Enabling energy market innovation

Citizens Advice

8 April 2026

FINAL REPORT

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EXECUTIVE SUMMARY

Context for this study

The default tariff cap and Universal Service Obligation (USO) are important elements of the current consumer protection arrangements in the Great Britain (GB) household retail electricity market, However, there are concerns about the suitability of their current designs for a future energy system that is more dynamic, decentralised and consumer-led. Therefore, Citizens Advice commissioned CEPA to carry out a study to inform its evidence base for assessing how reforms to the electricity retail market could enable greater innovation while maintaining strong consumer protections.

The study has two main deliverables – this report and a tool for illustrating the high-level price impacts of different reforms. Neither deliverable is intended to identify a single "best" reform through assessment against a typical set of policy criteria. Instead, they will help Citizens Advice to better understand how different types of reform might impact consumers and suppliers, and what risks would need to be managed if they were taken forward. This will then support engagement with policymakers and regulators, including Ofgem and DESNZ, and to inform public-facing work on retail reform.

Reforms considered in this study

The report considers six stylised reform options, which we developed in collaboration with Citizens Advice. These reforms fall into two broad groups: reforms to the price cap and reforms to the USO. We present these in the table below.

Table 0.1 Proposed reform design and rationale for consideration

Reforms		Description	Rationale for consideration
Price cap reforms			
R1	Simple TOU price cap	The current flat default tariff cap would be removed and replaced with a static TOU default tariff cap with two variable charge rates: • A higher rate during the day. • A lower rate at night. The current cap on the standing charge would be retained.	A ToU price cap has been raised by Ofgem in a 2024 discussion paper and 2026 call for input.[1 2]
R2	Complex TOU price cap	The current flat default tariff cap is replaced with a dynamic TOU tariff cap with different rates for 4-hour time blocks based on electricity forward agreement (EFA) blocks.[3] The tariff will include seasonality, with different rates in summer and winter. The current cap on the standing charge would be retained. The TOU tariff cap will be an 'average cap' where there is a limit to the average rate that consumers receive for a given EFA block, for a given period of time (e.g. a month). However, consumers can receive	See above.

[1] Ofgem (2024), *Future of domestic price protection,* Discussion Paper, 25 March, p. 37-40.

[2] Ofgem (2026), *Energy price cap: technical approach to Market Wide Half-Hourly Settlement*, Call for Input, 25 March, p. 5.

[3] EFA blocks are the standardised 4-hour periods used in the Great Britain energy market for trading electricity, dividing the day into six blocks starting from 11pm.

Reforms		Description	Rationale for consideration
		rates that are above the cap for a given EFA block on any particular day. This may require a true-up.	
R3	Mass opt-out collective switching	The accounts of disengaged consumers are regularly auctioned off to suppliers, who compete to serve these consumers at the lowest price. Consumers can 'opt out' of being switched at any time by choosing an alternative supplier or tariff offer. As this approach takes a market solution to meet the needs of disengaged consumers, the centrally administered retail price cap is removed.	This was previously considered by government as an option to address the loyalty penalty,[4] however policy development was paused due to the energy crisis and mass supplier exits.[5]
Universal service obligation reforms			
R4	Default SOLR – single supplier	Supplier licence conditions that require suppliers to offer and supply to all customers under a domestic supply contract and provide a wide variety of payment options are removed. Instead, a single default supplier of last resort (SOLR) is nominated by the regulator to take over the obligation to provide universal service on behalf of all domestic customers who don't enter into a contract or who fall into debt.	Relaxing the USO has been raised through Ofgem's *Innovation in the energy retail market* consultation.[6]
R5	Default SOLR – multiple suppliers	Supplier licence conditions that require suppliers to offer and supply to all customers under a domestic supply contract and provide a wide variety of payment options are removed. Instead, multiple suppliers take over the obligation to provide universal service on behalf of all domestic customers who don't enter into a contract or who fall into debt. Default SOLRs compete to provide service to customers. Supply is provided for a set period of time, and then service contracts are auctioned off.	See above.
R6	Split meter model	Supplier licence conditions that require suppliers to offer and supply to all customers under a domestic supply contract and provide a wide variety of payment options are removed for secondary suppliers. A split meter model is introduced that allows consumers to have multiple suppliers providing energy for different purposes (e.g. for electric vehicle charging) or from different sources (e.g. local generation). Primary suppliers would retain the universal service obligation, while secondary suppliers would be free to specialise.	Meter splitting has been previously considered through B379 under the Balancing and Settlements Code (2021) and raised as a potential option by DESNZ in its 2023 Call to Evidence, *Towards a more innovative energy retail market* now the smart meter roll out has progressed further.[7]

[4] BEIS (2021), *Domestic energy retail consultation: Opt-in switching and testing opt-out switching*, July.

[5] BEIS, Statement made on 15 December 2021, Statement UIN HCWS497, available online here.

[6] Ofgem (2024), *Innovation in the energy retail market*, Consultation, 2 October, p. 24.

[7] DESNZ (2023), *Towards a more innovative energy retail market*, A call for evidence, July, p. 11.

Outcome of our analysis

We assess the reforms against three consumer outcomes, which are:

- All consumers have access to affordable energy.[8]
- Customers are offered a wide variety of retail propositions from a range of different retailers.
- Retailers earn sustainable but not excessive margins.

We also estimate the long-term impact of each reform on retail electricity prices. The impact on retail electricity prices maps to two of our consumer outcomes: i) affordable energy, and ii) sustainable supplier margins. Our estimates are presented as a range, which represents a low and high case.[9]

The reforms are assessed against the counterfactual, which is the current state of the world, in which the current flat price cap and USO policies persist.

Table 0.2 Overview of our assessment of the impact of our reform options

Reform	Consumer outcomes			Retail electricity price impact
	Affordable energy	Sustainable supplier margins	Offer variation	
Reform to price cap				
R1: Simple Time-of-Use (ToU) price cap	Small improvement	Small improvement	Small improvement	-0.6% to -0.6%
R2: Complex ToU price cap	Small improvement	Small improvement	Small improvement	-0.9% to -1.3%
R3: Auction to serve disengaged customers	Small improvement	Small deterioration	Small improvement	-2.0% to -5.1%
Reform to the Universal Service Obligation (USO)				
R4: Replace the USO on all suppliers with a single default supplier	Small improvement	Direction of impact may vary	Small improvement	-1.3% to -1.8%
R5: Replace the USO on each supplier with a collective USO across multiple designated suppliers	Small improvement	Direction of impact may vary	Small improvement	-2.0% to -3.0%
R6: Split meter model with secondary suppliers	Small improvement	Small deterioration	Small improvement	-1.3% to -2.2%

Overall, we find evidence that the reforms will have positive impacts on the affordability of energy, the variation of offers, and the retail electricity price. The impact on the sustainability of supplier margins is more mixed.

However, the evidence indicates that each reform involves trade-offs between competition, innovation, resilience, consumer engagement, and input costs. The trade-offs are elabourated on in the main body of the report; by looking at how the reforms affect different impact channels.

[8] Electricity affordability here is defined as the ability for a reform to reduce the efficient cost of delivering electricity, holding the supplier margin constant.

[9] The range is derived from the confidence interval from our regression analysis. The regression analysis feeds into the estimation of the elasticities of the impacts of drivers on retail electricity prices, one component of the calculation of the price impact.

Across the options, impacts may vary significantly **within** as well as **between** consumer groups based on standard definitions. For example, the impact on customers 'disengaged' from the market of moving to a ToU price cap will depend on the underlying demand profile and ability or willingness to be flexible in timing of electricity demand.

Relaxing the USO can create a more conducive environment for innovation through specialisation. However, this means that benefits are likely to be incremental rather than transformational. Many innovative products can already be offered under current arrangements. USO reforms may therefore deliver targeted benefits - particularly for niche suppliers - rather than broad market-wide changes.

Given these trade-offs, a priority for future work to inform development and decisions on preferred policy options should be to clarify how Citizens Advice and other stakeholders view the appropriate balance for these trade-offs rather than hoping to find a solution that eliminates them.

How Citizens Advice can use this study

This study provides Citizens Advice with a structured and transparent framework to:

- **Identify priorities for further analysis,** such as deepening the evidence base on distributional impacts, particularly for fuel-poor and disengaged consumers. In addition, Citizens Advice should consider the scope for pilots or targeted trials, before considering wider roll-out.
- **Inform policy engagement with regulators, government and other stakeholders**, by clearly articulating the routes through which how different reforms affect consumer outcomes. This includes applying this structured framework to new and/or refined reform options.
- **Clarify position on how to balance trade-offs**, helping policymakers and other stakeholders understand that innovation, affordability and protection cannot all be maximised simultaneously.

This report equips Citizens Advice with the analytical framework and supporting evidence to help it to play a constructive role in shaping a retail market that supports innovation while remaining firmly grounded in consumer protection.

1. INTRODUCTION

1.1. Context

To supply electricity in Great Britain (GB), a supplier needs to obtain a licence and agree to be subject to regulation by Ofgem. The licence sets out the obligations placed on the supplier to supply energy in GB, in a series of 'licence conditions'. This includes Standard Licence Condition 22 (SLC) that sets out the Universal Service Obligation (USO), which requires suppliers to offer any domestic consumer terms to enter into a supply contract. This includes deemed contracts for premises in which a consumer has moved into a property in which the supplier already supplies the property. However, the supplier does not need to offer each consumer every product.

The default tariff cap and Universal Service Obligation (USO) are important elements of the current consumer protection arrangements in the GB household retail electricity market, However, there are concerns about the suitability of their current designs for the Government's clean power vision (2030) and net zero targets (2050) of a future energy system that is more dynamic, decentralised and consumer-led.

As the statutory watchdog and consumer advocate for energy services in GB,[10] Citizens Advice has an interest in ensuring that households can access retail energy products that meet their needs, both now and in a future, smarter system. At the same, Citizens Advice wants to ensure that retail innovation supports the energy transition in ways that deliver value, protect vulnerable consumers, and do not leave disengaged households worse off.

Propositions for retail market reform have been put forward by Citizens Advice and Energy Systems Catapult,[11] [12] but there is a lack of evidence of their impact and viability, which is preventing them from being taken forward.

Therefore, Citizens Advice commissioned CEPA to carry out a study to inform its evidence base for assessing how reforms to the electricity retail market could enable greater innovation while maintaining strong consumer protections. This study will then support engagement with policymakers and regulators, including Ofgem and DESNZ, and to inform public-facing work on retail reform.

1.2. Purpose of this report

The study has two main deliverables – this report and a tool for illustrating the high-level price impacts of different reforms. Both deliverables are designed to provide insights and evidence rather than identifying a single "best" reform through assessment against a typical set of policy criteria.

This report combines qualitative and theoretical evidence, quantitative insights and discussion of the reform options to help Citizens Advice better understand how different types of reform might impact on consumers and suppliers, and what risks would need to be managed if they were taken forward.

The simple price impact simulation tool quantitatively illustrates how reforms could plausibly impact key retail market drivers and how in turn these drivers shape the retail electricity price. We use the evidence gathered through our mixed-methods approach to calibrate the model inputs. This means that while the outputs of this model are quantitative, they are influenced by qualitative estimates of the impact of the reform on the relevant driver (e.g. innovation).

Citizens Advice are carrying out two other studies that will provide relevant insights into the reforms discussed in this report – consumer research to gather qualitative feedback on possible reforms, and quantification of the distributional impacts of consumer-led flexibility. Citizens Advice can use the evidence gathered from both of those studies to build on the outputs of our study, both the analytical framework set out in the main body of the report and

[10] Citizens Advice is also the consumer watchdog for postal services.

[11] Citizens Advice (2024), *Citizens Advice Response to Ofgem's Innovation in the Energy Retail Market*, November, p. 9.

[12] Energy Systems Catapult (2025), *Exploring the secondary supplier model*, 21 May.

in the price impact simulation tool. For example, additional information on the distributional impacts of consumer-led flexibility can inform refinements of the elasticities in the tool for the impact of a reformed price cap (R1, R2) on input costs.

1.3. Structure of this report

This report is broadly structured in five parts:

- **Executive Summary:** short, accessible digest of the main findings from our gathering and review of qualitative and quantitative evidence on retail market dynamics in GB and internationally.
- **The rest of the main report (Chapter 2 to Chapter 10):** Accessible description of approach and findings structured around each reform option.
- **Supporting evidence and rationale in Appendix A, Appendix B, and Appendix C:** These appendices provide more information explaining our approach, and justifying our classification of the different impacts.
- **Technical evidence in Appendix D and Appendix E:** This is designed for readers who want a more in-depth view of the evidence base collected through secondary data research and primary data analysis: collected through secondary data research and primary data analysis respectively.
- **Appendix F:** This sets out the estimated elasticities included in the price impact simulation tool that we will provide separately.

2. RATIONALE FOR REFORM OPTIONS

In this section we expand outline the price cap and USO policy that the proposed reforms are designed to replace. We also set out our six reforms, and the rationale behind their inclusion.

In Appendix A we provide more detail of the challenges in this policy space, and how our proposed reforms map to these challenges.

2.1. PRICE CAP

Domestic supply contracts (DSCs) can vary in structure, with the main types including:

- Standard variable tariffs (SVTs) with a standing charge and variable unit rate(s).
- Fixed-term tariffs, which set the standing charge and unit rate(s) for a fixed term (often 12–24 months).
- ToU tariffs, where prices vary by time of day.

Customers can choose the supplier and tariff that best suit their needs from the offers available in the retail market. Where they do not make an active choice, for example at the end of a fixed-term agreement or after moving into a property already served by a supplier, they will be placed on the supplier's default tariff offer.

In GB, a default tariff cap limits the maximum unit rates and standing charges suppliers can charge domestic customers on default tariffs. The cap was introduced under the Domestic Gas and Electricity (Tariff Cap) Act 2018 and took effect from 1 January 2019 in the form of a flat maximum price per unit (kWh) of electricity and a maximum daily standing charge.[13] [14] The design of the cap emulated the typical tariff structure at the time (a SVT), and the tariff level was updated every 6 months. This was changed to quarterly updates in August 2022 to better handle price volatility resulting from the 2022-23 energy crisis.

The default tariff cap applies to a significant proportion of the market, with approximately 58% of customers on a default tariff.[15] Before the 2022-23 energy crisis, around half of all customers were on a default tariff and default tariffs are expected to remain in use by a substantive portion of the market.[16]

Ofgem has recognised that the default tariff cap may need to evolve as the retail market becomes more dynamic. In its 2024 discussion paper, it identified the general risk that a flat, universal cap would become harder to sustain as consumption patterns diverge and more flexible customers move away from flat default tariffs.[17] Ofgem considered this would create a situation where lower-cost, more flexible customers would exit the flat default tariff while higher-cost customers remain, creating selection effects that push up the cap level needed for an efficient supplier to recover costs.[18] In its March 2026 call for input, Ofgem translated that concern into a more specific reform agenda linked to Market-wide Half-Hourly Settlement (MHHS). It states that, as suppliers' costs become more sensitive to

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[13] Ofgem, Energy price cap explained, accessed on 14 November 2025, available online here.

[14] For customers on multi-rate or Economy 7 metering arrangements, the unit rates included in the energy price cap are an average of the applicable unit rates based on expected energy usage during peak and off-peak periods. Ofgem, Get energy price cap standing charges and unit rates by region, accessed on 17 February 2026, available online here.

[15] Ofgem (2025), *Retail market indicators,* Number of domestic electricity customer accounts by supplier (excluding pre-payment customers): Standard variable, fixed and other tariffs (GB), July 2025.

[16] View expressed through consultation with Ofgem.

[17] Ofgem (2024), *Future of domestic price protection, Discussion Paper*, 25 March, p. 5-7, 24-28.

[18] Ofgem (2024), *Future of domestic price protection,* Discussion Paper, 25 March, p. 27-28.

customers' actual usage patterns, the cap may need to be adapted by updating the single-rate cap methodology and considers an option of moving all default customers to a ToU tariff cap. [19]

2.2. Universal service obligation

In the energy sector, the USO is set out in a number of licences conditions. Under SLC 22, suppliers have a duty to offer and supply to domestic premises under a DSC. Under SLC 27, suppliers with more than 50,000 domestic customers must provide customers on a DSC with a wide variety of payment options, including pre-payment meters and cash. In addition, SLC 22B contains the ban on acquisition-only tariffs (BAT), which limits the extent to which suppliers can target tariff offers only at new customers.[20]

The USO allows for some degree of specialisation in the retail electricity market. Suppliers are required to offer standard products to all consumers. However, they can still offer 'non-standard' products to a subset of consumers, as long as this complies with the BAT.

2.3. Description of reforms considered in this study

We have identified six potential retail market reforms to replace the policy outlined above and address the challenges described in Appendix A . Three focus on redesigning the price cap to mitigate issues created by the current flat default tariff structure, and three focus on changes to the USO to reduce barriers to innovation.

The reforms were developed in collaboration with Citizens Advice and are summarised in Table 2.1.

Table 2.1 Retail market reforms

Reforms		Description	Rationale for consideration
Price cap reforms			
R1	Simple TOU price cap	The current flat default tariff cap would be removed and replaced with a static TOU default tariff cap with two variable charge rates: • A higher rate during the day. • A lower rate at night. The current cap on the standing charge would be retained.	A ToU price cap has been raised by Ofgem in a 2024 discussion paper and 2026 call for input.[21] [22]
R2	Complex TOU price cap	The current flat default tariff cap is replaced with a dynamic TOU tariff cap with different rates for 4-hour time blocks based on electricity forward agreement (EFA) blocks.[23] The tariff will include seasonality, with different rates in summer and winter. The current cap on the standing charge would be retained. The TOU tariff cap will be an 'average cap' where there is a limit to the average rate that consumers receive for a given EFA block, for a given period of time (e.g. a month). However, consumers can receive	See above.

[19] Ofgem (2026), *Energy price cap: technical approach to Market Wide Half-Hourly Settlement*, Call for Input, 25 March, p. 5.

[20] Ofgem (2026), *Electricity suppliers Licence: Standard Conditions – Consolidated to 1 January 2026*, SLC 22, 22B and 27.

[21] Ofgem (2024), *Future of domestic price protection,* Discussion Paper, 25 March, p. 37-40.

[22] Ofgem (2026), *Energy price cap: technical approach to Market Wide Half-Hourly Settlement*, Call for Input, 25 March, p. 5.

[23] EFA blocks are the standardised 4-hour periods used in the Great Britain energy market for trading electricity, dividing the day into six blocks starting from 11pm.

Reforms		Description	Rationale for consideration
		rates that are above the cap for a given EFA block on any particular day. This may require a true-up.	
R3	Mass opt-out collective switching	The accounts of disengaged consumers are regularly auctioned off to suppliers, who compete to serve these consumers at the lowest price. Consumers can 'opt out' of being switched at any time by choosing an alternative supplier or tariff offer. As this approach takes a market solution to meet the needs of disengaged consumers, the centrally administered retail price cap is removed.	This was previously considered by government as an option to address the loyalty penalty,[24] however policy development was paused due to the energy crisis and mass supplier exits.[25]
Universal service obligation reforms			
R4	Default SOLR – single supplier	Supplier licence conditions that require suppliers to offer and supply to all customers under a domestic supply contract and provide a wide variety of payment options are removed. Instead, a single default supplier of last resort (SOLR) is nominated by the regulator to take over the obligation to provide universal service on behalf of all domestic customers who don't enter into a contract or who fall into debt.	Relaxing the USO has been raised through Ofgem's *Innovation in the energy retail market* consultation.[26]
R5	Default SOLR – multiple suppliers	Supplier licence conditions that require suppliers to offer and supply to all customers under a domestic supply contract and provide a wide variety of payment options are removed. Instead, multiple suppliers take over the obligation to provide universal service on behalf of all domestic customers who don't enter into a contract or who fall into debt. Default SOLRs compete to provide service to customers. Supply is provided for a set period of time, and then service contracts are auctioned off.	See above.
R6	Split meter model	Supplier licence conditions that require suppliers to offer and supply to all customers under a domestic supply contract and provide a wide variety of payment options are removed for secondary suppliers. A split meter model is introduced that allows consumers to have multiple suppliers providing energy for different purposes (e.g. for electric vehicle charging) or from different sources (e.g. local generation). Primary suppliers would retain the universal service obligation, while secondary suppliers would be free to specialise.	Meter splitting has been previously considered through B379 under the Balancing and Settlements Code (2021) and raised as a potential option by DESNZ in its 2023 Call to Evidence, *Towards a more innovative energy retail market* now the smart meter roll out has progressed further.[27]

[24] BEIS (2021), *Domestic energy retail consultation: Opt-in switching and testing opt-out switching*, July.

[25] BEIS, Statement made on 15 December 2021, Statement UIN HCWS497, available online here.

[26] Ofgem (2024), *Innovation in the energy retail market*, Consultation, 2 October, p. 24.

[27] DESNZ (2023), *Towards a more innovative energy retail market*, A call for evidence, July, p. 11.

3. OUR APPROACH TO THIS STUDY

For this study, we used a mixed methods approach that draws on three complementary sources of evidence.

- **Economic theory:** which we use to establish expected directions of effect and to frame hypotheses about how reforms may influence behaviour. This includes well-established insights on price regulation, competition, innovation incentives and risk allocation in regulated markets. Theory provides a necessary anchor where empirical evidence is weak or absent.
- **Secondary research**: focuses on empirical evidence from academic literature and reports on retail market changes in other jurisdictions. We pay particular attention to international experiences with price caps, time-of-use pricing and retail market regulation. While these cases are not directly comparable to GB, they provide valuable insights into potential impacts, risks and unintended consequences.
- **Primary quantitative analysis**: in the form of a long-run econometric regression analysis using the dependent variable of retail energy expenditure in the GB household electricity market over the last 20 years; and a review of the historic variance of drivers of retail electricity prices.

By combining these three methods, the approach avoids reliance on any single evidence source and enables triangulation across theory, experience, and data. In Appendix B we provide more detailed rationale for why we took this approach.

As part of our assessment, we produce estimates of the impact of each reform on the average retail price. These estimates should be interpreted in the context of the methodology that they have been produced. They are based on a stylised view of the mechanics through which reforms impact retail electricity prices and use historic data to predict the impact of reforms that have not yet been implemented. Therefore, the estimates should be interpreted with these limitations in mind.

3.1. FRAMEWORK FOR DESCRIBING AND ASSESSING IMPACTS OF REFORMS

We apply the evidence gathered by mixed methods to a theory-of-change-based framework,[28] which distinguishes between:

- **Reforms**, which represent changes to policy or regulatory arrangements,
- **Drivers**, which are intermediate market characteristics affected by reforms, and
- **Outcomes**, which reflect the ultimate objectives for consumers and the market.

Figure 3.1: Theory-of-change-based framework

We use this framework to identify and assess the impact channels through which reforms influence retail electricity market outcomes. These impact channels are considered in two steps: firstly, how reforms affect market drivers; and secondly, assessing how changes in those drivers flow through to consumer outcomes.

We use the regression analysis particularly to inform a narrow view of that second step by including independent variables to proxy drivers in the regression. This provides insight into the impact of these drivers on retail expenditure, rather than the full range of consumer outcomes.

[28] A theory of change describes how and why a desired change is expected to occur in a particular set of circumstances. It is used to articulate the underlying assumptions, processes and expected outcomes of a reform.

The result is an evidence-based framework that can be used to structure thinking about how reform options could better support the future energy system **and** future energy consumers.

To preserve clarity and avoid over-complication, the framework is deliberately uni-directional, from reform to driver to outcome. Where feedback loops and interactions between different drivers are important, we discuss them separately to complement rather than confuse the framework.

3.1.1. Retail market outcomes

As the statutory watchdog and consumer advocate for energy services in GB,[29] Citizens Advice's goal is to ensure the retail market has strong consumer protections that keep energy affordable and meaningful consumer choice that keeps energy accessible.

This goal is more likely to be achieved when the following outcomes are achieved:

- All consumers have access to affordable energy.[30]
- Customers are offered a wide variety of retail propositions from a range of different retailers.
- Retailers earn sustainable but not excessive margins.

3.1.2. Drivers

We identified five 'drivers' of retail electricity market outcomes. Our drivers are intermediate impacts that a reform will change, and this change will flow through to impact our ultimate outcomes. Each of the reforms is expected to impact one or more of the drivers.

Customer engagement

The degree that customers pay attention to, understand, and act on retail offers and information. This includes comparing offers, choosing products, managing usage and switching when beneficial.

Market competition

The extent to which suppliers face pressure from rival suppliers to attract and retain customers. Market competition is affected by the number of suppliers in the market and the distribution of market shares among them.

Innovation

The development of new retail products offered to customers. This can include successful innovation (where new products are taken up by customers) and unsuccessful innovation (where new products do not have material customer take up) but enables greater choice.

Supplier resilience

The ability for a supplier to maintain operation in the face of disruptions or unexpected challenges. Strong risk management (including hedging), capital adequacy and operational capability improve resilience. Measures are often determined by a regulator. Supplier resilience measures may increase day-to-day costs but are intended to avoid larger failure-related costs for customers and the system.

Lower input costs

Input costs are the costs that suppliers face when supplying electricity to its customers. These includes wholesale costs, network costs, policy costs and operational costs. In general, the reforms are expected

[29] Citizens Advice is also the consumer watchdog for postal services.

[30] Electricity affordability here is defined as the ability for a reform to reduce the efficient cost of delivering electricity, holding the supplier margin constant.

to make relatively small incremental changes to input costs compared to the underlying variations seen in different cost elements over time.

3.2. Classification of strength of impact

We use the following categorisation for our assessment of the strength of impact:

- **Dark green**: positive relationship
- **Light green**: weak positive relationship
- **Light red**: weak negative relationship
- **Dark red**: negative relationship
- **Orange**: direction of impact can vary
- **Grey**: no discernible relationship

The categorisations are qualitative and are relative to each other. E.g. if a driver has a positive impact on a consumer outcome, then that means of all the drivers it will have the most (or joint most within a given margin) positive impact on that outcome. It has not been possible to quantify these impacts given the limitations in the data available.

Reforms may impact retail market outcomes for different consumer groups in different ways. For example, changes to the price cap may reduce the number of consumers on the price cap. This may lead to an increase in the level of the price cap, if the consumers that remain have a higher cost-to-serve.

For each reform, we explore how different consumer groups will be impacted, looking at the following three dimensions of a consumer archetype:

- **Engaged vs disengaged**: engagement represents the degree to which consumers engage with the electricity market to shopping around for their preferred deal, including lower prices.
- **Fuel-poor status**: households that must spend a high proportion of their household income to keep their home at a reasonable temperature. Fuel poverty is affected by three key factors: a household's income, their fuel costs, and their energy consumption.[31]
- **Flexibility of load**: flexibility is the ability for a household to shift their load in response to a price signal, i.e. to provide electricity 'flexibility'. It is specific to each consumer and defined by factors such as consumption habits, and whether they have a large load consumption asset such as an EV or heat pump.

[31] House of Commons Library (2025) Fuel poverty in the UK, available online here

4. CLASSIFICATION OF THE IMPACT OF DRIVERS ON CONSUMER OUTCOMES

Under our two-stage approach, the reforms will differ in how they affect each driver. This is explored in the individual chapters on each reform in Sections 5 to 10.

The second stage – impact of drivers on outcomes – is common across reforms. Therefore, to avoid repetition, this section sets out our assessment of how each of the five drivers impact the three retail electricity consumer outcomes. Our assessment in summarised in Table 4.1, with more detail provided in Appendix C.

In Sections 5 to 10, this assessment will be combined with the reform-specific assessment to describe the end-to-end flow from reform to retail market outcome. For example, the biggest end to end impact will be when the reform has a big impact on the driver, and the driver has a big impact in the same direction on an outcome.

Our first consumer outcome is **affordability,** in terms of the level of efficient costs that need to be recovered from consumer bills. Our assessment considers average impacts **and** distributional impacts. A positive relationship means that an increase in a driver lowers the average bill, and does not lead to significant negative distributional issues, i.e. harm for a specific consumer group. A negative relationship means an increase in the driver leads to higher average bill and or significant negative distributional impacts.

Our second consumer outcome, **offer variation**, indicates the extent to which all customers have access to a variety of products in the market that cater to their specific preferences. This also considers the impact on all customers, not just the average customer or the most engaged one. A positive relationship means that an increase in a driver leads to a larger variety of offers in the market that satisfy a range of consumer's preferences. A negative relationship means that a driver reduces the variety on offer, leading to propositions which may only cater to a few consumer groups.

