

Review of Level Playing Field Measures Options Paper

Meridian Energy Limited

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1. Introduction and Summary

1. In December 2023, the Electricity Authority (**EA**) commenced a Risk Management Review (the **RMR**) to better understand the competitive dynamics around risk management options for electricity retailers now and in the future. The EA undertook this review in the context of increasing demand for efficient risk management options led by growing wholesale market volatility and investment in intermittent generation. In addition, the EA was motivated by concerns raised by independent retailers about the availability and pricing of hedge products.
2. In November 2024, the EA released an issues paper with its findings (and re-affirmed these findings in its February 2025 update paper) which form the motivation for its Level Playing Field Measures options paper (**LPFM options paper**), which it released on 27 February 2025.
3. The LPFM options paper proposes to introduce a staged non-discrimination obligation, beginning with a principles-based approach and escalating to stronger/more prescriptive approaches if necessary.
4. We have been asked by Meridian to review the LPFM options paper, including:
 - A. the proportionality of the interventions given the evidence relied upon;
 - B. given the intervention has only been sketched out a relatively high level, the likely impacts and consequences of the intervention, depending on the way it is designed; and
 - C. the relevance of references to the British experience of level playing field measures.
5. A summary of our findings is as follows:
 - A. A key rationale for the proposed intervention is the EA's finding in the RMR that it could not conclude that prices for super-peak contracts were consistent with competitive prices. However, this analysis is necessarily *incomplete* rather than *inconclusive*. In particular, the EA recognises, but does not quantify, several legitimate reasons why super-peak contracts may be efficiently priced the way they are. An incomplete analysis of pricing does not justify the intervention proposed.
 - B. A core function of wholesale electricity market participants is to provide risk management to one another, and to end-users of electricity. This is particularly true for energy retailers, whose core function it is to bundle and sell electricity to end-users at stable prices. Vertical integration in the electricity sector provides numerous risk management benefits in the form of underwriting generation and smoothing retail prices. This leads to more stable retail prices than could be delivered by non-integrated retailers.
 - C. Vertical integration often emerges as a solution in markets where contracts are difficult or costly to write. In the case of electricity wholesale markets, this is because the implicit contract is an extremely fluid relationship between all of a gentailer's generation capacity and its retail book. Thus, any *explicit* contract between generators and retailers would not match the *implicit* contract between the generation and retail arms of a gentailer. If this contract could be easily specified, then there would be no need for vertical integration.
 - D. While the intent of the EA's non-discrimination provisions is to make implicit contracts explicit and ensure independent retailers get the same deal as is available internally, the explicit contract will be by definition different from the current implicit contract. The proposed

obligations would effectively require forced internal contracting between the retail and wholesale arm on different terms than they implicitly do so now, which is in effect a form of virtual separation. In some ways, this intervention on gentailers' entire portfolios actually goes further than the targeted virtual disaggregation approach that the EA previously considered, which only related to certain assets.

- E. The comparisons to telecommunications in the LPFM options paper are misplaced due to fundamental differences between the industries:
 - i. Risk management is essentially an insurance product, which has very different characteristics from access to a physical telecommunications network.
 - ii. The temporal nature of decisions to hedge commodity risk breaks the link between current forward looking risk management prices and retail prices, an issue that telecommunications access risk does not have to deal with.
 - iii. Telecommunications access regimes generally do not have to deal with the scarcity and uncertainty of available capacity, as capacity generally follows the retail customer.
- F. The proposed intervention could, depending on how it is implemented, result in retail prices becoming more volatile:
 - i. Because gentailers smooth retail tariffs over the long term, the non-discrimination and no-cross subsidy requirements, if interpreted on the face of the description in the LPFM options paper (which could imply *currently offered* hedge prices will be used for assessing compliance with the no-subsidy requirement), will require gentailers to sell hedges at below market rates when wholesale prices are above long run averages (as doing otherwise would result in subsidy measured using the offered hedge prices).
 - ii. To avoid the resulting arbitrage, this is likely to result in gentailers unwinding long run pricing smoothing and pricing to their retail businesses on a more short-term basis. This will result in consumers facing more volatile prices over time as retail tariffs will more closely track shorter run movements in wholesale and futures prices, to the detriment of end users.
- G. Regarding the impact of the proposed interventions on investment incentives:
 - i. If gentailers persist with long run retail pricing, and if the non-discrimination and cross-subsidy requirement are assessed using current offered forward rates, the resulting requirement to sell hedges at below market values will mean generators will not capture the full value of new investments they make in a flexible capacity. This will reduce the incentive to invest in this type of capacity.
 - ii. If instead gentailers unwind long run retail price smoothing and retail prices become more volatile, this will result in gentailers having less revenue certainty. As the EA has described extensively in its paper on Power Purchase Agreements (**PPA**), revenue certainty provides many benefits for investment incentives, and few major generating investments are built without the backing of a PPA or vertical integration, both of which provide price stability.
 - iii. The implication of the EA's proposal appears to be an outcome where some of the hedge capacity that is used internally by the gentailers today is contracted to Independent Retailers (**IRs**). As it is risky for small IRs to sign long term hedge contracts (due to uncertainty over their market share), this would mean that some proportion of capacity

would be underwritten by shorter term contracts (compared to the implicit long term underwrite provided by vertical integration). This will increase revenue uncertainty for gentailers and similarly worsen investment incentives.

- H. In the UK, policymakers have introduced a wide range of provisions to lower barriers to entry for independent retailers. However, the resulting pattern was a rapid growth in the number of retailers who adopted a short-term hedge strategy, followed by widespread collapse in recent years when prices increased. The costs of these collapses were socialised among all British energy customers. This experience highlights some of the risks of treating vertical integration as a bug rather than a feature of the system.
- I. Our recommendations are therefore that:
 - i. If a non-discrimination intervention is pursued, long term pricing smoothing at retail can be preserved if the non-discrimination and cross-subsidy rules are designed in a way that allows gentailers to sell hedges at market rates when prices are above long run averages. This would involve assessing the potential cross-subsidy against a historical book build of some description (where the historic book build involves purchasing hedge contracts at the prevailing market rates at the time).
 - ii. Given that the EA's concern is around the pricing and availability of super-peak contracts, a much more directly targeted intervention would be mandatory market making for super-peak contracts.

2. Background

2.1. Evidence Relied on in Support of Intervention

6. In December 2023 the EA commenced the RMR to better understand the competitive dynamics around risk management options for electricity retailers now and in the future. The EA undertook this review in the context of increasing demand for efficient risk management options led by growing wholesale market volatility and investment in intermittent generation. In addition, the EA was motivated by concerns raised by independent retailers about the availability and pricing of hedge products.
7. In November 2024, the EA released an issues paper with its findings (and re-affirmed these findings in its February 2025 update paper), which form the motivation for its LPFM options paper.
8. The EA's key concern coming out of its RMR was around competition risks related to shaped hedges. This is of particular concern to the EA due to its finding that shaped risk management contracts would remain important for retailers in the short to medium term.
9. The EA's concern about competition risks related to shaped hedges is driven by two key concerns:
 - A. the pricing of super-peak hedge contracts (the "**pricing concern**"); and
 - B. retailers' access to shaped hedge contracts (the "**access concern**").
10. Regarding the **pricing concern**, in the RMR the EA found that prices for baseload and peak OTC contracts were competitive. However, regarding super-peak contracts the EA states in the LPFM options paper that they:¹

...could not reach the same conclusion for OTC super-peak hedge contract prices as they trade at a substantial unquantified premium over ASX baseload prices adjusted for shape.

11. The EA goes on to state:²

Nor could we determine from evidence whether the prices of OTC super-peak hedges were consistent with competitive prices, and whether the increase in OTC super-peak prices (as a percentage of ASX baseload prices) that we observed over the assessment period is justified.
12. This would initially appear to suggest that:
 - A. The EA was able to estimate a competitive super-peak price that it considered was robust and accounted for all economically significant drivers of super-peak prices; and
 - B. When it compared that robustly estimated competitive super-peak price to observed prices, the difference between them was both statistically and economically meaningful. In other words, the "gap" between estimated competitive prices and actual prices was large enough to raise competition concerns and also was not just statistical noise.
13. However, this is not the case as the EA was unable to make all of the adjustments that it considered necessary to estimate the competitive price of a super-peak contract. The EA's

¹ Electricity Authority, Level Playing Field measures - Options paper: Energy Competition Task Force initiatives: Level playing field measures and prepare for virtual disaggregation of the flexible generation base, 27 February 2025, ("LPFM options paper"), para 3.39(f).

² LPFM options paper para 3.39(h).

methodology involved starting from ASX baseload prices and then adding a number of premia, which it considered necessary for imputing a competitively priced OTC contract. In the table below we set out the different premiums the EA considered should be accounted for, whether the EA was able to account for that premium and the impact of not accounting for it.

14. As this table shows, of the six adjustments the EA considered necessary, it was only able to make two. Furthermore, as the table shows, the EA consistently notes that not making the adjustments means that the competitive price it has estimated is understated. By repeatedly understating the competitive price, the analysis is therefore biased towards finding that observed super-peak prices are greater than the estimated competitive price.
15. This would not be an issue if the four out of six premia the EA has not accounted for are unlikely to be material. However, this does not appear to be the case, with the EA noting in the RMR issues paper:³

We have been unable to estimate other premia (eg, premia for scarcity, volatility, and illiquidity) ***that could have a big impact on super-peak contract prices*** (and are likely increasing). [emphasis added]

16. This point is made by the EA in support of the conclusion it reaches in the body of the RMR issues that:⁴

Offer prices for superpeak contracts could be consistent with a lack of competition, or simply reflect scarcity.
17. This is an entirely reasonable description of the EA's analysis and findings – they do not know why super peak contracts are (seemingly) expensive. The issue in the present context is the framing in the LPFM issues paper mentioned in 10 and 11 above and the heading in the RMR issues paper that the EA “*can't rule out super-peak prices being non-competitive*” suggests that their analysis was *exhaustive but inconclusive*. By contrast the body of the report and the technical appendix correctly emphasise instead that the analysis is *incomplete* due to the complexities involved in doing it properly.
18. In other words, if the EA were able to add all the relevant premiums, given they “could have a big impact”, it is possible the “substantial unquantified premium” would disappear. Of course, they also might not. We simply do not know why super-peak prices are at the level they are.

³ Electricity Authority, Reviewing risk management options for electricity retailers – issues paper – Chapter 5: Availability and pricing of OTC contracts, 7 November 2024 (“RMR Issues Paper – Chapter 5”), para 2.7(c).

⁴ RMR Issues Paper – Chapter 5, para 2.7.

Table 2.1: Premiums the EA considers must be added ASX baseload prices to impute competitive super-peak prices

Premium	Description	Included?
Location	ASX prices are only available for Benmore and Otahuhu. Therefore contracts at other nodes require an adjustment to account for differences in price levels between the node in question and the BEN/OTA node.	Yes. Adjustment made based on historic average differences in nodal spot prices.
Shape	Prices in super-peak periods are higher than baseload prices, so a shape premium is added to account for higher prices in these periods.	Yes. Adjustment based on historical average differences between spot prices in super-peak and baseload periods. In practice, this shape premium will probably increase as spot prices become more volatile.
Illiquidity	OTC contracts are less liquid than ASX contracts and therefore sellers would require a premium.	No. <i>"While we think there should be an additional premium added to reflect lower liquidity in the OTC market (compared to the ASX market), given the complexities involved in doing so (including estimating liquidity of the OTC market relative to the ASX market, and then translating this into an additional \$/MWh figure), we have not attempted to do so here. We note however that our estimated competitive OTC prices will therefore likely be underestimated."⁵ [emphasis added]</i>
Spot price volatility	Volatility means retailers are willing to pay a premium to insure against high prices. The EA finds that at super-peak times, there is less likelihood of low prices and more likelihood of very high prices. ⁶	No. <i>"Again, due to the complexities involved, we have not attempted to estimate this premium, and therefore our estimate of competitive contract prices is a lower bound." [emphasis added]</i>
Scarcity	In super-peak periods, energy and capacity are more likely to be scarce, which increases the likelihood that the gentailers will be short on generation these periods. ⁷ We understand this to be that if gentailers sell hedges but are short on generation, they are exposed to the spot price in these periods and therefore will require a premium to account for this risk.	No. <i>"We decided against adding this premium to our estimated contract prices due to the complexities involved in estimating such a premium, and because some of this scarcity will be captured in the ASX premium. But it must be considered when comparing our estimated competitive contract prices to actual OTC prices that a lot of the time (especially due to current scarcity in the market) we will be underestimating contract prices."⁸ [emphasis added]</i>
ASX volatility	Because gentailers often back the OTC contracts they sell with purchases on the ASX, they are exposed to the risk of ASX prices changing between when they price up and offer a contract and when it is accepted (which is the point at which the backing ASX trade would actually be made).	No. <i>"We did not attempt to add this premium to our estimated competitive contract prices due to the uncertainty involved in the calculation and in keeping with not adding other premia."⁹</i>

⁵ Electricity Authority, Reviewing risk management options for electricity retailers – issues paper – Appendix A: How we calculate competitive risk management prices, 7 November 2024, ("RMR Issues Paper – Appendix A"), para 4.11.

⁶ RMR Issues Paper – Appendix A, para 4.14.

⁷ RMR Issues Paper – Appendix A, para 4.17.

⁸ RMR Issues Paper – Appendix A, para 4.18.

⁹ RMR Issues Paper – Appendix A, para 4.21.

19. Regarding the **access concern**, the EA found that while retailers to date have been able to secure substantial shaped hedge cover through OTC contracts, the market for shaped cover is neither deep nor liquid. The EA bases this conclusion on its findings that:¹⁰
 - A. Over a third of the time retailers receive only one offer in response to requests for shaped hedges.
 - B. Around half of all requests resulted in a trade.
 - C. Around a third of all offers received were for less volume than requested.
 - D. Super-peak contract requests received fewer offers per request than baseload and peak, receiving at least one conforming offer around half the time.
 - E. All offers received for super-peak contract requests were from gentailers (no other participant types responded to such requests).
20. However, the EA also finds that:
 - A. Almost all requests (over 99 per cent) received at least one offer.
 - B. Not many participants are able to respond to super-peak requests (usually three at most).
 - C. Evidence points to fuel or capacity scarcity often being the driver behind the current thin and illiquid market for shaped hedge cover. Indeed, the EA hypothesises that the lower response rates and conforming bids in the most recent data (Q1 and Q2 2024) may have been affected by the energy scarcity in 2024.
21. While the evidence points to scarcity being a driver of its access concern, the EA does not rule out that there is a plausible driver with competition implications (i.e., refusing to supply products on appropriate terms to counterparties who are downstream competitors), indicating that some level of market power *could* have been in play.
22. In addition, even if there were evidence that anticompetitive behaviour was occurring, the EA's own analysis from the RMR suggests that this would not be competitively significant given:
 - A. The EA finds that pricing of baseload and peak contracts is competitive; and
 - B. The EA's modelling of the risk reduction benefits of different portfolios found that a portfolio of baseload, peak and super-peak hedges is similar to a portfolio of baseload and peak hedges.¹¹
23. Given the uncertainty of the nature and scale of the drivers of these concerns, the EA should ensure that any interventions are appropriately targeted and proportionate, and thus do not create unintended consequences that may exacerbate the problems they seek to solve.

