

Allowing British Electricity Consumers to Choose Their Supplier

Was it Worth It?

By Steve Thomas^{ID}

IN 1990, BRITAIN WAS A PIONEER OF THE PACKAGE of measures for the electricity industry, variously described as *privatization*, *liberalization*, and *marketization*: in short, *the British model*. Britain has often been seen as the example other countries should follow. The vision of the proponents of this package of measures was that, in a competitive system, electricity could be bought and sold efficiently in the same way as other products, with no need for sector-specific regulations. However, 30 years later,



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this vision seems no nearer to being achieved. The current dominance in this sector of climate change considerations over economic efficiency means the market cannot be left alone to function. So, this vision will not be achieved in the short- to medium-term.

Introduction

To understand why the vision of a fully competitive electricity market has not been achieved in Britain, we look at the elements of the reforms, especially those that involve competition. We then look at developments since 2021 when high gas prices put a spotlight on the way the sector operated and exposed failings.

By 2002, the British electricity sector appeared to have met the requirements of the ideal model:

- ✓ A wholesale market had existed since 1990.
- ✓ Consumer choice was extended to all by consumers by 1999.
- ✓ A generation duopoly had been broken up and there were six major competing generators.
- ✓ There were six large competing energy retailers.
- ✓ Networks had been unbundled from ownership of competitive activities in the sector.
- ✓ A regulatory body, the Office of Gas & Electricity Markets (Ofgem), had been set up.

By February 2010, the government and the regulator agreed the existing system was not working and was not going to work. The Energy Minister said: “We are going to need a more interventionist energy policy,” while the Chief Executive of Ofgem said: “There is an increasing consensus that leaving the present system of market arrangements and other incentives unchanged is not an option.” As a result, a three-year government review, the *Electricity Market Reform*, was undertaken, leading to a package of measures intended to address the issues.

This article focuses on the period from 2013 onward when the electricity market reforms were implemented.

There is particular emphasis on the period since 2021, when rising gas prices caused major problems of welfare and survival of businesses and brought the industry structure and mechanisms into the spotlight.

The British government has brought in a range of short-term subsidies and payments to try to ensure that consumers are able to afford enough energy to ensure their welfare. These measures are temporary; they do not have a long-term impact on the market and are not discussed in this article.

The United Kingdom electricity system is undergoing a period of significant change as it transitions from a fossil fuel-dominated generation mix to intermittent renewable generation. Over the past few years, we have seen a marked increase in output from wind and solar farms

and reduction in coal generation, as shown in Figure 1. In the first quarter (Q1) of 2022, 43% of the electricity supply within the United Kingdom was produced by renewables.

The Competitive Wholesale Electricity Market

The promise that a competitive market would produce lower prices than a regulated monopoly was the rationale for the liberalization package: without a competitive market there would be little for a field of retailers to compete over; without competition, there would be no reason to unbundle the networks; and there is a need for regulation regardless of whether there is competition.

The wholesale market, or *power exchange*, has a spot market and a range of instruments, such as futures and derivatives. Prices in the spot market are set every 30 min with the price being set for all successful bidders by the highest price paid needed to meet demand. If generators have a hedging contract and need to generate to fulfill it, they need not bid; they merely need to inform the system operator of their intention to generate in the given 30-min period.

By 2010, the sector was dominated by six integrated generator–retailers, widely known as the *Big Six*. Most of the power they generated was transferred internally to their retail divisions with a small amount sold under long-term contracts on terms known only to the two parties. This left negligible quantities available for the power exchanges.

This integration meant that the Big Six could make easy profits by keeping prices high with no need for more than tacit collusion. The lack of a liquid spot market meant they were secure from entry by new generators and retailers who might challenge this cozy existence. As a result, by 2013, the Big Six had a lower level of public trust even than the British banks. However, the lack of new entrant retailers gave consumers no avenue to action their dissatisfaction, and the market share of the Big Six with small consumers was still 97% in 2014.

Two developments changed this situation. New capacity was overwhelmingly renewables, paid at fixed prices outside the market. Renewable capacity is built based on the outcome of capacity auctions run by the government. Winning bids are given contracts of 15 years or more to buy all their power at fixed real prices. There was no strategic advantage to the Big Six in owning a plant built based on capacity auctions because all its output had to be sold to a government entity, so it could not be used to meet its own consumers’ demands.

