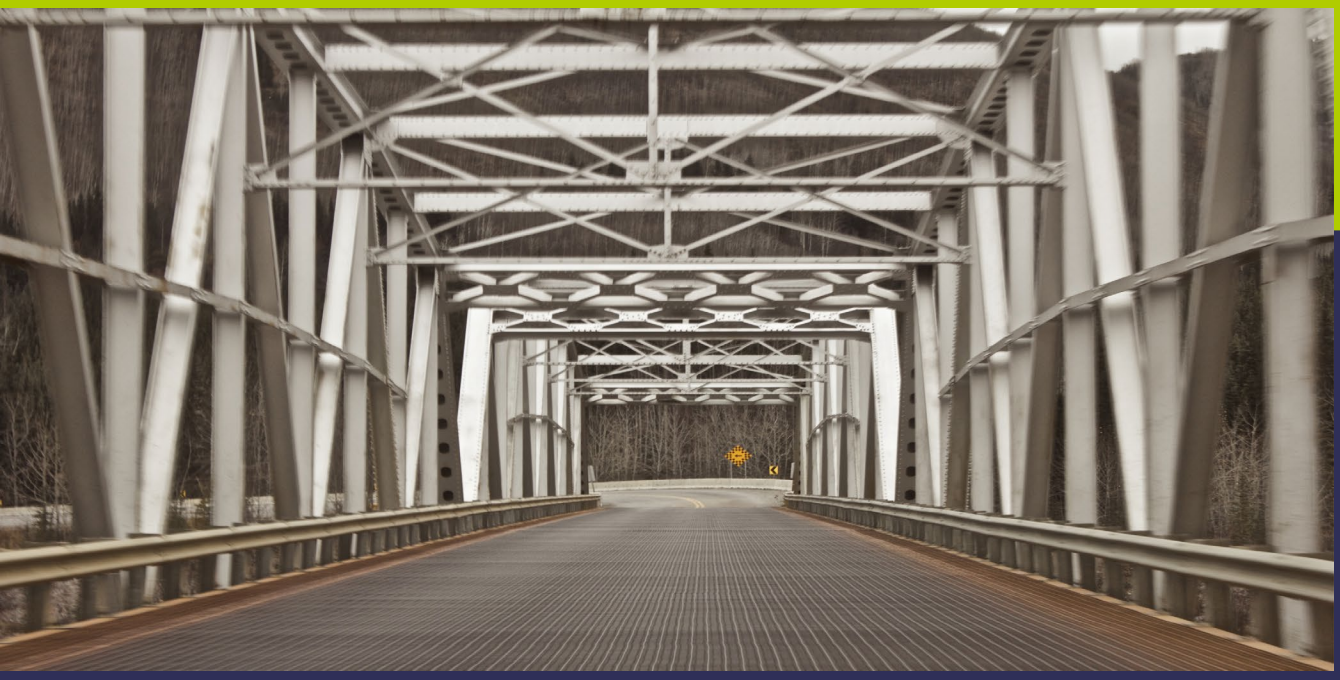
European Commission

EUROPEAN BARRIERS IN RETAIL ENERGY MARKETS



LITHUANIA
Country Handbook

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Energy

EUROPEAN BARRIERS IN RETAIL ENERGY MARKETS PROJECT: Lithuania Country Handbook

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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.

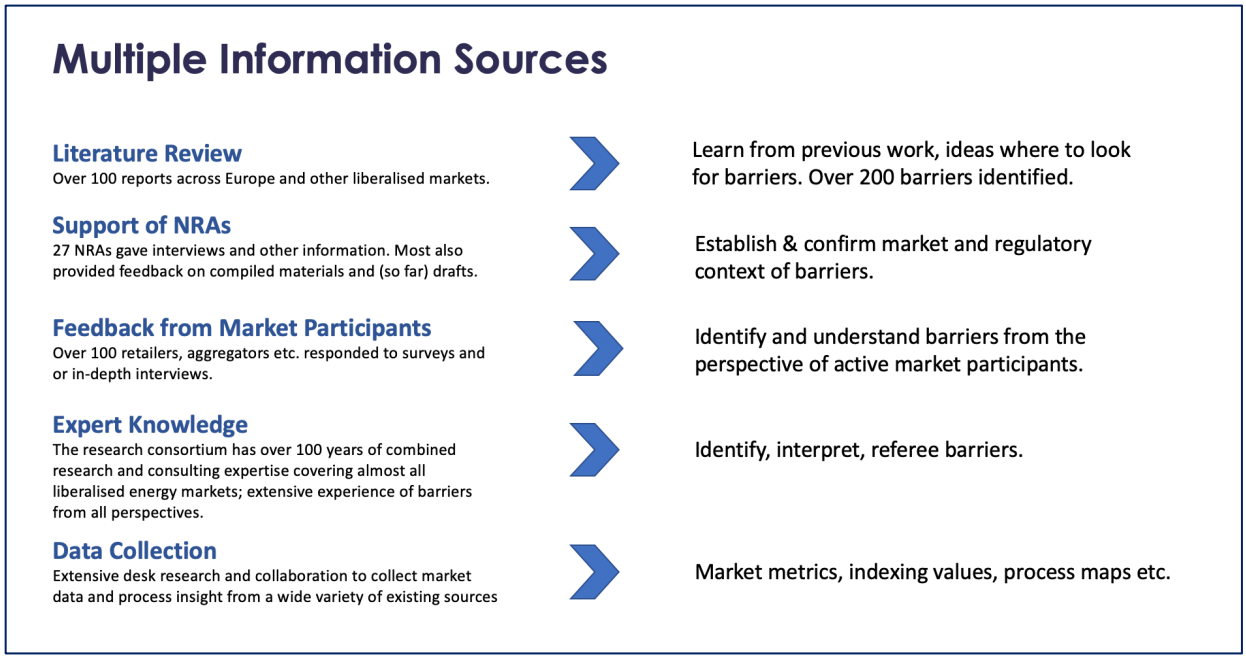
The project focuses on retail (supply), including also demand aggregation services, other additional offerings and new model retail, especially relating to the household segment customers (in some markets households and smaller SMEs may be difficult to distinguish). The project additionally concentrates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

Sources of Information

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

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

Figure 1 – Multiple Information Sources



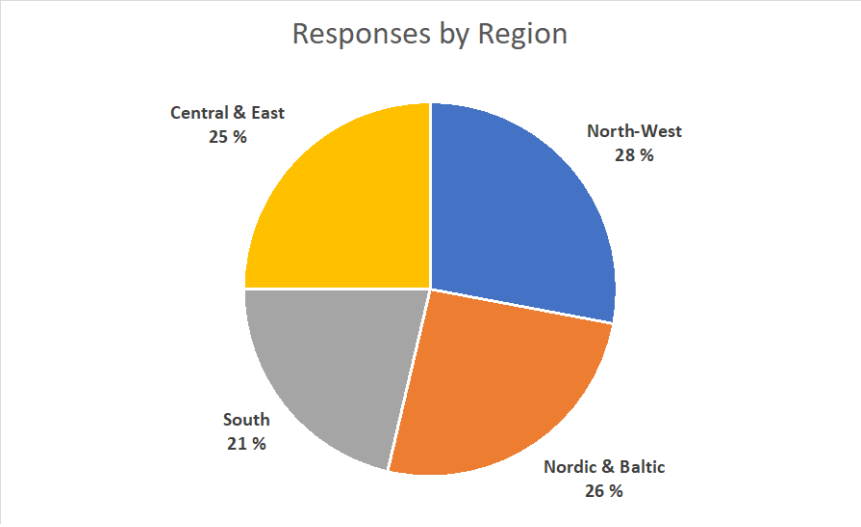
Surveys & Interviews

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

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

The Competitor Sample

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



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

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

Confidentiality

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

e.g. a brand-new entrant in a market with one brand-new entrant) stated that if we revealed that they were a new entrant the market authority would instantly know who they were and that they were afraid it might inhibit their entry process.

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

Deliverables

The project has three key deliverables:

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

The Barrier Index and Ranking

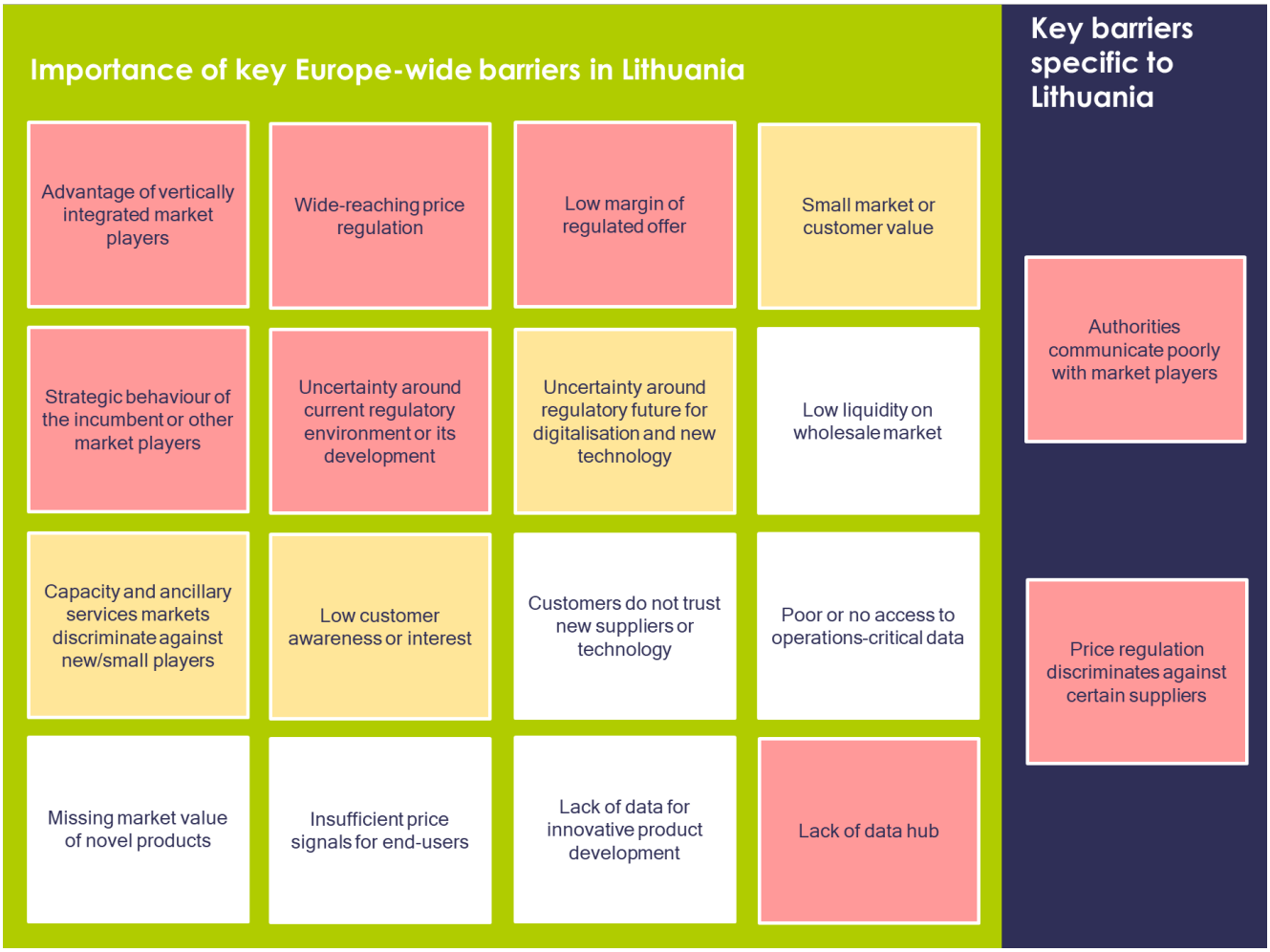
The purpose of the 'European Retail Energy Market Barriers Index' is to enable a degree of comparability between the barriers' context in each of the markets. It is based on metrics that can be collected for all markets, metrics for which available data currently exists. As such it provides a simple,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

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

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

Key barriers in the Lithuanian market

The following figure highlights the key barriers identified in the Lithuanian 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

