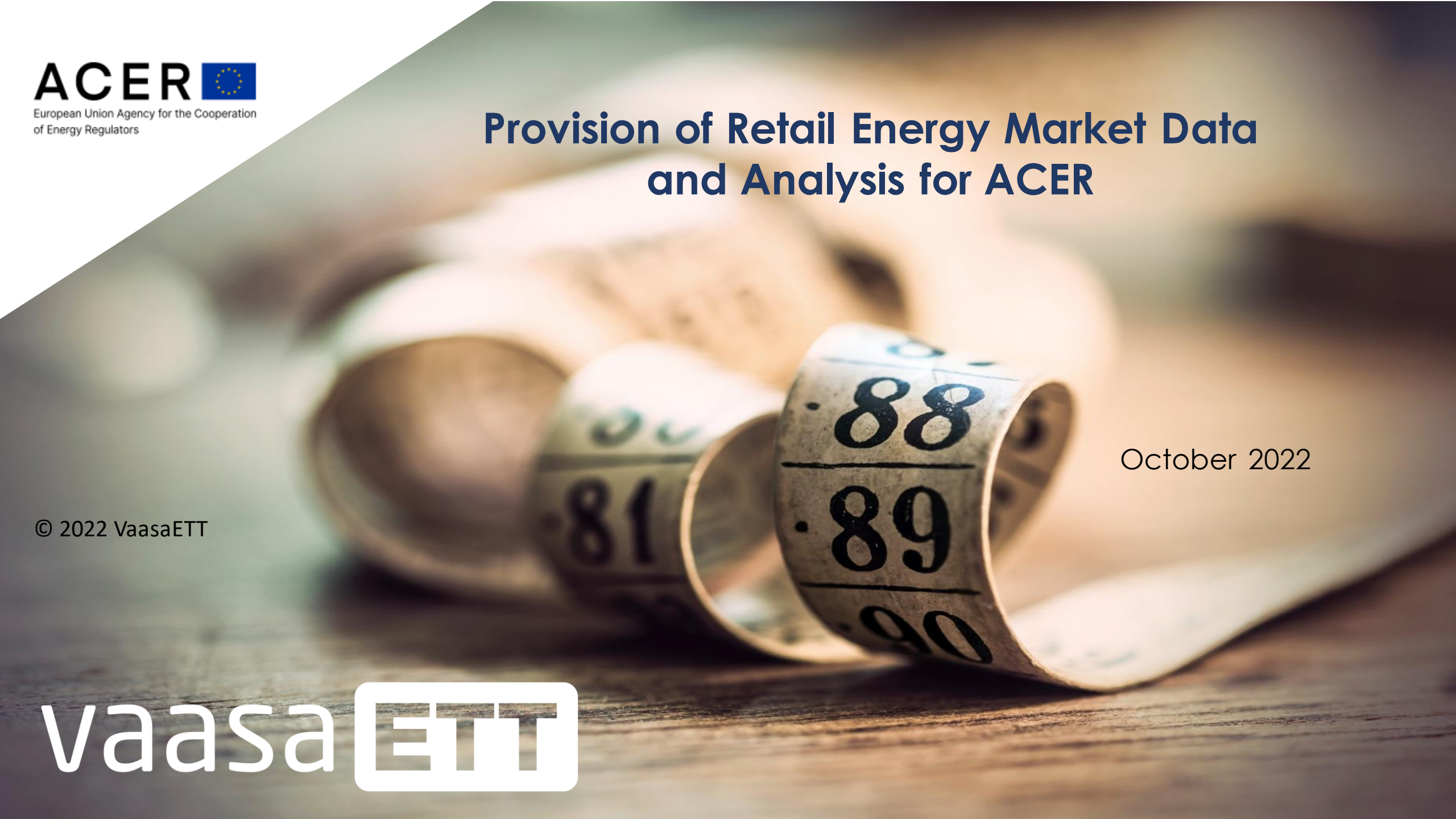
ACER
European Union Agency for the Cooperation of Energy Regulators

Provision of Retail Energy Market Data and Analysis for ACER



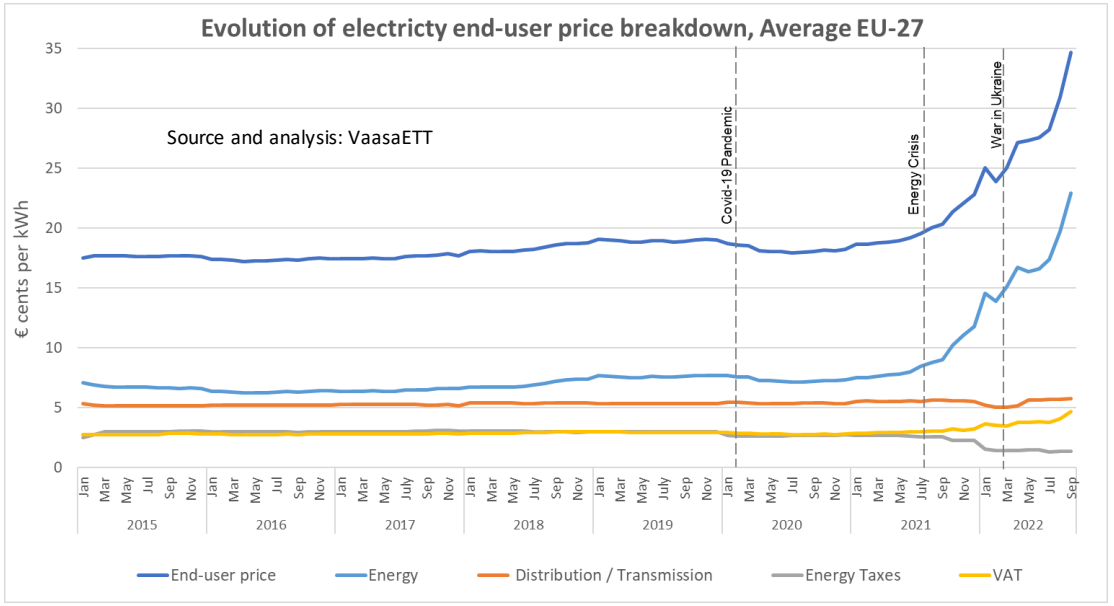
October 2022

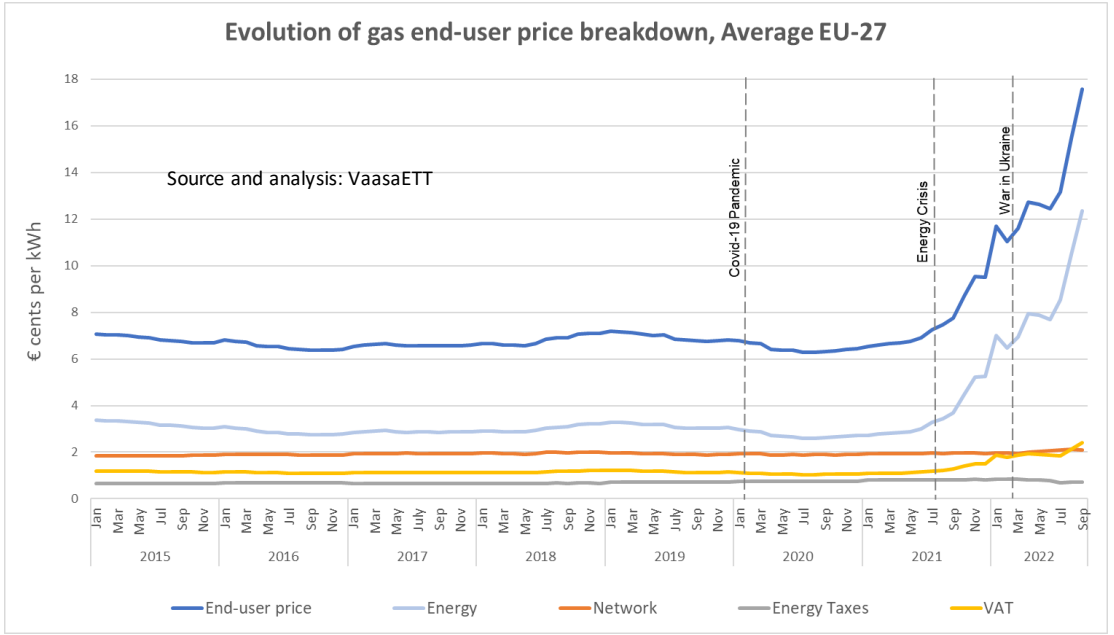
vaasaETT

electricity & **gas** end-user price evolution in Europe

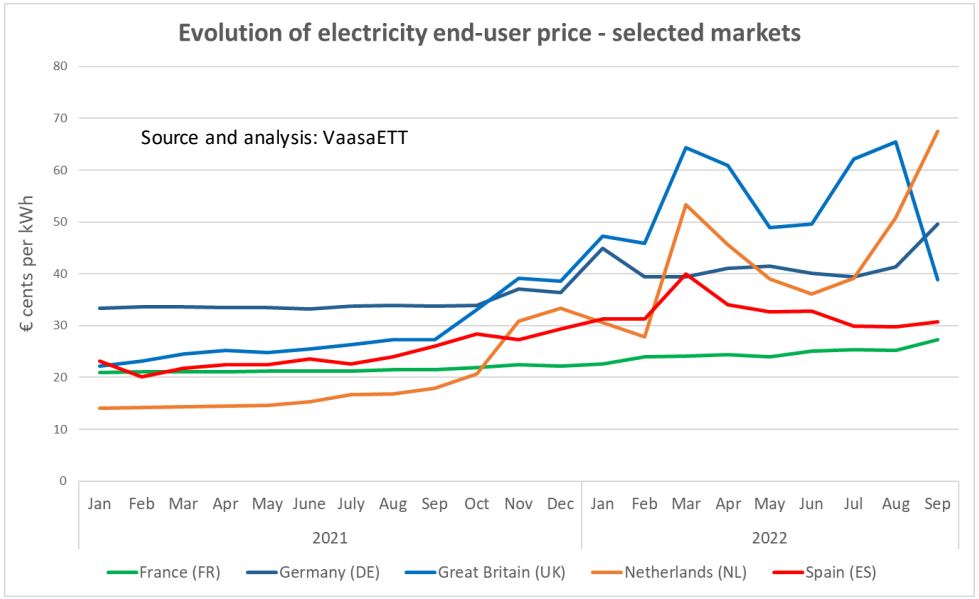
- During the Covid-19 pandemic, electricity prices dropped until the onset of the energy crisis.
- During the energy crisis, prices in general increased dramatically. The increase was even more significant at the start of 2022, when the war in Ukraine led to additional volatility in the market and as a consequence to record high end-user prices.
- All-in electricity prices have risen by 85% across the EU27 since before Covid-19 ('business as usual'). Gas prices by 160%. These increases are after general support measure have been applied.
- When breaking down the all-in price, the energy component is observed as the main driver of the increase, which recently constitutes a larger share of the total price. Network costs remain rather stable, slightly decreased only in some cases due to governments' support measures to mitigate the rising prices. The most significant decrease during this period, is observed in the energy taxes component.
- The reason behind the decrease are temporary support measures implemented in most of the European markets. More about the support measures in the following slides.