The “Secure & Promote” market liquidity program was introduced in 2014. This program required the Big Six to post bids and offer prices in the power exchanges for a range of contracts up to two years ahead, for two one-hour trading windows each day. This policy immediately made the power exchanges liquid and opened the way for many new retail companies to buy at apparently reliable prices and offer power to small consumers at prices that undercut the Big

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Six. These liquidity measures seemed to be successful, and by the time the gas crisis began to be felt, new suppliers had a market share of about 25%.

Capacity auctions and liquidity measures meant the advantages of integration of generation and retail disappeared and, by 2019, five of the Big Six had split into separate generation and retail companies. The Big Six integrated companies became the Big Five retailers, with two retailers merging their businesses. The liquidity measures were abandoned because the market power of integrated companies, which was the justification for applying liquidity measures, no longer existed.

A third measure was the introduction of capacity payments. These payments were intended to ensure there was sufficient generation to meet peak demand. The assumption under the power exchanges was that just enough capacity to meet peak demand reliably would be profitable enough to justify the owners keeping it in service. This assumption was not credible. Peak demand is weather-dependent, and peaking capacity needed in a cold winter would not be needed in most years, would earn no income, and its owners would

close it. While the focus was on peak plants, capacity payments are payable to enough dispatchable plants: that is, plants that are available to generate regardless of weather conditions, to meet expected peak demand. They were expected to be enough to justify keeping a peaking plant online even if it was not used at all. Capacity payments are not available to capacity covered by take-or-pay contracts with the government.

While these three measures had a clear rationale, they overrode market mechanisms and compromised the efficiency of the market. Market signals should determine entry and exit to the market, and companies should participate in the spot market because it is to their advantage, not because they are forced to.

The Competitive Retail Market

From 2002 onward, the level of switching among small consumers was higher than in most European Union countries, albeit only a few percent per year, but most British consumers still did not switch. As a result, by 2014 about 97% of the retail market for small consumers remained in the hands of the Big Six.

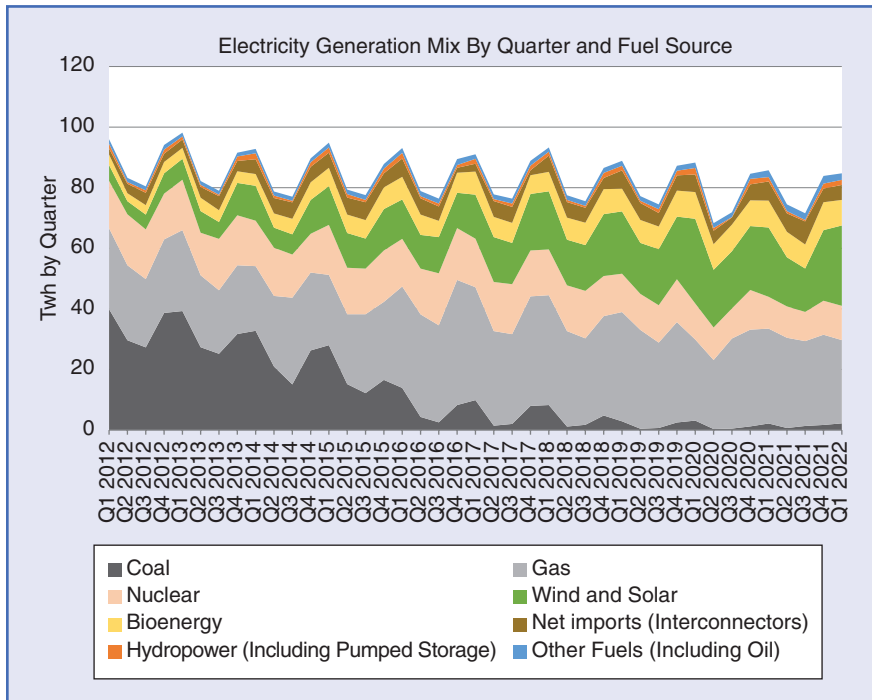


figure 1. Electricity generation mix. (Source: Department for Business, Energy, and Industrial Strategy, Energy Trends, and Ofgem.)

The liquidity measures led to new entrant retailers increasing their market share to 14% in 2016, resulting in the Big Six deintegrating. Despite this and despite their unpopularity, the brand name of these companies compared to that of the new retailers gave them significant market power, with many consumers reluctant to shift away from an established name to a company with unknown credentials.

