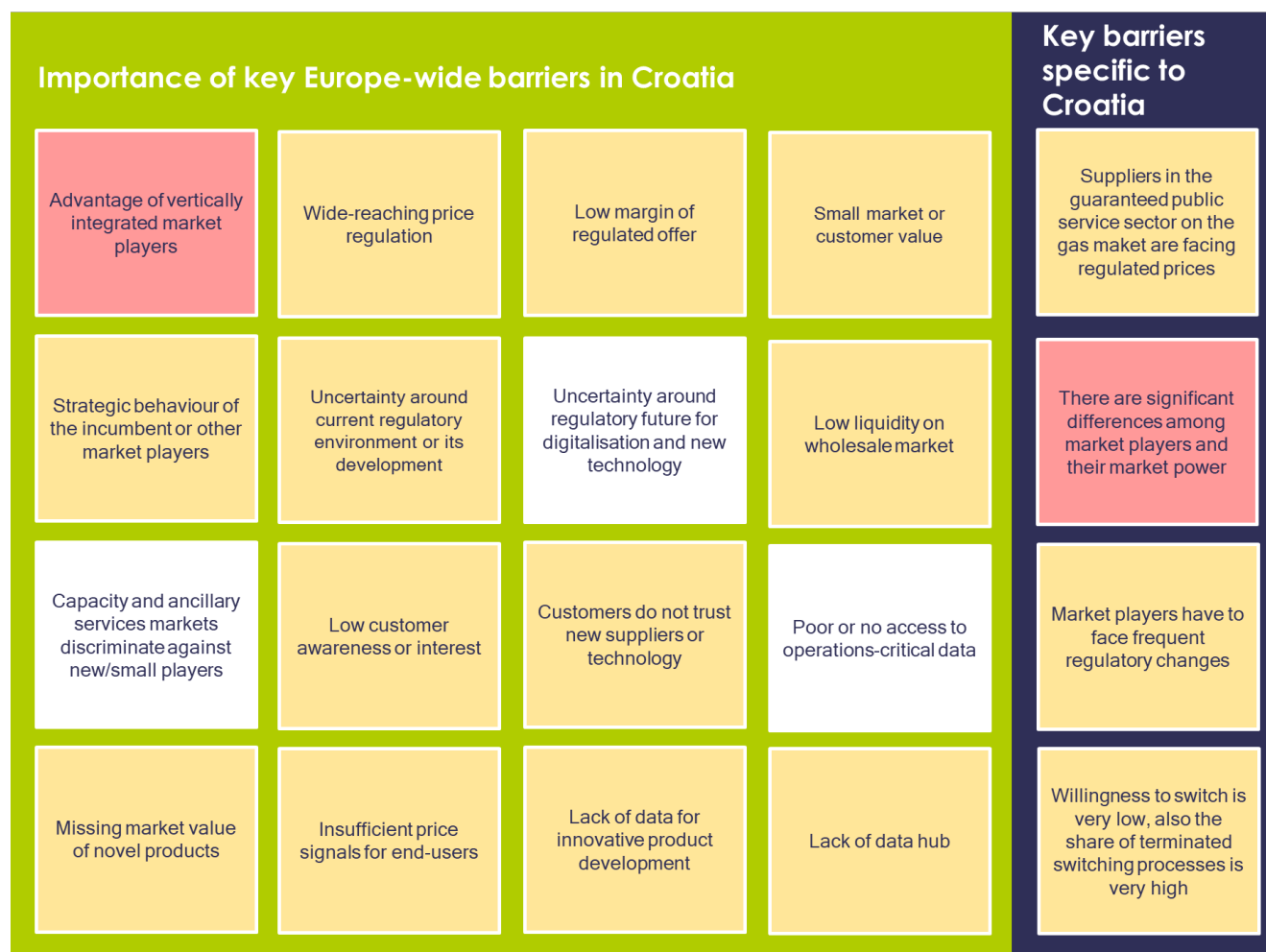
The purpose of the 'European Retail Energy Market Barriers Index' is to enable a degree of comparability between the barriers' context in each of the markets. It is based on metrics that can be collected for all markets, metrics for which available data currently exists. As such it provides a simple, 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 Croatian market

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



LEGEND



Has not been raised, indicated or identified as a barrier in this country



Has been raised or indicated as an issue in this country

- May include issues that still are present in the country or are experienced by suppliers even though regulation to address the issue has been enacted by the regulator and effects still awaited; reporting a lag between the regulatory framework structure and its awaited effects
- May include issues where suppliers suffer the effects despite the country being relatively advanced on this topic compared with other EU countries, pilot projects being in place or institutions working to overcome the problem.



Has been identified as an issue in this country and is supported by facts, data or substantial respondent evidence in light of limited initiatives deployed by institutions to control or overcome the issue.

Key recommendations

Among the barriers marked in the previous figure Croatia have already introduced important measures which are expectedly improve the situation, but there some areas, where it would be advisable to take action, like:

- adopting international data standards,
- increasing the liquidity of the exchange and hedging opportunities,
- determining longer periods of public consultations and more time between the announcement and the commencement of a measure,
- forcing brand unbundling of incumbents on the electricity market,
- supporting pilot projects to incentivize innovations.

MARKET OVERVIEW

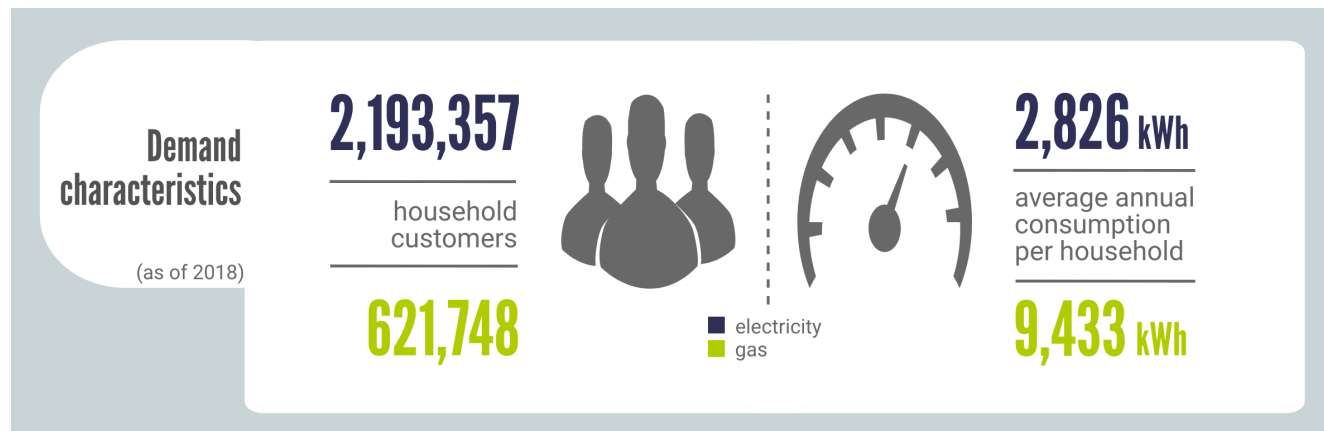
Introduction

Croatia broke a record with its 18,352 GWh electricity consumption in 2018 (measured since 2000). 66.4% of this consumption was covered by domestic power plants and the remaining volume was imported. Net import in 2018 was lower than in the previous years, thanks to the favorable hydrological conditions.

76 MW new renewable-based capacities (21 facilities) were connected to the grid in 2018, so overall RES capacities have reached 829 MW which is 16.5% of the domestic production capacities (5,010 MW). Even if the proportion of production sources which are connected directly to the distribution network are increasing, electricity production is still dominated by one company HEP d.d. with 86% of Croatia's production facilities and 83% of generation.

29,541 GWh natural gas was transferred to the Croatian transmission system of which 9,664 GWh was domestically produced and 15,535 GWh was imported. Half of this quantity was delivered to consumers directly connected to the transmission system, which is significantly lower than in the previous years due to the decreased usage of thermal power plants. 37.5% was used by consumers connected to the distribution system and the rest was stored.

The Croatian market consists of around 2.2 million household electricity customers with an average annual consumption of 2,826 kWh. The 622 thousand household gas customers are consuming 9,433 kWh on average, annually.



Background

First step of the liberalization of the Croatian energy market was the Energy Act of 2001. This act was the basis to develop a market which focuses on efficiency and reliability. The two main companies in the energy sector, HEP (Croatian Power Utility) and INA (national oil and gas company) started to restructure themselves to adapt to the liberalized market and EU policies. Croatia formally conducted all unbundling steps (functional, accounting, and legal) excepting ownership unbundling on the electricity market. Croatian Transmission System Operator Ltd. (Hrvatski Operator Prijenosnog Sustava d.o.o., HOPS) has been certified according to Independent Transmission Operator (ITO) model. Unbundling of public service supply (universal service supply and supply of last resort) from Croatian distribution system operator (HEP-Operator distribucijskog sustava d.o.o.) to separate company was carried out.

One important step of natural gas retail market liberalization occurred in 2008 when every customer became eligible, which meant that supply became an unregulated market activity where the customer can freely choose its supplier and switch without any procedural costs. De facto liberalization of the natural gas market occurred in 2012-13 when the price cap for eligible customers was removed and new wholesale players entered the market. In 2012-13 the Croatian energy market legislation was fully harmonized with the EU's Third Energy Package as a new Energy Act passed, followed by the Electricity Market Act and Gas Market Act.

