

Electricity in the UK and Abroad

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This paper discusses the electricity industry at a time of great change. Several mergers are going ahead, while others are being considered by the Monopolies and Mergers Commission. From 1998 domestic consumers will have a choice of supplier, potentially offering greatly increased competition amongst suppliers, although nobody knows to what extent consumers will choose to change supplier. These developments are set against foreign developments, both of Continental countries and of other countries committed to deregulation.

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I Electricity - recent developments in the industry

A. Background

The electricity industry had retained an unchanged structure since 1958 until privatisation was planned in the late 1980s. The Central Electricity Generating Board (which contained nuclear as well as conventional power stations) was the most important single entity. It sold the electricity to the regional electricity boards at a fixed price (the bulk supply tariff). About three quarters of electricity was coal-generated. The price of coal was vitally important to both the coal and electricity industries so the negotiations over that price were conducted under government supervision. Since choice of fuel was not up to the CEGB, much effort went into the engineering task of operating the power stations as efficiently as possible.

Privatisation started from this structure and the radicalness of the change was not at first apparent. The electricity boards were converted into regional electricity companies (RECs) while the CEGB was split into three parts National Power, PowerGen and Nuclear Electric. National Power was the largest, able to supply over 50% of the England & Wales market; PowerGen could supply 30% and Nuclear Power could supply around 20%, with a very small amount for renewables, but these figures vary considerably from one year to another, with the trend of generators losing market share as more small stations, partly owned by RECs, come into operation.

The whole industry is regulated by the Director General of Electricity Supply, who has been Professor Littlechild since privatisation. He directs the regulatory agency, the office of electricity supply and regulation, called OFFER.

Electricity is no longer sold at an agreed price to the RECs, but traded on the Pool, where bids are put in to supply electricity for every half hour. It could be loosely compared with the foreign exchange market. The system needs to be highly complex, partly because electricity cannot be stored and partly because demand varies over the day. Pool prices can vary considerably, and some price "spikes" have been investigated by OFFER. The CEGB had coped by keeping its older, less efficient, power stations for supplying electricity only at times of peak demand. The system has to be able to switch on extra power as needed in order to avoid power cuts, but it must in principle use the most efficient stations all the time (as baseload suppliers) in order to keep down costs.

The RECs, who are responsible for supplying electricity to the final consumer, have become increasingly active since their privatisation in 1990 in deciding their source of the most economical electricity. Some of this is now coming from joint ventures in which the RECs

are involved, involving combined cycle gas turbines. The generators found themselves losing market share. Two further factors have brought about recent changes. In April 1995 the Government's golden shares¹ expired, allowing the possibility of takeovers. Also, it has been decided that much more radical competition will be allowed from April 1998.

B. Mergers and Takeovers

The whole takeover process started in December 1994 when Trafalgar House bid for Northern Electricity. Although the golden share had not yet expired the bid pushed the company into defensive action. Its plan to pay out a special dividend to shareholders and to increase gearing~~by~~ by higher borrowing strengthened fears that the Regulator's price review of the summer of 1994 had been too lenient. The Regulator re-opened the issue and reported revised figures for the RPI-X requirement for the next five years. Although these were stricter, there is still some feeling that the RECs got off too lightly. The Trafalgar House bid was not referred to the Monopolies and Mergers Commission.

More serious issues arose in the next round of takeover offers.

Scottish Power bought up Manweb in a hostile bid.

North West Water bought up NORWEB, after out-bidding a Texas group. NORWEB seems to have accepted the takeover as inevitable and merely aimed for the highest price for their shareholders after the competition.

Hanson Trust bought up Eastern in an agreed bid.

Southern Investments UK plc, a subsidiary of the Southern Group(USA), bought South Western Electricity

CSW (USA) is taking over SEEBOARD in an agreed bid (subject to shareholder approval)

South Wales Water is expected to bid for SWALEC

None of these bids was referred to the Monopolies and Mergers Commission. The reasons were announced by the Secretary of State for Trade and Industry,² who said that he had followed the advice of the Director General of Fair Trading. He noted that the Scottish Power/Manweb case raised the most serious regulatory issues.

¹ which had given the Government the power to prevent takeover bids

² Ian Lang clears three power bids, DTI Press Release 31 August 1995

I recognise that the Scottish Power/Manweb case is the first proposed merger between two UK electricity companies and therefore that it raises different issues from those in the Southern Group/SWEB and Hanson/Eastern cases...The Director General of Electricity Supply argued that the merger should be referred because of the loss of an independent comparator. I agreed with the Director General of Fair Trading, however, that the issues raised by the merger, including the comparator point, were not in this case sufficient to justify reference...I shall consider future cases on their individual merits against the background of the market situation at the time.

It is generally agreed that even more important issues are raised by two other offers.