The business model of the new retailers was to buy options on the power exchange typically for a year forward, and then undercut the Big Five in the residential consumer market. Their selling point was their price, and they relied on price comparison websites to flag them as cheap. The risk with this strategy was that when they came to renew power purchase contracts, if the wholesale price was too high to be recovered from their consumers, they would collapse.

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Hedging strategies were a luxury they could not afford. Together, internal and external switching rates provide a more comprehensive indicator of how engaged consumers are in the domestic retail energy market. Figure 2 shows that internal switching rates among the six largest suppliers have been consistently higher than external switching rates.

By 2017, public dissatisfaction remained because, while new entrants had taken a significant share of the market, the majority remained with the Big Six, at best on a fixed duration contract (more expensive than those offered by new entrants) and at worst on the default standard variable tariff, invariably the highest tariff available. In addition, more than 15% of consumers used prepayment meters also at high prices. The high prices paid by the standard variable tariff and prepayment meter consumers meant the companies were seen as exploiting the loyalty and inertia of the standard variable tariff consumers and exploiting the difficulty for prepayment meter consumers of switching to a better deal.

As a result, a temporary price cap set by the regulator for prepayment meter consumers was introduced in 2017 and for standard variable tariff consumers in 2019. The cap was initially to apply until 2020 when it was assumed that “smart meters” would have been installed with nearly all consumers. Smart meters were expected to make switching much simpler and would obviate the need for the price cap because consumers would switch away from expensive suppliers. The target completion date for smart meter installation has continually slipped and was pushed back to mid-2025 in August 2021, and the cap has been renewed annually.

The widespread use of prepayment meters is a particular feature of the British reforms. In 2016, about 16% of consumers used them. Their use dates to 1993, when policy became that consumers struggling to pay their energy bills had little choice but to switch to prepayment meters. In some cases, retail suppliers break into consumers’ premises to replace the standard meter with a prepayment meter. From a very low base, the number of consumers on prepayment meters increased to about 15% in only a year. From an industry point of view, prepayment meters were an ideal solution to the issue of consumer debt. With a prepayment meter, consumers that could not afford to buy energy cut themselves off, so there was no possibility of further debt. Companies were allowed to recover debt as a per kilowatt hour surcharge on new consumption by the consumer, and meter reading and billing costs were reduced. Like other retail tariffs, prepayment meter tariffs are unregulated. Prepayment meter

consumers could switch but in practice it was not easy, and it was difficult to find cheaper deals. A Competition and Markets Authority’s investigation in 2016 found that the cheapest available prepayment deals were £260 to £320 a year more expensive than those available for direct debit households, the consumers who received the cheapest tariffs. High energy prices in 2022 led to an increase in prepayment meter consumers of about 10,000 consumers per month.

The price caps were intended to deal with a real problem, but their use overrode the market and inevitably further reduced its efficiency.

Developments Since 2021

By selling off generation, the Big Five had lost some of their market power but their brand names still gave them strong advantages. The withdrawal of the liquidity measures raised the issue of whether the market would remain liquid if there was no obligation to use it, or whether generators would seek the financial security of long-term contracts outside the market. Regardless, the wholesale electricity market appeared likely to wither away as fossil fuel generation was replaced by low-carbon sources commissioned by government and sold at nonmarket prices.

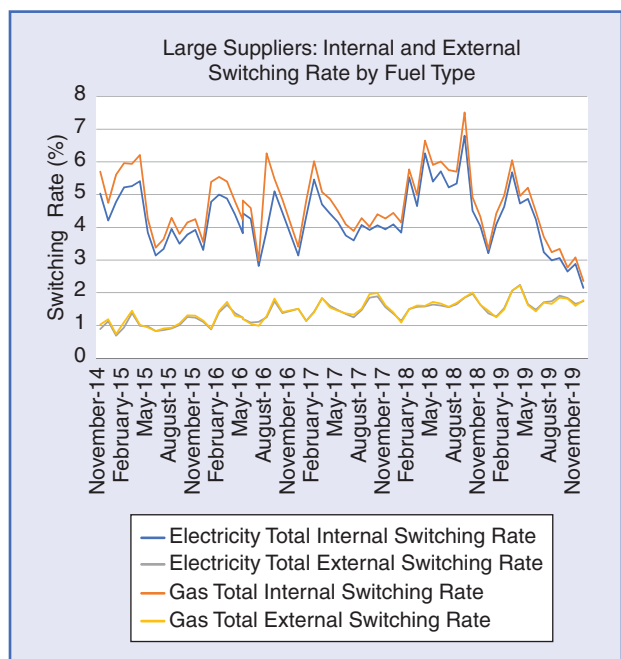


figure 2. Switching rates (internal and external). (Source: Ofgem.)