Our third consumer outcome is **sustainable supplier margins**. The impact of drivers on this outcome can be particularly complicated to unpick and to describe with a simple classification. This is because the desirability of a change in a supplier's profit margin depends on the level of the margin in the first place. If suppliers are making excess profits, then an increase in a supplier's profit margin will be a bad outcome; however, if suppliers profit margins are unsustainably low, then an increase will be a good outcome. In our classification, a positive relationship means that an increase in a driver leads to supply margins which are sustainable (i.e. can withstand material exogenous shocks) but not excessive. A negative relationship means that an increase in the driver will lead to supply margins which are either unsustainable and risk supplier exit or are excessive with suppliers receiving significant profits at the expense of consumers.

Our assessment is informed by the evidence gathered from secondary research of literature and other jurisdictions, and historic analysis of the GB electricity market. This evidence is described in Appendix E and Appendix E respectively. Our historic analysis of the GB electricity market looks at the impact of the drivers on average prices. This is relevant for our assessment of affordability and supplier margins, as both have a bearing on the average price paid by consumers. It is not relevant for our assessment of the variation of offers on the market.

Our assessment considers the direct impact of the drivers on the retail market outcomes. We do not consider the indirect impact of the drivers on the retail market outcomes, e.g. how these drivers impact the other drivers, which then impact electricity retail market outcomes.

Table 4.1 Assessment of the impact of retail electricity market drivers on retail electricity market outcomes

Driver	Impact	Outcome
Competition	Strong positive	Affordability
	Weak positive	Offer variation
	Weak positive	Sustainable supplier margins
Innovation	Weak positive	Affordability
	Strong positive	Offer variation
	Weak positive	Sustainable supplier margins
Supplier resilience	Direction of impact can vary	Affordability
	Weak positive	Offer variation
	Strong positive	Sustainable supplier margins
Consumer engagement	Weak positive	Affordability
	Weak positive	Offer variation
	Direction of impact can vary	Sustainable supplier margins
Lower input costs[(a)]	Strong positive	Affordability
	No discernible relationship	Offer variation
	Strong positive	Sustainable supplier margins

Source: CEPA analysis; Note (a): For input costs our classification represents how a reduction impacts our outcomes. For our other drivers our classification represents how an increase impacts our outcomes.

5. R.1: INTRODUCTION OF A SIMPLE TOU PRICE CAP

5.1. Description of reform option

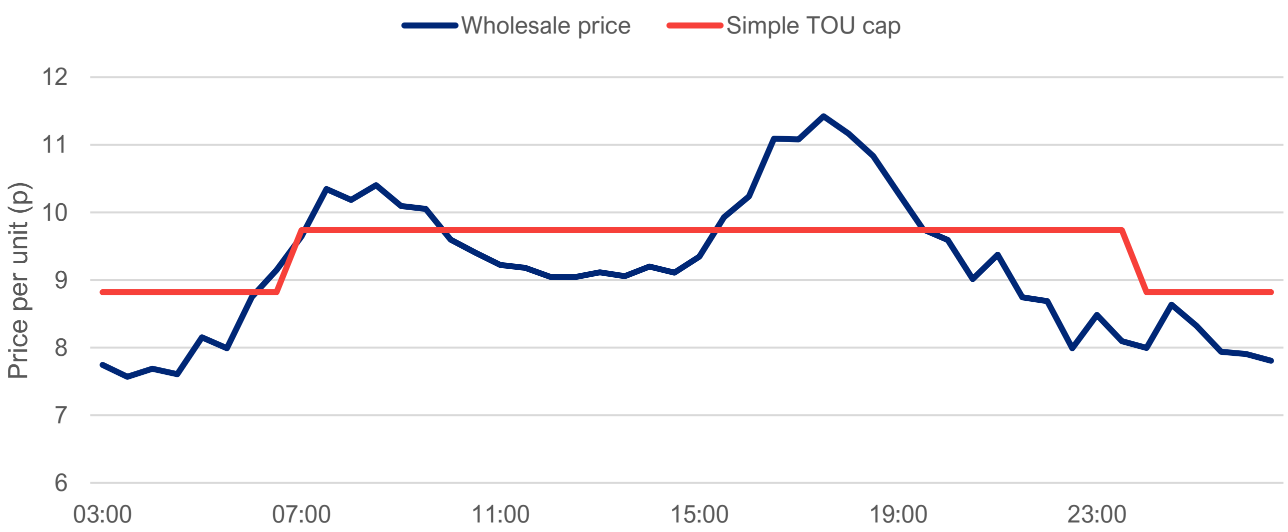
Reform 1 would use a simple ToU price cap for all default contracts. A flat default price cap will be retained for consumers that don't engage with ToU prices. Unlike the flat price cap which charges a single variable rate for consumption (£/kWh), the simple ToU price cap would have two variable rates (£/kWh) to reflect the expected pattern of wholesale electricity prices throughout the day. As illustrated in Figure 5.1, this could be:

- a higher rate during the day; and
- a lower rate at night.

The time periods and calculation methodology for the rate in each period would be established as part of any detailed design phase. That is out of scope of this report.

The cap on the standing charge (£/day) would remain the same. This would build on the existing approach used for multi-rate tariffs, mainly Economy 7, which are much less common and less familiar to consumers than the flat rate price cap.[32] Customers are only covered by this multi-rate cap if they had originally opted for a ToU tariff contract. Furthermore, the Ofgem website shows only a single unit rate even for the price cap for multi-rate customers stating that "the unit rates included in the energy price cap are an average of the unit rate based on how much energy will be used during peak and off-peak periods."[33]

Figure 5.1: Illustrative example of simple ToU price cap against wholesale prices



Note: The wholesale price is representative of a typical 'day' in GB.

5.2. Overall impact of reform option on outcomes

The channels through which Reform 1 may affect retail market outcomes are captured in Figure 5.2. It maps the impacts through the linkages between the reform and each driver and then each driver and each outcome. In

[32] This is illustrated by the overview page on the price cap on the Ofgem website, which only shows a single unit rate and has the headline statement "The energy price cap is the maximum amount energy suppliers can charge you for each unit of energy and standing charge if you're on a standard variable tariff". Ofgem, Energy Price Cap Explained, accessed on 20 February 2026, available online here.

[33] Ofgem, Get energy price cap standing charges and unit rates by region, accessed on 20 February 2026, available online here.

addition, it uses colour coding to illustrates the strength of these linkages. The rationale for the classification of the strength of impact is set out below.

In summary, the evidence that we have gathered suggests that the Simple ToU Cap will have a weakly positive effect on all three outcomes. This suggests that this option is evenly balanced in its impact across outcomes but does not provide outstanding results on any one outcome.

It will also have a small positive impact on the average retail electricity price, reducing prices by -0.6% in the low, central, and high cases.

Table 5.1 Simple ToU price cap, impact overview

Affordable energy	Sustainable supplier margins	Offer variation
Small improvement	Small improvement	Small improvement
Price impact: -0.6% to -0.6%		

This impacts on the consumer outcomes are driven by our findings of at best a weakly positive relationship in the first stage of the impact mapping – i.e. reform option to driver. This reform impact has a weakly positive impact on four of the five drivers: innovation, supplier resilience, consumer engagement, and input costs; and no discernible impact on the fifth driver (competition).

Therefore, the strongest relationships are the following combinations of weakly positive impacts of option on driver **and** strongly positive impacts of drivers and outcomes:

- option weakly improves innovation which has a strong positive impact on **offer variation;**
- option weakly improves supplier resilience which has a strong positive impact on **sustainable supplier margins;**
- option weakly improves input costs (i.e. reduced costs) which has a strong positive impact on **affordability and supplier margins.**

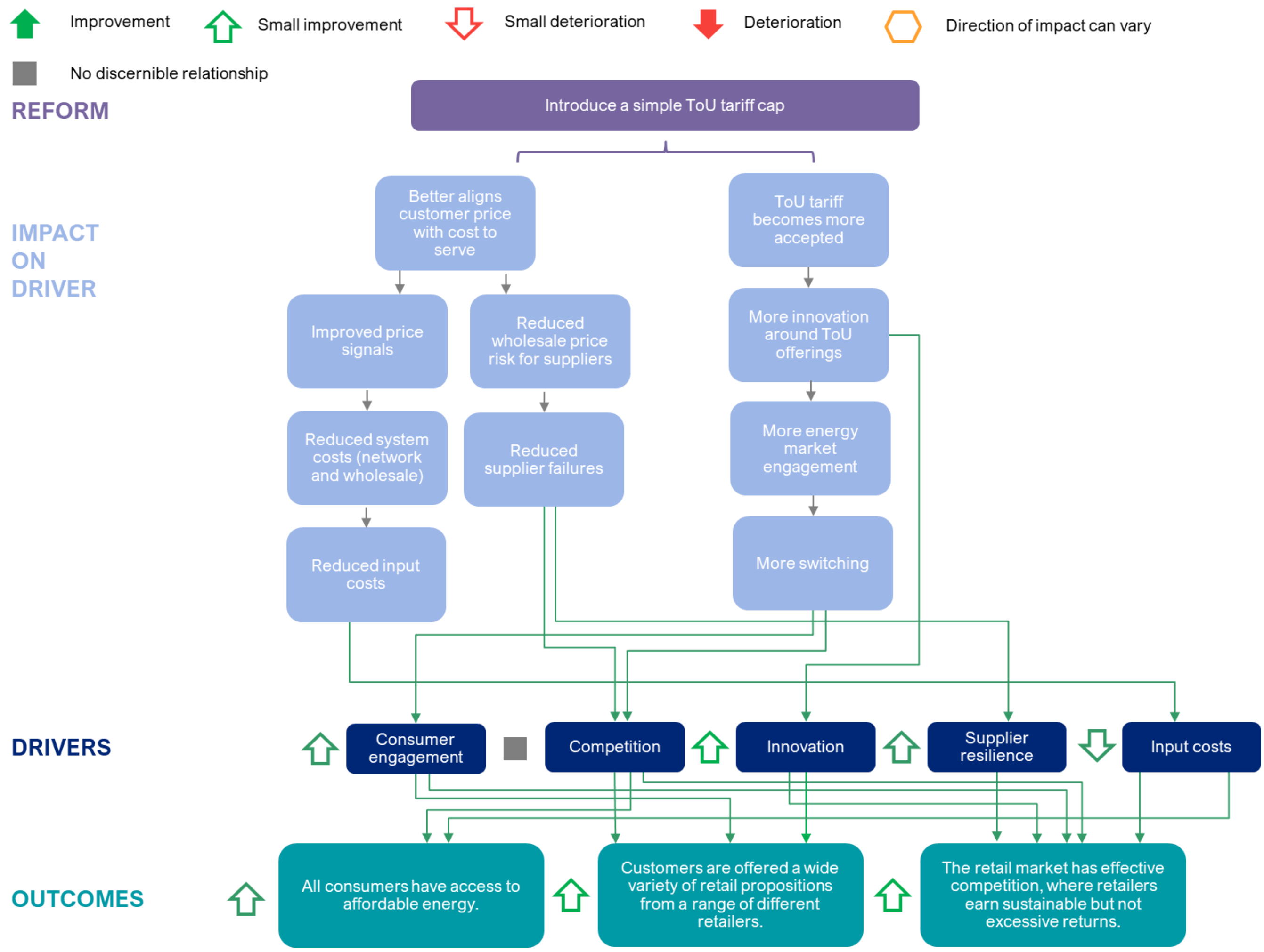
For the impact on retail prices, the weakly positive impacts on input costs, consumer engagement, and innovation, all contribute to the reduction in the retail electricity price. However, the price reduction is counteracted by the increase in supplier resilience – our regression analysis shows that an increase in the number of suppliers leads to an increase in the retail electricity price; therefore, the increase in supplier resilience leads to an increase in the retail electricity price.

Based on the central case, the reduction in the retail electricity price is driven by the following relationships:

- A weak positive impact on consumer engagement leads to a -0.5% change in prices, a weak positive impact on innovation leads to a -0.3% change in prices, and a weak positive impact on input prices (reducing them) leads to a -0.7% change in prices.
- The weak positive impact on supplier resilience, which will lead to a 0.9% increase in prices. We estimate that an increase in the number of suppliers increases electricity prices.

5.3. Impact pathways

Figure 5.2 The pathways between the Simple Time of Use Default Cap and changing retail market outcomes



5.4. Assessment of each impact channel between reform option and outcomes

Table 5.2 presents our classification of the relationships:

- between the Simple ToU Cap, and the drivers (Stage 1); and
- the drivers and the retail electricity market outcome (Stage 2).

The Stage 2 results in this table are the same as presented in Section 4 and explained in Appendix C.

The combination of the results for each stage then indicate the end-to-end result for the strength of the impact channel – for example, a route from reform to outcome that has a classification of strong positive relationship in both stages would have a strong positive relationship overall.

Table 5.2 Simple time of use cap: assessment of the relationships between the reform, drivers, and retail electricity market outcomes

Reform	Impact	Driver	Impact	Outcome
Simple ToU cap	No discernible relationship	Competition		Affordability
				Offer variation
				Sustainable supplier margins
	Weak positive	Innovation		Affordability
				Offer variation
				Sustainable supplier margins
	Weak positive	Supplier resilience		Affordability
				Offer variation
				Sustainable supplier margins
	Weak positive	Consumer engagement		Affordability
				Offer variation
				Sustainable supplier margins
	Weak positive	Lower input costs[(a)]		Affordability
				Offer variation
				Sustainable supplier margins

Note: (a) We assess the impact of reducing input costs. For all other drivers, we assess the impact of increasing the driver.

5.5. Main impact channels

Weakly decrease input costs, which will strongly increase affordability for all consumers and strongly increase the sustainability of supplier margins

The introduction of a simple ToU cap will provide consumers with price signals that are more reflective of the cost signals to suppliers (i.e. through wholesale prices and network charges). If consumers are able to shift their demand to respond to cost-reflective signals, this will reduce input costs to their suppliers. This should be passed through to customers on the default tariff. Lower input costs should also make supplier margins more sustainable on the default tariffs.

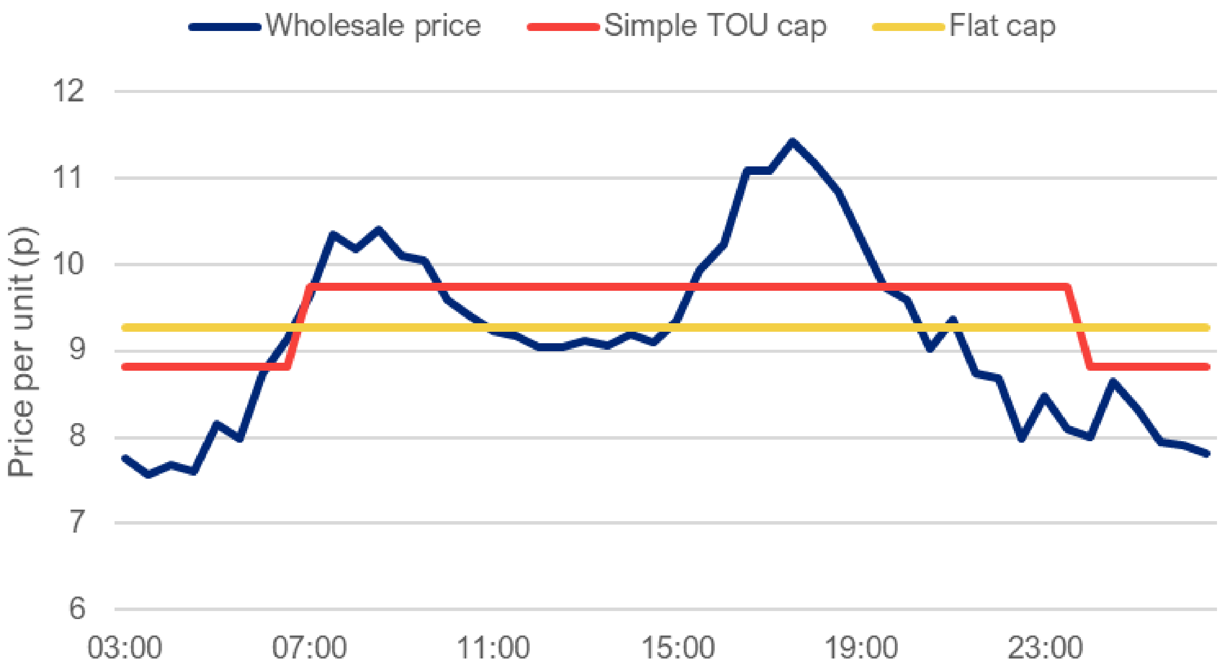
If overall system costs (through network costs and wholesale costs) also reduce, then this may benefit all customers through lower bills depending on charging structures.

Weakly increase supplier resilience which will increase the sustainability of supplier margins

For customers on the current flat cap, suppliers bear price risk, as wholesale electricity prices vary from half-hour to half-hour. Most suppliers manage this risk with hedging products, buying an agreed quantity of electricity ahead of time for specific consumption blocks. However, there will always be a degree of prediction error when deciding how much to procure. For these volumes, suppliers will have to pay more volatile prices, either through shorter-term markets, or the imbalance price.

In Figure 5.3 we provide a representative depiction of the impact of the price risk under the simple ToU cap compared with the current flat cap. It shows that there is a greater range of differences between the flat cap and the wholesale price than between the simple ToU cap and the wholesale price. This means that under the flat cap, suppliers bears more risk – e.g. from the consumer consuming more in higher price periods – and the consumer bears no risk of consuming in different periods of the day. Moving to a ToU tariff will shift some of this price risk on to consumers, as their bill will now be affected by timing of consumption as well as the level of consumption.

Figure 5.3 Representative comparison of daily price risk under the simple ToU cap and the flat cap



Weakly increase innovation which will strongly increase offer variation

The introduction of a ToU tariff structure for the price cap would signify a significant change to retail electricity market policy. ToU tariffs have been available in GB since the introduction of the Economy 7 tariff in the 1970s, however, most consumers still pay flat unit rates for their consumption throughout the day. Changing the default price cap structure would shift a large proportion of GB electricity consumers to ToU arrangements.

This shift could conceivably change the expectations of consumers for the way they pay for electricity - from a single price to more granular pricing throughout the day. This may increase consumer's appetite for ToU tariffs, if they realise savings from reducing their consumption during peak periods.

This can also have impacts for suppliers. Suppliers are currently developing ToU tariffs,[34] but progress has been delayed by recent disruption in the retail electricity sector, as well as the delays to MHHS. If the introduction of a ToU price cap improves customer sentiment towards ToU tariffs, and requires changes to industry operating processes, then this could increase the speed at which suppliers develop and unveil other ToU tariffs.

5.6. Impacts on different consumer groups

The biggest benefits of this reform to the default tariff cap are likely to be for disengaged consumers who either have an underlying demand profile that is already more weighted towards off-peak periods or have flexible load that they are prepared to shift.

We recognise that the customers who are disengaged in the energy market, and hence on the default tariff cap, are less likely to be responsive to price signals. However, the simple ToU price cap provides stable and predictable price signals that do not require very precise shifts in demand (e.g. into a single hour). This may make it easier to encourage disengaged customers to be flexible and hence benefit from the reform, than more complicated ToU price signals.

Benefits for customers already highly engaged in the energy market, in terms of not being on default tariffs, will likely only receive a small benefit in lower bills. This will happen if the reduction in overall system costs is not fully captured by (newly) flexible customers.

The potentially biggest losers from this reform to the default tariff cap are likely to be disengaged customers who continue to have an underlying demand profile that is more weighted towards peak periods. Early analysis by Ofgem shows that there is a c. £22 difference between the customers that are at the 10th percentile and the customers that are at the 90th percentile of the cost to serve distribution. This is about ± 5% of the wholesale cost proportion of the retail commodity cost.[35] There will be concerns that the fuel poor will be disproportionately represented in this group if they are less likely to have access to flexible loads such as EV, heat pumps, or batteries. Further work is needed to understand if fuel poor or vulnerable households are disproportionately represented in this group.

[34] For example, Octopus agile is a dynamic ToU tariff linked to wholesale prices, https://octopus.energy/smart/agile/.

[35] Ofgem (2026) *Energy price cap: technical approach to Market Wide Half-Hourly Settlement Call for Input*, available online here.

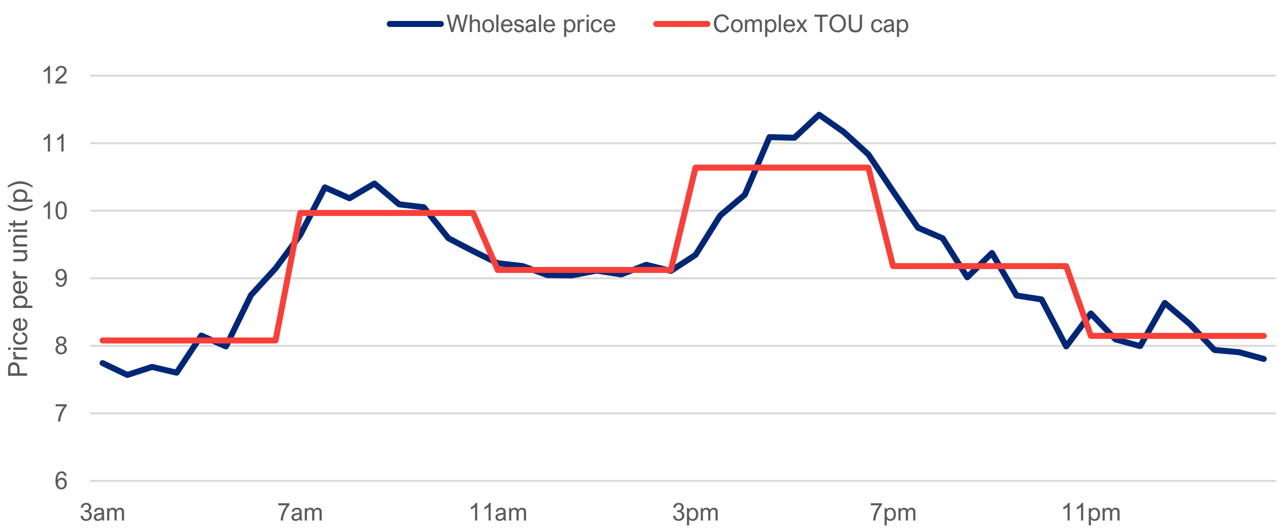
6. R.2: INTRODUCTION OF A COMPLEX TOU PRICE CAP

6.1. DESCRIPTION OF OPTION

Reform 2 would introduce a complex ToU price cap. Unlike the flat price cap which charges a single variable rate for consumption (£/kWh), the complex ToU price cap would have six different rates (£/kWh) with each day split into 4-hour time blocks, based on electricity forward agreement (EFA) blocks.[36] This is illustrated in Figure 6.*1*. The tariff would also include seasonality, with different rates in different periods of the year. It would be based on much greater granularity than the current multi-rate default price cap.

The ToU cap would act as an 'average cap' where there is a limit to the average rate that consumers receive for a given EFA block, for a given period of time (e.g. a month). However, consumers can receive rates that are above the cap for a given EFA block on any particular day. The cap on the standing charge (£/day) would remain the same.

Figure 6.1 Complex ToU price cap against wholesale prices



Note: The wholesale price is representative of a typical 'day' in Great Britain.

[36] EFA blocks are the standardised 4-hour periods used in the Great Britain energy market for trading electricity, dividing the day into six blocks starting from 11pm.

6.2. Overall impact of reform option on outcomes

The channels through which Reform 2 may affect retail market outcomes is captured in **Error! Reference source not found.**. It maps the impacts through the linkages between the reform and each driver and then each driver and each outcome. In addition, it uses colour coding to illustrates the strength of these linkages. The rationale for the classification of the strength of impact is set out below.

In summary, the evidence that we have gathered suggests that the Complex Time of Use Cap may have a weakly positive impact on all three of the outcomes.

It will also have a small positive impact on the average retail electricity price, reducing prices between 0.9% and 1.3%.

Table 6.1 Complex ToU cap, overview of impact

Affordable energy	Sustainable supplier margins	Offer variation
Small improvement	Small improvement	Small improvement
Price impact: -0.9% to -1.3%		

Much of the analysis for the simple ToU cap is directionally the same for the complex ToU cap, only more marked in the impact on affordability.

The strongest relationships are:

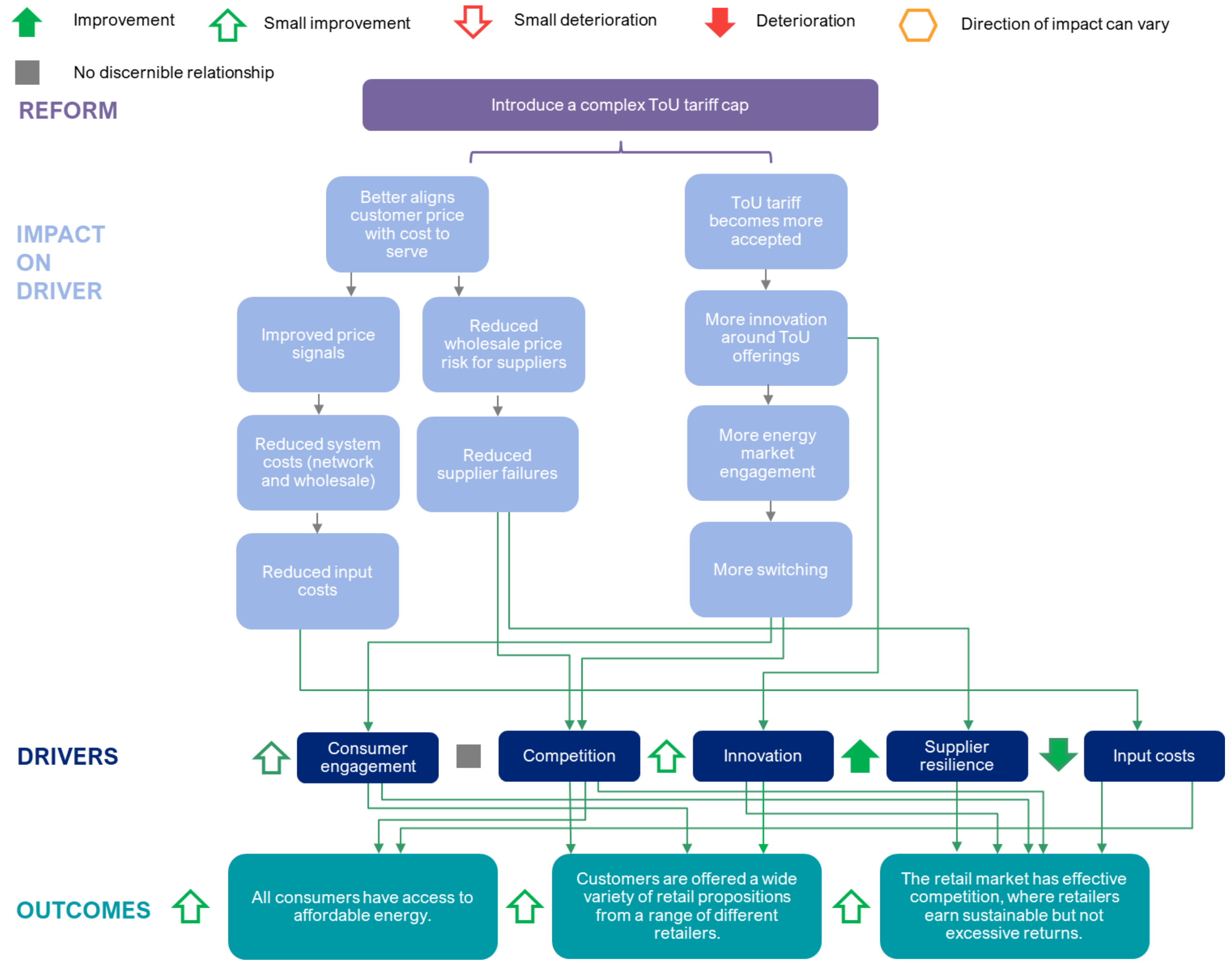
- option improves input costs (i.e. reduced costs) which has a strong positive impact on **affordability and supplier margins.**
- option improves supplier resilience which has a strong positive impact on **sustainable supplier margins;**
- option weakly improves innovation which has a strong positive impact on **offer variation;**

Based on the central case, the reduction in the retail electricity price is driven by the following relationships:

- The positive impact on input costs, which leads to a -2.2% change in the retail electricity price. The Complex ToU cap is the only reform that has a positive impact on input costs, all other reforms have a weak positive impact at best.
- A weak positive impact on consumer engagement leads to a -0.5% change in prices and a weak positive impact on innovation leads to a -0.3% change in prices.
- The positive impact on supplier resilience, which will lead to a 1.9% increase in prices. We estimate that an increase in the number of suppliers increases electricity prices.