PowerGen has made an offer for Midlands Electricity

National Power has made an offer for Southern Electric

The reason for their importance is that if the mergers went ahead, they would undermine the split between generation and distribution which was such an important feature of the electricity privatisation. PowerGen and National Power are the two main generators and if they are both integrated concerns, some people believe that they would gain an unfair advantage at the expense of the consumer. The Secretary of State for Trade and Industry³ has referred these bids to the Monopolies and Mergers Commission, to report by 22 March 1996. The Minister referred the bids because they raise competition concerns, but added:

In general I do not believe that vertical integration is inherently objectionable whether in the electricity industry or elsewhere. However in these two cases, the structural change proposed could have an effect on the development of competition in the industry.

The North West Water/NORWEB merger is interesting for different reasons. Perhaps it is surprising that it is the only case of a merger between different types of utility. Supporters of the deal hope for cost savings in billing and via a reduction in headquarters staff in Manchester. Since the water industry is likely to remain largely monopolistic in each region, there are to be strict regulatory rules preventing a transfer of funds from water profits to subsidise the electricity partner.

Nuclear Power Nuclear power will account for some of the largest generators. The nuclear review reported in May 1995, accompanied by a White Paper,⁴ concluding that nuclear power stations could be built, but would not receive Government subsidies to help them. The nuclear power privatisation is expected in the summer of 1996. Nuclear Electric and Scottish Nuclear will be held by a holding company called British Energy, which is to be privatised. However, the magnox power stations (the original nuclear power stations) are to remain in

³ DTI Press Release 23 November 1995

⁴ *The Prospects for Nuclear Power in the UK*, Cm 2860

the public sector (initially as Magnox Electric PLC and then to be transferred to BNFL (British Nuclear Fuels). British Energy would become the second largest electricity generator (with around 23% of the Great Britain market) and BNFL the fourth (with around 8%) after PowerGen.

British Energy will have very different interests from other generators, because it needs to operate as a baseload power supplier. However, after its privatisation it might also want to make an alliance with a REC, if the opportunity arose - perhaps by a friendly share deal rather than a hostile cash bid because it would not have the profits of the private sector operators. There are two other combined generators/distributors - Scottish Power/Manweb and Eastern. As part of the deal in February 1994 by which the Director General of Electricity Supplies agreed not to refer the generators (National Power and PowerGen) to the Monopolies and Mergers Commission, they agreed to sell 6000MW of generating capacity, and Eastern is to buy it, subject to regulatory approval for the terms of the sale.

The whole picture is changing fast, in time for the coming of competition in 1998. In that year, it will be possible for all electricity users to choose their suppliers. If that competition really works, the consumer should benefit considerably. On the other hand, if there are problems in switching, or if people simply do not bother to do so, then the integrated structure of the industry could pose regulatory problems.

II 1998 - Year of Energy Policy Revolution

A. Choice of supply for domestic consumers

Major developments in several energy sectors are due in 1998. Both electricity and gas are moving to total competition for the domestic consumer. This will mean that the domestic consumer can choose a supplier, rather than have to rely upon the local regional electricity company (REC) or British Gas. This freedom was first granted to large businesses who have been happy to change suppliers. It was then extended to medium users - for example a small supermarket rather than a factory - and the result has been dramatic. Considerable change of supplier has taken place and British Gas has lost over half the market for small firms and almost all the market for large firms.⁵ Consumers will be able to get alternative supplies of gas through the same pipeline.

⁵ By April 1995, British Gas's share of the small firm market (between 2,500 therms and 25,000 therms a year) was only 45% (having been 74% at the end of 1993), while their share of the large firm market was only 9%. *British Gas Annual Report on Form 20-F 1994*, p.14

Opinions are divided as to whether the same effect will take place in the domestic market and much depends upon that point. Preparations are immensely complex, relying upon sophisticated electronics, to ensure that a customer in (for example) London can choose to take his electricity from (say) NORWEB, and then be correctly billed by NORWEB. The idea is to undertake the move without requiring every domestic consumer to instal a costly meter. The potential savings would not be large enough to justify such expenditure. The idea is that a potential supplier can build up a customer profile so as to anticipate the volume and timing of energy consumption, then to offer a supply on that assumption. The RECs are taking very seriously the possibility of significant changes and are planning to make a large effort to attract business throughout the UK.

The implications of this move are enormous. There has been considerable concern about the possibility of "cherry-picking". A new entrant might choose to supply high-income families with no problems over payment. The incumbent supplier - the REC or British Gas - might be left with a portfolio of consumers who were more expensive to serve. Their costs would increase and the disparity would become cumulative. That scenario has worried the incumbent suppliers but also those concerned with poor people. Would they end up paying for their energy at a higher unit rate? Yet there is a counter view. Some people point out that fortunes were made in retailing by supplying poor people and they argue that poor people could offer a profitable market in the energy sector as well. It is far from clear that those with prepayment meters are less desirable customers. After all the company has the cash in advance. Under a monopoly supply system the relevant calculations have not been made, but they are now being done and proving very difficult.