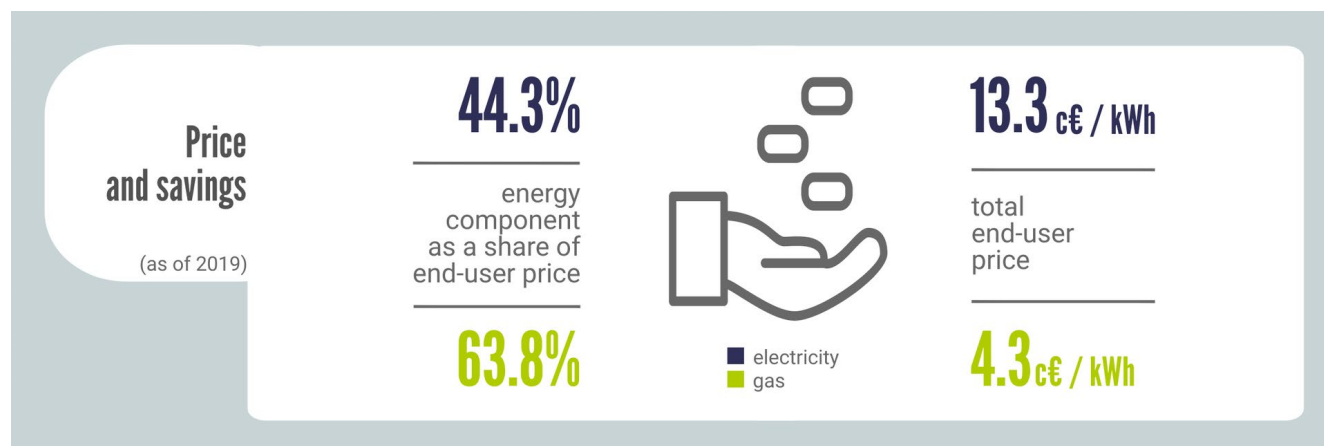
Aligning of the electricity market to the EU directives, further reforms of the electricity market were continued in the following years by the protection of vulnerable customers, supervision of wholesale activities, establishment of power exchange, the Croatian and Slovenian day-ahead market coupling, etc.

Further reforms were conducted at the gas market related to public service suppliers in 2017 and at the retail electricity market in 2016 when the price of universal service became unregulated, also reserve capacities and balancing energy market were liberalized in 2017.

The Croatian Parliament adopted a new Gas Market Act in 2018 which stipulates that the regulator (HERA) has to select a wholesale supplier and the guaranteed supplier via public tenders. To harmonize the Croatian gas market HERA also adopted new methodologies related to setting distribution, transmission and storage tariffs, setting LNG dispatch and reception tariffs, calculation of connection fee to the distribution or the transmission system, setting the price of non-standard services and tariffs for gas supply and guaranteed supply as public services.

Electricity market also went through major regulatory changes in 2017-2019 like the new Network Code for the Transmission System, the new Network Code for the Distribution System, the adoption of new transmission and distribution tariff methodologies, new rules for connection to the transmission system, new rules for connection to the distribution system, Regulation on the issuance of energy connection approval and the determination of conditions and deadlines for connecting to the electricity network, the new Electricity Balancing Rules (aligned to the Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing), etc.

The energy component of the electricity bill accounts for 44.3% for electricity and 63.8% for gas customers, the rest of the bill comprises of grid tariffs, taxes and duties. End-user prices were 13.3 and 4.3 cents per kWh for electricity and gas. Other parts of the electricity bill were taxes and charges (1/4) and network charges (1/3).



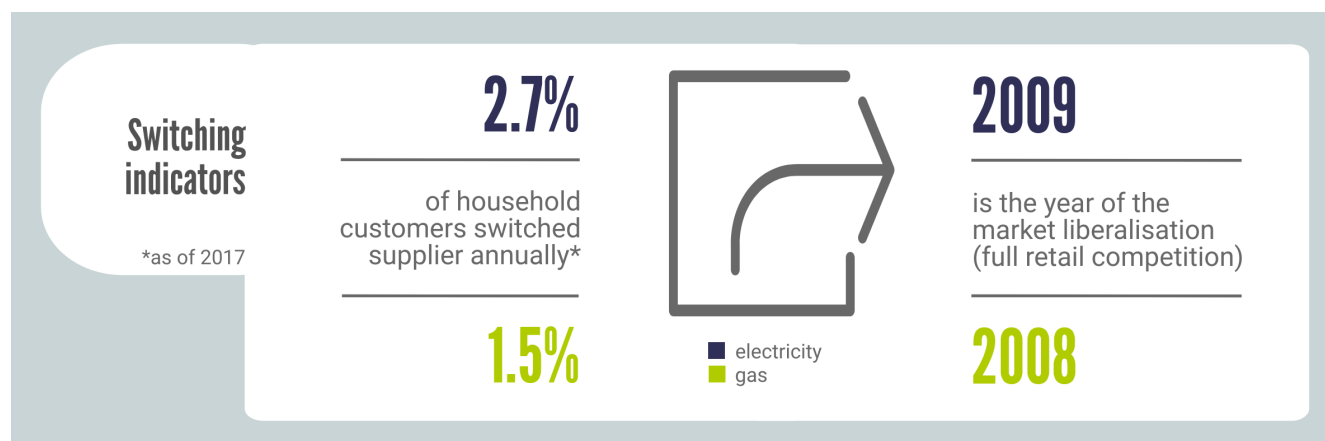
Market structure

HOPS is the Croatian transmission system operator and HEP-DSO is the distribution system operator on the electricity market. Supply of electricity is also very concentrated as HEP covers more than 90% of the market and the top three players cover 99%, while the overall number of suppliers were 11 in 2018. Compared to 2017 the market became even more concentrated as the top 3 players' market share was a bit smaller then (98%).

Plinacro is the natural gas TSO. There are 35 DSOs based on the number of licenses of which 12 are independent legal entities, while the others are vertically integrated companies. In 2018 the number of licensed suppliers was 54 of which 45 were active. Concentration of the industrial consumer segment decreased until 2015 to 1,744, since then it is slowly growing up to 2,608 in 2018.

Customer switching rates were 2.7% for electricity (households) and 1.5% for gas, which are very low compared to other European countries and show a decreasing trend.

Switching on the gas market increased in 2017 and fell back in 2018. Even the rate is very moderate, the volume switchers account for was about 6.5% in the recent years which means that typically bigger consumers are more intended to switch. The number of terminated switching procedures also increased. Meantime in 2018 the switching procedure was shortened and simplified, and for more transparent market information HERA introduced rules on the content of invoices and obliged suppliers to inform consumers about their consumption profiles. HERA itself also takes part in developing a well-informed market by operating tariff calculator, by publishing market information and supervising the information published by market entities on both markets.



Electricity is traded on the Croatian exchange CROPEX which has 17 registered members. Traded volumes on the day-ahead market were 2,382 GWh in 2018. On the intraday market the traded volumes are 78 GWh and there are 9 members. Traded volumes significantly increased in the middle of 2018 as a result of the Croatian and Slovenian day-ahead market coupling. At the end of 2019 Croatian market has been successfully included in the Single Intraday Coupling (SIDC) via Croatian-Slovenian and Croatian-Hungarian borders.

Political and regulatory orientation

Croatia's policy orientation related to energy markets and climate is based on five pillars: decarbonization, energy efficiency, energy security, the development of internal markets and research, innovation and competitiveness.

Regulation of the natural gas market was in parallel with the previous years' measures towards market opening. Among other important changes market for household consumers was liberalized, important measures were

introduced to handle complaints related to supplier switching procedures and public tender was announced for the selection of the wholesale and the guaranteed supplier.

Electricity market is in a more mature state than gas market but it is also going through regulatory improvements, like the modification of network codes of transmission system and distribution system, tariff methodologies, grid connection issues etc.

Regulatory market characteristics

Suppliers in the guaranteed public service sector are facing regulated prices on the gas market, on electricity market only supplier of last resort has regulated prices. The regulator recently adopted several measures to harmonise price regulation on the gas market where the regulation method is based on maximum allowed revenue, which is an incentivized kind of price regulation.

HERA introduced rules on the content of invoices and obliged suppliers to inform consumers about their consumption profiles. "One-bill" for network use and commodity was in place for gas and was also introduced for electricity in 2015.

At the end of 2016, unbundling of distribution network and supply activities in the guaranteed public service sector on electricity market was carried out. New company HEP Elektra was founded to carry out public service supply of households (as a universal service supplier) and supply of last resort (for non-household customers under specific circumstances related to their supplier(s)). Even prior to the mentioned unbundling the price regulation of universal service supply by National Regulatory Agency (NRA) HERA was abandoned (the price setting is responsibility of universal service supplier). Price regulation of supply of last resort is still responsibility of HERA and it incentivizes end customers to choose among suppliers on the market as soon as possible.

Licensing process is moderately complex, for details see Appendix 1: Licences, registration and contracts.

Expected upcoming regulatory changes are related to the adaptation of Clean Energy Package.

Other market characteristics

Croatian Energy Market Operator HROTE, as a leader of ECO balance group and the group balance responsible party, offers and trades electricity produced by eligible producers from renewable energy sources and highly efficient cogeneration (RESKO) on the Croatian Power Exchange CROPEX which contributes to market liquidity. In 2019 CROPEX and HROTE successfully launched auctions for trading of Guarantees of Origin for RESKO electricity produced by members of ECO balance group.

Context for aggregation/demand response

HOPS launched a Demand Side Response (DSR) pilot project. Tenderers can be any devices and installations whose consumption can be reduced for the request of HOPS. By entering into a contractual relationship with HOPS to provide tertiary ancillary services, the end customer directly participates in the balancing system and receives compensation for its service.

If a consumer intends to enter the scheme it has to fill and submit a pre-qualification form, after that the facility will be tested by HOPS to prove the capability of providing the declared amount of reserve in the required time.

Qualified providers who have concluded an agreement with HOPS compete on tenders which are conducted weekly. The selection criteria is based on the offered minimum price, which cannot exceed price specified in the Ancillary Services Pricing Methodology. The reserve amount in the pilot tender is about 40-50 MW.