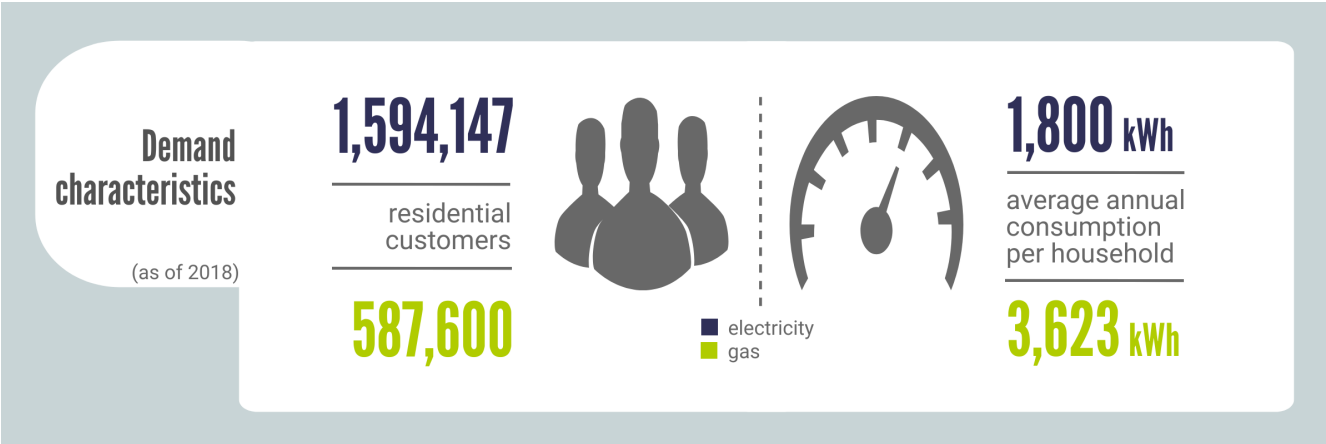
The Lithuanian household markets are currently closed in practice due to price regulation whereby prices are too low for new entrant businesses to compete: in electricity there are the universally regulated prices; in gas new gas entrants just must have tariffs approved by the NRA in advance before starting their activity - the tariff is set based on forecasted values / benchmarks. With the upcoming step-wise deregulation of electricity prices, other barriers that are currently smaller issues or present in the more active commercial segment may instead become more significant.

- **Price regulation.** New entrants are financially unable to compete against low, universally available prices that may only be offered by the incumbent. Removing price regulation as planned, or even sooner, will alleviate this barrier.
- **Lack of information and communication from authorities.** Suppliers raised various barriers relating to uncertain regulatory developments and a lack of official information from the regulator, which appear linked by the regulator's perceived reluctance to communicate with market players. A more open and outgoing approach by VERT could substantially improve the market atmosphere for new entrants.
- **Data accessibility.** Suppliers wishing to obtain customer data for e.g. targeting or switching must go through the DSO, as there is no centralized data platform, and these processes remain largely manual and hence time-consuming. The basic Data Hub, due to launch in 2023, should address many of these problems.

MARKET OVERVIEW

Introduction

The Lithuanian household energy market is not fully liberalized, while the commercial electricity segment was fully liberalized in 2004. Household consumers have the right to choose supplier, but the market is hemmed in by low regulated prices (details below). Legislation to deregulate household electricity prices is projected to be implemented stepwise from 2021 to 2023. This report therefore focuses on what can be learnt from the commercial segment in Lithuania and household liberalization in other markets. The household gas market remains effectively closed, with no public plans for liberalisation.

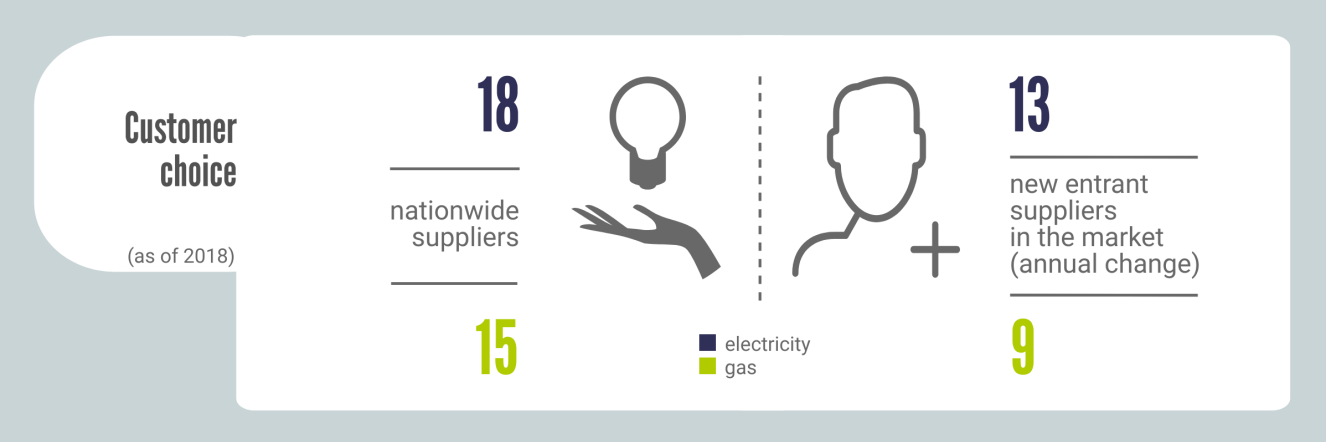


Background

Lithuania began moving towards electricity market liberalization in 2002 with the passing of the Law on Electricity, which defined the structure of the future deregulated market and legislated for splitting the national electricity company *Lietuvos energija* into independent companies covering different parts of the energy system. In 2010, generation, transmission and distribution were separated as the first stage of market opening for business customers, and wholesale prices for electricity were no longer set by the regulator. Further reform to the electricity law to deregulate prices and hence fully liberalize the market has been developed, but its implementation to households has been successively delayed for almost 5 years. The household electricity market is in principle liberalized, with customers free to choose their supplier and independent household supply allowed in principle. However, regulated prices are available to all household consumers; these prices are set according to a cost-plus model, so do not reflect market prices and hence can fall below the wholesale price. While the ex-monopoly incumbent is able to offer such products, it is very challenging for a new entrant to establish when competing on such terms. However, the market for commercial and industrial customers is fully open and active.

Until 1st July 2017, the Lithuanian gas market was effectively closed due to subsidies for the largest customers, paid from money received from Gazprom as compensation in the past for very high gas price, kept prices below

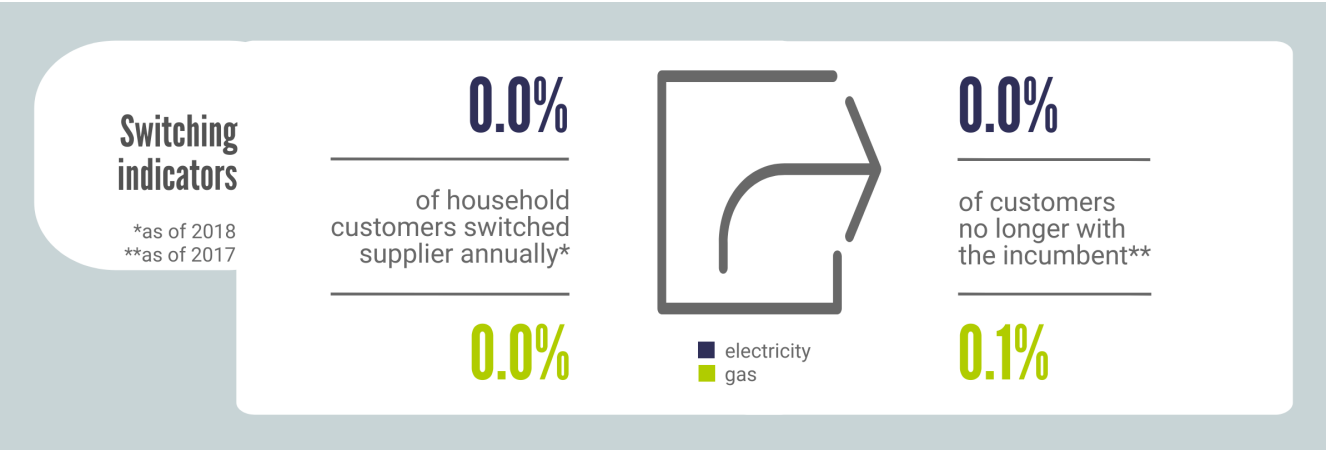
gas purchase price. The liberalized retail gas market currently encompasses only commercial consumers. Customer numbers have been growing since 2010 in both household and non-household segments, despite a broad trend of decreasing consumption, stabilizing around 2016. The GET Baltic gas exchange, fully owned by the Lithuanian gas TSO Amber Grid (itself 96.6% owned by the Lithuanian state), expanded its operations to include Estonia and Latvia in July 2017 and to Finland in January 2020 to create a regional exchange.



Market structure

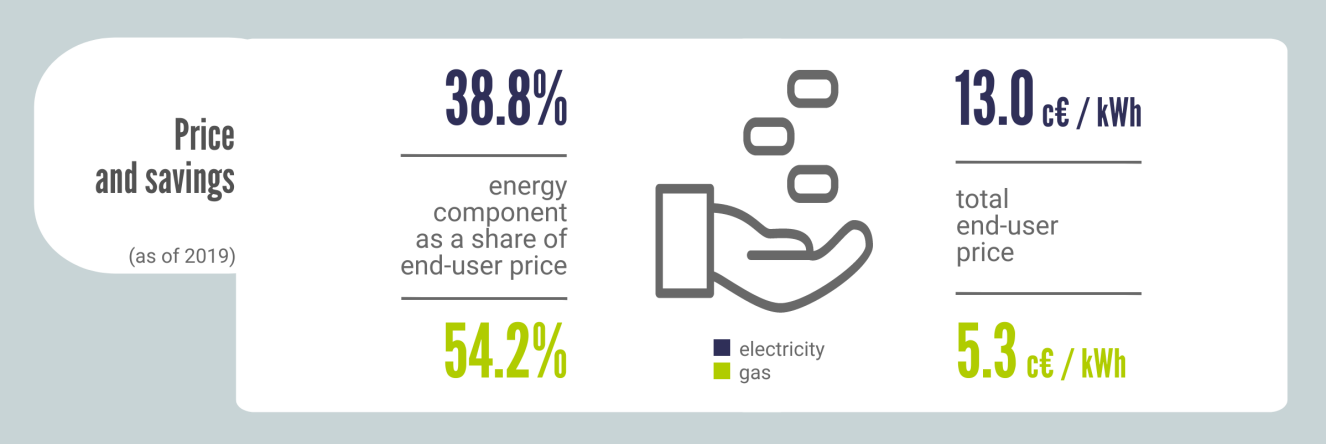
Market structure

The earlier regulator, the National Control Commission for Prices and Energy (NCC), was merged with the Energy Inspectorate in July 2019 to form the current National Energy Regulatory Council (NERC). The electricity TSO Litgrid and gas TSO Amber Grid are both majority state-owned. A single DSO, “Energijos skirstymo operatorius” dominates in electricity and gas, while there were five DSOs for both gas and electricity registered in 2019. On the retail side, the household segment in both electricity and gas is now dominated by a single supplier, Ignitis, formed in 2019 by the merger of Lietuvos Energijos Tiekimas, Energijos Tiekimas and Litgas. Ignitis now supplies 1.6 million electricity customers. In gas, households only account for a minority of gas consumption (9.45% in 2018), despite accounting for 98.72% of connection points (customer numbers).



Status of competition

Before the Ignitis merger, the three largest suppliers Energijos tiekimas, Elektrum Lietuva and INTER RAO Lithuania together accounted for 68.6% of the entire electricity market (including the more open commercial segment) and Lietuvos Energijos Tiekimas (at the time, the supply arm of the DSO Energijos Skirstymo Operatorius) for 99.9 % of household gas sales. The number of household customers buying electricity at market prices is negligible (41 customers nationwide), with Ignitis dominating the market. As an indicator of market activity, in 2018, 13 new entrants were authorized to act as independent electricity sellers, 2 applied to withdraw their authorizations and 9 authorizations were suspended, leaving 49 authorized (18 active nationwide) suppliers at the end of 2018. In the gas market, in 2018, 9 new entrant suppliers joined the gas market while the volume of gas sold on the retail market decreased by 18% to 6,419 GWh and the total amount consumed decreased by 8% to 22,320 GWh. In 2019 licenses for gas supply were issued to 3 companies and withdrawn from 11 (who had not been active for over a year), leaving 17 active (and 7 inactive) gas supply companies. The supply component accounts for 39% (electricity) and 54% (gas) of end user prices.