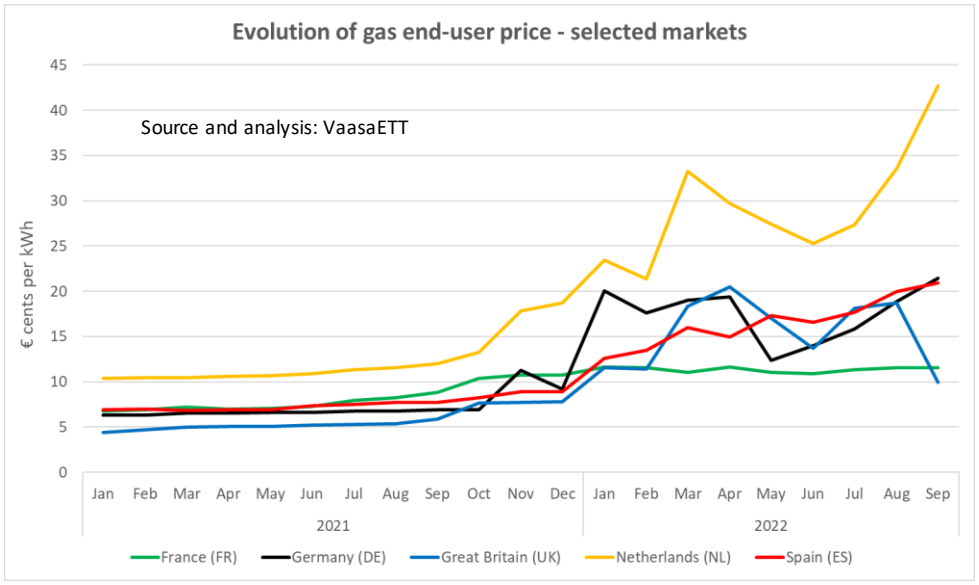
The graphs represent weighted averages of tariff components offered by the leading suppliers in the capital city of each country. Prices concern consumers with the typical consumption profile of each market. Data is collected from price comparison sites and / or supplier websites. Prices correspond to the first day of the month.





electricity & **gas** end-user price evolution in selected markets

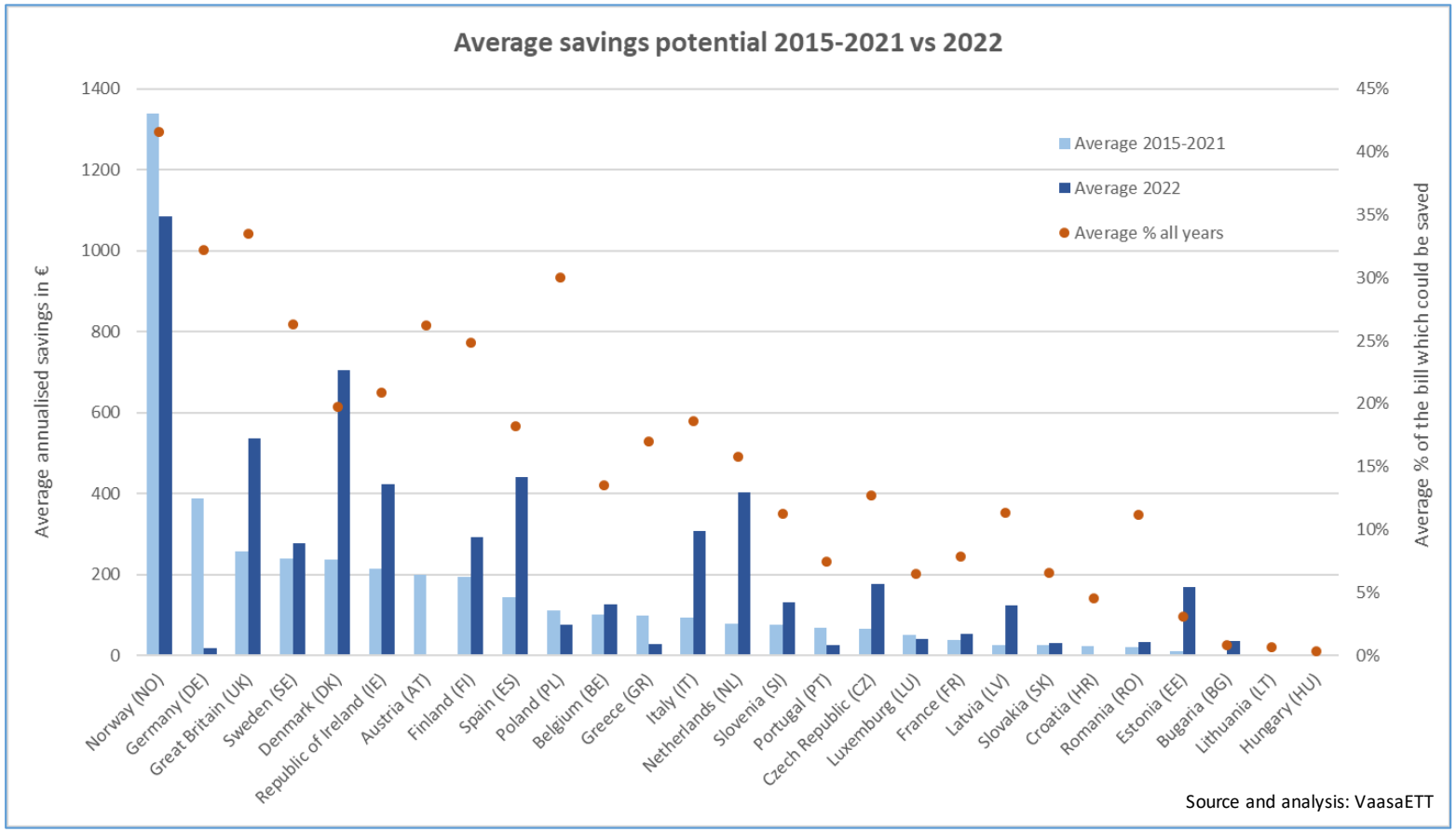




- The situation varies among countries and mainly depends on the fundamentals of each market and its mechanisms, the regulations, the energy mix and its dependence from RES or energy imports/exports and lately support measures that have been implemented.
- In France, the regulated electricity prices have been limited during the energy crisis, largely due to the ARENH but also through support mechanisms and price ceilings, leading to minor increases, when compared to other markets. Gas prices are more aligned with wholesale.
- The government in Spain was one of the first across Europe to respond to the increasing energy prices, reducing regulated charges and VAT, starting from summer 2021. Recently, a price ceiling for gas wholesale used in electricity generation has been approved, decoupling skyrocketing gas prices from the electricity generation.
- In the Netherlands, the sharp increase during 2022 is largely attributed to the extinction of available offers in the market amplified by the fact that the remaining ones were mainly variable contracts, thus reflecting the increases in the wholesale market. Also due to pricing strategies. For gas, the high wholesale reference market has additionally been driving prices above the other markets.
- In Germany prices have been moderated somewhat by the smaller share of energy in bills, the benefits brought by longer-term hedging and possibly also by integrated utilities (possible cross subsidisation) as well as by larger historical retail margins (some absorbance of increased costs).
- In Great Britain, the wholesale + retail cost formulated price cap defined the retail price until recently. Since energy was the driving price component, this wholesale reflectivity led to Europe's highest retail price from what was a relatively modest price in early 2021. Following a tightening of the price cap and the removal of fixed price offers, Great Britain has substantially lowered in the rankings.

The graphs represent weighted averages of all-in tariffs offered in the capital city of each country. Prices include energy, taxes, network charges and subsidies and concern consumers with the typical consumption profile of each market. Data is collected monthly from price comparison sites and/or supplier websites. Prices correspond to the first day of the month.

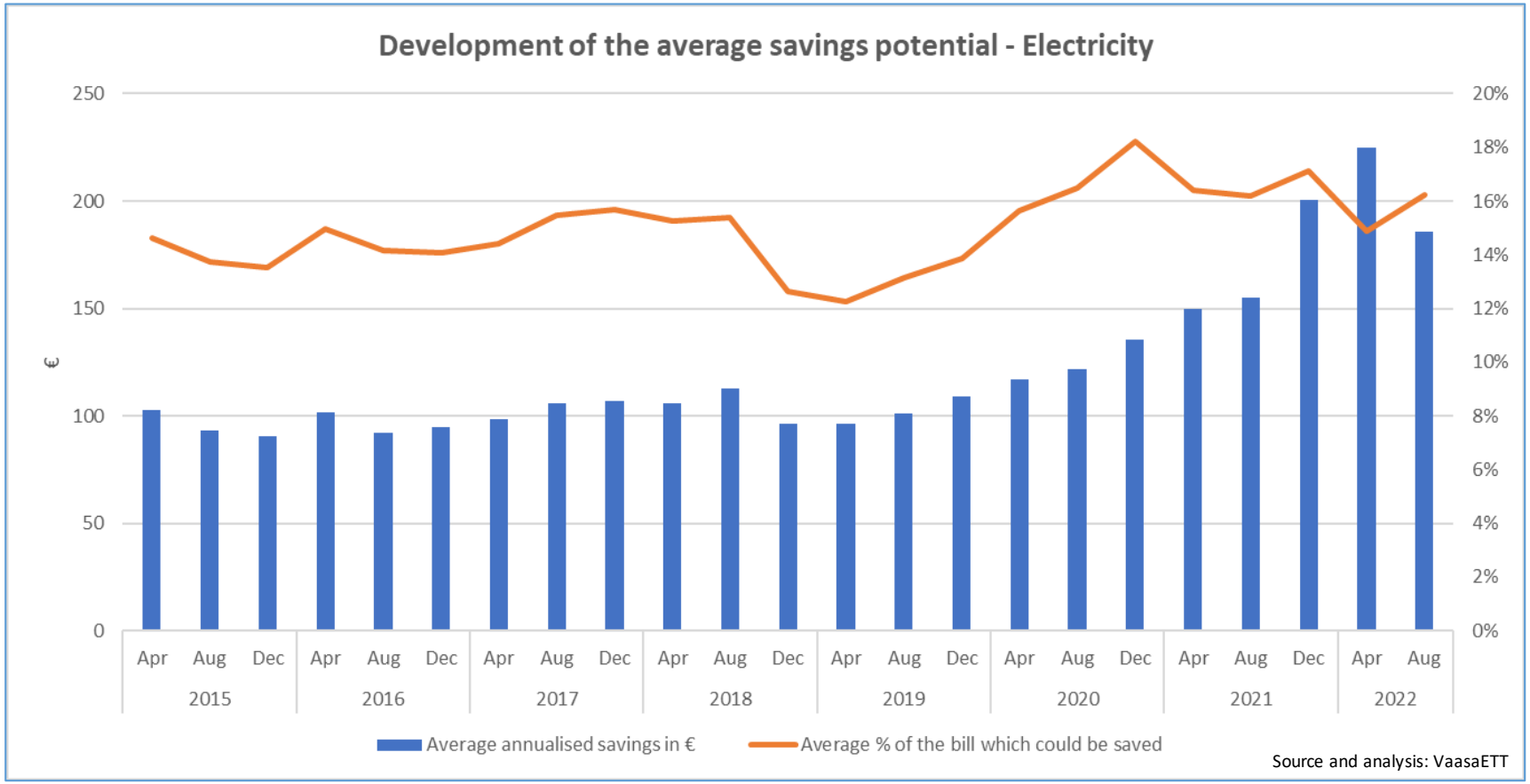
potential savings in the **electricity** market



The above graph represents the average € difference that a residential electricity customer would save when switching away from the by-default to the cheapest offer available in 2022 (until August), compared with the average of years 2015-2021, alongside the average % decrease of the by-default bill that could be achieved, since 2015. Prices concern consumers with the typical consumption profile of each market. Data is collected 3 times per year (April, August and December) from price comparison sites and / or supplier websites and correspond to the first day of the month.

