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COMPATABILITY OF RELATIVE PRICE CAPS WITH TOU TARIFFS AND A RANGE OF HEDGING STRATEGIES

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1 Introduction and scope

The GB retail electricity market is currently subject to a Default Tariff Cap (DTC) set by Ofgem. This is a 'bottom-up' price control which limits the price of tariffs to a level that is intended to be reflective of the efficient costs of supply (including an allowance for the cost of capital). The stated purpose of this cap is to ensure that prices for consumers on default energy tariffs are 'fair and cost-reflective'.[1]

It is recognised that the ongoing transformation of the energy system will substantially alter the landscape of the retail market.[2] The Government has recently questioned whether the current cap model could act as barrier to innovation and engagement, and prevent consumers from feeling the full benefits of the transition to a smarter, more flexible energy system.[3] When discussing potential reforms, consideration is sometimes given to the introduction of a relative price cap.[4]

The imposition of a relative price cap would be a significant change to the market and would bring with it substantial challenges. For example, Ofgem has previously noted the possibility of supplier manipulation of a relative cap, or how a relative cap set at the supplier level might lead to price differentials across suppliers.[5] Frontier Economics has been commissioned by Centrica to review and assess two specific challenges associated with its introduction:

- whether a relative price would be compatible with the wider roll-out of time of use tariffs (ToUTs); and
- whether it would be compatible with the use of diverse hedging strategies for different suppliers and tariffs.

The remainder of this report is structured as follows:

- We begin with a short background section that describes what is meant by a 'relative price cap', and sets out three broad conditions which must hold for a relative price cap to fulfil its purpose.
- We then consider the types of ToUT which may become more prevalent in the future and assess the extent to which the widespread rollout of ToUTs could be compatible with the three conditions for a relative price cap. We conclude that introducing a relative price cap

1 Ofgem website "Energy Price Cap explained" (July 20223).

2 "Towards a more innovative energy retail market - A Call for Evidence", Department for Energy Security & Net Zero (July 2023).

3 "Delivering a better energy retail market: a vision for the future and package of targeted reforms", p9 Department for Energy Security & Net Zero (July 2023).

4 We note that a relative price cap, in some form, is not a new idea and has been raised by various parties, albeit not explicitly in the context of the energy transition.

5 Ofgem (2021), Call for input: Adapting the Price Cap Methodology for Resilience in Volatile Markets, p11

in combination with the proliferation of time of use tariffs, would raise significant challenges, all of which are more severe than under an absolute price cap.

- We complete the paper by describing the types of wholesale hedging strategy that suppliers can adopt and assessing whether the adoption of a variety of hedging strategies would be compatible with a relative price cap. We conclude that a stringent relative price cap would reduce the range of hedging strategies that suppliers can adopt to serve their customers and reduce the range of tariff offerings available. Alternatively a loose relative price cap would enable a greater range of hedging strategies to be adopted and tariff offerings to be made but would provide limited consumer protection.

2 Relative price caps

This section first describes the intended purpose of a relative price cap and the different forms it can take. We then set out three broad conditions which are required for any such a cap to serve its purpose: **comparability of prices**; **similarity of costs of supply**; and **availability of a suitable benchmark.** These three conditions will be used in the following sections to assess the extent to which ToUTs and diversity in hedging strategies are consistent with a relative price cap.

2.1 Purpose and types of relative price cap

The purpose of the current DTC is to cap the price paid by consumers on standard variable and default tariffs. The DTC is an 'absolute' price cap, which serves this purpose by constraining suppliers to a price based on a bottom-up calculation of an efficient cost-to-serve (including cost of capital).

A relative price cap would also be intended to constrain the price of tariffs which would otherwise be considered 'too high'. However it would achieve this by limiting the price difference between each tariff covered by the cap and a benchmark set by the lowest price tariff(s) included within that benchmarked group. The design of a relative price cap may vary the following features:

- **The tariff types which are constrained by the cap**. For example:
  - **All tariffs might be in scope**.
  - **Some tariffs might be out of scope**. For example, fixed rate tariffs might be used to set the benchmark, but not assessed against it. This would mean that the cap would not prevent a supplier setting a fixed rate tariff at a much higher price than its cheapest fixed-rate tariff.
- **The number of different caps there are**. This relates to the number of separate benchmarks that are used to assess in-scope tariffs. For example:
  - In a **market-wide cap**, each tariff is compared to a benchmark of tariff(s) across the whole market. For example, if supplier A has the cheapest tariff overall and this forms the only benchmark, then the difference will be calculated between every other tariff offered by every other supplier and this benchmark tariff.
  - In a **per-supplier cap**, supplier A's tariff(s) would be compared to a benchmark tariff(s) from supplier A; supplier B's tariff(s) would be compared to a benchmark tariff(s) from supplier B etc. There is therefore a separate benchmark for each supplier.