There is a potential disagreement between regulators on that point. The Gas Act 1995 section 7 (5)(b). allows for a levy to be imposed upon new entrants into the gas market (via licence conditions) so as to compensate British Gas for a worse profile of consumers. Of course, whether such a levy would actually be applied is another question. There are also safeguards in that the potential supplier has to offer to supply gas in a particular area, and would not be allowed to exclude undesirable areas - perhaps poor housing estates. In electricity, on the other hand, the regulator has taken the view that there is no need to such compensation and it is up to the RECs to make the best of it.

The year 1998 has further importance in that the contracts for coal between the generators and the coal industry expire. This issue is discussed below. In addition, it was originally the year for the expiry of the fossil fuel levy which subsidises Nuclear Electric.⁶ However, the Government has announced that this will in fact be terminated at the time of the privatisation of Nuclear Electric, probably June 1996.

⁶ The fossil fuel levy was introduced at the time of electricity privatisation and has involved a levy of around 10% of the cost of electricity generated with the use of fossil fuels. Around 98% of this goes to the nuclear industry, in order to pay for the costs of future decommissioning.

B. Renegotiation of Coal Contracts

In the past, electricity policy was dominated by coal policy but that is no longer the case. The privatised coal industry has secured contracts with the electricity generators until 1998, albeit at a lower volume than before 1993. After that, the size of the industry will depend upon the contracts which are freely negotiated. Coal's position is weak for several reasons. The RECs have built up their gas-fired generating capacity in order to free themselves from dependence upon the generators, and the generators with the coal-fired stations, have lost market share. In the longer term, there is little likelihood of a large new coal-fired power station being built, so the coal industry will have to rely upon increasingly elderly plant. This adds to the environmental problems in the industry. If sulphur emissions (which cause acid rain) are reduced by Flue Gas Desulphurisation, further massive costs are required, running into hundreds of millions of pounds for a single large power station.

C. Can electricity generation all come from gas ?

The current trend of the energy industry is to rely heavily upon gas for electricity generation, and in 20-30 years the trend could be more pronounced. It is unlikely that the private sector will build another nuclear power station, so the existing ones will have come to the end of their working life - except for Sizewell B. A new coal-fired station looks even less likely, partly because of increased concern over pollution. The DTI view was given earlier in 1995.⁷

There is room for doubt as to quite how dependent the electricity supply industry will wish to become on gas. Use of gas is expected to increase markedly, both in the UK and elsewhere in Europe, but there are risks in becoming too dependent on any one fuel. The switch from coal to gas has led to a more balanced and diverse range of fuels used in electricity generation. But given the markets' interest in maintaining a diverse portfolio of different fuel supplies, the growth in the use of gas could eventually slacken off. The issue is at what level this would happen. The DTI projections assume that generators' and consumers' concerns about maintaining a diverse generation mix will eventually limit the market share of any single fuel. This maximum share has been assumed to be no more than two-thirds of the electricity industry's generating capacity.

The current view is that there is plenty of natural gas about, particularly in the Former Soviet Union, where estimates suggest a large surplus for sale. The main reason is not so much increasing estimates of output as predictions that Russian industry will remain depressed for so long that internal gas demand will be very low.⁸

⁷ *The Energy Report 1995* Vol I p.46 (HMSO)

⁸ Jonathan Stern, *The Russian natural gas "bubble" : consequences for European gas markets*, RIIA 1995.

III Should Generation be separated from Distribution ?

A. Origins of the Present Structure

Basically, privatisation reflected the existing structure. There had been, in fact, considerable discussion in the 1970s about the idea of unifying the electricity industry on the model of the gas industry after the 1972 Gas Act. However, the idea seemed to critics to be creating a monolith subject perhaps to even more political intervention, so the Labour Government, with only a tiny majority, was unable to go ahead with the plan. When the Conservatives started to plan privatisation, they simply envisaged selling off the regional electricity boards (which became the RECs) and then planned to divide up the Central Electricity Generating Board (CEGB) so as to create some competition in generation. However, it could only be split into two because one part had to be large enough to absorb the nuclear power stations. The original idea was that National Power would account for some 70% of electricity generation and Power Gen the remaining 30%. All of the English and Welsh nuclear power stations were to be in National Power.

The privatisation of nuclear power at that stage proved impossible and Nuclear Electric was created to remain in the public sector. That left National Power with roughly 50% of electricity generation, Power Gen still with 30% and Nuclear Electric with around 20%. Some people suggested that at that stage the structure should have been changed so as to break up National Power into two - leaving three private sector generators and one state company each with 20% - 30% of the market. However, it was only in 1989 that the nuclear sale was abandoned (the last thing that Lord Parkinson did before handing over as Energy Minister to Lord Wakeham). At that stage there were enough problems in creating a system that would work - for example, inventing the Pool - without further dividing one of the main companies.