- The higher savings opportunities appear in the most competitive markets
- Countries with less liberalised electricity markets tend to have lower (to non) savings opportunities
- When switching from the by-default tariff to the cheapest available option, customers could save on average 152 € per year during 2015-2021 compared to 205 € per year, in 2022.
- When switching away from the by-default tariff to the cheapest available option, a customer was paying nearly 16% less on average compared to 15.5% in 2022.
- In some markets savings is zero meaning that the by-default contract is the cheapest available option.
- The energy crisis has highlighted the importance of providing customers with a) awareness that they can save and how much and b) awareness of how they can achieve the savings. It has also highlighted the importance of competition.
- Two major barriers face the above necessities: a) the high number of supplier failures has led customers in many markets to fear competitors and feel safer with incumbents; b) customers are confused about the security of lower prices (e.g. will they stay low or be jacked up; will cheaper offers come along; which type of contracts are better for them). At present there is really no truly independent guidance in their journey.

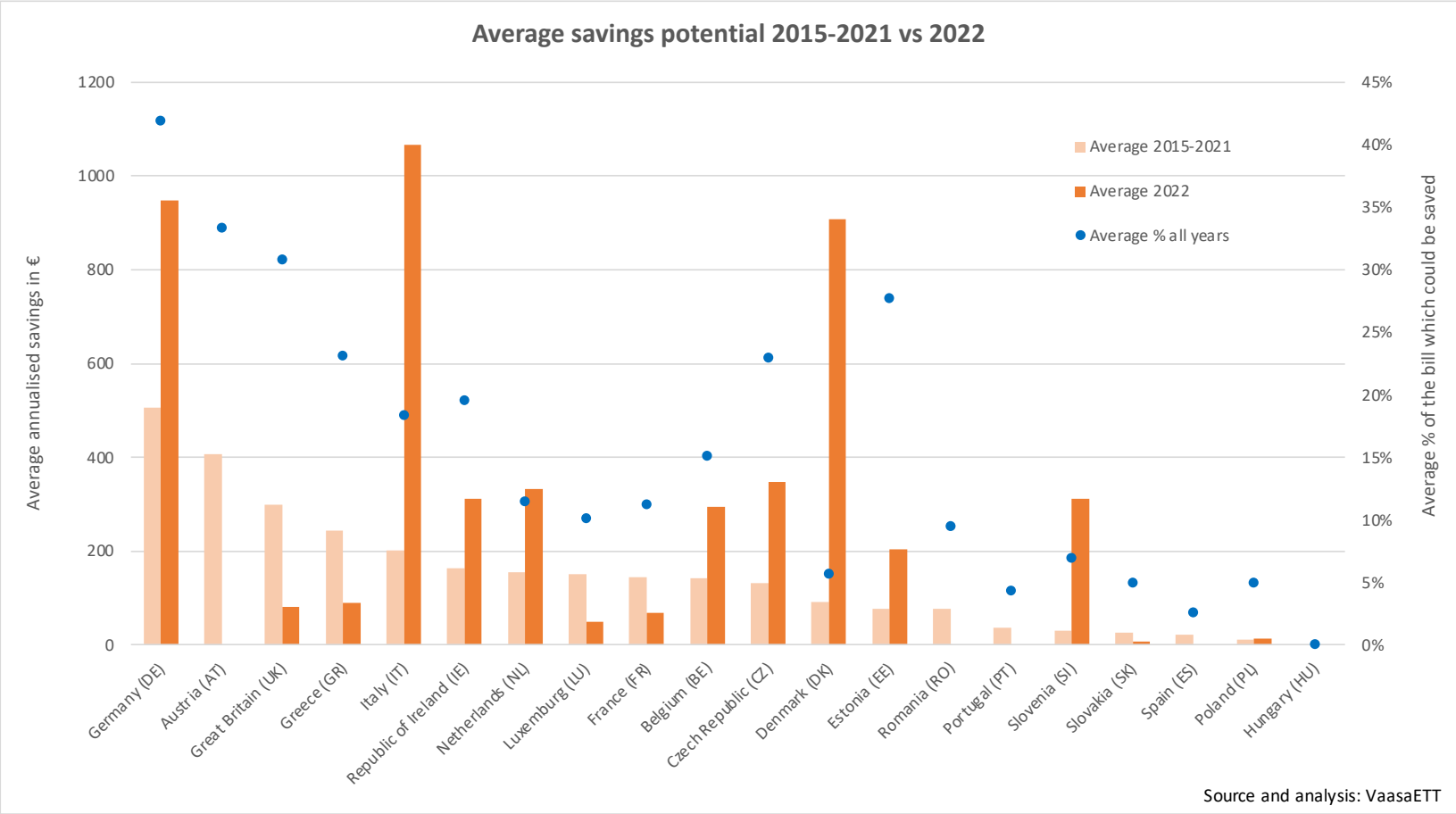
development of **electricity** savings potential



- In recent years, an increasing trend is being observed in the savings potential (the absolute saving amount) which is even more remarkable since 2021, when the energy crisis started
- However, the percentage of the bill that could be saved is rather more stable despite the savings potential in absolute terms, due to the significant increase in electricity prices. That is explained as savings nowadays constitute a smaller share of the increased total bill.

The above graph represents the € difference that a residential electricity customer would save when switching away from the by-default to the cheapest offer available and the % decrease of the by-default bill that could be achieved on average for EU27 and Great Britain. Prices concern consumers with the typical consumption profile of each market. Data is collected 3 times a year (April, August and December) from price comparison sites and / or supplier websites and correspond to the first day of the month

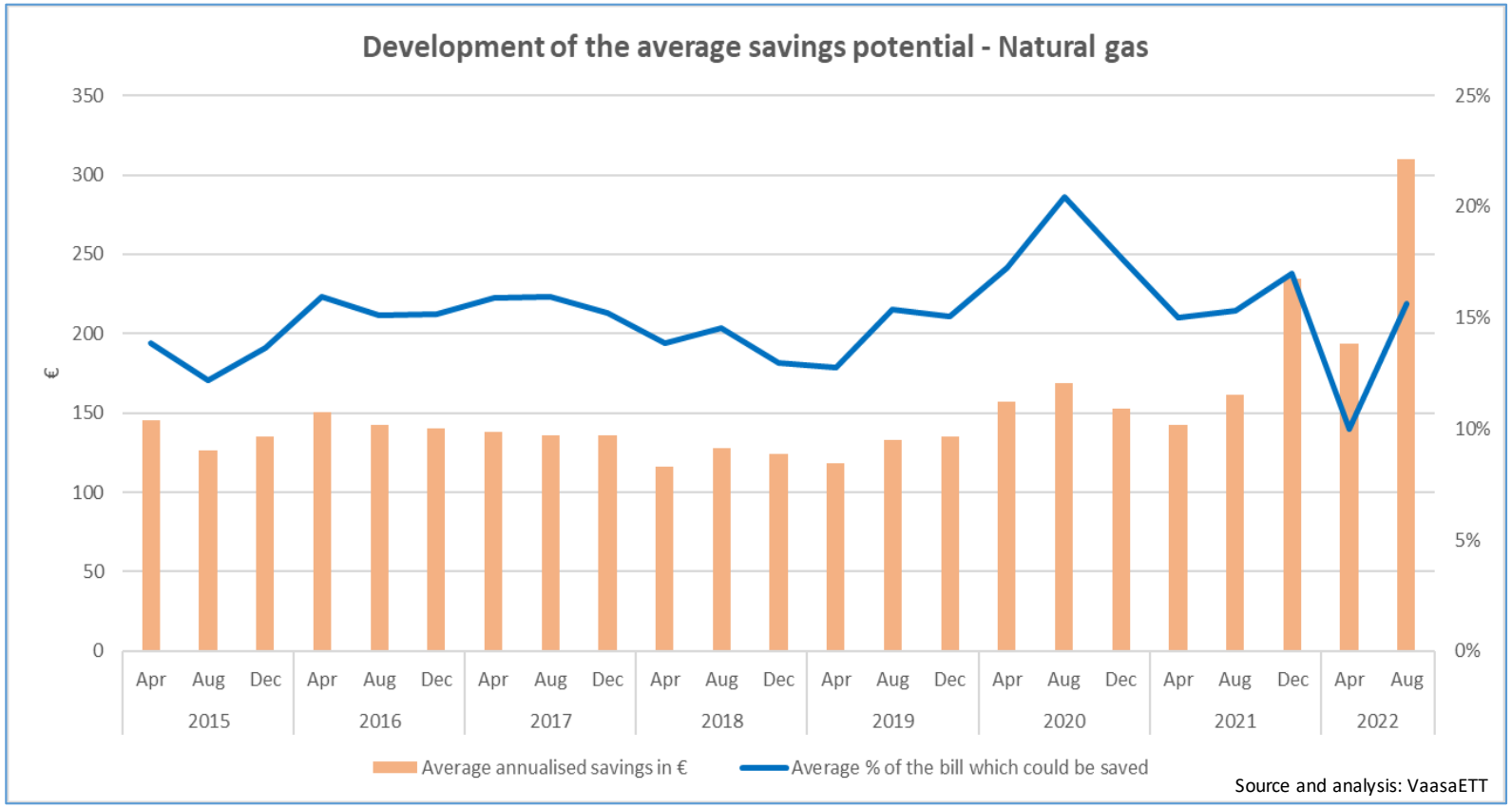
potential savings in the **gas** market



- The higher savings opportunities appear in the most competitive markets
- When switching from the by-default tariff to the cheapest available option, customers could save on average 146 € per year during 2015-2021 compared to 252 € per year, in 2022.
- When switching away from the by-default tariff to the cheapest available option, a customer was paying almost 16% less on average during 2015-2021 compared to 13%, in 2022.
- The energy crisis has highlighted the importance of providing customers with a) awareness that they can save and how much and b) awareness of how they can achieve the savings. It has also highlighted the importance of competition.
- Two major barriers face the above necessities: a) the high number of supplier failures has led customers in many markets to fear competitors and feel safer with incumbents; b) customers are confused about the security of lower prices (e.g. will they stay low or be jacked up; will cheaper offers come along; which type of contracts are better for them). At present there is really no truly independent guidance in their journey.