- Other variants might use **one cap per tariff type**. For example, a separate cap could be set for single-rate and E7 tariffs.

- **The tariff(s) used to set the benchmark(s).** For example:
  - The benchmark might be set by a single tariff.
  - The benchmark might be set as an average of a basket of tariffs.[6]

- **The allowable difference**. At one extreme, this may be zero, so all tariffs covered by the cap must be the same price as the benchmark. However there would usually be a maximum difference, which allows some dispersion in prices.

The table below summarises two forms of relative price cap which have been previously noted by Ofgem: a 'Relative price cap across the market' and a 'Relative price cap within suppliers'.[7]

Table 1 High-level design of relative price caps previously described by Ofgem

	Relative price cap across the market	Relative price cap within suppliers
Tariffs constrained by the cap	Default tariffs only	All tariffs
Number of different caps	One cap – i.e. one benchmark for all tariffs	Per-supplier – i.e. a separate benchmark for each supplier
Tariff(s) used to set the benchmark(s)	Basket of lower-priced tariffs	Single lowest-price tariff
Allowable difference	(Not specified, would depend on exact cap design)	

Source: Frontier Economics based on Ofgem (2021)[7]

This note describes the broad issues associated with *any* type of relative price cap within this spectrum. The following subsections describe three conditions are needed for any relative price cap to be workable and effective.

2.2 Requirement 1: Comparability of prices

For a relative price cap to be workable, it must be possible for both the regulator and suppliers to compare each pair of tariffs covered by the same cap and unambiguously assess how much

6 Certain tariffs may be excluded from the assessment of what constitutes the "cheapest" tariff, perhaps because they are not deemed to offer a fair comparison to other benchmarked tariffs.

7 Ofgem (2021), Call for input: Adapting the Price Cap Methodology for Resilience in Volatile Markets, p11

more expensive one tariff is than another. This enables the price differential to be compared to the allowable difference.

This will generally require a mechanism that allows both the regulator and suppliers to be able to summarise the price of a tariff as a single number.[8] This number would likely be expressed as a bill. It could be calculated for a single notional consumer (for example, at TDCV), or an average across multiple notional consumers.

2.3 Requirement 2: Availability of suitable benchmarks

For a relative price cap to be an effective way of regulating a given tariff, there must be at least one suitable benchmark tariff to assess that given tariff against. Given the purpose of the control is to cap prices for products where the regulator may assess competition to be weaker than it is in other parts of the market, the benchmark tariff should be a tariff that is itself the product of effective competition.

2.4 Requirement 3: Similarity of costs to supply

One of the implicit assumptions that a regulator makes when it uses a tariff or a basket of tariffs as a benchmark against which other tariffs must be priced, is that the cost of supplying the benchmark tariff is a good proxy for the expected efficient cost of supplying all the other tariffs that are pegged to it.

If the benchmark is a good proxy for supply costs, then the relative cap effectively ensures that the margin earned on all tariffs in scope cannot exceed the margin earned on the benchmark tariff by more than a specified amount. However, if this condition does not hold then the regulator risks either:

- setting a price cap which allows excess profitability and so does not serve its purpose; or
- setting one that caps supplier prices below an efficient level (including a normal return on capital employed) and driving efficiently priced tariffs out of the market.

[8] In theory a separate relative price cap could be set for each different 'facet' of a tariff – for example, the night rate of tariffs could be constrained by the lowest of all night rates, and the day rate by the lowest of all day rates. While we do not explicitly consider such a cap, we note that it would not resolve the comparability issues raised in this note. For example, if such a cap was used to compare a single-rate tariff to an E7 tariff, it would determine that the single-rate tariff is overpriced as it ignores the way in which the day rate is correspondingly 'underpriced'.

3 Time of use tariffs

The term Time of Use Tariff (ToUT) refers to any tariff where the price paid for electricity by the end consumer depends on the time at which they consume power.