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 market rules do not 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 categories 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 Croatian case as reported in the following chapters of this handbook.

HOW TO READ AND INTERPRET THE FOLLOWING SECTIONS

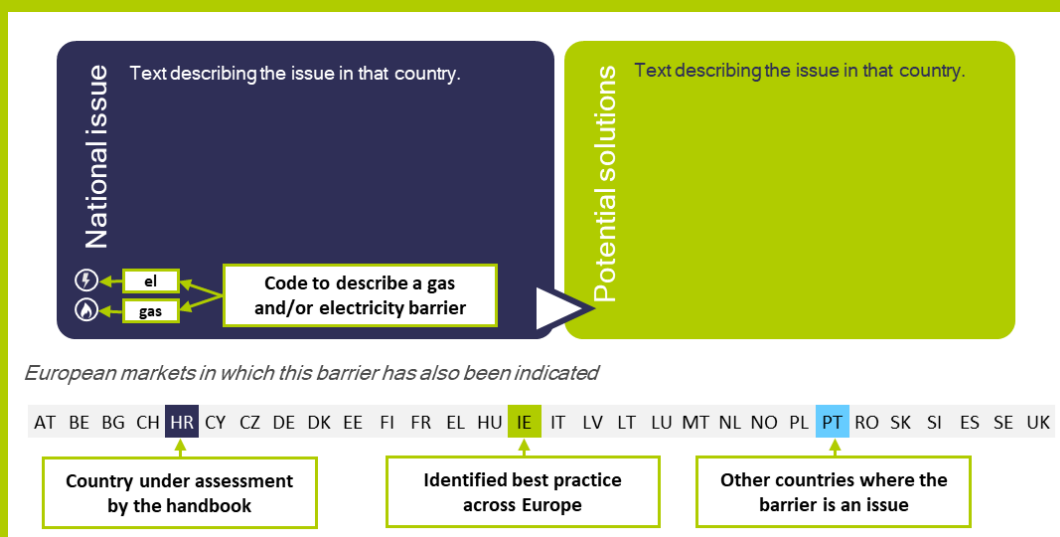
Each of the following four chapters explores one of the four pan-European blocks of barriers and report how each sub-category barrier apply to Croatia. When a barrier applies to Croatia, it will be highlighted in the table following a general description of the barrier itself as shown in the example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

#) Name of the Pan-European Block	
#. Name of the Barrier category and description.	
Text that will generally describe the barrier category . . .	
List of barriers identified across Europe under this barrier category:	
• Barrier 1	When highlighted - applies to the specific country described in this Handbook
• Barrier 2	
• Barrier 3	
• Barrier 4	

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 Croatia.

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 barriers¹:

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.

According to CEER², 14 European countries out of 27 answering a recent CEER survey have price intervention in electricity for household consumers. 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. 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 Croatia:

- 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 Croatia:

- Obligation to collect tariffs unrelated to energy on behalf of others
- Obligation to keep a minimum-security stock as a gas reserve

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

¹ Please note: these definitions are Europe focused, not Croatia specific. Highlighted barriers have been identified as country specific.

² Monitoring Report on the Performance of European Retail Markets in 2018. CEER Report 4 November 2019.

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 Croatia:

- Suppliers face uncertainty because of a newly liberalized 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 markets 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 Croatia:

- 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 Croatia: Price regulation

Price regulation discriminates against certain suppliers. On the gas market households can choose to be supplied under market conditions or under public service obligations. Suppliers which are obliged to provide public service are also able to serve eligible customers under market conditions. These suppliers are determined in the public service obligation for a certain area and period until 31 March 2021. By 31 December 2020 at the latest, the regulator is going to conduct a public tender and select suppliers in the public service obligation for the needs of final household customers. Even the current price regulation is going to expire in 2021, the regulated segment on the gas market is significant which can be served only by certain suppliers, so currently this would pose a barrier on Croatian gas market.

National issue

Only certain suppliers can serve under public service obligations.
Majority of the customer base chose to be served under public service obligation, so they are not available for new entrants.



Potential solutions

Complete price deregulation (current price regulation will expire in 2021).
Incentivization of customers to choose supply under market conditions.

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 penetration of price regulation. Prices are deregulated on both markets excepting guaranteed supply on gas market where HERA is responsible for determining the methodology of tariff calculation. Even the current price regulation is going to expire in 2021, the regulated segment on the gas market is significant. This segment can be served only by certain suppliers, so it is not contestable by new entrants. Currently this would pose a barrier on Croatian gas market.

National issue

Percentage of gas consumers with regulated prices on Croatian retail gas market in relation to total household and non-household in 2018 is 23% (based on consumption), while percentage of households with regulated prices in relation to total household is 93% (based on consumption).



Potential solutions

Complete price deregulation (current price regulation will expire in 2021).
Incentivization of customers to choose supply under market conditions.

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: Roadmap for removal of regulated retail prices.

Portugal removed end-user price regulation for non-household customers and the transitional period ended in 2016. As part of the phase-out process, which started in 2010 for gas non-household customers and in 2011 for electricity non-household customers, a transitional period was defined by the government in Portugal in order to enable customers supplied under regulated end-user prices to choose a new market supplier and move to the liberalised market. During this period, the NRA (ERSE), sets a tariff (called the 'transitional tariff'), which may include an additional value, whose objective is to promote customers to switch to a market tariff.

Lastly, under the terms of Government Ordinance N. 39/2017 of 26 January 2017, consumers who still have regulated tariffs have a transitional period until 31 December 2020 to choose an electricity market supplier. While, under the terms of Government Ordinance N. 144/2017 of 24 April 2017, consumers who still have regulated tariffs have a transitional period until 2023 to choose a natural gas market supplier.

Low margin of regulated offer (margin squeeze). If the regulated price is set to such a low level that only companies that can benefit of economies of scale are able to generate a sustainable margin, this can create a barrier in the market. The greater the size of the regulated customer segment the stronger the barrier, as it reduces the contestable part of the market for smaller players.

National issue

According to survey respondents regulated prices of public service households is a significant burden on the gas market where price calculation methodology for household customers can result in prices lower than the market price.

**Potential solutions**

Complete price deregulation.
Current price regulation will expire in 2021, until then, revision of the calculation methodology would be useful.
Incentivization of customers to choose supply under market conditions.

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

SPANISH BEST PRACTICE CASE: Low margin of regulated offer. Before 2014, the price regulation regime (PVPC) raised many complaints from electricity companies, claiming that the price was set below cost or may have too limited margin to cover the risk of activity.

Hence, a new Royal Decree was issued (RD 216/2014), establishing a new methodology for calculating the PVPC, including the energy cost, the applicable access tariffs and a commercial margin.

The main difference is that the energy cost is now calculated on an ex-post basis, using the average price resulting in the spot electricity market during the period covered by the bill. In the case of consumers with an operative smart meter installed (as of now, more than 98%), since 1 October 2015, a real consumption tariff following the spot price, is applied. The real time price is published by the electricity TSO through ESIOS platform.

Having a pass-through of the energy cost from the electricity spot market is considered as a best practice within the price regulation category. This prevents the energy component of the regulated tariff to be set below cost. However, the customers exposure to the volatility of the spot market may trigger further Government interventions.

Discussions still exist about the value of the commercial margin, which still is seen as too low by reference suppliers and limits the ability to compete of new and small companies. Also, having a price regulation in place that applies to the 95% of the retail market is perceived as hindering competition among suppliers. Suppliers wish a phase-out of price regulation regime, with a clear plan defined by the relevant institutions.

1.2 Description of regulatory disincentivisation barriers in Croatia: Regulatory unpredictability

Suppliers face uncertainty because of a newly liberalized regulatory environment or uncertain future development of the regulatory framework. Legislation defines roles and responsibilities on both markets, relevant entities ensure opportunity to stakeholders to share ideas and opinion. Gas market act sets 15 days as the shortest period for public hearings, also for the minimum time between the announcement of a measure and the time from where it enters into force. This 15 days long period applies for the adaptation of a plan for the deregulation of gas prices.

National issue

Respondents stated that market players have to face frequent regulatory changes.

An example source of uncertainties: complete market liberalization is going to occur in 2021 but most of the market players do not see the way to proceed that state.

Potential solutions

Longer period for public consultations, sharing information well before the introduction of a new measure or modification.

Incentivization of participation on public consultations.

Announcement of regulatory roadmap until price liberalization in 2021 as soon as possible.

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. Responses in Croatia raised this as a barrier. While cooperation between authorities and market actors is essential for functioning and lasting market developments, industry bodies or actors may be having too much influence to shape legislation.

National issue



According to the respondents, incumbents or other stakeholders (political actors) can have an influence on regulatory changes.

Potential solutions

Incentivization of participation on public consultations for every stakeholder.
Longer period for public consultations.

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. Environmental obligations such as energy efficiency schemes may present a barrier as they lead to an increasing amount of bureaucracy and costs, especially if they change in a short time or administration is not clear. Responses in Croatia raised this as a barrier.

National issue



One example of uncertainties related to environmental obligations: Energy Efficiency Act prescribes energy savings for suppliers in 2019 based on quantities delivered in 2017. Suppliers received their obligation notification very late so they had very short time to undertake the necessary measures.

Potential solutions

Clear communication about environmental obligations on time with the obliged parties.

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

1.3 Description of regulatory disincentivisation barriers in Croatia: Access to innovation

Lack of incentivisation for novel pilot projects or post-pilot market rollout. Lack of financial incentives as well as missing technical support can be a major barrier for conducting pilots in novel technologies, as the piloting firm then bears all the risk for this experimental work, which discourages participation. Respondents in Croatia raised this as a barrier.