The above graph represents the average € difference that a residential natural gas customer would save when switching away from the by-default to the cheapest offer available in 2022 (until August), compared to the average of years 2015-2021, alongside the average % decrease of the by-default bill that could be achieved, since 2015. Prices concern consumers with the typical consumption profile of each market. Data is collected 3 times a year (April, August and December) from price comparison sites and / or supplier websites and correspond to the first day of the month

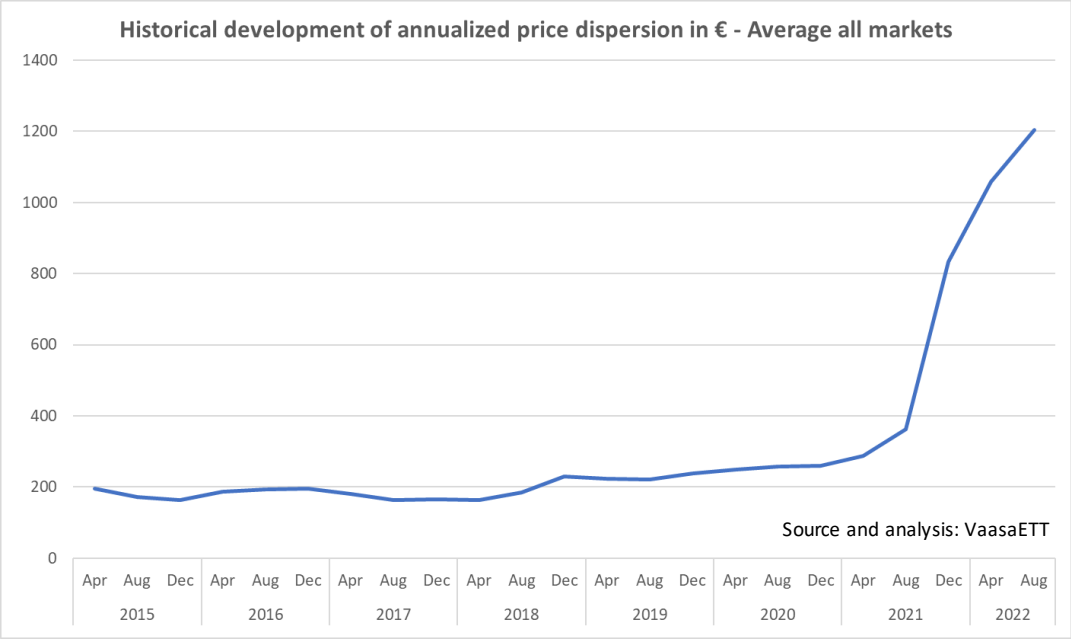
development of **gas** savings potential



The above graph represents the € difference that a residential natural gas customer would save when switching away from the by-default to the cheapest offer available and the % decrease of the by-default bill that could be achieved on average for EU27 and Great Britain. Prices concern consumers with the typical consumption profile of each market. Data is collected 3 times a year (April, August and December) from price comparison sites and / or supplier websites and correspond to the first day of the month

- During 2021, an increasing trend has been observed in the savings potential (the absolute savings amount). In August 2022, the percentage has significantly increased further, after temporarily declining in April 2022.
- The percent of the bill that could be saved is following a quite different trend despite the savings potential in absolute terms, due to the significant increase in gas prices, recently. That is explained as savings nowadays constitute a smaller share of the increased total bill.

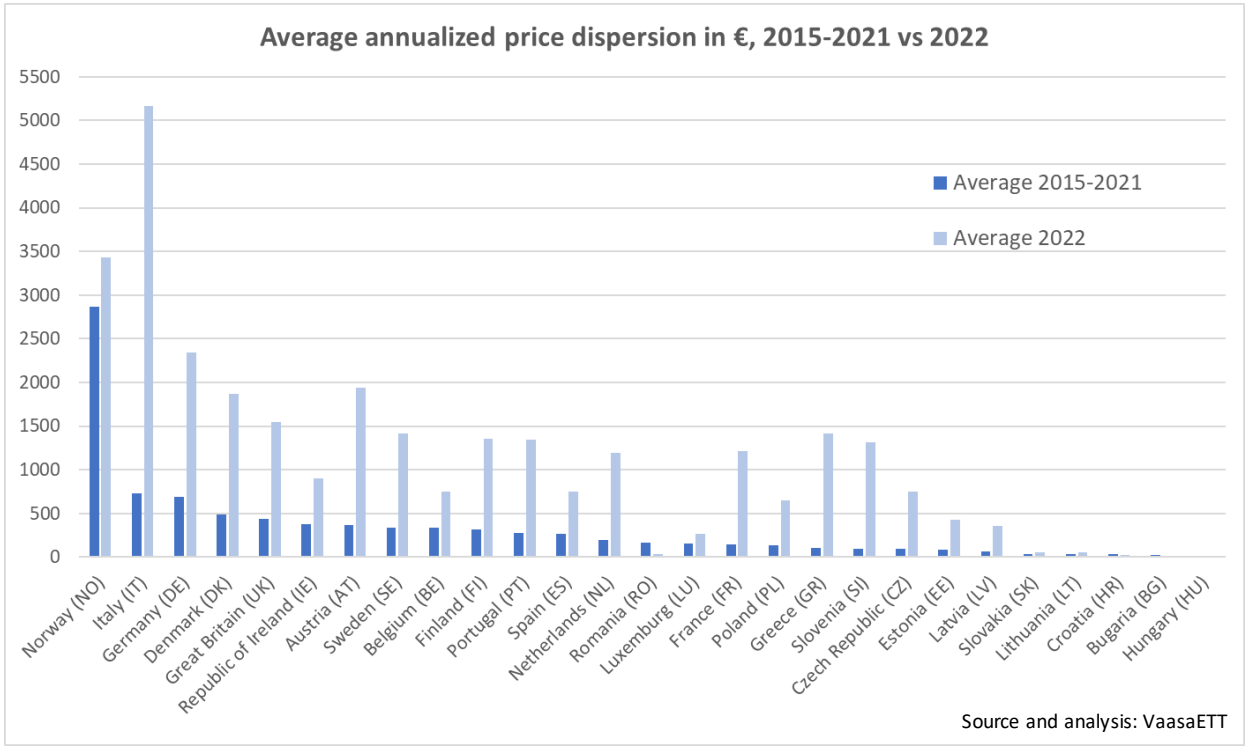
development of **electricity** price dispersion



The above graph shows the average difference between the most expensive and least expensive electricity retail offer, available for households in EU27 and Great Britain, for the period 2015-2022. Prices concern consumers with the typical consumption profile of each market. Data is collected 3 times a year (April, August and December) from price comparison sites and / or supplier websites and correspond to the first day of the month

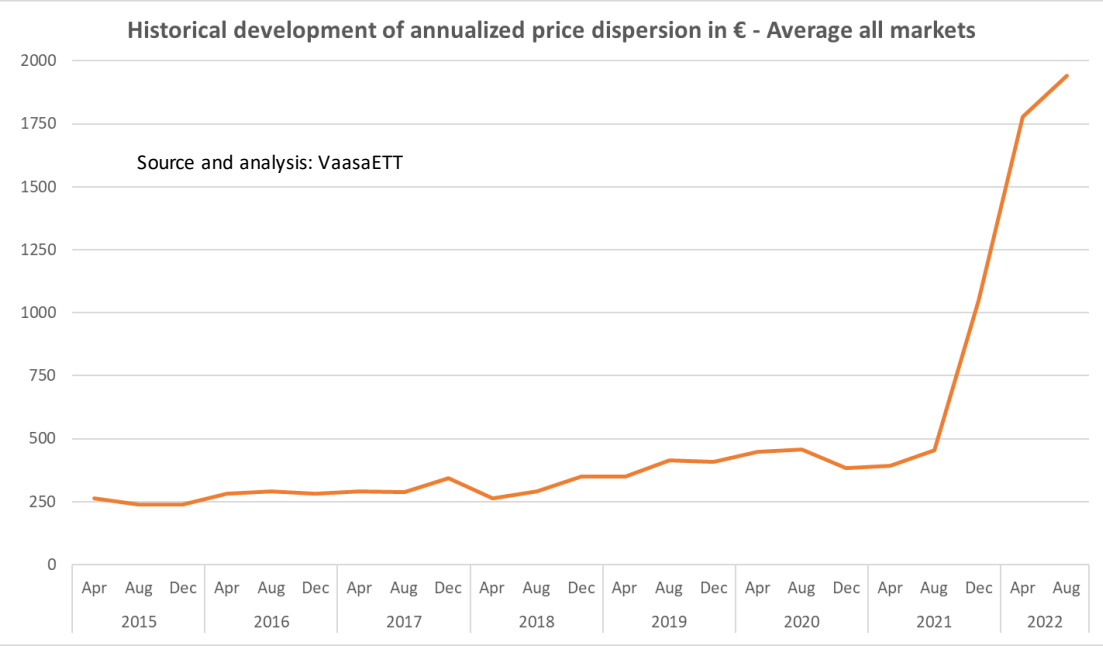
- The higher price dispersion appear once again in the most competitive markets, where numerous retailers are operating.
- The difference between 2022 and 2015-2021 is noticeable in most of the European markets. The most interesting cases with remarkable increases are Slovenia, Greece, France, Czech Republic, Italy and the Netherlands, whereas in some countries the price dispersion decreased respectively (specifically in Romania, Bulgaria and Croatia).

- In recent years, an increasing upward trend has been observed in the annualised price dispersion (the difference between the most expensive and least expensive retail electricity contract). The phenomenon was even more significant starting from the second half of 2021, reaching the 1200 € mark in August 2022.
- This can be attributed to the general distortion in retail markets, creating such gaps recently, as many suppliers are struggling with rising wholesale prices and thus raising their retail prices to survive; some are setting prices which protect them from future risk (suppliers would rather not offer at all than take excessive risks); whilst other better hedged suppliers, including also those with own generation, as well as those with stronger balance sheets are able to still offer more competitive offers.
- It is important to note that this price dispersion does not take account of the difference between regions or between customers with existing contracts and present offer prices.



The above graph shows the difference between the most expensive and least expensive electricity retail offer available for households in 2022 (until August), compared to the average of the period 2015-2021. Prices concern consumers with the typical consumption profile of each market. Data is collected 3 times a year (April, August and December) from price comparison sites and / or supplier websites and correspond to the first day of the month