The Price Cap

The price cap was to be set based on costs in the previous six-month period, so there was a built-in lag between increases and decreases in market prices and changes in consumer prices. The cap meant prepayment meter and standard variable tariff consumers could not be charged more than the price cap. However, given that most of the consumers affected had either shown little appetite for switching or there was little scope for them to switch, the price cap quickly became the level set for virtually all standard variable tariff and prepayment meter tariffs. The market for small consumers not on prepayment meters could be divided into three: those on standard variable tariffs with the Big Five, those on fixed price and duration deals with the Big Five, and those on fixed price and duration deals with the new entrants. The price cap initially had no impact on the new entrants because their consumers were all on fixed price and duration tariffs.

The Market for New Generation

The offshore wind capacity auction program proved successful, with prices falling from about £150/MWh in 2014 to less than £40/MWh in 2021. With projections that the electricity sector could be decarbonized by the mid-2030s, the prospect was that, within a decade, most power would be accounted for by renewables sold entirely outside the market to a government entity, which would sell it on to retailers who would be obliged to buy their share at cost, based on their market share. Increasingly retailers are losing control of their power purchasing.

Gas Price Rises

In 2021, the world gas wholesale price rose by about 400%. These high prices were exacerbated by Russia's invasion of Ukraine, which led to Russia reducing gas supplies to Europe. From the point of view of diversity of gas suppliers, the United Kingdom is in an enviable position. It receives a

significant proportion of its supplies from the United Kingdom sector of the North Sea; it has pipeline connections to Norway, The Netherlands, and Belgium; and it has three liquefied natural gas terminals that allow it to import liquefied gas. While it received negligible quantities of gas from Russia, its strong connections to Europe mean the United Kingdom must pay world gas prices and it is at risk of gas shortages. The high gas prices are a strong incentive to gas producers to increase supplies, and additional supplies to Europe from the United States and Norway have allowed Europe to reduce its dependency on Russia for gas from about 40% to less than 10%.

Failures Among Energy Retailers

Figure 3 shows there were 24 active suppliers in the domestic gas and electricity retail markets as of June 2022. This number included 21 suppliers active in both gas and electricity, two in gas, and one in electricity only.

The gas price rises coincided with the failure of about 30 of the new energy retailers. However, about one-third of failures happened before gas price rises set in. It is difficult to determine how far these early failures were down to normal company failure or failure to be able to renew power purchase contracts at costs they could recover. If the latter, how far was this down to the withdrawal of the liquidity measures?

Many of the failed companies had fewer than 100,000 consumers; 14 had between 100,000 and 600,000 consumers but the largest, Bulb, had 1.7 million consumers. For consumers, there was no interruption in service when a supplier collapsed. When a company fails, there is a bidding process with other companies stating how much they would pay or need to be paid to take on the consumers. In most cases, the new company was one of the Big Five and transferred consumers would go on to the standard variable tariff. While taking on these consumers would increase their market share, it would require the new company to procure additional power from a difficult market. Because these consumers were with new entrant companies, by definition they were likely to be cost-sensitive, and if the new company does not offer a cheap deal, the consumer is likely to switch. Increasingly, replacement suppliers had to be paid to take on the failed company's consumers, a charge that fell on consumers.

The size of Bulb made its rescue problematic. It collapsed in November 2021 and was placed in special administration and allowed to continue trading, with loans from the government expected to cost taxpayers about £4 billion. In October 2022, a new entrant company, Octopus, was reported to be paid £1 billion to take on Bulb's consumers.