State of unbundling

The TSO is unbundled in terms of its activity and management. The DSO's network activity was functionally unbundled from its supply in late 2018. However, both the largest DSO, Energijos Skirstymo Operatorius (ESO), and its now-unbundled supplier, Ignitis, are owned by the state-owned Ignitis Group (previously Lietuvos Energija Group). Ignitis group thus dominates the retail market, as this incumbent supplier is the only supplier that provides the price-regulated public electricity supply. Any consequences of incomplete unbundling for competition in the household market have yet to be felt in Lithuania, given that the market is in effect closed to new entrants and hence independent suppliers. In gas, the DSO and supply are functionally unbundled since 2016.

Generation and interconnections

Household electricity consumption has been rising since 2011 by c. 0.2 TWh/y, while in the same period gas consumption broadly decreased before stabilising in 2016. Domestic production of electricity has been very limited and falling since 2010, both in fossil-fueled and RES generation. Lithuania's electricity production capacity was c.

3,000 MW in 2018, mostly powered by natural gas following the closure of a nuclear plant in 2009. RES capacity has increased somewhat in recent years, mainly driven by wind which made up 63% of renewable production in 2017, but stalled in 2017. Hence, in 2018, import accounted for 96.8% of the 12.9 TWh of total demand. In 2018, households consumed 2.8 TWh (up by 5.5% on the previous year) and non-household consumers 6.7 TWh (an increase of 4.3%). For gas, the total consumption across Lithuania was 22.3 TWh in 2018. Lithuania's capacity to trade in electricity remains limited by congestion on interconnectors; with e.g. Sweden, flows were restricted because of a lack of capacity for several weeks in 2018. Lithuania's gas transmission system is currently connected to Latvia, Belarus and Russia's Kaliningrad region, and there is also a LNG terminal in Klaipėda, with discounted tariffs as part of EU initiatives to reduce Member States' isolation with respect to their gas transmission systems. Since the opening of this LNG terminal, Lithuania's previous reliance on imported gas from Russia has eased, with Russian imports now only accounting for a variable c. 50% of supply. Lithuania also serves as an entry hub for gas that passes through to the other Baltic states.

Like its Baltic neighbours, Lithuania's electricity grid still operates in a synchronous way with the Russian and Belarusian systems. The EU is actively seeking to integrate electricity and gas markets more deeply across the Baltic region, to achieve more competition and security of supply with less dependence on Russia[1]. With political support from the European Commission, the Baltic countries are planning to detach their electricity systems from the Russian system in favour of increased connection with the Central European system. This will enable the Baltics to trade more easily on EU energy markets and will open up more diversity in primary energy sources, supporting energy independence. Lithuania has so far committed to investments of EUR 167.05 million (of a Baltic total of EUR 432.55 million) to upgrade and strengthen control systems in preparation for this change. However, the re-coupling is not likely to be fully realized before the end of the 2020s at the earliest. Regional and European integration in other aspects is ongoing. For example, a common Baltic balancing market was launched at the beginning of 2018 with a single imbalance settlement price (not all balancing products and market processes are harmonized yet, and reserves are not shared), and there is an ongoing project to integrate this with the Nordic market. Further, an explicit Baltic Capacity Calculation Region has been established together with the regulators in the other Baltic states, Finland, Sweden and Poland, to work towards joint regional codes for capacity allocation and congestion management.

Political and regulatory orientation

Although political will for liberalization has been present, the authorities have been very slow to implement legislative developments. Initial steps (breaking up the national energy company) passed into legislation in 2002 were only fully implemented in 2010, and an initial plan to fully open the market for household customers in 2007 has not yet materialized. The authorities at present are also felt not to communicate sufficiently well with market players (see Barriers chapter below), making it difficult for businesses to plan around how official timeframes might play out in practice. Nonetheless, many aspects of market opening, to be implemented over the next 3-4 years,

[1] Baltic Energy Market Interconnection Plan (BEMIP): https://ec.europa.eu/energy/en/topics/infrastructure/high-level-groups/baltic-energy-market-interconnection-plan

do appear to mitigate against potential pitfalls related to the incumbent's dominant position and vertical integration of big market actors, which have caused problems in other recently liberalized energy systems such as the other Baltic countries.

More broadly, Lithuania's energy policy has a strong focus on independence and energy security, which ties in with renewable domestic generation as the country has very limited local fossil fuel reserves (oil, peat). A core plank of the National Energy Independence Strategy is integration with European energy systems and markets, including synchronization with the European electricity networks through Poland (by 2025) and a gas pipeline interconnection between Lithuania and Poland (by the end of 2021).

Regulatory market characteristics

Independent electricity suppliers may begin operations following registration with the relevant authorities; there is no explicit licensing required. The household electricity market is in principle deregulated and open to new entrants, and the commercial market is more active. However, the Lithuanian household electricity market is still effectively closed because low regulated prices are available to all customers who have not switched, who comprise almost the entire market. This "public service of electricity supply" is provided only by the incumbent and is regulated via a price cap that is calculated annually using a cost-plus pricing model that does not account for market prices (see Barriers chapter). This cap tends to be very low, often close to or even below current wholesale prices[2]. Prices for independent electricity suppliers are not controlled, but in order to be attractive to customers they must compete with the regulated price. This leads to very low, even negative margins for independent suppliers who wish to offer competitive electricity prices, preventing new entrants in electricity from being financially able to make competitive offers. End-user bills on the public service supply include distribution fees and taxes. Gas prices for household are also set in consultation with the regulator every 6 months, but all suppliers in gas are able to offer the public supply prices. As in electricity, differences in either direction between forecasted and actual wholesale price are compensated by the regulator to the supply company or consumers.

A major regulatory development over the coming years will be the stepwise deregulation of prices in the household electricity market, although no plans exist for gas. Another coming market development is Lithuania's expected accession to the joint Latvian-Estonian-Finnish gas market, whose first stage was launched at the beginning of 2020. The Lithuanian regulator has actively cooperated in the development of the joint market but agreement between Lithuanian and other Baltic partners could not reached by the first planned deadline. Hence, Lithuania remains outside this common market, but the negotiation process about Lithuania's joining is ongoing. Meanwhile, ongoing changes to domestic regulation around price-setting and revenue allowances in the gas sector are serving to more closely align regulation across the natural gas and electricity sectors.

[2] Sometimes when the ex-ante forecasted wholesale price is higher than the actual wholesale price the margin will not be negative.

Other market characteristics

Because of Lithuania's reliance on imported energy, wholesale prices are sensitive to developments on other markets. For example, after a limited fall in prices in 2016 and 2017, due to new interconnections to Sweden and Poland, prices rose again sharply in 2018 due to weather-influenced reduced hydro capacity in the Nordics, increased costs of emissions and infrastructure repairs.

Context for aggregation/demand response

As in the other Baltic states, improved DR would serve climate and energy independence goals by adding an alternative to fossil-fuelled spinning reserves to ensure system stability. However, demand-side management and aggregation is planned to be developed in Lithuania, and plans exist to bring such players into the energy system. Balancing products (and indeed Lithuania's and its Baltic neighbours' entire electricity grids) function in a synchronous way with the Russian power system, as in the other Baltics and Belarus: the Russian power system activates primary (frequency containment) reserve on the instruction of the Lithuanian TSO, while frequency restoration reserves (balance and emergency reserves) are activated by the Lithuanian power system. Hence, the primary reserves are difficult for novel players such as DR providers to access from Lithuania. As Lithuania's grid is planned to be decoupled from operating synchronously with the Russian system in favour of continental Europe over the next 5 years, there is limited utility in developing products compatible with the current system that would allow demand-side or aggregated participation. However, the need to update infrastructure and systems in association with this decoupling, including developing a fully domestic balancing system (rather than just the manual reserves, as currently), provides opportunities for novel balancing products to be developed from the start to be compatible with consumption bidding into the balancing markets.

An extensive pilot case study with individual DR resource owners was carried out in 2018, in which five large consumers used retailers as aggregators to provide a 1 MW portfolio of DR only to the TSO[3]. The consumers also participated more in spot markets to directly economically encourage adjustment of consumption. However, there is as yet no commercial activity in DR or aggregation in Lithuania.

[3] http://ea-energianalyse.dk/reports/1735_Summary_report.pdf

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

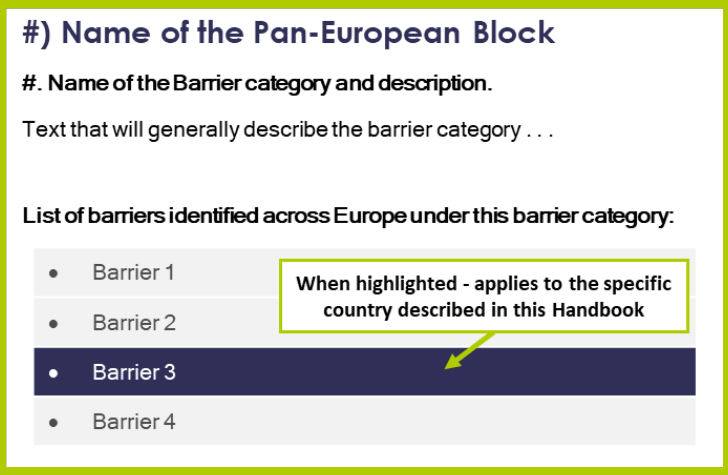
Description of the four over-arching pan-European barrier blocks:

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

HOW TO READ AND INTERPRET THE FOLLOWING SECTIONS

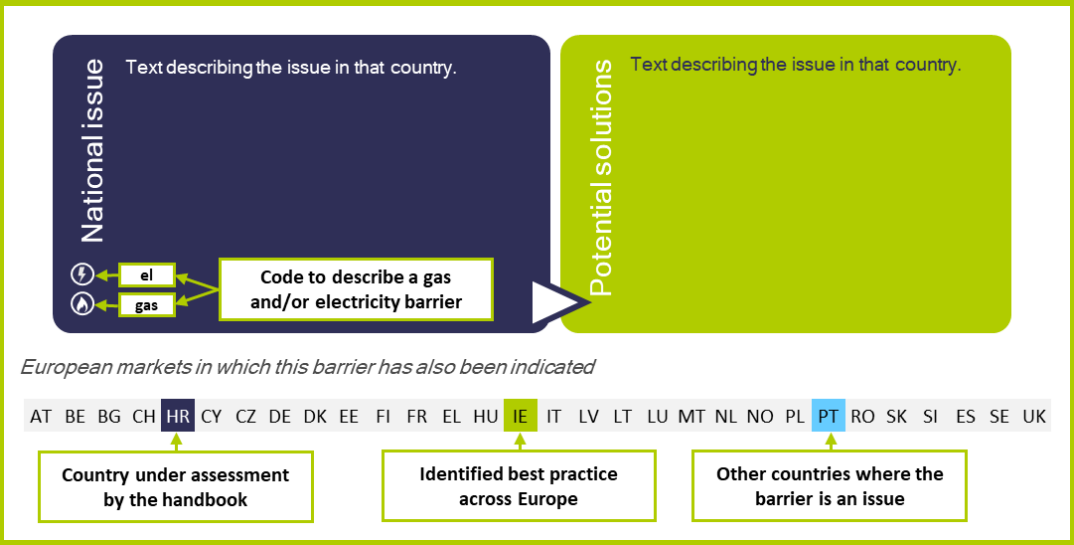
Each of the following four chapters explores one of the four pan-European blocks of barriers and report how each sub-category barrier apply to Lithuania. When a barrier applies to Lithuania, it will be highlighted in the table following a general description of the barrier itself as shown in the example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



As shown in the figure above, the table lists all the barriers we have identified in Europe within the specific barrier category**. Only where a sub-category barrier is highlighted in the table does it means that suppliers raised it as a barrier, and that it is a prevalent issue in Lithuania.**

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
- suggesting potential solutions to the problem as depicted in the figure below.



At the end of each chapter, Lithuania's performance within the category, according to quantitative indicators, is then presented.

For additional market context, please see Appendix 1: Processes, which gives a high-level graphical overview of the most critical steps involved in establishing and operating as a supplier in the national market.

1) Regulatory disincentivisation

Within regulatory disincentivisation, barriers across Europe have been sub-categorised into four areas encompassing 17 specific barriers[4]:

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 CEER[5], 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 Lithuania:

   - 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 Lithuania:

   - 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

[4] Please note: these definitions are Europe focused, not specific to Lithuania. Highlighted barriers have been identified as country specific.
[5] 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 Lithuania:

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

- 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 does not incentivize novel products (missing perceived value)

1.1 Description of regulatory disincentivisation barriers in Lithuania: Price regulation

Price regulation discriminates against certain suppliers. In the research this barrier was identified as an issue in Lithuania. Price-regulated markets can be explicitly discriminatory if they only allow certain market participants to serve price-regulated customers. For instance, by only allowing the incumbent suppliers to offer the regulated price to a specific customer segment, other market participants are per se excluded from this market.

