

Topics

The First Year: How is the England and Wales Privatisation Working?

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The electricity industry was privatised barely a year ago.¹ The privatisation was rushed, and in some respects botched; but on the whole the market is working remarkably well. Although some newspapers seem upset about the prices in the Pool it is as well to remember that vastly more serious problems used to pre-occupy us: before March 1990, when the Pool began operations, people were genuinely worried about whether the lights would stay on under the new system, and indeed, parties of visitors from other countries used to come to London in the first few months to assure themselves that the country was not freezing in the dark.

Electricity was the first of the big monopoly industries to be restructured to introduce competition - five years of private British Gas and British Telecom had convinced the government that private ownership alone would not induce efficiency.. And competition has already worked what any reasonable person might consider near-miracles:

- The CEGB had been minded to build yet more nuclear plants and fossil stations, which were summarily cancelled when the market test was applied.
- The costs of nuclear waste disposal were shown the light of day and the sanitising effect of sunlight caused the nuclear plants to be withdrawn from the privatisation.
- British Coal has come under severe pressure to increase its efficiency.
- The large generators were forced to reconsider their staffing from zero base. and decided to downsize by about one third.
- Plant availability has increased.
- National Grid Company (NGC) has pruned its investment plans.

Note that most of these efficiency improvements are in the generation sector, which is open to competition.

The Big Public Issues

The issues which make the headlines are not necessarily the ones of most basic concern to students of the industry, we deal with four of them briefly before turning to the fundamentals.

First, the RECs (Regional Electric Companies) were sold off to shareholders at a substantial discount, and the shares had to be rationed. The immediate gain to the shareholders was only mitigated by the fact that there were so many of them: the rationing had limited holdings to £150 - £300, and was tilted in favour of those who asked for less. The first year profits of the RECs were 12% to 54% above the level projected at flotation, leading politicians to cry that the taxpayer had been ripped off by the sale.

Second, “RPI - x” regulation² is supposed to result in annual price increases of RPI (the level of inflation - the Retail Price Index) minus a percentage “x” to allow for increases in productivity. But in the first year, with inflation running at 5%, price increases of 16 - 17% resulted from the operation of the formula for transmission and distribution. This can only be described as a rather serious design flaw in the formula. The reason is that the formula is prospective, and adjusted in retrospect.

The RPI was projected at 6%, and prices were increased in advance to reflect this. The RPI actually rose 10.9% in the first year. The RECs were behind by 4.9%, so prices were raised to put them back to “where they should have been”. Then they got another 4.9%, with interest, to compensate for last year’s error. Then they got the next year’s estimated RPI rise, of 5%. And finally, the “minus x” is actually plus 2%. This comes to a total of 16-17%, announced at the time when the RPI had fallen to 5%. Customers were not amused.

A third aspect of the privatisation which infuriated the press, politicians and the public was the increases in the salaries of the top people. Increases of 100% over pre-privatisation salary levels were not uncommon. But no one in the electric industry came close to the remuneration of the head of the privatised British Telecom, who made £536.303 in 1991.

Finally, for those who wanted to know what the Regulator was doing, he issued frequent press releases, revealing, essentially, that he spent much of the first year deciding on the definition of 1 MW. This is the cut-off point between those who have the choice of supplier and those who do not. Since those below the cut-off are forced to pay the various subsidies, the difference in price could amount to some £45,000 a year for those near the line, and they made every effort to get the rules changed. Again, this is real money, but the issue is not fundamental.

We turn now to the economic issues in structuring the market.

Getting Rid of Subsidies

The electric industry in every country tends to be the repository of all manner of government subsidies: in New York it is the main tax collector, in Germany it is the support of the coal industry, in France of the engineering profession. The US is now using the industry to subsidise conservation and windmills. Everywhere, the existence of a monopoly enables price discrimination; large industrial customers, who are considered the most elastic demand, get low prices close to short-run marginal costs, while the residential and small commercial consumers pay the overhead.

Before privatisation, the UK was no different from any other electric industry in these respects; it had absorbed subsidies to the coal industry, the nuclear industry, and large industrial customers, and large quantities of excess capacity for which the customers were paying. One of the purposes of introducing competition with the privatisation was to rid the industry of all the hangers-on, but the subsidies proved hard to escape.