6.3. Impact pathways

Figure 6.2: The pathways between the Complex Time of Use Default Cap and changing retail market outcomes



6.4. Assessment of each impact channel between reform option and outcomes

Table 6.2 presents our classification of the relationships:

- between the Complex ToU Cap, and the drivers (Stage 1); and
- the drivers and the retail electricity market outcome (Stage 2).

The Stage 2 results in this table are the same as presented in Section 4 and explained in Appendix C.

The combination of the results for each stage then indicate the end to end result for the strength of the impact channel – for example, a route from reform to outcome that has a classification of strong positive relationship in both stages would have a strong positive relationship overall.

Table 6.2 Complex time of use cap: assessment of the relationships between the reform, drivers, and retail electricity market outcomes

Reform	Impact	Driver	Impact	Outcome
Complex ToU cap	No discernible relationship	Competition		Affordability
				Offer variation
				Sustainable supplier margins
	Weak positive	Innovation		Affordability
				Offer variation
				Sustainable supplier margins
	Strong positive	Supplier resilience		Affordability
				Offer variation
				Sustainable supplier margins
	Weak positive	Consumer engagement		Affordability
				Offer variation
				Sustainable supplier margins
	Strong positive	Lower input costs[1]		Affordability
				Offer variation
				Sustainable supplier margins

Note: [1] We assess the impact of reducing input costs. For all other drivers, we assess the impact of increasing the driver.

6.5. MAIN IMPACT CHANNELS

Decrease input costs, which will increase affordability for all consumers and increase the sustainability of supplier margins

Assuming there is some level of pass-through, then the complex ToU will reduce prices through two mechanisms: i) reducing the need for hedging costs, and providing sharper price signals for consumers, which will reduce energy system costs if consumers shift their consumption to lower cost periods. This will lead to overall cost savings for consumers which are greater than the cost savings under the simple ToU cap.

The trade-off between lower average bills, and increased price risk for individual consumers is more pertinent for the complex ToU tariff cap. Suppliers are allowed to change different prices for each four-hour period, with the cap constituting an average as opposed to an absolute cap. This means that for periods of high wholesale prices, suppliers may choose to expose consumers to significant electricity price spikes. We describe this impact in more detail below.

There is potential that there will be knock-on effects on a supplier's ability to forecast their consumer's demand. It is unlikely that all consumers will respond to the sharpened price signals in the same way. Some consumers will be able to provide a significant response, while provide no response. If a supplier cannot accurately predict this variation, then it will impact their ability to effectively hedge. This could have knock-on effects on the supplier's margin. However, on balance the impact on supplier's margins should be positive.

Increase supplier resilience which will increase the sustainability of supplier margins

The impact on supplier resilience is closely related to the impact on input costs from hedging products. Suppliers can pass on a significant portion of the price risk on to consumers. This will reduce their need to hedge and remove the risk of supplier exit if they employ an inadequate hedging strategy.

Weakly increase innovation which will increase offer variation

As with the simple ToU tariff cap, the complex ToU tariff cap forces a new tariff arrangement onto a significant number of consumers. This will increase the amount of innovation in the market if it leads suppliers to reorientate their product offering towards more time reflective tariffs, and if it increases the appetite for ToU tariffs from consumers more broadly.

The degree to which innovation is stimulated will depend, to some degree, on the resulting consumer sentiment towards ToU tariffs. If there is significant harm for individual consumers from the greater price risk resulting from the ToU cap, then it will reduce consumer trust, which in turn should reduce the appetite for more time of use products. On the other hand, if consumers receive good outcomes, then this can have a positive impact on innovation and the take-up of time of use products.

6.6. IMPACTS ON DIFFERENT CONSUMER GROUPS

The impact on different consumer groups will be the same as for the simple time of use tariffs, but more extreme. The biggest benefits of this reform to the default tariff cap are likely to be for disengaged consumers who either have an underlying demand profile that is already more weighted towards off-peak periods or have flexible load that they are prepared to shift.

As we acknowledged when assessing Reform 1, consumers who are disengaged from the energy market, and hence on the default tariff cap, are less likely to be responsive to price signals. Compared with the simple ToU cap, the complex ToU cap provides more unpredictable, granular price signals which can vary from day to day. Disengaged consumers may not have the desire or the propensity to respond to these price signals. If these consumers have an underlying demand profile that is more weighted towards peak periods, then their bill may increase materially. There will be concerns that the fuel poor will be disproportionately represented in this group if they are less likely to have access to flexible loads such as EV, heat pumps, or batteries. Further work is needed to understand if fuel poor or vulnerable households are disproportionately represented in this group.

As with the simple ToU cap, benefits for customers that are already highly engaged in the energy market, in terms of not being on default tariffs, will likely only receive a small benefit in lower bills. This will happen if the reduction in overall system costs is not fully captured by (newly) flexible customers.

7. R.3: INTRODUCE AN AUCTION TO SERVE DISENGAGED CUSTOMERS

7.1. Description of reform option

Reform 3 would introduce a regular auction for the right to supply customers on default and deemed contracts. Instead of being constrained by a centrally set price cap, suppliers would compete to serve default customers at the lowest price determined through the auction mechanism over a fixed period. The default offer structure would not change and would remain a flat tariff with a single variable charge and a single standing charge.[37] Consumers could opt out of being switched at any time by choosing an alternative supplier or tariff.[38]

While some suppliers may choose not to bid for default customers and instead focus on other market segments, they would still be required to offer a default tariff to all customers under the USO. This would be a temporary safeguard for consumers to cover the period between which they roll off onto a contract they have chosen and the auction for disengaged customers. The default tariff to apply in these circumstances would be set using the existing price cap methodology.

7.2. Overall impact of reform options on outcomes

The channels through which Reform 3 may affect retail market outcomes is captured in The strongest relationships are:

- option weakly improves innovation which has a strong positive impact on **offer variation;**
- option strongly reduces supplier resilience which has a strong negative impact on **sustainable supplier margins;**
- option weakly reduces consumer engagement which has a weak negative impact on **affordability and offer variation.**

Based on the central case, the reduction in the retail electricity price is driven by the following relationships:

- The weak positive impact on competition, which leads to a -1.9% change. Changes in competition have the largest impact on the retail electricity price, and Reform 3 is the only reform that has a quantified impact on competition.
- The negative impact on supplier resilience, which will lead to a -1.9% change. We estimate that an increase in the number of suppliers increases the average retail electricity price, leading to a positive impact on this metric, and a reduction in prices.
- A weak negative impact on consumer engagement increases prices by 0.5% and a weak positive impact on innovation reduces prices by 0.3%.

[37] Or for customers with multi-rate meters, the existing default tariff structure.

[38] This differs from the auctions considered by Ofgem previously, which primarily considered an opt-in auction design.

7.3. IMPACT PATHWAYS

Figure 7.1. It maps the impacts through the linkages between the reform and each driver and then each driver and each outcome. In addition, it uses colour coding to illustrates the strength of these linkages. The rationale for the classification of the strength of impact is set out below.

In summary, the evidence that we have gathered suggests that the Auction for Disengaged Consumers will have a weakly positive effect the affordability of energy and the variety of offers; and a weakly negative impact on the sustainability of suppliers' margins.

It will also have a small impact on the retail price of electricity, reducing it by between -2.0% and -5.1%.

Table 7.1 Auction to serve disengaged consumers, impact overview

Affordable energy	Sustainable supplier margins	Offer variation
Small improvement	Small deterioration	Small improvement
Price impact: -2.0% to -5.1%		

This impacts on the consumer outcomes are driven by our findings of a weakly positive impact on competition and innovation, which flows through into improvements in affordability and offer variety, a negative impact on supplier resilience, which will both flow through into a reduction in supplier margins.

The strongest relationships are:

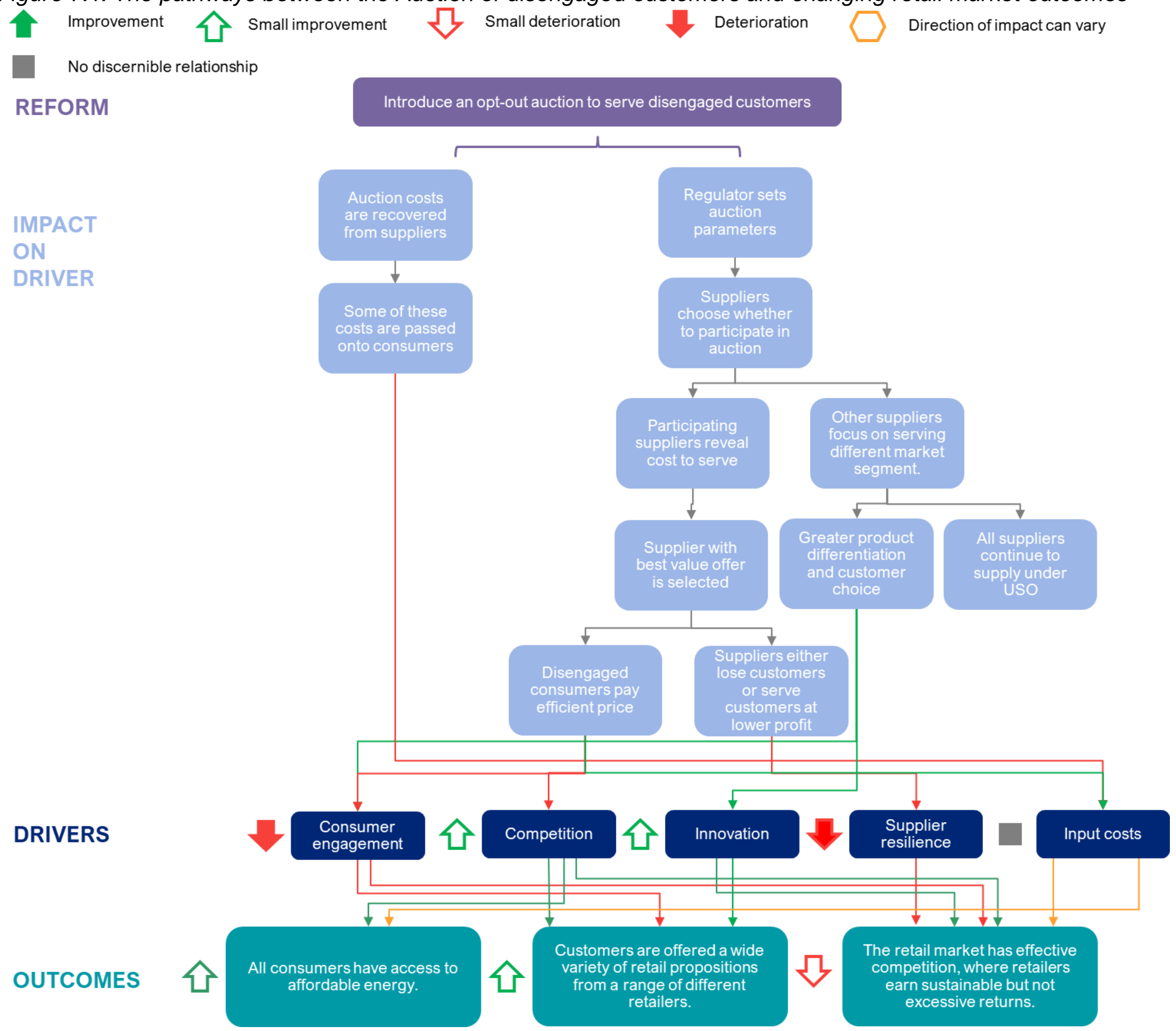
- option weakly improves innovation which has a strong positive impact on **offer variation;**
- option strongly reduces supplier resilience which has a strong negative impact on **sustainable supplier margins;**
- option weakly reduces consumer engagement which has a weak negative impact on **affordability and offer variation.**

Based on the central case, the reduction in the retail electricity price is driven by the following relationships:

- The weak positive impact on competition, which leads to a -1.9% change. Changes in competition have the largest impact on the retail electricity price, and Reform 3 is the only reform that has a quantified impact on competition.
- The negative impact on supplier resilience, which will lead to a -1.9% change. We estimate that an increase in the number of suppliers increases the average retail electricity price, leading to a positive impact on this metric, and a reduction in prices.
- A weak negative impact on consumer engagement increases prices by 0.5% and a weak positive impact on innovation reduces prices by 0.3%.

7.4. Impact pathways

Figure 7.1: The pathways between the Auction of disengaged customers and changing retail market outcomes



7.5. Assessment of each impact channel between reform option and outcomes

Table 7.2. presents our classification of the relationships:

- between the Auction for Disengaged Consumers, and the drivers (Stage 1); and
- the drivers and the retail electricity market outcome (Stage 2).

The Stage 2 results in this table are the same as presented in Section 4 and explained in Appendix C.

The combination of the results for each stage then indicates the end-to-end result for the strength of the impact channel – for example, a route from reform to outcome that has a classification of strong positive relationship in both stages would have a strong positive relationship overall.

Table 7.2 Auction for disengaged consumers: assessment of the relationships between the reform, drivers, and retail electricity market outcomes

Reform	Impact	Driver	Impact	Outcome
Auction for disengaged consumers	Weak positive	Competition		Affordability
				Offer variation
				Sustainable supplier margins
	Weak positive	Innovation		Affordability
				Offer variation
				Sustainable supplier margins
	Strong negative	Supplier resilience		Affordability
				Offer variation
				Sustainable supplier margins
	Weak negative	Consumer engagement		Affordability
				Offer variation
				Sustainable supplier margins
	No discernible relationship	Lower input costs[1]		Affordability
				Offer variation
				Sustainable supplier margins

Note: [1] We assess the impact of reducing input costs. For all other drivers, we assess the impact of increasing the driver.

7.6. Main impact routes

Decrease supplier resilience, which will decrease the sustainability of supplier margins

As the underlying cost-to-serve is largely unchanged, competitive auction outcomes may compress margins – reducing profit margins and weakening supplier resilience.

More significantly, supplier resilience may decrease due to greater volatility in customer numbers. If a supplier bids to retain customers but is unsuccessful, it may face financial distress and be required to spread fixed costs across a smaller customer base, which could increase the cost to supply its remaining customers. Similarly, suppliers face price risk from customers switching away at any time. If a supplier does not adequately hedge, it may also be subject to increased price risk if wholesale prices move materially during the fixed supply period. If the fixed supply period is longer then this risk increases.

Weak decrease in consumer engagement, which will have a non-linear impact on the sustainability of supplier margins and will reduce affordability and offer variation

There are fewer incentives in place for a disengaged customer to actively switch away from a default tariff as they will automatically be switched to a 'competitive' offer through the auction process. As evidence suggests that strong consumer protections may reduce consumer engagement, a well-functioning auction may result in more customers disengaging from the market.

As discussed below, when considering the impact on disengaged consumers, the impact on consumer engagement somewhat depends on the outcome of the auctions and the level of protection it ultimately provides. If the outcome of each auction is volatile, with some consumers losing out compared to the status quo, then this might increase consumer engagement as they look for better deals. However, if the outcome of the auctions is stable and improves consumer utility, then this could reduce consumer engagement.

Less consumer engagement should reduce the affordability of electricity and the variety of offers on the market, as it reduces the incentive for suppliers to provide the best offers and propositions possible. The impact on supplier margins may vary, as it depends whether suppliers are earning excess profits or not.

Weak increase in innovation, which will strongly increase the variety of propositions on offer

Some suppliers will choose to try and retain disengaged consumers through the auction, and some suppliers will not. It is likely that this separation of the market will lead to supplier's customer bases becoming more homogenous. This should encourage suppliers to innovate and develop more specialised product offerings that meet the needs of these customer groups, especially for suppliers that do not choose to engage in the auction. However, these suppliers would still be required to offer a default tariff to all customers under the USO, which limits the extent to which they can specialise.

7.7. Impacts on different consumer groups

The reform targets disengaged consumers, so the impact of the reform focuses on this consumer group. The direction of the impact on this group is uncertain. Disengaged customers may benefit from lower prices if auctions result in stronger competition. However, consumers may also be worse off if the auction-derived price is more volatile (or less predictable) across different cohorts (auctioned at different times) than a regularly adjusted price cap affecting all customers on default tariff at the same. In addition, the price protection provided by this mechanism may lead to more consumers becoming disengaged which may lead to worse outcomes for these consumers compared to if they had remained engaged.

There are no impacts that directly affect fuel-poor consumers or consumers with flexible load other than indirectly through any correlation between these attributes and the level of engagement with the electricity market.

8. R.4 REPLACE THE USO WITH A SINGLE SOLR

8.1. DESCRIPTION OF REFORM OPTION

Reform 4 would remove supplier licence conditions that require suppliers to offer and supply to all customers under a domestic supply contract and provide a wide variety of payment options (USO). Instead, a single default supplier of last resort (SOLR) is nominated by the regulator to take over the obligation to provide universal services on behalf of all domestic customers who don't enter into a contract or who fall into debt. The regulator would continue to determine the tariff structure and maximum rates for these supply contracts through the price cap.

8.2. OVERALL IMPACT OF REFORM OPTION ON OUTCOMES

The channels through which Reform 4 may affect retail market outcomes is captured in Figure 8.1. It maps the impacts through the linkages between the reform and each driver and then each driver and each outcome. In addition, it uses colour coding to illustrates the strength of these linkages. The rationale for the classification of the strength of impact is set out below.

In summary, the evidence that we have gathered suggests that the Single SOLR will have a weakly positive effect on the affordability of energy and the variety of offers, and an undefined impact on the sustainability of supplier margins.

It will also have a small impact on the retail price of electricity, reducing it by between -1.3% and -1.8% in the long-term.

Table 8.1 Single SOLR, impact overview

Affordable energy	Sustainable supplier margins	Offer variation
Small improvement	Direction of impact may vary	Small improvement
Price impact: -1.3% to -1.8%		

This impacts on the consumer outcomes are driven by our findings of a weaklu positive relationship between the reform and input prices, and a weakly positive relationship between the reform and innovation.

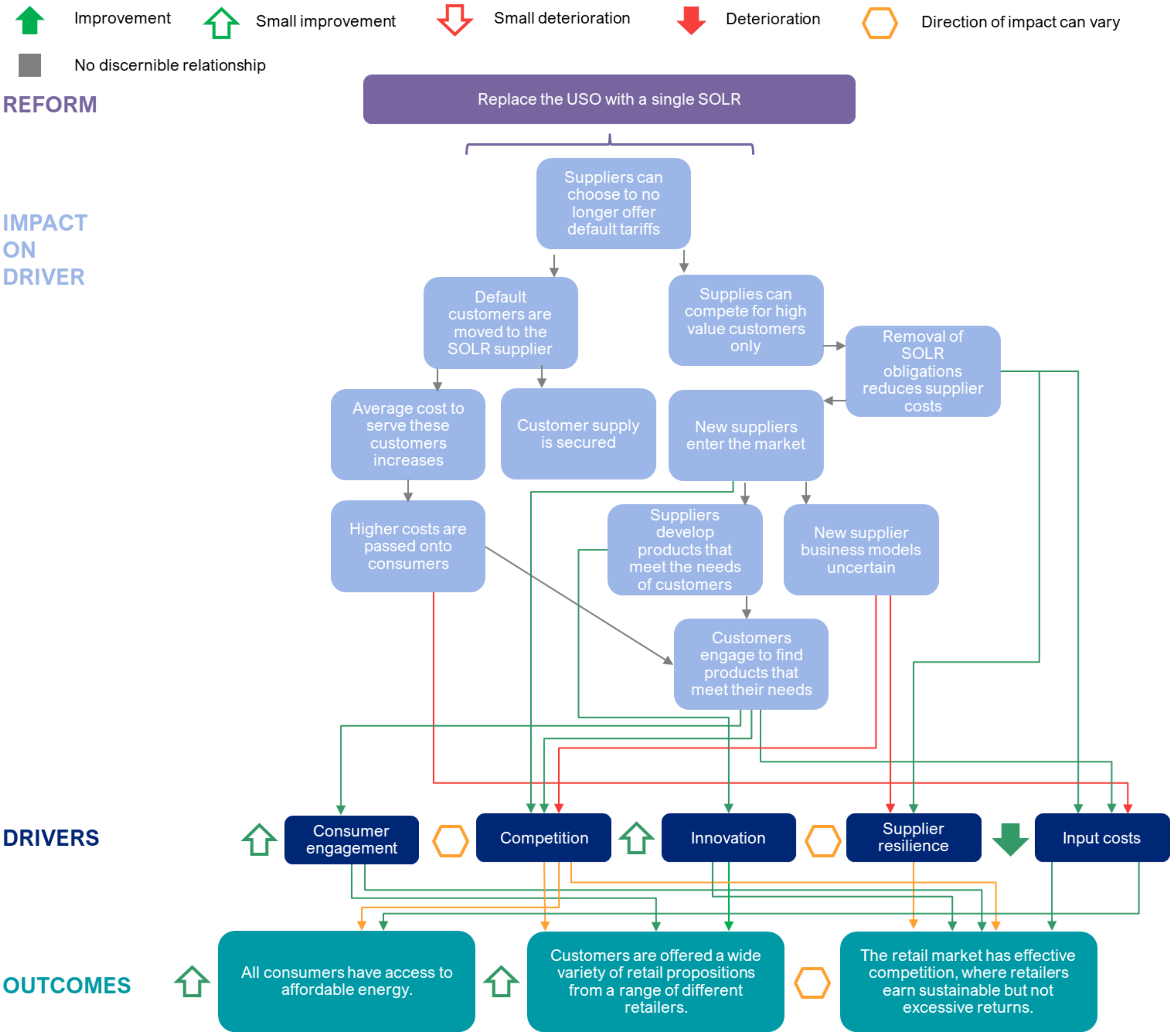
Therefore, the strongest relationships are the following combinations:

- option weakly improves input costs which has a strong positive impact on **affordability and supplier margins;**
- option weakly improves innovation which has a strong positive impact on **offer variation;**

Based on the central case, the reduction in the retail electricity price is driven by the following relationships:

- The weak positive impact on consumer engagement (-0.5%), innovation (-0.3%), and input costs (-0.7%).
- The impact on both competition and supplier resilience may vary, so these drivers do not have an impact on retail electricity prices.

Impact pathwaysFigure 8.1 The pathways between the Single SOLR and changing retail market outcomes



8.3. Assessment of each impact channel between reform option and outcomes

Table 8.2 presents our classification of the relationships:

- between the single SOLR, and the drivers (Stage 1); and
- the drivers and the retail electricity market outcome (Stage 2).

The Stage 2 results in this table are the same as presented in Section 4 and explained in Appendix C.

The combination of the results for each stage then indicate the end to end result for the strength of the impact channel – for example, a route from reform to outcome that has a classification of strong positive relationship in both stages would have a strong positive relationship overall.

Table 8.2 Single SOLR: assessment of the relationships between the reform, drivers, and retail electricity market outcomes

Reform	Impact	Driver	Impact	Outcome
	Direction of impact can vary	Competition		Affordability
				Offer variation
				Sustainable supplier margins
	Weak positive	Innovation		Affordability
				Offer variation
				Sustainable supplier margins
	Direction of impact can vary	Supplier resilience		Affordability
Single SOLR				Offer variation
				Sustainable supplier margins
	Weak positive	Consumer engagement		Affordability
				Offer variation
				Sustainable supplier margins
	Weak positive	Lower input costs[1]		Affordability
				Offer variation
				Sustainable supplier margins

Note: [1] We assess the impact of reducing input costs. For all other drivers, we assess the impact of increasing the driver.

8.4. Main impact routes

Weak reduction of input costs, which will lead to a positive increase in affordability and the sustainability of supplier margins

As default customers are a higher cost-to-serve group, suppliers who no longer supply to this group may face lower average costs to serve their remaining customers. This should decrease supplier operating costs, driving down input costs. However, fixed costs will continue to be spread across all remaining customers, which may increase cost per consumer.

It is also possible that the removal of USO obligations (such as specific billing arrangements) would reduce some fixed costs. Some of these reductions should be passed through to supplier's consumers through lower bills, and the rest will increase supplier's margins.

Removal of the USO will allow new suppliers to enter the market that can specialise in specific retail electricity offerings. If there are specific costs associated with forms of specialisation, then this will lead to higher costs for these supplier types.

For the default SOLR, the cost-to-serve may increase as a greater proportion of higher cost customers are served by a single SOLR supplier. These higher costs would likely be passed onto SOLR customers in the absence of a new mechanism to socialise these costs across the entire customer base.

Weak positive increase in innovation which will lead to a strong positive increase in the variety of offers

Removal of the USO should create an environment that can enable innovation in the retail market. It will reduce barriers to entry, as it removes requirements that suppliers have to fulfil to enter the market, and will allow suppliers to develop specialised and targeted products.

However, the degree to which innovation is stimulated may be limited. The removal of the USO will not facilitate the development of any new products and services which existing suppliers cannot already provide. Suppliers, led by Octopus, are already developing innovative ToU tariffs, and aggregators provide a specialist flexibility service for their customers.

8.5. Impacts on different consumer groups

The biggest benefits of this reform are likely to be for engaged customers who are early adopters of newer and innovative retail propositions. If the reform leads to increased innovation, then there will be a greater variety of propositions that these customers can choose. However, if suppliers that enter the market are very specialised, then they may only serve specific market segments, such as geographical regions, or asset types.

Disengaged consumers may be disadvantaged by this reform, if the SOLR functionality means that default consumers' higher cost-to-serve is borne by those disengaged consumers. However, this harm will be removed if these costs are socialised.

9. R5: REPLACE THE USO WITH MULTIPLE SOLRS VIA AN AUCTION

9.1. Description of reform option

Reform 5 would remove supplier licence conditions that require suppliers to offer and supply to all customers under a domestic supply contract and provide a wide variety of payment options (USO). Instead, multiple SOLRs would be selected to take over the obligation to provide the USO on behalf of all domestic customers who don't enter into a contract or who fall into debt. Each SOLR wouldn't need to cover the whole market (i.e. they can focus on selected customer types or situations) – but across the set of SOLRs the whole market should be covered. The regulator would select SOLRs through an auction where SOLRs compete to provide services to customers at the lowest price for a fixed period. The regulator would continue to determine the tariff structure(s) and enable bidding suppliers to compete on price.

9.2. Overall impact of reform option on outcomes

The channels through which Reform 5 may affect retail market outcomes is captured in Figure 9.1. It maps the impacts through the linkages between the reform and each driver and then each driver and each outcome. In addition, it uses colour coding to illustrates the strength of these linkages. The rationale for the classification of the strength of impact is set out below.

In summary, the evidence that we have gathered suggests that the Multiple SOLR will have a weakly positive effect on the affordability of energy and the variety of offers, and an undefined impact on the sustainability of supplier margins.

It will also have a small impact on the retail price of electricity, reducing it by between -2.0% and -3.0% in the long-term.

Table 9.1 Multiple SOLR via an auction, impact overview

Affordable energy	Sustainable supplier margins	Offer variation
Small improvement	Direction of impact may vary	Small improvement
Price impact: -2.0% to -3.0%		

This impacts on the consumer outcomes are driven by our findings of weakly positive relationships between the reform and input prices, and innovation.