¹⁰ RMR Issues Paper – Chapter 5, pp.7-9.

¹¹ RMR Issues Paper – Chapter 4, para 5.14.

2.2. The EA's Proposals on Non-Discrimination

24. As a solution to its pricing and access concerns, the EA proposes three fundamental requirements:
- A. **Non-discrimination (ND) obligation:** The EA's guidance on its proposed non-discrimination principles is that gentailers are required to deal with all buyers *"on substantially the same price and non-price terms and conditions [...] as those made available (either expressly or implicitly) to: (a) the gentailer's internal business units; (b) other buyers."*¹² The EA highlights that one of the key concerns from independent retailers is that *"Gentailer approaches to pricing hedge contracts for those retailers appear to be discriminatory compared to their internal pricing."*¹³
 - B. **Forward-looking internal transfer pricing:** The EA further proposes to require that gentailers *"establish an economically meaningful portfolio of internal transfer prices in a form able to be used to demonstrate compliance with the non-discrimination principles [...] based on observable market rates for comparable risk management contracts."*¹⁴ The EA further suggests in a footnote that *"ITPs could be strengthened to ensure that they: (i) are representative of Gentailers' retail price setting practices, and (ii) represent the current cost of buying wholesale electricity (rather than in some cases being backward looking)."*¹⁵
 - C. **No cross-subsidy obligation:** The EA lastly *"considers that any cross-subsidy [...] that results in an internal business unit not being commercially viable on a standalone basis would breach the non-discrimination principles."*¹⁶ In short, a cross-subsidy would appear if the retail arm's revenues (from tariffs) were below its costs, including its implicit internal transfer costs.
25. In Q&A with the EA, they have further clarified that:¹⁷
- A. The non-discrimination obligations will only be triggered when the generation arm offers a hedge product to the retail arm;
 - B. While the EA recognises that currently there may be no explicit hedge contracts between the retail and generation arm, the intent of the proposals is *"make the implicit, explicit."* This will occur by requiring the gentailers to establish a notional hedge book between the retail and wholesale arm.
26. The ND and non-subsidy requirements are on their face quite simple. However, both leave a lot to be interpreted, particularly in the context in which gentailers offer stable retail prices based on the long-term stability of their integrated portfolio. For example:
- A. For the ND requirement, it is not clear whether it would be sufficient to show non-discrimination on a:
 - i. *backward-looking basis*: i.e. that the gentailer would have to offer hedges that are consistent with the gentailer's hedged cost of electricity as delivered on that same day.

¹² LPFM options paper, Appendix B, para 12.

¹³ LPFM options paper, para 6.20

¹⁴ LPFM options paper, Appendix B, para 15.

¹⁵ LPFM options paper, fn 57.

¹⁶ LPFM options paper, Appendix B, para 17.

¹⁷ Meeting between Meridian and the EA on 3 April.

This would mean that the offered hedge price would reflect the historical book build of a retailer over the years leading up to that delivery date; or

- ii. *forward-looking basis*: i.e. that the gentailer would have to offer hedges consistent with its current internal transfer price, or with market rates, to be delivered in the future. However, the gentailer would still be allowed to *deliver* power on that day based on a historical set of notional internal transfers that an independent retailer would not have access to. The EA suggests that this is how the non-discrimination clause should be interpreted ("*non-discrimination does not mean that a hedge sold today would be priced the same as a hedge sold a year ago*"¹⁸), but there is ambiguity on this point, particularly given the EA's description of the no cross-subsidy requirement.

- B. For the cross-subsidy requirement, it is not clear whether the cross-subsidy would compare tariffs to a long-term hedging strategy, or to the current/recent forward price, and over what time frames those would be measured, e.g. whether each business unit would have to be commercially viable as assessed over the course of a financial year or over some longer period.

- 27. As we discuss in Chapter 4, there are important implications for how these requirements are interpreted.

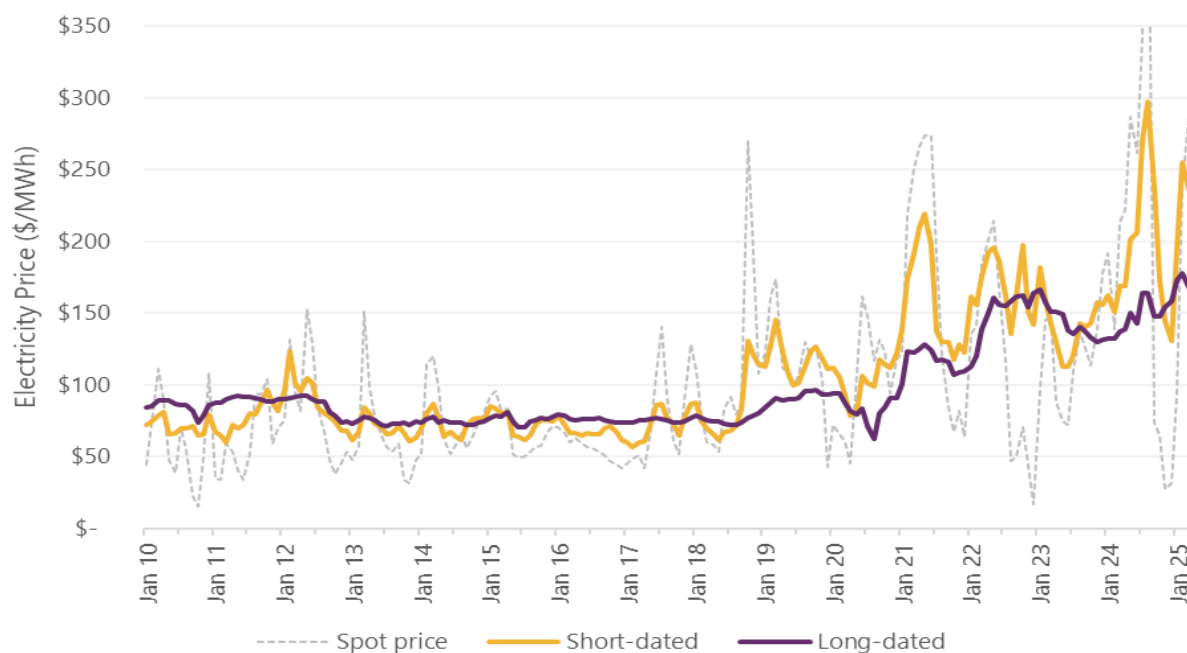
¹⁸ LPFM options paper, para 6.10(b)

3. Economic Theory of Hedging in the Electricity Sector

3.1. The Role of Risk Management in Electricity Markets

28. The wholesale electricity market is based on the ongoing provision of electricity in real time, from generators to retailers (and ultimately to customers via retail markets). The wholesale market includes both a physical and a financial component.
29. In the physical component, generators offer to produce electricity at a certain price and every half hour, the system operator matches supply to demand, and calculates the price at which they match. This price is then paid by all users who receive electricity, and received by all generators who are called to produce electricity.
30. Especially as driven by supply-side conditions, the price of electricity from one period to the next can be very volatile: e.g. if there is a surplus of wind and hydro power available (as determined by nature), then the price could be very low; if there is a shortage of wind power and hydro power, then the price could be very high.
31. For this reason, financial markets exist. For example, a retailer and a generator could enter into a swap contract, guaranteeing a price at a certain level. The generator and retailer would still sell into the physical market but would agree to settle the difference between the physical price and the swap strike price. Figure 3.1 below demonstrates the volatility of wholesale prices and how this can be mitigated to different extents by different hedging strategies.
32. This figure shows average prices for short-dated hedges (those for delivery within one year) and long-dated hedges (those for delivery beyond one year) and the seven-day moving average of the spot price. This demonstrates that long-dated hedges are much less volatile than the short-dated hedges and the seven-day moving average spot price.

Figure 3.1: Volatility and Price Level of Different Hedge Maturities and Spot Prices



Source: EA Energy Market Information portal, available at <https://www.emi.ea.govt.nz>

33. As an alternative to contractual arrangements, this kind of arrangement could exist implicitly within a vertically integrated gentailer. Vertical integration provides a “natural” hedge because a sale by the generation arm is purchased by the retail arm and therefore the two offset each other. In this situation, because purchases and sales offset, there is no explicit price for matched sales.
34. Fundamentally, generators provide three services that are directly valued in the wholesale (physical and financial) market:
 - A. Production of bulk electricity, i.e. the MWh of electricity that are ultimately consumed by end users. The value of this is effectively captured in the price of baseload power, or in PPAs.
 - B. Production of flexible or firming electricity, i.e. electricity that can be relied upon to produce when capacity is scarce. The value of this is effectively captured through the price of power during peak hours, or from peak contracts in the hedge markets.
 - C. Risk management to retailers. As we discuss below, the wholesale spot market can be very volatile, so the reliable supply of electricity at a stable price provides a value to a retailer that offers its customers a stable retail price of electricity.
35. On the other side, retailers also provide three services:
 - A. Act as an intermediary between smaller customers and the wholesale market, and ultimately bundle wholesale, transmission, and distribution costs into a single bill. While some large industrial users may engage directly in the wholesale market, most end users are not sophisticated enough to do this.
 - B. Retailers provide innovative products to end users. For example, a retailer could offer a retail tariff which passes through the spot market price, or an app that notifies the user of their consumption patterns, or special EV rates, etc.
 - C. Most importantly, retailers provide risk management, to their users and to generators. Because of the volatility in the physical market, retailers act as an important counterparty to generators, guaranteeing them stable revenues even if the physical market conditions fluctuate. On the other side, retailers typically offer their own customers a stable retail rate, ensuring that the customers are not exposed to wild fluctuations in energy prices, which would be difficult to budget for on a household level. Where the retailer has physical assets of its own, it is able to better withstand fluctuations in the power price, even if those assets are not necessarily generating at the same time and acting as a natural hedge. Thus, the fundamental role of a retailer is to provide risk management services to customers at the lowest possible cost.
36. In the options paper, the EA highlights concerns from independent retailers regarding vertical integration:¹⁹

The efficiencies that can be derived by the gentailers from vertical integration seem almost entirely financial or risk management based, rather than productive efficiencies, and we urge the EA to properly consider the competitive effects and optimal market design without placing undue weight on unquantified and ill-defined vertical efficiencies.
37. The implication seems to be that if the efficiencies from vertical integration are financial or risk management based they are not real efficiencies, or should be given less credence than “productive” efficiencies. However, as we set out above, a core role of generators and retailers in

¹⁹ LPFM options paper, para 3.18.

electricity markets is managing risk. Indeed, the whole premise of the proposed interventions and independent retailers concerns is that shaped hedges (a form of risk management) are a critical input for independent retailers to be able to compete.

38. It would therefore be incorrect to downplay any efficiencies from vertical integration in electricity markets on the basis they are financial or risk management based, given these efficiencies relate to one of the core functions of electricity markets.
39. In addition, the scope for “productive efficiencies” on the retail side is limited to billing and other customer interface functions, which collectively are likely a very small part of the cost of retail electricity sales, compared to wholesale procurement and network charges. On the retail side at least, productive efficiencies should therefore be of lesser concern than efficiencies related to risk management.
40. In the rest of this chapter, we outline the economics of vertical integration and the efficiencies that can result from it in an electricity markets context.

3.2. Economics of Vertical Integration

41. Vertical integration is not unique to electricity markets. Firms vertically integrate in many competitive markets as an efficient and competitive response to market imperfections. Most of the reasons why firms choose to vertically integrate have to do with reducing costs or eliminating a market failure.²⁰
42. The key type of costs that firms aim to eliminate through vertical integration are transaction costs. Transaction costs are the costs associated with writing and enforcing contracts such as searching for a seller or buyer, agreeing to contract terms, monitoring performance and contract obligations, and enforcing the contract (including managing and financing credit control). These costs are often substantial, making contracting a potentially expensive way to coordinate different activities within a supply chain.
43. Among other reasons, contracts can be particularly costly to write if they involve specialised assets and uncertainty.²¹ When a firm requires specialised assets, it may face costs resulting from the absence of a competitive market for their specific need. Hence, firms may struggle to acquire the optimal asset or may be dependent on a firm who produces the specialised asset, exposing them to potential exploitation in the short run (i.e., the firm may be “held up” by their supplier).²²

²⁰ However, vertical integration can be costly in its own right. For example: (i) The cost of supplying its own factors of production or distributing its own product may be higher for a firm that vertically integrates than for one that depends on competitive markets, which serve these needs efficiently. (ii) As a firm gets larger, the difficulty and cost of managing it increase. The advantage of dealing with a competitive market is that someone else supervises production. (iii) The firm may face substantial legal fees to arrange to merge with another firm. Carlton and Perloff, *Modern Industrial Organization – Fourth Edition*: Pearson, 2015, (“Modern Industrial Organization”), p.421-422.

²¹ Contracts involving the supply of information and extensive coordination can also be particularly costly and lead to vertical integration. *Modern Industrial Organization* p.425

²² Vertical integration can be the best solution to the hold-up problem. Holmstrom and Roberts, “The Boundaries of the Firm Revisited”, *Journal of Economic Perspectives*, Vol.12, no.4, 1998, pp.73-94, p.74. Transaction costs of specialised assets discussed in: *Modern Industrial Organization* p.425-426.

44. In a world with uncertainty, it can be difficult and costly to negotiate a contract of the right length that deals with all possible contingencies.²³ Hence, prices can be effectively higher as a result. If a firm signs a contract that is too short, it will be subject to additional costs from returning to market and writing a new contract.²⁴ On the other hand, if a firm signs a contract that is too long, it may face termination costs, or be stuck with a contract that no longer fits its needs, or with terms that become unfavourable as market conditions change. Prices may also be higher overall under uncertainty if, for example, the counterparty requires a risk premium to compensate it for the uncertainty.²⁵ By vertically integrating, firms can guarantee that the asset will meet their exact needs while avoiding the hold-up problem and higher effective prices in the process.
45. Another common reason why firms vertically integrate is to assure the supply of important inputs. Assurance of supply is important in markets where price is not the sole device used to allocate goods.²⁶ If a firm cannot guarantee a stable and timely supply of an important input it can be difficult to remain viable. Therefore, if the important input is scarce or being rationed so that there is not sufficient supply to meet market demand, firms have an incentive to vertically integrate to raise the probability of obtaining the input.