National issue



Energy market is not considered to be an innovative market, the stakeholders and the customers are seemingly not open to new solutions.

Potential solutions

Planned and supported pilot projects can serve as good examples to incentivize innovations and to introduce customers new opportunities.

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.

Market structures does not incentivize novel products (missing perceived value). Without an existing demand and/or mindset for novel services, new entrants face the barrier of establishing the entire market before they can act in it. A low level of perceived value can due to a technology lag, customers' being unaware or not incentivized, or little competition between traditional suppliers resulting in little need for suppliers to innovate/differentiate. Responses in Croatia raised this as a barrier.

National issue



Low expected market value of innovations can prevent market players to initiate developments or to launch innovative projects.

Potential solutions

In the early stages state subsidization is necessary to incentivize innovative projects.

European markets in which this barrier has also been indicated

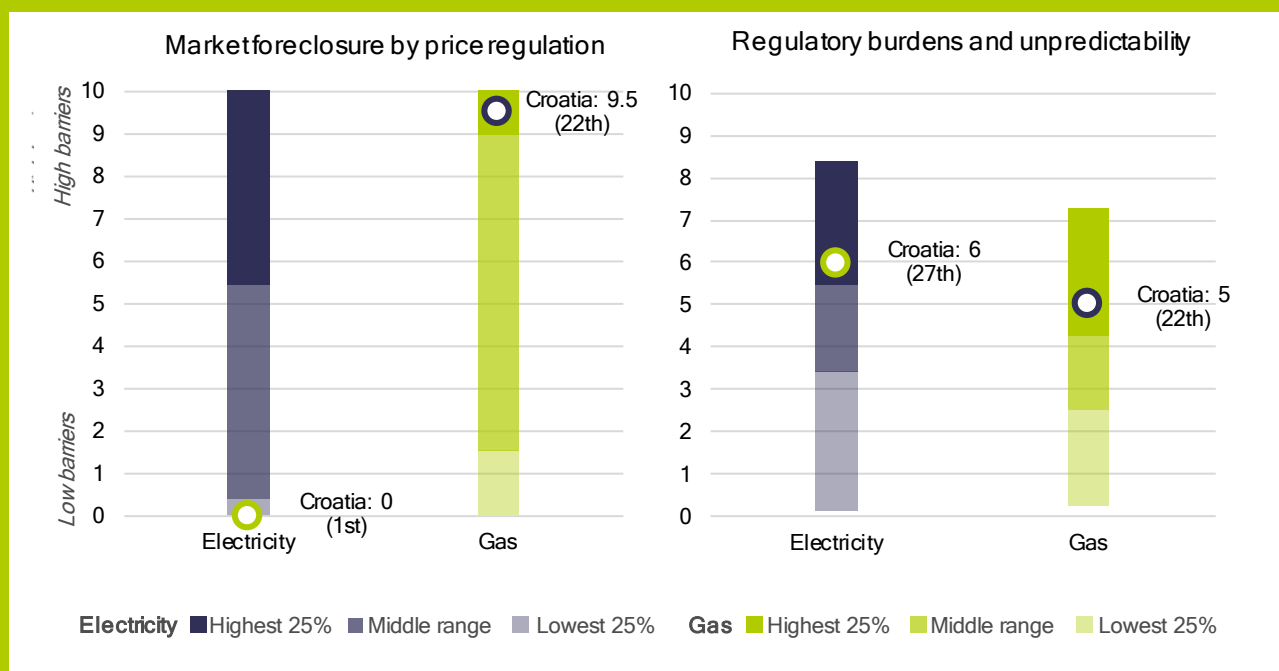
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1.4 Croatia's performance in this barrier category

The following figure shows quantitative indicators of how far regulatory disincentivisation acts as a barrier in this market. The values for Croatia 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 two sub-indicators, the penetration of price regulation (among residual customers), and the mark-up of the regulated offer. A high score is attributed if the high share of the customers is supplied at regulated price, 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 the non-energy share of the energy bill in an average household, which are regulated (taxes, network fees). Regulatory unpredictability was measured via the related question in the supplier survey conducted for this project. A high score is attributed if the share of the non-energy elements is high, and if survey respondents scored the question highly (as an important barrier).

Performance indicators



Croatia was ranked among the best performers on the electricity market with its completely liberalized market, but was among the last ones as the regulated segment on the gas market is significant. In terms of regulatory burdens and unpredictability it would be worth taking steps on both markets as Croatia is among the worst performers compared to other European countries.

2) Market inequality

Within market inequality, barriers across Europe have been sub-categorised into two areas encompassing 8 specific barriers³:

1. **Unbundling and market power.** In order to facilitate better competition and improve performance of the individual parts of the energy companies, the Energy Directives 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 customers 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 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. 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 Croatia:

- 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

³ Please note: these definitions are Europe focused, not Croatia specific. Highlighted barriers have been identified as country specific.

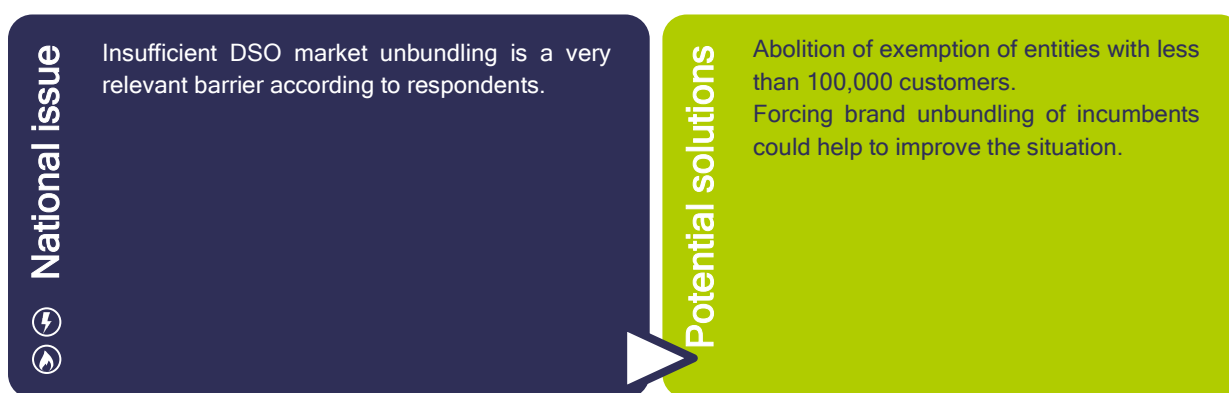
to an increase in risk, disadvantaging small market participants substantially more than large, established suppliers. Across Europe, the following specific barriers related to “equal access to and maturity of wholesale market” were detected by this study. Those highlighted in blue have been raised, indicated or identified as barriers in Croatia:

- 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 Croatia: Unbundling and market power

Lack of brand unbundling. Pursuant to the provisions of the Electricity Market Act on the unbundling of energy activities, Croatian transmission system operator has been certified according to independent transmission operator (ITO) model. DSO activities has been unbundled from supply activities. Improvements in relation to brand unbundling of DSO and company providing public service supply should be pursued.

On the gas market distribution system operator that is part of a vertically integrated energy entity and has less than 100,000 customers connected is exempt from legal separation. One DSO was obliged to perform legal separation, 11 DSOs were organized as independent legal entities engaged only in gas distribution and 23 (out of 35) energy entities were organized as vertically integrated legal entities and are active both in gas distribution and gas supply.



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. Respondents in Croatia raised this as a barrier. Within such a research project, it is not possible to draw conclusion on the existence and potential effects of anticompetitive strategic conducts, as these questions can be judged only in legal procedures carried out by sectoral regulators or competition authorities. In general, 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 new entrants. For example, large established players can afford to apply predatory pricing for certain customers to retain them. Market players with a lot of power 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.

National issue

Respondents in Croatia raised that strategic behavior of other suppliers are common on both markets.

Potential solutions

In general, stricter rules for unbundling of distribution and supply activities can reduce both the incentives and the ability of a vertically integrated market player to follow anticompetitive behaviours.

In case of issues with data access, a standardised approach for data exchange, via a data hub or any other viable platform solution can help reducing this barrier as it will create a level playing field for 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

Strategic, unfair advantage of vertically integrated market players and lack of transparency. In Croatia this barrier is very significant especially on the electricity market. Vertically integrated companies are able to use their market power to gain an advantage in terms of information, allowing them for example to target customers based on consumption profiles or win back customers during the switching process, etc.

National issue

Electricity market is dominated by the incumbent, vertically integrated player. Questionnaire responses raise that this is a barrier not only on the electricity market, but also on the gas market.



Potential solutions

The structural (ownership) unbundling of distribution and supply activities is the most effective way to level playing field. Unfair advantages in data access can be handled with a standardised approach for data exchange, via a data hub or any other viable platform.

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.

Limited or biased access to production. Outside of power exchange, where all registered participants are able to source, it can raise a barrier that market participants who also own generation assets can use their power to withdraw production capacity from the open market, thereby limiting liquidity in the wholesale market. Some respondents in Croatia raised this as a barrier.

National issue

Overall liquidity on the electricity market is satisfying but according to survey responses market players with different backgrounds do not have equal access to all sources. Respondents on the electricity market raised that less established players cannot access domestic production sources as they are mostly used by incumbents, so these suppliers mostly have to rely on imports.



Potential solutions

Universal access to production sources forced by regulatory measures. Obligation to trade on exchange or other central platform.