The structure which was chosen was certainly a compromise, but it must not be assumed that a simple balance (say 12 generators and 12 RECs) would have been satisfactory. At the time, there was strong pressure from Lord Marshall, the formidable head of the CEGB, in favour of retaining as much integration as possible. In evidence to the Energy Select Committee⁹ he was asked why he objected to a model of competition in generation.

My concern is a very simple one : that we consider that we have certain responsibilities, which are very heavy responsibilities, laid upon us by Parliament. We must explain what we believe are the risks in that proposal. If you have three or four generators who are all contributing to the grid, then by definition those generators have ceased to be electricity utilities. They have become energy companies, and the obligation to supply has been shifted to the grid and the distribution people. Now, the

⁹ The Structure, Regulation and Economic Consequences of Electricity Supply in the Private Sector, 1987/88, HC 307 - III Q 21

distribution companies, what we now call the Area Boards, must have an obligation to supply because they are connected up to the customer. The question is is that obligation sufficient? I think we are all agreed that the man who is running the grid, that is in control of the transmission, must also have an obligation to supply. He must keep the lights on, and the question is whether to fulfil that job he can fulfil it by placing commercial contracts on two, three or four generators or whether he needs to be within some command structure of a big generating company.

In other words, the pressure on the Government was in favour of retaining generation in as few units as possible, and in keeping the grid closely linked to the other companies.

B. Regulatory Concerns over the Proposed Mergers

The Regulator (Professor Littlechild) has issued a short paper on regulatory issues after each merger proposal. Those for the National Power and PowerGen bids¹⁰ consider whether it would be harmful to have more vertically-integrated companies. First, the Regulator points out that it is for the Director General of Fair Trading (DGFT) to advise the Secretary of State on whether to refer the merger to the Monopolies and Mergers Commission (MMC), or whether to press for binding undertakings to remedy any problems, but the DGFT will consult the Regulator. If a merger reference is made to it, the MMC has to consider whether the merger is likely to have effects adverse to the public interest. If it concludes that a merger would be against the public interest, the Secretary of State has the power to prohibit the merger, or to seek remedies. There is no power to prohibit a merger if the MMC does not identify any detriment to the public interest.

The Regulator considered what might be detrimental to the public interest in vertical integration. Virtually the identical passage appears in his comments on each bid.

The merger would produce a greater degree of vertical integration between generation, distribution and supply than has hitherto existed in England and Wales. For the first time, the owner of a Public Electricity Supplier would have a greater financial interest in generation in England and Wales than in distribution and supply. There would be an incentive for any of the main component businesses of the merged company (generation, distribution, supply) to favour the others at the expense of customers and competitors. For example, the generation business might give preference to the non-franchise supply business over other suppliers in the competitive market, and conversely. This could also result in a thinner market for contracts. In the franchise market, where customers at present have no choice as to their electricity supplier, the supply business might seek to pay higher prices to the generation business than it is prepared to pay to other generators, and to pass the higher prices on to customers. Any ability to do this might remain after the end of the franchise in 1998 if PESs continue to have significant market power with respect to smaller customers in their area. Given the scale of the merger, joint ownership of the network monopoly distribution business with potentially competitive generation and supply businesses could become more problematic.

¹⁰ PowerGen bid for Midlands Electricity PLC : a consultation paper by the Director General of Electricity Supply, *Offer* 22 September 1995; National Power bid for Southern Electric PLC : a consultation paper by the Director General of Electricity Supply, *Offer*, 4 October 1995

He considers possible remedies, should the bid go ahead.

Potential licence amendments include the possibility of placing of a prohibition on new contracts between PowerGen [National Power] and MEB's [Southern Electric's] PES business. On 2 August 1995, I invited comments on draft licence amendments of this sort, in the context of the possibility of increasing REC own-generation limits to allow RECs to purchase electricity plants from the major generators. However, such a licence condition is as yet untested. Moreover it was designed to deal with the possibility of a relatively small increase in a REC's own-generation interests, rather than with the issues that might arise from the merger of a major generator and a REC.

It might also be appropriate to consider whether PowerGen's [National Power's] present undertakings to operate its generation and second-tier supply businesses at arms length, should also cover the second-tier supply business of MEB [Southern Electric], or be reinforced in other ways.

He also considered the problem of comparators.

For regulatory purposes it is important to have a number of independent comparator companies. These are helpful when appraising company performance, setting price controls and considering how best to protect customers. This merger would not reduce the number of public electricity suppliers. However, it would change the nature of both companies. MEB's [Southern Electric's] stock market quotation would disappear and the influence of MEB's [Southern Electric's] distribution and supply activities on PowerGen's [National Power's] stock market price would at best be difficult to determine. This would lead to a loss of information about the way that investors view separate parts of the overall business.