3.3. Benefits of Vertical Integration to Electricity Market Participants

46. As discussed in Section 3.1, electricity generators and retailers face price and quantity risks that arise from volatile spot prices, uncertain generator output, and uncertain customer demand. Since price risk affects generators and retailers in opposite directions, they can manage the risk by signing a swap hedge contract to fix the price at a certain level. However, signing such a contract can involve substantial transaction costs and little flexibility to respond to changing market conditions. In addition, electricity market participants cannot assure a supply of contracts that will meet their risk management needs.
47. Since the risk management requirements of electricity market participants involve specialised assets and uncertainty, the transaction costs of signing hedge contracts can be high. Each electricity market participant faces unique conditions and needs. For instance, firms often face different locational spot prices, generation risks, required generation times, and optimal contract length. As a result, it can be difficult and costly to find a counterparty and to design a contract that meets both parties' requirements (no hedge contract is one size fits all). Firms therefore often maintain a portfolio of contracts with different counterparties to replicate a contract that meets their needs.
48. However, maintaining a portfolio of contracts is a costly undertaking that requires ongoing management and negotiation.²⁷ Furthermore, since spot prices are volatile and uncertain, contract buyers are charged a premium to compensate the seller for risk. For OTC peak and superpeak

²³ Modern Industrial Organization p.29.

²⁴ As noted by Coase a key motivation for a longer contract is to avoid these costs. Coase, R. H, "The Nature of the Firm," *Economica*, 4, 386, 1937, p.4.

²⁵ This is particularly the case for financial contracts. In finance, it is fundamental for investors to seek a risk premium above the risk-free return to compensate for the uncertainty and risk associated with their investments.

²⁶ Modern Industrial Organization p.427.

²⁷ ACCC, Retail Electricity Pricing Inquiry: Final report, June 2018, p.123.

contracts, these premiums can include an illiquidity premium, spot price volatility premium, scarcity premium, and an ASX volatility premium.²⁸ By vertically integrating, firms can manage their risk through an internal hedge which allows them to avoid the transaction costs from signing hedge contracts.²⁹

49. Moreover, fixed price and quantity contracts will not manage the quantity risk faced by electricity market participants. In fact, signing contracts with fixed prices and quantities may even increase quantity risk, because they are then committed in advance to that quantity level. Option contracts can help manage risk, but it may be costly to find a form of option contract that suits more than one market participant relative to the cost of managing uncertain outputs within a vertically integrated firm.³⁰ While vertical integration may not remove quantity risk, it can reduce it by giving vertically integrated firms more flexibility to respond to changing market conditions. As noted by the ACCC (citing NERA):³¹

In essence, the ability to increase or decrease generation output facilitates a more flexible hedge against the retailer's change in demand. This flexibility is difficult to achieve through contracts, which typically specify a fixed volume.

50. Finally, electricity market participants cannot guarantee a steady supply of hedge contracts that fully meet their risk management needs. While there are standard ASX hedge contracts and alternatives to hedges contracts like batteries and demand response, these may not fulfil the needs of all firms. Contracting OTC is also not guaranteed since it relies on there being a firm with opposite needs/risks to facilitate a deal. If generators cannot appropriately manage their risk, they may not achieve the investment grade credit rating required for the construction of new generation. On the other hand, if retailers cannot appropriately manage their risk, their businesses may become financially unviable due to the fixed price contracts they sign with their consumers.
51. Therefore, by reducing transaction costs, providing firms with flexible risk management through an internal hedge, and assuring that their risk management needs are met, vertical integration can be a more efficient way for electricity market participants to manage wholesale electricity market risk.

3.4. The Value of Vertical Integration to Consumers

52. Despite the preconception by some competition and regulatory authorities, there is very little evidence that vertical integration has a negative effect on competition and consumer welfare. In their review of the empirical literature, Lafontaine and Slade find that in general, vertical integration in competitive markets is beneficial to both firms and consumers, and that imposing restrictions on vertical integration is usually detrimental to consumers. Hence, the authors conclude that the burden of evidence should be on the regulator to demonstrate harm before imposing restrictions on vertical integration.³²

²⁸ RMR Issues Paper – Appendix A.

²⁹ We note that most vertically integrated firms in the electricity market still participate in contracting markets to some degree, so these transaction costs are not necessarily entirely avoided.

³⁰ NERA, International Experience of Vertical Integration in the Electricity Sector - A Report for AGL Energy Ltd, 22 November 2017, p.5.

³¹ ACCC, *Retail Electricity Pricing Inquiry: Final report*, June 2018, p.123.

³² Lafontaine and Slade, "Vertical Integration and Firm Boundaries: The Evidence", *Journal of Economic Literature*, Vol. XLV, September 2007, pp.629-685, p.680

[U]nder most circumstances, profit-maximizing vertical-integration and merger decisions are efficient, not just from the firms' but also from the consumers' points of view. Although there are isolated studies that contradict this claim, the vast majority support it. Moreover, even in industries that are highly concentrated so that horizontal considerations assume substantial importance, the net effect of vertical integration appears to be positive in many instances. We therefore conclude that, faced with a vertical arrangement, the burden of evidence should be placed on competition authorities to demonstrate that that arrangement is harmful before the practice is attacked. Furthermore, we have found clear evidence that restrictions on vertical integration that are imposed, often by local authorities, on owners of retail networks are usually detrimental to consumers. Given the weight of the evidence, it behooves government agencies to reconsider the validity of such restrictions.

53. In electricity markets specifically, vertical integration can provide value to the consumers of electricity in several ways, including by:
 - A. Decreasing generators' incentives to exercise market power, which can result in a decrease in retail prices;
 - B. Increasing the stability of retailers, which can assure stable retail prices; and
 - C. Facilitating the construction of new generation which is essential to maintain the reliability of the grid and can lead to lower retail prices.

3.4.1. Decreasing Incentives to Exercise Market Power

54. Vertical integration can decrease retail prices by decreasing generators' incentives to exercise market power. In their theoretical model of the New Zealand electricity market, Hogan and Meade find that retail prices are higher with vertical separation than balanced vertical integration.³³ Frontier's empirical study on the effect of vertical integration on bidding behaviour in the Australian National Electricity Market (**NEM**) supports this by finding that vertically integrated generators typically bid more competitively than stand-alone generators:³⁴

[V]ertically integrated generators in fact behave more competitively on average than when they were operating as stand-alone generators. The vertically integrated generators were found to be bidding 4 to 6 percentage points more capacity at competitive prices. This statistically significant, robust, and striking result is contrary to claims that vertically integrated generators will bid at higher prices than stand-alone generators.

55. These findings align with economic theory. When vertical integration is the efficient response to underlying conditions in electricity markets, it creates firms that can offer generation and retailing services at a lower cost than two standalone firms integrated through contracts (as discussed in Section 3.3). Hence, in a competitive market, competition among vertically integrated firms can drive prices down to a level that would be impossible without vertical integration.
56. A vertically integrated firm should also have less incentive than an unhedged standalone generator to exercise market power due to the natural hedge that is created through vertical integration.

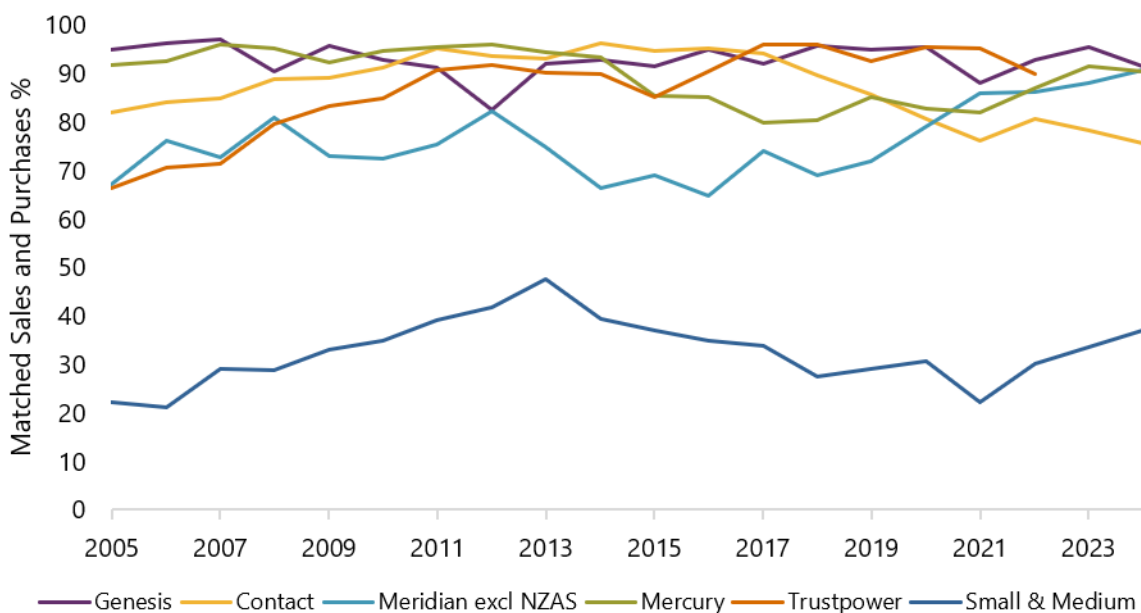
³³ Balanced vertical integration meaning that the firms' retail and generation shares are roughly equal. The larger the generator share relative to the retail share, the lesser the effect. Hogan and Meade, "Vertical Integration and Market Power in Electricity Markets", New Zealand Institute for the Study of Competition and Regulation Working Paper, 18 February 2007.

³⁴ Frontier Economics, Effects of vertical integration on capacity bidding behaviour: A Report Prepared For Herbert Smith Freehills, August 2017, ("Frontier, Effects of Vertical Integration"), para 12.

This is because a gain that the generator component of a vertically integrated firm makes from selling at a higher spot price will be at least partially balanced by a loss from the retail component of buying at the higher spot price. Therefore, if a large standalone generator vertically integrates with a retailer, its incentive to exercise market power should significantly decrease, if the merging parties are of similar scale in terms of MWh sold in wholesale and retail markets.

57. This finding is dependent on the standalone generator being more hedged after the merger than before. However, this should usually be the case as hedge contract markets are imperfect and generators typically acquire larger retailers for the purpose of risk management. Indeed, Frontier notes that one of the reasons for their finding is that generators in the NEM were generally more naturally hedged after the vertical merger than they were financially hedged before the vertical merger.³⁵ The vertically integrated “gentailers” in New Zealand also have broadly balanced portfolios of generation and retail sales as demonstrated by Figure 3.2 below, so it is likely that they would be less hedged (like the small & medium non VI firms) and therefore have a greater incentive to exercise market power if they were not vertically integrated. The figure below only represents the extent to which firms are naturally hedged (i.e., it excludes financial hedges), hence, it understates the full degree to which these firms are hedged.

Figure 3.2: Extent to which energy sales and purchases match by firm (yearly)



Notes: EA defines metric with the following. If a firm or trader has total purchases that precisely equal its total sales, then sales and purchases are matched. If total purchases exceed total sales then only a portion of the trader's purchases are matched by its sales, and vice versa. If S denotes sales and P denotes purchases, the matched volume is equal to $\min(S, P)$. The VI measures expressed as a percentage, whether volume or value, are defined as: $100 \cdot 2 \cdot \min(S, P) / (S + P)$. Positions in derivative markets and other financial hedging arrangements are not included.

Source: NERA analysis of Electricity Authority EMI vertical integration trends data, available at <https://www.emi.ea.govt.nz>

58. Another reason why vertically integrated generators should act more competitively is because, unlike standalone generators who know precisely their contracted positions, vertically integrated generators' position for a given trading period is uncertain (because retail load is not known until

³⁵ Frontier, Effects of Vertical Integration, para 57.

usually after the trading period). Therefore, vertically integrated generators should act more conservatively and bid more capacity at lower prices.³⁶

3.4.2. Assuring Stable Retail Prices

59. Incumbent gentailers have a very stable book, largely from internal hedges, which are implicit over the life of the generating asset. As a result, retail prices tend to be very stable, reflecting a long lag of energy supply that has been internally procured over the preceding years. This implicit relationship is necessarily complex, representing the fluctuating real-time relationship between generation output and retail sales, over many years. It cannot be represented in a simple set of hedges that can be explicitly procured on an exchange.
60. A recent empirical study by Gibbard et al. focuses on costs pass through in the New Zealand retail electricity market.³⁷ They find that, while independent and vertically integrated retailers pass through similar fractions of lines costs, independent retailers pass through significantly more of their generation costs (measured using the price of futures contracts) compared to integrated retailers. The authors state that the asymmetry in what the futures cost represent for integrated and independent retailers may explain the difference in generation cost passthroughs:

*On the one hand, for independent firms, the futures cost corresponds to a monetary expense of acquiring generation. On the other hand, for an integrated retailer whose generation covers their retail supply, the monetary expense of generation is the cost of producing electricity — including the cost of maintenance, inputs and equipment. **For such an integrated retailer, the futures cost does not represent a monetary expense of generation but, arguably, it represents an opportunity cost of using its generation to supply its own retail entity.** [emphasis added]*

61. By having lower passthrough for generation costs, the authors note that this may lead to vertically integrated retailers having more stable retail prices:

... consider the effect of a positive shock to the generation costs facing retailers: as independent retailers are imperfectly hedged, they may need to pass on, to some degree, the rise in generation costs, whereas integrated firms may be insulated from the shock, to the extent that they enjoy a natural hedge.
62. As we show in Figure 3.3 below, the tariffs offered by retailers more closely track the longer run hedge prices, if a conservative approach to hedging was taken. The graph below uses the EA forward curve data and computes the delivery year price using the futures prices for that delivery year and taking the unweighted average of all prices. Given ASX futures prices begin trading 3 years out from the delivery date, this is equivalent to assuming a retailer buys a futures contract for a given delivery year every day for the 3 years leading up to that delivery period. We understand that this is broadly how Meridian and other gentailers construct their ITPs, though their actual implicit internal hedges are longer term and more complex.
63. Comparing this to retail price tariffs (as published by MBIE) shows that retail tariffs have been relatively smooth, with there being periods of “overs” and “unders” where retail prices have grown by more or less than this measure of the long-run hedged book build cost. As the graph shows, since 2022, even on the 3-year long run hedging strategy we present here, we are currently in a