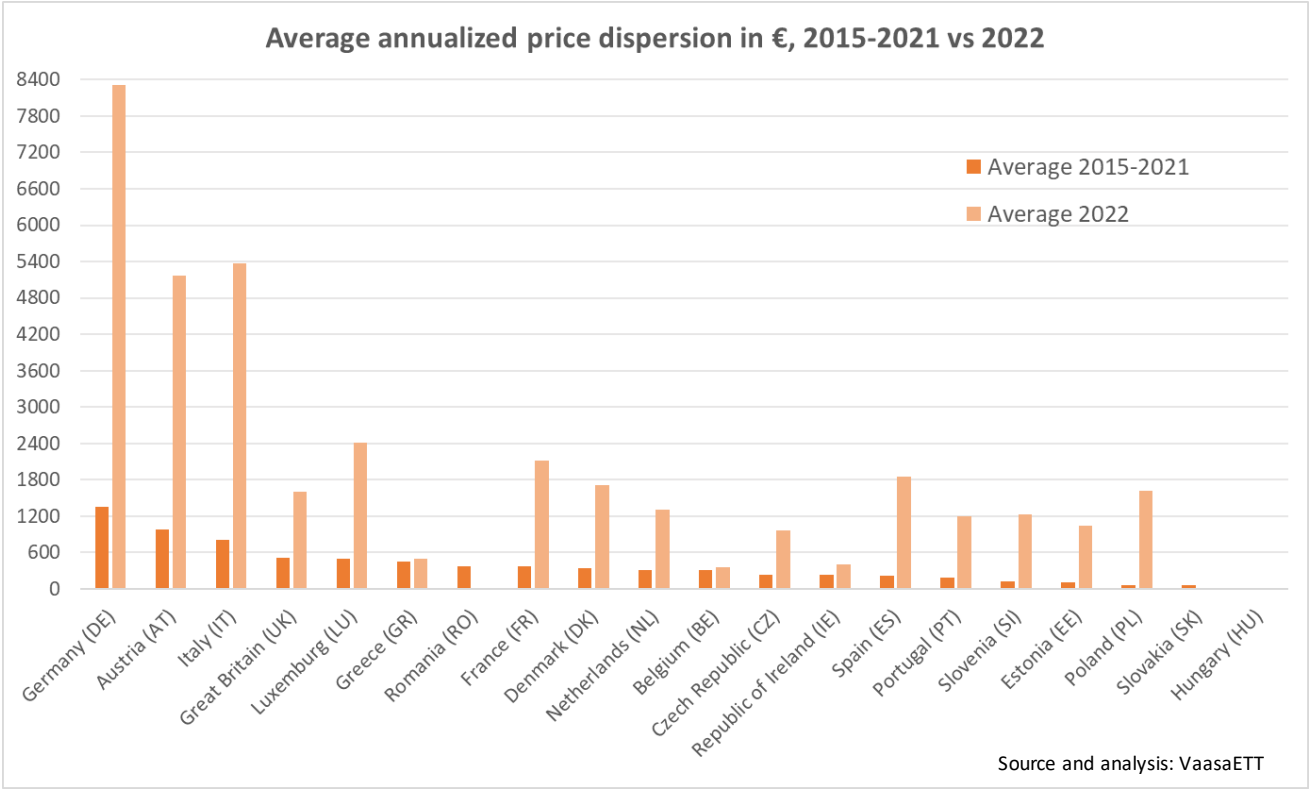
development of **gas** price dispersion



The above graph shows the average difference between the most expensive and least expensive natural gas retail offer, available for households in EU27 and Great Britain, for the period 2015-2022. Prices concern consumers with the typical consumption profile of each market. Data is collected 3 times a year (April, August and December) from price comparison sites and / or supplier websites and correspond to the first day of the month.

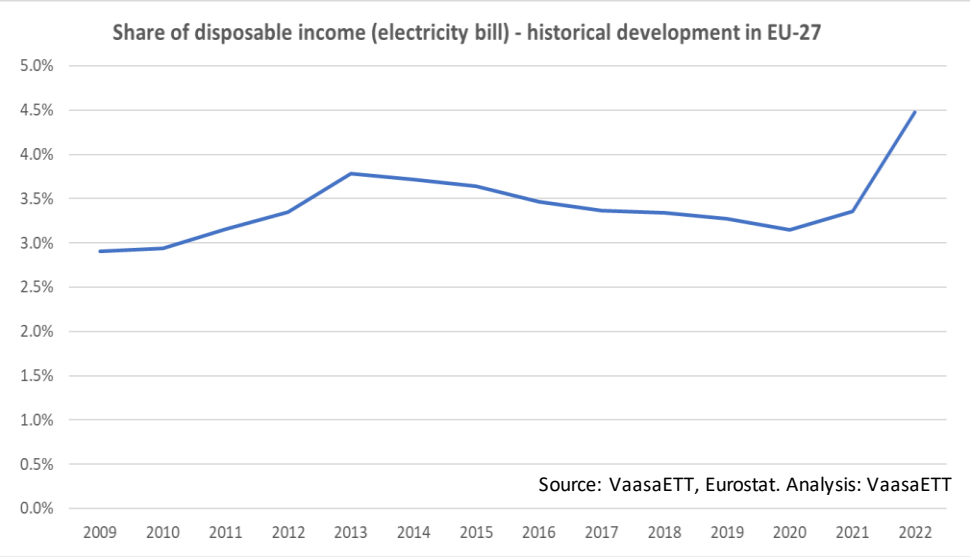
- The higher price dispersion appears once again in the most competitive markets, where numerous retailers are operating.
- The difference between 2022 and 2015-2021 is noticeable in most of the European markets. Some interesting cases with the most remarkable increases are Poland, Estonia, Slovenia, Spain, Italy, Portugal and Germany. On the other hand, in only a couple of countries the price dispersion decreased (specifically in Romania and Slovakia).

- In recent years, an increasing trend has been observed in the annualised price dispersion (the difference between the most expensive and least expensive retail gas contract). The phenomenon was even more significant starting from the second half of 2021, nearly reaching 2000 €, in August 2022.



The above graph shows the difference between the most expensive and least expensive natural gas retail offer available for households in 2022 (until August), compared to the average of the period 2015-2021. Prices concern consumers with the typical consumption profile of each market. Data is collected 3 times a year (April, August and December) from price comparison sites and / or supplier websites and correspond to the first day of the month

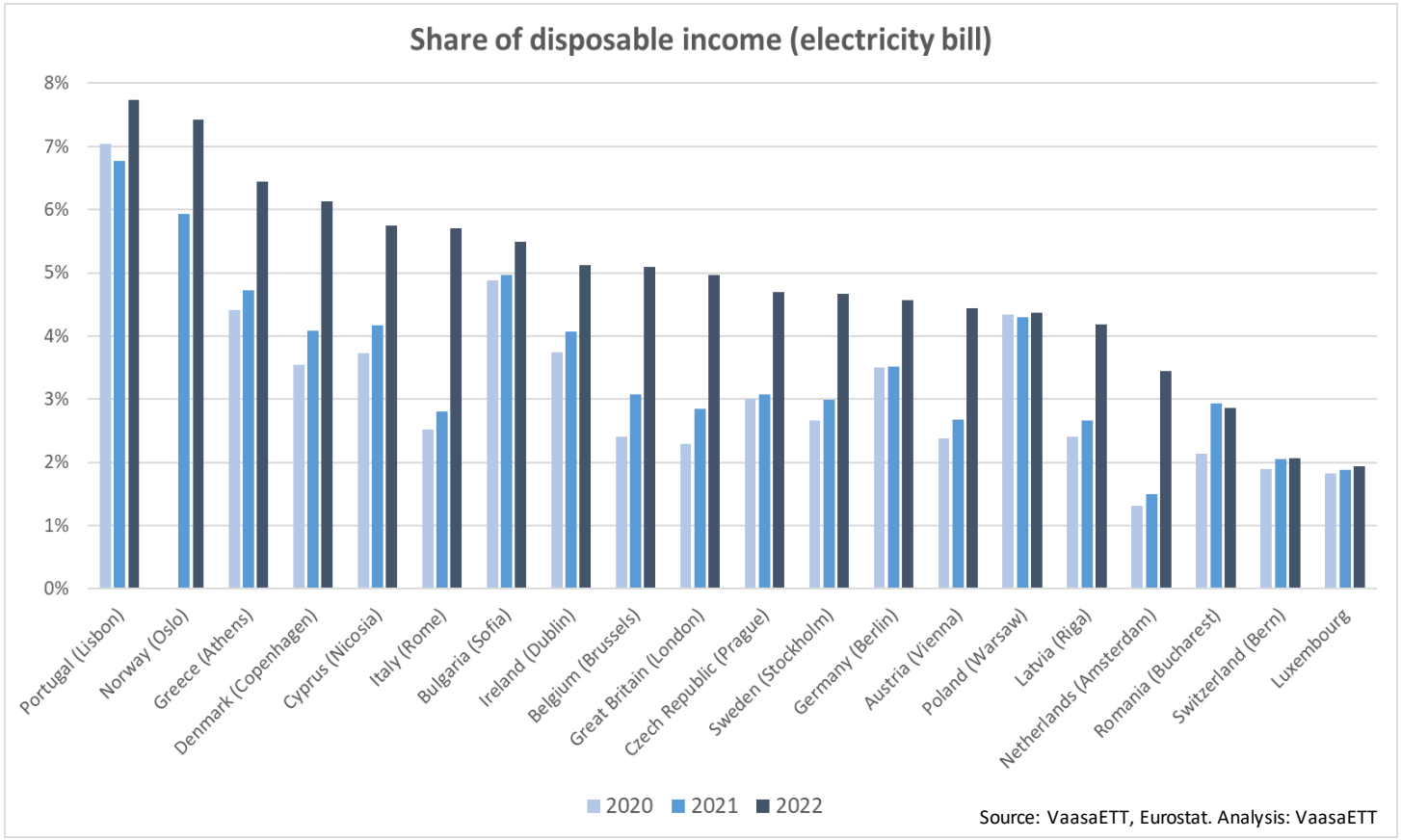
electricity as share of disposable income



The above graph shows the all-in electricity bill (including energy, taxes, network charges and subsidies) as a percentage of the latest available corresponding years' real adjusted gross disposable income of households per capita in PPS (Purchasing Power Standard). EU27 markets (capital cities) are aggregated unweighted. Price data until September 2022. Source of disposable income data: Eurostat.

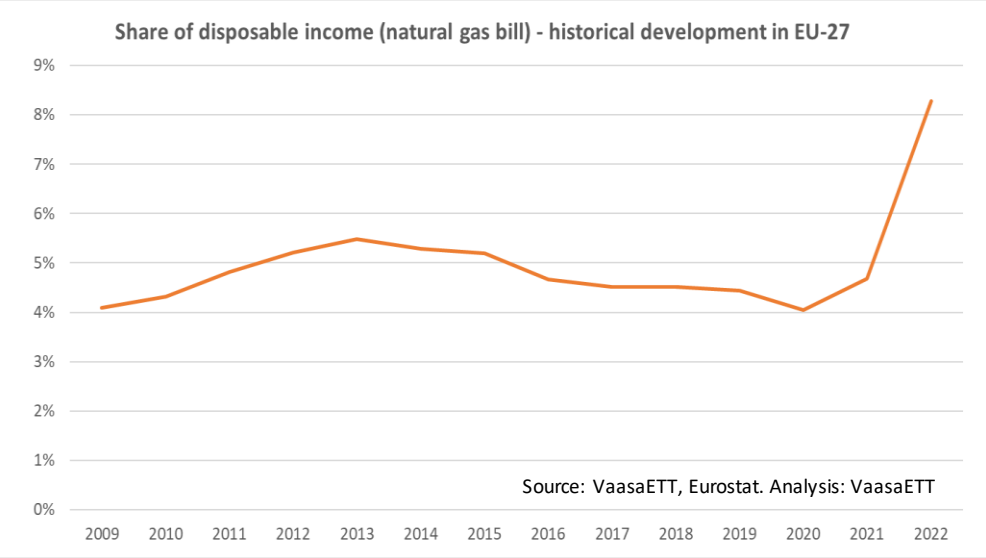
- Since 2020, the share of disposable income being spent on electricity bills has followed an increasing trend in European markets, leading to its highest value in 2022, at the climax of the energy crisis (+30% compared to 2021).
- When comparing 2022 with previous years, there are some markets where the increase is substantial (specifically the Netherlands and Italy almost doubled), while there are others like Poland, France and Luxembourg with a more flat share development in recent years. However, the general trend remains upwards.

Note: The energy bill as a share of disposable income is being calculated based on the real adjusted gross disposable income of households per capita in PPS. The latest available PPS value has been used whenever values have not been updated for the corresponding year. Specifically, the PPS values have not been updated for 2022 and thus the latest available values have been used in the calculations. In reality, it is expected that the shares in 2022 would have been even higher.