National issue

Although deregulated in principle, Lithuania's household electricity market is effectively closed due to prices regulated at very low levels according to a "cost-plus" model. Only the incumbent can offer these prices, locking new entrants out of the market.
This discrimination does not apply as strongly in gas as every gas supplier can offer regulated price for household. However, the household gas market remains closed to new entrant suppliers with no plans to deregulate.

Potential solutions

Removing price regulation would contribute to solving this issue, so current plans (see section below) should be followed and if anything accelerated, for example opening the market all at once rather than in steps. However, on its own this may not solve the discrimination problem, as customers will still be able to choose to remain on regulated prices. Hence, regulated prices should be made available to all suppliers to offer, not only the incumbent, in order to remove any remaining skew 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
		■	■	■								■		■	■	■				■					■		■

High penetration of price regulation. In the research this barrier was identified as an issue in Lithuania. Consumers that have access to regulated services can be extremely difficult for competitors to reach. If this market segment is big, i.e., price regulation has high penetration, only a small part of the market (generally non-household customers) is contestable for new entrants. Moreover, consumers on regulated prices are hindered from learning about their role in an active market.

National issue

The low regulated prices are available to all customers. New entrants' main competitor is thus the regulated price. This causes excessive risk, illustrated by the fact that all companies who have attempted market entry have gone out of business within c. 2 years, even established companies from other countries.

Potential solutions

There are plans (which have been changeable in the past) to deregulate prices on the household electricity market stepwise from the largest consumers in 2021 (only 5% of the market) through to complete in 2023. However, if the regulated price continues to be very low and available to any customers who choose not to engage with the market - as planned - new entrants will not be able to offer attractive enough additional services to compete against the low regulated price.

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). In the research this barrier was identified as an issue in Lithuania. Regulated price at a low-level means that only companies that can benefit of economies of scale, or with an established customer base, are able to generate a sustainable margin. All other market participants face a margin squeeze, making it very difficult to compete.

National issue

New entrants in electricity are not able to price competitively while maintaining business liquidity as the regulated price is very close to or even below wholesale price, based on a cost-plus pricing model. This leaves little room for operational costs, let alone sufficient revenue to invest in growth.

Potential solutions

The planned deregulation of prices on the household electricity market will address this issue, provided that customers are given sufficient incentive to become active participants in the market (see section above).

European markets in which this barrier has also been indicated

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 Lithuania: Burden (-sharing)

No barriers around burdens on suppliers or burden-sharing were identified in Lithuania.

1.3 Description of regulatory disincentivisation barriers in Lithuania: Regulatory unpredictability

Suppliers face uncertainty because of a newly liberalized regulatory environment or uncertain future development of the regulatory framework. In the research this barrier was identified as an issue in Lithuania. Suppliers experience uncertainty because of unpredictability around what the future regulatory framework will look like and hence what business opportunities will be possible.

National issue

Price deregulation on the electricity market has not yet been implemented, despite being planned for several years. The reasons for this and the planned stepwise implementation are unclear to market players, reducing their confidence that any plans will be followed.
Moreover, current regulations around pricing are unclear to market players. Together, this makes it difficult for market players to understand which customers segments may be open to competition, at what price level, to what degree and when. They do not know whether they can trust the market to function, nor how to plan strategy and develop, so market entry is a “shot in the dark”.

Potential solutions

Market opening would be greatly facilitated by clearer planning and communication by the authorities (see following barriers and section 3.1). Similarly, a more coordinated approach by different sub-departments in developing legislation would increase market players’ confidence that the authorities and responsible ministry have a clear overall view and vision for the electricity 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

Uncertainty regarding future regulatory developments, especially in the field of digitalisation and new technology. In the research this barrier was raised as an issue in Lithuania. New technological advances require regulatory frameworks in order to be fully rolled out without excessive business risk for suppliers. Regulatory uncertainty regarding the future of novel services such as demand response aggregation can hinder investment/innovation in these areas.

National issue

Likely regulatory developments around RES and prosumers are very unclear, with no indications as yet on issues such as whether net metering will be possible, who will own the assets etc.

Potential solutions

The ministry appears to have a strategy, indicated by the launch of a prosumer-focused website, but information has not been shared with market players (see following barrier and section 3.1). If this strategy were more effectively communicated, this problem would be solved.

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

Attitude of authorities hinders development of the market. In the research this barrier was indicated as an issue in Lithuania. The regulator and TSO are perceived as not communicating or cooperating sufficiently with market players. There were claims that participants were not being heard, and information made publicly available is not sufficiently extensive or detailed. This situation and atmosphere can discourage new entrants and novel developments and may also favour the incumbent.

National issue

New market players experience the authorities as not engaging or communicating sufficiently with the market, not sharing enough information (see section 3). This can create a lack of trust from market players and hampers market player participation in innovative opportunities. For example, the plan for deregulating prices on the electricity plan was sent out for public consultation but companies were given only 10 days to respond. Similarly, a 2-3-year pilot project in aggregation has been suggested, but no detailed information has been made available to market players who are therefore unable to implement any aggregation measures.

Potential solutions

Basic market information is already public, and the regulator is willing to provide more detailed information and discuss plans upon request/ consultation. However, more active communication with market players would make market players feel included and lead to a more collaborative atmosphere between regulators and market players. Market players would prefer a more discursive and cooperative approach rather than having to take the initiative to find information out directly from the regulator in each case. This issue is connected with the authorities' attitude to communicating with market players (see section 3.1).

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

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

There is very little activity around in demand response or other novel products in Lithuania for the time being, with no commercially active DR and very few, if any, distributed energy products. Barriers around DR were not raised by respondents in Lithuania, but this is more a result of the negligible extent of commercial DR in this market rather than an absence of the underlying issues. Problems such as data accessibility, customer access, or regulation around novel business models could yet present barriers to DR, distributed energy resources and other innovative products as they become more established in the country and fully exposed to the market landscape.

No fit between new business models and existing regulation/obligations. From our studies of this market, it appears that this could in future pose a barrier in Lithuania. Regulatory frameworks need to provide an environment for not only piloting new business models but also allow for further advancements without risking any grid stability, e.g. net-metering schemes and self-consumption. NRA requirements/obligations designed for traditional suppliers may not make sense for innovative players who are nonetheless bound by them. Unclear current regulation around demand response aggregation, such as missing role definitions, makes it challenging for novel services to enter and grow.

Given the lack of market activity, this has not yet been identified as a barrier, but the uncertainty around regulation in general (see section 1.3) suggests that such issues are likely to arise as more innovative players and product attempt to enter the market. All responsible authorities are involved in ongoing discussions around business models for demand side response services, and the Ministry of Energy is currently preparing draft changes to the relevant legal acts.

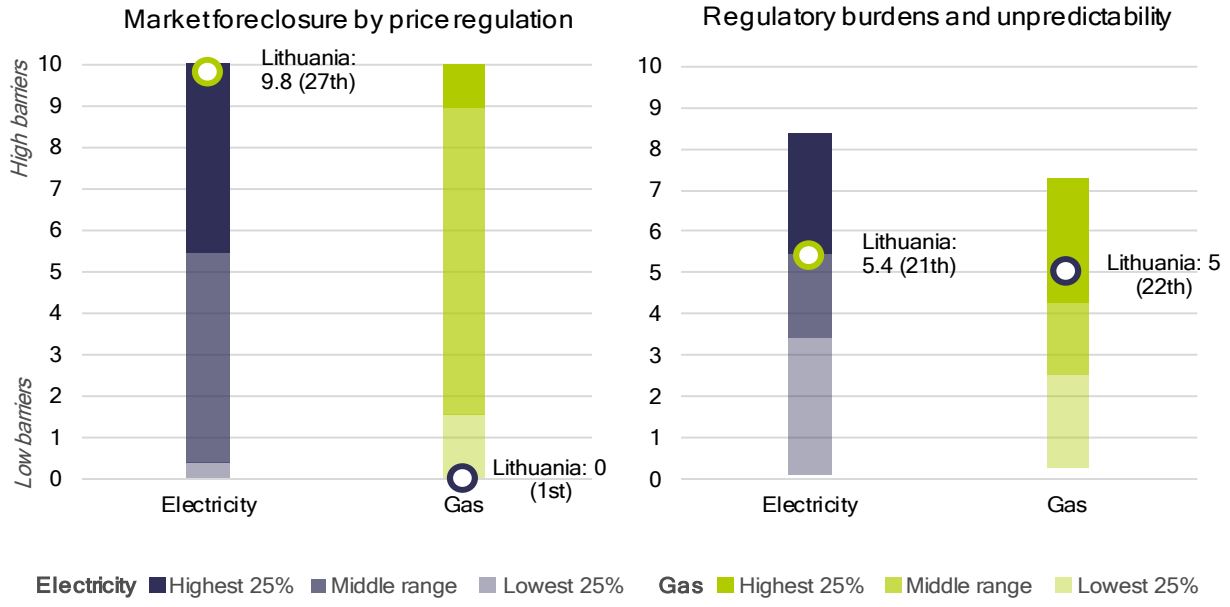
1.5 Lithuania's performance in this barrier category

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

- **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 a high share of customers is supplied at regulated price, and the mark-up is significantly lower than the average mark-up in the competitive markets.

- **Regulatory burdens and unpredictability:** The index consists of two sub-indicators. Regulatory burdens reflect 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



Lithuania was ranked 27th in Europe for price regulation in electricity (27th), but closer to the middle of the European range for regulatory uncertainty (21st for electricity, 22nd for gas).

2) Market inequality

Within market inequality, barriers across Europe have been sub-categorised into two areas encompassing 8 specific barriers[6]:

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 Lithuania:

   - 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.

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

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

- 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 Lithuania: Unbundling and market power

Discriminating, strategic behaviour of incumbent, and obstruction by other market players. In the research this barrier was indicated as an issue in Lithuania. The incumbent has a strong position in customer access that is not available to new entrants, given its almost universal household market share. For example, the incumbent need only retain customers, not actively win them, and has an advantage in switching because they are the default supplier if the switch is not completed.

National issue

Customer win-backs pose little cost to the electricity incumbent, who already have an established relationship with as good as all customers in Lithuania due to their persistent market dominance. By comparison, a new supplier has much to lose (investment in customer acquisition) if the switch is not completed or reversed. This places new entrants at a disadvantage for customer acquisition and retention, particularly when win-back can be initiated before switch completion. See also section 3.1.

Potential solutions

As price deregulation enables new players onto the household electricity market, care should be taken than the switching process does not favour the existing supplier. Similar issues have been solved in neighbouring Latvia by ensuring equal terms of play regarding switching and win-back competition. Indeed, Lithuania's price deregulation plans include measures to restrict the existing supplier's advantage in win-backs by allowing win-backs only after a certain period after the switch, once a relationship with the new supplier has been established.

European markets in which this barrier has also been indicated

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

Strategic, unfair advantage of vertically integrated market players and lack of transparency. In the research this barrier was identified as an issue in Lithuania. The dominant DSO and the dominant (incumbent) household

supplier is part of the same group of businesses, giving the supplier an advantage in terms of access to customers and information and in other ways.

National issue

The vertically integrated incumbent has an advantage in providing "guaranteed electricity supply" (supplier of last resort). Although the largest DSO cannot act as a provider since 2018, the supply company that does so on its behalf is co-owned by the same parent company. DSO integration is considered a barrier, with claims that the DSO able to take advantage of its regulated monopoly position (and ex-incumbent position as universal supplier) to gain advantages for their deregulated supply business. For example, the electricity DSO has acted under the same brand as the co-owned supplier to use the DSO customer information platform as a sales channel.

Potential solutions

The upcoming price deregulation involves legislative changes that could present an opportunity to further promote unbundling. Commercial incentives for DSOs to abuse their position to benefit associated supply business should be controlled through strict regulation and monitoring, or by weakening the link between the companies, for example by making the DSO invisible to the customer (as in Great Britain) or, more radically, by requiring full ownership unbundling.

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.

Discrimination against new and small market players in capacity and ancillary services markets. In the research this barrier was indicated as an issue in Lithuania. The balancing landscape remains focused on large-scale generation. This excludes smaller-scale/aggregated generation or demand-side bids from participating in balancing markets as they cannot meet the product requirements.