In this section we briefly introduce the different types of ToUT. We describe their potential role in the future retail market and why it is likely that any future form of price cap would need to work alongside these tariffs. We then discuss the challenges these tariffs pose for a relative price cap, given the three conditions described above.

3.1 Types of ToUT

The simplest form of ToUTs are 'static' tariffs like Economy 7 (E7), where the price per kWh is announced well in advance and does not change often. For example, under the DTC, E7 rates are announced a month in advance and apply for three months. E7 only has two prices (a day and night rate). A novel example of a 'static' ToUT was British Gas's *Home Energy FreeTime* which provided a zero unit rate for all consumption on either a Saturday or Sunday.

More complex static ToUTs are possible which would divide the day (and possibly the week) into a greater number of bands. For example, ToUTs assessed for Ofgem in 2017 divided each day into 'default', 'peak' and 'low' prices.[9]

Under a 'dynamic' ToUT, the price paid for consuming energy at a given time varies from day to day. The tariff is announced much closer to the time of consumption (for example Octopus's Agile tariff provides updated unit rates at around 4pm for the next 24 hours).[10] Adynamic ToUT could expose consumers to intraday prices, with prices updated continually throughout the day, or even offer lower prices if suppliers can control some of a customer's load.[11] Simpler versions of dynamic ToUTs include 'critical peak pricing' and 'plunge pricing', where the price is generally constant, but consumers are notified in advance of high or low price 'events'.

3.2 The future role of ToUTs

Currently the majority of retail electricity tariffs are still 'single rate' tariffs, where a single unit rate is paid for electricity consumed regardless of the time of day. Only about 9% of UK households are on a time of use tariff,[12] with the vast majority of these being simple two rate static ToUTs (mostly E7 tariffs).

9 CEPA for Ofgem (2017), *Distributional Impact of Time of Use Tariffs*

10 https://octopus.energy/smart/agile/

11 https://www.ovoenergy.com/electric-cars/charge-anytime

12 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1146290/table_225.xlsx

While current take-up of ToUTs is limited, this is expected to increase, not just in terms of the proportion of the market that is likely to be on ToUTs, but also the variety of different types of tariff. This will be enabled by the increased uptake of smart meters, a move to Market-wide Half-Hourly Settlement (MHHS) and the roll-out of low carbon technologies such as heat pumps, EVs and batteries.[13] The requirement for these tariffs stems from the significant expected electrification of heat, transport and industry. With far greater demands for electrical energy, flexibility in when it is required will be key to reduce costs of building and maintaining generators and networks. As stated by National Grid ESO:[14]

FES 2022 states that there will need to be significant demand side flexibility to run the electricity system from clean energy sources (with no unabated natural gas) after 2035. To deliver this demand side flexibility, consumers must be enabled to engage with the energy system through developments such as increased smart automation and Time of Use Tariffs (ToUTs).

The increase in prevalence of these tariffs leads to the following questions being raised:

- **Will ToUTs need capping?** We assume that, if a relative price cap were under consideration for ToUTs, then it would have been concluded that at least some of these tariffs were not subject to sufficient competition.[15] The introduction of MHHS may also see some suppliers seek to introduce some ToUTs as default tariffs to manage their exposure to shape risk. ToUTs would need to be covered by the cap if any of these tariffs were considered insufficiently competitive or unfairly priced.

- **Will ToUTs need to be used as the benchmark tariff(s)?** Under a relative price cap, the price of the tariffs covered by the cap would still need to be 'tied' to one or more non-default tariffs. In a world where engaged consumers are using ToUTs (as described above by National Grid ESO) then these ToUTs are likely to be amongst the most competitive tariffs.

We therefore conclude that **any relative price cap would need to work alongside ToUTs** – at a minimum to consider their role (if any) as the 'benchmark' tariffs, and potentially to directly constrain their price. The following subsection describes whether it would be practical for a relative (as opposed to an absolute) price cap to do this.

3.3 Static ToUTs and a relative price cap

To illustrate the challenges that may arise when applying a relative price cap to static ToUTs, we have considered a very simple example: a relative price cap which covers both E7 and single rate tariffs. As described in section 2.2, we need to ensure **comparability of prices**,

13 BEIS (2021), *Energy Retail Market Strategy for the 2020s*, pp12

14 National Grid ESO (2023), *Consumer flexibility in FES and how it is changing*

15 In principle, price caps can also be introduced because governments or regulators decide that competitive outcomes are in someway unfair or undesirable.

which in general requires each tariff to be summarised as a single number which can be compared. We have calculated a bill for a notional consumer who consumes a total of 2,900kWh, with 15% of this consumption occurring during the E7 night period. Based on British Gas's current SVT product, this results in a total bill of around:

- £1,060 for the single rate default tariff; and
- £1,192 for the E7 tariff.