The above graph shows the all-in electricity bill (including energy, taxes, network charges and subsidies) for selected markets (capital cities) as a percentage of the latest available corresponding years' real adjusted gross disposable income of households per capita in PPS (Purchasing Power Standard). 2022 Price data until September. EU27 markets (capital cities) are aggregated unweighted. Source of disposable income data: Eurostat.

gas as share of disposable income

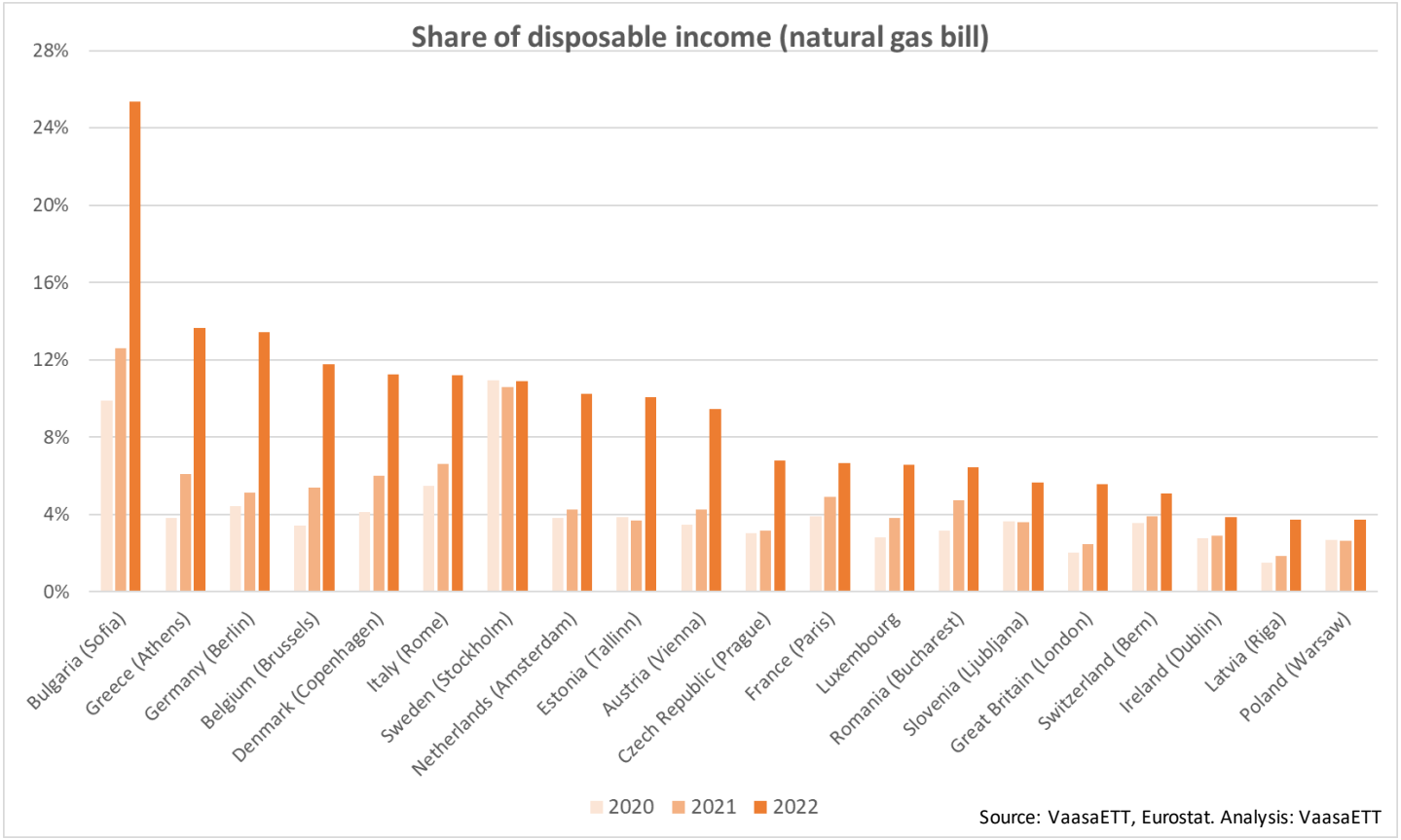


The above graph shows the all-in natural gas bill (including energy, taxes, network charges and subsidies) as a percentage of the latest available corresponding years' real adjusted gross disposable income of households per capita in PPS. (Purchasing Power Standard). EU27 markets (capital cities) are aggregated unweighted. Price data until September 2022. Source of disposable income data: Eurostat.

- The increasing trend in the share of disposable income is even more apparent in the natural gas market, leading to its highest value in 2022, at the climax of the energy crisis (+70% compared to 2021). The share of disposable income spent for gas constitutes almost double the share spent for electricity.

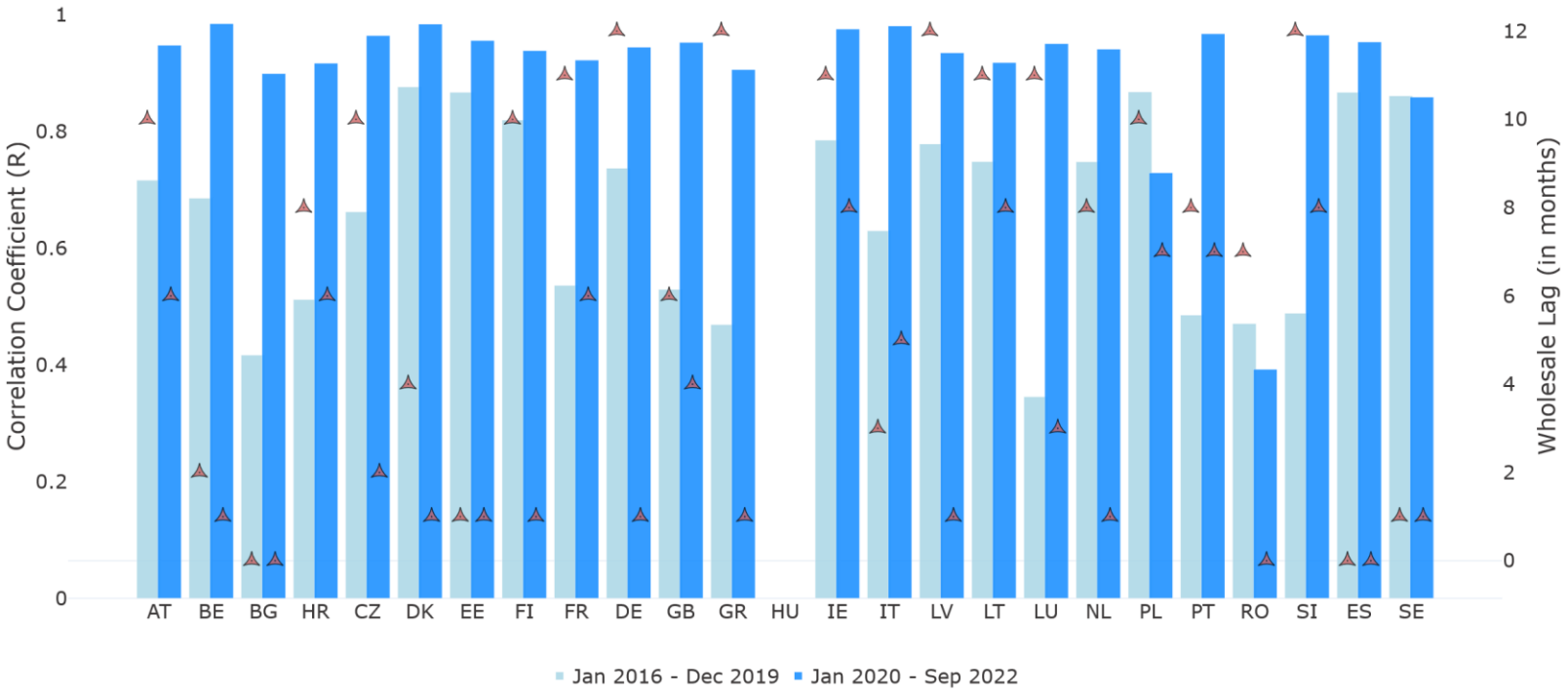
- When comparing 2022 with previous years, there are quite a few markets where the increase is substantial (specifically Germany, Great Britain, the Netherlands, Estonia, Belgium, Latvia, Austria, Czech Republic, Greece and Spain more than doubled), while there are others like Sweden and Hungary with a more flat share development in recent years. However, the general trend remains upwards.

Note: The energy bill as a share of disposable income is being calculated based on the real adjusted gross disposable income of households per capita in PPS. The latest available PPS value has been used whenever values have not been updated for the corresponding year. Specifically, the PPS values have not been updated for 2022 and thus the latest available values have been used in the calculations. In reality, it is expected that the shares in 2022 would have been even higher.



The above graph shows the all-in natural gas bill (including energy, taxes, network charges and subsidies) for selected markets (capital cities) as a percentage of the latest available corresponding years' real adjusted gross disposable income of households per capita in PPS (Purchasing Power Standard). EU27 markets (capital cities) are aggregated unweighted. 2022 price data until September. Source of disposable income data: Eurostat.

electricity retail energy-component relation to wholesale price

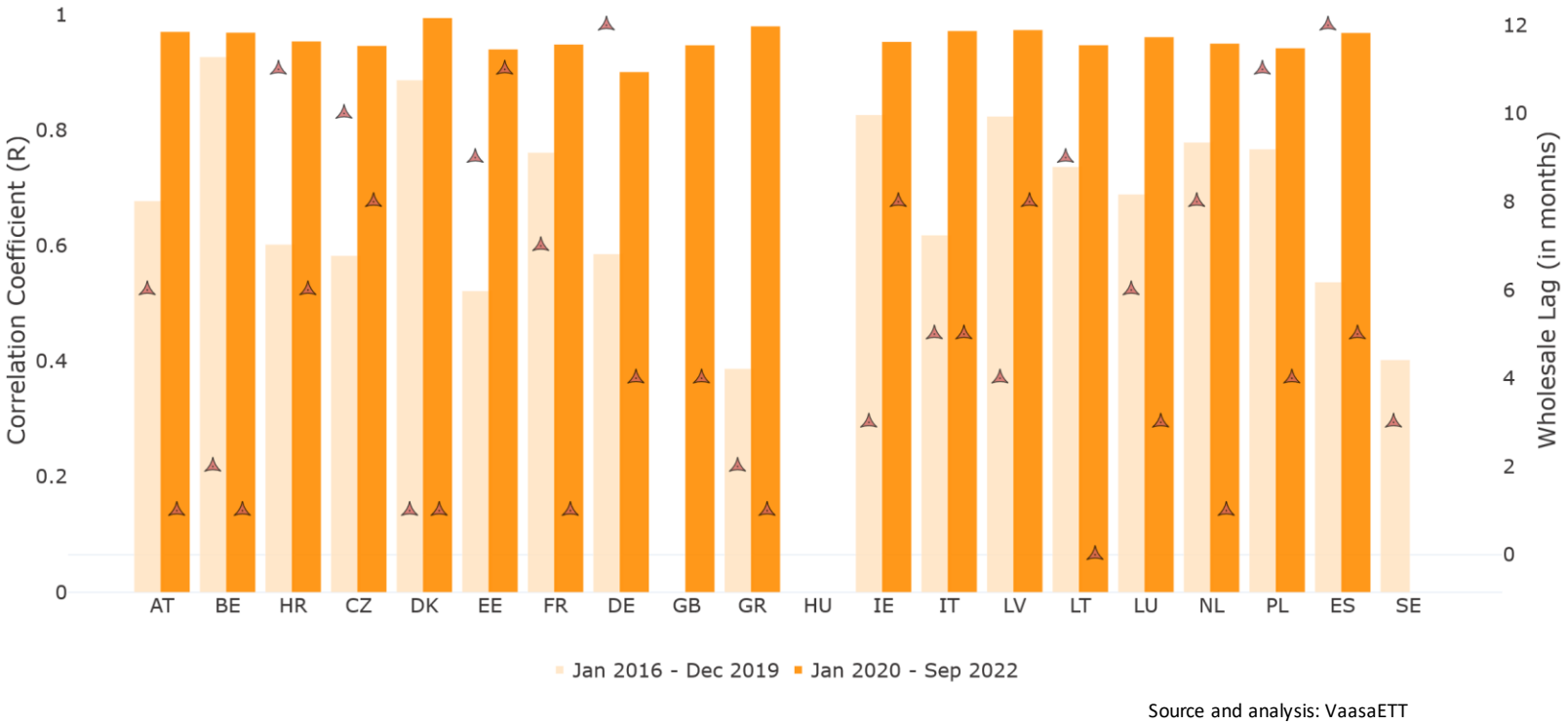


Source and analysis: VaasaETT

*The above graph presents the **maximum positive** statistically significant correlations and average time lag between the wholesale (spot) price and the retail energy component. In the case of Hungary negative significant correlations have been observed but discarded from the graph for readability ease due to inverse price behaviour.*