National issue

A recent investigation into competition in the reserves market found the market to be inefficient due to its being too concentrated and with barriers arising from infrastructure requirements. For historical reasons, ancillary and balancing services tend to have terms that favour generation rather than consumption. This is exacerbated by Lithuania's low consumption, which means DR providers would need a large portfolio of customers to meet balancing product requirements as they currently stand.

Potential solutions

The conditions for participation in the balancing market should be updated in order to encourage more demand-side participation. For example, minimum bid sizes should be made as low as possible, and systems updated to allow coordination of many small units. In Finland, conditions for certain balancing products have been successfully amended in order to facilitate smaller actors and the demand side to participate. Aggregation could even be opened to other players with a broad customer base that trust the firm's technology, for example telecoms companies.

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 EXAMPLE: Consumption bids in balancing

Several respondents active in aggregation and demand response expressed satisfaction at how Finland has redesigned balancing products to make them amenable for demand-side bids, complemented by its market-centric approach to DR. This indicates a willingness to let flexibility play a bigger part in the evolving energy system. Indeed, Finland's attitude to DR is positive and flexible, with respondents feeling that Fingrid is easy to work with and open to novelties. Many of the market structures for DR are an example of how to incorporate demand-side flexibility into the energy system. Some products are necessarily constrained by e.g. fast response times or minimum bid size due to their function, which make them difficult for DR providers to fulfill. However, open-minded amendments such as allowing pooling of loads, enabling step-wise activation or reducing minimum bid size where possible have opened up several products to DR. Developments remain ongoing, e.g. imbalance settlement for aggregators is currently under discussion. Progressive changes at the consumer end have also helped open the aggregation market in Finland, for example allowing 3rd party providers to access customers. Market players reported that the other Nordic countries are now developing in the same direction that Finland already has done, in this and other DR- and novelty-related aspects.

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

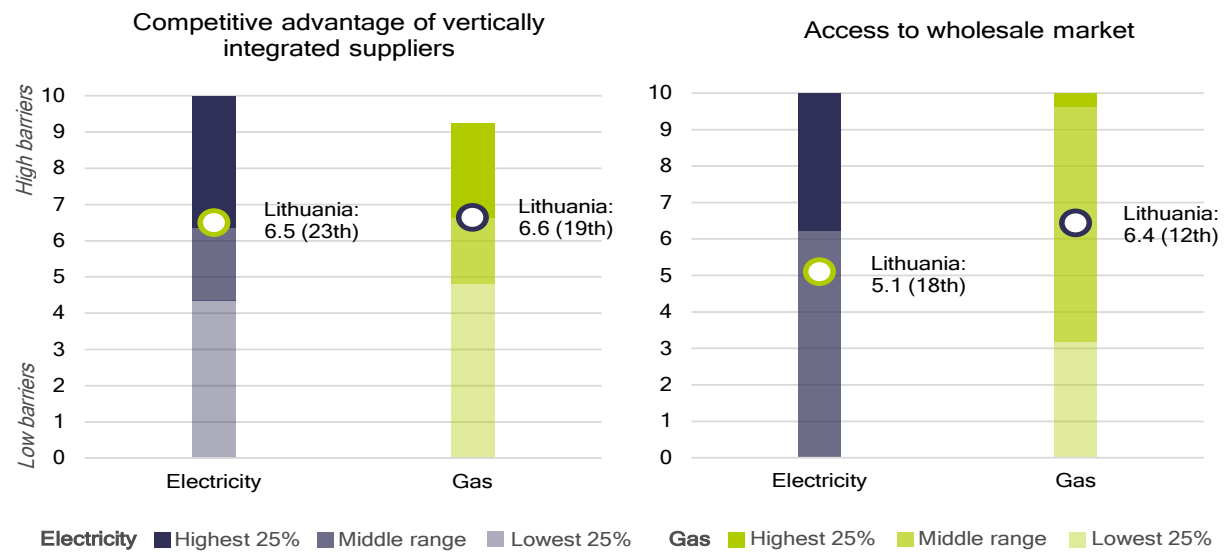
No barriers around burdens on suppliers or burden-sharing were identified in Lithuania. However, this must be interpreted in the context of a very concentrated retail market; smaller suppliers have as yet failed to establish on the household market due to low regulated prices, and hence there may be inequality on the wholesale market that newer players have not yet experienced.

2.3 Lithuania'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 Lithuania are shown against the range across all analyzed countries. These scores contribute to the performance index. The performance indicators of market inequality are the following:

- **Competitive advantages of vertically integrated players.** The index consists of two sub-indicators, the market share of vertically integrated suppliers (on the residential competitive 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



Lithuania was ranked 23rd and 19th for competitive advantage of vertically integrated suppliers in Electricity and Gas, but in the middle of the European range for access to wholesale in both electricity (18th) and gas (12th).

3) Operational and procedural hindrances

Within operational and procedural hindrances, barriers across Europe have been sub-categorised into two areas encompassing 13 specific barriers[7]:

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, 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 Lithuania:

• 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

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

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

- 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 Lithuania: Sign-up & operations compliance

Poor availability of information for market entrants & active participants. In the research this barrier was identified as an issue in Lithuania. Detailed information about legislation, licensing requirements and procedures during operations etc. are not considered sufficiently readily available. This makes it difficult for potential new entrants to understand the market, efficiently go through the entry process, and operate effectively.

National issue

The authorities were felt to provide insufficient information to market players. In the absence of reliable, official information, many business decisions and strategy planning must be made on the basis of rumors, with the risk that the such information and hence actions based on it are incorrect, with an immediate impact on company scalability through hindering effective growth. Some market players feel they are not kept informed about regulatory developments and are concerned that other market players obtain such information more easily. For example, one market player received information about expected functions of the Data Hub from a telecommunications company. Market information, it has been claimed, is also characterised by heavy delays, preventing business decisions based on up-to-date market information. For example, recent new regulations lengthened reporting time so that market information is released c. 9 months after submission by market players Similarly, information on the market development policy was only shared with market players 9-10 months after the relevant political decisions had been made. Together, this limited information flow arguably protects the incumbent as new players are unable to maneuver as effectively in the market. It should be stated though that the NRA makes it clear that they are always open to consultations with market participants.

Potential solutions

As described in section 1.3, more active communication by the authorities with market players would make market players, particularly new entrants, feel more included. The regulator and TSO already make basic market information public and are willing to provide more detailed information and discuss plans upon request/ consultation. However, market players would prefer a more discursive and cooperative approach rather than having to take the initiative to find information out directly from the regulator in each case.

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. In the research this barrier was raised as an issue in Lithuania. The systems landscape (forecasting, customer service etc.) can require significant costs, especially when first being established. Smaller suppliers are likely to face disproportionate costs and require more outsourcing opportunities, as they have less expertise in-house.

National issue

There are very few service providers available to outsource e.g. portfolio management, forecasting, balancing services (in gas there is no possibility to do this at all). This disproportionately advantages smaller or newer players who are less likely to have the capacity for these processes in-house.

Potential solutions

As the market opens, it is likely that business opportunities to offer such services will become more attractive as the number of potential customers (active suppliers) increases. Legislation should take care to ensure that companies of all sizes are free to use such services on equal terms.

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

Cumbersome or biased switching process. In the research this barrier was raised as an issue in Lithuania. Switching is difficult for the suppliers due to the amount of information that must be provided and the time and effort it requires. Existing suppliers have an advantage because they are the default supplier if the switch is not completed.

National issue

In gas, switching is cumbersome and complicated for suppliers, requiring data that is difficult to access and subject to delays from the DSO. The new supplier is required to estimate the customer's consumption class and hence network tariff, and the cost of any errors falls on the supplier. This reliance on difficult-to-obtain historical data means the process is in effect shaped for the dominant player.

Potential solutions

With the planned Data Hub (see section 3.2), switching should be easier for customers and suppliers. This gas example shows the importance of also including historical data to be accessed by all players on equal terms in both electricity and gas 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

IRELAND BEST PRACTICE CASE: Switching and win-back functions well despite DSO integration

The central messaging centre in Ireland is well designed, requiring timely messaging of switches and with fair access to that information for all players. Switching messages must be sent only after a customer signs a new contract, but within four days. Win-back may only start after this and is restricted to a 10-day window. Hence, despite there not being a centralized data hub that includes data storage as well as messaging, access to information and the opportunities arising from it are considered equal across market players. Other industry processes were felt to be similarly well-developed and fair.

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

Lack of data hub. In the research this barrier was identified as an issue in Lithuania. There is no centralized data hub or a platform for switching and access to DSOs information. This increases the time and effort required by suppliers to access customer or network data, e.g. to enact a switch or target potential new customers. This allegedly could potentially tend to favour the incumbent, which has access to customer data through the co-owned DSO as well as its own historical records.

National issue

In the commercial electricity segment, already liberalized, accessing historical consumption data of customers of other suppliers is very difficult as customer data cannot be accessed until a contract has been signed. Obtaining information in this way is expensive for the new supplier; this price gets passed on to customers, putting new suppliers at a disadvantage against the existing supplier. New suppliers are thus forced to base their forecasts and risk assessments on poorer-quality or less data, leading to greater inaccuracy and hence economic risks. The data situation in the gas market was reported as being "even worse" than in electricity.

Potential solutions

A Basic Data Hub (bDH) is planned for 2023, the last year of household liberalization roll-out. If well-constructed, this will solve many of these issues. Its initial focus is on electricity; it is expected also to cover gas, but no firm commitments have been made by the authorities. Data transfer will be obligatory for customers choosing to actively participate in the market when it does open, but not for those who choose to stay with the public supplier. Lessons from other countries include ensuring equal access also to historical data, ensuring a reasonable timescale for data submission, and consistent standards for format and quality of data.

European markets in which this barrier has also been indicated

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

DENMARK BEST PRACTICE CASE: Denmark's DataHub

The development of the DataHub is held up by market actors in other countries as a good example of regulatory development that involved and cooperated with market players. A key aspect of the successful development process was that a single organization (the TSO) had a clear system-wide responsibility to implement the changes, enabling streamlining of the process. Market players report the launch of the DataHub as the most important recent innovation in Denmark's energy system.

NORWAY BEST PRACTICE CASE: A well-designed data hub improved market equality in Norway

The Norwegian market is characterized by a large number of small, local, currently vertically integrated supplier-DSOs. Across Europe, this study has found vertical integration to cause issues around data access, where the integrated supplier (usually the incumbent) has an advantage in data access through its affiliation with the DSO, which collects and controls the information. However, such issues were not raised in Norway.

This favourable situation results from the existence since 2019 of a centralized data platform, Elhub, that is functioning near-perfectly according to suppliers to even out the playing field around data access (see section 3.2). Previously, independent suppliers faced delays and obstruction in obtaining customer data from DSOs. The impact on data exchange was so great that one supplier described their dealings with DSOs as "different pre- and post-Elhub worlds". The Elhub moreover allows the regulator to technologically control that actors are behaving appropriately.

Complex, heterogenous IT infrastructure and/or low level of digitalisation. In the research this barrier was indicated as an issue in Lithuania. A high level of manual processing required to communicate and exchange data with all relevant market participants increases financial and time costs substantially. This places new entrants at a disadvantage in terms of targeting and winning customers.

National issue

When obtaining data about other suppliers' customers in the commercial segment, there is no automation, the process consists of many steps, and the customer must approve of the information sharing in writing. There is a risk that the same will apply to the household market in the early stages of planned deregulation, before the bDH is launched.

Potential solutions

Standardized digital processes around data exchange and storage, including contract information, would facilitate data exchange substantially and hence level the playing field between market players. The coming Basic Data Hub is intended to address these issues, but care should be taken that the requirements around data quality and timeliness are sufficient, including for novel players offering more dynamic services.