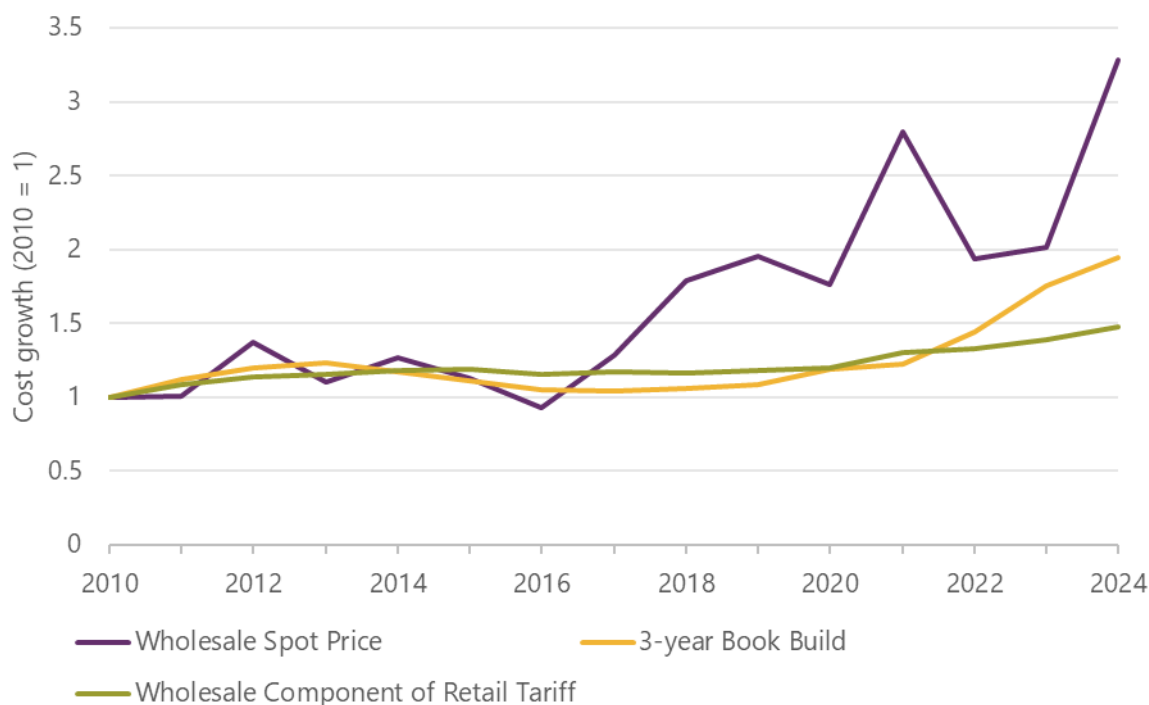
³⁶ Frontier, Effects of Vertical Integration, para 58.

³⁷ Gibbard, P., C. Grubb & D. Wesselbaum. “Cost pass-through in the retail electricity market: Vertically integrated versus independent retailers” Energy Economics, Vol.145, 2025.

period of under-recovery, whereby wholesale costs have been increasing at a substantially greater rate than retail prices. This may be because the 3-year book build measure understates the extent and duration of implicit hedging.

64. By contrast, we have also overlaid the average wholesale spot price, which is much more volatile than either and has grown at a substantially higher rate than retail tariffs or the long run hedged book build cost in recent years.
65. Therefore, a retailer that does not hedge as much, or is hedged over a shorter duration will necessarily have more volatile retail pricing, allowing them to grow their customer base in times of low prices.
66. If a retailer is less hedged, then the tariffs it would need to offer would rise more quickly in the recent years, simply as a result of its hedging strategy. This is to some extent inevitable – in order to build market share, independent retailers often adopt a shorter hedge strategy to achieve cheaper prices, but are then more exposed to upward market fluctuations later.

Figure 3.3: Tariff Growth has been Slow and Stable Compared to Apparent Wholesale Costs



Source: NERA analysis of EA Energy Market Information portal and MBIE residential electricity cost data, available at <https://www.emi.ea.govt.nz> and <https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-statistics/energy-prices/electricity-cost-and-price-monitoring>

3.4.3. Facilitating the Construction of New Generation

67. Consumers benefit from investment in generation for several reasons. First, without these investments, a power grid would not exist. Additionally, increasing generation capacity enhances the reliability of the electricity system and helps reduce the retail prices that consumers pay.
68. Since the build of new generation capacity is extremely capital intensive, firms' ability to attract financing and the cost of this financing plays a significant role in determining whether they can

invest in new generation. In energy-only markets like the New Zealand electricity market and the NEM, new plant requires the involvement of an investment-grade credit rated entity either as a principal investor or underwriter of long-dated PPAs.³⁸ This is no surprise considering that the finance for large new generation capacity can take 20-30 years to pay back. Hence, stable firms are required in electricity markets to facilitate investment in new generation (either as builder of new generation or as the writer of PPAs).

69. Relative to independent generators and retailers, vertically integrated firms are more stable due to the reduction in transaction costs and efficient natural hedge created through the firm structure. In their paper on vertical integration in the NEM, Simshauser et al. find that pure-play generators and retailers are unable to consistently sustain investment grade credit metrics whereas vertically integrated firms can, even despite the wild commodity price cycle in their data set.³⁹

Our model results reveal that vertical re-integration restored financial stability and earnings predictability to isolated merchant business combinations in the NEM's energy-only market. In theory, shareholders of such business combinations could achieve this diversification through separate holdings, but crucially, the theory assumes perfect capital markets. We explicitly relaxed this assumption in our modelling and found integration to be very important. Investment-grade credit and its associated efficiency could only be sustained in the long run by purposefully altering the vertical boundaries of merchant firms.

The modelling results were clear. Vertical[ly-integrated] Retailers were capable of obtaining and sustaining investment grade credit ratings, and Pure Play businesses could not. Further, vertical firms could write a 'bankable' PPA and based on the quantitative results, would have the capacity to execute equity and debt capital raisings at what we would describe as the efficient level, whereas Pure Play businesses could not.

70. Hence, as the EA notes, vertically integrated gentailers can achieve low-cost access to capital and a competitive levelised cost of electricity.⁴⁰
71. Independent firms can attempt to replicate the effect of a natural hedge through PPAs, however, the ability of PPAs to deliver low capital costs depends on the credit strength of PPA buyers.⁴¹ In addition, it is not possible to match a natural hedge with contracting, since it would be a function

³⁸ Simshauser et al., "Vertical integration in energy-only electricity markets", *Economic Analysis and Policy*, Vol 48, December 2015, pp.34-56, p.36.

The EA reinforces this in its recent working paper on PPAs. International investors expect that a PPA will be in place to secure long-term revenue for new generation projects (based on their experience in other jurisdictions). However, the ability of PPAs to deliver low capital costs depends on the credit strength of PPA buyers.

Electricity Authority, Entrant generators – context, headwinds and options for power purchase agreements: Working paper, paras 3.12(d), 4.27(a).

³⁹ Simshauser et al., "Vertical integration in energy-only electricity markets", *Economic Analysis and Policy*, Vol 48, December 2015, pp.34-56, pp.51-52.

⁴⁰ Electricity Authority, Entrant generators – context, headwinds and options for power purchase agreements: Working paper, paras. 4.27(b).

Levelised cost of energy compares lifetime costs and generation output across different technologies. In general, a lower LCOE is more attractive for developers as, on average, the asset can pay itself back with lower average electricity prices. <https://www.ea.govt.nz/news/eye-on-electricity/the-levelised-cost-of-electricity/>

⁴¹ Electricity Authority, Entrant generators – context, headwinds and options for power purchase agreements: Working paper, paras. 4.27(a).

of the retailer's tariffs, the generator's production cost, and the wholesale price, all of which are not static.

72. Therefore, through their ability to access capital at a low cost and write PPAs, vertically integrated firms can play an important role in facilitating the construction of new generation which is essential to maintaining the reliability of the grid and keeping prices low for consumers.

4. Characterisation of the Proposed Intervention

4.1. The EA's Proposals Border on Virtual Disaggregation

73. The fundamental proposed non-discrimination measure is the requirement for gentailers to make available to independent retailers what they make available for themselves internally. In order to do this, the EA would require explicit record-keeping obligations. For example, the EA would require gentailers to establish "*an economically meaningful portfolio of internal transfer prices based on market traded hedges adjusted for internal requirements*,"⁴² which would then need to be available to trade with independent parties. In other words, the requirement is to make the gentailer's implicit contract explicit, and then make it available.
74. In practice, it is not possible for a gentailer to build its implicit contract using market traded hedges, without changing the implicit contract itself. This is because the implicit contract is based on a very complicated relationship between the cost of its assets over their remaining lives, its long-term expectation of its customer base and expected retail tariff levels, the flexible nature of its generation fleet and customer base (e.g. demand side response), climate conditions, the known and unknown shape of demand, etc. Resolving this complexity implicitly is one of the benefits of vertical integration, as we describe in Section 3.3.
75. Given the long-term and fluctuating nature of this implicit hedge, it would not be possible to exactly replicate that strategy with standard-traded hedge products, which are only available on the ASX up to three years in advance, or are sporadically (and privately) traded over-the-counter over longer horizons.
76. Instead, to comply with this requirement, gentailers would actually need to *change* their hedging strategy, and this would essentially require gentailers to implicitly purchase what they *could* explicitly purchase from public hedge markets.
77. As mentioned in Section 2.2, the EA has stated that the ND obligation would only be triggered when a gentailer offers a hedge to its retail arm, with the implication that some capacity could be held back for own use. However, it is not clear how this would occur in practice, as it seems the EA would require the gentailers to make offers to themselves through the establishment of the portfolio of ITPs and the establishment of an initial hedge book, the latter of which the EA acknowledges "will have relatively long-lasting implications."⁴³
78. At its core, this requirement to establish explicit internal arrangements is not fundamentally different from virtual disaggregation, which the EA describes but does not propose in the first instance. In the EA's description of the virtual disaggregation option, gentailers would be required to offer (internally and externally) a specified number of firming contracts based on the gentailer's flexible capacity.⁴⁴
79. On one hand, the EA's requirement for the gentailer to essentially hedge based on what could be procured on markets would be more extreme than its targeted virtual disaggregation proposal, because it would cover the whole portfolio rather than be tied to specific assets. On the other

⁴² LPFM options paper, para 6.19.

⁴³ LPFM options paper, para 6.51.

⁴⁴ LPFM options paper, Appendix D, para D.16.

hand, the gentailers would still save on transactions costs because they would not have to *actually* trade those hedges for the internal proportion of trade, but would for the external part.

4.2. Differences between Electricity and Telecommunications

80. At various places the EA makes reference to the telecommunications sector as precedent for the interventions it is proposing, though it rightly recognises that care should be taken when making comparisons between sectors.⁴⁵ This is particularly the case when comparing generators providing risk management products to telecommunications companies providing access to the physical telecommunications network.
81. While it is correct that non-discrimination obligations and access regulation is common in telecommunications markets with vertically integrated incumbents, the context is different.
82. In fixed broadband, where these obligations commonly apply, there is no uncertainty over of the quantity available of the upstream input. If a non-integrated retailer wins a retail customer, the upstream network owner must provide access to that customer on the same terms as it is implicitly supplying itself.⁴⁶ Similarly, given the costs are comprised of an already constructed physical network and some active network equipment (with the former being the majority of the costs),⁴⁷ the cost of providing access is not particularly volatile. It is thus relatively straightforward to define the terms of access and what non-discrimination means in a situation where quantity does not need to be rationed and costs are not very volatile.
83. By contrast, regarding access to risk management in electricity, the quantity of risk management available is uncertain (in New Zealand, available hydro storage is a key driver) and its price is volatile, since it reflects expectations of future wholesale prices. Because risk management is a form of insurance, it is often purchased well in advance of when electricity needs to be delivered, which can result in a disconnect between retail prices and the current cost of insurance.
84. In other words, access regulation for electricity risk management needs to deal with issues that telecommunications does not (uncertainty of quantity, price volatility and consequently a temporal disconnect between retail prices and the input price). Providing insurance and a telecommunications network are substantially different products. This is not changed by the fact that insurance in the electricity sector is provided by large physical assets – it is still a financial product, as opposed to the provision of physical access as occurs in the telecommunications context.
85. Particular care is therefore required when applying telecommunications access pricing logic to electricity risk management. While the EA does acknowledge the need for this care, in practice it draws conclusions and parallels between the industries that cannot be supported, due to the inherent differences between them. This is because:
 - A. The temporal disconnect between retail prices and current risk management prices complicates determining whether there are any subsidies; and

⁴⁵ E.g. at paragraphs 3.2 and 4.19 of the LPFM options paper.

⁴⁶ We note that in New Zealand telecommunications regulation, this is the concept of equivalence of inputs (EOI), which appears to be broadly what the EA is referring to when it discusses non-discrimination.

⁴⁷ Note that active equipment is only supplied by the incumbent if access sought to an “active” service, rather than to “dark fibre”.

- B. Uncertainty and scarcity of risk management volumes means that the access regime can directly determine market structure, by determining how capacity is rationed.

5. The EA's Proposals May Produce Unstable Retail Prices

86. While the EA's proposed non-discrimination provisions could be viewed as a simple means of promoting competition, they have the potential to bring a wide range of unintended consequences that would be detrimental to New Zealand energy consumers. In particular, these provisions may create a world in which gentailers no longer offer stable prices which come from a long-term hedging strategy. This has negative consequences for customers and generators alike.

5.1. The EA's Requirements May Be Internally Inconsistent

87. As we describe in Section 2.2, there are three fundamental requirements that the EA proposes which may not be compatible with one another, depending on how they are interpreted:
- A. **Non-discrimination obligation:** i.e. that gentailers are required to deal with all buyers on substantially the same terms;
 - B. **Forward-looking internal transfer pricing:** i.e. that gentailers are required to explicitly measure and publicise an internal transfer price based on current market conditions; and
 - C. **No cross-subsidy obligation:** i.e. that gentailers' retail arms should be commercially viable on a standalone basis, with revenues greater than costs (as measured by the new internal transfer price that the EA would require gentailers to define).
88. The LPFM options paper does not specify explicitly whether these implicit internal transfer costs used to measure cross-subsidy must be the same as the forward-looking ITPs used to measure compliance with the non-discrimination obligation.
89. As described in Section 3.4, gentailers currently take a long-term approach to retail pricing as they implicitly have very long-term hedges through owning long lived assets. When wholesale prices rise, as seen in spot and futures markets, these gentailers are often slow to increase their retail prices, because they have implicitly (and in cases where they are short, explicitly) hedged much of their retail requirements from previous periods when prices were lower. In other words, retail prices substantially lag current spot and forward prices and therefore the ITPs the EA proposes the gentailers establish.
90. There are two broad approaches that could be adopted to assessing the no-subsidy requirement:
- A. **Assess retail profitability using current offered forward rates:** This would measure whether the gentailer's retail tariffs would be profitable for a standalone retailer which has not made any historical purchases of risk management products, and therefore would need to purchase them immediately on the current forward markets.
 - B. **Assess retail profitability using a historic book build:** This would measure whether the gentailer's retail tariffs would be profitable for a retailer that had adopted a long-term approach to risk management by hedging well in advance of the delivery period, given historical ASX prices and current retail tariffs.
91. Since gentailers have historically taken a long-term approach to retail pricing, these two approaches to measuring the no-subsidy requirement will yield very different results in times of rising prices, even if the gentailer sells hedges to independent retailers at current market rates.