It is an axiom of subsidy management that you have to have a monopolised customer to pass the costs on to. Although the idea of retail competition was to give everyone a choice, the small customers in the UK are still not free to choose their supplier. This is because they are still bearing the remaining subsidies, albeit on a basis which is supposed to be temporary.

The Effect on the Customers

The average citizen might regard a reduction in prices as the test of the privatisation; on this score, it has not yet paid off. Medium-sized industrial customers are the only class of customer who have so far done better under privatisation than before: some have saved 40% off their previous bills. The large industrial customers are screaming.

The large industrial concerns had a very good deal under the CEGB. They paid only short-run marginal (fuel) costs; the fixed costs of the transmission and generating plant were allocated to other customers. The large users lost these favourable terms on privatisation. Because a market follows the law of one price, they had to pay the market price for power, which includes a capacity element, and in addition they had to pay transmission charges and the 11% nuclear subsidy. In the first year, the government softened the blow by arranging low-priced contracts. ICI got what amounted to a £12 million benefit, and 130 others got something.

When the large customers' special deals ran out, some of them, like Unilever, started buying directly in the Pool, which enabled them to avoid the peak charges by reducing their use. But in the first year, Pool prices had been very low, and when they rose in the second year, ICI and others started the round of vociferous complaints which have featured so prominently in the press. Since the rest of Europe is still discriminating in favour of the industrials, they have a point.

The residential and small commercial customers are still paying the overhead; they have not seen any savings. They bear the entire coal subsidy, which adds 0.4p or 7% to every kilowatt hour they buy. This is due to go by 1993, unless the coal industry manages to get it extended.

The nuclear subsidy, which is due to go by 1998, adds 11% to the final delivered price, including distribution charges. This also bears harder on small customers, since their final delivered price is about twice that of the large customers (who do not pay distribution charges); hence their nuclear Subsidy Payment per kWh is also twice as big.

This all goes to show that transition to a market is very difficult when you are used to subsidies. It also suggests that residential customers should see more benefits as the transition progresses.

The Short-Term Market (The Pool)

The Pool has succeeded beyond anyone's expectations. Half-hourly prices have been posted for two years, invoices have been made and paid, disputes have been settled, and there have been no serious operational problems. Even this stunning success has not prevented criticism of the results.

One set of criticisms centres on the power of the major generators to affect the Pool price. This is not important in itself. There is no doubt that the two fossil generators have short-term market power, but the existence of long-term contracts limits their incentives to manipulate the short-term market. While it is possible to go naked in the Pool (without contract cover), National Power and PowerGen are virtually fully contracted, so the Pool price does not actually affect the price paid for most of the energy, or the generators' profits in the short term.

This is not widely understood, largely because the Pool was so novel that anyone explaining the new system starts with the Pool. But in fact, the Pool was designed to be a short-term market to settle mismatches in long-term contracts. Under the contracts, the Pool price is simply a mechanism which accounts for the power actually produced; this power has already been sold in a forward market, and a second transaction between the contracting parties replaces the Pool price with the contract price.

These offsetting transactions between the generators and their customers happen continuously, but are not so visible as the Pool. The contract, not the Pool price, governs. However you can't make a profit from the contracts if you don't actually supply the energy, and the way you supply it is to bid into the Pool.

In the first year, driven by the need to get rid of excessive quantities of coal, and perhaps some mistaken notion that market share was the goal, the generators drove the Pool price down to madly low levels, even zero on one famous night.

They were “selling” electricity at 1.90p/kWh on average, which could never have covered even the costs of keeping the plants manned and maintained. But this only marginally affected the price actually paid for the power, which had mainly been sold on forward contracts.

The Dreaded Uplift

If generators cannot make serious money by manipulating the price of energy in the Pool, what is all the fuss about?

The place where the generators can actually make some money in the short-term Pool is in the “uplift”. This is the amount added to the Pool price to pay for a variety of services to the system which are paid for on an ad-hoc basis, and then shared equally by all customers. It is in the uplift that critics are detecting most of the problems with the Pool.

When you reach into this grab-bag of uplift payments, you only find two lots of real money: some high reserve payments in the autumn of 1991 when PowerGen was playing games with advance declarations of plant availability to drive up the price of reserve; and National Power’s pricing of Fawley, a plant which because of its location is crucial to the operation of the grid, and which, under the rules, effectively sets its own price each day.

In the autumn of 1991, PowerGen was taking unseemly advantage of the absence of a Pool rule limiting the price of reserve. The rule had been agreed to, but NGC was not able to program it into the initial set of software, and it was therefore left for another day. This problem has been solved by getting the programming done.