On this basis the E7 tariff appears far more expensive than the single rate tariff, and under a relative price cap this might require the E7 tariff to be reduced (or the single rate tariff to be increased). However, as both of these tariffs are currently bound by the DTC, they are already set in a cost-reflective fashion, so it cannot be the case that the E7 tariff is priced 'too high'.

The issue is that consumers on these tariffs have a very different load profile. The E7 tariff has a lower night rate, and therefore attracts consumers who use more energy during the night.

In future, we would expect the diversity of consumption profiles between different types of ToUT to be even greater. This is because such tariffs may both be targeted to specific types of consumer with different load profiles (e.g. those with heat pumps or electric vehicles), and consumers with these types of asset will have more flexibility to adjust their consumption in response to the tariff.

It might be thought that the solution is to have a different notional consumer for each tariff, reflecting the mix of consumers on the given tariff. For example, the notional consumer used to derive the bill for the E7 tariff might consume 42% of her energy during the night period, while the single rate consumer may only consume 15%. This would result in the following bills:

- £1,060 for the single rate default tariff; and
- £1,019 for the E7 tariff.

In this case the E7 tariff appears *cheaper* than the single rate default tariff – again, despite both being set based on an absolute price cap which is designed to be cost-reflective. The issue is that we are now comparing 'apples with oranges': The consumers on the E7 tariff have an intrinsically 'cheaper' load profile. When used as a benchmark, the single rate tariff does not reflect the costs of supply of the E7 tariff and therefore fails the third requirement discussed in section 2.

This illustrates that it is not possible to have a relative price cap which includes multiple different types of ToUT: all tariffs within the cap system (whether they are constrained by it, or acting as benchmarks) need to have the same structure to ensure that tariffs that are being compared have the same costs of supply.

To avoid this, a separate cap system would need to be implemented for each type of ToUT, so only tariffs with the same structure (and the same load profile of consumers) are compared.

There are a vast number of possible structures of ToUT, and a regulator would face a difficult trade-off:

- On the one hand, if there are no restrictions placed on the allowable forms of tariff, then there may be **no applicable benchmark tariffs** for a given tariff covered by the cap. Even if this is not the case, the number of tariffs within a given cap may be small, and may not provide a suitable competitive benchmark.
- In order to guarantee a greater number of comparable tariffs, the regulator could enforce restrictions (in the extreme, a single tariff structure could be set for the whole market). But this risks stifling innovation which would otherwise result in different tariff structures that are particularly suited to consumers in particular situations.

Note that some similar issues exist with absolute price caps (this is the reason why single rate and E7 tariffs currently have different price caps). However a separate absolute price cap could be set for each type of tariff, and it does not matter if there is limited competition for a specific tariff type as the absolute cap does not require the presence of a competitive benchmark.

3.4 Dynamic ToUTs and a relative price cap

Dynamic ToUTs present further challenges for a relative price cap.

First, they increase the number of potential tariff structures greatly, since rather than a small number of prices corresponding to different times of the day or year, each half-hour *across the entire year* may now have a unique price. This magnifies the issue described above: in order to ensure comparability, availability of suitable benchmarks, and similarity of costs of supply, it is likely that strict limits will need to be put in place on the structure of dynamic ToUTs.

Second, prices for dynamic ToUTs are announced frequently, and with relatively little lead time. This will impose significant administrative overheads for both the regulator and suppliers, as every time new prices are announced the cap needs to be recalculated based on the new prices. Unlike an absolute price cap like the DTC, where regulator could provide a model which is regularly updated using wholesale market index data, the cap itself is based on the announced prices. This means that it would be possible for the following to occur:

- Suppliers announce prices for their dynamic ToUTs which they believe to be consistent with the cap;
- the cap is recalculated (since the benchmark may include dynamic ToUTs); and
- some tariffs are now found to be inconsistent with the cap and must be repriced.[16]

[16] This issue exists to an extent with any relative price cap, but we would expect it to be greatly exacerbated if prices are being set every day or even half-hour, rather than every few months.