92. In the present situation where there is long-term price smoothing and a lag between retail tariffs and spot/forward prices, the no-subsidy requirement would be violated if it is measured against the current forward rates. This is because retail tariffs reflect historic hedging decisions based on a longer-term hedging strategy. Thus, retailing would be unprofitable for a retailer that has only hedged short-term when forward prices are currently higher than they have been in the preceding few years.
93. In this situation, there are only two ways the gentailer could satisfy the no-subsidy requirements:
 - A. **Offer hedges at below market rates:** This would involve offering hedges to independent retailers on the basis of the hedged cost from a long-term hedging strategy. However, this would be loss making in times of rising wholesale prices, because the hedge would be forward-looking while the implicit hedge cost is based on historical hedge prices, possibly over several preceding years. In this situation, selling at the historical cost would allow buyers of these contracts (primarily independent retailers, but possibly also financial traders) to arbitrage the gentailers by immediately selling the hedge on the ASX at higher prices. It would even be optimal for the retailer to actually not serve any retail customers, because they could costlessly arbitrage between the gentailers and the ASX without the obligation of actually delivering energy. The end result in this case would be a wealth transfer to these independent retailers from gentailers who sell below-market hedges and from customers who see a reduction in retail competition. The options paper mentions that the non-discrimination requirement is not a "most favoured nation clause," but a current/as-offered approach to assessing the no-subsidy requirement would turn it into one.
 - B. **Adopt a retail pricing strategy based on a shorter-term hedging strategy:** In order to avoid the arbitrage that would result from offering hedges to retailers at below the current forward looking price, gentailers could change their retail strategy to set retail tariffs that more closely track current spot and near term futures prices. Doing so would mean that selling hedges at current market rates would be unlikely to violate the no-subsidy principle. As we discuss in the next section, this would mean retail prices would be more volatile and higher in times of rising prices and lower in times of falling prices.
94. Given the first approach would result in material arbitrage, if the no-subsidy rule is assessed based on current offered forward prices, the rational response of the gentailers would be to unwind the current approach to long run price smoothing and price on a more short-term basis. This second strategy would satisfy the no-subsidy rule, but would mean that gentailers' retail customers would no longer benefit from the tariff stability offered by a long-term hedging strategy, as we now discuss.

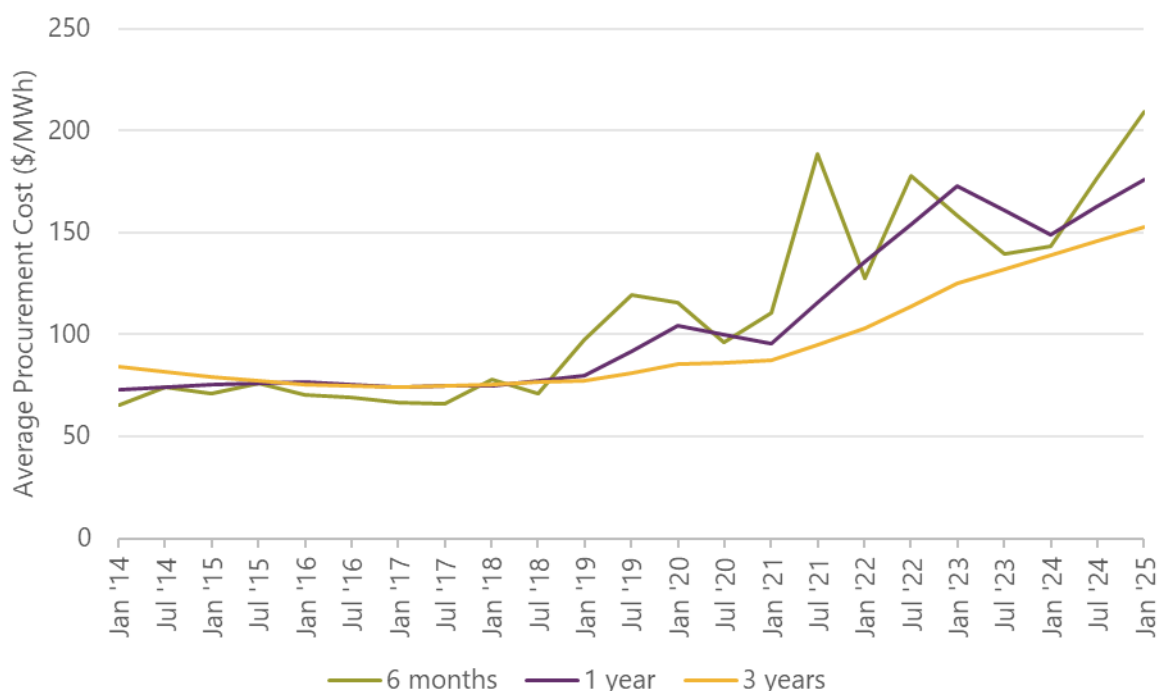
5.2. Consumer Tariffs May Become More Volatile if Hedging Becomes More Short Term

95. The EA's proposals could force gentailers into a retail tariff strategy based on a shorter-term hedging strategy or current forward-looking hedge prices over a short horizon, either of which would result in more volatile tariffs. This volatility can be illustrated in a few ways, using data published in the EMI portal.
96. First, we can show the impact of setting retail prices based on a short-term book build by examining the impact of the length of the book build on the hedged cost of electricity for a given

delivery year. The EA publishes prices for different delivery years, as traded on individual dates in previous years. For example, a retailer that adopts a long-term book build hedging strategy (or implicitly, a gentailer) might purchase contracts for delivery in the 2024 calendar year over the three preceding calendar years, while one that adopts a short-term hedging strategy might purchase them over the one preceding calendar year, or even the six months prior.

97. In Figure 5.1 below, we show how the average hedged price for each delivery year varies depending on the length of the hedging strategy used to procure it, taking the average price for delivery in each calendar year as traded over every trading day in the six months prior to the year, one year prior to the year it, or the three years preceding it.

Figure 5.1: Average Hedged Price by Hedge Strategy



Notes: For data availability purposes, for the six-month contract, we assume that the retailer purchases "short-dated" hedges (a blend of hedges up to 12 months forward) every day up to the beginning of a new six-month period, at which point it updates its tariffs.

Source: NERA analysis of forward price curve data from EA, on average between Otahuhu and Benmore, available at <https://www.emi.ea.govt.nz>

98. There are two important patterns to note in this figure:
- A. First, when the price outlook increased beginning in 2019, the short-term hedge strategies immediately produced an increase in average price in 2020 (and beyond). The long-term hedge strategy shows only a minor increase in 2020, because the average price is 67 per cent composed of trades in 2017-18, before the price outlook increased. While the long-term hedge strategy does show increases in the average price paid throughout the 2020s, these lag behind those of the short-term hedge strategies. This suggests that a retailer adopting a longer-term hedge strategy would be able to offer lower retailer prices than one adopting a shorter-term hedge during this period. Of course, during times of *falling* prices, the opposite would be true and shorter-term hedging strategies would support lower prices.

- B. Second, the longer-term strategy yields more stable prices. The shorter-term strategies show large fluctuations from each year to the next, but the longer-term strategy only shows increases in price when driven by a sustained trend. A retailer with a shorter-term hedging strategy would need to either pass on those large fluctuations in costs to customers or have sufficient financial stability to absorb that volatility internally.
99. For customers who are sensitive to shocks in their energy bills (e.g. for budgeting purposes), access to a tariff based on a long-term hedging strategy provides stability and value that other tariff bases do not. The EA's proposals risk taking this kind of tariff off the table, though this could be avoided depending on how the terms of the non-discrimination and no-subsidy requirements are defined.
100. In particular, if the no-subsidy requirement is clarified to reflect a historical book build, gentailers could retain their current approach to retail pricing. However, this would create a difference between the hedge cost the gentailer has incurred through its hypothetical book build process and the current price it is offering for hedge contracts. This may fall foul of the non-discrimination requirement, depending on the EA's application of it.
101. To resolve this, the EA should clarify its definition and application of the cross-subsidy requirement. Optimally, in a rising market, a gentailer should be allowed to offer independent retailers hedges close to market rates (as seen on ASX), while also allowing its own customers to benefit from their historic hedging decisions. In these cases, an independent retailer would only be able to underprice the gentailer if (a) it had adopted a similarly safe hedge strategy; and (b) it is able to outperform the gentailer on other costs (which are minimal) or innovation.

6. Implications for Investment Incentives

102. As we describe in Chapter 5, the EA's proposals risk creating volatile retail prices. Additionally, while the EA intends for them to improve investment conditions, they risk instead dampening investment signals, both on their own and via their impact on retail prices. The precise avenue for this impact depends on (a) how the EA ultimately interprets the requirements; and (b) how market participants respond to them.

6.1. The Provisions Could Force Gentailers to Accept Below-Market Prices for Risk Management

103. First, if gentailers are required to sell hedge contracts at the price of their own concurrent internal transfers, and they do not take a forward-looking approach to doing so (hence maintaining stable retail prices), then gentailers would receive below-market compensation on these hedges during times of rising prices. This is because the implicit internal pricing would be based on historical prices when prices were lower.
104. Periods of high prices are the times when risk management products are most valuable and in many cases the periods upon which a business case will be premised (for example, batteries and other flexible plant). As a result, if gentailers are required to sell risk management products at below market rates during these periods, they would not capture the full value of that risk management product, which they rely upon to support their substantial upfront investment costs.
105. Furthermore, when a gentailer builds a *flexible* asset, like a gas or hydro storage plant, they do so in part to protect the retail arm from price volatility, i.e. to better match its internal hedge. The EA proposes that gentailers *"would no longer be able to prioritise allocation of available shaped hedges to their own retail functions as they are currently able to. Instead, they would be required to make those hedges available to all potential buyers"*.⁴⁸ If a gentailer is not able to fully use its flexible generation to offset risk for its retail arm, and does not capture the full value of the insurance it provides because it is forced to sell at below market value to other firms, then this takes away a substantial portion of the value of building it, and hence reduces the incentive to build it.
106. These times of higher prices may be seen as generator upside that is not actually required to justify the investment, which could have been supported on the lower prices seen historically. However, there are several reasons why this is not the case:
- A. Investments are made with some expectation of price variation (particularly flexible plants). Any ceiling that artificially applies on hedge prices would reduce the expected return on any investment. When an investor chooses to build a new plant, they do so based on the expectation of energy market revenues over the life of the plant, which will include some periods of higher prices and some periods of lower prices.⁴⁹ If the periods of higher prices are truncated artificially, then this necessarily reduces the expected market revenues from the point of deciding to make the investment, and the investor will be less inclined to carry out the investment.

⁴⁸ LPFM options paper, para 6.40.

⁴⁹ In the current context where gentailers will be selling hedges to independent retailers, this means periods of selling higher priced hedges and periods of selling lower priced hedges.

- B. The requirement to sell below-market hedges is one-sided. In times of falling prices, when the internal transfer price is above-market, the gentailer could offer above-market hedges, but independent retailers would buy cheaper hedges from the ASX instead, or on the spot market. Therefore, the gentailers would essentially have to offer at-market prices in those periods or not sell any risk management products externally. Additionally, during *falling* prices, gentailers may lose retail market share as independent retailers are able to undercut them with a shorter-term hedging strategy, so they may have reduced ability to sell internally.
 - C. Futures prices may be rising because costs are increasing in a way that affects the gentailer. For example, the more recent volatility in prices in New Zealand is driven in large part by uncertainty in gas conditions, as well as uncertain hydrological conditions. Where a gentailer owns these technologies, then increased future prices are partly reflective of their own increased costs, and the gentailer would require those higher revenues in order to offset the higher cost.
 - D. Given the mismatch between the hedge prices offered by the gentailer and those concurrently available on the ASX, independent retailers may arbitrage by buying cheap hedges from the gentailer and on-selling them, meaning that gentailers could be forced to sell a much larger quantity of below-market hedges than would be required to actually satisfy their demand.
107. If gentailers do not capture the full value of their investments in risk management because it is artificially underpriced, they will have a reduced incentive to invest in it, artificially below the value that those investments can provide to the market.
108. This issue falls away if the provisions are interpreted in a way that would allow selling risk management at current market rates, while also continuing to set retail prices on a book-build basis.

6.2. More Volatile Retail Prices Increases Risk for Developing Generation by Gentailers

109. If the gentailers instead react to the provisions by adopting a shorter-term/forward-looking approach to setting retail prices, then those retail prices will be more volatile, as we establish in Chapter 5. Aside from the negative effect this could have on retail customers, this tariff volatility represents revenue volatility for the gentailer, to the extent to which it is internally hedged.
110. First, assume that a gentailer is perfectly hedged internally, both in volumes and shapes. In this case, every MWh produced in its generators would be consumed by its own retail customers, and it would not need to participate in wholesale markets at all.
111. For this hypothetical gentailer (which does not exist in reality), any investment in generation would be paid for exclusively by retail electricity sales, with no exposure to wholesale market volatility. Thus, the only revenue volatility to the gentailer would be driven by retail revenues, i.e. retail price times retail volume.
112. If instead the retail arm adopts a volatile, forward-looking pricing strategy in order to comply with the EA's provisions, then the generation investments will be supported by volatile retail revenues, which is a less reliable basis (compared to a smooth long term price path) to support investment in heavy infrastructure with a long pay-back period.