- Retail bills (the energy component) have become significantly more reflective of wholesale price alterations amid the recent crisis as suppliers have adjusted their price setting strategies and tariff mix.
- Fixed-pricing contracts, previously seen as a customer-locking mechanism that supported hedging, now pose a significant risk for suppliers (or are too expensive in practice) and have become less of the tariff mix.
- Consumer protection measures that impact the energy component (as opposed to taxes, VAT or network) have however been counter-balancing the changes, however and consequently, not all markets have moved in the same direction. In Estonia for instance, the price-cap compensation scheme implemented from Jan/22 to Mar/22 temporary halted the penetration rate of wholesale to the energy component of retail. ARERA's measures during the energy crisis also led to an increase of time-lag.
- Hungary's highly regulated market does not show any statistically significant positive correlation between wholesale and retail energy component for either time periods.

gas retail energy-component relation to wholesale price

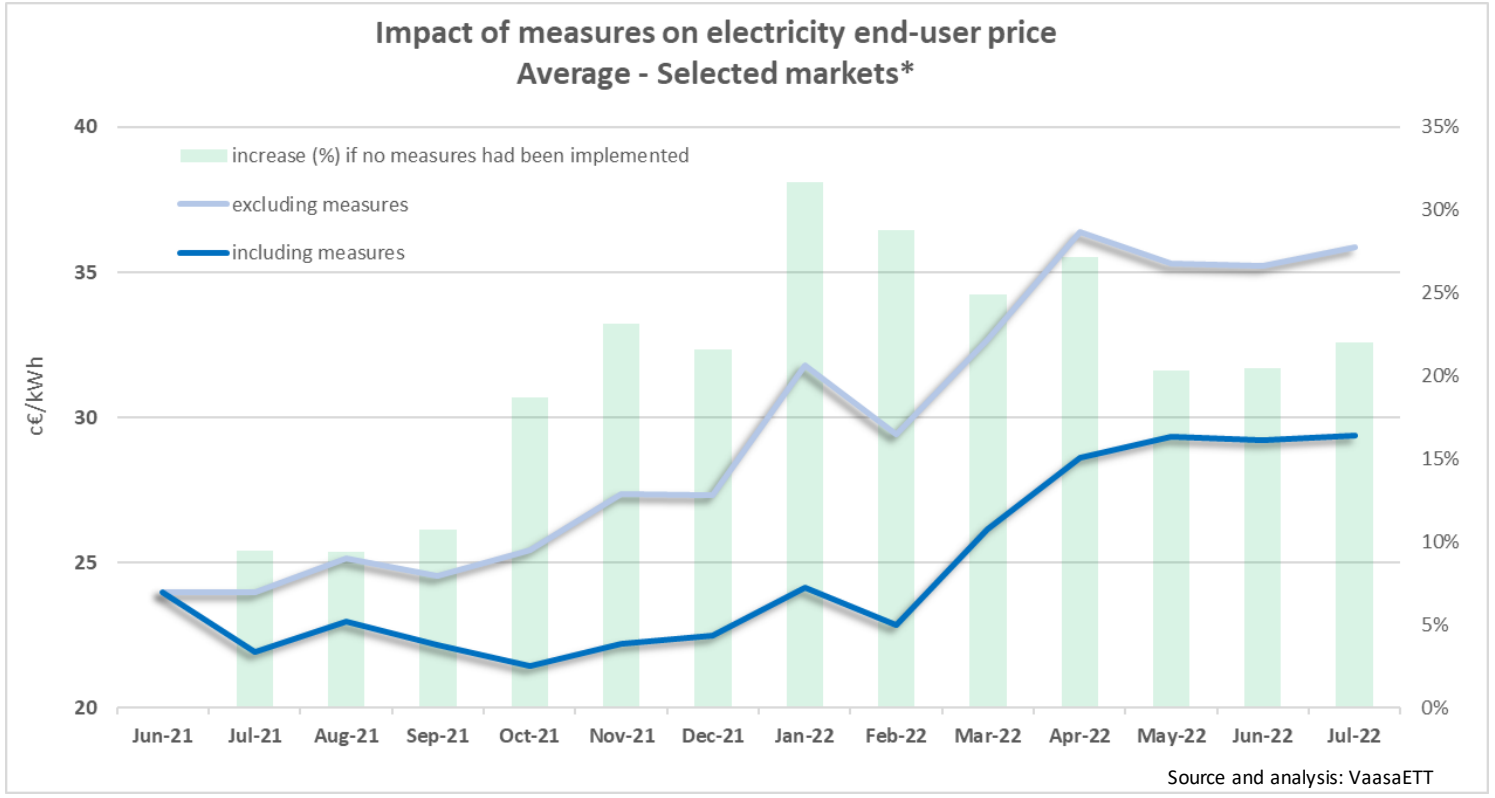


Source and analysis: VaasaETT

*The above graph presents the **maximum positive** statistically significant correlations and average time lag between the wholesale (spot) price and the retail energy component. In some cases (Hungary, Sweden, GB) negative significant correlations have been observed but discarded from the graphs for readability ease due to inverse price behaviour.*

- Retail bills (the energy component) have become significantly more reflective of wholesale price alterations amid the recent crisis as suppliers have adjusted their price setting strategies and tariff mix.
- Fixed-pricing contracts, previously seen as a customer-locking mechanism that supported hedging, now pose a significant risk for suppliers (or are too expensive in practice) and have become less of the tariff mix.
- Consumer protection measures that impact the energy component (as opposed to taxes, VAT or network) have however been counter-balancing the changes, however and consequently, not all markets have moved in the same direction. In Latvia for instance, a 4-month gas-subsidy slightly delayed the penetration of wholesale to the retail energy component.
- Hungary's highly regulated market does not show any statistically significant positive correlation between wholesale and retail energy component for either time periods.
- The Swedish retail household gas-market is limited and is nowadays supplied primarily by biogas, hence the zero positive correlation in recent years.
- For Ireland, wholesale data samples are limited prior to Apr/2019 which impairs the statistical capacity for drawing conclusions between the two time-periods.

impact of temporary **electricity** measures

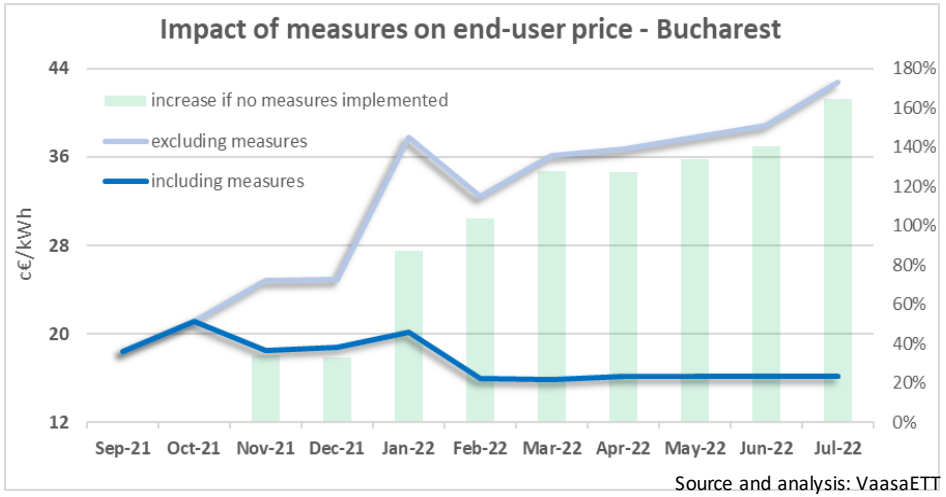


Source and analysis: VaasaETT

*The above graph shows the average all-in retail price of electricity markets that adopted measures to reduce household bills, compared to the price excluding those measures, alongside the respective percentage of the increase if the measures had not been considered. Each market is taken into account in the graph only for the period of implementation of its measures. The analysis only takes into consideration support measures applicable for typical residential customers living in the capital cities of the analysed countries. Targeted measures (e.g. for vulnerable customers, businesses) that have been applied in many countries are not taken under consideration in this analysis. Additional measures that have been applied in some countries directly on their wholesale market (e.g. price ceilings in ES, PT, GR, FR) are not depicted in this analysis. *Selected markets include: AT, BE, CZ, CY, EE, FR, DE, GR, IE, IT, LV, LU, NL, NO, PL, PT, RO, SI, ES.*