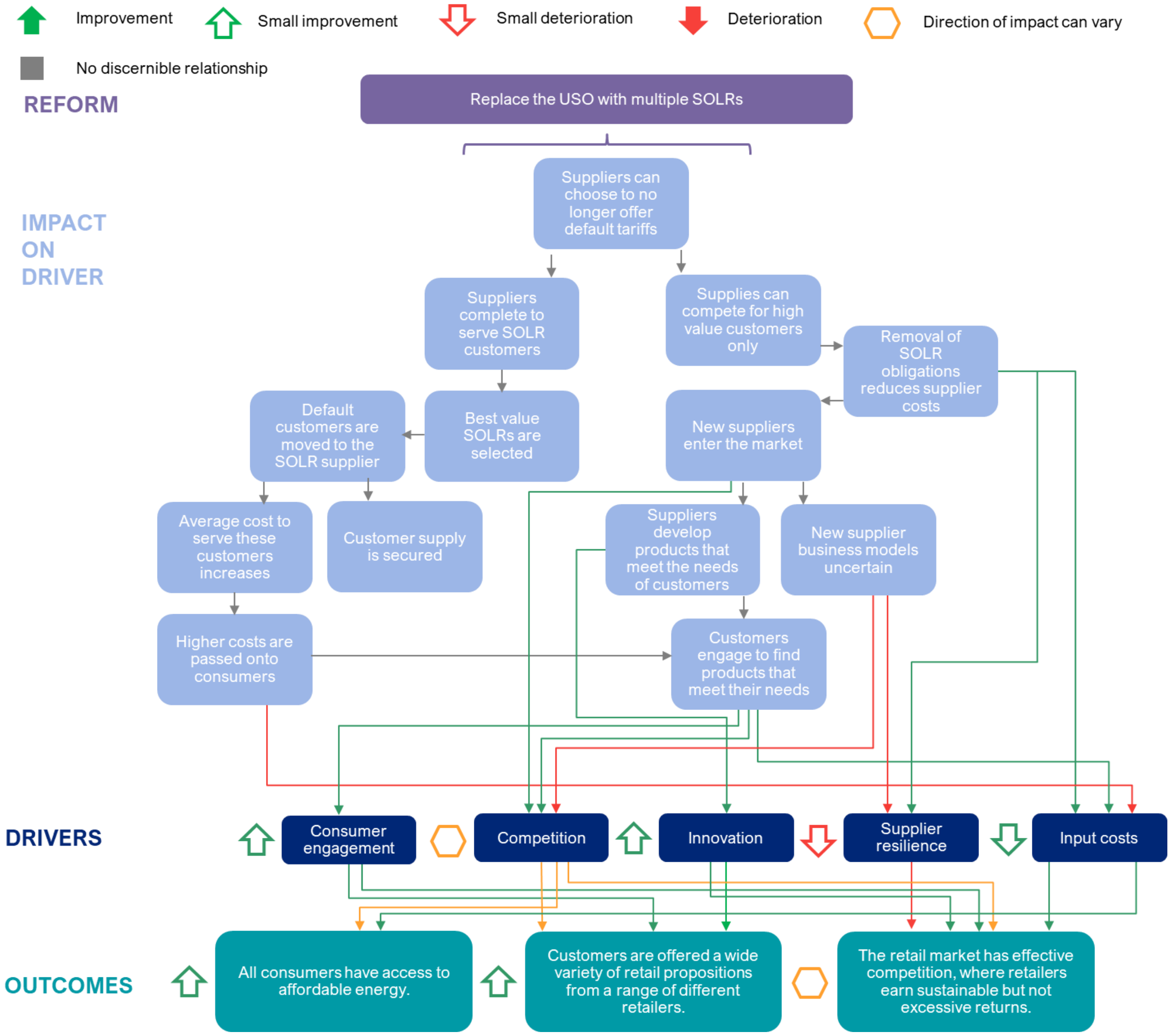
Therefore, the strongest relationships are the following combinations:

- option weakly improves input costs which has a strong positive impact on **affordability and supplier margins;**
- option weakly improves innovation which has a strong positive impact on **offer variation;**

Based on the central case, the reduction in the retail electricity price is driven by the following relationships:

- The weak positive impact on consumer engagement (-0.5%), innovation (-0.3%), and input costs (-0.7%). This is the same as Reform 4, with a single SOLR.
- For the price impact, the main difference between Reform 4 and Reform 5 is the impact on supplier resilience. We assess that multiple SOLRs will have a weak negative impact on supplier resilience, which will change retail electricity prices by -0.9%. There is no impact on supplier resilience under Reform 4.

Impact pathwaysFigure 9.1 The pathways between a collective USO and changing retail market outcomes



9.3. Assessment of each impact channel between reform option and outcomes

Table 9.2 presents our classification of the relationships:

- between the Multiple SOLRs, and the drivers (Stage 1); and
- the drivers and the retail electricity market outcome (Stage 2).

The Stage 2 results in this table are the same as presented in Section 4 and explained in Appendix C.

The combination of the results for each stage then indicate the end-to-end result for the strength of the impact channel – for example, a route from reform to outcome that has a classification of strong positive relationship in both stages would have a strong positive relationship overall.

Table 9.2 Multiple SOLR: assessment of the relationships between the reform, drivers, and retail electricity market outcomes

Reform	Impact	Driver	Impact	Outcome
Multiple SOLR	Direction of impact can vary	Competition		Affordability
				Offer variation
				Sustainable supplier margins
	Weak positive	Innovation		Affordability
				Offer variation
				Sustainable supplier margins
	Weak negative	Supplier resilience		Affordability
				Offer variation
				Sustainable supplier margins
	Weak positive	Consumer engagement		Affordability
				Offer variation
				Sustainable supplier margins
	Weak positive	Lower input costs[1]		Affordability
				Offer variation
				Sustainable supplier margins

Note: [1] We assess the impact of reducing input costs. For all other drivers, we assess the impact of increasing the driver.

9.4. Main impact channels

Weak reduction of input costs, which will lead to a strong positive increase in affordability and the sustainability of supplier margins

As default customers are a higher cost-to-serve group, suppliers who no longer supply to this group may face lower average costs to serve their remaining customers. This should decrease supplier operating costs, driving down input costs. The impact is likely to be smaller than under Reform 4 due to the costs of auction participation for multiple suppliers. Fixed costs will also continue to be spread across all remaining customers, which may increase input costs if suppliers are serving a smaller customer base.

It is also possible that the removal of USO obligations (such as specific billing arrangements) would reduce some fixed costs. Some of these reductions should be passed through to supplier's consumers through lower bills, and the rest will increase supplier's margins.

Removal of the USO will allow new suppliers to enter the market that can specialise in specific retail electricity offerings. If there are specific costs associated with forms of specialisation, then this will lead to higher costs for these supplier types.

For the SOLRs, the cost-to-serve may increase as a greater proportion of higher cost customers form their customer base. These higher costs would likely be passed onto SOLR customers, although market competition to provide USO services may place some downward pressure on these costs.

Weak increase in innovation, which will lead to a strong positive increase in offer variation

Removal of the USO should create an environment that can enable innovation in the retail market. It will reduce barriers to entry, as it removes requirements that suppliers have to fulfil to enter the market, and will allow suppliers to develop specialised and targeted products.

However, the degree to which innovation is stimulated may be limited. The removal of the USO will not facilitate the development of any new products and services which existing suppliers cannot already provide. Suppliers, led by Octopus, are already developing innovative ToU tariffs, and aggregators provide a specialist flexibility service for their customers.

It is unlikely that the different mechanisms between R4 an R5 will change the degree to which innovation is supported.

9.5. Impacts on different consumer groups

The impacts on consumer groups will be the same under R5 as they are R4.

The biggest benefits of this reform are likely to be for engaged customers who are early adopters of newer and innovative retail propositions. If the reform leads to increased innovation, then there will be a greater variety of propositions that these customers can choose. However, if suppliers that enter the market are very specialised, then they may only serve specific market segments, such as geographical regions, or asset types.

Disengaged consumers may be disadvantaged by this reform, if the SOLR functionality means that default consumers' higher cost-to-serve is borne by those disengaged consumers, then they will be disadvantaged compared with the status quo. However, this harm will be removed if these costs are socialised. Additionally, competition through the auction may mitigate these costs. While this remains an efficient price, additional consumer protections for vulnerable consumers may be required (e.g. additional rebates for concession holders).

10. R6: INTRODUCE A SPLIT METER MODEL AND REMOVE THE USO FOR SECONDARY SUPPLIERS

10.1. Description of reform option

Reform 6 would introduce a 'split meter' model (consistent with BSC Modification P379) [39] that would allow consumers to have multiple suppliers providing energy for different services (e.g. for electric vehicle charging) or from different sources (e.g. local generation). 'Primary suppliers' would retain the USO, while 'secondary suppliers' would be free to specialise.

10.2. Overall impact of reform option on outcomes

The channels through which Reform 6 may affect retail market outcomes is captured in Figure 10.1. It maps the impacts through the linkages between the reform and each driver and then each driver and each outcome. In addition, it uses colour coding to illustrates the strength of these linkages. The rationale for the classification of the strength of impact is set out below.

In summary, the evidence that we have gathered suggests that the split meter model will have a weakly positive effect on the variety of offers, and the affordability of energy, and a weakly negative impact on the sustainability of supplier margins. This suggests that this option has, a mixed impact on supplier outcomes.

It will also have a small impact on the retail price of electricity, reducing it by between -1.3% and -2.2% in the long-term.

Table 10.1 Multiple SOLR via an auction, impact overview

Affordable energy	Sustainable supplier margins	Offer variation
Small improvement	Small deterioration	Small improvement
Price impact: -1.3% to -2.2%		

This impacts on the consumer outcomes are driven by our findings of weakly negative impacts on supplier resilience and a weakly positive impact on innovation. The strongest relationships are the following combinations:

- option weakly deteriorates supplier resilience which has a strong negative impact on **sustainability of supplier margins.**
- option weakly improves innovation which has a strongly positive impact on **offer variation.**

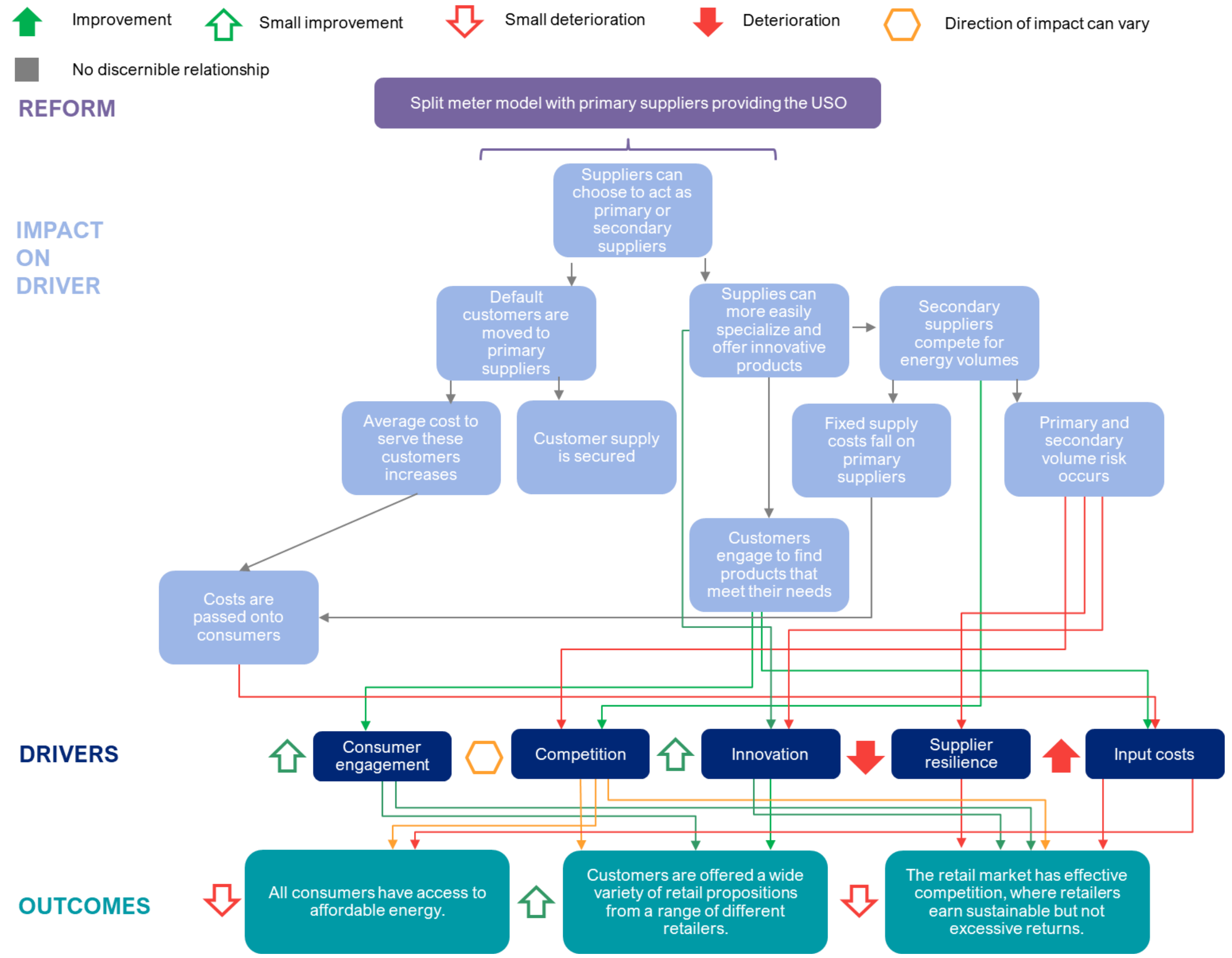
Based on the central case, the reduction in the retail electricity price is driven by the following relationships:

- The weak positive impact on consumer engagement (-0.5%), and innovation (-0.3%).
- There is also a weak negative impact on supplier resilience which changes retail electricity prices by -0.9%.

[39] P379 was a Balancing and Settlement Code (BSC) modification proposal in 2019 to introduce a split meter model in Great Britain. It was withdrawn in 2021 because the expected implementation cost was higher than anticipated and key intended outcomes were judged to overlap with other BSC modifications. However, CEPA considered there was scope to reconsider the proposal in a future retail market with more smart meters, MHHS, and greater deployment of low carbon technologies. DESNZ (2023), *Towards a more innovative energy retail market - A Call for Evidence*, p. 11.

10.3. Impact pathways

Figure 10.1: The pathways between a split metering model and changing retail market outcomes



10.4. Assessment of each impact channel between reform option and outcomes

Table 10.2 presents our classification of the relationships:

- between the Split Meter Model, and the drivers (Stage 1); and
- the drivers and the retail electricity market outcome (Stage 2).

The Stage 2 results in this table are the same as presented in Section 4 and explained in Appendix C.

The combination of the results for each stage then indicate the end to end result for the strength of the impact channel – for example, a route from reform to outcome that has a classification of strong positive relationship in both stages would have a strong positive relationship overall.

Table 10.2 Split meter model: assessment of the relationships between the reform, drivers, and retail electricity market outcomes

Reform	Impact	Driver	Impact	Outcome
Split meter model	Direction of impact can vary	Competition		Affordability
				Offer variation
				Sustainable supplier margins
	Weak positive	Innovation		Affordability
				Offer variation
				Sustainable supplier margins
	Weak negative	Supplier resilience		Affordability
				Offer variation
				Sustainable supplier margins
	Weak positive	Consumer engagement		Affordability
				Offer variation
				Sustainable supplier margins
	Undefined	Lower input costs[1]		Affordability
				Offer variation
				Sustainable supplier margins

Note: [1] We assess the impact of reducing input costs. For all other drivers, we assess the impact of increasing the driver.

10.5. Main impact channels

Weakly decrease supplier resilience, which will strongly reduce the sustainability of supplier margins

The split meter model should increase the number of suppliers in the market, as it becomes easier for specialised suppliers to enter the market. Primary suppliers would face additional volume and commercial risk if residual demand becomes more uncertain and volumes are reallocated between primary and secondary arrangements. Secondary suppliers could also present higher failure risk due to size and uncertainty of the business model. However, allowing suppliers to specialise will also allow for bespoke business models that are suited to the delivery of specific retail electricity propositions – this should improve the sustainability of the margins for these suppliers.

Weakly increase innovation, which will increase offer variation

A split meter model could facilitate the emergence of specialist suppliers and bundling of offers for large, separable loads. However, the scale of innovation benefits may be limited. Suppliers can already offer flexibility-linked tariffs and services to households with assets such as EVs, batteries and heat pumps within a single-supplier relationship.[40] In addition, BSC Modification P415 enables independent aggregators to access wholesale-market value for flexibility, which supports third-party flexibility offers alongside a household's existing supplier without requiring split supply at the premises.

10.6. Impacts on different consumer groups

The biggest benefits of this reform are likely to be for engaged customers and customers with flexible load who are early adopters of newer and innovative retail propositions. If the reform leads to increased innovation, then there will be a greater variety of propositions that these customers can choose.

However, the estimated costs of the split meter model are significant, and it is assumed that these will be passed on to consumers. This will lead to increased costs for all consumer types.

[40] CEPA (2020), *P379 Impact Assessment*, Final Report prepared for Elexon. 23 March, p. 7.

Appendix A CHALLENGES UNDER CURRENT POLICY AND PROPOSED REFORMS

Below we present the challenges for the current operation of the price cap and USO, and the challenges that reforms would have to overcome.

A.1. Challenges for the operation of the current price cap

A flat default price cap may undermine efficient cost recovery and retailer viability as customer risk and costs diverge

As the customer base becomes more diverse in usage patterns and costs-to-serve, a single flat cap may not reflect the underlying risk and cost of supplying different consumers. If set too low relative to efficient costs and risk, this can weaken retailer financial sustainability and deter new entry and investment. If set too high, consumers may not receive adequate price protection. This market failure may be exacerbated if, as Ofgem suggest could happen, a split market develops, where lower-cost, more flexible customers exit the flat default tariff, while higher-cost customers remain, creating selection effects that push up the cap level needed for an efficient supplier to recover costs.[41]

A flat default price cap may slow the development and uptake of more dynamic default tariffs

A single flat cap is not well aligned with time-varying system costs and risks. This can discourage retailers from offering more dynamic pricing approaches within default tariffs and may slow the transition to time-varying tariffs that support flexible, demand-responsive consumption. Even where a simple ToU price cap applies for Economy 7 customers, the default tariff is set to the average of the unit rate based on expected energy consumption during peak and off-peak periods – and so does not truly align to time-varying system costs and risks faced by suppliers.[42]

As the cost-to-serve diverges, a centrally set price cap may not reflect suppliers' underlying costs

As the cost-to-serve different customer groups become more heterogeneous, it becomes harder for a regulator to set a single cap that accurately reflects the efficient cost of serving default customers. This can create information asymmetry, as suppliers have better visibility of their underlying costs and risks than the regulator. This increases the risk that the price cap is not set at the right level, which will allow for rents if it is set too high, or undermine efficient cost recovery if it is set too low.

A.2. Challenges for reforms to the current price cap

Tariff choices of engaged customers can create adverse selection effects that raise costs for those left on the default tariff

If more flexible, lower-cost consumers move onto innovative tariffs while higher-cost consumers remain on the default tariff, the costs that must be recovered through the default tariff increase. This can push up the efficient cap level over time and risk higher energy costs for consumers who are less able to switch or be flexible, including

[41] Ofgem (2024), *Future of domestic price protection, Discussion Paper*, 25 March, p. 27-28.

[42] Ofgem, Get energy price cap standing charges and unit rates by region, accessed on 20 February 2026, available online here.

vulnerable consumers. This can happen without reforms that promote innovation; however, increases in innovation could speed up and/ or amplify this issue.

More dynamic tariffs can shift more price risk onto consumers

Dynamic tariffs shift more price risk onto consumers who may not be well placed to manage that risk. This can result in greater bill shock or bill volatility, particularly if consumers are unable to shift their consumption during peak times or do not understand the risk and reward trade-offs of dynamic tariffs.

A.3. Challenges for the operation of the current USO

The USO may constrain market entry and innovation

Achieving the UK Government's Clean Power target for 2030 and its net zero target for 2050 will require changes to the way energy is generated, stored and used. Greater utilisation and coordination of both demand and supply at the distribution level (such as through demand response, rooftop solar and EVs) will change the way households interact with the energy system and enable domestic customers to play a more active role in the energy transition. However, capturing this opportunity requires domestic customers having access to retail products and tariffs that enable this.

Concerns have been raised that the USO may be stifling innovation. In 2016, Ofgem amended SLC 22A and 22B following a review by the Competition & Markets Authority (CMA) that some provisions were restricting tariff variety and innovation.[43] More recently, some stakeholders have argued that the universal duty to supply under SLC 22 may similarly limit suppliers' ability to specialise.

The USO may act as a barrier to innovation by restricting retailers from specialising and making it more challenging for new suppliers to enter the market. The USO introduces costs that all suppliers must bear if they are to enter the market and precludes streamlined and targeted business models and offerings which focus on specific propositions or market segments. This may impact retail competition and customer access to a diversified retail offerings that meets the needs and circumstances of all consumers.[44]

Proposals from Citizens Advice and Energy Systems Catapult suggest that relaxing or redesigning the universal service obligation could create space for more innovative or niche retail models, such as secondary suppliers.[45] [46] In particular, the Energy Systems Catapult has revisited the secondary supplier model that enables meter splitting and found evidence that this approach could unlock innovative tariff structures and flexibility without disrupting legacy loads. The report maintains that regulatory change is required to make this model commercially viable.[47]

A.4. Challenges for reforms to the current USO

Removing the USO could weaken protections for vulnerable and high-cost-to-serve consumers

If the USO is removed without replacement safeguards, retailers may have fewer incentives to serve consumers who are more expensive or complex to support. This could reduce the availability of appropriate offers and risk some consumers being left without access to fair, affordable and reliable supply arrangements.

[43] Ofgem (2017), *Final Decision: Enabling consumers to make informed choices,* April.

[44] Poudineh R. (2019), *Liberalized retail electricity markets: What we have learned after two decades of experience?,* p. 5.

[45] Citizens Advice (2024), Citizens Advice Response to Ofgem's Innovation in the Energy Retail Market, November, p. 9.

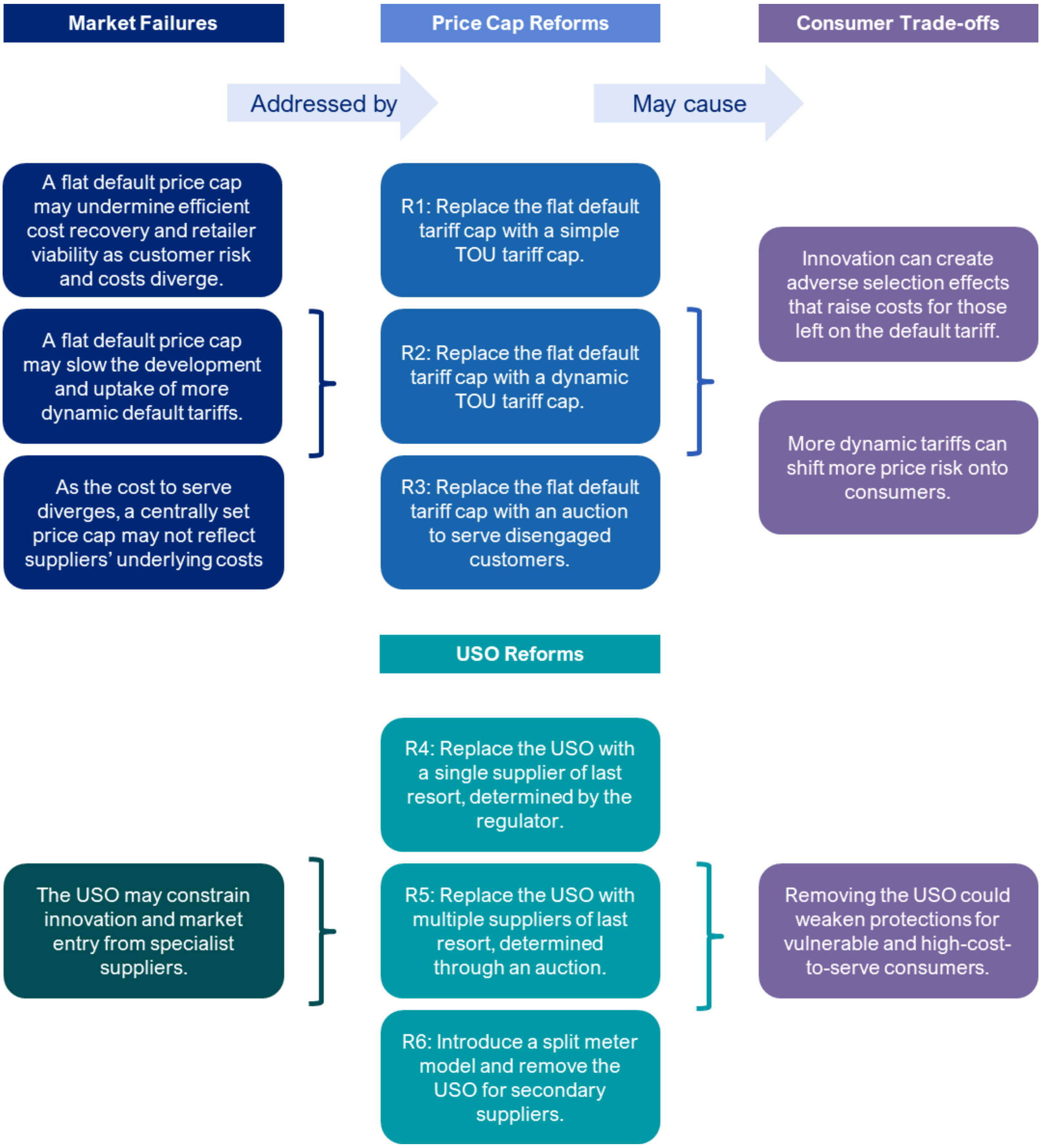
[46] Energy Systems Catapult (2025), Exploring the secondary supplier model, 21 May.

[47] Energy Systems Catapult (2025), Breaking the one supplier rule, 6 February.

A.5. Mapping of each reform option to the policy and reform challenges

Figure 10.2 illustrates how each of the reform options map to the challenges described above.

Figure 10.2: Mapping reforms to retail market failures and consumer protection trade-offs



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Appendix B RATIONALE FOR APPROACH TAKEN IN THIS STUDY

Gathering evidence on the impact of the proposed reforms to the GB retail electricity market presents analytical challenges. These challenges stem from the nature of the reforms under consideration, the characteristics of the retail electricity market, and the available evidence base.

Many of the reforms examined in this study are inherently novel or forward-looking. They involve changes to the design of default tariffs, price caps and USOs that have not been implemented in GB, and in several cases have few close international precedents. As a result, there is limited scope to rely on historical, causal evidence to quantitatively estimate their impacts directly.

The retail electricity market is subject to multiple, overlapping drivers and shock. These include wholesale price volatility, policy interventions, supplier exits and changes in consumer behaviour and technology. These dynamics make it difficult to isolate the effect of any single factor using econometric techniques alone. Furthermore, the evolution of the retail sector and wider economic environment may make the past not a perfect guide to the future. In particular, the recent energy crisis and associated policy responses (such as the Energy Price Guarantee) complicate interpretation of historical relationships between prices, competition, innovation and resilience.

Many of the interesting concepts, such as innovation and supplier resilience, are difficult concepts to measure empirically. Unlike prices or market shares, there is no single observable metric that captures innovation in retail offerings or the resilience of suppliers to shocks. In other cases, there are gaps in available data, such as supplier margins, over an extended period. While proxies can be used, each has limitations and risk mis-representing the underlying concept if interpreted too narrowly.

Fourth, policy reforms will not affect all consumers in the same way. Impacts may vary between consumer groups in multiple dimensions - particularly between engaged and disengaged consumers, fuel-poor and non-fuel-poor households, and those with flexible versus inflexible demand. Confidently identifying distributional effects of how individuals fit in the combinations of these groups is challenging. This adds complexity beyond what aggregate metrics alone can reveal.

The challenges constrain the extent to which purely quantitative methods can be relied upon to build a transparent and useful evidence base that clarifies how different types of reform are expected to affect the retail market, through which channels, and with what types of risks and trade-offs.

Indeed, this is a risk that we identified when first developing our methodology for this study. Attributing effects through econometric techniques is challenging due to policy noise, recent market shocks (e.g., gas price spikes, supplier failures), and limitations on data availability. These factors may make it difficult to identify any relationship, let alone a statistically significant one, from a regression analysis alone.

For these reasons, we use a mixed methods approach that draws on three complementary sources of evidence:

- **Economic theory:** which we use to establish expected directions of effect and to frame hypotheses about how reforms may influence behaviour. This includes well-established insights on price regulation, competition, innovation incentives and risk allocation in regulated markets. Theory provides a necessary anchor where empirical evidence is weak or absent**.**
- **Secondary research**; focuses on empirical evidence from academic literature and reports on retail market changes in other jurisdictions. We pay particular attention to international experiences with price caps, time-of-use pricing and retail market regulation. While these cases are not directly comparable to GB, they provide valuable insights into potential impacts, risks and unintended consequences.
- **Primary quantitative analysis**: in the form of a long-run econometric regression analysis using the dependent variable of retail energy expenditure in the GB household electricity market over the last 20 years.

Recognising the limits of econometric evidence, we use the regression analysis to inform direction and relative magnitude, rather than to produce precise forecasts. Historical regression analysis complemented by qualitative and quantitative evidence gathered through secondary research. This ensures that quantitative results are not over-interpreted or presented with false precision

By combining these three methods, the approach avoids reliance on any single evidence source and enables triangulation across theory, experience, and data.

Appendix C RATIONALE FOR CLASSIFICATION OF THE IMPACT OF DRIVERS TO OUTCOMES

We below we provide our rationale for the classification of the impact of the five drivers to the three consumer outcomes. This is organised by driver.

C.1. Competition

Consumer outcome 1: Affordability

Classification: Strong positive relationship

Conventional economic thinking states that an increase in competition should drive efficiency improvements that result in an improvement in affordability.