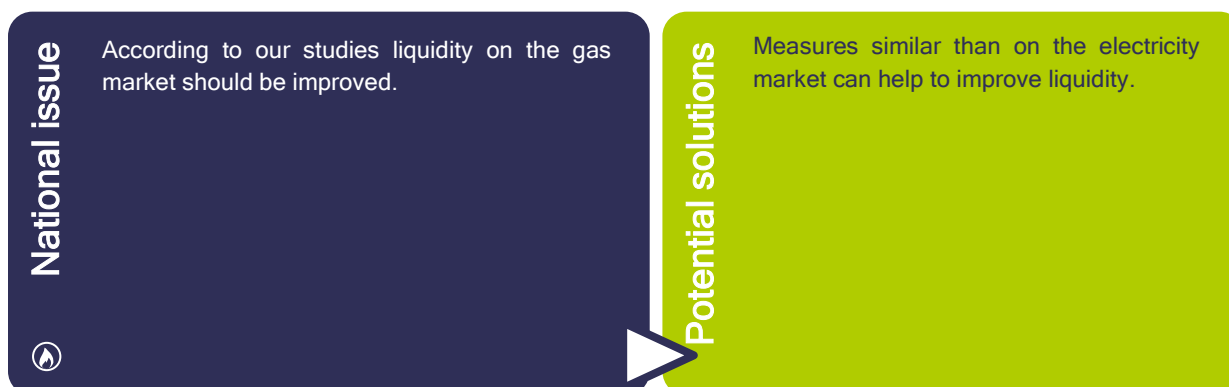
European markets in which this barrier has also been indicated

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

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

Low liquidity in the wholesale market. Electricity from RESCO eligible producers which are members of ECO balance group is offered and traded on CROPEX. Taking into account the size and characteristics of Croatian power market not all of the electricity from ECO balance group is offered at once, but its volume is introduced gradually (previously 30%, currently 60% of net electricity supplied to the power system is offered on the market). This also reduces suppliers' obligation to procure a share of RESCO electricity produced by eligible producers. Liquidity on the electricity market is satisfying and improving, it is not visible from the data but at the end of 2019 Croatian market has been successfully included in the Single Intraday Coupling (SIDC) via Croatian-Slovenian and Croatian-Hungarian borders which also expected to have positive effect.

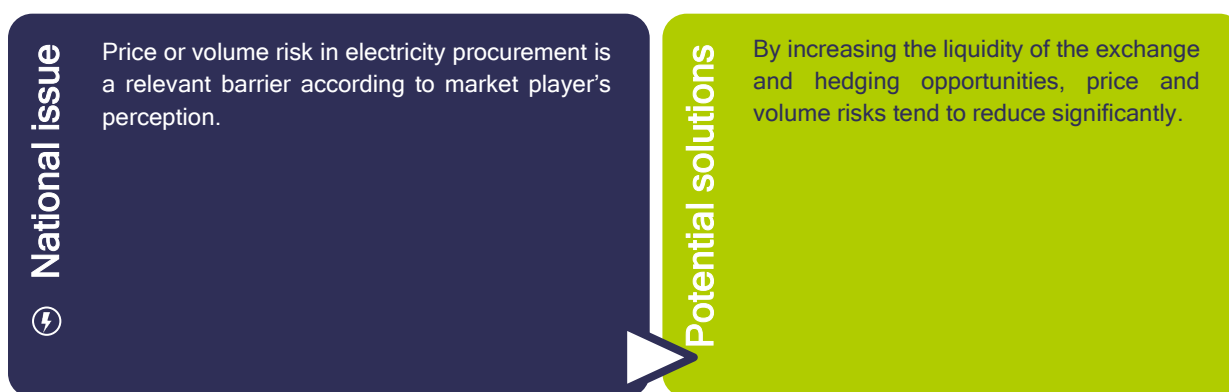
On the gas market there were no explicit barrier raised but according to our studies on the market it seems that total consumption is higher than wholesale turnover which indicates low liquidity.



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. As mentioned above smaller players mostly rely on imports, so price and volume risk can be a barrier on the electricity market. 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.



European markets in which this barrier has also been indicated

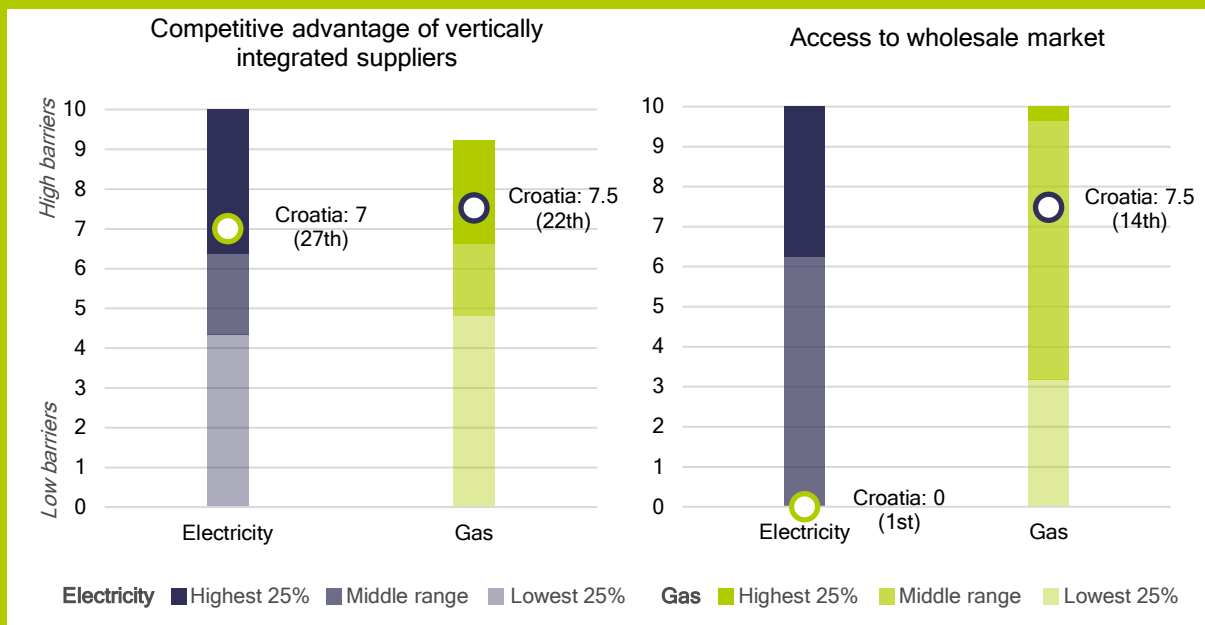


2.3 Croatia's performance in this barrier category

The following figure shows quantitative indicators of how far market inequality acts as a barrier in this market. The values for Croatia 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 two sub-indicators, the market share of vertically integrated suppliers (on the residential market), and the strictness of DSO unbundling. A 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 the 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



As the ranking shows the presence of highly influential market players raises a significant barrier in Croatia compared to other countries, so the indicator value confirms the perception of market players. Performance indicator of wholesale market access shows that disparate picture described above, where electricity market's comparative performance is much better than of gas market.

3) Operational and procedural hindrances

Within operational and procedural hindrances, barriers across Europe have been sub-categorised into two areas encompassing 13 specific barriers⁴:

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 licence. 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,

⁴ Please note: these definitions are Europe focused, not Croatia specific. Highlighted barriers have been identified as country specific.

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 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 Croatia:

• 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

1. **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 Croatia:

• 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 Croatia: Sign-up & operations compliance

Poor availability of information for market entrants & active participants. Detailed information about legislation, licensing requirements and procedures during operations etc. are not always available, or only in the local language. This makes it difficult for potential new entrants to (1) understand the market and judge its suitability for their business; (2) efficiently go through the entry process to establish on the market; (3) operate effectively and efficiently.

National issue



Very rich information is available on the regulator's, market operator's and the respective ministry's website in Croatian. For foreign entrants and participants it is a lot harder to find information, the regulator's English website is much less informative, also the ministry's materials are mostly not available in English.

Potential solutions

Translating the original content of all authorities' websites to English. Standardized reporting and information sharing processes would improve transparency on the market.

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

AUSTRIAN BEST PRACTICE CASE: Availability of information for market entrants & active participants.

The Austrian NRA, E-Control offers a comprehensive "starter kit" with all the necessary information for new market entrants in German and English language. 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. Country specific processes requires high investments when a player wants to enter the market. According to the respondents this raises a barrier in Croatia.

National issue



Respondent on the electricity market found Croatian market processes very specific and poorly standardised. On the gas market this barrier is also present but less relevant.

Potential solutions

Launching international standards instead of country-specific market 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. 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.

National issue



Over thirty DSOs use different contracts and data formats on the gas market according to the respondent.

Potential solutions

Development of transparent platforms and standardized data formats.

European markets in which this barrier has also been indicated

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

Complex, heterogenous IT infrastructure and/or low level of digitalisation. Heterogenous and complex IT infrastructure, required to communicate and exchange data with all relevant market participants, or a high level of manual processes in such exchanges, can both increase costs substantially. Such systems can be financed more easily by large market players via economies of scale, so small players are disadvantaged for technical reasons. Even though, Croatia do not have standardized data hub, energy market operator provides a central platform for supplier switching process, as well for monthly reports of switching activities. For the purpose of monitoring and improving business processes in the gas market as well as the implementation of the supplier switching process, in 2018 HROTE has established a Register of Accrual Measurement Points (ROMM). ROMM is an electronic

database of end customer metering points of all distribution system operators, transmission system operators and closed distribution system operators in Croatia.

National issue



Low level of digitalization, different data formats and structures, sometimes unavailable data is a very relevant barrier on both markets according to survey responses.

Potential solutions

Targeting the highest standards in terms of creating user friendly IT processes and infrastructure.

Ideas and solutions can occur outside the regulatory system so supporting pilot projects can help to take steps toward digitalization.