The standard variable tariff doubled in 2022, with more rises expected. Cheap fixed-price deals have been withdrawn and consumers have had to move on to the standard variable tariff as their existing fixed-price deal expires. So, the United Kingdom now has many competing retailers all offering the

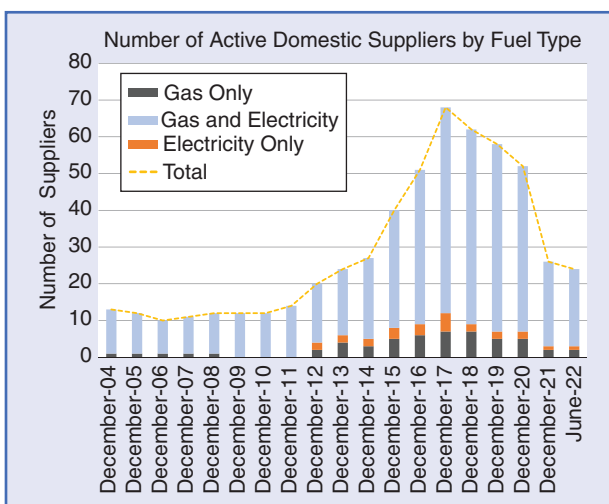


figure 3. Number of active suppliers. (Source: Ofgem.)

Additional supplies to Europe from the United States and Norway have allowed Europe to reduce its dependency on Russia for gas from about 40% to less than 10%.

same price. Effectively, retail prices for households are set by the price cap, not the market.

The Wholesale Market

There has been criticism of the wholesale market and the extent to which its design has contributed to the high wholesale electricity prices. The price is set by the highest price producer needed to meet demand and all successful bidders can sell at about that price even if their costs are significantly lower. The rationale for this model is that high prices should motivate generators that can produce at less than the market price to build new capacity, earning them attractive levels of profit. So, generators might earn extra profits when the market is tight but might not cover their full costs when there is surplus capacity.

Concern exists that the price is being set by high-priced gas and that other producers that have lower costs are receiving large profits that they have not earned. However, since 2020, the United Kingdom wholesale market has been behaving in the way it was designed to with the price set by gas-fired generation, with all producers that bid into the market getting that high price. Gas accounts for about half of generation, with the rest covered by renewables at 30% and nuclear at 15%. Gas generators are paying high gas prices and will need the high wholesale electricity prices to cover their costs. Most renewables are sold at prices independent of the market price, so they are not earning any more than normal. Nuclear is technically and economically inflexible and exposing it to market prices would be risky, and it is sold mainly under hedging contracts. It would therefore appear that generators are not making excessive profits. The market is working as it is designed to do and the problem is choice of market design, not market failure.

Figure 4 shows the day-ahead electricity and gas baseload contracts, which mirror the price evolution in their spot markets. Factors influencing power prices include gas prices, carbon prices, and renewable generation. The

main drivers of the gas price increases relate to low gas storage levels across Europe and lower-than-usual pipeline imports from Russia into Europe.

The Regulator

The regulator, Ofgem, has failed to deal with long-running problems. These include the following:

- ✓ *Prepayment consumers:* These consumers were exploited by the retail suppliers for two decades until, on the instruction of the Competition and Markets Authority, Ofgem introduced a price cap in 2017.
- ✓ *Market liquidity:* For the first two decades after the reforms were implemented, the wholesale market was too illiquid for it to perform any useful function. On the instruction of government, in 2014 Ofgem forced liquidity into the market, allowing large numbers of new entrant retail suppliers to enter the market.
- ✓ *Ofgem's failure:* Ofgem's failure to properly assess the credentials of the new entrant retailers was exposed from 2019 onward, resulting in the collapse of about 50 companies imposing huge costs from switching the failed companies' consumers to a new supplier.