Finally, suppliers offering dynamic ToUTs may amend the purchasing strategies for these tariffs to take advantage of near to real-time wholesale market prices. For example, a dynamic ToUT which is set a day ahead will likely involve the supplier purchasing energy on the day-ahead market, while a dynamic ToUT which is set close to gate closure will likely involve the supplier purchasing energy on the intraday market. We discuss the implications of different hedging strategies in the following section.

3.5 Conclusions on ToUTs

Introducing a relative price cap in combination with the proliferation of time of use tariffs, would raise significant challenges, all of which are more severe than under an absolute price cap. The need to ensure that each tariff covered by the cap has a comparator will require some combination of limiting the types of available tariff (which risks stifling innovation) and/or accepting that the benchmark for some tariffs may be based on a limited number of tariffs. This trade-off will be even greater if dynamic ToUTs become widespread as either active choice or default tariffs.[17]

[17] As explained above, suppliers may find offering ToUTs as default tariffs appealing to manage their shape risk.

4 Supplier wholesale purchasing strategies

'Supplier wholesale purchasing strategies' (or 'hedging strategies') refer to suppliers' approaches to procuring electricity on the wholesale market for their customers. In the context of this note, the key element of purchasing strategy that we consider is the timing of purchases – i.e. the time at which electricity is bought by suppliers, relative to the time at which it is consumed by their customers.

In this section we first outline some of the different purchasing strategies adopted by suppliers. We then discuss the challenges that may be faced with trying to maintain a diversity of purchasing strategies in the presence of a relative price cap.

4.1 Types of wholesale purchasing strategy

Currently suppliers can offer tariffs which present customers with greater or lesser volatility in their bills. In order to minimise their exposure to wholesale price movements, a supplier would then typically adopt a matching wholesale purchasing strategy for the given tariff. Examples of tariff and purchasing strategy pairs are:

- Suppliers offer **fixed-term tariffs** designed to cater for customers wishing to 'lock in' prices for one or more years. For a fixed-term tariff, a supplier may choose to 'back to back' hedge its wholesale exposure. This would imply buying forward all the power that is expected to be consumed by a customer on the day that the customer takes up the offer.

- **Default Tariff Cap tariffs** pass through more of the variations in wholesale price but price changes are still limited to quarterly adjustments. For a default tariff cap customer, a supplier is broadly assumed to adopt the 3-1.5-12 purchasing strategy defined in the price cap which implies buying power for delivery over a 12 month period evenly over a three month period that ends 1.5 months before delivery. Following this hedging strategy minimises the risk that a supplier will be unable to match the wholesale cost included by Ofgem within the cap.

- Prior to the introduction of the default tariff cap, many suppliers adopted 'rateable strategies' for their **Standard Variable Tariff** customers where they would gradually buy power (e.g. over the preceding 12, 18 or 24 months) until the point of delivery.

- In the extreme, as noted in section 3.4, **dynamic time of use tariffs** may expose consumers directly to the day-ahead (or even intraday) market, and a supplier may choose not to purchase any energy in advance for its customers on such tariffs.

In practice wholesale purchasing strategies can be much more complex than these examples (which also abstract away from differing shaping and imbalance strategies). However, these examples demonstrate that consumers on different types of tariff will typically have their energy bought for them at different times prior to consumption, which is likely to result in