European markets in which this barrier has also been indicated

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

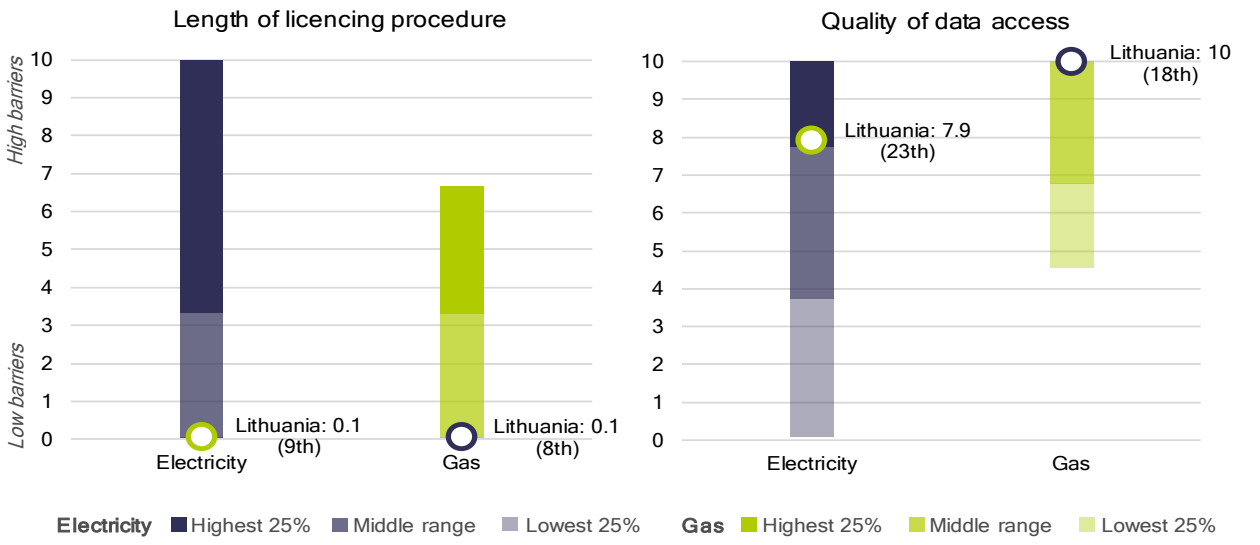
3.3 Lithuania's performance in this barrier category

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

- **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



Lithuania was ranked well for length of licencing procedure (9th and 8th), though 23rd and 18th for quality of data access.

4) Customer inertia

Within operational and procedural hindrances, barriers across Europe have been sub-categorised into one area encompassing 6 specific barriers[8]:

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

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

barriers related to "customer orientation" were detected by this study. Those highlighted in blue have been raised, indicated or identified as barriers in Lithuania:

- 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 Lithuania: Customer orientation

Low customer awareness or interest makes it difficult to attract customers. In the research this barrier was raised as an issue in Lithuania. Customers have no financial incentive to seek out new energy suppliers or engage with the market. This barrier also prevents uptake of novel services such as DR, as the benefits are difficult to promote to customers who do not already value energy or their role in the market.

National issue

In effect only incumbents are able to offer attractive electricity contracts to customers, because the controlled prices provided by these incumbents are below market price and hence not feasible for new entrants to offer (see section 1.1).
Regarding more novel products such as DR, consumers are not well aware is and how it might benefit them. However, it was reported that customer attitudes indicate an interest in market participation upon opening and in novel services if they were aware.

Potential solutions

The possibility to offer attractive prices that interest customers will open up when the household electricity market is fully liberalized over the next few years.
Regarding the lack of customer awareness, government investment in information campaigns could alleviate this. Complementing this, technical support must be provided for customers unfamiliar with novel services in order to encourage uptake by reducing perceived risks.

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

Changing supplier is cumbersome or has little pay-off for the customer. From our studies of this market, it appears that this could pose a barrier in Lithuania in the future. As household prices are deregulated over the next few years, effective price competition between suppliers will require rapid, effective, error-free and fair switching, so that customers visibly benefit from the switch in a short timeframe.

National issue

Due to non-market-based regulated prices being universally available, household customer switching in electricity is as good as non-existent in electricity and negligible in gas, as customers have no financial incentive to switch. In gas all suppliers may offer the regulated tariff, so there is little scope for differentiation and hence customer attraction. Issues with the switching process may become identifiable over the next few years as the market opens.

Potential solutions

Removing regulated prices will allow new entrant suppliers to make offers that compete with the incumbent on price and other aspects, which should encourage customers to at least consider switching. To avoid problems or biases with the switching system, lessons can be learnt from the situation in the commercial market segment, already liberalized (see section 3.1) and from problems encountered in other recently opened markets, e.g. Estonia.

European markets in which this barrier has also been indicated

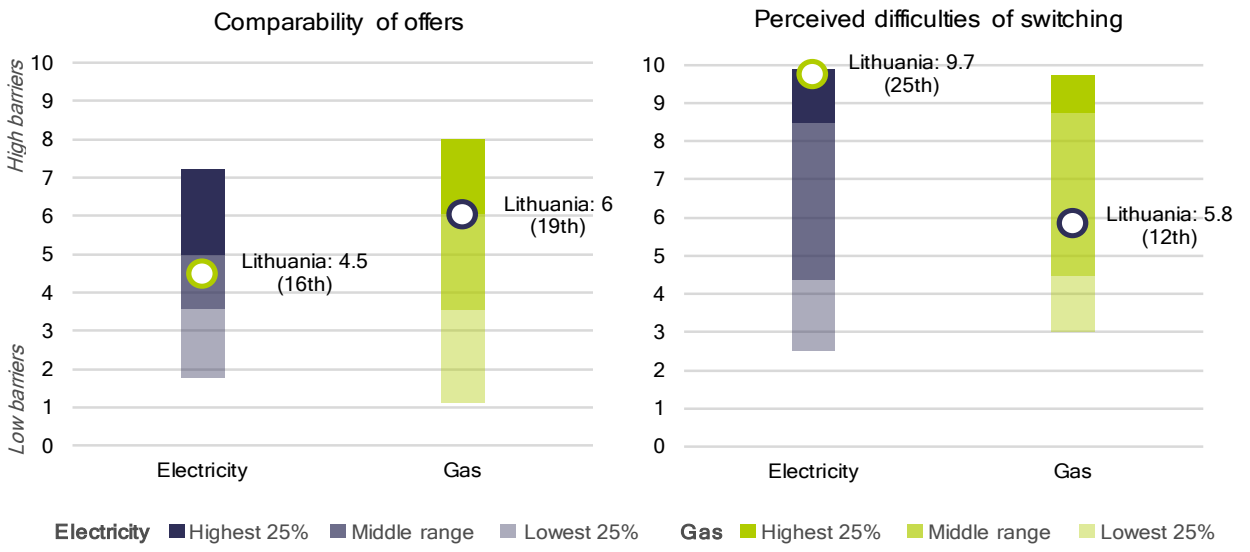
AT BE BG HR CY CZ DE DK EE FI FR EL HU IE IT LV LT LU NL NO PL PT RO SK SI ES SE UK

4.2 Lithuania'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 Lithuania are shown against the range across all analysed countries. These scores contribute to the performance index. The performance indicators of customer inertia are the following:

- **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



Lithuania was ranked in the middle of the European range for how easy it is for customers to compare offers (16th for electricity, 19th for gas). Perceived difficulties of switching were very high for electricity (25th across Europe) and moderate for gas (12th).

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 Lithuania: Other

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

National issue

Lithuania's population is small and consumption is low. Particularly in combination with uncertainty around regulation (see section 1.3), this discourages potential new entrants from taking the risk of starting up in Lithuania. Market players in electricity are preparing for entry upon household segment liberalization. However, the current stepwise plan (if implemented on time) will open only c. 5% of the market first, for unclear reasons, which is not enough to attract business.

Potential solutions

Harmonizing markets more closely, e.g. within the Baltic region, would effectively increase the size of the market and hence make it more attractive to new entrants. The benefits for competition may outweigh other cooperation issues that have prevented Lithuania from joining the common Baltic-Finnish gas market, for example.

Given that the groundwork has been laid for market opening, it may be beneficial for competition to open the entire household segment at once rather than stepwise.

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

As seen throughout this project, barriers to entry and operation can constrain the development and functioning of energy markets. Examples of such barriers identified in this project vary widely across EU countries, including issues as wide-ranging as the use of financial guarantees for access to wholesale markets, the presence of price regulation in the market, and burdensome licensing regimes, where the requirements are disproportionate to their protective function.

Lithuania's household electricity and gas markets remain closed to new entrants in practice. In electricity, the overriding key barrier is price regulation at low levels available to all customers. The household electricity market has been legally liberalised with all end-users having the right to choose a supplier, but a regulated price set according to a cost-plus model – which often does not reflect the market situation and may even be below wholesale prices – is universally available. This makes it near impossible for new entrants to offer competitive tariffs to attract customers away from the incumbent, who is the only supplier allowed to provide the regulated tariff. In gas, the market remains legislatively closed to new entrant suppliers. The difficulties that new entrant suppliers face in competing against the regulated price are evidenced by the fact that the few attempted new entries, by established foreign companies, have failed within two years. Price regulation in household electricity is due to be removed in stages from 2021, which would address this critical barrier entirely, but market players are not confident that these plans will be followed.

Perceived uncertainty around price regulation is compounded by a perception among suppliers that the authorities are unwilling to communicate with market players, which leads to uncertainty around all aspects of market regulation. New entrants in particular felt that they had very little access to official information, at the same time as informal communication channels appear very active in spreading information to and among established players. In other European countries analyzed in this project, regulators' openness to communicate and consult with market players has been appreciated; similarly, the Lithuanian market would likely benefit from a more open and outgoing approach by the regulator, especially during the substantial upcoming market changes as household prices are deregulated.

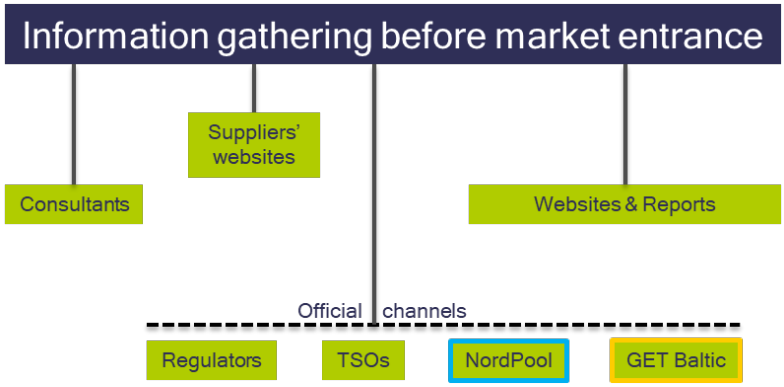
Incomplete unbundling between the incumbent supplier and the dominant DSO is also a substantial issue for new entrants trying to compete in the market. The DSO is seen to favour the incumbent in terms of service procurement, giving them an unfair competitive advantage, and the incumbent benefits from being associated in the public perception with the DSO and hence entire electricity system. The incumbent also benefits from access through the DSO to customers' historical consumption data. Market skew caused by vertical integration of supply and network activities is a problem in many European countries. Looking at countries which have solved or avoided this problem, two potential remedies appear to be effective: requiring full unbundling, to remove the financial incentive for DSOs to favour certain companies, and/or a well-functioning data hub, to give all suppliers full and equal data access regardless of company ownership. The basic Data Hub planned for launch in 2023 may thus significantly alleviate barriers around incomplete unbundling, as well as facilitating data processes such as around switching that are currently very burdensome.

APPENDIX 1: PROCESSES

This section describes market processes in energy retail in Lithuania. 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. Aspects that apply only to electricity are outlined in blue and those that apply only to gas are outlined in orange; elements with no outline apply to both markets.

Note that although Lithuania has systems and processes in place, these apply in practice only to commercial customers: the household market is effectively closed as a consequence of low, non-market-based regulated prices being universally available and hence strongly shaping the market. This prevents new entrants from competing and effectively blocks them from establishing.