C. Pros and Cons of Integrated Generation and Supply Businesses

It is clear that Professor Littlechild is not trying to compare the costs and benefits of the proposed merger, but rather to consider whether certain aspects could operate against the public interest and, if so, how to mitigate that effect. Indeed, he does not consider whether the proposed mergers might bring any gains via efficiency improvements.

1. The case against allowing integration

The economist Professor David Newbery has argued ¹¹that the proposed deals would substantially reduce competition in the industry, and would undermine the success of the new structure adopted at the time of privatisation. If all the deals were approved (including Eastern's plans to buy 6,000 MW of plant on offer from National Power and PowerGen) almost 60% of generating capacity in England and Wales would be vertically integrated with distribution. He argues that this would undermine the Pool, the spot market for electricity. He also notes that electricity generators have all more than doubled their output per employee

¹¹ Deals put electricity structure at risk, *Financial Times*, 6 October 1995

since privatisation, while the RECs have shown much smaller productivity increases. He considers that the loss of comparative information available to the Regulator would outweigh the benefits from efficiency gains and the advantage for deals in overseas markets of understanding both generation and distribution. In addition, if integration were achieved, it would be too difficult to unscramble, thus leaving the UK with an unsatisfactory market structure.

The proposed deals would reduce competition because - with most customers continuing to buy electricity from their local regional electricity company after liberalisation in 1998 - they would leave integrated generators in effect with a captive market for part of their output. They might be tempted to charge their own regional electricity companies higher prices than distribution companies with no generation interests. The extra costs could simply be passed on to electricity consumers.

Of course, licence conditions might prevent generators from agreeing contracts with their own regional companies. But in this case the captive companies would buy their electricity from one of the other two integrated companies. Such a situation is hardly likely to result in satisfactory competition and would leave room for collusion.

The biggest consumers - the most likely to pick and choose between competing companies - would also suffer simply because there would be fewer suppliers. Moreover, the integrated companies would have an edge over the remaining companies because they would have market information about their local supply base as well as inside information about their bidding strategy in the pool. This would give them an advantage in predicting pool prices. This edge might enable them to be more aggressive in signing up customers, as they do not need first to agree contracts with the generators for additional supplies. This would help the integrated companies to increase market share.

Although the proposed mergers can be seen as undermining the competitive structure established by electricity privatisation, it is worth noting that in some respects the industry is far more competitive than was originally envisaged. The original plan was only to divide electricity generation into two companies. Only when the plan to sell nuclear power stations as part of National Power was abandoned, did Nuclear Electric emerge as a third force in generation. Since it is shortly to be privatised, with more than 20% of UK generating capacity, it will add considerable competition to the two large players. The other factor limiting the market share of National Power and PowerGen is the development of small gas-fired power stations, often in joint projects with participation by RECs, specifically so as to avoid the domination of the two large companies.

In addition, of course, the full competition from 1998, where even domestic consumers can choose any supplier, completely changes the position. Professor Newbery does not take that prospect too seriously in that he believes that the vast majority of customers will not change suppliers. In that case, there might be scope for one supply company to increase its costs and offload the expensive electricity on to its captive customers. On the other hand, if many customers did choose to change their suppliers, any company with such a strategy would rapidly find itself losing business. Indeed, if we imagine choice of supplier to be a reality, then it would not seem so unsatisfactory for the industry to be dominated by a group of vertically integrated businesses. That is a totally different model of competition from that

started under the previous arrangements, but it is not easy to see if it would be less satisfactory.

2. The case in favour of allowing integration

The argument in favour of allowing integration is that to gain maximum efficiency one should allow the private sector to go its own way, subject to regulatory control. If there are regulatory problems, they might be approached via binding commitments rather than a prohibition of the proposed merger. In principle, there are possibilities of economies of scale and therefore potentially lower costs in a merged concern. Supporters of integration would argue that the electricity industry could offer a considerable amount of competition even with merged concerns.

The main reason for separating generation from electricity supply is that it allows the suppliers to choose the cheapest source of electricity. An integrated concern might prefer to use its own uneconomic power stations to foist over-priced electricity on to its consumers. On the other hand, the electricity market is due to be made completely competitive by 1998. Any integrated producer selling overpriced electricity would very quickly find its customer base crumbling away. Of course, not everybody would bother to change, but provided the process is made sufficiently easy, there is no reason why people would stay with an overpriced supplier. Changing supply should be easier than in telecommunications, where it has been necessary to change ones telephone number.

Of course, a combined generator/REC might not overcharge its own REC. An integrated concern could offer cheaper electricity to its own supply arm in order to build up its market share. Presumably the Regulator would try to ensure transparency of contracts to prevent this. Serious questions arise, however, as to how far an outsider can really penetrate the details of what corporations are doing. Thus, if contracts consisted of a simple quantity sold at a simple price, there would be no difficulty in establishing which contract offered unfairly favourable terms. If, however, you have a contract running to tens of pages describing a complex offer of certain quantities of electricity to be sold at certain times, for certain prices, it would be extremely difficult for an outsider to establish how it compared with another lengthy contract on different terms. It is difficult to see how the Regulator would have the accounting resources to monitor all such contracts, particularly in view of the problems that he has faced in trying to prevent the RECs from earning excess profits.