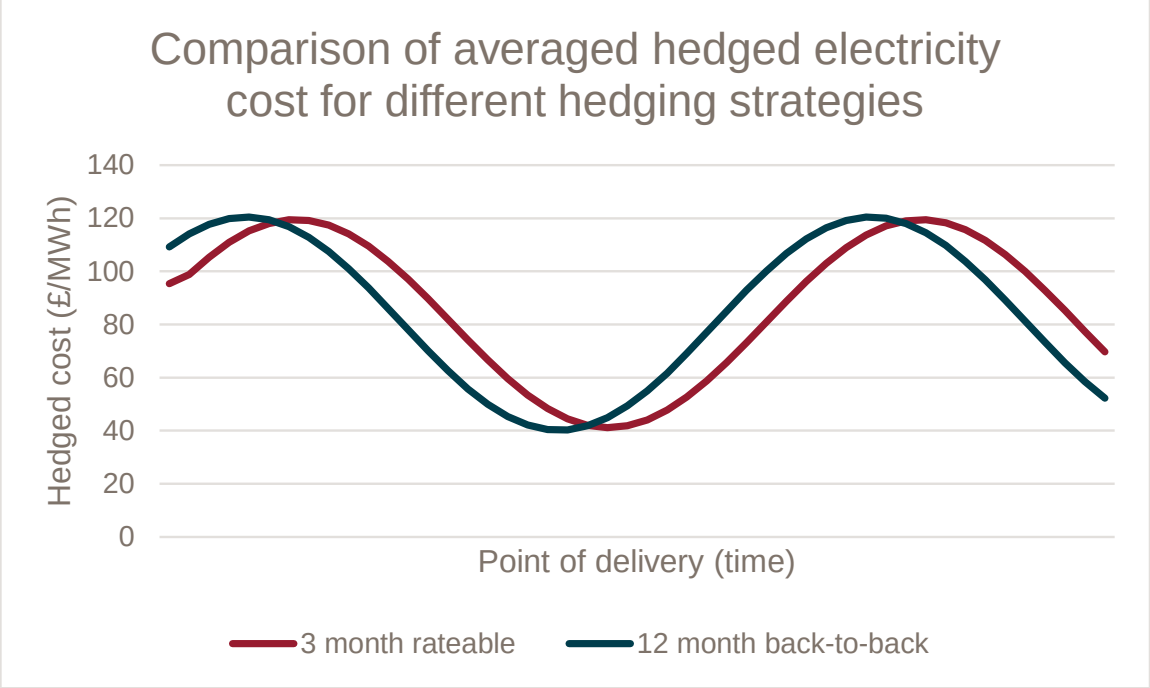
different costs for their suppliers. In the following section, we describe the issues that this poses for a relative price cap.

4.2 Varying hedging strategies and relative price caps

The key implementation challenge for a relative price cap in relation to supplier wholesale purchasing strategies is linked to the need for tariffs within the scope of a relative price cap to have similar costs to serve. While many of the costs to serve customers on different tariffs may be similar (e.g. network costs, policy costs), wholesale costs, which account for a large proportion of total costs to serve, may vary substantially depending on the hedging strategy adopted for different tariffs.

Figure 1 below illustrates how the cost of different hedging strategies can vary significantly over time.

Figure 1 Illustration of hedged costs for different hedging strategies over time



Source: *Frontier Economics*

Note: *This example is illustrative only and is not based on actual wholesale price data. The hedged costs presented are a lag of each other because the underlying wholesale price data is simplified to abstract from issues of backwardation and contango in the wholesale market. If the structure of forward prices were to move into contango, then the longer back-to-back a hedging strategy would be more expensive. The opposite would happen if the forward market were in a state of backwardation.*

The variations in hedged costs between a 3 month rateable strategy and a 12 month back-to-back strategy illustrated above cannot be ascribed to differences in efficiency. Both strategies are in principle efficient, but each will imply higher or lower costs to serve customers at different times.

We consider the implications of this below:

- first, for ease of exposition, by assuming that a strict relative price cap is implemented:
  - across the market;
  - on a within supplier basis; and
- second, more realistically, by considering the implications of a less strict relative price cap.

4.2.1 Implications of a strict across the market relative price cap

The strictest (albeit unrealistic) formulation of a relative price cap is that:

- the cheapest tariff offered in the market sets the benchmark;
- the maximum allowed price differential is set to zero; and
- the scope of the relative price cap covers all tariffs offered[18] in the market.

If suppliers only consider hedging strategies which require them to purchase energy once the consumer is signed up to the tariff, then this formulation would result in a loss of diversity of hedging strategy or tariff offerings. Looking at two simple cases:

- If the wholesale energy market is in a state of backwardation (contracts for future delivery are cheaper than contracts for prompt delivery) then a longer term fixed tariff (e.g. a 1 year fix) backed by a back-to back hedging strategy would be the cheapest that suppliers could offer.[19] All suppliers would have to follow this hedging strategy to be able to profitably offer a tariff to the market.[20]

- Alternatively, if the wholesale energy market were in a state of contango (contracts for future delivery are more expensive than contracts for prompt delivery) then a variable tariff (backed by a spot purchasing strategy) would be the cheapest that suppliers could offer. Again, all suppliers would have to follow this hedging strategy.