European markets in which this barrier has also been indicated

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Missing access or poor quality of operations-critical data. Non-availability, delayed or low quality of operations-critical data (incl. smart meter data) presents a barrier as it increases the need for manual processing and therefore costs, especially in combination with information or other advantages. There has been significant improvement in this field in the recent years but according to responses in Croatia this is still a significant barrier. Market players found available data hard to use for pricing or portfolio management purposes.

National issue



Accessibility and quality of data critical for market operation found to be a very relevant barrier on both markets.

Potential solutions

Development of transparent central platforms and determination of standardized data formats.

European markets in which this barrier has also been indicated

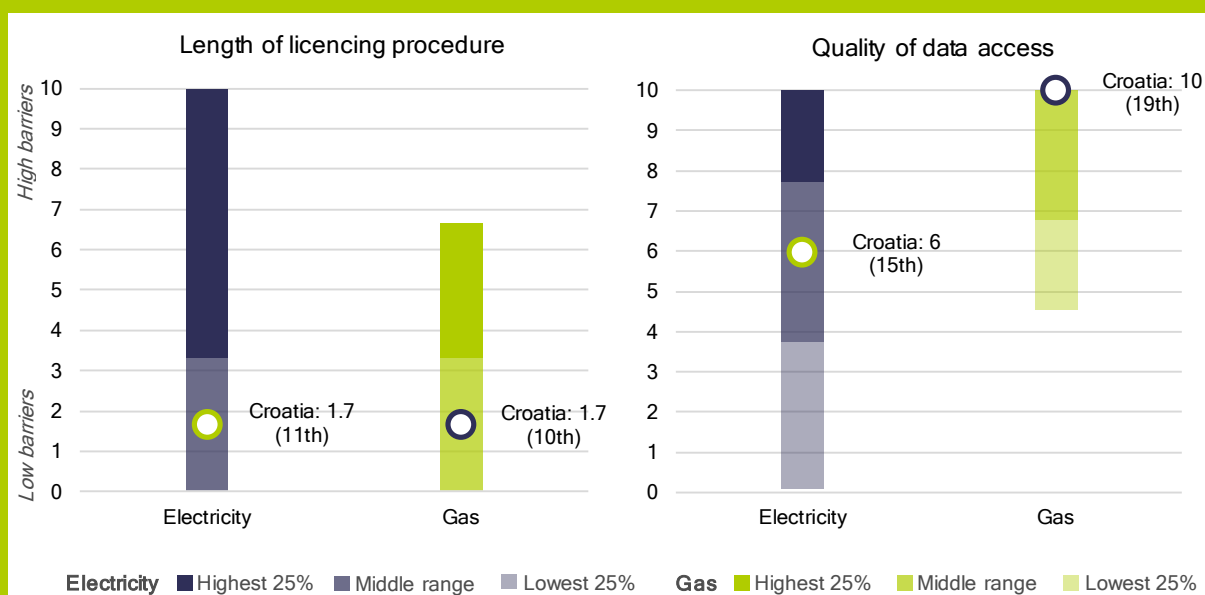
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3.3 Croatia's performance in this barrier category

The following figure shows quantitative indicators of how far operational and procedural hindrances act as a barrier in this market. The values for Croatia 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 using the legal deadline of the licensing procedure. A higher score is attributed the longer the regulator's authorization period, while a score of 0 is attributed if there is no licensing obligation in the country.
- **Quality of data access.** 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. A 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



In terms of licensing Croatia was ranked in the middle range on both markets as the country does not have the most specific processes but suppliers still have to obtain licences for operation. In terms of data issues there has been significant improvements but compared to the performance of other European countries further measures are needed for example in the field of standardization.

4) Customer inertia

Within operational and procedural hindrances, barriers across Europe have been sub-categorised into one area encompassing 6 specific barriers⁵:

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 Croatia:

- 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 Croatia: Customer orientation

Changing supplier is cumbersome or has little pay-off for the customer. There are very specific problems in the field of switching processes in Croatia, but it seems that some recently introduced measures aim to solve them. Significant share of the gas market is supplied under public service and regulated prices where pay-off is little for customers. Effective price competition between suppliers requires rapid, effective processes such that customers see the benefit to them in a short timeframe. Also, if there is little financial gain for customers to switch, it discourages participation.

⁵ Please note: these definitions are Europe focused, not Croatia specific. Highlighted barriers have been identified as country specific.

National issue



Switching process is not cumbersome, the problem is that possibility of process termination is very high. Customers do not know the potential gains by switching and that they can easily switch back to their original supplier if they want to. As the regulated segment is significant on the gas market, payoff is little for these customers under regulated service.

Potential solutions

HERA shortened and simplified switching processes but the results (growing switching rates or less terminated processes) are not visible yet, so it cannot be told if any further measure is necessary.

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. Lack of trust and awareness presents a barrier for new suppliers trying to attract customers, as they have to invest heavily in building a new relationship. Croatian regulator has already introduced important measures towards a more informed and active customer base (e.g. workshops for end customers, tariff calculator) but it seems that there is still a lot to be done to reach them.

National issue



Lack of trust in new suppliers is a relevant barrier on both markets but especially strong on the gas market according to the respondents' perception.

Potential solutions

Croatian regulator has already taken important steps towards informing customers in a more structured way but there are still measures which can help to encourage customers to evaluate the current service they get and dare to switch if they are not satisfied.

European markets in which this barrier has also been indicated

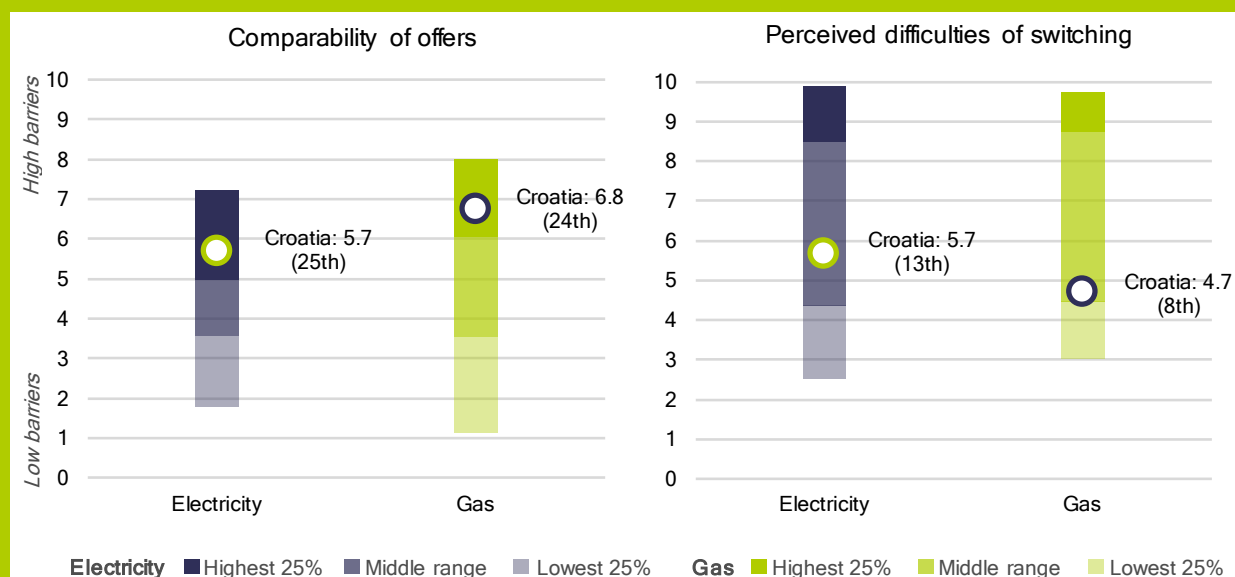
AT BE BG **HR** **CY** **CZ** DE DK **EE** FI **FR** **EL** HU IE IT LV LT LU **NL** NO PL PT **RO** SK **SI** **ES** SE **UK**

4.2 Croatia'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 Croatia 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 two sub-indicators. The first measures consumers' 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. A 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.** Difficulties around the switching process are also measured based on DG Justice's survey. The indicator incorporates the experience and opinions both of customers who have switched, and also of those who have not because they faced obstacles or thought it might be too difficult. A high score is attributed if a high share of consumers reported a bad experience of or poor opinion on the switching process, among all customers who considered switching.

Performance indicators



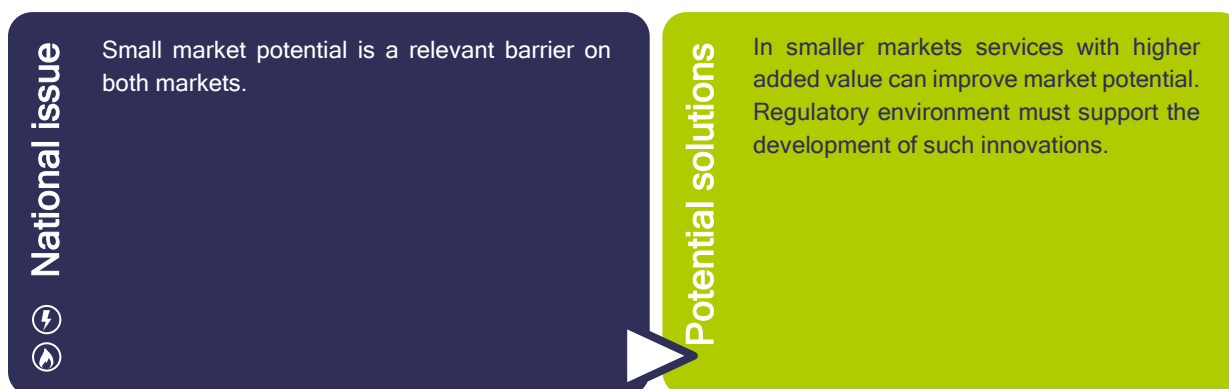
Croatia's price comparisons tool on the gas market was developed recently so its effect is not visible on the data yet, the country was ranked in the highest range among the lowest performers on both markets. Perceived difficulties of switching are not that critical according to the ranking as the share of terminated processes show.