One has to consider whether that possibility matters very much. If National Power or PowerGen were to expand their retail bases substantially, there would be calls for some restrictions via the Monopolies and Mergers Commission. That is the problem with having too large a share of the market to start with, as British Gas discovered to its cost. Equally,

however, that would be a messy way of dealing with a problem after it had arisen. The possible remedy might be to require a sale of generating capacity, but that could involve further disruptive unscrambling.

Essentially we are looking at two imperfectly competitive markets for generation and distribution. For generation there will be three large players - National Power, PowerGen and British Energy (the privatised nuclear power stations), followed by the state-owned BNFL. In addition, there will be Eastern with the power stations bought from National Power and some power supplied by Scottish Power. Other RECs may have some generating capacity via joint projects using Combined Cycle Gas Turbines. For distribution, there is no reduction envisaged in the current 12, and competition should operate between them even for domestic consumers.

If competition among the RECs for domestic consumers becomes a reality, then the numbers involved should ensure satisfactory results. However, it has been suggested that National Power and PowerGen will have considerable advantages over the independent RECs because of their commercial information about the generation and distribution markets. If they do become dominant, one would face the problem of only having two serious competitors, and, consequently considerable risks of collusion.

3. Integrated Companies and the Pool

Professor Newbery also argues that the vertical integration would undermine the Pool, because more electricity would be going to captive associate companies. The Pool has been one of the most important innovations of electricity privatisation, working to provide a spot market for electricity without undermining the vital principle that consumers are still served. The workings of the pool have been criticised, perhaps unsurprisingly for such an innovative arrangement, and many electricity deals are not tied to Pool prices. However, weakening of the Pool would cause considerable problems and has been resisted by the Regulator. For example, large users such as ICI have not been allowed to bypass the Pool, despite their complaints over Pool prices.¹² It is possible that the mergers might lead to further vertical integration because the independent RECs would want their own supplies, so as to escape from reliance on the dominant generators. It would perhaps be difficult to justify limits on "own generation" if the combined generator/distributor companies were allowed to operate. That would further undermine the Pool, and one could move to a position in which all competition was between integrated or semi-integrated concerns. It is hard to evaluate such a possibility, but it is clear that it would be a completely different type of competition from what has happened since privatisation.

¹² They could, of course, hedge their contracts so as to avoid the effects of high Pool prices.

IV The Costs and Benefits of Privatisation

It is probably fair to say that the electricity industry has become considerably more efficient since privatisation but that the benefits have gone mainly to shareholders and employees with not much yet for domestic consumers. One can see objectively that there is a problem, because the Regulator has reconsidered the RPI-X price formula,¹³ but the RECs have still had enough to surplus cash to make special payments to their shareholders.¹⁴ Price reductions are on the way, but that is partly due to the forthcoming removal of the fossil fuel levy, which is therefore not a measure of a more efficient industrial structure.

Privatisation has greatly improved the efficiency of the electricity industry, in the sense that much the same job is being undertaken by a greatly reduced workforce. The labour force in the RECs has declined but a more dramatic decline has taken place in generation. PowerGen employed 9,430 people in 1990 and only 3,736 at the end of 1994/95.¹⁵ National Power employed 16,977 in 1990 and only 5,447 at the end of 1994/95.¹⁶

One major issue concerns the distribution of the benefits from the efficiency increase. Although the shareholders have benefited, consumers have not seen their prices fall, despite the cheap costs of coal and gas. Consumer prices are regulated by the RPI-X formula, although allowance is made for increases in the cost of electricity generation. Early price increases predated privatisation, but took place so as to make privatisation more profitable, with sharp price increases between 1988 and late 1990 when the RECs were floated.

George Yarrow¹⁷ looked at electricity prices in 1991, and asked how they had been affected by the privatisation of electricity. This required him to examine some alternative scenarios. His conclusion was surprising.

The estimates suggest that, on average, prices were up to 25% higher for domestic customers and up to 19% higher for industrial customers than would have been predicted on the basis of a continuation of pre-privatization trends...Whether consumers will fare better in the longer term remains to be seen, but quite a major turnaround would be required to reverse the position reached at the beginning of 1992.

¹³ The RPI-X formula is the basis of price control in most utilities, allowing prices to rise by the same amount as the retail price index minus a certain quantity X fixed by the Regulator every five years or so. The formula was routinely revised in the summer of 1994, but then reconsidered early in 1995, although such alterations are normally avoided because they result in a loss of confidence in the system and therefore reduce the incentive to reduce costs.

¹⁴ Particularly Northern whose proposed payout caused the reconsideration of RPI-X, but which went ahead with the payout after the new pricing formula was introduced.

