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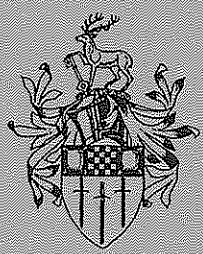
Liberalisation of the Energy Market: A Favourable Supply-side Shock for the UK Economy?

Colin Robinson

June 1994



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LIBERALISATION OF THE ENERGY MARKET: A FAVOURABLE SUPPLY-SIDE SHOCK FOR THE UK ECONOMY?

by Colin Robinson

Privatisation was clearly the most significant change in Britain's industrial policy since nationalisation. The privatising and liberalising moves of the late 1980s had a big impact on the energy industries since they included two large energy utilities. But how important were the changes in the energy industries in the context of the UK economy? Is their impact likely to be sufficient to spill over into a favourable effect on Britain's economic performance?

In discussing this issue, I begin with the situation which existed before liberalisation so we can appreciate the scale of the potential gains. Then I discuss the extent to which liberalisation has taken place. Finally, I consider the impact of liberalisation.

1 The energy market before liberalisation

The British energy market in the mid-1980s was ripe for liberalisation. For four decades, governments (of both major parties) had sheltered indigenous energy industries from competition. Even before that, in the inter-war years, the energy industries had been under various forms of state supervision.[1]

1.1 'Energy is different'

Post-war British governments acted on the assumption that energy is different from most other products which are bought and sold: it is 'too important to be left to the market'. There was no energy 'policy' in the sense of a clearly defined strategy for the energy industries. Nevertheless, many government actions affected energy markets. Three of the energy industries (coal, gas and electricity) were nationalised by Attlee: their investment programmes were open to manipulation by government, both directly and by the setting of financial targets.

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1 See Colin Robinson, Energy Policy: Errors, Illusions and Market Realities, Occasional Paper No.90, London: Institute of Economic Affairs, 1993.

1.2 Policy and short-termism

What governments described as 'policy' towards energy was just a collection of *ad hoc* actions taken whenever urgent problems presented themselves. Such actions were dominated by short-term political considerations, as is usual with government policies, and powerfully influenced by producer pressure groups. In particular, the nationalised coal industry and its main union were successful in exploiting their quasi-monopoly power to persuade governments to give them increasing support. The nuclear industries worked more subtly but they also extracted very large sums from the taxpayer and from electricity consumers to pursue their desire to build British-designed nuclear power plants.

Protectionism focussed on the electricity supply industry (esi) where governments interfered constantly with fuel choice decisions, persuading industry leaders to burn more coal than they wanted and to construct more British-designed nuclear plant than they would have wished. The esi also operated a 'Buy British' policy for heavy electrical equipment and had cosy arrangements with its unions. The industry's managers had no incentive to perform well under this regime. There were no shareholders to apply pressure to improve productive efficiency and managerial incentives were confused because managers were unsure whether they should be pursuing commercial or 'public service' objectives. The expected returns from political lobbying were greater than those from cost-reducing activities and, as always, resources flowed where expected returns were greatest. Though some esi leaders complained about politicisation, protests were muted: the industry knew that to the extent it was not directly compensated by government for uncommercial actions, it had sufficient market power to pass the costs on to consumers.

The protectionist regime was quite congenial to those who were sheltered from competition, to the main protectors in the electricity supply industry and to governments which achieved the effects of protection without the need for tariffs or quotas or other policy measures which would have been contrary to international trading rules. Obviously, it was against the interests of consumers. But, as is well known, consumer interests tend to be under-represented in politicised markets. They are less well-organised than producer interest groups which have strong incentives to invest in lobbying: any gains are concentrated on the lobbying group but the costs are thinly dispersed over the rest of the community.

1.3 Dominance of producer interests

By the mid-1980s when energy liberalisation began, producer interests, as interpreted by governments, had for many years dominated energy markets. Competition for the nationalised energy industries had been provided by the oil companies as consumers had turned away from home-produced coal and substituted oil (imported before 1975 but subsequently produced from the North Sea). But governments had done their utmost to take the edge off that competition by taxing oil, restricting its use in electricity generation, banning gas-burning in power stations, limiting imports of coal and promoting two British nuclear power programmes.

In this politicised and monopolised market, energy costs and prices were significantly higher and energy security was significantly lower than they would have been in more competitive conditions. The state-owned energy industries were technologically retarded and lacking in entrepreneurship because the competitive process was hindered by state action.

1.4 Some earlier favourable shocks

During the period before liberalisation there were two potentially favourable shocks on the supply side - each equivalent to the proverbial peasant finding gold at the bottom of his or her garden. Both had the potential to liberalise British energy markets but, in practice, had little such effect.

1.5 North Sea natural gas

First, there were the offshore natural gas discoveries of the mid-1960s which transformed the gas industry from a sleepy manufacturer of gas (from coal and oil) to a distributor of natural gas. These gas finds, without the need for specific legislation or a flotation, privatised the production end of the industry since most of the gas was discovered and developed by private oil companies. Governments had to work hard to avoid this privatisation of production spilling over to allow consumers a choice of suppliers. They insisted that the then Gas Council (BGC's predecessor) must have monopsony rights over sale of gas from

North Sea fields as well as maintaining its monopoly of sales through pipes to consumers in Britain.[1]

1.6 North Sea crude oil

More important were the very large crude oil discoveries of the first half of the 1970s which turned Britain (a country with very little experience of crude production) for a time into the world's fourth largest oil producer.[2] At the peak of production (about 128 million tonnes a year) in the mid-1980s, value added in crude oil production was equivalent to about 5 per cent of GNP and government tax revenues from oil production were about £12 billion a year (about two thirds the then VAT yield). The price-cost margin was large. At that time, crude oil which could be sold for over $30 per barrel on world markets was being produced at an average cost (including a 'normal' rate of return) of about $9.