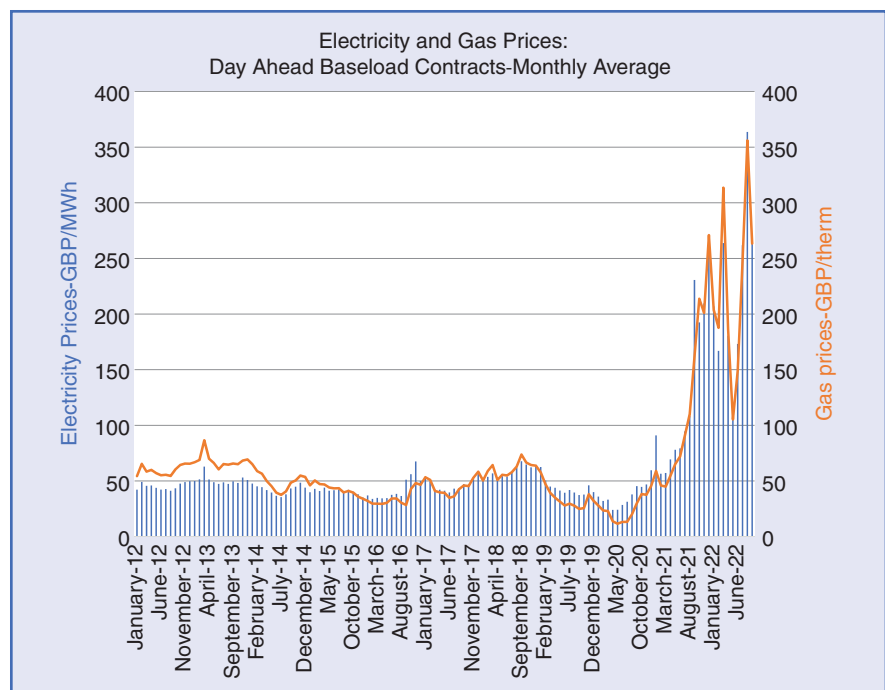


figure 4. Power and gas day-ahead contracts. (Source: Ofgem.)

There is no sign that Ofgem has understood that the switch from fossil fuel generation to low-carbon generation will need a fundamental change in the design of the sector.

The Future

While it is difficult to predict when the war in Ukraine will finish, it will be a long time before Russia will be trusted by Europe as a supplier of natural gas. Nevertheless, there are several factors that mean the current high United Kingdom energy prices will fall relatively soon. On the supply side, the high world gas price is motivating suppliers to produce as much as they can. On the demand side, consumers are cutting their consumption to a bare minimum to ensure their bills are affordable. These two factors should significantly reduce electricity prices. Renewable capacity, at prices not related to gas, is expanding rapidly (more than 3 GW of off-shore capacity came online in 2022), replacing gas, and reducing the influence of gas prices on electricity prices.

Review of Electricity Market Arrangements

In July 2022 the government announced a new review. Despite government claims it would be the “biggest electricity market reform in a generation,” judging by the three areas identified as likely to be addressed, this reform is less ambitious than electricity market reforms of only a decade ago. The retail side of the business is mostly not covered, despite the issues raised by the increasingly criticized price cap and despite the fall-out from the large number of retail supplier collapses. The government identifies the following three areas for reforms:

- 1) introducing incentives for consumers to draw energy from the grid at cheaper rates when demand is low or it is particularly sunny and windy, saving households money with cheaper rates
- 2) reforming the capacity market so that it increases the participation of low carbon flexibility technologies, such as electricity storage, which enable a cleaner, lower-cost system
- 3) decoupling costly global fossil fuel prices from electricity produced by cheaper renewables, a step to help ensure consumers are seeing cheaper prices because of lower-cost clean energy sources.

The first area foreshadows the use of smart meters to allow time-of-day pricing, under which the price paid by consumers would vary according to the price of the marginal generation source. Time-of-day pricing raises a serious issue of welfare. Prices will be highest when demand is highest and when consumers need power most. If consumers see a high price, they are likely to cut back demand for applications, like heating and cooking that are vital for their welfare. There will need to be a



higher level of demand response to accommodate the variability of renewables and the inflexibility of nuclear, but this must not be at the expense of consumer welfare.

The second point seems common sense, that variable renewable sources will need to be complemented by storage capacity. The third point is the only one that seems directly related to the crisis of 2022. However, as argued above, the wholesale market is working as it was designed to do and it would require a comprehensive redesign to achieve what the government wants.

Renewables at nonmarket prices are taking an increasing share of the market and the influence of the gas price on the wholesale power price is declining. If targets to decarbonize the electricity sector are met, the gas price will have little influence within a few years. It is questionable whether designing a short-term fix to the market is worth it.

Policy Priorities

The most serious policy barrier may be the political and commercial difficulty of replacing market mechanisms with planning mechanisms. It will be difficult to convince consumers they are better off with a well-regulated monopoly than a competitive market. There are also many powerful bodies, such as energy retail companies, commodities traders, and price-comparison websites that have a strong interest in retaining competitive markets, even if they are not in the interests of consumers.