¹⁵ PowerGen Annual Reports

¹⁶ National Power Annual Reports

¹⁷ *British Electricity Prices since Privatization*, Regulatory Policy Institute 1992

Since these price increases happened at the time of privatisation, they predated the application of the new price formula and it was difficult for the RPI-X formula to claw the increases back. A new study, published in October 1985, based on an idea of Yarrow's, estimates the effect of privatisation.¹⁸

The evidence suggests that, as yet, the benefits of lower input costs have not fed through to UK electricity consumers, especially in the period 1990-93. Price increases appear to have started before privatisation and may be justified by the need to raise the industry's return to private sector levels. Since 1993, with developing competitive forces and tighter price controls in this sector, net costs have declined, and this process seems set to continue into the future. Indeed, two recent studies suggest that the UK consumer is doing reasonably well, compared with other major European countries. The jury is still out on privatisation and its benefits to the consumer. The current situation is part of the transition process to the competitive market. By 1998, the picture should be clearer with the franchise market opened, the coal contracts ended and the fossil-fuel levy removed.

Of course, supporters of privatisation would argue that a large part of the benefit came from undoing the previously close links between the electricity industry, the coal industry and the Government, so that the lower coal prices should be seen as part of the same process. Lower gas prices, on the other hand, relate more to worldwide trends in the oil and gas markets.

The Minister Mr Eggar¹⁹ was optimistic in May 1995.

To sum up, therefore, our privatisation policy for the nuclear industry and for the traditional non-fossil fuel generating industry could eventually produce a saving of no less than £75 for the average electricity consumer in England and Wales in that year alone. Put into perspective, that amounts to 25% of the average Electricity bill in England & Wales saved in one year.

It is worth noting that a DTI Press Release²⁰ in March 1995 in which the Minister praised the benefits of electricity privatisation, concentrated on industrial prices.

The latest figures released yesterday show that average electricity prices paid by manufacturing industry in Great Britain fell by nearly 11% in real terms between 1989 and 1994. Evidence suggests that some smaller industrial and commercial customers have achieved price reductions of up to 10-15% since the competitive market was further widened to cover all premises above 100kw last year. We want small consumers, including domestic consumers, to be able to share in these benefits after 1998.

¹⁸ Paying for Privatisation, *Energy Utilities*, October 1995

¹⁹ *HC Deb 17 May 1995 c.436*

²⁰ *31 March 1995*

V Electricity Industries on the Continent

A. France

The French electricity industry epitomises modern France. French confidence has been placed in nationalised industries which operate in close connection with the Government, partly through the movements of the elite class from the Grandes Ecoles between government, civil service and nationalised industries. Electricite de France (EDF) is the monopoly producer of electricity in France. Its strategy dates back to the oil crisis of 1974, after which it was a dictum of French policy that the world had changed for ever, and there could be no going back. Since France has only small deposits of coal, it was decided to push for extensive use of nuclear power, which now account for about 75% of electricity generation in France, compared to around 20% in the UK. Not only did this promise freedom from high oil prices and threats to supply from Middle East dictators, it was also exactly the sort of advanced technology activity which Giscard D'Estaing saw as France's future. In many ways the policy has proved a great success. The building of a large series of nuclear power stations allowed some economies of scale and the development of formidable expertise. EDF exports electricity to the UK, Italy and other countries. It would probably be happy to export more.

Yet there is a negative side to the policy. The period of high oil prices ended in 1986, and it is doubtful whether nuclear power has been profitable since then. The cheap sales abroad reflect more the need to keep nuclear power stations operating than their ability to generate cheaper electricity. Another aspect of the inflexibility of nuclear power is that coal imports have still been required, to provide power at peak times. EDF itself has vast debts, and has been accused by non-French electricity suppliers of illicit Government subsidies. Nobody seems to worry about decommissioning, but presumably the costs will vastly exceed those in the UK, simply because they have so many more nuclear power stations.

A further problem for EDF is that its monopolistic model is out of line from the European Commission's plans to liberalise the electricity industry. Indeed, the European plan has been delayed for more than a year through serious French objections. The move towards liberalisation of electricity has spread throughout the world, but threatens the way that EDF operates, and the French wished to find a form of liberalisation which allows EDF to retain its position. The European Commission is not pressing for privatisation, but the French wish to operate a version of liberalisation which keeps the monopoly supplier firmly in control.²¹

The French proposed a "sole purchaser" responsible for matching electricity supply and demand by controlling station operation through merit order; managing power flows to and

²¹ France backs the "sole purchaser", *Energy Utilities*, January 1995

from other countries; and organising tenders for new production capacity, which will be open to both domestic and overseas producers, and based on long-term demand forecasts verified by the public authorities. Any producer would be allowed to export once domestic needs were satisfied, and access to the network for electricity imports would have to be charged at a fair price.