113. The consequences of less stable revenues on investability are well-documented by the EA in its recent working paper on PPAs.⁵⁰ The EA highlights the following among reasons why a developer of renewable energy would wish to enter a PPA:
- A. **Remove revenue volatility**, as relying on spot revenues would produce earnings which could vary substantially from month-to-month and year-to-year;
 - B. **Remove revenue uncertainty**, mitigating longer-term price uncertainty that could arise from system conditions like hydrology;
 - C. **Improve access to financing**. These more stable and predictable revenues “gives lenders and investors confidence”, which “can flow through to reduced financing costs”.⁵¹ Considering the high capital costs of a generator, these financing benefits lead to materially lower costs, which can be passed through to consumers through lower tariffs.
114. The EA’s discussion relates to renewable energy generators selling PPAs, but all of these same conclusions are equally applicable to developers of other forms of generation, and to internal hedging as a way of ensuring revenue stability.
115. Of course, no gentailer is perfectly hedged internally, as described in Section 3.3. Even if a gentailer produced the same number of MWh that it sold to retailers, it is highly unlikely that these would happen at the same time. Furthermore, if a gentailer were perfectly hedged and then built a new generator, they would then be in a net long position and would still have a need to sell some hedges to ensure revenue stability. However, to the extent that a gentailer is hedged internally, it relies on stable retail prices to support that hedge, and more volatile retail prices would harm investment conditions accordingly, increasing the cost of capital and hence the final costs to customers.

6.3. Generators Typically Rely on Long-term Offtakers to Support Investment

116. In general, large infrastructure projects like energy generators have long pay-back periods and therefore require reliable revenues to underwrite them. Around the world, generation capacity has largely come from:
- A. **Government ownership**. For example, in most of the world in the 20th century (including New Zealand), and in most developing countries today, the power sector was owned by a public sector entity, which is responsible for ensuring an adequate supply to the country’s population. Because demographic trends are typically slow moving, the entity can plan new plant with relative certainty knowing that (a) the customer base (i.e. the population) will be not so different from forecasts in 20-30 years; and (b) compensation from state budgets (depending on the precise institutional arrangements) will be available. Much of Western Europe, as well as Australia and New Zealand, have privatised their energy sectors, but still operate assets which were built during the period of public ownership.

⁵⁰ EA, Entrant generators – context, headwinds and options for power purchase agreements – Working paper, January 2025.

⁵¹ EA, Entrant generators – context, headwinds and options for power purchase agreements – Working paper, January 2025, para 3.12

- B. **Government underwriting.** This is common in countries that have since liberalised their energy sectors but require large investments that the market will not deliver for various reasons. For example, in order to procure large-scale firm renewable energy projects, Australia operates the Capacity Investment Scheme (CIS), which guarantees eligible developers at least 90 per cent of their target revenue, through top-ups above energy market revenues.⁵² In the UK, when policymakers have decided that there is a strategic interest in new nuclear capacity, they have compensated the developers through a fixed payment per unit of output over a long period of time. This is the case for Hinkley Point C, currently under construction by Électricité de France (EDF), which will receive a guaranteed strike price of £92.50/MWh (in real 2012 terms) for its first 35 years of operation.⁵³
- C. **Long-term PPAs.** In a PPA, a single buyer agrees to purchase output from a generator at a fixed price. Generally these are “generation-following” PPAs, in which the buyer buys power whenever it is generated. The EA’s current working paper on PPAs identifies 13 PPAs in New Zealand, nine of which have a corporation as the offtaker (e.g. Amazon), and all but one of which has a term of 10-20 years.⁵⁴
- D. **Incumbent vertically-integrated utilities.** We describe the role of vertical integration in underwriting generation investment in Chapter 3.
117. What these all have in common is that the counterparty is reliable over 10 or more years, virtually guaranteeing the generator predictable revenues over the large portion of the life of the asset, and thus giving investors sufficient certainty to invest.
118. Independent retailers are unlikely to contract on similar terms, given that they are less likely to have a stable customer base that can be predicted several years in advance. Instead, they typically target shorter hedges which allow them flexibility to serve their customer bases.
119. If some portion of a gentailer’s hedge capacity is contracted on these shorter terms demanded by independent retailers, instead of being implicitly underwritten on a long-term basis through vertical integration, then it will limit the extent that the generator has a reliable, long-term counterparty for its output, increasing the cost of capital and ultimately increasing costs borne by electricity customers.

⁵² See <https://www.dccew.gov.au/energy/renewable/capacity-investment-scheme> and Australian Government, Capacity Investment Scheme - Market Brief on Capacity Investment Scheme - National Electricity Market – Generation Tender 1, May 2024, p.19.

⁵³ <https://www.theguardian.com/news/2017/dec/21/hinkley-point-c-dreadful-deal-behind-worlds-most-expensive-power-plant>

⁵⁴ EA, Entrant generators – context, headwinds and options for power purchase agreements – Working paper, January 2025, Table 4.1.

7. British Experience of Retail Market Regulation

120. As Chapter 2 explains, the EA proposes to implement non-discrimination obligations to address perceived market power concerns over independent retailers' access to super-peak hedge contracts.⁵⁵ The EA believes that ensuring retailers have access to risk management contracts will facilitate the entry and growth of independent retailers, which it argues will benefit consumers by providing more choice and putting downward pressure on prices.⁵⁶
121. This chapter reviews the recent history of the retail energy market in Great Britain, whose regulator, Ofgem, pursued policies that promoted the entry and growth of small, independent retailers with the aim of improving outcomes for customers.⁵⁷ While Ofgem succeeded in increasing the number of retailers in the industry to 70 retailers by 2018, 65 retailers have exited the industry since 2018, imposing costs of at least £9.1 billion on consumers.⁵⁸
122. Ofgem also found that its regulatory environment contributed to the extent of failures by enabling retailers to enter with insufficient capital and pursue excessively risky business models to target growth.⁵⁹ In particular, Ofgem identified that many of the failed retailers adopted short-term hedging strategies that left them exposed to wholesale price volatility.⁶⁰
123. While there are differences in market structure with New Zealand, the case study provides important lessons for policymakers of retail markets:
 - A. Availability of hedging products is correlated to higher retailer entry, but at a cost to the parties mandated to make products available.
 - B. Without regulatory oversight, new entrant retailers have incentives to adopt risky strategies to compete on price with incumbents following long-term hedging strategies.
 - C. Fixating on retailer entry without ensuring sustainability in new entrant business models may end up creating more costs for customers than the benefits of competition and innovation that new entrants may drive.

7.1. Ofgem Implemented Policies That Reduced the Costs of Entry for Small Retailers

124. Following the privatisation of the British gas and electricity industry, the 14 regional Public Electricity Suppliers ultimately merged to form six retailers by 2006, which represented 99 per cent of the domestic electricity and gas market collectively known as the "Big Six".⁶¹ These companies

⁵⁵ LPFM options paper, pp.14-15.

⁵⁶ LPFM options paper pp.2, 13.

⁵⁷ Ofgem, The development of a competition framework for the domestic retail market, August 2023, p. 2.

⁵⁸ This included the cost to the taxpayer of the government funding Bulb via a Special Administration Regime. Source: Ofgem, Statutory Consultation: Strengthening Financial Resilience, November 2022, p.22.

⁵⁹ Ofgem, Statutory Consultation: Strengthening Financial Resilience, November 2022, p.21.

⁶⁰ Ofgem, Statutory Consultation: Strengthening Financial Resilience, November 2022, p.21.

⁶¹ Note: The traditional "Big Six" includes British Gas, EDF, E.ON, Npower, Scottish Power and SSE. Source: NERA analysis of Ofgem's Gas Supply Market Shares by Company: Domestic (GB), found at: <https://www.ofgem.gov.uk/energy-data-and-research/data-portal/retail-market-indicators>

generally also owned generation businesses, but with legal unbundling – one owner could own two separate businesses licensed to provide generation and retail supply services.

125. Alongside the vertical unbundling, the Big 6 licensees are subject to three conditions on the relationship between generation and retail supply interactions:⁶²
 - A. **Condition 16 Segment reporting:** Publication of separate business accounts that distinguish the licensed business from any other business under the same financial accounts. Typically these are subject to regulatory accounting standards or guidelines, particularly with regards to the allocation of costs across businesses.
 - B. **Condition 17 on Non-Discrimination:** A requirement that the licensee does not sell or offer electricity to one purchaser at prices that are materially different to other comparable wholesale purchasers (after accounting for the other terms of the contract e.g., volumes, dates, interruptability etc.).
 - C. **Condition 17A on prohibition of cross-subsidies:** A requirement that the generation business shall not provide or receive any cross-subsidy from any other business of the licensee.
126. In 2008, Ofgem undertook an investigation into the functioning of wholesale and retail markets (the Energy Supply Probe), based on market power concerns. In the investigation, Ofgem stated its intention to facilitate entry to *"strengthen competitive pressure on the Big 6 suppliers."*⁶³
127. In the years following the Energy Supply Probe, Ofgem's policies sought to facilitate entry, in part by reducing the costs associated with establishing and operating a retail business, such as introducing:⁶⁴
 - A. Retailer Exemptions: Ofgem exempted small suppliers from government social and environmental obligations that would otherwise require them to recover additional costs from domestic customers through their energy bills.⁶⁵ For example, Ofgem exempted retailers with fewer than 250,000 domestic customers from the costs of the Energy Company Obligation (ECO), feed-in tariffs (the UK government's main financial incentive to encourage the uptake of small-scale renewable technology), and the Warm Home Discount.⁶⁶ These exemptions afforded small suppliers a cost advantage relative to the Big Six suppliers, that had to recover the costs of these initiatives through the energy bills charged to customers.⁶⁷ For example, the ECO exemption was estimated to be worth a cost saving of £36 to £60 per domestic customer per annum.⁶⁸
 - B. Mechanisms to promote wholesale market liquidity: Ofgem introduced a "Secure and Promote" Licence Condition in 2014 to address concerns that poor wholesale market liquidity was acting as an entry barrier in both the generation and retail market.⁶⁹ As part of these conditions,

⁶² Electricity Generation Standard Licence Conditions

⁶³ Ofgem, Energy Supply Probe – Initial Findings Report, October 2008, p.6.

⁶⁴ Ofgem, Energy Supply Probe – Initial Findings Report, October 2008, p.6.

⁶⁵ Competition and Markets Authority ("CMA"), Energy Market Investigation, June 2016, p.365.

⁶⁶ Competition and Markets Authority ("CMA"), Energy Market Investigation, June 2016, p.366.

⁶⁷ Competition and Markets Authority ("CMA"), Energy Market Investigation, June 2016, p.365.

⁶⁸ CMA, Energy Market Investigation, June 2016, p.366.

⁶⁹ Ofgem, WPML: decision letter, January 2014, p.1.

Ofgem introduced a market making obligation (MMO) which compelled the Big Six to post bid-offer spreads for baseload and peakload forward contracts.⁷⁰ Through the MMO, Ofgem aimed to provide regular opportunities to access forward products for smaller retailers, establish a reference of prices along the forward curve and to increase wholesale competition, to benefit the retail market and consumers.⁷¹ Ofgem noted that the MMO would impose costs for the Big Six mandated to provide bid-offer spreads and provide accessible products for small suppliers.⁷²

128. In 2018, the Government also mandated Ofgem to implement the Default Tariff Cap (DTC), for all domestic customers, which took effect from 1 January 2019.⁷³ The DTC, set now on a quarterly basis, limits the amount retailers can charge domestic customers for electricity and gas provision.⁷⁴ The DTC is set through a building blocks approach of the different components of a customer's bill (including network charges, wholesale energy costs, and balancing costs).
129. The largest cost component of the cap is the costs for retailers to purchase energy in the wholesale market for its customers. The cost of wholesale energy allowance is set based on the cost of forward products that deliver energy during the cap period (and in the 9 months following). They therefore reflect an assumed hedging profile of retailers, purchasing products up to 16.5 months ahead of delivery.⁷⁵

7.2. The Number of Retailers Grew Sixfold Between 2010 and 2018 but has Been in Near-Constant Decline Since

130. As shown by Figure 7.1, the number of retailers in Great Britain increased sixfold from 12 in 2010 to a peak of 70 retailers in 2018, supported by Ofgem's regulations that lowered the cost for small retailers to enter and operate in the market. The entrant retailers also successfully captured market share from the Big Six retailers. For example, the market share for the traditional Big Six declined from 99 per cent to 76.5 per cent between 2010 and 2018, as new entrants grew their customer bases.

⁷⁰ Ofgem, WPML: statutory consultation on the 'S&P' licence condition, November 2013, p.35.

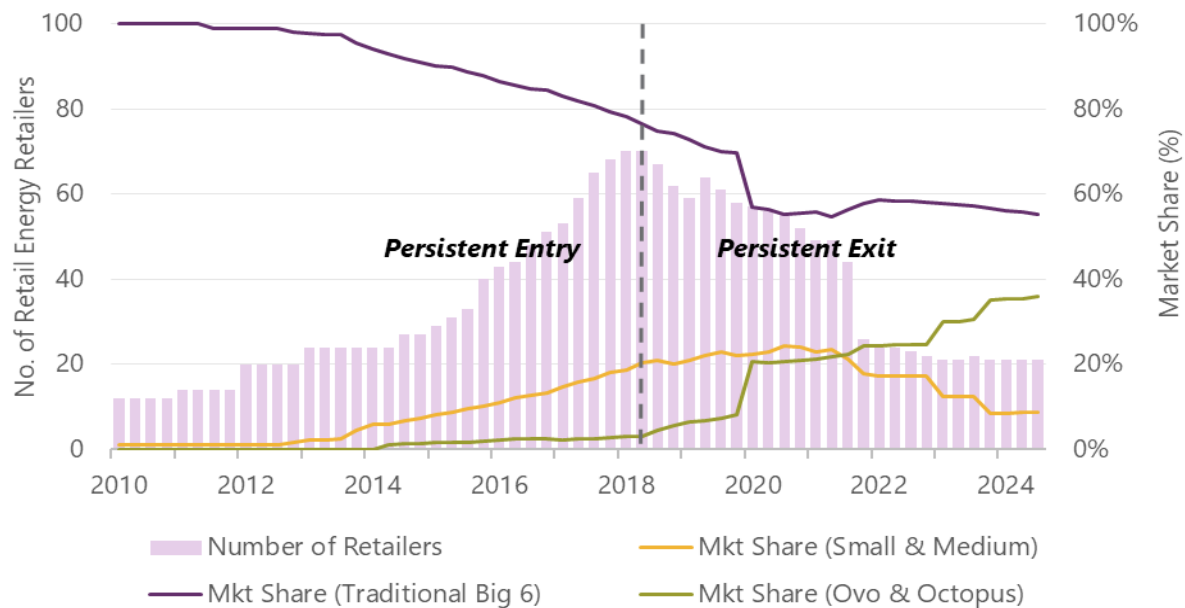
⁷¹ Ofgem, WPML: statutory consultation on the 'S&P' licence condition, November 2013, pp.18, 4.1.