National Power bids Fawley in at a very high price, and claims to be charging no more than the cost of keeping the plant open. The Fawley problem and similar problems at other plants whose location renders them particularly valuable, will be solved by NGC contracting in advance for the plant, as it probably should have done in the first place.

These are no more than teething problems. The problems with the Pool mechanics are known and solvable: the Regulator listed them in his December report on the Pool Price enquiry,³ and Graham Shuttleworth and I have listed them elsewhere.⁴ Eventually they will get resolved: the uplift will cease to be a shared cost and will be charged to the right people.

There is however a real problem looming in the market, which is presented as a problem with the structure of the industry, but is really to do with excess capacity.

The Structure of the Industry

The UK law defines any company as a statutory monopoly if it has more than 25% of a market- National Power has close to 50% and PowerGen 30%, and both are therefore statutory monopolists. (Nuclear Electric has most of the rest of the market.) Bigness is automatically suspect, and eventual reference to the Monopolies and Mergers Commission (the MMC) is a certainty; the Regulator also has the power to refer at any time.

In the short-term market, or Pool, competition at the margin is often effectively limited to two generators, who can and have affected the Pool price. (There are only two effective competitors because the nuclear plants, with low variable costs, try to run all the time, leaving the others to compete for the rest of the market.)

As a matter of history, after Nuclear Electric was dropped from the privatisation, timing was the limiting factor on the number of generators: the privatisation would never have been achieved on time if the further complication of, say, six generators had been introduced. But pleading time constraints is no excuse, if the small number is so soon to tarnish the bold privatisation by requiring an early reference to the MMC, as the Financial Times has suggested.

The structure itself is not necessarily a problem the Financial Times or the MMC should get exercised over. Even two competitors plus freedom of entry should be enough for a competitive market. And there are more than two generators where it counts. The market does not operate only or even mainly by a daily spot market, where by definition, entry is impossible: it should and does operate by selling ahead on contract, and here Nuclear Electric is a third effective large competitor.

Apart from the big three, there are six smaller players operating in the market today, including France and Scotland. It took Lakeland, the first entrant, only two years from start to finish to get its plant up and running, sustained by long-term contracts. Electricity technology is neither new. secret not particularly complicated. Entry is easy.

The forward market for power more than two years ahead should therefore be very competitive. Once the power is sold forward, there is little to gain from the undoubted ability to affect the short-term price. However, if the existing generators were to refuse to sign forward contracts, or if the ability of new entrants to get licences or sites is hampered, then there would be some question of the contestability of the market; the conduct, as opposed to the structure, would be in question.

A futures market has been set up, and with it the ability to trade forward contracts. Development of this into a truly liquid market for contracts is important for competition, and will limit the power of the incumbents.

The Problem is Excess Capacity

Excess capacity is much more of a problem than market power. The excess capacity originated with the CEGB, and has been exacerbated by environmental requirements, which induce new and cleaner technology but render some existing capacity not-quite-obsolete. Paradoxically, these in-built tendencies to excess capacity have been magnified by competition, and, as we show below, the regulatory structure has made the problem even more acute.

One might even argue that the electric industry, being a commodity industry with easy entry and costly exit (especially for nuclear plants, but also to some extent for coal plants) is the type of industry where excess capacity is often found. The assets of the industry are also specific to electricity generation, and cannot be moved to other uses, which means that even if they are sold, they do not exit the industry.

Excess capacity causes the market price to fall to levels that cannot remunerate the capital employed: in industries like steel and cement, the price has fallen like this, and remained low for a long time. No one finds it in their interest to close the excess plant, because they lose whatever contribution the plant was making to overheads. Producers stand, eyeball to eyeball, waiting for others to close and bring the price back to long-run sustainable levels.

Of course in these situations, if there are many small producers they are gradually weeded out by the discipline of insolvency - firms go bankrupt. The plants that remain are those belonging to the firms with deep pockets, not the plant with the lowest costs. Emergency cartels or mergers have to be permitted to enable these industries to close plant, and raise the price. And of course there are no new entrants until the price has risen to the long-run entry level.