The Commission proposals, on the other hand, was that negotiated third party access should be implemented, introducing access to electricity networks on a case-by-case basis as a result of negotiations between network providers and potential suppliers. Vertically integrated firms' accounts would have to be unbundled into production, transmission and distribution.

EU agreement is probably about to be reached on a document which allows either option to be accepted in each country, provided that the same results are achieved. In other words, France has succeeded in retaining EDF in its current position.

B. Germany

The German economy has traditionally been highly regulated, although in a different way from the French. German regulation is typically undertaken not to allow a monopolist to develop its technical excellence, but to contribute to the social market economy by softening the consequences of the already highly efficient industry. The coal industry in Germany has been heavily subsidised, by the famous "kohlpfennig" or "coal penny" policy, a 7.5% levy on German electricity consumption. In late 1994, this subsidy was declared unconstitutional by the Federal Constitutional Court. Although there is intense German debate over eco-taxes, they have not yet been introduced in the energy sector.

Privatisation has been avoided, as also in other utilities like telecommunications (although that will be partially privatised in 1996 with further sales in later years), and liberalisation introduced only slowly. The German gas and electricity industry ²²has a decentralised structure with nine suppliers at a national level. The majority of the companies are vertically integrated, while gas and electricity are usually supplied by the same company, especially at a local level. As the energy companies own the networks, there is no neutral grid to which every company has access.

As in some other policy areas, there is considerable dissatisfaction among German electricity consumers at the situation, as the following extract from a highly critical article in a German business magazine shows.²³

²² German Energy Liberalisation, *Energy Utilities*, January 1995

²³ Keine Wahl, *WirtschaftsWoche*, 25 May 1995

The electricity concerns and gas firms belong to the last enterprises in Germany, which can still operate their businesses in officially guaranteed competition-free zones...While the former State monopolies railways, telecommunications and post must in future submit to competition, energy giants like the Essen company RWE or PreussElektra from Hannover can stick in their areas of supply and can exclude any unfortunate competitor from the use of their exclusive electricity or gas network. Whether town works or large concerns, the electricity and gas monopoly brings fine profits. With more than three per cent return on turnover, energy concerns lie clearly above the industrial average. For the still unclear care of nuclear waste the nine large electricity concerns have entered tax-free reserves of DM38bn in their balance sheets. A further similar sum, according to experts in the sector, slumbers in open or secret reserves. By comparison : the cash reserves of Siemens, also not modest, reached just once DM9bn.

The consumers pay the bill. The price of industrial electricity is around 30% above the EU average, according to estimates by the Federal Association of Energy Purchasers.

VI Electricity Deregulation in other Countries

A. The USA

Deregulation is furthest advanced in California, and resembles the British move to total competition.²⁴ The plan, announced by the California Public Utilities Commission in April 1994, is to begin in 1996 when large industrial concerns will have the right to become direct access customers and to contract with distant producers. In the period 1996-2002 smaller and smaller purchasers will gain the same right until all consumers have access. Industrial and commercial consumers have pressed for this change, but there is considerable opposition from utility shareholders who anticipate lower profits.

B. Scandinavia

Norway and Finland have deregulated their electricity industries, and Sweden is to do so, from 1 January 1996. They are trying to facilitate cross-border trading in electricity, partly because of hopes that a more efficient electricity market will obviate the need to build new capacity. Finland has decided against building a fifth nuclear power plant, while Sweden is committed to phasing out its 12 nuclear plants, which provide half its electricity, by the year 2010. A newspaper reported ²⁵on the developments last summer.

Deregulation is altering patterns of behaviour even before a common electricity market has been established. The big producers are frantically trying to prevent their traditional industrial customers from defecting to other companies. That means that they are offering longer, cheaper, and more

²⁴ G.T.Svendsen, California shows the future of electricity production in the Single Market, *Energy Policy 1995 vol 23 no 10* p.857

²⁵ *Financial Times*, 8 June 1995

extensive deals to their clients than in the past. "The biggest industrial customers have been offered prices 10% to 20% lower than before," says an industry analyst who adds that deregulation is already creating more uniform prices. Electricity, excluding grid charges, now costs about SKr0.20 per kilowatt hour throughout the region, a low level by international standards. In the UK, for instance, it is equivalent to SKr0.30 - and the UK is itself low by international standards. but the benefits have yet to be felt by private customers. In theory, they too can switch to a different power supplier, although in practice the cost of installing new meters is likely to outweigh any price benefits. However, if distributors can buy their electricity more cheaply, private buyers should end up paying less for their electricity.

One can note that in the UK consumers wishing to change supplier will not necessarily have to introduce a new meter, precisely because that would act as a disincentive against competition becoming a reality in the domestic market.

CRB/JML

Energy

The Gas Bill [Bill 60 1994/95] RP 95/30

The Atomic Energy Authority Bill [Bill 61 1994/95] RP 95/31

The Privatisation of Nuclear Power (forthcoming)