This directional impact is consistent with the evidence from our econometric analysis of the GB retail market over the past 20 years. That analysis estimates that a 1% increase in our measure of competition is correlated with a 0.26% reduction in prices.[48]

In our secondary research, we have seen arguments made by Chen et al that more competition can worsen affordability. This may be through increasing the cost-to-serve (per customer) when fixed costs are spread over a smaller customer base. In addition, increasing the cost to search for consumers can change affordability, beyond a change in price. Chen et al undertake their own econometric analysis which supports these findings. However, we have considered limitations with their analysis and also do not expect the factors they identify to have much applicability in the GB household retail electricity sector. which support using our estimates instead.[49]

Consumer outcome 2: Offer variety

Classification: Weak positive relationship

Competition should encourage improvements in the variety of propositions on offer. It should increase the number of firms in the market and the variation of offers from firms that are active, as they try and compete to increase their consumer base.

Although there has been some innovation in products and business models in the GB household retail electricity market, historically the uptake of new products has been low. Across the market, the vast majority of tariffs only differ by price.[50] This price variation has at times been limited by price cap arrangements, whether in the form of the default tariff cap or the Energy Price Guarantee. This is despite GB having a HHI value below 1,500, representing a highly competitive market, for much of the 2010s (see Figure 10.4 in Appendix E).

This suggests that the relationship between competition and the variety of offers is weakly positive.

Consumer outcome 3: Sustainable supplier margins

Classification: Weak positive relationship

Traditional economic theory states that if supplier margins are excessive then competition will reduce supplier margins towards sustainable levels. We have characterised this relationship as weakly positive, as if supplier margins are already sustainable, then it is unlikely that competition will change the level of margins across the

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[48] The measure of competition in the analysis is a market competition metric, the Herfindahl-Hirschman Index (HHI). Therefore, a 1% increase in competition is represented by a 1% reduction in the HHI.

[49] We provide greater analysis of Chen et al's work in Appendix D.

[50] Department for Energy Security & Net Zero (2023), Delivering a better energy retail market, available online here.

market; and if supplier margins are already unsustainably low, then competition is unlikely to increase them to a sustainable level.

C.2. INNOVATION

Consumer outcome 1: Affordability

Classification: Weak positive relationship

Economic literature describes a complex relationship between innovation and prices: greater innovation can improve productivity and potentially reduce prices. However, innovation can also increase prices when it delivers higher quality or new functionality, or when it creates temporary monopolies through barriers such as patents or technological advantages. New functionality and higher quality would be an improved outcome for consumers in itself, even though there might be a trade-off with the price.

Our regression analysis supports a weakly positive relationship between innovation and affordability, where a 1% increase in innovation (proxied by the number of patents) leads to a 0.05% reduction in electricity prices.

Consumer outcome 2: Offer variety

Classification: Strongly positive relationship

By definition, innovation should increase the variety of propositions available. However, innovation may be targeted at specific groups, so it is not certain that all preferences will be satisfied in the market even with more products available.

Consumer outcome 3: Sustainable supplier margins

Classification: Weak positive relationship

Innovation can increase the profit margin of individual suppliers in two main ways. First, it may reduce their costs and those savings may not be fully passed on to consumers. This is consistent with the classification of a weak positive relationship impact of innovation on prices. Second, if it improves quality or adds functionality in a way that may support charging a higher price. Innovation may also raise profits where it helps a supplier grow its market share, potentially allowing it to earn higher profits than competitors.

More broadly, in a healthy market, active innovation should contribute to supplier margins that are sustainable over time.

C.3. SUPPLIER RESILIENCE

Consumer outcome 1: Affordability

Classification: Direction of impact can vary

Supplier resilience should reduce the likelihood of supplier failure, particularly during periods of significant exogenous shock, which in turn would help avoid additional costs being passed on to consumers. At the same time, this resilience may be supported by higher bills today.

In our regression analysis, a 1% increase in the number of suppliers is associated with a 0.2% increase in prices. However, in considering this value, we are aware of the potential for the causal direction between this driver and outcome to work in the other direction – i.e. higher prices support higher number of suppliers.

In light of this conceptual and empirical evidence, our view is that the direction of impact of supplier resilience on affordability will be highly circumstance dependent – e.g. on the relative size of costs of measures supporting supplier resilience compared to supplier failure costs borne by consumers.

Consumer outcome 2: Offer variety

Classification: Weak positive

To the extent that it raises costs and reduces supplier margins, this could weaken incentives to innovate and therefore reduce the variation in offers available to consumers. However, the recent shocks in the retail electricity market also affected suppliers' ability to innovate, and greater supplier resilience could have mitigated this effect and supported greater offer variation over the longer term. That said, lower requirements might also have encouraged more market entry, which in turn could have increased the range of offers in the market.

On balance we assess that there is a weakly positive relationship, as an increase in the number of suppliers in the market should lead to a greater number of propositions on offer.

Consumer outcome 3: Sustainable supplier margins

Classification: Strong positive relationship

Supplier resilience requirements, such as capital requirements and enhanced monitoring and reporting obligations, may impose additional costs on firms and therefore reduce their margins. However, these requirements can also deter entry by firms with unsustainable business models and encourage more sustainable business practices that improve firms' ability to withstand shocks over time. In that sense, such measures should, almost by definition, support margins that are more sustainable in the long term.

This is consistent with results from our regression of the impact of supplier resilience on price.

C.4. Consumer engagement

Consumer outcome 1: Affordability

Classification: Direction of impact can vary

Consumer engagement should help more consumers access the most affordable offers. Our regression results suggest that greater consumer engagement is associated with lower average prices. However, not all consumers will engage with the market, so while engagement may improve outcomes for those who do, it can also leave disengaged consumers facing poorer outcomes.

In addition, consumers value more than just price, so greater engagement may increase demand for higher-quality or more specialised offerings, such as EV tariffs. This may not affect efficient prices directly but could raise overall prices if consumers are willing to pay for these features.

Consumer outcome 2: Offer variety

Classification: Weak positive relationship

As non-price factors influence consumer's decisions, greater consumer engagement should lead to more variety in the retail propositions available, not just their price. If suppliers are aware of these preferences, then they will differentiate the functionality of their offering, as well as the customer service features, they provide, to capture these more engaged consumers.

Unlike the discussion on affordability, there may be less scope for negative distributional effects on the disengaged – as they wouldn't see a reduced number of offers. However, the relationship is not strongly positive as those customers who are disengaged may not see development of offers reflecting their preferences.

Consumer outcome 3: Sustainable supplier margins

Classification: Direction of impact can vary

Greater consumer searching should put downward pressure on supplier margins, as suppliers are incentivised to reduce prices in order to win a larger share of the market. However, the extent to which this is sustainable will depend on the level of supplier resilience across the market. Whether this ultimately results in more or less sustainable margins will depend on the starting level of margins and on whether suppliers offset lower prices for engaged consumers by increasing costs for disengaged consumers.

C.5. Lower input costs

Consumer outcome 1: Affordability

Classification: Strong positive relationship

Lower input costs reduce the level of efficient costs in the market, although the extent depends on the level of pass-through from suppliers.

Consumer outcome 2: Offer variety

Classification: No discernible relationship

Higher input costs may reduce the variety of offers available if offer variation is perceived to be more risky. However, it may also drive innovation and hence new types of offers as firms respond to new cost pressures.

We do not have strong evidence to support the link between this driver and this consumer outcome, so we have classified the outcome as 'no discernible relationship'.

Consumer outcome 3: Sustainable supplier margins

Classification: Strong positive relationship

Lower input costs should improve the sustainability of supplier margins. However, this is impacted by the degree to which there is pass-through. The balance between the reduction in bills and the increase in margins will determine on the level of pass-through, which determines how cost changes are split between consumers and suppliers.

Appendix D SECONDARY RESEARCH

D.1. Approach to the literature review

In line with our two-step approach, the literature review was tailored to look for the following:

- Empirical quantitative and qualitative evidence of estimations of the relationship between our six retail market reforms, and our five retail electricity drivers of market outcomes**.**
- Empirical quantitative and qualitative evidence of estimations of the relationship (I.e. elasticities) between our five retail market drivers, and retail electricity market outcomes.

We undertook a targeted review of academic and grey literature, focusing on:

- Reports and papers from the last 5 years.
- The GB retail market, followed by Australia, EU or other relevant jurisdictions. This included a deep dive into Australian price cap reforms (the Victorian Default Market Offer).

Where information gaps remained, we expanded the search parameters to include a wider timeframe or less relevant jurisdictions.

D.2. Reforms to drivers

We have not been able to find quantified estimates of the elasticities that relate reforms to retail market drivers. This reflects the fact that the reform options are innovative and represent specific policy proposals. A few jurisdictions have implemented similar policies, and there is limited analysis of the impact of these policies on the specific drivers:

- **Australia, Victorian Market**: the Victorian Default Offer (VDO) is a tariff price cap applied to domestic customers and small businesses. There is both a single tariff and two-period tariff variant.[51]
- **Netherlands:** an 'energy price ceiling' where the price of electricity is capped for consumption lower than a threshold. Consumption above the threshold is charged at a higher rate.[52]
- **Spain:** a three-rate ToU pricing structure for residential electricity consumption, based on the time of day and day of the week.[53]
- **Italy:** default two-rate ToU tariffs for all residential consumers.[54]

We also looked at the following case studies which covered jurisdictions that have introduced a flat price cap. We looked at these in case they provided information that could help us understand the impact of the introduction of more complex price caps:

- **Australian, National Electricity Market (NEM)**: has a single tariff price cap for residential and small businesses, called the Default Market Offer (DMO).[55]

[51] Essential Services Commission (ESC), *Victorian Default Offer,* Available online here.

[52] Dutch Review, *All you need to know about the Dutch energy subsidy and price cap*, Available online here.

[53] Enrich et al (2024), *Measuring the impact of time-of-use pricing on electricity consumption: Evidence from Spain.*

[54] Eliq, *The complete Dynamic Pricing guide for energy retailers*, Available online here.

[55] Australian Energy Regulator (AER), *Default market offer prices 2025–26*, Available online here.

- **USA, Pennsylvania**: a 'price to compare rate' that must be offered by utility companies. It works as an effective cap. Retailers (i.e. third-party providers) can provide cheaper rates.[56]

We performed a key-term search of each of these policies, looking for studies which empirically estimated the impact of these reforms on the drivers. We were unable to find evidence that was sufficiently targeted to our needs.

Where information gaps remained, we expanded the search parameters to include a wider timeframe or less relevant jurisdictions.

We are not aware of jurisdictions that have introduced policies that relax USO (or the equivalent for the specific jurisdiction), so could not include these in our search.

Evidence from Australia suggests that the introduction of price caps can make engaged consumers worse off, as the lowest prices in the market become anchored to the default offer.[57] The removal of the regulated price cap in Queensland was found to improve outcomes for the majority (over 75%) of consumers, with greater competition providing more consumer choice.[58] This is useful in analysing the impact of a price cap compared to no price cap, but can only be used anecdotally when considering the impact of moving from a flat price cap to a ToU price cap.

In the Spanish retail electricity market, tri-rate ToU tariffs are implemented as the default tariff. A series of papers have looked at how customers in that market adjust consumption in response to prices. These papers have found a small negative or negligible response to prices.[59] However, while this is useful when understanding the potential for system-wide benefits of ToU pricing – where more efficient use of energy can reduce energy system costs – this analysis would inform our estimated impacts of the reform on the driver of input costs to the extent that these changes to energy system costs impact retailer input costs via the input costs driver.

D.3. Drivers to Outcomes

Drawing on the academic and grey literature, we describe the evidence for how each driver is expected to impact retail market outcomes.

D.3.1. Competition

Key findings

- Competition should reduce retail prices, increase the variety of products offered and reduce supplier margins. However, low levels of customer engagement will dampen these impacts.
- Competition is sensitive to the level of input costs, and the risk environment faced by suppliers.
- Competition is positively correlated with innovation and negatively correlated with supplier resilience.

Impact on outcomes

The traditional view is that competition tends to drive down prices and reduce supplier margins. This is a core principle of microeconomics: when firms earn excess (economic) profits in a competitive market, those profits attract entry. Entry increases supply and intensifies rivalry, which typically pushes prices down and erodes profits until firms produce where marginal revenue equals marginal cost (MR = MC) and, in the long run, earn only normal

[56] Electricity Plans, *Pennsylvania Utilities - Price to Compare*, Available online here.

[57] Esplin et al. (2020), *The impacts of price regulation on price dispersion in Australia's retail electricity markets*.

[58] Simshauser (2018), *Price discrimination and the modes of failure in deregulated retail electricity markets*.

[59] Enrich et al. (2023), *Measuring the Impact of Time-of-Use Pricing on Electricity Consumption: Evidence from Spain*; Fabra et al. (2021), *Estimating the Elasticity to Real-Time Pricing: Evidence from the Spanish Electricity Market.*

profits. By contrast, when competition is weaker - at the extreme, under monopoly - a firm can restrict output and set prices above marginal cost, generating supernormal profits.

However, research has shown that increasing the number of firms may increase prices. This can occur through several possible mechanisms, as summarised by Chen at al (2025):[60]

- Increasing the number of firms increases the cost to search, reducing consumer's incentive to seek out the lowest price. This can potentially lead to higher prices.
- If there are more firms in the market, then the proportion of switching consumers available to each retailer diminishes. This can encourage sellers to raise prices for loyal consumers.
- If customers switch to new suppliers, costs for customers who stay with large legacy suppliers may increase as these suppliers have fewer customers to spread out indirect costs across.

Chen et al (2025) test whether higher competition increases prices. They find that market concentration (measured through HHI) is negatively related to prices. However, there are significant limitations with Chen et al's work. Their methodology does not truly account for network costs and excludes any measure of customer engagement. I.e., the model employed by Chen et al. focuses on the supply-side characteristics[61]. Combined with data limitations,[62] this raises questions concerning the validity of their results.

Research also shows that competition can have an impact on prices when the market is out of equilibrium. Countries with competitive markets have seen prices return to pre-crisis levels faster than those with less competitive markets.[63]

Stronger competition can encourage improvements in customer service, while driving suppliers to innovate through new product offerings designed to attract new customers.[64] [65] As described in the customer engagement section below, customers care about non-price factors when deciding which supplier to use. This means that, through the same mechanisms that lead to competing firms to reduce prices, greater competition should also lead to greater variety across non-price factors.

As outlined above, microeconomic theory suggests that competition should reduce supplier margins, leading to the long-run equilibrium where MC = MR. However, greater competition can also incentivise companies to search for operational efficiencies. If these are found, then it will increase individual supplier's margins in the short-run, until other suppliers have had an opportunity to find efficiencies themselves, or more efficient firms have entered the market.

The sustainability of supplier margins in environments with high levels of competition is impacted by the level of supplier resilience, which we discuss below.

Relationship with other drivers

[60] Chen et al (2025), *Higher prices in a more competitive market: The paradox in the retail electricity market in the United Kingdom.*

[61] There are no consumer engagement variables included in the Chen et al. regression data, leading to an obvious omitted variable bias.

[62] For example, network costs are only observed on an annual basis and are converted to a quarterly observation. HHI is similarly observed only on an annual basis, with the annual value copied for the other quarterly periods.

[63] ACER (2025), *Rewarding Flexibility: How retail contract choice can help unlock consumer flexibility*, 2025 Monitoring Report, 27 November, p. 13.

[64] ACER (2025), *Rewarding Flexibility: How retail contract choice can help unlock consumer flexibility*, 2025 Monitoring Report, 27 November, p. 5

[65] Hernnäs et al. (2023), *Pass-through in EU electricity and gas markets*, p. 1.

Competition is sensitive to the cost and risk environment that suppliers face. If input costs are not completely passed through to consumers, then higher input costs can make market participation less attractive. This will reduce the number of suppliers in the market, reducing the level of competition.

Increased competition may reduce the level of supplier resilience. Described above, competition should drive down supplier margins. All else equal, lower margins will reduce the reserves that suppliers have to respond to price shocks, reducing their resilience.

Economic theory relates competition and innovation closely. Innovation is the mechanism through which firms compete, as it is the process through which firms develop new propositions intended to capture a greater share of a market. More competition in the market should lead to greater innovation, as the gains from a differentiating offering increase. This has been borne out in research. The Herfindahl-Hirschman Index (HHI) is a measure of market concentration, with a higher score translating to lower market competition. EU countries with a HHI score of less than 2,000 indicate moderate concentration and generally coincides with more innovative offers.[66]

Consumer engagement impacts the extent to which competition affects consumer outcomes. If consumers are not actively searching, then market competition is unlikely to be effective, as customers will not switch to products that maximise their utility.

D.3.2. Innovation

Key findings

- Innovation should reduce prices, or increase the differentiation of products in the market through increased in functionality or improvements in quality. However, the relationship between innovation and prices may be a function of the level of competition in the market.
- Innovation can improve the profit margin of individual suppliers if: i) innovation leads to a reduction in costs which they do not fully pass on to consumers, or ii) their innovation leads to a quality improvement or additional functionality that allows them to charge a higher price for their proposition.
- Historically, there has been little innovation in the GB electricity retail sector.
- Innovation can reduce inputs costs. High input costs and supplier resilience requirements can limit innovation.

We found very limited empirical evidence examining the relationship between retail market innovation and retail electricity prices. Macdonald (2018) studied the impact of different variables, including price premiums between green and standard tariffs and switching rate, on the uptake of green tariff plans - a proxy for successful product innovation.[67] The switching rate was the only variable that was statistically significant, and showed that greater switching (customer engagement) was positively correlated to the number of households on a green tariff. This suggests that jurisdictions with higher switching rates tend to have greater enrolment rates for green electricity products. Greater price premiums were also correlated with higher green tariff enrolment; however this was not a statistically significant relationship. A previous study referenced by Macdonald had concluded that the cost of green energy was not a material driver of demand for green energy products but noted that companies offering lower priced products generally obtained more customers.[68]

Due to the limited empirical evidence, we have looked for qualitative evidence of the relationship, and insights from other sectors to inform our thinking on the appropriate value or range for the elasticity estimate.

[66] ACER (2025), *Rewarding Flexibility: How retail contract choice can help unlock consumer flexibility*, 2025 Monitoring Report, 27 November, p. 13

[67] Macdonald (2018), *The growth, regulation and environmental impact of green electricity tariffs*.

[68] Bird et al. (2002), *A review of international green power markets: recent experience, trends, and market drivers*.

Economists have explored the general relationship between innovation and price. Aghion et al (2005) propose that the relationship between innovation and competition (and by extension prices) is represented by an 'inverted-u'.[69] They evidence their theory with panel data, plotting the number of patents against the Lerner Index, with an exponential quadratic overlay. As Aghion use the Lerner Index as their measure of competition, their findings also reflect the relationship between innovation and prices. The Lerner Index is a measure of market power, calculated by the mark-up of price (P) over marginal costs (MC), where L = (P – MC) / P. The inverted-u theory states that innovation is highest at intermediate levels of competition (and price mark-ups), and lower when there is too much or too little competition (price mark-ups).

The relationship between innovation and consumer outcomes has been explored in the economic study of productivity. Productivity, as an economic concept, is generally defined as a ratio between the volume of outputs produced and the volume of inputs required. Innovation is a mechanism through which this ratio increases over time; it measures how firms find new ways to use or combine inputs, to increase the level of their outputs. For example, in regulatory economics, regulators set companies a 'frontier efficiency challenge', which is an adjustment to the allowed costs for the most efficient/ productive firm in the sector. This challenge reflects the expectation that all companies should innovate, which should flow through into reduced prices for consumers. This assumption would suggest that more innovation should reduce price levels.

The frontier challenge sets a cost target based on a given level of outputs. However, companies can also innovate in other dimensions outside of price. Innovation can lead to new functionality or improved quality, if these qualities are valued by consumers. There is likely to be a trade-off between each of these outcomes, as firms have limited R&D budgets so have to target innovation, and improved quality is likely to come with a higher price.

However, there are factors that complicate the relationship between innovation and prices. Innovation can lead to other outcomes that consumers value, such as improved quality or new functionality. Additionally, innovation may introduce product or sub-product monopolies defined by explicit barriers to entry (e.g., patents, technological differences) that could increase prices. If innovation leads to these outcomes, and these effects are not controlled for when examining the impact on price, then it will appear that innovation has led to higher prices on average.

Innovation can improve the profit margin of individual suppliers if either: i) their innovation leads to a reduction in costs which they do not fully pass on to consumers, or ii) their innovation leads to a quality improvement or additional functionality that allows them to charge a higher price for their proposition.

The GB household electricity retail market is not known for large-scale innovation in product offerings. Although there has been some innovation in products and business models, this has been limited, and historically the uptake of new products has been low. Across the market, the vast majority of tariffs only differ by price,[70] and this price variation has at times been limited by price cap arrangements. This pattern was also evident in Australia. The Essential Services Commission found limited evidence of innovation beyond price in Victoria, noting that many retail offers were only superficially differentiated and that more novel offers often involved complex tariff structures that consumers did not appear to value.[71] It also found that the introduction of a retail price cap in Victoria compressed price dispersion, with the share of residential offers at least 5% below the cap falling materially from 68% to 38%.[72] This suggests that, while the cap protected some customers from high prices, it also reduced the availability of the lowest-priced offers.

Relationships between drivers

[69] Aghion et al (2005), *Competition and Innovation: An Inverted-U Relationship*.

[70] Department for Energy Security & Net Zero (2023), Delivering a better energy retail market, available online here.

[71] Essential Services Commission (2022), *Victorian Energy Market Report: March 2022*, 31 March, p.16-17.

[72] Essential Services Commission (2022), *Victorian Energy Market Report: September 2022*, 29 September, p. 13.

Innovation can reduce input costs. For example, by enabling demand flexibility, system costs will reduce through more efficient use of the energy system.[73] [74] The ACER also notes that more competitive markets display greater levels of innovation.[75]

Input costs, and resilience requirements may reduce innovation; higher operating costs or overly prescriptive obligations can constrain investment in the development of new products, while less prescriptive regulations can allow innovation but at the expense of financial stability and consumer protection.

D.3.3. Customer engagement

Key findings

- Lower customer engagement reduces incentives for firms to lower prices of differentiate their product offering, leading to poorer outcomes overall for consumers.
- Higher customer engagement may lead to great differentiation in impacts across consumer groups, as firms charge higher prices to disengaged customers to fund price reductions for engaged customers.
- Customer engagement should increase competition and innovation.
- Reforms to prevent harms from low customer engagement can exacerbate these issues.

Impact on retail market outcomes

There is a body of work that qualitatively looks at the impact of customer engagement and switching costs on prices. Switching costs are the costs associated with searching for and changing a supplier. This can include the time-cost associated with finding the 'best' or a better deal. High switching costs are a disincentive for customers to start searching, which can lead to lower customer engagement.

As summarised by Chen et al (2025),[76] Farrell and Shapiro (1988) demonstrate that although firms may compete initially, switching costs allow firms to charge higher prices in the long-term.[77] Shao et al. (2022) look at a scenario where there is a monopoly incumbent and a small entrant, they find there are four conditions required to achieve an equilibrium with higher prices – switching costs, barriers to entry for a firm, constrained capacity, and lower marginal costs for the small supplier.[78]

Gugler et al (2018) use panel data on German electricity retail markets to look at how consumer search affects pricing.[79] Their results show that higher customer engagement has different impacts on different market prices. The overall lowest offer in the market is reduced. The price offered online, which presumably is the price paid by more engaged customers, is reduced. However, the price of baseline/ default tariffs increases. Gugler et al's interpretation is that suppliers reduce prices for engaged consumers but increase prices for disengaged consumers. However, in the GB market, the impact on disengaged consumers would be limited by the price cap.

The relationship between customer engagement and prices paid by customers was borne out in practice in the GB electricity market before the introduction of the price cap. In the 2016 Energy Market Investigation, the CMA found

[73] ACER (2025), *Rewarding Flexibility: How retail contract choice can help unlock consumer flexibility*, 2025 Monitoring Report, 27 November, p. 5

[74] Bobbio et al. (2021), *Price Responsive Demand in Great Britain's Electricity Market*, 25 November, p. 1.

[75] ACER (2025), *Rewarding Flexibility: How retail contract choice can help unlock consumer flexibility*, 2025 Monitoring Report, 27 November, p. 13.

[76] Chen et al (2025), *Higher prices in a more competitive market: The paradox in the retail electricity market in the United Kingdom*

[77] Farrell and Shapiro (1988), *Dynamic Competition with Switching Costs*.

[78] Shao et al. (2022), *Price-Rising Competition: a Higher Market Price When a Monopoly Faces a Small Entrant*.

[79] Gugler et al. (2018), *Market Liberalization: Price Dispersion, Price Discrimination and Consumer Search in the German Electricity Markets.*

that customers on 'default' standard variable tariffs were paying £1.7bn a year more than if they had been in a competitive market.[80]

The decision to switch is also influenced by non-price factors as well as price factors.[81] Deller et al. (2019) used a probit model to estimate the likelihood that a UK customer participating in the Big Switch would accept an offer to switch. They found that an increase of £10 in the saving offered was associated with only a 1.6 percentage point increase in the probability of switching.[82]

As non-price factors influence consumer's decisions, greater consumer engagement should lead to more variety in the retail propositions available, not just their price. If suppliers are aware of these preferences, then they will differentiate the functionality of their offering, as well as the customer service features, they provide, in order to capture these more engaged consumers.

Customer engagement is not uniform. Most markets have a spectrum of engagement, with 'highly-engaged consumers' that often shop around for the best deal, and 'disengaged consumers' that will rarely, if ever, consider how optimal their consumption is. Analysis of consumer switching behaviour in GB found that a majority (almost three quarters) of consumers were not incentivised to switch providers even when there were substantial savings from doing so and the effort to switch was low. These consumers were also considered to be more engaged than average, as they had already engaged enough to compare offers.[83]

Relationship with other drivers

A highly engaged customer base can create competitive pressure, as suppliers need to deliver better customer value to maintain their market share. This should reduce prices and broaden the variety of retail electricity propositions on offer by increasing competition and incentivising innovation (we talk in more detail about these dynamics above).

To address low customer engagement, additional customers protections are often imposed to protect consumers, such as the price cap arrangements in GB.[84] However, while these arrangements may protect consumers, they are likely to compound the effect of low customer engagement and reduce switching rates further.[85]

D.3.4. Supplier resilience

Key findings

- Supplier resilience requirements trade off higher ongoing costs with stability in the long-term. More resilient suppliers are less likely to fail, which prevents reduces the risk of costs associated with mass supplier exit (e.g. costs for SOLR schemes). However, in the short-term, higher costs will reduce supplier margins, and may deter supplier entry and reduce the variety of propositions in the market.
- Higher supplier resilience requirements increase inputs costs and can negatively impact competition and innovation as they reduce supplier margins and may deter market entry.

[80] House of Commons (2016) *Competition and Markets Authority: "Energy Market Investigation" Briefing Paper*

[81] Deller et al. (2021) *Switching Energy Suppliers: It's Not All About the Money*

[82] Deller et al. (2021) *Switching Energy Suppliers: It's Not All About the Money*

[83] Deller et al. (2021), Switching Energy Suppliers: It's Not All About the Money, May, p. 15.

[84] In GB, the default price cap and a ban on acquisition only tariffs have been employed to protect unengaged customers. In the retail market in the Australian state of Victoria, a price cap approach has also been employed, called the VDMO (Victorian default market offer).

[85] Deller et al. (2021), Switching Energy Suppliers: It's Not All About the Money, May, p. 15.

Between July 2021 and November 2022, 29 GB energy suppliers failed as a result of the wholesale energy crisis, affecting four million households.[86] At the time of writing, this was set to cost GB energy customers £2.7bn, or £94 per household. The majority of these costs related to "*buying energy for the customers transferred from failed suppliers at prices above what could be passed onto those consumers because of the government's price cap".* There were also costs associated with '*administrative and wider costs'.* The SOLR costs are paid for by all customers, through the Last Resort Supply Payment (LRSP).[87]

The SOLR costs provides an extreme example of how low supplier resilience leads to increased retail electricity prices in the presence of a market shock. Supplier failure has led to additional costs that need to be paid for by consumers.

However, it is unlikely that the relationship between supplier resilience and retail electricity prices is linear. Lower levels of market exit, associated with higher levels of supplier resilience, may have much lower impacts on prices if the retail market can absorb the failed suppliers customers at little extra cost. If no supplier failures occur, there will be very little additional cost of weaker supplier resilience, or costs could be lower if suppliers are not incentivised to undertake activities that improve their resilience.

Regulatory changes designed to improve supplier resilience in GB from 2019 placed upward pressure on supplier costs and increased barriers for entry, particularly for small suppliers. These measures included the capital floor and capital target, greater monitoring and reporting commitments and stronger financial responsibility obligations.[88] As these requirements place upward pressure on suppliers' costs, they will reduce supplier margins in the short-term. They can also reduce the variety of products in the market, by reducing the entry of suppliers, through higher barriers to entry, and reducing the amount of innovation, if lower supplier margins translate into reduced investment in R&D.