Fixing the Flotation Value

Did the government pay sufficient attention to the excess capacity situation before Vesting? It did pay some attention, because it needed adequate flotation values. Cecil Parkinson used to describe the generators as a £27 billion industry, but by the time the nuclear plant was recognised to be worth nothing, and the existing coal plant revalued to the level of comparable gas plant, the generators' assets were worth about £5 billion at flotation. If the excess capacity had been allowed to set the price of electricity, the flotation of the generators would not have raised even that amount.

The government therefore, in addition to its fixes for coal and nuclear and large industrials, had to fix the generators' excess capacity. The clean way to have done this would have been to remove the excess capacity from the market, and have held it as a reserve to be reintroduced at specified future dates.

The government decided instead to support the energy contracts for the first three years at “long-run” levels, and force the RECs (the local retailers) to buy them. The RECs were given a captive market in the small customers, the perfect repository for both the coal subsidy and the generation capacity fix. This at least got the show on the road, although it left a cliff-edge in 1993 when the contracts run out. By that time, it was assumed, the problem would have righted itself.

Many commentators have suggested that the government should have broken the industry into six generators to introduce “real competition”. This would certainly have forced the government to deal with the excess capacity problem by a longer-term protocol. Cynics might suggest that leaving market power with the three generators was the substitute for a policy: any excess capacity which developed would be dealt with by the larger players closing sufficient plant to raise the price and justify the flotation values. If the three-generator solution had not been thrust upon the government by pressures of time, it would have had to be invented.

Greased Skids for New Entrants

However, once the flotation value was assured, there was one additional problem. If you think hard, as the government surely did, about the best strategy for dominant players to use if they want to maximise profits, it would have to be to set the price just a little below the new entry price. This would sustain the flotation value but would not induce entry.

Entry of course was the last thing that was needed in an excess capacity market. But with gas prices so low, and sulphur requirements getting tighter by 1997, some gas plant was going to be built. The privatisation was already in disarray, with no possibility of lower prices resulting soon because of the subsidies; with only three generators, it became a political necessity to induce more players into the market. The Secretary of State said, and is still saying, that new entrants were the test of the privatisation.

Since entry was now the political objective, and the market could not deliver it, a second fix was adopted: the RECs’ price control formula for passing on the costs of generation was fixed. For months this had been discussed as a yardstick formula, by which a REC could pass through only the **average of all RECs’ power purchase costs** to its captive customers; suddenly it became a **total pass-through of all power purchase costs actually incurred**. This would allow the RECs to contract with new entrants and not worry about the cost. You might call the provision “greased skids for new entrants”.

Not only can the RECs contract with new entrants without the discipline of the price formula or the market, but the RECs themselves have equity interests in many of the new plants, so in effect they can pay themselves what they wish and pass it on. True, there are provisions for the Regulator to take a look at the prices paid for new contracts, but he does not intend to invoke these provisions for another year.

The new entrants also get attractive terms for connections to the transmission network, and benefit from exemptions from the dreaded “uplift” for on-site generation.

In 1998, the monopoly over small customers is supposed to run out; by then the “greased skid” new entrants will be in the market, and competition should limit the ability of the RECs to contract at above market price; but in any particular area the costs of a single plant will be very diluted by the time the customers see them, and the small customers would need to see a fairly large differential to go to the bother of switching suppliers.

The Lessons of the First Year

The first impression must be that in spite of these structural difficulties the whole thing is working rather well. The government has its new entrants, and the generators’ stock prices are comfortably above flotation value, but well below the first euphoria, indicating that the City does not think the generators will be gouging the market. The large industrial customers want their subsidies back, the small industrials are happy. No one has frozen in the dark or even seen the lights flicker.

Even the machinations of the generators in the Pool, on which the Regulator reported in December 1991, do not lead him to want to make major changes, but rather to give competition time to work.

If the generators make the necessary closures, they will lose market share and support the price until the system has settled down, by which time there will be competitors in the market. The subsidies will be wound down, the customers will have a choice, the prices will be lower, and it will all be a fantastic success.

The looming problem is that the excess capacity has got worse, ironically because of the success of competition, both in inducing supply and in limiting demand, which is precisely what a free market is supposed to do. When the competitive system began there were 58,000 MW of capacity and 48,000 MW of demand. Allowing for reserve, this was 3-4,000 MW too much.