⁷² Ofgem, WPML: statutory consultation on the "S&P" licence condition – Impact Assessment, November 2013.

⁷³ Ofgem, Default tariff cap – Overview document, November 2018.

⁷⁴ Ofgem, Default tariff cap – Overview document, November 2018, p.12.

⁷⁵ Ofgem sets the wholesale cost allowance in each cap period based on a prescribed "3-1.5-12" where (i) Ofgem averages the prices of specified baseload and peakload forward contracts over a 3-month observation period, (ii) the relevant forward contracts are those that will be delivered over the 12-months from the start of the cap period and (iii) Ofgem allows a 1.5-month window between the end of the observation period and the start of the cap period to enable retailers to communicate the update charges to consumers.

Figure 7.1: Retailer Numbers Peaked at 70 in 2018 But 65 Retailers Have Since Exited

Notes: Ofgem data for total retailers is recorded annually until June 2014. As such, the number of retailers in 2010-2013 is flat across each quarter within the year.

Source: NERA Analysis of Ofgem Retail Market Indicators, available at: <https://www.ofgem.gov.uk/energy-data-and-research/data-portal/retail-market-indicators>

131. However, 65 retailers have exited the market since 2018 and just 21 retailers currently operate, a 70 per cent reduction from the peak in 2018 (and only 9 more than the original number operating alongside the Big Six in 2010).⁷⁶ As shown by Figure 7.1, the decline in the number of retailers operating in the market is characterised by three phases since the peak in 2018:
- A steady decline from 70 retailers in the first half of 2018 to 52 retailers by the end of 2020.
 - A sharp decline from 52 retailers at the end of 2020 to just 26 retailers by the end of 2021.
 - Since 2021, the number of retailers has not rebounded but has remained relatively stable at an average of 22 retailers between 2022 and 2024.
132. In Great Britain, the costs of a retailer failure are spread across all customers via an uplift to their bills under the Supplier of Last Resort (**SoLR**) process (or alternatively, through taxation if the government runs a retailer under the Special Administration Regime (**SAR**), a process used only for Bulb which failed with 1.5 million customers).⁷⁷ Ofgem estimates the cost of the retailer failures in 2021 alone amounts to roughly £337 per domestic customer across both processes.⁷⁸

⁷⁶ NERA analysis of Ofgem Retail Market Indicators, available at <https://www.ofgem.gov.uk/energy-data-and-research/data-portal/retail-market-indicators>

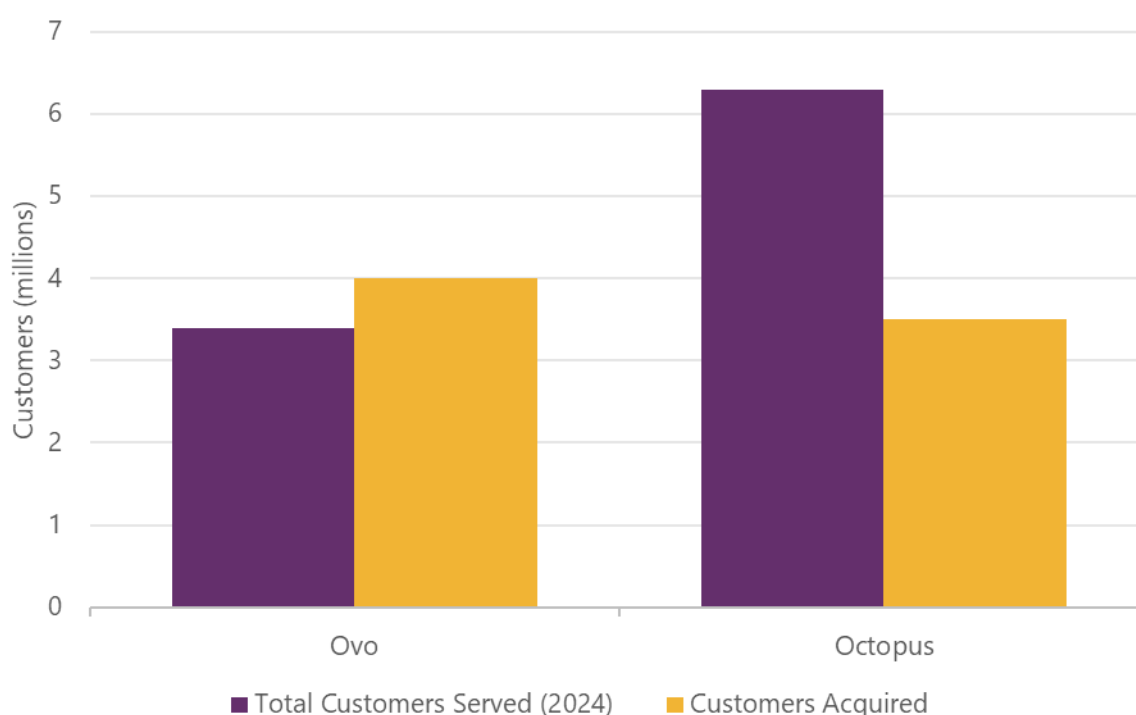
⁷⁷ When a retailer goes out of business, Ofgem usually appoints a SoLR to take on the customers of the retailer. The SoLR can claim a Last Resort Supply Payment (LRSP) for costs incurred, recovered from all customers. See Ofgem (2016), Guidance on SoLR & energy supply company administration orders
Source: National Audit Office, Investigation into Bulb Energy, March 2023, p.5.

⁷⁸ £337 per domestic customer is calculated as £9.1 billion divided by 26.98 million domestic customers as per Ofgem's estimate in the Ofgem energy consumer archetypes update 2024.

Source: Ofgem, Statutory Consultation: Strengthening Financial Resilience, November 2022, p.22.

133. Figure 7.1 also shows that a small number of new entrants have successfully grown their market share. Namely, Octopus and Ovo represent a combined 36 per cent of the market in 2024. However, as indicated by Figure 7.2, an important part of Octopus and Ovo's growth has been fuelled by acquisitions of existing suppliers. For example, Ovo acquired a Big Six retail business (SSE) in 2020, which increased Ovo's customer base by 3.5 million and market share by roughly 12 percentage points.⁷⁹ Indeed the figure below shows that Ovo has acquired more customers than it currently serves, as Ovo's market share has declined persistently since acquiring SSE. Similarly, Figure 7.2 shows that Octopus has acquired a combined 3.5 million customers, including roughly 2.8 million from Bulb and Shell Energy Retail alone, which represents over half of the 6.3 million customers that it currently serves.^{80,81}

Figure 7.2: Octopus and Ovo's Growth Has Been Fuelled by Acquisitions of Existing Suppliers



Note: Customer numbers as of 2024 estimated by multiplying Ovo and Octopus' market share by the total number of domestic customers reported by Ofgem (26.98 million).

Source: NERA Analysis of Ofgem Retail Market Indicators, available at: <https://www.ofgem.gov.uk/energy-data-and-research/data-portal/retail-market-indicators>

⁷⁹ OVO Energy (Website), Ovo Energy to acquire SSE Energy Services in a landmark transaction. Available at: <https://company.ovo.com/ovo-energy-to-acquire-sse-energy-services-in-a-landmark-transaction/>

⁸⁰ Octopus Energy (Website), Group results for FY24. Available at: <https://octopus.energy/press/octopus-energy-group-results-for-fy24-delivered-07-profit-margin-tripled-non-uk-customer-base-and-increased-net-assets-to-17bn/>

⁸¹ National Audit Office, Investigation into Bulb Energy, March 2023, p.5.

7.3. Some Retailers' Adoption of Short-Term Hedging Strategies was a Key Contributor to the Failures in 2021

134. Following the exit of 29 retailers in 2021, Ofgem conducted a review of its historical policy of promoting growth in retail competition.⁸² While Ofgem apportioned some blame to the volatility in the wholesale gas and electricity markets, it also accepted that its regulatory environment contributed to the extent of the failures and the costs imposed on customers. It states:⁸³

"The focus on expanding competition and promoting choice, while benefitting consumers through lower prices, ultimately led to low financial barriers to entry and light regulation of financial risks. The energy crisis exposed problems with this retail market model, leading to a large number of supplier failures towards the end of last year, ultimately costing all consumers through higher bills".

135. There are two main ways that entrant retailers can sustainably compete in the market:
- A. Providing Better Products (i.e., Innovating): New entrants can compete on product offering by innovating to provide better products than incumbent retailers, e.g., offering spot-price based tariffs, technology offerings.
 - B. Lower Prices: Alternatively, new entrants can aim to compete on price for the same services offered by incumbent retailers, for instance, by realising efficiency gains.
136. There is little evidence to suggest that the entrant retailers successfully competed on quality with the Big Six retailers. For instance, the UK Government found that innovation was limited and that customers had a "very limited set of choices" in the retail market.⁸⁴ Citizens Advice also determined that the retailers that failed in 2021 scored poorly for customer service.⁸⁵
137. Rather than competing on quality, the UK Government found that most offers only differed by price.⁸⁶ However, Ofgem identified that many new entrants competed on price and grew by engaging in a risky strategy that relied on undercutting the prices offered by a long-term hedging strategy incentivised by the DTC.⁸⁷

7.3.1. New entrant retailers took risk and adopted short term hedging strategies designed to undercut longer-term strategies of established businesses

138. Some new entrants pursued business models that attracted customers not through service offerings or sustainable efficiency gains over incumbent retailers but by taking on risk to undercut

⁸² Ofgem, Statutory Consultation: Strengthening Financial Resilience, November 2022.

⁸³ Source: Ofgem, Statutory Consultation: Strengthening Financial Resilience, November 2022, p.5. (Emphasis added)

⁸⁴ Department for Energy Security and Net Zero, Policy Paper – Delivering a better energy retail market: a vision for the future and package of targeted reforms, July 2023.

⁸⁵ Citizens Advice, Written Evidence to the BEIS Select Committee from Citizens Advice, p.6

⁸⁶ Department for Energy Security and Net Zero, Policy Paper – Delivering a better energy retail market: a vision for the future and package of targeted reforms, July 2023.

⁸⁷ Department for Business, Energy and Industrial Strategy Committee, Energy Pricing and the Future of the Energy Market, July 2022, p.13.

the price offered by incumbent suppliers pursuing long-term hedging strategies.⁸⁸ This is indicated in Figure 7.3, which shows that new entrants systematically offered fixed-price tariffs that undercut the fixed-price tariffs of the Big Six retailers.

139. A portion of the tariff differential between the Big Six retailers and new entrants may be explained by Ofgem's exemptions that reduced small retailers' operating costs, as Section 7.1 explains. However, Ofgem also found that some new entrants offered unsustainably low (fixed price) tariffs based on a short-term hedging strategy that aimed to undercut the prices that providers employing long-term hedging strategies could charge.⁸⁹
140. A supplier that pursues a long-term hedging strategy, such as the hedging strategy prescribed by the DTC, sets stable prices that lags (and smooths) changes in wholesale prices. This is because the supplier sets prices with reference to historical (long-term) hedging contracts that a supplier has already bought to serve its customer base under a long-term hedging strategy.
141. For instance, Figure 7.4 shows that changes in the level of the DTC (set under a prescribed, long-term hedging strategy) lag changes in the wholesale price. For example, wholesale prices increased almost continuously from May 2020 onwards, yet the DTC *decreased* until April 2021, as the DTC was still capturing the decline in wholesale prices across 2019 and the first half of 2020.
142. In contrast, a supplier that uses a short-term hedging strategy purchases power at the wholesale price close to delivery. Thus, by taking risk that actual wholesale costs at the time of delivery were below the allowance in the DTC and the fixed-price tariffs set by the Big Six retailers backed by long-term hedges, small retailers could offer attractive low tariffs to gain market share by buying power closer to delivery.⁹⁰
143. However, this is not a sustainable form of competitive advantage since a supplier using a short-term hedging approach is more exposed to the volatility in the wholesale market. Indeed, when wholesale prices rose in 2021, retailers that employed short-term hedging strategies could not recover the higher wholesale costs relative to their fixed price tariffs and ultimately became insolvent. This led to over 29 retailers exiting the market at an estimated cost of £337 per domestic customer.⁹¹

⁸⁸ Ofgem, Statutory Consultation: Strengthening Financial Resilience, November 2022, p.9

⁸⁹ Ofgem, Statutory Consultation: Strengthening Financial Resilience, November 2022, p.24

⁹⁰ Department for Business, Energy and Industrial Strategy Committee (July 2022), Energy Pricing and the Future of the Energy Market, p.12.

⁹¹ Ofgem, Statutory Consultation: Strengthening Financial Resilience, November 2022, p.22.