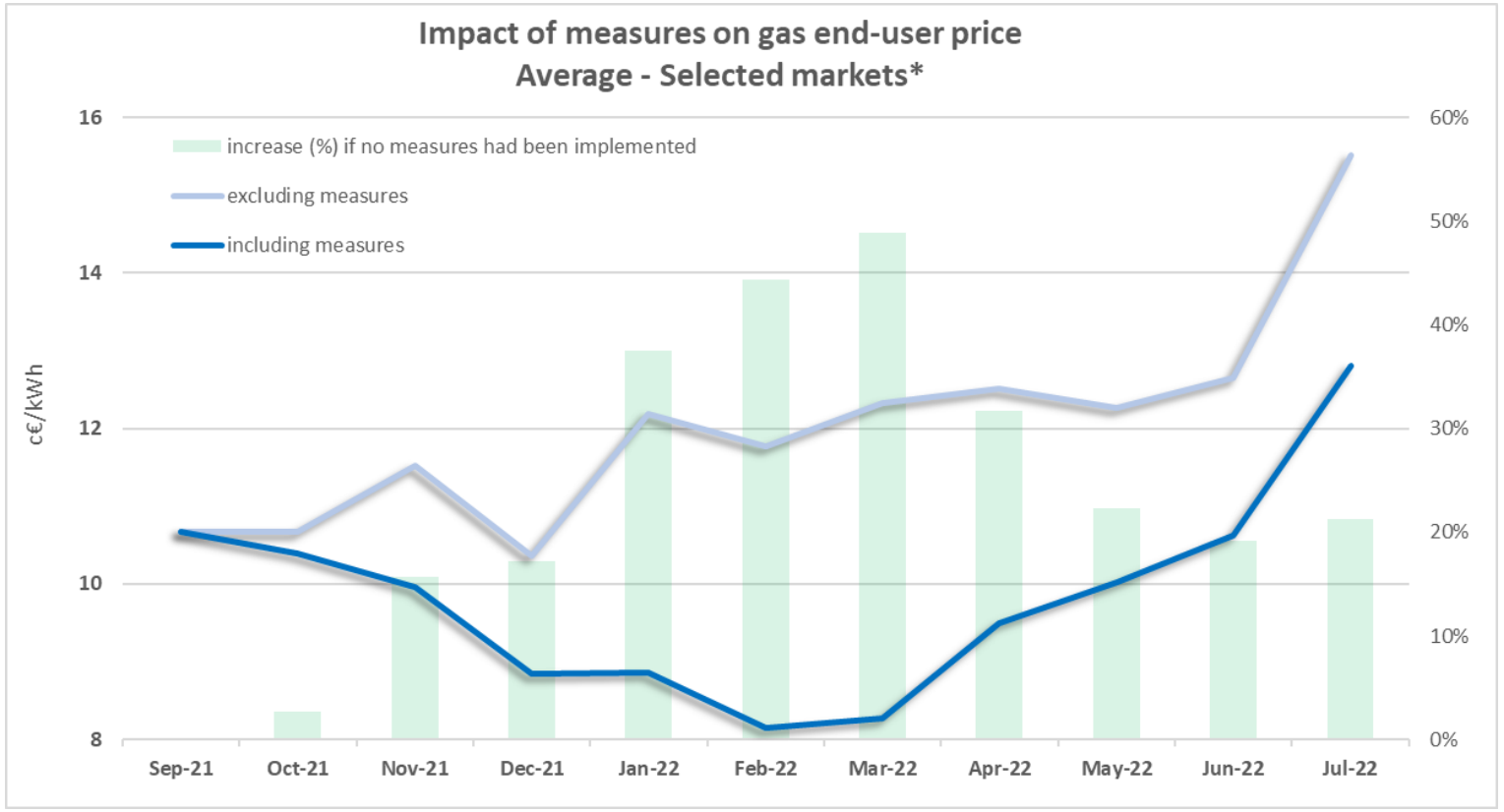
- As of July 2022, 58% of the European electricity markets have implemented measures, since the onset of the crisis (out of 33 studied markets). The first countries to do so were Italy and Spain, starting from July 2021, followed by Greece in September 2021. Most countries had already adopted at least one measure in January 2022.
- Only a few markets (2 out of 19) have ended their measures, while some have applied extensions or evolved their measures.
- The most common measures were tax reduction (63%), VAT reduction (37%), energy subsidy/compensation (16%) and price caps (16%).
- On average, the electricity price (among the countries that adopted measures) would have been 22% higher in July 2022, if no measures had been implemented. 32% was the respective value in January 2022, when the measures had the highest impact on retail prices.

- Bucharest (Romania) is an interesting case, as the price cap that has been implemented along with an energy compensation, had the biggest impact among the studied countries. The electricity price in July 2022 would have been 165% higher if no measures had been adopted.



Source and analysis: VaasaETT

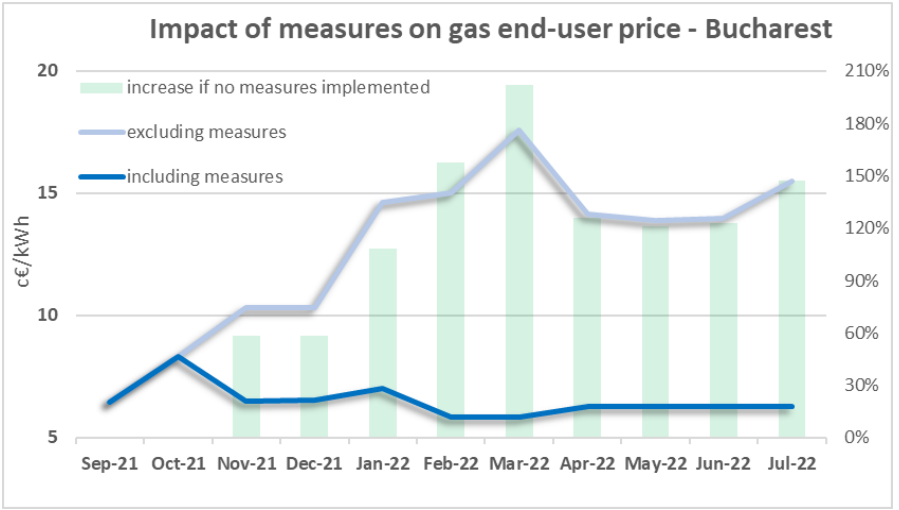
impact of temporary **gas** measures



Source and analysis: VaasaETT

*The above graph shows the average all-in retail price of natural gas markets that adopted measures to reduce household bills, compared to the price excluding those measures, alongside the respective percentage of the increase if the measures had not been considered. Each market is taken into account in the graph only for the period of implementation of its measures. The analysis only takes into consideration support measures applicable for typical residential customers living in the capital cities of the analysed countries. Targeted measures (e.g. for vulnerable customers, businesses) that have been applied in many countries are not taken into consideration in this analysis. *Selected markets include: AT, BE, BG, HR, CZ, EE, GR, IE, IT, LV, LT, NL, PL, RO.*

- 50% of the European gas markets implemented measures (out of 28 studied markets). The first countries to do so were Italy and Greece, starting from October 2021 followed by Czech Republic and Romania in November 2021.
- Only a few markets (3 out of 14) have ended their measures, while some have applied extensions or evolved their measures.
- The most common gas measures were VAT reduction (57%), tax reduction (29%), energy subsidy/compensation (29%) and price caps (14%).
- On average, the gas price (among the countries that adopted measures) would have been 21% higher in July 2022, if no measures had been implemented. 49% was the respective value in March 2022, when the measures had the highest impact on retail prices.



Source and analysis: VaasaETT

- Bucharest (Romania) is an interesting case, as the price cap that has been implemented along with an energy compensation, had the biggest impact among the studied countries. The electricity price in March 2022 would have been more than 200% higher if no measures had been adopted.

Conclusions & Policy Suggestions

Based on the research conducted for this project and VaasaETT's broader research into this topic we recommend the following courses of action to manage energy prices:

Tax & VAT reduction

A significant, albeit falling share of the energy bill is comprised of taxes and VAT. Notwithstanding the fiscal implications for member states of reducing taxes, a quick and simple way to lower costs is through the elimination of taxes. This measure is already being implemented in many markets to some degree, but taxes remain significant in many markets. Given the likely longevity of the energy crisis, such taxes cannot be reduced only short-term, however, and therefore the removal of taxes from energy bills (possibly even full removal of taxes) should be seen as a long-term, if not permanent move. The risk with such a measure, however, as we have seen in some markets, is that energy prices may increase to fill at least some of the void left by tax reductions, neutralising the benefits for customers. Such a measure, in the absence of true competition or high incumbency, is likely to lead to a muted impact.

Subsidies and compensation

While these measures can clearly reduce prices, we feel that they reduce the transparency of and distort the market. In any case such measures, as with tax/VAT reductions would need to be seen as long-term commitments. It can also be argued that there is little point charging tax/VAT and then paying it back through subsidies.

Price Caps

Price caps can keep prices low, but since retail margins are already so low across the industry, in general the only way they can keep prices significantly below what they would anyway be in a competitive market is through subsidizing those prices or the companies that provide them. In Great Britain, where net margins were extremely low even before the implementation of the price cap, the price cap served to reduce prices to negative margin levels, on a path guided mainly by and in line with by wholesale development. Keeping prices to an affordable level during the crisis inevitably ultimately required an extreme subsidized cap no longer reflective of wholesale prices. Price caps in the absence of wholesale measures (or even reform) therefore derive limited impact in the absence of subsidization.

Wholesale market changes

What is absolutely clear is that most energy-component prices follow wholesale (spot) and futures at least relatively well. What's more, retail margins (both gross and net) are mostly low. While measures can be taken to cap retail prices or margins, the share of the bill which retail margins comprise is very small indeed. It is generally not the suppliers who are making windfall profits (except in some cases where they were extremely well hedged and even these suppliers' preferable hedges may run out long before the end of the energy crisis). The profits are being made up-stream in the wholesale market. It is therefore in the wholesale market that most cost can be taken out of energy bills.

Liquidity

Supplier working capital requirements (e.g. guarantees) relating to wholesale markets have risen to extreme levels during the energy crisis. Combined with the cost of hedging, suppliers both large and small are struggling to participate in the market. This not only increases costs but also increases risk which in turn is transferred to energy prices. In our view the potential for catastrophe is also now critical in some markets, whereby even large suppliers could fail, creating a domino effect in the wholesale market. Measures should be taken to reduce supplier working capital requirements, at least during the crisis. It should be noted that capital requirements are high for suppliers also in other respects (e.g. due to long consumer payment times and liability for the full stack in case of non-payment)

Savings Guidance

While far fewer tariffs are on offer to consumers during the crisis, few consumers are aware of the large savings opportunities that nevertheless exist in the retail market. Few are aware, too, of the implications and risks of different tariff options in a highly volatile wholesale market environment. It is not enough to have price comparison tools. Not all large suppliers are safe, not all small suppliers are dodgy. Fixed prices can increase security but not if set too high for too long. Variable tariffs may be cheaper now, but what if prices continue to rise. Market based price elements can be beneficial for EV charging but what about households with little ability to shift demand. What consumers need is clear guidance to help them become aware of the potential savings they face, the pros and cons of the different options available to them.

Increase customer awareness of savings opportunities - the case of the "**what's my number**" campaign.

Background

In 2011 the New Zealand Government (Electricity Authority) initiated a campaign called "What's My Number" to increase customer awareness of the significant savings that were known to exist in New Zealand (NZD 100 per year per customer in 2009 when the need for WMN was decided by ministers) but which were not being taken sufficient advantage of (customers were not switching enough).

The campaign in its original form took place from 2011-2019 at which point the WMN website was merged with the national "Powerswitch" price comparison and switching service.

Approach

The campaign was very simply. A heavily and well promoted website where in just a minute or so, customers could approximately identify how much they could save by switching to a cheaper supplier / tariff. If the customer then wanted to switch, they could then go to the price comparison service.

The objective of the campaign was simply to make customers aware of how much they personally could save, since many customers assumed switching would not be worth it and that the effort involved would be too great. By making the first step of the process incredibly easy (customer only needed to state where they lived, their type of home and heating etc. – just a few simple questions and they were then provided a single number for their estimated potential savings.

Impact

The impact of the campaign was extremely high. Switching in New Zealand increased massively over the early period of WMN (becoming the most active market in the world) and has been highly active ever since.

Between 1 Jan 2011-30 June 2018 there were 2m unique visitors to the WMN website. This represents almost as many visitors as there are customers in New Zealand. Similarly 2.9m switches took place on Powerswitch during the same time period.

Policy Implication

In a mature and highly active market where customers are highly aware of the opportunities afforded to them from switching, this kind of information might not be necessary (the reason why WMN was eventually merged with Powerswitch). However, in most European markets this is still not the case and a tool to highlight savings potential per customer is highly valuable.

In the context of the energy crisis we feel, however, that customers also need additional personalised information relating to for instance the right type of tariff for them and how to minimise their risks (e.g. associated with switching to a two year fixed contract at a high rate or a competitive low-rate tariff that may increase substantially.