On the supply side, plant availability has increased - no one quite realised how gung-ho a station manager can get when his job is on the line, and how much output can come from a 2% increase in efficiency at every plant (answer: 1000 MW - the equivalent of a large nuclear plant). Nuclear Electric was suddenly able to make its plants run much better; its owners, the government, decided to keep 2000 MW of Magnox reactors open; the Scots decided to dispose of their own excess capacity by dumping part of it on England through an expanded interconnector, and of course, the Sizewell nuclear plant is due to add another 1250 MW of capacity in 1994.

On the demand side there are indications that as large customers are able to moderate their bills by shifting their demand away from the high Pool prices at peak, the peak demand will fall. And no one expected the prolonged recession, and the sluggishness in demand - peak demand has been no higher in 1992 than it was in 1990.

These features greatly increase the amount of closure the generators have to do to get the system into balance. Yet 13GW of new gas plant have been notified to the NGC, much of it by the incumbent generators. It is doubtful that even half this much will be built, but it is still too much, too early.

**How Much New
Plant is
Necessary?**

Closing large amounts of coal plant while opening large amounts of new gas plant has brought criticism from academics that the new system is encouraging a waste of resources, and cries from the coal industry about unfair competition. The regulator has announced that he wants to monitor the closures, and might indeed force the generators to sell any excess plant that they close.

New gas plant is highly efficient. It is competitive with existing coal plant, which often needs expensive equipment to enable it to meet the new EC sulphur regulations. But because gas supplies come on annual "take or pay" contracts, gas plant is baseloaded, and it is baseload plant which is in excess supply. There is a limit to how much gas can be absorbed.

Some of the gas plant is being built for diversification; fuel prices and government policies are intrinsically uncertain, and a portfolio approach makes some sense - an insurance policy which is especially valuable in the face of a domestic coal industry which currently supplies nearly all the fuel. Far from being the secure supply which its promoters claim, the domestic coal industry has actually held the country to ransom through strikes twice in recent memory - freezing in the dark is not unknown in the UK. If the generators get their sums wrong, and coal is truly cheaper than gas, it is their stockholders who will suffer.

Will the Structure Survive?

Nonetheless the Regulator can obviously see the possibility that the series of fixes will induce uneconomic entry of gas, and the market power of the generators enables them to respond by closing good coal plants; and that indeed is a danger. He must ask himself whether it is a worse danger than his substituting his judgment for that of the market.

Relying on the generators to close excess capacity is the only counterbalance to the factors of inheritance, response to competition, sulphur controls and the greased skids policy, which the government established and which promote excess capacity. The Regulator may not like the set-up, in which he was only marginally involved. He may wish to change the structure at some time (the Gas Regulator, exasperated after five years, has done just that). But he should give the thing a chance to adjust. If six generators had been established in the first place, by now there would have been mergers or an emergency cartel, while the market adjusted.

By changing the implicit bargain and impeding closures he could force prices down to the excess capacity level and bankrupt the generators, expropriating the punters who bought the stock. The customers would get a temporary bonus, so it must be tempting to look like a bare-fisted hero. But since the government produced, induced and encouraged the excess capacity and took the flotation proceeds, changing the rules so early in the day would call into question the probity, and the wisdom, of the privatisation.

The Regulator's role should be to concentrate on two aspects of the market structure:

He should ensure that the forward markets (contracts for two, three and more years ahead) are working:

if the big generators were to impede entry and raise their prices above the new entry level, it would be clear in advance from their unwillingness to contract, and visible in arrears from the resultant excessive profits. Once they are contracted, their ability to manipulate the Pool is highly attenuated.

At the same time he should recognise a potential for serious excess capacity, and consider whether the greased skids should be gritted soon:

he should move forward the planned review of the economic purchasing conditions in the REC's licence, and substitute a yardstick criterion for pass through of generation costs.

But if, so early in the day, he impedes the required closures and then forces the market to short-run marginal costs, narrowly defined, he will wreck the privatisation and with it the chance of real efficiency in the industry.

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- Endnotes**
- ¹ On Vesting Day, March 31 1990, the CEEB was broken up into new PLCs, and operation of the Pool and contract system began. The RECs were floated on the Stock Market in November 1990. the generators in March 1991.
 - ² RPI-x regulation applies only to the transmission and distribution “wires” businesses, which are and will remain monopolies.
 - ³ “Report on Pool Price Inquiry”, OFFER, December 1991.
 - ⁴ Hunt and Shuttleworth “Forward, Option and Spot Markets in the UK Pool” Forthcoming, Utilities Policy. Also available as NERA Topics 4.

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