Relationship with other drivers

Stringent supplier resilience requirements can increase input costs, which will also have a knock-on effect on other drivers of retail market outcomes. The recent regulatory changes designed to improve supplier resilience in GB raised the entry requirement for new suppliers. [89] This led to higher supplier costs and barriers to entry, particularly for smaller firms. This highlights the trade-off between stronger resilience requirements and weakened competition and innovation. This happens through upward pressure on input costs, which can reduce the number and types of suppliers that can participate in the retail market, and can restrict the operating flexibility of participating suppliers.

[86] UK Parliament, *PAC: Ofgem failures "come at considerable cost to energy billpayers"*. Available online here.

[87] Ofgem, *Decisions on Last Resort Supply Payment Claims 2023*. Available online here.

[88] Ofgem (2025), *Powering Trust – Protecting consumers through financial resilience*, April, p. 8.

[89] Ofgem (2025), *Powering Trust – Protecting consumers through financial resilience*, April, p. 8.

D.3.5. Input costs

Key findings

- Higher input costs should increase retail prices, although the extent depends on the level of pass-through from suppliers.
- There is complex relationship between input cost pass-through and competition. Theoretically, in a market with perfect competition, input cost increases are fully passed through to consumers. However, empirical estimation suggests that higher levels of competition have been associated with lower levels of pass-through in the GB electricity retail market.
- Higher input costs will reduce supplier margins, if cost increases are not fully passed through to consumers. This is likely to also reduce proposition differentiation, through reduced innovation or number of suppliers in the market, if they fail.

Input costs directly impact the cost of supply, resulting in higher retail prices when these increases are passed on to customers.[90] Input costs include:

- **direct costs** relating to supply, such as wholesale energy and network costs; and
- **indirect costs** such as regulatory compliance, policy costs and supplier operating costs.

We reviewed several papers that estimated the impact of input costs on the retail price. These papers follow the approach taken in our quantitative analysis, by decomposing input costs into the component parts that drive retail electricity variation – namely wholesale costs and network costs.

Chen et al (2025) include wholesale electricity costs, network costs, consumer-funded schemes,[91] and the lagged retail electricity market price in their econometric model. They do not find a significant relationship between either wholesale electricity costs or network costs, and the retail electricity price. They find a positive relationship between the retail electricity price and the cost of consumer-funded schemes (0.029 and 0.030), and the retail electricity price and the lagged retail market electricity price (0.547 and 0.550).[92]

Gibbard et al (2025) estimate cost pass-through rates in New Zealand, using data from January 2018 to May 2023. They estimate the cost pass-through of total costs, as well as the cost pass-through of the two main components in New Zealand network costs (referred to as 'lines' costs), and wholesale costs (referred to as generation costs).

They find that vertically integrated retailers have a lower pass-through rate (of total costs) than independent retailers. The pass-through rate is lower for wholesale costs than it is for network costs. They estimate:

- Total costs: 0.516 (significant to 1%, using the 'favoured regression' and for all company types).
- Network costs: 0.577 (significant to 1%, using the 'fullest regression' and for all company types).
- Wholesale cost: 0.155 (significant to 5%, using the 'fullest regression' and for all company types).

[90] For customers on default tariffs, this occurs automatically as the price cap is set with respect to input costs.

[91] There were five main consumer funded schemes, the costs of which were passed through to consumers through higher retail prices. These were the renewables obligation, the energy company obligation, the feed-in-tariff, contracts for difference, the capacity market, and the energy company obligation

[92] Chen et al (2025).

A study on pass-through costs in EU electricity and gas markets prepared for the European Commission (2023) found that the peak in wholesale electricity prices was followed by an increase in retail prices equal to, on average, 46% of the increase in wholesale prices.[93]

Higher input costs, particularly as the result of a shock, can reduce the viability of entry or expansion by suppliers,[94] which can flow through to weaker competition, lower supplier margins, and fewer product offerings. Following the 2021–2023 gas price crisis, a large number of suppliers exited the GB retail market, contributing to increased market concentration. Over this period, retail tariff choice and innovation also weakened: Ofgem observed that in 2021/22 when almost all tariffs were set at the price cap,[95] and later noted a marked fall in new tariff offerings from Q2 2022.[96]

Relationship with other drivers

Market competition can impact the extent that costs are passed through to consumers. In traditional economic theory, full pass through of input cost changes would be expected in the long-run in a perfectly competitive market. However, recent academic work on the GB electricity retail markets discusses how higher levels of competition, reduce the level of cost pass-through from wholesale price increases. The paper found that there was only partial pass-through when supplier entry was higher, which was evidenced by reductions in supplier margins.[97]

Empirical evidence suggests that in energy retail markets, a significant proportion but not all of input costs are passed onto consumers. Analysis of cost pass through following the 2022 energy crisis found that approximately 46% of wholesale price increases were passed through to retail prices across EU countries.[98]

[93] Hernnäs et al. (2023), *Pass-through in EU electricity and gas markets*.

[94] Poudineh R. (2019), *Liberalized retail electricity markets: What we have learned after two decades of experience?,* p. 7.

[95] Ofgem (2025), *State of the market report*, April.

[96] Ofgem (2023), *A competition framework for the household retail market*, 7 December.

[97] Chen et al. (2025), *Higher prices in a more competitive market: The paradox in the retail electricity market in the United Kingdom.*

[98] Hernnäs et al. (2023), *Pass-through in EU electricity and gas markets*, p. 1.

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Table 10.3: Summary of relationships observed between key drivers

Drivers Independent variables Dependent variable	Retail Prices	Competition	Innovation	Input costs	Supplier Resilience	Customer Engagement
Retail Prices	**Chen et al (2025)** find a statistically significant positive relation with lagged retail prices. (0.553- 0.552%)	**Chen et al (2025)** find coefficients for market concentration to be negatively related to retail prices. (-0.132 to -0.282%)		**Chen et al (2025)** negative relation with wholesale electricity price and network costs (both not significant) Significant positive relation observed with consumer-funded support costs (0.039 – 0.031%) **Gibbard et al (2025)** estimate that about 52% of a unit increase in cost is passed through in retail prices. **Hernnäs et al (2023)** approximately 46% of wholesale price increases were passed through to retail prices across EU countries.		**Chen et al (2025)** negative relation with domestic electricity consumption (not significant)
Competition			**ACER (2025)** Competitive retail markets are necessary to foster innovation.	**Hernnäs et al (2023)** find that theoretical results of the relationship between competition and pass-through costs depend on assumptions relating to the shape of the marginal cost curve, convexity of demand, and		

Drivers Independent variables Dependent variable	Retail Prices	Competition	Innovation	Input costs	Supplier Resilience	Customer Engagement
				relative elasticity between supply and demand.		
Innovation	**MacDonald (2018)** finds positive (not significant) relation between rate of enrolment to green tariff plans (considered as uptake of innovation) and retail price premium (difference between rates for green and grey energy). Also, with average domestic retail price.				**MacDonald (2018)** finds positive (not significant) relation between rate of enrolment to green tariff plans and number of retailers.	**MacDonald (2018)** finds positive (weakly significant) relation between rate of enrolment to green tariff plans and switching rate (0.051)
Input costs		**Simshauser (2018)** Removal of a price cap (lower input costs) resulted in double the number of suppliers (improved competition).	**ACER (2025)** ToU products (innovation) can reduce system costs over time (input costs).		**House of Commons Committee of Public Accounts (2022)** Lower supplier resilience and subsequent supplier exist resulted in SOLR costs (input costs). **Ofgem (2025)** Improved supplier resilience placed upward pressure on supplier costs (input costs).	
Supplier Resilience		**Simshauser (2018)** Removal of a price cap (improved supplier resilience) resulted in double the number of		**Poudineh (2019)** Higher input costs, particularly as the result of a shock, can reduce the viability of entry or		

Drivers Independent variables Dependent variable	Retail Prices	Competition	Innovation	Input costs	Supplier Resilience	Customer Engagement
		suppliers (improved competition).		expansion by suppliers (supplier resilience).		
Customer Engagement	**Guo (2023)** finds a negatively significant relation between price (pre-peak, peak and off peak) and consumers' use of electricity (demand). Finds that negative effects of peak pricing spill over to the post-peak pricing period. **Bobbio et al (2021)** found that 1% price increase reduces consumption by 0.26%. Elasticity is larger for households owning low-carbon technologies. **Deller et al (2021)** – statistically positive relation between consumer switching rate and monetary savings. An increase of £10 in the saving offered at The Big Switch was associated wit h a 1.6 percentage point increase in the probability of switching.				**Guo & Weeks (2022)** found market gain is positively related to households' price elasticities of demand. More elastic households would be more sensitive to pricing signals, which facilitates retailer's arbitrage activity from buying low and selling high.	

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D.4. KEY SOURCES

Below, we provide a summary of the key sources that we included in our elasticity literature review.

Table 10.4 Literature review summary

Source	Summary
Aghion et al. (2005) **Competition and Innovation: An Inverted-U Relationship**	Uses panel data to test how innovation varies with product market competition and finds evidence consistent with an "inverted-U" relationship. Innovation is highest at intermediate competition levels, where firms have both the pressure and the incentive to innovate, and lower when competition is either very weak (comfortable incumbency) or extremely intense (returns to innovation are harder to capture).
Chen et al. (2025) **Higher prices in a more competitive market: The paradox in the retail electricity market in the United Kingdom**	Uses UK retail electricity market data between 2010-2019 to examine the impact of a decline in market concentration and increase in consumer funded schemes on the retail price. They found that consumer funded schemes contributed to the rising retail price, but so, unexpectedly, did lower concentration. The six largest incumbent suppliers struggled to lower indirect costs as sales fell and passed some of these costs onto consumers.
Deller et al. (2021) **Switching Energy Suppliers: It's Not All About the Money**	Uses observed decisions from 7,000 consumers in a collective switching auction in the UK to understand what drives decisions to switch electricity retail providers. They find that a wide range of factors influence a consumer's decision about whether or not to switch. The offer of a substantial monetary saving alone is often insufficient to ensure switching, even for those who said they had opted into the auction with monetary savings as a motivating factor. An increase of £10 in the saving offered under the auction was associated with a 1.6 percentage point increase in the probability of switching.
Enrich et al. (2023) **Measuring the Impact of Time-of-Use Pricing on Electricity Consumption: Evidence from Spain**	Studies the impact of ToU pricing on electricity consumption in Spain by comparing hourly electricity demand in Spain to Portugal, a nearby country with similar weather and no ToU pricing. The study finds a reduction in consumption of between 5.7-9.5% during peak demand periods. No load shifting is identified between peak and non-peak periods.
Fabra et al. (2021) **Estimating the Elasticity to Real-Time Pricing: Evidence from the Spanish Electricity Market**	Studies the price responsiveness of customers on ToU regulated tariffs in Spain. After controlling for other factors, the study estimates the average price elasticity was zero (e.g. not responsive). The authors list several potential explanations for such results, including lack of consumer awareness, costly information acquisition, and small gains of demand response due to low price variation.
Gibbard et al. (2025) **Cost pass-through in the retail electricity market: Vertically integrated versus independent retailers**	Uses a large panel of retail electricity plans in New Zealand to estimate how wholesale and network costs pass through to household retail prices. They find systematic differences by retailer type: vertically integrated retailers exhibit lower pass-through of total costs than independent retailers. About 52 per cent of a unit increase in total cost is passed through in retail prices.
Gugler et al. (2018) **Market Liberalization: Price Dispersion, Price Discrimination and Consumer Search in the German Electricity Markets**	Studies how consumer search affects pricing in markets with incumbents and entrants using panel data on German electricity retail markets. Consumers can choose whether to search based on the incumbent's offer, and incumbent suppliers can price discriminate between searching and loyal customers. The results show that incumbents increase their baseline rate while entrants decrease their tariffs if consumer search increases. Moreover, the incumbent price discriminates more strongly in markets with more consumer search.

Source	Summary
Hernnäs et al. (2023) **Pass-through in EU electricity and gas markets** (Quarterly Report on the Euro Area, DG ECFIN)	Reviews evidence from the 2021–2023 energy shock on how wholesale electricity and gas cost increases translated into retail prices across EU countries. The report finds substantial cross-country variation in the speed and magnitude of pass-through, shaped by factors such as regulated retail prices, taxes/levies, and the prevalence of fixed-price contracts. On average, 46% of the increase in wholesale prices flowed through to retail prices.
MacDonald (2018) **The growth, regulation and environmental impact of green electricity tariffs**	Examines the expansion of “green electricity tariffs” as a form of retail product innovation, and how regulation and market conditions shape their uptake and impacts. The author uses cross-country evidence from the UK, EU, North America and Australia to investigate what drives enrolment in green tariffs. The only statistically significant driver is switching, where countries with greater levels of switching are correlated with green tariff enrolment.

Appendix E PRIMARY QUANTITATIVE ANALYSIS

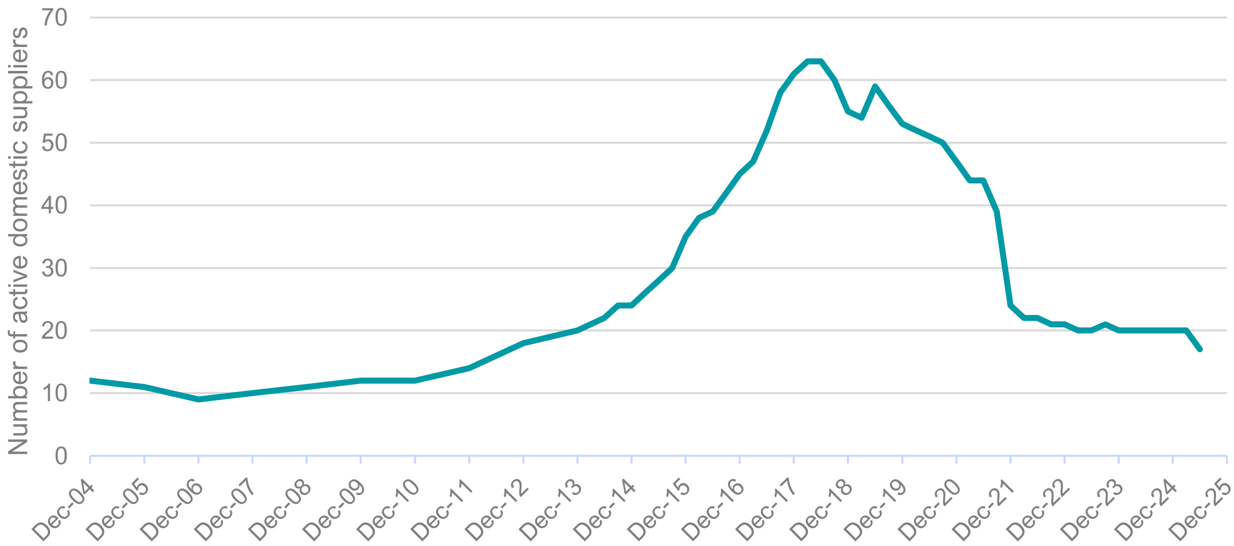
E.1. Historical context for the GB retail electricity market

Following privatisation of the UK electricity market and through to the mid-2000s, the number of electricity suppliers remained relatively stable, with around 12 active suppliers in GB.[99]

Increased competition

From 2010, a combination of regulatory settings and economic opportunities enabled new suppliers to enter the market. Ofgem's regulatory regime initially sought to lower barriers to market entry and encourage new suppliers.[100] This was driven by persistent market characteristics that included the dominance of six large legacy suppliers, few instances of supplier failure, relatively stable wholesale prices from 2010 through to the 2021 energy crisis, and a policy view that competition would protect consumers, and incentivise innovation to deliver the energy transition.[101] As a result, the number of active suppliers increased, peaking at 63 active suppliers in mid-2018 (see *Figure 10.3* below). This increase was primarily driven by entry from smaller suppliers.

Figure 10.3: Number of active domestic suppliers in Great Britain



Source: Ofgem (2025), Retail market indicators

From 2018, Ofgem became concerned about the increasing number of supplier failures, particularly smaller suppliers who fell into financial difficulties, driven by volatile energy prices and a lack of hedging.[102] It implemented regulatory reforms in 2019 that raised the entry requirement for new suppliers.[103] These changes, which include the capital floor and capital target, greater monitoring and reporting commitments and stronger financial responsibility

[99] House of Commons Trade and Industry Committee (1997), *Chapter 2: The Electricity Supply Industry and Liberalisation*, Second Report; Ofgem, Retail market indicators, accessed 2 January 2026, available online here.

[100] Department for Energy Security and Net Zero (2023), *Delivering a better energy retail market: a vision for the future and package of targeted reforms*, policy paper, 24 July.

[101] Oxera (2022), *Review of Ofgem's regulation of the energy supply market*, prepared for Ofgem, 3 May, p. 3.

[102] Ofgem (2018), *State of the Energy Market Report 2018*, p. 17.

[103] Ofgem (2018), *Supplier Licensing Review*, consultation, 21 November.

obligations,[104] also resulted in a trade-off where supplier costs rose and barriers to entry increased, particularly for smaller firms. However, these changes did not affect suppliers that were already within the market.

At the same time, Ofgem was concerned that the benefits of a more competitive retail market were not brought to all consumers. Customers that were not engaged with the market and were rolled onto a suppliers' default tariff were consistently being charged higher prices.[105] In 2019, a market wide default tariff cap (or 'price cap') was introduced in the form of a maximum price per unit (kWh) of electricity and a maximum daily standing charge.[106] This enabled greater protections for consumers, but also reduced suppliers' ability to raise revenue through tariffs.

Responding to crisis

The 2021-2023 global energy crisis further amplified these vulnerabilities. Extreme energy price volatility alongside weak financial resilience among many smaller suppliers contributed to a wave of supplier failures and exits, increasing market concentration. As the cost-to-serve rose, the default tariff cap increasingly acted as a de facto market reference price as many suppliers could not profitably price below it. This reduced the scope for meaningful price-based competition and weakened incentives for customers to move away from default tariffs.

In response to these market conditions, Ofgem introduced a package of temporary interventions, including a ban on acquisition-only tariffs (BAT) in April 2022. The BAT prevented suppliers from offering fixed deals exclusively to new customers, which Ofgem considered could encourage unsustainable pricing and amplify instability while ensuring customers who do not switch continue to receive discounted deals.[107] Ofgem has continued to extend the BAT while it considers the long-term role of the measure.[108]

Supplier failures during this period triggered Ofgem's SOLR process, under which a failed supplier's customers are transferred to a new supplier without interruption to supply. SOLR suppliers are appointed through a competitive selection process and can recover certain related costs through the regulatory process. Transferred customers are automatically placed on a deemed/ default contract with the receiving which is protected by the default tariff cap. Unless customers switch, they will remain on the SOLR's deemed/ default supply arrangement.

Current market challenges

Ofgem's latest data identifies 17 electricity suppliers remain active in the GB retail market (see Figure 10.6), with the top 6 suppliers holding 91.6% of the total market share.[109] Approximately 58% of customers are on a default tariff, with 22% on a default tariff for over three years.[110]

While the number of available tariffs and switching activity have begun to recover, and uptake of smart ToU products is growing from a low base, Ofgem continues to describe the domestic retail market as one where most households remain on standard products and competition is driven primarily by price rather than substantial non-price differentiation.[111]

While current arrangements have been designed to protect consumers from supplier failures and volatile energy prices, these arrangements have made it more challenging for suppliers to enter the market and compete with

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[104] Ofgem (2025), *Powering Trust – Protecting consumers through financial resilience*, April, p. 8.

[105] Department for Business, Energy and Industrial Strategy (2021), *Tackling the loyalty penalty in the retail energy market: analytical annex*, July, p. 4.

[106] Ofgem, Energy price cap explained, accessed on 14 November 2025, available here.

[107] Ofgem (2024), *Decision on the Future of the Ban on Acquisition-only Tariffs (BAT),* July, p. 6. Suppliers are still able to offer fixed retention tariffs to existing customers.

[108] Ofgem (2025), *Renewing the Ban on Acquisition-only Tariffs (BAT) after March 2026*, November, p. 4.

[109] Ofgem (2025), *Retail market indicators,* Domestic energy supplier market shares, Q2 2025.

[110] Ofgem (2025), *Retail market indicators,* Number of domestic electricity customer accounts by supplier (excluding pre-payment customers): Standard variable, fixed and other tariffs (GB), July 2025.

[111] Ofgem (2025), State of the energy market report: retail, 15 April.

differentiated product and service offerings. There are concerns that more could be done to support innovation. Understanding the potential of some options to support innovation drove the commissioning of this work.

E.2. Approach overview

We use an econometric regression, a type of applied statistical model, to analyse historical relationships between prices paid by residential customers, policy changes and other drivers of retail market outcomes in the GB retail electricity market. These relationships are used to inform the elasticities we use to measure how drivers impact retail electricity prices.[112]

This model is estimated using a customised timeseries dataset populated with publicly available data on metrics from the GB electricity market. The selection of these variables was based on our prior understanding of the market characteristics that are relevant to the market outcome of the prices paid.

We focus on 'drivers'[113] of residential households' expenditure on retail electricity, with a final dataset covering the period Q1 2006 through Q1 2025 (77 quarterly periods). Drivers in the context of our study are intermediary outcomes through which reforms will impact retail electricity market outcomes.

We test five independent variables as potential drivers of retail electricity prices paid by residential households, plus control for electricity demand:

- **Competition**: Herfindahl-Hirschman index (HHI);
- **Input costs**: wholesale electricity prices;
- **Supplier resilience**: number of retail electricity suppliers;
- **Customer engagement**: number of retail electricity supplier switches by residential households;
- **Customer demand**: average residential household electricity consumption; and
- **Innovation**: granted UK patents broadly related to retail electricity.

We additionally test two potentially relevant policy periods using indicator variables associated with the: (i) default tariff cap, and (ii) Energy Price Guarantee.

In addition to relying on our prior understanding of the functioning of the retail electricity market, our selection of variables in the final analysis will be informed by results from the regression analysis, where particular attention is paid to bias and statistical precision. For example, it is important to minimise the risk of a potential omitted variable bias[114] to the extent possible, to ensure credible and undistorted estimated driver effects.

E.3. Econometric model expectations

Retail electricity market competition has been extensively analysed over the last few decades across various regions, including the GB market.[115] In addition, applied-theory models of market competition and consumer search

[112] While the final regression specification uses average retail electricity expenditure by households as a dependent variable, we control for consumption (demand) as an independent variable. This means that the estimated coefficients are price elasticities.

[113] The term "drivers" does not mean a one-direction causal relationship between the independent variables ("drivers") and the dependent variable (prices paid), as there is likely endogeneity between the independent and dependent variables. Instead, we are looking at market characteristics that are potential early indicators of the prices paid by residential electricity consumers.

[114] Omitted variable bias occurs when a statistical model does not include a relevant variable, which leads to a biased (incorrect) estimated relationships between independent and dependent variables.

[115] See Chen et al. (2025) for a summary of some of the relevant issues and associated references.

have provided insights concerning expected outcomes.[116] Therefore, to understand the potential relationships between the chosen drivers and the prices paid by residential households, we estimate variants of an econometric model based on both theoretical frameworks and real-world experience.

Hypothesised relationships

Our set of independent variables are a reasonably familiar set of well identified competition metrics and market measurements that are broadly used by regulators and researchers to quantitatively analyse market outcomes. That said, it is also important to clearly state the hypothesised coefficients (i.e., relationships) between the independent variables (drivers) and the dependent variable (prices paid), prior to estimating the econometric model. In this case, the selection of independent variables was determined by prior experience, theoretical models and data availability:

1. **Competition** *(HHI)*: higher market concentration implies higher supplier pricing power, which should lead to higher electricity prices.
2. **Input costs** *(wholesale prices):* higher wholesale prices should lead directly to higher electricity prices.
3. **Supplier resilience** *(number of retail electricity suppliers)*: a larger number of suppliers in the market should support a more competitive market, but the impact on electricity prices depends on which segments entering and exiting suppliers focus on.
4. **Customer engagement** *(number of retail electricity supplier switches by residential households)***:** higher customer engagement is usually associated with lower electricity prices, although we note that consumers are only partly motivated by price.
5. **Customer demand** (average residential household electricity consumption): a substantial portion of electricity expenditure is usually captured by the quantity consumed, where higher electricity consumption directly leads to higher electricity expenditure. However, the complexity of retail electricity tariffs and the expected increases in fixed costs (e.g., network charges for new transmission infrastructure) may lessen this relationship.
6. **Innovation** (granted GB patents broadly related to retail electricity): the impact of innovation on electricity prices is unclear, in that innovation may bring down costs through efficiency improvements and/or provide new product features or characteristics that increase consumers' willingness to pay. Innovation may also introduce product monopolies where the innovating firm creates intellectual property barriers, either explicitly through patents or implicitly through technological barriers. Given the slow up-take of non-standard retail electricity products, it is hypothesised that the majority of innovation, as captured by patents over the time period assessed, relates to technological- and cost-efficiencies. Thus, we hypothesise that an increase in granted patents could lower electricity expenditure in the model, noting that potential time lag between patents and electricity expenditure is unknown.[117]
7. **Default tariff cap policy period**: an indicator variable with two countervailing effects – first, a binding tariff cap will remove higher prices in the market (right-hand side observations), but a second effect is providing an implicit collusion mechanism for suppliers. Experience suggests that the default tariff cap will likely increase prices, even as it offers price protection for some consumers.

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[116] For example: Stigler, 'The economics of information', Journal of Political Economy, 1961, 69(3):213-225; Stiglitz, 'Equilibrium in product markets with imperfect information', The American Economic Review, 1979, 69(2):339-345; Burdett and Judd, 'Equilibrium price dispersion', Econometrica, 1983, 51(4):955-969; Varian, 'A model of sales', The American Economic Review 1980, 70(4):651-659; and Salop and Stiglitz, 'Bargains and ripoffs', The Review of Economic Studies, 1977, 44(3):493-510.

[117] Innovation may affect retail electricity prices and/or electricity consumption. As all model specifications control for consumption directly, the coefficient estimates for innovation are interpreted as price elasticities.

8. **Energy Price Guarantee policy period:** an indicator variable in the years where the Energy Price Guarantee was in-effect. The estimated coefficient will be a combined measure of the policy and the exogenous (macroeconomic) energy crisis shock. It is assumed that the price relationship will be dominated by the energy crisis shock, leading to a large and positive effect on prices.

E.4. VARIABLES AND TIMESERIES DATASET

One of the aims in creating the dataset was to obtain historical data as far back as possible to increase the number of observations available and maximise the statistical power of the econometric model. However, data availability is very limited for some drivers. As a result, we undertook data transformations on some of the raw data to obtain timeseries for the period covered by the dataset. For example, data on the number of suppliers is provided partly as annual and partly as quarterly data. Annual data was transformed into quarterly data to extend the temporal coverage of the data series. Some of the raw data was provided as monthly data and transformed into quarterly data. In addition, all price data was converted into Q4 2025 prices using the CPIH index.[118] These transformations, along with sources for the data, are described in Table 10.5. These transformations enabled us to construct a customised timeseries dataset from Q1 2006 to Q1 2025 using publicly available sources.

Table 10.5: Data sources and transformations required to create a quarterly timeseries dataset for Q1 2006 – Q1 2025[119]

Variable	Data source	Data availability	Transformations
Competition: Herfindahl-Hirschman Index	Ofgem, Retail market indicators: Electricity supply market shares by company: Domestic (GB)	Quarterly, Q1 2004 - Q2 2025	*Not required*
Input costs: wholesale electricity prices	ICE, Weighted average wholesale prices	Monthly, March 2003 - December 2016 Daily, 2017	Averaged over quarters Converted into Q4 2025 prices
	Ofgem, Wholesale market indicators: Electricity prices: Day ahead baseload contracts – Monthly average (GB)	Monthly, June 2010 – November 2025	
Supplier resilience: number of retail electricity suppliers	Ofgem, Retail market indicators: Number of active domestic suppliers by fuel type (GB)	Annual, 2004 - 2013 Quarterly, Q2 2014 - Q2 2025	Annual data assumed to be stable within quarters in each year
Customer engagement: number of retail electricity supplier switches by residential households	Ofgem, Retail market indicators: Number of domestic customers switching supplier by fuel type (GB)	Monthly, January 2003 - October 2025	Summed over quarters
Customer demand: average residential	DESNZ, Energy Trends: UK Electricity: Supply and consumption of	Quarterly, Q1 1998 - Q3 2025	*Not required*

[118] ONS, *CPIH Index 00: All items 2015=100.* Available online.

[119] Lagging of variables results in 74 observations.