The Wholesale Market

The current wholesale market is not fit for purpose if it ever was, so the priority must be to design a set of mechanisms that will ensure sufficient new low-carbon capacity is built to meet any demand growth and replace retired plants, and ensure sufficient existing capacity remains available when needed.

Market optimists believe that, as renewable technology matures, a well-designed competitive wholesale market will meet these conditions. However, such a market has never existed for fossil fuel generation and, because of their high upfront costs, low-carbon sources seem less likely to fit into such a market design. Capacity auctions have proved successful in reducing renewables prices. There are strong competitive forces on the bidders but there is full public control. Major challenges exist ahead. Up to now with renewables a minority part of the generation mix, take-or-pay contracts have been suitable, but as renewables' market share increases, there will need to be flexible contracts that recognize that not all the available power can be used, while still giving developers sufficient guarantee of their income to justify the investment costs.

Capacity payments may need to be retained but they are not suitable in their present form under which only dispatchable sources are eligible. Mechanisms must be designed so

that variable renewable sources can receive incentives to remain in service after their initial power purchase agreements have expired.

Retail Competition

The economic case for retail competition is weak. Without a competitive wholesale electricity market that would allow retailers to buy more cheaply than their competitors, there would be nothing for competing retailers to compete on other than their own costs. Network costs will be the same for all retailers.

The costs of retail competition are significant. These include: the loss of scale economies because of the duplication of functions not needed in a monopoly, the cost of marketing and switching, and the cost to consumers when retail suppliers collapse.

The high prices of 2021/2022 and the collapse of more than 30 retailers will have damaged the credibility of the sector. Consumers of collapsed companies are dumped on to another supplier in which they had no choice, usually with higher prices. There is also the farcical situation of large numbers of companies to choose between, all of which are offering the same price. The energy retail business has been revealed to be fragile and it is not clear there will be any appetite to back new companies entering the market. So, the market may subside back into a small number of retailers under little threat of competition from new entrants.

In Summary

The problems experienced from 2021 onward raise several questions.

Do Consumers Want to Choose an Electricity Supplier?

The assumption behind allowing consumers choice of supplier was that consumers would grasp the opportunity to switch to the cheapest supplier. This choice would ensure their bills were as low as possible and force suppliers to buy from the wholesale market cheaply, increasing competitive pressure in that market. While Britain has a higher consumer switching rate than most countries, a majority remains on expensive tariffs. There are several factors behind this inertia, such as lack of confidence in their ability to find the best deal, distrust of the market, and lack of time. Hard-pressed, low-income consumers have done badly from the option, facing high tariffs that effectively pay for the benefits of those with the resources to switch.

Could Markets Have Worked?

Under the British model, sufficient new power plants to ensure security of supply would be built prompted only by market signals. This situation never happened when fossil fuel plants were still an option. The high upfront costs of low-carbon sources make it less likely that developers will take the risk of investing in new capacity with no guarantee of income.

How Will It Be Possible to Remove Competition?

There is a growing consensus that the existing electricity industry structure needs a major overhaul, and the logic is that the wholesale and retail competition markets will, at most, be a minor element in the new design. Removing competition will not be easy. Strong vested interests to retain markets exist from organizations that are there because of competition. Politicians of all persuasions have peddled the philosophy that competition for all purchases was the best answer, so telling consumers they would be better off with a planned system will not be easy.

What Role for Regulation?

In 2000, the prime duty of Ofgem was changed from promoting competition to protecting the interests of consumers. However, the mentality of Ofgem still seems to be that a free market is always the best answer, and if left alone, the market will automatically solve any problems. Regulatory interventions are seen as counterproductive and a last resort. It seems likely that this mentality can only be changed by a fundamental rebuilding of the organization that breaks this mentality.

What Are the Alternatives?

Britain has, for several decades, been in an enviable position with respect to energy resources. From the mid-1970s until around 2000, it was self-sufficient in coal, oil, and gas. It now has a range of cheap renewable resources, especially offshore and onshore wind, and solar energy. The new system should be designed to take advantage of these resources rather than the resources fitted into a one-size-fits-all model.

Was Allowing Consumer Choice Worth It?

The simple answer is “no.” It has been a costly waste of time and money.

For Further Reading

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Biography

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