If a supplier were to attempt to follow a 'rateable' strategies or the DTC 3-1.5-12 strategy (which require purchase of some energy ahead of when a consumer moves on to the tariff), further issues would arise. If a rateable hedging strategy resulted in the cheapest tariff offering (for example, if wholesale prices are rising, meaning suppliers follow a rateable strategy had 'locked in' energy when it was cheaper), other suppliers which had not already purchased

18 An even stricter price cap might not just apply to tariffs on the dates that they are offered, but any date when customers are on the tariff. This would mean that a fixed-term tariff which had previously found to be within the cap and is no longer being offered to new customers might still be found to breach the cap. The implications of such a cap would be even stronger than what we describe in this note.

19 This is because a 1 year fixed price would be quoted based on the average cost of wholesale purchases over the next 12 months, including later months which are cheaper than early months (given the assumption of backwardation).

20 In theory, suppliers could offer 1 year fixed products without hedging future energy volumes. However, this would be imprudent and expose the supplier to very significant wholesale price risk.

energy in advance would be entirely unable to match the cost of the benchmark tariff.[21] Nonetheless the only tariff they would be permitted to offer would be at this price level and they would therefore be loss making.

4.2.2 Implications of a strict within supplier relative cap

If a similarly strict within supplier relative price cap were implemented, much of the same logic set out above applies, just at the supplier level.

Under a within supplier relative price cap, a supplier would have more freedom to offer a tariff other than the cheapest one in the market at the time. However, all tariffs within a supplier would have to be similarly priced, including all tariffs offered to customers that make no active choice (default tariffs). For this to be sustainable:[22]

- all tariffs would have to have the same costs to serve, implying the same hedging strategy being used for all tariffs; and
- each tariff type (e.g. 1 year fix, 3 month fix, variable etc) would need to be backed by a hedging strategy that manages price and volume risk.

In practice, this means that a supplier would only offer a single tariff type, supported by a single hedging strategy.[23] Such a development would risk reducing the intensity of competition and the diversity of tariff offerings to consumers, as consumers seeking a particular type of tariff would only be able to obtain it from a subset of suppliers.

4.2.3 Implications of less strict relative price caps

The above examples assume a very strict form of relative price cap. In reality, this simplistic assumption could be relaxed in a number of ways. Ofgem could:

- select a tariff higher than the lowest (e.g. lower quartile) as the benchmark;
- allow a positive maximum price differential; and/or

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21 In April suppliers cannot go back and buy energy for delivery in April at the January price. Instead they would face a spot price, which could be different.

22 In principle, a supplier could specialise in offering 2 year fixed tariffs and opportunistically offer 2 year fixed tariffs at the price of the 2 year fixed tariff if the cost of hedging the 1 year contract was below the cost of hedging a 2 year contract. However, this could not be done consistently, because the 1 year contract will not always be cheaper to hedge than the 2 year contract.

23 We note that if a supplier specialised in offering fixed tariffs, the implication are that its default tariffs would also need to be fixed tariffs, similar to the 'price cap contract' previously considered and rejected by Ofgem. Ofgem noted that a price cap contract would imply '*different prices for consumers renewing in different months*'. Consultation on Medium Term Changes to the Price Cap Methodology Ofgem 2022, p41. Consumer groups also raised concerns around '*the complexity of this option creating customers confusion*' and Ofgem agreed that the price cap contract '*may present significant challenges for customers to understand their tariff, posing a significant challenge to both advice organisations and suppliers to effectively explain it to customers*' Price cap - Statutory consultation on changes to the wholesale methodology Ofgem 2022, pp 56, 57.

- split the relative price cap into multiple different categories (e.g. separate relative price caps for fixed and variable tariffs).

Applying a less strict cap would help to mitigate the effects that we have described above. Indeed, in the limit, if the highest tariff were the benchmark, or an infinite positive maximum price differential is allowed, or every tariff were to become its own benchmark, then the relative price cap would not bind at all and a wide range of hedging strategies and retail tariffs could be offered. However, this would prevent a relative price cap from providing protection to customers.

This illustrates the trade-off that Ofgem would face in design and calibrating any relative price cap:

- a loose price cap would enable a diverse set of tariffs to be offered and enable suppliers to adopt a range of wholesale hedging strategies. However, it would provide less customer protection; whereas

- a more stringent price cap, while appearing to provide more protection in price terms, would reduce the range of hedging strategies that suppliers can adopt to serve their customers and reduce the range of tariff offerings available. Customers would lose in terms of the diversity of competitive tariff offers.