Variable	Data source	Data availability	Transformations
household electricity consumption	electricity (ET 5.2 – quarterly)		
Innovation: granted GB patents broadly related to retail electricity	UK government, Search for a patent - database	The relevant search terms result in patents granted between Q1 2006 and Q1 2025	Summed over quarters
Retail electricity expenditure by residential household consumers (dependent variable)	ONS, Consumer trends time series: 04.5.1 Electricity CP NSA £m	Quarterly, Q1 1985 - Q3 2025	Converted into Q4 2025 prices
Effective realised weighted-average electricity price (dependent variable)	ONS, Consumer trends time series: 04.5.1 Electricity CP NSA £m	Quarterly, Q1 1985 - Q3 2025	Converted into Q4 2025 prices
	DESNZ, Energy Trends: UK Electricity: Supply and consumption of electricity (ET 5.2 – quarterly)	Quarterly, Q1 1998 - Q3 2025	

Competition: Herfindahl-Hirschman index (HHI)

The Herfindahl-Hirschman index is a common measure of market concentration, calculated by summing the squared market shares of each firm in the market. The HHI takes into account the number of firms in the market, as well as their relative sizes. The value of the index is increased by (i) the number of firms in the market decreasing and the (ii) disparity in size of those firms increasing.

A value of 0 indicates a perfectly competitive market, which is made up of a large number of equal-sized firms, while the maximum value of 10,000 indicates a market controlled by a single firm. In its Energy market investigation, the CMA considered that the market is concentrated if HHI is above 1,000 and highly concentrated if HHI is above 2,000.[120,121] ACER and CEER provide a more granular scale, with a value below 2,000 indicating moderate concentration, values between 2,000 and 4,000 indicating high concentration, and values above 4,000 indicating very high concentration.[122]

To calculate the HHI, we obtained quarterly data for Q1 2004 - Q2 2025 on market shares of electricity suppliers from Ofgem's Retail market indicators.[123] Market shares are provided individually for large and medium suppliers, but as an aggregate figure for small suppliers.[124] Using the aggregate figure would overestimate the market shares of the small suppliers due to the squaring involved in calculating the HHI. As such, we used data on the total number of suppliers[125] in the market to infer the number of small suppliers and assumed that all small suppliers have an equal market share of the small suppliers' aggregate total.

[120] CMA, *Energy market investigation: Final report.* Available online.

[121] U.S. Department of Justice, Antitrust Division, *Herfindahl-Hirschman Index.* Available online.

[122] ACER & CEER (2024), *Rewarding flexibility: How retail contract choice can help unlock consumer flexibility.* Available online.

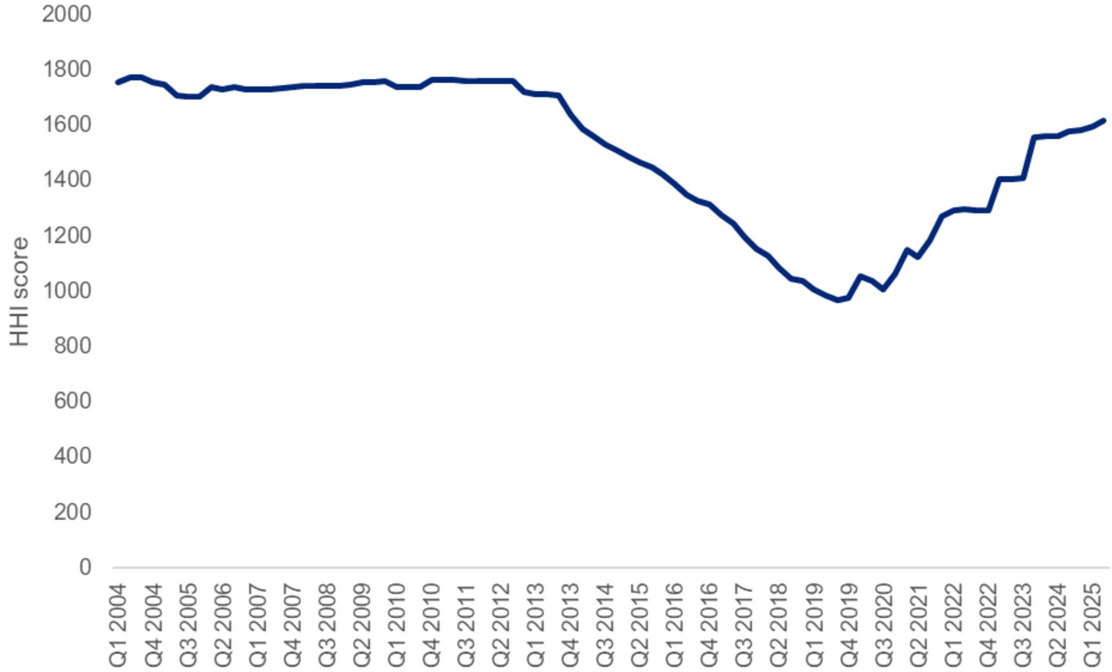
[123] Ofgem, *Retail market indicators: Electricity supply market shares by company: Domestic (GB).* Available online.

[124] Small suppliers include suppliers with market share below 1% in both gas and electricity. Source: Ofgem, *Retail market indicators: Electricity supply market shares by company: Domestic (GB).* Available online.

[125] Data on the total number of suppliers was obtained from Ofgem: *Retail market indicators, Number of active domestic suppliers by fuel type (GB).* Available online.

The resulting HHI varies between 966 (Q3 2019) and 1771 (Q2-Q3 2004), ending at 1619 in Q2 2025, which is shown in Figure 10.4. The retail electricity market has generally been moderately concentrating but has not crossed the threshold into high concentration.

Figure 10.4: HHI scores for the electricity retail market



Input costs: wholesale electricity prices

Wholesale electricity prices make up the largest portion of the customer bill,[126] and as such, are an important driver of fluctuation in retail market prices. Ideally, wholesale electricity prices should be weighted with electricity consumption to ensure the data accurately reflects prices in those periods where most electricity is used. However, such time series is not readily available and would be time-consuming to calculate, given the granularity of wholesale prices (e.g., Elexon provides half-hourly data on the wholesale price of electricity[127]). We constructed a timeseries on wholesale electricity prices using two different sources:

- monthly data on volume weighted-average electricity prices until the end of 2016 and daily data for 2017, compiled by the ICE.[128]
- monthly data from Ofgem on day ahead baseload contracts for June 2010 - November 2025.[129]

The overlap in the two timeseries allowed us to validate that the series tracked each other closely and could be used for a consistent combined series. After transforming both data series into quarterly series by averaging, the combined series was formed by using the method of chain linking; we indexed the series and merged them using a scaling factor calculated as a ratio of the two series based on a three-year overlap. The input series and the resulting composite, indexed series are illustrated in Figure 10.5 below.

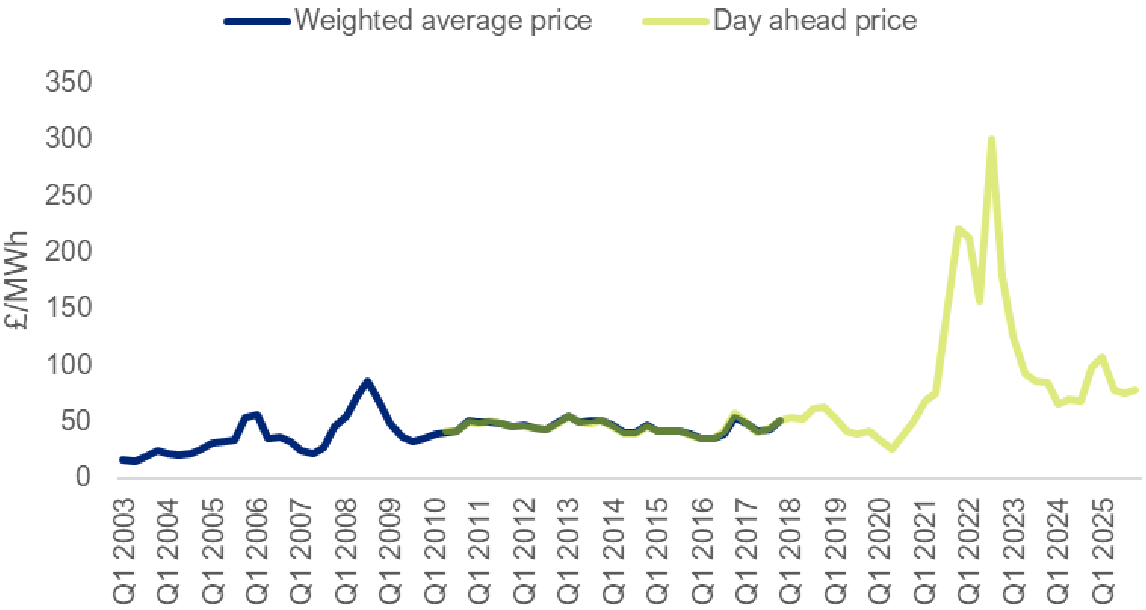
[126] Wholesale costs are the largest individual item making up the domestic dual fuel bill of large legacy suppliers and the largest item included in the price cap. Ofgem, *Retail market indicators*, available online.

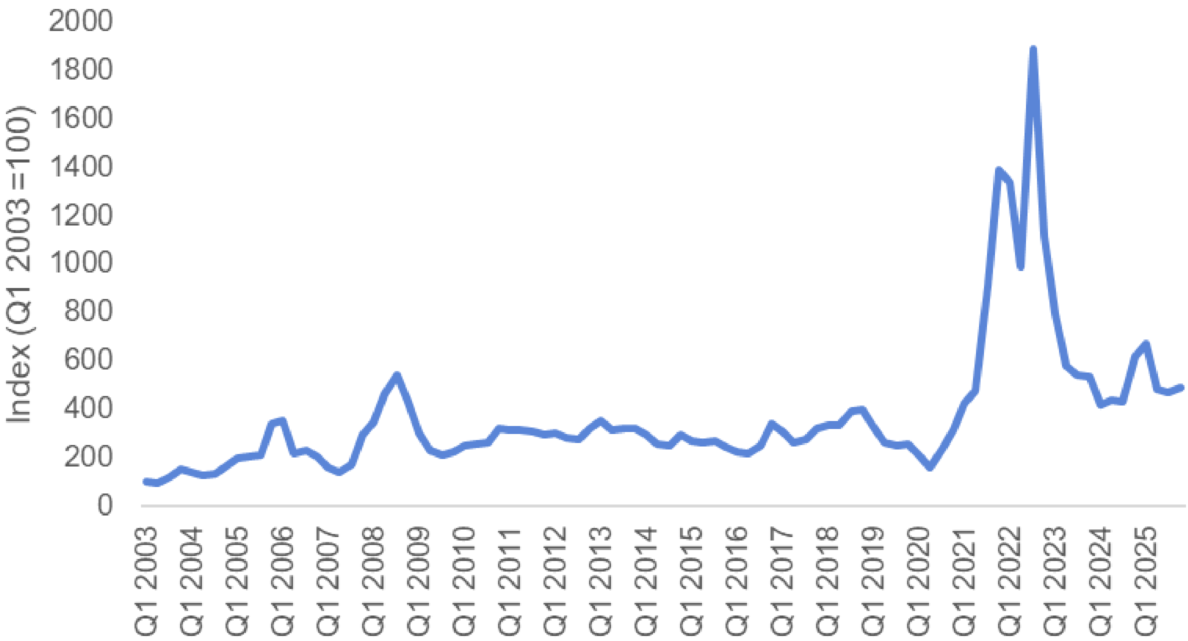
[127] Elexon, *Market index prices.* Available online.

[128] ICE (2017), *The changing price of wholesale UK electricity over more than a decade.* Available online.

[129] Ofgem, *Wholesale market indicators: Electricity prices: Day ahead baseload contracts – Monthly average (GB).* Available online.

Figure 10.5: The weighted average prices (Q1 2003 – Q4 2017) and day ahead baseload contract prices (Q2 2010 - Q4 2025) (top) and the composite indexed series (bottom)[130]





Supplier resilience: number of retail electricity suppliers

Ofgem's retail market indicators also contain data on the number of active retail electricity suppliers,[131] which we have used as a measure of supplier resilience.[132] The data, which is provided as annual values until 2014, and

[130] The index is based on the first period of the raw data, i.e., Q1 2003 = 100. We have started the charts from Q1 2004 for a consistent presentation of the variables.

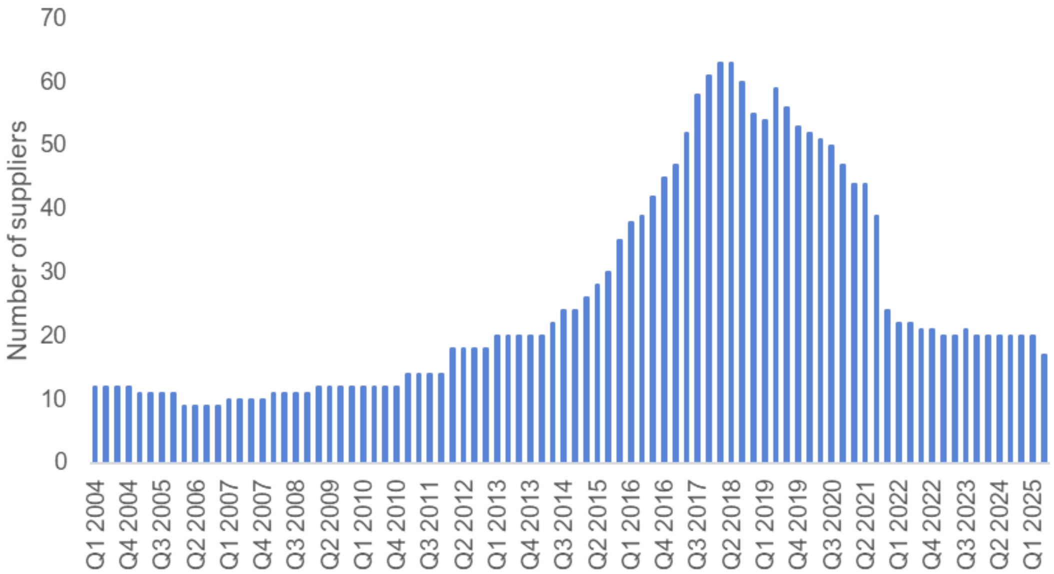
[131] Ofgem: *Retail market indicators, Number of active domestic suppliers by fuel type (GB).* Available online.

[132] This metric can also be used as an alternative measure of competition in the market to HHI.

quarterly thereafter, was transformed into a consistent quarterly series by assuming the annual values are stable within each year.

Figure 10.6 depicts the timeseries, which generally shows an inverse trend to Figure 10.4 above; as the number of suppliers increases, the HHI score decreases.

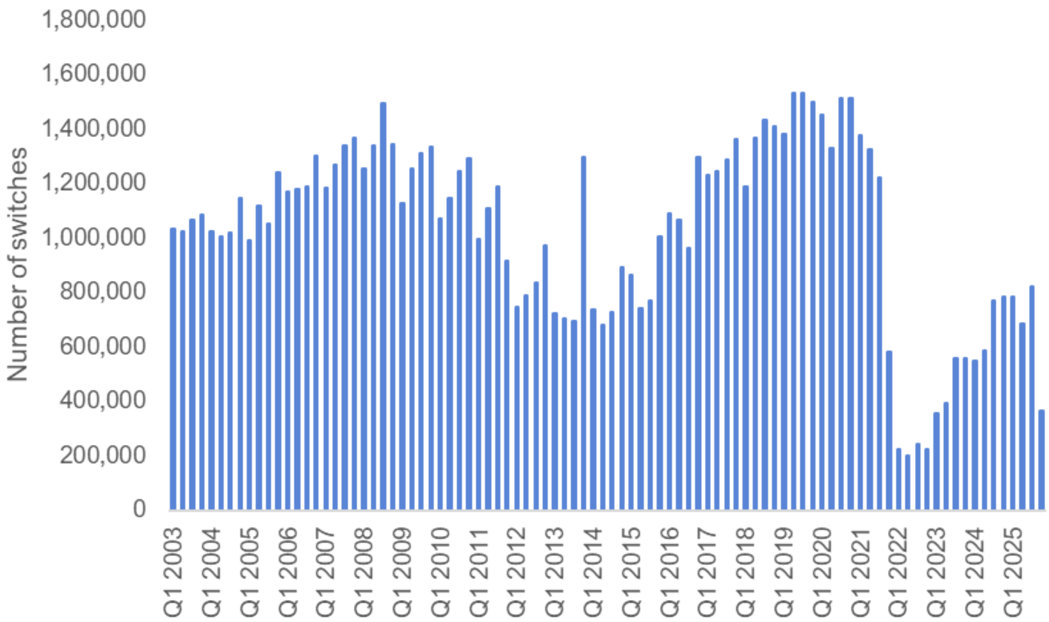
Figure 10.6: Number of electricity suppliers



Customer engagement: number of retail electricity supplier switches by residential households

To proxy customer engagement in the market, we included a variable on the number of retail electricity supplier switches by consumers, with data obtained from the Ofgem Retail market indicators.[133] This data is available on a monthly basis, which we summed over quarters to create a quarterly time series. The resulting series is presented in Figure 10.7 below.

Figure 10.7: Electricity supplier switches by households

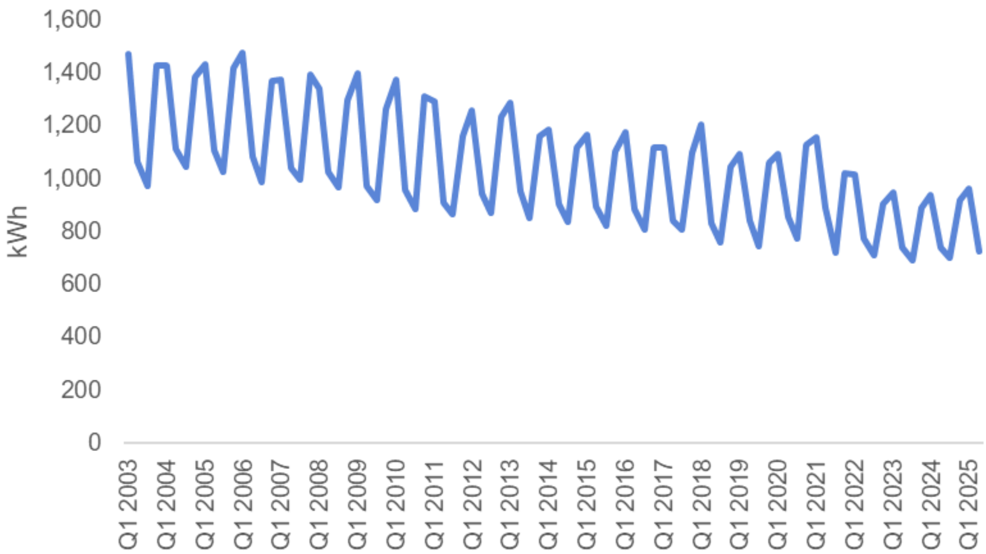


[133] Ofgem: *Retail market indicators, Number of domestic customers switching supplier by fuel type (GB).* Available online.

Customer demand: average residential household electricity consumption

As the dependent variable measures the average expenditure on electricity by households (as discussed below), it is important to include a measure of average consumption which inevitably drives expenditure. We used data on quarterly domestic consumption of electricity from the Energy Trends dataset provided by DESNZ.[134] We divided the total consumption with the number of households in the UK to get the average consumption per household.[135] The resulting timeseries shows a slight downward trend in average consumption, along with the seasonality of electricity use.

Figure 10.8: Average household electricity consumption, Q1 2003 – Q2 2025



Innovation: granted UK patents broadly related to retail electricity

To proxy innovation activity in the energy market, we sourced data on the number of newly granted UK-registered patents relevant to our research area. This was done by using the search function on granted patents provided by the government and by filtering for relevant search words.[136,137] We then summed the number of patents over quarters to obtain the timeseries depicted in Figure 10.9 below. The total number of patents granted was 7,526 over the period between Q1 2006 and Q1 2025.

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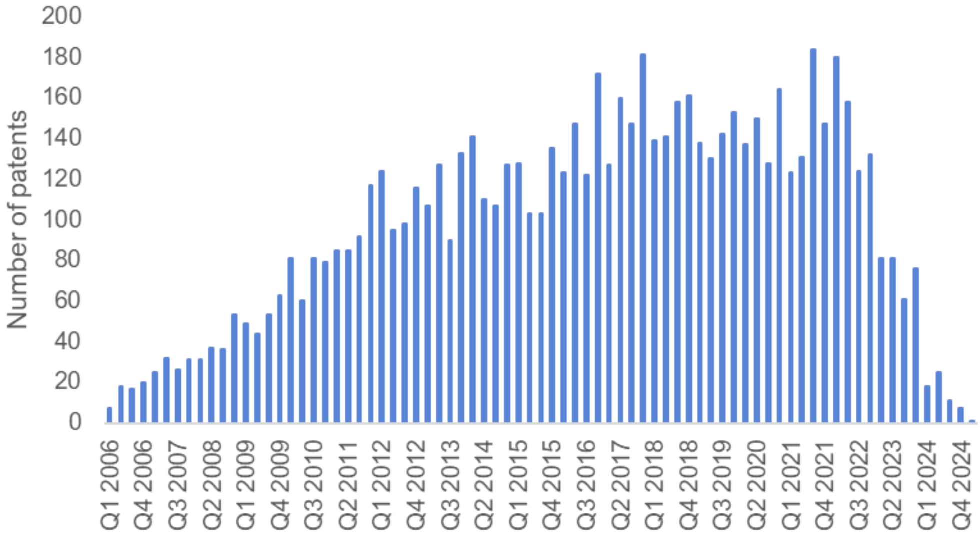
[134] UK Government, *Energy Trends: UK electricity: Supply and consumption of electricity (ET 5.2 - quarterly).* Available online.

[135] ONS, *Families and households.* Available online.

[136] UK Government, *Search for a patent.* Available online.

[137] The key words include: electricity, energy, energy grid, energy resource, energy resources, V2G, vehicle to grid, energy assets, energy assets, real time market, electricity bill, electricity billing, energy billing, energy bill, electricity meter, electricity metering, electricity time of use, smart meter, smart metering, interval meter, electric vehicle charging, smart charging, home battery, demand response, heat pump, photovoltaic.

Figure 10.9: The number of granted UK-registered patents related to the energy markets, Q1 2006 - Q1 2025



Default tariff cap policy period

We included an indicator variable[138] to reflect the period when the default tariff cap was implemented and remained in place, i.e., Q1 2019 – Q2 2022 and from Q2 2024 onwards. This indicator variable proxies for a period with strong, centrally set consumer price protection. The usual assumed impact of a price cap is a lowering of the price. However, this outcome assumes a binding price cap that has no effect beyond eliminating the highest prices. Reality is more complex and may include issues concerning collusion, where the price cap is an exogenous price target for retailers. This means that price competition might be reduced, leading to higher overall price levels.

Energy Price Guarantee policy period

We also included an indicator variable on the Energy Price Guarantee policy period. As the time period when the Energy Price Guarantee was in effect, Q3 2022 - Q1 2024, is roughly the same as the timing of the energy crisis, this variable is, in practice, a proxy for the energy crisis. The energy crisis was a broad macroeconomic shock from late-2021 through early-2024, driven by multiple energy-related shocks, including the 2022 Ukraine-Russia conflict. In response to elevated wholesale electricity prices, the Energy Price Guarantee was implemented to protect consumers from extreme prices.

The Energy Price Guarantee was an *ex-post* subsidy that was lagged approximately two weeks and applied directly to households' retail electricity bill. This means that the regression model specification should keep the Energy Price Guarantee indicator variable in the same period as the prices paid (dependent) variable.

Retail electricity expenditure by residential household consumers (dependent variable)

Data availability on actual monthly or quarterly electricity prices paid by customers is limited. For example, data provided by Ofgem in its Retail market indicators is either *offer* prices, available for a limited time period or annually, or for dual fuel customers which includes the price paid for gas.

We chose to use quarterly data on total household expenditure on electricity from the ONS Consumer trends time series, which had good temporal coverage.[139] However, this data is for households in the UK, while the independent

[138] An indicator variable, also called a dummy variable, can be used to represent the presence or absence of a policy. It takes the value 1 in those time periods when the policy is in effect and 0 in all other time periods.

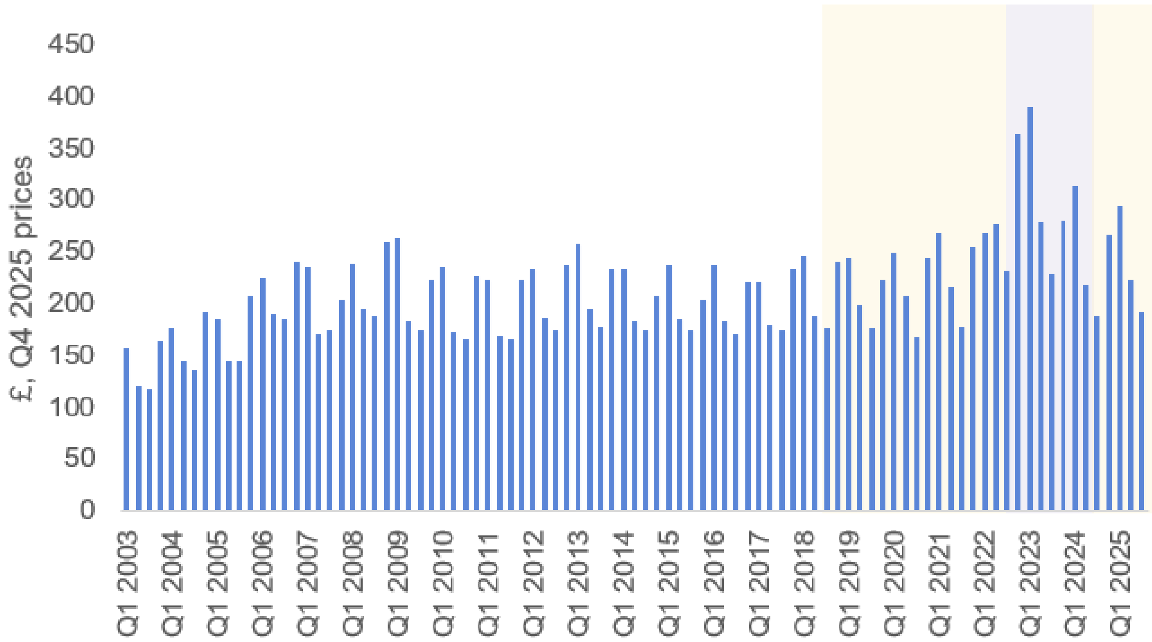
[139] ONS, *Consumer trends time series: 04.5.1 Electricity CP NSA £m.* Available online.

variables are based on data covering the GB. We adjusted the total expenditure with the number of households in the UK,[140] and used the resulting average expenditure on electricity per household as the dependent variable.

The retail electricity expenditure by residential household consumers dependent variable includes the fixed- and variable cost components paid by residential consumers. The fixed cost component will include daily supply charges and network costs, which are not directly affected by individual consumers' electricity consumption levels. The variable cost component will be some tariff variant (e.g., flat, time-of-use) that combines an electricity price and electricity consumption levels.

The data series for the dependent variable are shown in Figure 10.10 below. The light-yellow shading indicates the time period when the default tariff cap was in effect, and the light purple shading shows the energy price guarantee. The figure shows the increasing electricity expenditure around the energy crisis, as well as seasonality in household expenditure.

Figure 10.10: Expenditure on electricity per household and policy periods: the default tariff cap (yellow) and the energy price guarantee (purple)

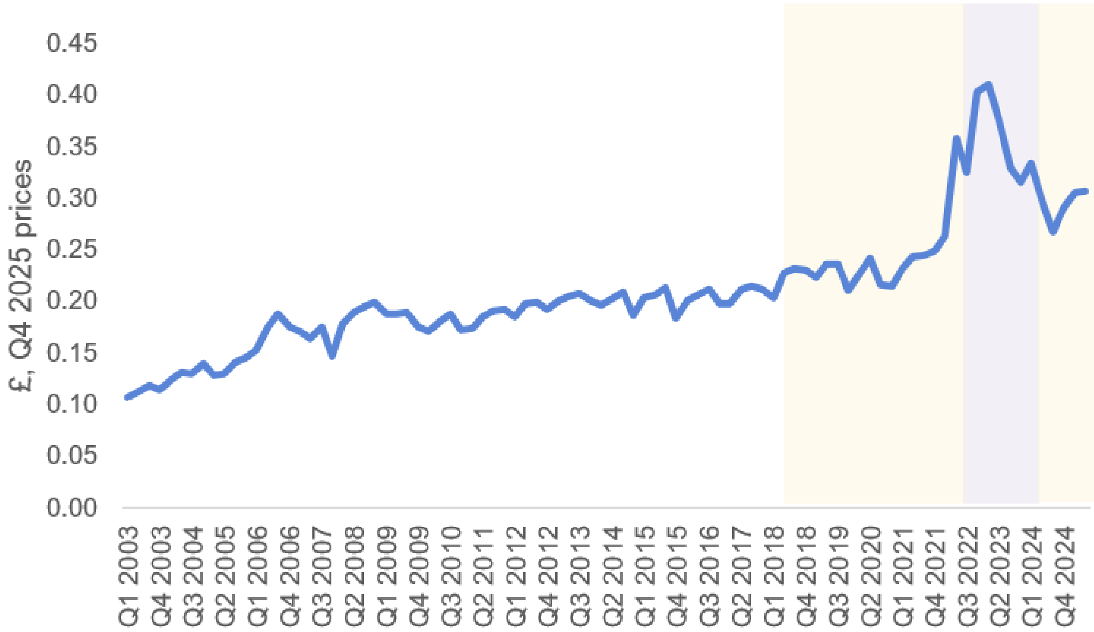


Effective realised weighted-average electricity price (dependent variable)

As discussed above, with the dependent variable measuring household expenditure on electricity, we include an independent variable on electricity consumption. As an alternative to this approach, we constructed a dependent variable measuring the effective realised electricity price, by dividing total quarterly household electricity expenditure with total quarterly household electricity consumption. Using this as the dependent variable removes the need for adding consumption in the analysis separately.