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 Croatia: Other

Small market or customer value. Respondents in Croatia raised this as a barrier. A small population and/or low consumption hinders profitability. Market size as a barrier could be ameliorated by better harmonization of markets.



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 Croatian 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.

22 of the 45 identified barriers proved to be present at least at one of the energy retail markets in Croatia. These barriers can be grouped into five main areas:

- regulated price on the gas market in a significant segment,
- regulation related uncertainty perceived by market players,
- distorting presence of incumbents or vertically integrated players,
- problems related to process and data format standardization, digitization,
- low willingness to switch supplier and problems with the switching process.

Next to these five fields other barriers were identified related to the lack of incentivization for novel products, wholesale liquidity, price and volume risk in procurement, regional differences between DSOs on the gas market and small market and customer value.

It is important to note that among the above-mentioned five main areas there are three, where Croatia has already taken important steps. Current price regulation on the gas market is going to expire in 2021, switching process has been recently shortened and simplified, but the results of this measure are not visible yet on the data. Also, data availability and digital process are continuously improving, even if, there is still room for improvement. Ideas and solutions can occur outside the regulatory system so supporting pilot projects can help to take steps toward digitalization. Even if many important steps have already been taken in many fields, some important areas remained where it would be advisable to take action.

Regarding market inequality, barriers have been identified arising from a perceived uneven playing field for different types of suppliers. Suppliers responding to the survey reported a retail market conditioned by inequality of opportunities for example in terms of data access, procurement, access to wholesale markets or production sources (on the electricity market). Launching international data standards, increasing the liquidity of the exchange and hedging opportunities to reduce procurement risk are both measures that are able to reduce these differences among market players. Forcing brand unbundling of incumbents on the electricity market could also help to improve the situation in Croatia.

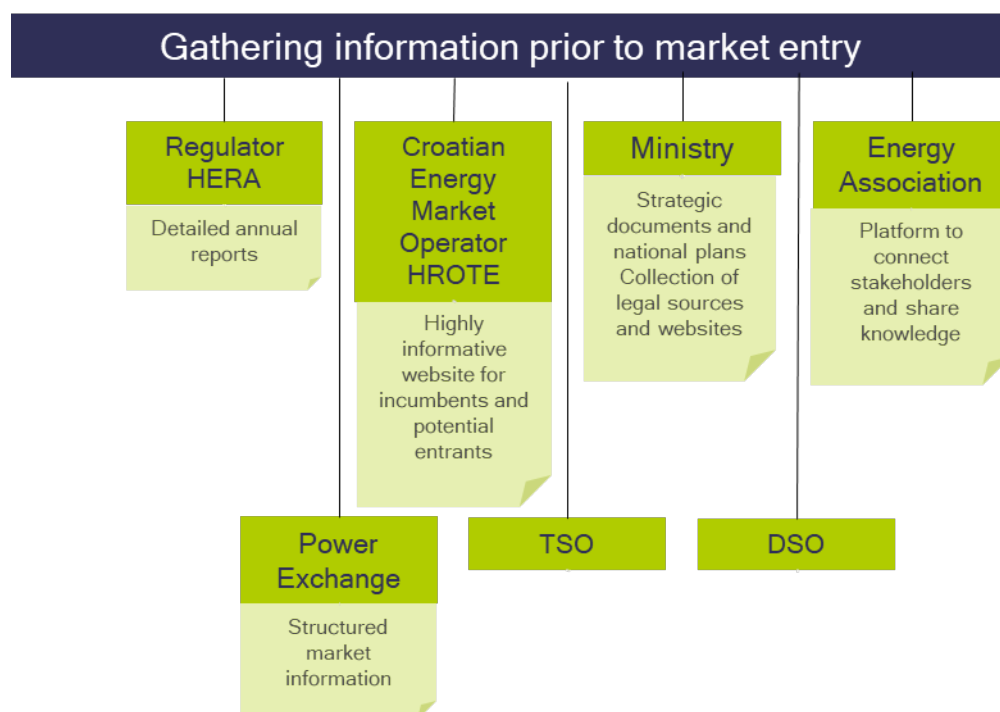
It would be also important to create a more predictable regulatory environment with longer periods of public consultations and longer period between the announcement of a measure and the time it enters into force, so even the smallest players with less resources can prepare properly.

Creating a market with attractive business opportunities in a market with a not that big customer base is not easy. Planned and supported pilot projects can serve as good examples to incentivize innovations and to introduce customers new opportunities. In the early stages subsidization it is necessary to incentivize innovative projects. Turning towards solutions with higher added value can help to improve business potential in a smaller country. In general, Croatia is lagging behind more mature retail markets in some fields but has already taken important steps to create a more open market which is contestable for new entrants.

APPENDIX 1: PROCESSES

This section describes market processes in energy retail in Croatia. 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



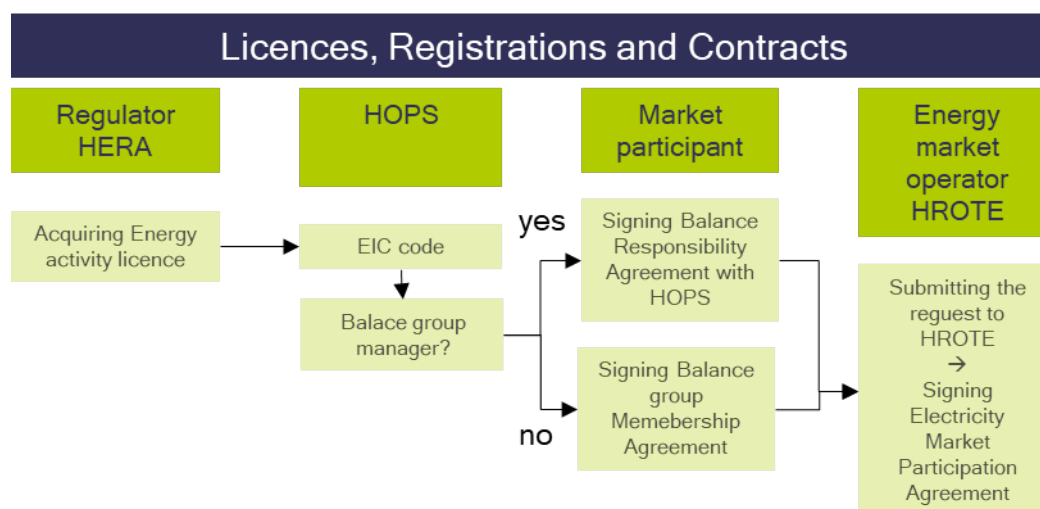
Further comments

As a part of the country report preparation we have studied the available written sources and made interviews with representatives of the regulatory authority and market associations. Our statements based on these exploratory works are as follows:

- **Regulator HERA (Hrvatska Energetska Regulatorna Agencija):** Small fraction of information is available in English. Annual reports of the Energy Regulatory Agency are available (not for every year) for electricity and gas markets (the reports cover quite detailed description of market structure, characteristics, prices, etc.)
- **Croatian Energy Market Operator (HROTE):** HROTE makes available most of the useful information for incumbent and potential market players like the collection of tasks before entering the market and the required documents to submit etc. The most practical and easily understandable information is available here also the collection of relevant stakeholders’ websites, regulation etc.

- Croatian Transmission System Operator (HOPS): Very useful information available at the website e.g. collection of all the respective regulation, information about balancing, etc. + also has annual reports (CURRENTLY UNAVAILABLE)
- Plinacro (natural gas TSO) share a lot of well-structured information about its activities, market structure, balancing market etc. in English
- HEP DSO (subsidiary of HEP group): helpful information is available for customers who intend to switch supplier
- Associations: HED - Hrvatsko Energetsko Drustvo (Croatian Energy Association) aims to serve as a platform to gather information and to share knowledge among stakeholders
- Ministry (Ministarstvo zaštite okoliša i energetike) shares a lot of information about regulation, tenders, registers, procurements, strategic documents etc. but only in Croatian
- CROPEX (Croatian Power Exchange) provides quite transparent, easily available structured information in English.

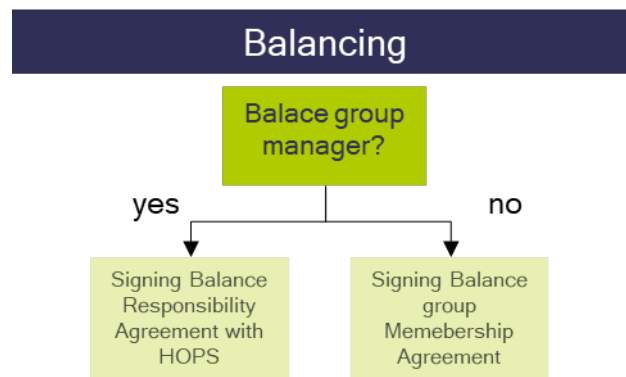
2) Licences, registrations and contracts



Further comments

- Every company or entrepreneur has to be registered in court register of Commercial court of Republic of Croatia, however there is no need to establish a new company or subsidiary in Croatia to participate in the energy market since October 2015
- In case of electricity import or export the supplier has to apply to the TSO for participation in cross border transmission capacity allocation
- Until 1st of January 2019 each supplier is obligated to procure a certain share (determined by the government) of electricity produced from renewable sources or cogeneration by eligible producers
- Next to the market participation agreement the supplier has to enter into contract with HROTE regarding mutual obligations in the system of incentivizing electricity production from renewables and cogeneration