1) Information gathering before market entry

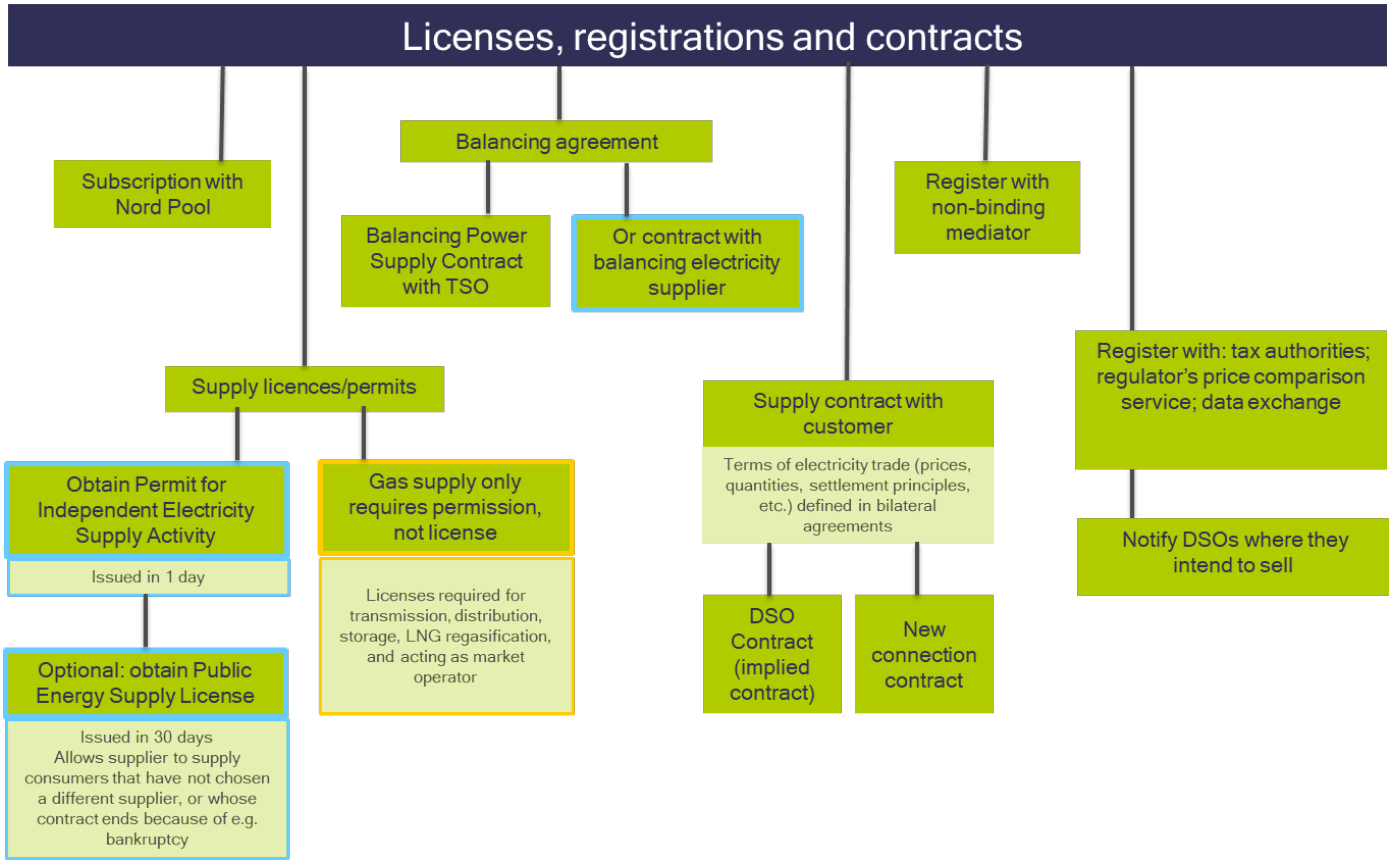


Further comments

Note that because of pricing constraints the household market is effectively closed to new entrants.

- Current plans from the ministry anticipate a stepwise deregulation of prices in the household electricity market starting with the largest consumers (> 5 MWh annually, c. 5% of the market) in 2021, progressing through > 1 MWh annual consumption (c. 70% of the market) in 2022, to complete price deregulation in 2023.
- There are no known plans to deregulate the household gas market, which is not open to new entrants.

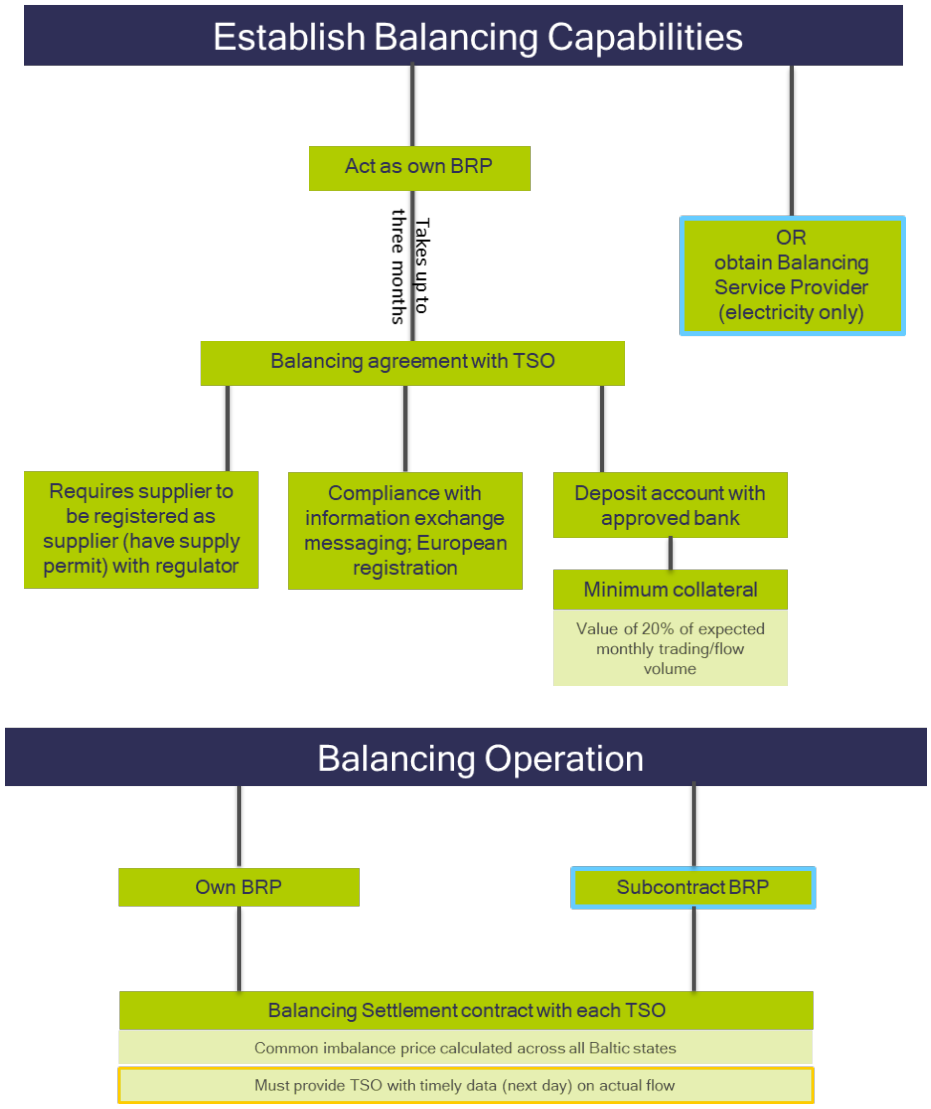
2) Licences, registrations and contracts



Further comments

- No licences as such are required to act as an independent supplier, only registrations. However, a licence is required to act as a public supplier (currently only the incumbents).
- Permits can be withdrawn from supply companies who have not been active for over a year.
- For gas, the regulator also oversees natural gas transmission, distribution, LNG liquefaction and security of supply prices

3) Balancing



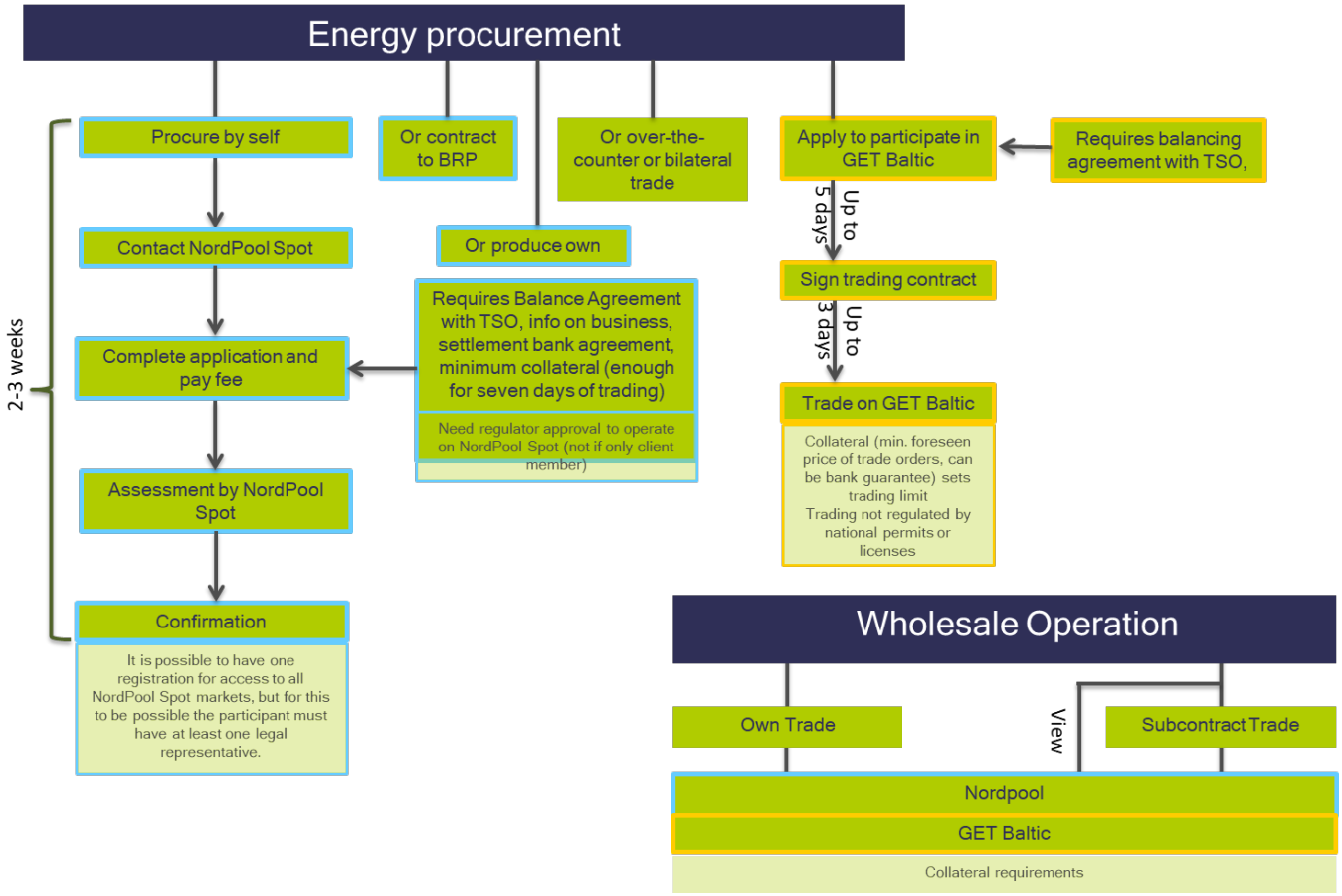
Further comments

- Primary reserves are activated from Russia, while the Lithuanian TSO activates the slower balance reserves.
- The balancing market is operated on a joint Baltic basis since 2018, with rules around the common balancing market and imbalance settlement developed jointly by the three Baltic regulators. A common imbalance price is applied across the region, while national TSOs retain responsibility for imbalance in their area.
- A recent investigation into competition in the electricity reserves market found the market to be inefficient due to its being too concentrated and with barriers arising from infrastructure requirements[9]. Following this, suppliers active in the reserves market must now fulfil an accounting obligation to the regulator to ensure their prices do not exceed cost-based prices, including return on investment.

[9] https://www.ceer.eu/documents/104400/6693346/C19_NR_Lithuania_EN.pdf/367d5cca-15e9-b37a-1fa0-4ff04aa74fed, section 2.1.1

- Lithuania has no gas storage but uses the Latvian Inčukalns facility on a per-application basis.