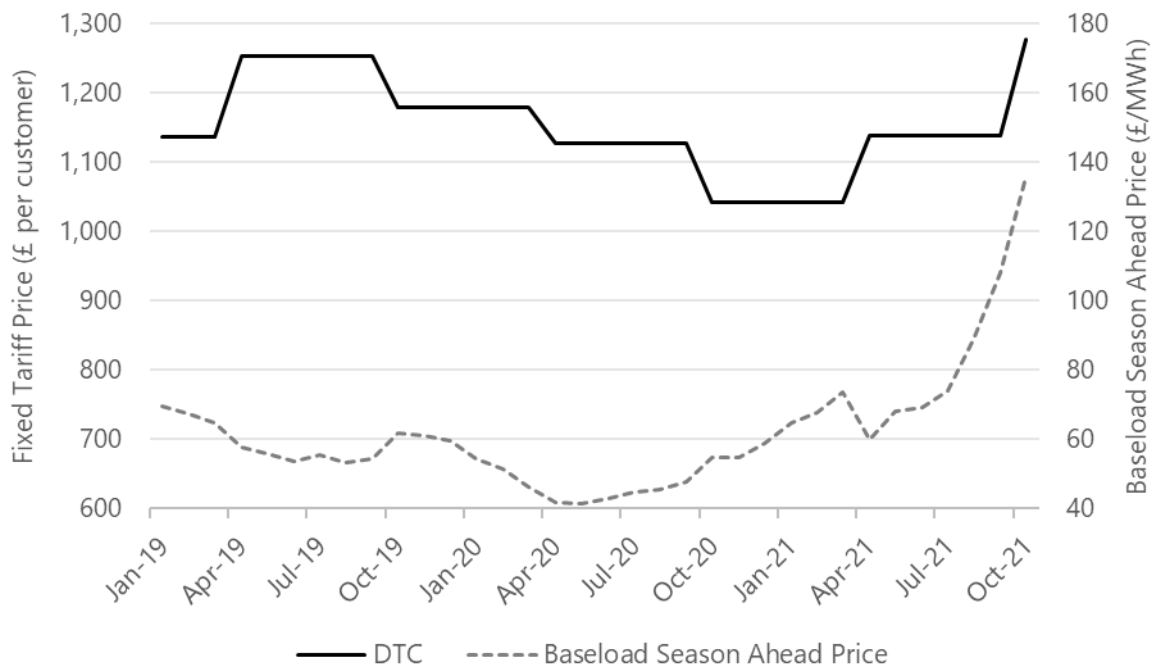
Note: £9.1 billion includes (i) £2.6 billion of SoLR costs for supplier failures paid for by consumers on their bills and (ii) £6.5 billion for the cost to the taxpayer of the government funding Bulb through a Special Administration Regime. The value of £325 per domestic customer is calculated as £9.1 billion divided by 27 million domestic customers as per Ofgem's estimate in the Ofgem energy consumer archetypes update 2024, available at: https://www.ofgem.gov.uk/sites/default/files/2024-02/Ofgem_archetypes_update_2024_FinalReport_v4.1.3.pdf

Figure 7.3: Some Retailers Offered Fixed Price Tariffs Well Below the Tariffs Offered by the Big Six Retailers



Source: NERA Analysis of Ofgem Data (Retail Market Indicators, available at: <https://www.ofgem.gov.uk/energy-data-and-research/data-portal/retail-market-indicators>)

Figure 7.4: Changes in the DTC Lags Changes in Wholesale Prices Given its Prescribed (Backward-Looking) Hedging Strategy



Source: NERA Analysis of Ofgem Data (Retail Market Indicators, available at: <https://www.ofgem.gov.uk/energy-data-and-research/data-portal/retail-market-indicators>)

7.3.2. Retailers operated with limited regulatory oversight which led to a moral hazard problem and the ability to operate risky business models

144. Ofgem recognises that small retailers could afford to take such strategies as set out in Section 7.3.1 given insufficient regulatory oversight of the business models and operating practices of new entrants.⁹² Specifically, new entrants benefited from:
- A. Reliance on Customer-Funded Working Capital: Ofgem determined that retailers could enter the industry with minimal levels of their own capital and did not typically need to raise external finance from debt or equity providers.⁹³ Rather, retailers relied on “free” sources of finance in the form of customer credit balances (i.e., customers paying for energy ahead of its use through direct debit) and renewable obligation receipts to fund operations.^{94, 95} This meant that retailers faced an asymmetric distribution of risk (owners faced limited downside risk from insolvency having contributed little of their own capital, but retained profits from upside scenarios) which incentivises excessive risk-taking (i.e., moral hazard).
 - B. Minimal Due Diligence of the Business Models of New Entrants: That retailers contributed minimal levels of their own capital meant that retailers faced low downside risk in the event of failure. As such, owners’ risk appetites were skewed towards pursuing excessively risky strategies that systematically under-hedged the energy requirements of its customer base.⁹⁶ Ofgem acknowledged that it operated a ‘low bar’ approach to licensing energy suppliers, which included insufficient due diligence of new entrants’ business models.⁹⁷ Moreover, given that retailers did not require external finance, outside investors could not play a role in moderating the entry of businesses with excessively risky business models.⁹⁸
 - C. Lack of Minimum Financial Resilience Standards: Retailers could operate with low levels of capital, leaving retailers susceptible to market shocks (compounded by the fact that the DTC limited the ability to pass through costs to customers).⁹⁹
145. Ofgem has since pursued policies that have toughened scrutiny on new entrant suppliers and their financial resilience, including limiting their ability to use customer money as working capital.¹⁰⁰

⁹² Ofgem, Statutory Consultation: Strengthening Financial Resilience, November 2022, pp.5 & 21

⁹³ Ofgem, Statutory Consultation: Strengthening Financial Resilience, November 2022, p.21

⁹⁴ Ofgem, Statutory Consultation: Strengthening Financial Resilience, November 2022, p.21.

⁹⁵ Customers typically pay a fixed amount for energy in each month, rather than paying more in Winter and less in Summer. A customer credit balance means that a customer has overpaid relative to its energy consumption over a period and is owed money by the retailer. Renewable Obligation receipts are money collected by retailers on behalf of the Government, used to fund a government renewables scheme. Under previous regulations, retailers could use both customer credit balances and RO receipts as free sources of working capital.

⁹⁶ Ofgem, Statutory Consultation: Strengthening Financial Resilience, November 2022, pp.9&21

⁹⁷ National Audit Office (June 2022), The Energy Supplier Market, p.38.

⁹⁸ Ofgem, Statutory Consultation: Strengthening Financial Resilience, November 2022, p.21

⁹⁹ Ofgem, Statutory Consultation: Strengthening Financial Resilience, November 2022, p.9

¹⁰⁰ Ofgem, Strengthening Financial Resilience – Minimum Capital Requirement and Ringfencing CCBs by Direction, 2023.

7.4. The GB Case Study Demonstrates that Retailers Adopting Short-Term Hedging Strategies May Not be Conducive to Sustainable Competition in the Sector

146. The recent retail history in Great Britain provides several lessons for the Electricity Authority and its proposals in New Zealand.
147. **Key Lesson 1: Availability of hedging products correlated to higher retailer entry at a cost to parties mandated to make products available.** Ofgem determined that the MMO it introduced in 2014 did help to support liquidity in the market.¹⁰¹ Moreover, Ofgem argued the MMO had a positive effect in reducing bid-offer spreads and in increasing traded volumes, albeit that the larger volumes may be due to market volatility.¹⁰² While Ofgem does state that this is not entirely attributable to the policy, it is also notable that the number of retailers increased two to three-fold during the period the MMO was in place, from 24 at the start of 2014 to 58 retailers at the end of 2019.¹⁰³ However, provision of these products is not without cost which in the case of GB was borne by the incumbent gentailers.
148. **Key Lesson 2: Without regulatory oversight, new entrant retailers have incentives to adopt risky strategies to compete on price with incumbents following long-term hedging strategies.** As Section 7.3.1 discusses, the evidence in Great Britain suggests that the pressure to grow a retail business by competing on price may create perverse incentives for retailers. For example, Ofgem found that small suppliers pursued short-term hedging strategies, despite having access to hedging products.¹⁰⁴ As Section 7.3 explains, suppliers that pursue short-term hedging strategies gamble that wholesale prices fall to outcompete suppliers that pursue long-term hedging strategies (e.g., the strategy embedded in the DTC).
149. Independent retailers in New Zealand may face this perverse incentive since gentailers offer stable retail prices that lag changes in wholesale costs. Therefore, independent retailers could have an incentive to adopt strategies that undercut gentailers' tariffs by purchasing power closer to delivery. However, this is not a sustainable form of competitive advantage. Rather, when wholesale prices spike, independent retailers would either (i) appear uncompetitive versus the stable tariffs the gentailers can offer or (ii) become insolvent if they have agreed fixed-price tariffs and do not hold sufficient risk capital to remain solvent in the face of losses.
150. The evidence that small suppliers pursue short-term hedging strategies is not specific to Great Britain but is similarly supported by the European Commission (EC). For instance, the EC identified that retailers' systematic lack of hedging led to heightened retailer failure during the energy crisis in 2021.¹⁰⁵ Whilst the EC reported that small retailers in Europe face difficulties accessing hedging products, it is unclear whether small retailers would purchase hedging contracts even if available given that:

¹⁰¹ Ofgem, Secure and Promote review: Consultation on changes to the special licence condition, December 2017, p.5.

¹⁰² Ofgem, Power Market Liquidity, December 2023, p.7.

¹⁰³ NERA analysis of Ofgem Data (Retail Market Indicators, available at: <https://www.ofgem.gov.uk/energy-data-and-research/data-portal/retail-market-indicators>)

¹⁰⁴ Ofgem, Statutory Consultation: Strengthening Financial Resilience, November 2022, p.21.

¹⁰⁵ European Commission, Electricity Market Design Consultation Document, p.23.

- A. As found in Great Britain, the primary form of competition between incumbent utilities and new entrants is price.
 - B. Following similar long-term hedging strategies will allow for little differentiation in the largest cost component of retail tariffs i.e., the cost of purchasing wholesale energy.
 - C. New entrants are therefore likely to undertake different hedging strategies, some of which may involve heightened risk, in order to gain market share from incumbent utilities.
 - D. Small retailers may have greater uncertainty about the level of future demand they must hedge for given that they may have less certainty over their future number of customers (given their pursuit of a growth strategy in the market).
 - E. Purchasing hedging contracts is costly and ties up retailers' working capital.¹⁰⁶
151. However, to ensure that suppliers (and in turn customers) are less exposed to price volatility from the wholesale markets, the EC implemented a reform that grants national regulatory bodies the power to ensure electricity retailers implement effective hedging strategies.¹⁰⁷
152. **Key Lesson 3: Fixating on retailer entry without ensuring sustainability in new entrant business models may end up creating more costs for customers than the benefits of competition and innovation that new entrants may drive.** A policy environment that promotes retail entry without ensuring there are adequate standards and controls for vetting and monitoring new entrants may ultimately create more costs for consumers than the benefits that competition can drive. Whilst Ofgem noted that customer bills were lower in the short-term, it acknowledged that the entry of inefficiently risky retailers added costs to consumers in the long run.¹⁰⁸ The estimated cost of £9.1 billion associated with the 29 retailers that exited the market in 2021 were ultimately picked up by domestic customers and the government.¹⁰⁹
153. To encourage sustainable competition, regulatory authorities need to ensure adequate regulatory scrutiny of new entrant suppliers. Ofgem has since moved to strengthen its standards and controls over retailers following the failures in 2021. For example, in 2023, Ofgem mandated suppliers to ringfence 100 per cent of RO receipts and 20 per cent of gross credit balances to reduce access to free sources of working capital that skewed retailers' incentives towards using excessively risk business models.^{110,111} As evidenced in Section 7.2, since these new strengthened standards and controls have come into effect, the number of new entrants has not increased.

¹⁰⁶ Centre for European Reform, Will the EU's Reform of Retail Electricity Markets Help Consumers, April 2023, p.2.

¹⁰⁷ European Commission, amending Directive EU (2024/1711), article 18, June 2024.

¹⁰⁸ Ofgem, Statutory Consultation: Strengthening Financial Resilience, November 2022, p.9.

¹⁰⁹ Ofgem, Statutory Consultation: Strengthening Financial Resilience, November 2022, p.22.

Note: This includes the cost to the taxpayer of the government funding Bulb through a Special Administration Regime. The value of £325 per domestic customer is calculated as £9.1 billion divided by 26.98 million domestic customers as per Ofgem's estimate in the Ofgem energy consumer archetypes update 2024, available at: https://www.ofgem.gov.uk/sites/default/files/2024-02/Ofgem_archetypes_update_2024_FinalReport_v4.1.3.pdf

¹¹⁰ Ofgem, Strengthening Financial Resilience, 2023.

¹¹¹ Ofgem, Strengthening Financial Resilience – Minimum Capital Requirement and Ringfencing CCBs by Direction, 2023.

8. Recommendations

154. As we have described in Chapters 6 and 7, and shown through real-world British experience in Chapter 8, the types of interventions that the EA proposes carry significant risks in terms retail price volatility and dampened investment incentives, both of which would be borne by consumers through higher and more volatile energy bills.
155. Nonetheless, if the EA does decide to pursue these reforms, we provide a number of recommendations for how to amend or further clarify its proposals on level playing fields, such that they provide genuine opportunities for retail entry while limiting the risk that they unfairly hindering gentailers' ability to operate their businesses, and without creating a world of volatile retail prices.

8.1. Clarifications to Non-Discrimination Obligation

156. Most importantly, the non-discrimination obligation, especially insofar as they relate to the cross-subsidy requirement, must be clarified to ensure that customers do not lose the value of vertical integration and the long-term price stability that can come from it.
157. The EA should explicitly recognise the temporal principle of risk management, i.e. that a longer-term hedging strategy produces more stable retail prices than a shorter-term strategy. Retailers adopting a "just in time" strategy may sometimes be able to deliver power for a lower cost (i.e. when wholesale prices are falling), but not when prices are increasing. The long-term price stability is itself valuable to customers, for whom electricity is a significant cost item that may need to be budgeted around.
158. The cross-subsidy and the non-discrimination obligations should be considered on different horizons.
159. The cross-subsidy requirement should be a backward-looking measure, reflecting the cost of products implicitly procured internally over the past years leading up to the delivery period. Furthermore, gentailers should have flexibility in defining and demonstrating that backward-looking profile, which could implicitly change as the gentailer's capacity mix and customer profile changes.
160. The non-discrimination requirement should be forward-looking and represent the types of internal hedges that a gentailer would procure for delivery in future years. This would ensure an independent retailer would have the opportunity to approximate the strategy of the gentailer, by the time of the future delivery period.
161. If this approach is not taken, and compliance with the cross-subsidy requirement involves demonstrating that the retail business is profitable at *current* forward looking wholesale prices, then this will require gentailers who smooth retail prices over the long run to sell hedges to independent retailers at below market rates.
162. It may be possible to limit some of the harms (in terms of retail pricing and investment incentives) that would result from this, if constraints are placed on the purchases of independent retailers:
 - A. Independent retailers should have a commitment to purchase from the gentailer through periods of rising and falling prices, rather than cherry pick and buy from gentailers when prices

are rising and purchase shorter-term hedges and spot electricity when prices are falling. This symmetrical strategy would replicate the terms of the implicit trade within a gentailer.

- B. Independent retailers should not be allowed to purchase more than the demand of their retail book, as doing so would allow them to take advantage of artificial arbitrage opportunities.

8.2. Alternative solution: Market making of Peak and Super-Peak Contracts

- 163. Much of the analysis that the EA presents to justify its intervention relates to the availability and pricing of super peak contracts. However, as we describe in Section 2.1, the evidence that super peak contracts are only being made available on discriminatory terms is limited, and includes recognised but not quantified biases.
- 164. In order to ensure all parties have access to contracts, without unduly limiting the ability of gentailers to operate efficiently as well-hedged retailers, the EA could consider introducing a market-making obligation on super peak (and possibly peak) contracts.
- 165. In practice, this would involve requiring gentailers to make a certain volume of contracts available each day, and with a maximum bid-ask spread. If the gentailer offered contracts at an artificially high price, then the limit on the bid-ask spread would create an opportunity for another party to arbitrage, by *selling* contracts to the gentailer at an artificially high price.
- 166. Such a direct intervention would be a more targeted approach appropriate to the problem of limited access to and high pricing of super peak contracts, without creating so many additional complications or unintended consequences that a functional unbundling would.



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