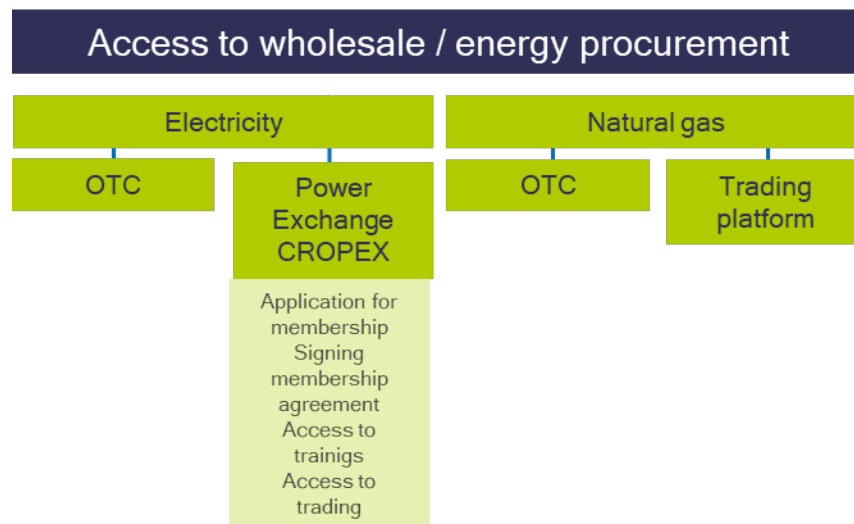
3) Balancing



Further comments

- Balance Service Agreement and Agreement(s) for providing ancillary service(s) are concluded between HOPS and Balance Service Provider(s) for procurement of balancing energy and ancillary services
- Balance responsibility agreement is concluded between HOPS and balance responsible party (BRP) in order to regulate financial responsibility for imbalances

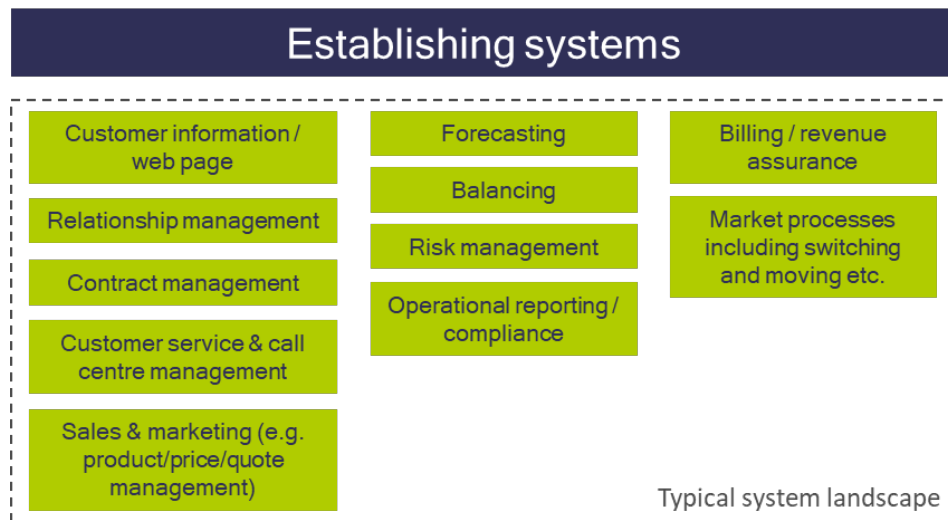
4) Wholesale



Further comments

- CROPEX is the day-ahead and intraday electricity market operating since 2016
- Gas trading is based on rules defined by HROTE (Rules on the Organisation of the Gas Market)

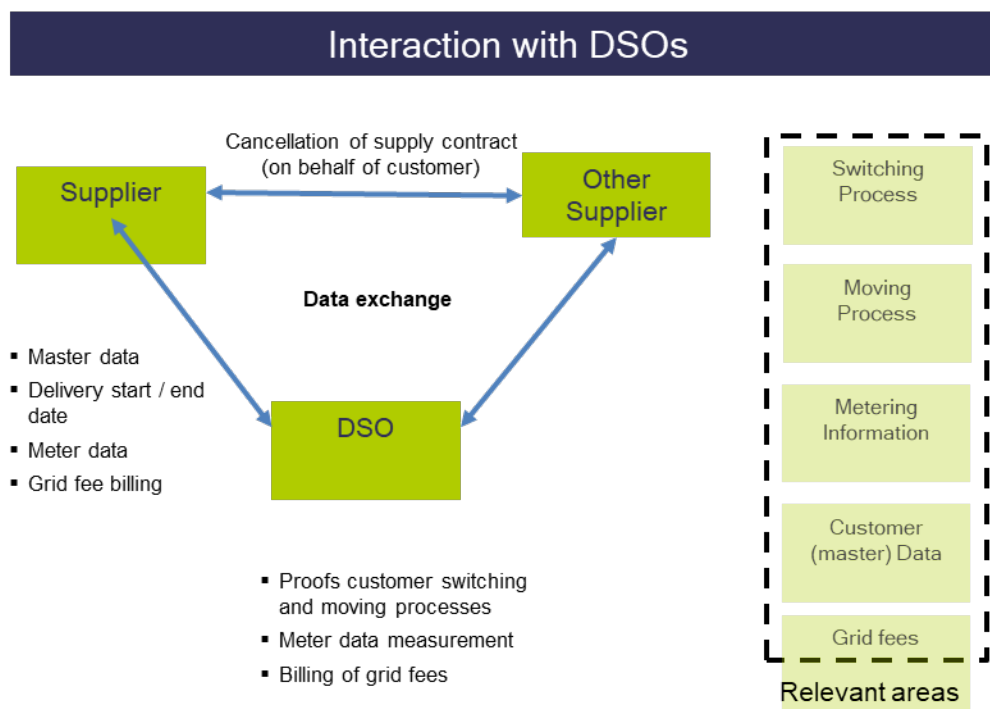
5) System landscape



Further comments

- It is not obliged to run specific (IT) systems
- All activities can be outsourced to third parties
- There is a platform for standardized data exchange among market players on the natural gas market, on the electricity market there is no platform yet

6) DSO-related operations & market communications

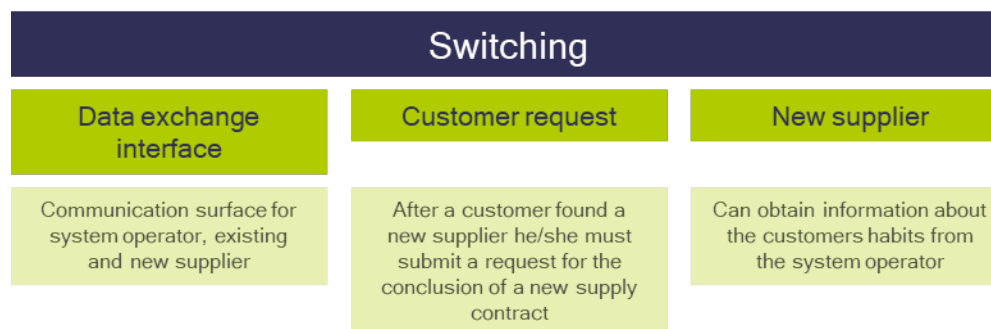


Further comments

- Suppliers have to contact the DSO for each customer that they win from the respective distribution area

- There is one master contract the supplier has to sign with the DSO for the delivery of energy to end customers

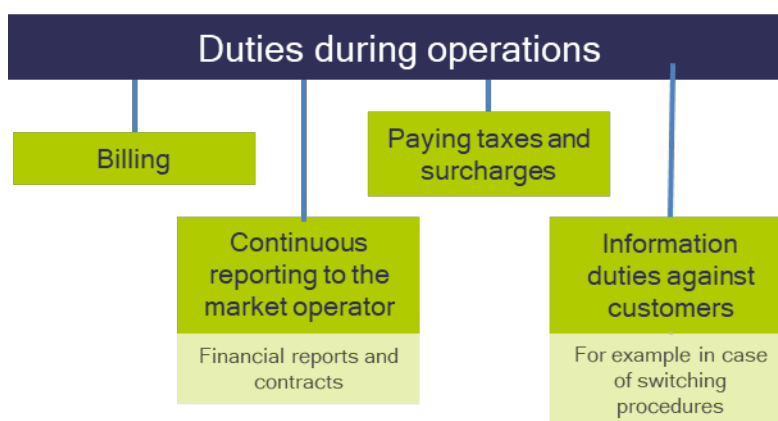
7) Customer switching & moving



Further comments

- According to the regulator's website in case of household consumers supplier switching process simply consists of fulfilling the obligations in the contract with the current supplier and signing a new one with a new supplier
- Another reason is that the level of average consumption is relatively low so the potential savings are low too, and the third reason is the low number of alternative suppliers on the market
- Compared to 2016 supplier switching increased significantly in terms of the # of customers mainly because suppliers started to offer market-based (unregulated) contracts and a specific regulation for switching process came into force
- Increased switching rates brought high number of cancelled switching procedures and complaints too, which resulted in a cooperation between HERA and HROTE to inform market participants of their rights and obligations, to optimize legislation of switching procedure and to collect recommendations from the stakeholders
- The regulator offers tariff calculator to compare the offers of suppliers
- According to rules on supplier switching (from 2015) there is a data exchange interface where the existing and the new supplier and the system operator communicates. The new supplier is obliged to inform the consumer about all the necessary information in the changing process

8) Operational obligations/duties



Further comments

- Every contract must be submitted to the Market Operator
- “One-bill” for network use and commodity was in place for gas and was also introduced for electricity in 2015
- HERA introduced rules on the content of invoices and obliged suppliers to inform consumers about their consumption profiles

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 violated.
- Conditions for cancellation of bilateral contracts (e.g. with service providers or balancing responsible parties) are depending on the individual contracts.

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