4) Wholesale

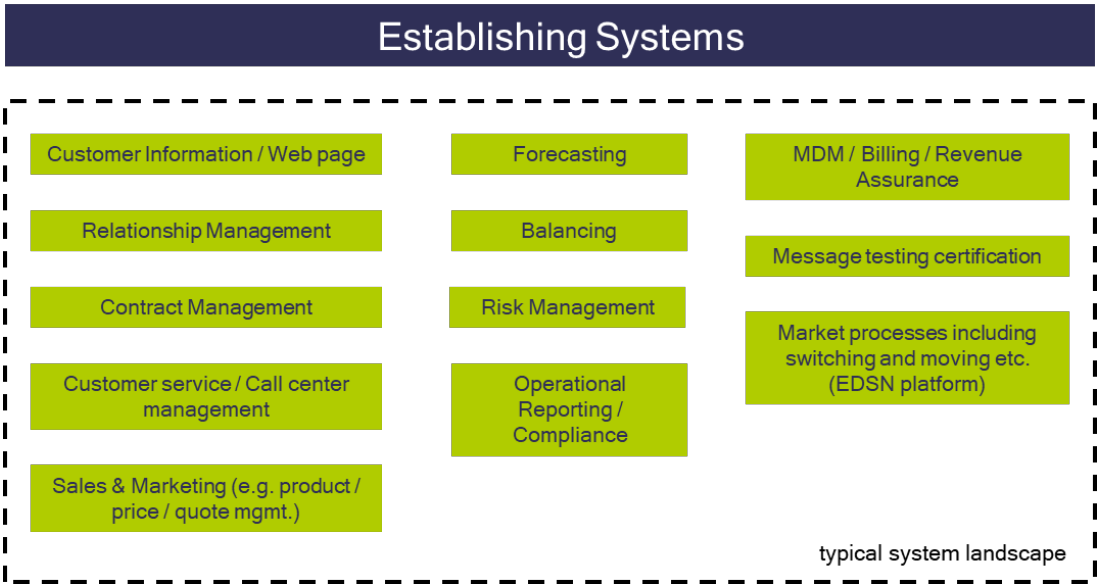


Further comments

Since market opening the NEMO has been Nord Pool.

- EPEX SPOT plans to launch Day-Ahead and Intraday trading in 2021, with timeline for the Day-Ahead market depending on implementation of Multi-NEMO Agreements (MNAs) that define the exact framework for accommodating more than one exchange in a bidding area. A multi-NEMO framework has already been implemented on the Intraday market (XBID).
- The XBID for cross-border intraday platform was launched in 2018, along with legislation regarding market coupling, capacity calculation and other relevant aspects of the energy system.

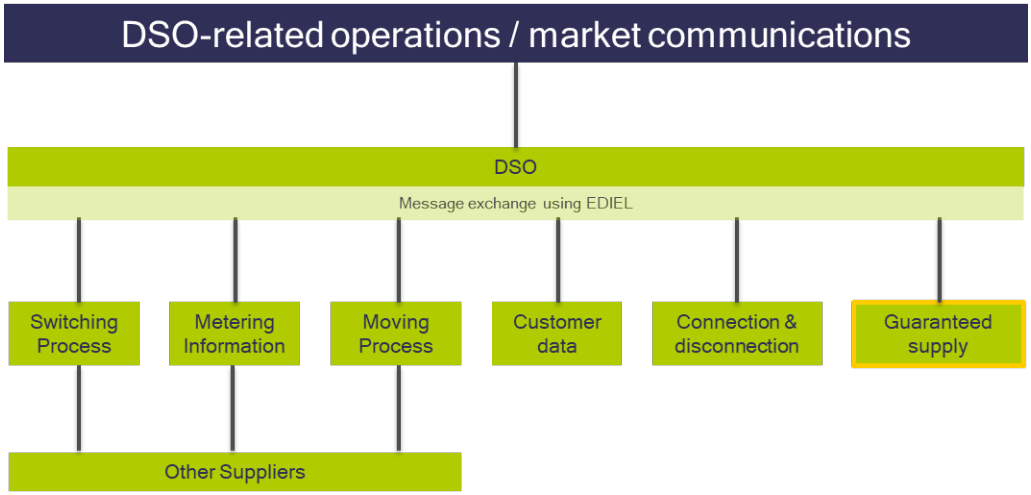
5) System landscape



Further comments

- Smart meter roll-out for gas has been planned but progress is uncertain.

6) DSO-related operations & market communications

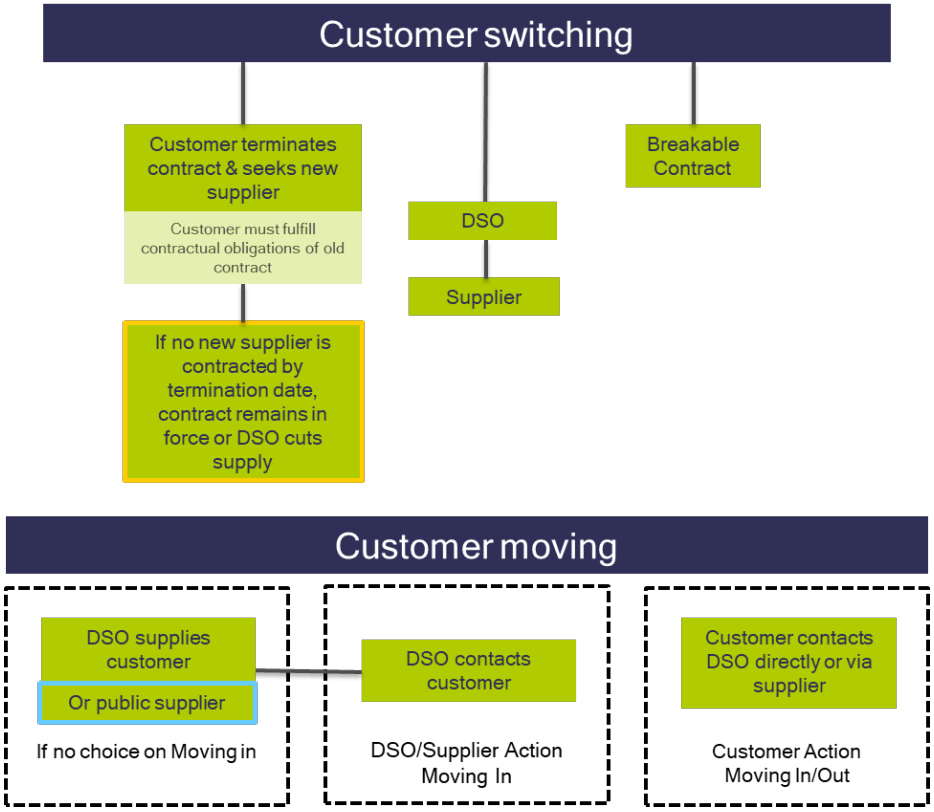


Further comments

In 2023 Lithuania will introduce the basic Data Hub (bDH) for electricity.

- bDH will allow customers to share their data with other suppliers, so that better offers can be made by other suppliers directly to the customer
- The Data Hub is expected to cover gas, but no firm commitments have been made by the authorities

7) Customer switching & moving

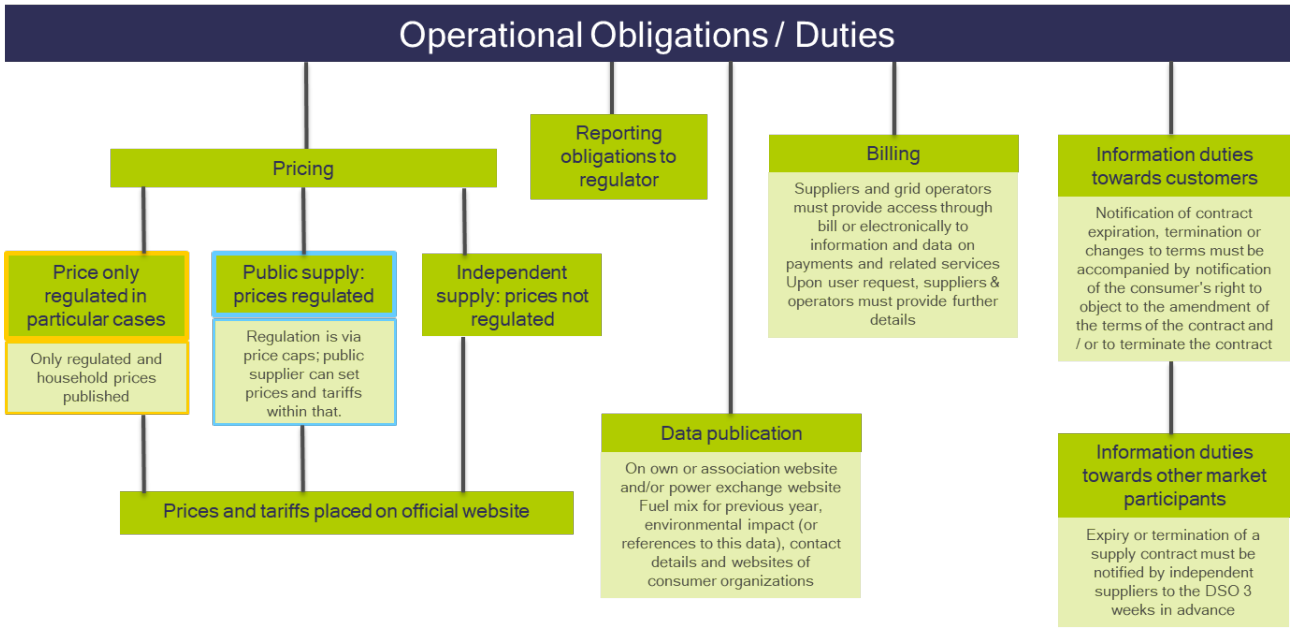


Further comments

Commercial customers pay market prices for their electricity, whereas household users can enter either into market-based or bilateral contracts through their supplier.

- Customer switching rules are provided in the rules for the supply and use of electricity, which are determined by the Ministry of Energy
- The DSO is responsible for providing “guaranteed electricity supply service”. The largest DSO is prevented from supplying by itself, but instead tasks its co-owned sister supply company with this.
- Natural gas suppliers may terminate the contract with the consumer, if the consumer is in substantive breach of contract, by giving at least 30 days’ written notice. An independent electricity supplier may terminate the contract with households consumer on the grounds of breach of contract by giving at least 15 days’ written notice.

8) Operational obligations/duties



Further comments

Service duties towards customers include providing an uninterrupted supply of gas to vulnerable consumers, including accumulating and storing necessary reserves.

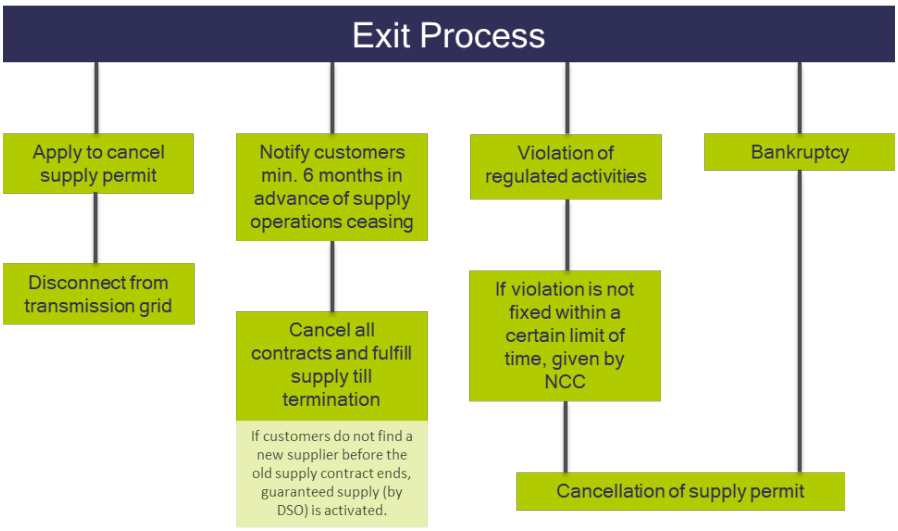
Information duties include data on customers' own consumption and further elements if requested by customers.

Despite a small population and low consumption, suppliers' margins are not reported to be problematic in Lithuania.

- Price caps for public supply of electricity, along with network tariffs, are due for recalculation for the next regulation period, starting in 2021.
- The regulator handles complaints from both consumers and suppliers.
- Suppliers must provide, free of charge, regular information on customers' actual consumption and market prices – provided that the customer agrees to let other suppliers freely access their metering data.
- Energy consumers must have adequate and sufficient conditions (in the invoice or electronically, or other reasonable means) to access information and data regarding actual energy consumption and payments for energy and/or related services.
- At the request of the user, electricity suppliers and network operators must provide: actual prices for supply and/or transmission services and actual energy consumption, at least once per calendar year; a consumption comparison with the same period of the previous year; if possible, a comparison with the average consumption in the same user group.
- A single self-service website, www.manogile.lt, provides information and customer service to electricity and gas customers

- For gas, regulated prices and tariffs[10] are published one month before coming into force; non-regulated supply prices are not published.

9) Market exit



Further comments

- An independent supplier may request the suspension or revocation of their Permission for Independent Electricity Supply Activities or their License for the Electricity Energy Public Supply
- Natural gas suppliers and public electricity suppliers who intend to discontinue licensed or permitted activities must notify the NERC at least 6 months in advance

[10] https://www.e-tar.lt/portal/lt/legalActEditions/TAR.0C5C33AA865C?faces-redirect=true

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