[140] ONS, *Families and households.* Available online.

Figure 10.11: Effective realised electricity price and policy periods: the default tariff cap (yellow) and the energy price guarantee (purple)



E.4.1. Error! Reference source not found. **Descriptive statistics for independent and dependent variables in dataset**

The descriptive statistics shown in Table 10.6 and Table 10.7 are the starting point for the regression analysis. The process of assessing specific variable characteristics (e.g., multicollinearity) and specifying the tested econometric models' functional forms is described in "specifying the regression model" subsection (below) within this Appendix. More details concerning the construction of the independent- and dependent variables can be found in Appendix E.4.

Table 10.6 presents the descriptive statistics for the variables discussed above. Retail prices and wholesale prices were adjusted for inflation and are in 2025 prices in the table.

Table *10.7* below it presents a correlation coefficient matrix.

Table 10.6: Descriptive statistics

Variables	Obs	Mean	Std. Dev	Min	Max
HHI	77	1,478.88	270.61	965.67	1,764.70
Wholesale price	77	528.02	328.25	206.04	2,161.21
Number of suppliers	77	27.22	16.91	9	63
Switching	77	1,039,163	357,106	200,722	1,532,455
Consumption	77	1008.44	197.63	692.43	1,406.30
Patents	77	97.74	50.68	1	184
Retail electricity expenditure	77	218.98	43.93	164.83	388.11
Electricity price	77	0.22	0.06	0.15	0.41

Table 10.7: Correlation coefficient matrix for the variables

	Retail electricity expenditure	Retail electricity price	HHI	Switching	Number of suppliers	Wholesale price	Consumption	Patents
Retail electricity expenditure	**1**							
Retail electricity price	0.64	**1**						
HHI	-0.11	-0.36	**1**					
Switching	-0.45	-0.63	-0.19	**1**				
Number of suppliers	-0.08	0.12	-0.92	0.36	**1**			
Wholesale price	0.40	0.51	-0.12	-0.52	-0.14	**1**		
Consumption	-0.30	-0.52	0.35	0.41	-0.27	-0.17	**1**	
Patents	-0.02	0.09	-0.71	0.03	0.72	0.16	-0.18	**1**

E.4.2. Variables not selected for inclusion in the final model

Other potential independent variables were identified as candidates for inclusion in the main dataset but were ultimately excluded for a variety of reasons.

Variation in prices offered by suppliers

Ideally, we would have included a variable on price offer dispersion in the model. Price offer dispersion, i.e., variance in prices offered by suppliers, could serve as a proxy for product differentiation, which can be considered as a metric for innovation offered in the market.

Data availability on price offer dispersion is limited. We considered including data on retail price offers from Ofgem, but this does not provide a proper measure of variance, but rather a comparison of average standard variable and fixed tariffs to the cheapest tariffs in the market. The data also covers only the period from 2017 to 2025.[141]

Supplier network costs

Most publicly available data sources on network costs come in the form of annual data and cover a short time period. As part of the Energy network indicators, Ofgem provides data on estimated network costs per domestic customer on a monthly basis.[142] However, this data only runs from April 2015 to March 2021. After transforming this into quarterly series, the number of observations is 24, severely limiting the total number of observations available for estimating the model. Excluding the variable allowed estimating the model for the period of Q1 2004 – Q2 2025 (86 observations).

Supplier entry and exit counts

Supplier entry and exit counts were initially considered as a potential proxy for supplier resilience. However, exits could be caused by factors not related to resilience. Due to the uncertainty around what entry and exit counts would capture in the model, we decided to exclude them.

Supplier margins

Ofgem provides data on supply margins of large legacy suppliers.[143] These most likely have profit margins that are greater than the average in the market, for example, due to the economies of scale that they enjoy. Smaller suppliers and new entrants might have lower profit margins from more aggressive pricing strategies. As such, the data does not provide measures of the average and variance in the market.

Weather-driven demand variations

As retail electricity expenditures capture both demand-side consumption changes and price changes, quarterly weather condition variables can control for some consumption changes. As residential household electricity consumptions is included in the regression specification, weather-driven demand variation is already included and no further proxy measures are required.

Quarterly demand variations

There are regular seasonal drivers of demand and price changes, including general weather trends and holiday periods. Controlling for these seasonal drivers may provide cleaner estimates for the drivers of interest. Similarly to weather-driven demand variations, by directly including residential household electricity consumption in the regression specification, controlling for quarterly demand variation is already included and no further proxy measures are required.

Retailer of last resort indicator variable

An indicator variable capturing the use of retailer of last resort frameworks might provide a cost estimate for the regulator’s insurance mechanism for supplier failure. This indicator variable would take a value of one when the framework was utilised in a quarter. The primary issue related to inclusion of this indicator variable is its correlation with the Energy Price Guarantee, which itself is an implicit indicator variable for an energy price shock.

E.4.3. Specifying the regression model

The exact econometric model specification producing the final results was determined by targeting the “cleanest” coefficient estimates, meaning high statistical significance, along with a coherent narrative across coefficient

[141] Ofgem, *Retail market indicators: Retail price comparison by company and tariff type: Domestic (GB).* Available online.

[142] Ofgem, *Energy network indicators: Estimated network costs per domestic customer (GB average).* Available online.

[143] Ofgem, *Retail market indicators: Pre-tax domestic supply margins of large legacy suppliers, combined gas and electricity.* Available online.

estimates that align with both applied experience and theoretical models.[144] Starting with correlation tables comparing the independent variables, we looked for multicollinearity issues identified by high correlation coefficients broadly defined as >0.50 (see Table 10.7). Three independent variables are identified as moderately colinear with each other: HHI, number of suppliers and patents. As the collinearity issue is moderate and there are reasonable theoretical reasons for inclusion, we do not exclude any of the three independent variables.[145] A second step is identifying functional forms using scatterplots, where it was determined that all variables would be logarithmic. This means taking the natural log on both the dependent (prices paid) and independent variables, excluding any intercept and indicator variables. In addition, correlation coefficients were calculated with the prices paid variable and all independent variables using up to four lagged periods (quarters), with the largest correlation coefficient taken as the preferred time lag.[146] This yields an initial regression specification (1):

$$\begin{aligned} Electricity\ Expenditure_t = \beta_0 + \beta_1\ ln(HHI_{t-2}) + \beta_2\ ln(Switching_{t-1}) + \\ \beta_3\ ln(Total\ Suppliers_t) + \beta_4\ ln(Wholesale\ Price_t) + \\ \beta_5\ ln(Consumption_{t-1}) + \beta_6\ ln(Patents_{t-4}) + \varepsilon_t\ . \end{aligned} \tag{1}$$

Regression specification (1) results reported in Table 10.8 show a relatively large intercept (β_0) coefficient and a imprecise coefficient estimate for total suppliers, with high statistical significant for the remainder of the independent variables. However, the results point to some fixed effects being potentially captured by the large intercept coefficient. Therefore, the policy indicator variables should be tested, as shown in regression specification (2):

$$\begin{aligned} Electricity\ Expenditure_t = \beta_0 + \beta_1\ ln(HHI_{t-2}) + \beta_2\ ln(Switching_{t-1}) + \\ \beta_3\ ln(Total\ Suppliers_t) + \beta_4\ ln(Wholesale\ Price_t) + \\ \beta_5\ ln(Consumption_{t-1}) + \beta_6\ ln(Patents_{t-4}) + \beta_7\ \mathbf{1}_{Default\ Tariff\ Cap} + \\ \beta_8\ \mathbf{1}_{Energy\ Price\ Guarantee} + \varepsilon_t\ . \end{aligned} \tag{2}$$

Coefficient estimates for Regression specification (2) shown in Table 10.8**Error! Reference source not found.** show good statistical significance across all independent variables and could be reasonably defended as final results. The strong statistical significance for the indicator policy variables should also be noted, suggesting they are correctly included. However, looking more closely at a theoretical model of retail electricity price, the inclusion of an intercept variable should be examined. If the main drivers of the dependent variable have ze\ro effect (e.g., wholesale price), then electricity expenditure would also be zero. This logic extends to the fixed cost components of the retail electricity expenditure, such as network costs and daily supply costs, which vary over time. That is, we should test if no time invariant intercept in the regression specification and this is shown in regression (3):

$$\begin{aligned} Electricity\ Expenditure_t = \beta_1\ ln(HHI_{t-2}) + \beta_2\ ln(Switching_{t-1}) + \\ \beta_3\ ln(Total\ Suppliers_t) + \beta_4\ ln(Wholesale\ Price_t) + \\ \beta_5\ ln(Consumption_{t-1}) + \beta_6\ ln(Patents_{t-4}) + \beta_7\ \mathbf{1}_{Default\ Tariff\ Cap} + \\ \beta_8\ \mathbf{1}_{Energy\ Price\ Guarantee} + \varepsilon_t\ . \end{aligned} \tag{3}$$

[144] We note that there is potential for an omitted variable bias, as the regression specification is limited based on data availability. Given the quality and variety of our independent variables, along with the evidence concerning potentially omitted variables (e.g., network costs), it is likely that the reported estimated elasticities are not bias, but rather the omitted variables affect our adjusted R-squared (model fit).

[145] The statistical significance of the estimated coefficients across the multiple regression specifications suggests the moderately collinear independent variables are correctly included in the econometric model.

[146] For each independent variable, five correlation coefficients were calculated with the prices paid (dependent) variable. The highest correlation coefficient associated with the five lags was chosen as the preferred specification. The lag chosen was zero (t = t), unless otherwise specified in the regression equations.

While the results for regression specification (3) show broadly similar statistically significance across the independent variables as specification (2), we must test which specification is likely correct. That is, when excluding the intercept from regression specification (2), care must be taken to ensure that the new specification (3) is reasonable. First, theory must support the exclusion of the intercept and this was discussed above. Second, the usual measures of "fit" are not reported accurately from the statistical software when excluding the intercept. This means that the adjusted-R^2 from the same specification, but with the intercept, is the correct "fit" measure and this is reported in Table 10.8. Third, an F-test provides a statistical test for including or excluding the intercept by computing an F-statistic between regression specifications (2) and (3). The relevant F-statistic is 4.196, which means that the intercept should be included – i.e., we reject the hypothesis that the intercept is equal to zero at the 1 percent level.

A fourth regression specification was estimated to more directly understand the effect of the independent variables on the price of electricity. In contrast, the previous specifications (1)-(3) used electricity expenditure as the dependent variable, which comprises a fixed cost (e.g., network costs, daily supply charges) and variable costs. The variable costs are the electricity cost multiplied by electricity consumed or more succinctly: price X quantity. As we are most interested in price elasticities throughout, we control for consumption directly as an independent variable and this means all driver elasticity estimates are associated with price (i.e., price elasticities). An alternative approach is calculating an electricity price as the dependent variable. We do this by dividing total household electricity expenditure (in GBP) by total household electricity consumption (kWh) to obtain an effective realised weighted-average electricity price (GBP/kWh). This allows the estimation of regression specification (4)[147] with price as a dependent variable, where consumption is no longer needed as a control:

$$\begin{gathered} Price_t = \beta_0 + \beta_1 \, ln(HHI_t) + \beta_2 \, ln(Switching_t) + \\ \beta_3 \, ln(Total\ Suppliers_t) + \beta_4 \, ln(Wholesale\ Price_t) + \\ \beta_6 \, ln(Patents_{t-4}) + \beta_7 \, \mathbf{1}_{Default\ Tariff\ Cap} + \beta_8 \, \mathbf{1}_{Energy\ Price\ Guarantee} + \varepsilon_t \, . \end{gathered} \tag{4}$$

The estimated coefficients from regression specification (4) have similar statistical significance compared to the other regression specifications (see Table 10.8). Coefficient signs are the same across all four regression specifications and there are similar elasticity magnitudes across the independent variables, except for HHI and wholesale price. In both cases, the elasticity estimates are lower for regression specification (4) and more noisy.[148] Wholesale price, in particular, is an unexpected result, given that the wholesale price should be linked with the retail electricity price, in theory. While there are some potential benefits in using the effective realised weighted-average electricity price (GBP/kWh) as the dependent variable, the resultant coefficient estimates produce a less clear picture of overall driver price elasticities, despite having the highest adjusted-R^2.[149]

Thus, we select specification (2) as the final specification generating the final results, which are reasonably "clean" and precisely estimated, with coefficients being directionally consistent with the hypothesised effects. Specification

[147] The independent variable lags were reassessed using the new dependent variable, resulting in a regression specification with no lagged independent variables. This (no lag) specification allows for the inclusion of 77 quarterly observations compared to 74 quarterly observations in regression specifications (1)-(3).

[148] T-statistics for HHI and wholesale price are 1.170 and 1.726, respectively. For reference, a T-statistic greater than 1.66 generally results in statistical significance at the 10 percent level.

[149] Adjusted-R^2 is a measure of a regression model's fit to the data, where a value of 1 means the model accounts for all variability in the dependent variable.

(2) balances statistical precision across the independent variables, statistical evidence concerning the specification, passes heteroskedasticity tests,[150] and matching our *ex ante* understanding of driver impacts.[151]

E.4.4. Econometric results of specifications tested

The coefficient estimates and standard error (in parentheses below) are shown for the four regression model specifications in Table 10.8, with statistical significance denoted for the 1 percent (***), 5 percent (**) and 10 percent (*) levels. A blank is used where a model specification does not include an independent variable or intercept term.

Table 10.8: Estimated coefficients from regression specifications 1-4

	(1)	(2)	(3)	(4)
Dependent Variable	Electricity Expenditure	Electricity Expenditure	Electricity Expenditure	Electricity Price
Intercept	2.719*** (0.605)	1.033** (0.504)		0.300 (0.471)
HHI (Competition)	-0.620*** (0.121)	0.258* (0.145)	0.334** (0.143)	0.166 (0.142)
Switching (Customer engagement)	-0.300*** (0.036)	-0.150*** (0.034)	-0.105*** (0.026)	-0.164*** (0.030)
Total Suppliers (Supplier resilience)	-0.012 (0.053)	0.178*** (0.046)	0.194*** (0.046)	0.184*** (0.039)
Wholesale Price (Input costs)	0.070** (0.035)	0.087*** (0.026)	0.111*** (0.023)	0.046* (0.027)
Patents (Innovation)	-0.052** (0.030)	-0.049** (0.022)	-0.042* (0.022)	-0.045*** (0.013)
Consumption (Customer demand)	0.787*** (0.072)	0.860*** (0.054)	0.907*** (0.051)	
Default Tariff Cap (Consumer protections)		0.225*** (0.034)	0.241*** (0.034)	0.167*** (0.032)
Energy Price Guarantee (Consumer protections)		0.419*** (0.056)	0.474*** (0.051)	0.420*** (0.045)
N	74	74	74	77
Adjusted R^2	0.732	0.858	0.985 (0.858 equivalent)	0.889

*Note: 1%, 5% and 10% levels of significance are indicated by ***, ** and *, respectively.*

[150] Regression specification (2) was tested for heteroskedasticity, where the residuals (error term) are related to the dependent variable, using the Glejser test, which is passed at the 1 percent level.

[151] The interim results did not include consumption as an independent variable. The inclusion of consumption as an independent variable in the draft results lead to substantially less noise across all coefficient estimates and switched the preferred regression specification to include the intercept, based on statistical evidence (e.g., F-test).

E.5. SUMMARY OF RESULTS FROM PREFERRED ECONOMETRIC SPECIFICATION

Competition

Our regression specification (2) estimate strongly implies a 0.26 percent increase in prices when HHI increases by 1 percent. The coefficient is statistically significant at the 10 percent level. This coefficient is reasonably robust to different econometric model specifications and is aligned with both theoretical models and observed reality. As higher HHI is associated with a less competitive market, this suggests that competition and prices have an inverse relationship.

Innovation

The use of patents to estimate the effect of innovation on electricity expenditure is a novel contribution to the literature and provides an interesting initial estimate that shows a net effect near zero. However, the exact association is noisy and cannot be clearly stated in terms of a full theoretical model. That is, how patents generate efficiency gains in costs and technological progress, along with how patents support the introduction of new features or characteristics at the retail electricity layer, is virtually impossible to assess. Given the lack of alternative estimates, either qualitative or quantitative, we are reasonably satisfied in using our own estimate showing that a 1 percent increase in new patents granted is associated with a fall in electricity prices of 0.05 percent.

Input costs

We use wholesale costs as our independent variable for input costs, noting a likely omitted variable bias by excluding network costs. Given the known underlying drivers of wholesale and network costs, we do not reasonably believe that excluding network costs will distort elasticity estimates for wholesale cost. While we are confident in the coefficient estimates for the impact of wholesale prices on prices paid, it is worthwhile to consider the inclusion of other costs using more direct methods found in the literature review.

In the final regression specification (2), we estimate a 0.09 percent increase in electricity price is associated with a 1 percent increase in wholesale electricity costs, with a 95 percent confidence interval of [0.04, 0.14] percent. We believe that this estimate, like all estimates, is affected by the specific generation characteristics within each market and how retailers hedge these risks, both intertemporally and across their customer base. Thus, these multiple result are entirely expected, as the wholesale price should be some combination of a direct or indirect (hedged) cost for the retailer.

Supplier resilience

Supplier resilience is not directly measured in our dataset, partly because of data limitations and partly because resilience is not well defined. Our closest proxy for supplier resilience within the available dataset is the number of suppliers in the retail market. However, there are limitations on this metric as a proxy for resilience, as a supplier may operate in the market for a range of reasons distinct from supplier resilience.

We estimate that a 1% increase in the number of suppliers is associated with a 0.18% increase in retail prices. While this coefficient is very precisely measured and statistically significant at the 1 percent level, it is relatively small with respect to historic changes in the number of suppliers. This implies that a change in the number of suppliers does not necessarily strongly impact the prices paid on average. However, small percentage changes to retail electricity prices paid can have a substantial impact on overall consumer welfare due to the large market.

Customer engagement

Increased customer engagement is conceptually expected to reduce retail electricity expenditure and this view is supported by our coefficient estimate on consumer switching. A 1 percent increase in switching is associated with a decrease in retail electricity prices of 0.15 percent, which is significant at the 1 percent level. The 95 percent confidence interval for this estimate is [-0.22, -0.08] percent, providing further statistical support for a negative relationship.

It should be noted that higher consumer engagement is not always considered a driver of lower prices, which is dependent on the specific market characteristics and consumer preferences. There are three non-mutually exclusive narratives that are immediately plausible. First, it might be consumers cannot search efficiently in the retail electricity market, which might be due to the inherent complexity of the product and/or retailers creating search barriers. Second, it might be that the market is sufficiently competitive that increases in customer engagement do not lead to significant price reductions on average. Third, there is a significant academic and applied research suggesting that consumers do not always prioritise price when selecting fungible products and instead may focus on reliability and/or specific features

Customer demand

While not an explicit driver, controlling for customer demand is an important aspect of all model specifications estimated, as it allows the elasticity estimates to be interpreted as price elasticities. Across all model specifications where customer demand is an independent variable, the coefficient is just below 1, which is a reasonable check on our theoretical understanding of the retail electricity market. In theory, if electricity expenditure was comprised of only a variable cost (e.g., electricity tariff) multiplied by a quantity (e.g., quantity of electricity), then there should be a linear relationship between electricity expenditure and quantity consumed – i.e., a coefficient of 1. However, because there is a fixed cost component in retail electricity expenditure (e.g., network costs, daily supply charges), theory suggests the estimated coefficient should be slightly less than 1. As theory aligns well with the estimated coefficients, we can have some additional certainty concerning their accuracy.

Default tariff cap

The default tariff cap coefficient estimate suggests that this policy is associated with a 25 percent increase in prices,[152] *ceteris paribus*.[153]

Energy Price Guarantee

The default tariff cap coefficient estimate suggests that this policy is associated with a 52 percent increase in prices,[154] *ceteris paribus*. Note that this effect is the aggregation of multiple effects,[155] rather than simply the policy effect alone.

[152] As an indicator variable takes the value of 1 when the policy is present and zero otherwise, the coefficient interpretation in a log-linear is the exponent of the coefficient. In this case, exp(0.225) = 1.25 or a 25 percent increase in the dependent variable.

[153] *Ceteris paribus* is Latin for “all other things constant” – a term commonly used when interpreting econometric results.

[154] As an indicator variable takes the value of 1 when the policy is present and zero otherwise, the coefficient interpretation in a log-linear is the exponent of the coefficient. In this case, exp(0.419) = 1.52 or a 52 percent increase in the dependent variable.

[155] The Energy Price Guarantee is correlated with an energy crisis and other exogenous shocks, such as Covid.

Appendix F ESTIMATION OF THE IMPACT OF REFORMS ON RETAIL ELECTRICITY PRICES

CEPA has developed a modelling tool that has been used to develop stylised estimates of the impact of the reforms on retail electricity prices. The tool has been populated with elasticities which estimate the relationship between the six reforms and the five drivers, and the five drivers and the retail electricity prices. To get the overall impact on retail electricity prices of each reform, these elasticities are multiplied to get the effect of each impact channel and then summed across all impact channels.

The tool provides a simplified view of these relationships, which can be used to understand the channels through which the reforms lead to changes in the retail electricity market. It focuses on direct relationships, so doesn't include indirect relationships, e.g. how drivers impact retail electricity prices through other drivers.

The model produces estimates of the long-term impacts of the reforms, i.e. the level of retail electricity prices once the full effect of the reform has been achieved (through the mechanisms we quantify), and a new steady state electricity price has been achieved.

F.1. Calibration of elasticities

We have used different methods to calibrate the elasticities for the two categories of relationships.

F.1.1. Reforms to drivers

We have assumed elasticities for the impact of reforms on drivers based on our categorisation of the size of the impact of a reform (i.e. positive, weak negative, etc).

For competition, innovation, supplier resilience, and consumer engagement we reviewed the historic data to establish the variance of each metric. We use the data sources that we used in the regression analysis, which are described in Appendix E. If the metric appeared to have outliers, then we took the inter-quartile range of the variance, if the metric did not appear to have outliers then we used the total range. We converted this into a percentage change by taking half of the range and dividing it by its midpoint. We use the midpoint as we are agnostic as to the level of each metric when the reform is introduced. This percentage change is the maximum percentage change of each of the four metrics.

We then assume the impact a reform can have, as a fraction of the maximum percentage change. This is presented in Table 10.9. For four out of the five drivers we assume that a positive (negative) impact on the driver will result in a change in the driver that is equal to 75% (-75%) of the maximum possible percentage change; for weak positive (weak negative) this is 25% (-25%). 75% and 25% is based on CEPA's expert judgement, and controls for external impacts that effect the drivers outside policy reform.

For supplier resilience we assume that a positive (negative) impact on the driver will result in a change in the driver that is equal to 20% (-20%) of the maximum possible percentage change; for weak positive (weak negative) this is 10% (-10%). This is based on a top-down review of the final impact of the supplier resilience driver on the overall impact on retail electricity prices against our qualitative evidence. We found that the supplier resilience driver was having an oversized impact on the change in retail electricity prices and so reduced the percentage change of the policy impact to account for this, using our expert judgement.

For input costs we looked at how reforms could remove the costs associated with price risk which are currently passed on to consumers. We calculated the percentage impact of the reform by taking the value of the price risk calculated by CEPA in their P379 CBA[156] and dividing it by the average forward wholesale costs for the same

[156] CEPA for Elexon (2020) *P379 Impact Assessment*

period. This established the maximum percentage change of the metric. To estimate the impact of reforms, we then apply the percentage reported in Table 10.9, using the same methodology as described above.

The final elasticities for reforms to drivers are presented in Table 10.10.

Table 10.9 Impact of reform on driver (by impact category)

Driver	Positive	Weak positive	Undefined	Weak negative	Negative
Competition	0.75	0.25	-	-0.25	-0.75
Innovation	0.75	0.25	-	-0.25	-0.75
Supplier Resilience	0.20	0.10	-	-0.10	-0.20
Consumer Engagement	0.75	0.25	-	-0.25	-0.75
Input Costs	0.75	0.25	-	-0.25	-0.75

Table 10.10 Assumed elasticities of reforms to drivers

Driver	Impact of reform on driver (based on categorisation)				
	Positive	Weak positive	Undefined	Weak negative	Negative
Competition	-22%	-7%	-	7%	22%
Innovation	18%	6%	-	-6%	-18%
Supplier resilience	11%	5%	-	-5%	-11%
Consumer engagement	11%	4%	-	-4%	-11%
Input costs	-7%	-2%	-	2%	7%

F.1.2. Drivers to retail electricity prices

For the elasticities of the drivers to the retail electricity prices, we have used two approaches.

For four of the five drivers (competition, innovation, supplier resilience, and consumer engagement), we have used our estimated co-efficient from the regression analysis described in Appendix E. This estimates the contemporaneous impact of the driver on retail electricity prices, i.e. the impact of the driver on retail electricity prices during the time period that the reform is affecting the drivers.

For input costs we used a different approach. This is because we use wholesale electricity costs as our metric of input costs in our regression. Given the hedging strategies of suppliers, we believe that the contemporaneous estimate from our regression does not capture the full impact of the driver on retail electricity prices. Instead, we assume that there will be full pass-through of costs changes by suppliers – this is in line with economic theory that states that cost changes will be passed through to consumers in competitive markets.[157] Therefore, we use the percentage of the retail electricity bill that is made up of wholesale costs, to represent this pass-through.

We also include a low and high case scenario which represents the 95% confidence interval from our regression analysis, these are in our modelling tool.

[157] The CMA explored pass-through in their 2016 Energy Market Investigation (available online here). The CMA found that there was full (or close to full) pass-through for some companies for some of their retail products. Although full pass through was not observed in all cases, we have chosen to keep this assumption as it is supported by economic theory, and the CMA's analysis is from 10 years ago, so may not represent current market dynamics.

This elasticities for the impact of the drivers on retail electricity prices are presented in Table 10.11.

Table 10.11 Assumed elasticities of drivers to retail electricity prices, central case

Driver	% change in electricity price from a 1% increase in driver
Competition	0.26%
Innovation	-0.05%
Supplier resilience	0.18%
Consumer engagement	-0.15%
Input costs	0.29%

F.1.3. Suggested further analysis

In particular, additional information from the separate study on the distributional impacts of consumer-led flexibility will help Citizens Advice to calibrate the impact of reforms on input costs. The estimate shown in Table 10.10 is based on an estimate of hedging costs from a previous study. However, we are aware of much larger estimates of annual bills savings[158] for:

- Those who already use electricity outside of peak times who switch to a ToU tariff (£200) ('passive switching').
- LCT owners who optimise demand with ToU tariffs (£250-300);

However, if the figure in tool represents average bill savings, this should be driven by fall in system costs rather than what individuals can achieve by shifting demand and/or changing tariff. So, individual bill savings from passive switching should not be reflected in the estimate in the tool of the impact on 'average' input costs.

The savings in the second category (from shifting demand) are a mixture of transfers and savings in system costs from the changes in demand from LCT owners. This will be an element of but not all of the headline savings in annual bills of £250-300. The Citizens Advice study on distributional elements of consumer-led flexibility will provide insights into the split between transfers and savings in system costs, and how that affects bills of all consumers (i.e. not just the flexible). The qualitative research will add to the evidence on how consumers might respond to the reform options, which can be either switching tariff and/or changing demand patterns. Those insights can then be used to update the estimates in tool of the impact of reform options on input costs.

[158] DESNZ, Ofgem, Neso (2025) Clean Flexibility Roadmap

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