Although the British offshore area was, by world standards, a relatively high cost area in the mid-1980s, it was much lower-cost than British-mined coal which cost about 50 per cent more per unit of energy to extract.

1.7 Why was the impact so small?

There seem to be at least two significant reasons why the impact of this very favourable investment opportunity on the British economy was evidently so limited. The first is that it coincided with the world oil price increases of the 1970s after which world growth and world trade slackened markedly, tending to offset the favourable effects on the British economy of the oil discoveries.

The second is that the state took the bulk of the rent from crude oil production by selective taxation of the oil producers through Petroleum Revenue Tax,

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1 Colin Robinson, 'Gas: What to do after the MMC Verdict', in M.E. Beesley (ed.), Regulating the Privatised Utilities: The Way Forward, IEA Readings No.41, London: Institute of Economic Affairs, 1994.

2 Colin Robinson and Jon Morgan, North Sea Oil in the Future, Macmillan, 1978.

royalty and (for a time) Supplementary Petroleum Duty. The big fields which were discovered in the early 1970s paid over 70 per cent of their net revenues before tax to the state; at the margin the tax rate was around 85 per cent.

The oil companies' incentives were changed compared with what they would have been had only corporation tax been levied. Cost-saving was hardly a priority when tax rates were so high; consequently, there was a large element of 'gold-plating' in the fields which were developed in the early days. The size of the excess can be gauged when one realises that after oil prices dropped sharply in 1985-86, development costs for many fields were cut by 30-40 per cent: further reductions have taken place since. The differential between tax rates on oil production and other oil industry activities also led the oil companies into so-called 'tax spinning' instead of concentrating on cost-saving.

But not only were oil company efficiency incentives blunted. Transferring most of the very large rent from oil production out of a system where market incentives operate to one dominated by political and bureaucratic incentives was bound to create waste. Although conventional teaching is that natural resource rent should be gathered by the state, anyone acquainted with the economics of politics and bureaucracy will see that the argument is a poor one. In the case of the North Sea, handing over to the politicians and bureaucrats £12 billion a year of 'rent' from offshore oil was a recipe for wasting this very favourable investment opportunity through excessive state involvement.

2 Liberalisation in the mid-1980s?

I have spent a little time on the North Sea so as to identify a recent favourable 'shock' in the energy market when few gains were realised because of excessive politicisation. Even though there was an element of liberalisation, as competing private companies obtained a bigger share of indigenous energy production, governments were careful to keep control, either directly by creaming off the oil rent or indirectly by giving BG monopsony power relative to the oil companies.

2.1 A better type of 'shock'

Energy privatisation and liberalisation represent a quite different type of shock. If carried out properly, they imply deliberate government disengagement in order to allow markets to work. Consequently, they stand a much better chance of yielding substantial economic benefits. Significantly, Britain is engaged on a much more thorough-going energy liberalisation programme than any close competitor countries so it may be we should expect some competitive advantage to result. Energy-intensive industries - such as cement, paper and board, aluminium, glass, the heavy end of chemicals, iron and steel and bricks (Table 1) - would be expected to benefit directly if energy prices in Britain fell relative to competitive countries. But more general gains would, of course, occur. As Table 2 shows, energy prices in Britain have in recent years, except for steam coal, been below similar prices in the rest of Europe and Japan, though higher than in the United States.

Given the nature of the nationalised system, it seemed certain that there was serious disguised unemployment of resources in the indigenous energy industries compared with what would have existed under a private, competitive regime. A liberal form of privatisation should be capable of releasing these resources for other employments and realising the potential efficiency gains. Privatisation should reduce the politicisation of decisions; apply pressures from the market for corporate control, so concentrating management attention on cost-reducing activities; and, by removing the state ban on entry to the industries concerned, allow the competitive process to work, thus encouraging entrepreneurship and innovation (sadly lacking previously) and ensuring that efficiency gains are passed on to consumers.[1]

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1 See Cento Veljanovski (ed.), Privatisation & Competition: A Market Prospectus, Hobart Paperback No.28, London: Institute of Economic Affairs, 1989.

TABLE 1 **Energy purchases as percentage of gross value added at factor cost**

Selected industries	1989
Cement	40
Paper and board	25
Aluminium	20
Glass	20
Chemicals - heavy	20
Iron and steel	15
Bricks	15
Ceramics	7
Food and drink	7
Mechanical engineering	5
Textiles	5
Vehicles	4
Electrical engineering	3

TABLE 2 Selected Energy Prices

	Premium Unleaded Gasoline $/litre 1993	HFO for Industry $/tonne 1993	Elec for Industry $/kWh 1992	N.Gas for Industry $/$10^7$Kcal 1992	Steam Coal Elec.Gen. $/tonne 1991
UK	0.737	98.61	0.076	157.60	76.57
Germany	0.843	118.76	0.093	200.77	134.89
France	0.901	104.99	0.058	152.89	46.07
Italy	0.973	152.15	0.113	177.12	58.90
USA	0.345	101.02	0.048	106.34	33.37
Japan	na	216.92	0.146	449.24	86.99

Source: OECD, IEA Energy Prices and Taxes

2.2 The paradox of privatisation

The paradox of privatisation is that, though one of its prime aims is to de-politicise, it is itself a political act (as was nationalisation). There is a strong temptation for governments to privatise without significantly liberalising product markets. Privatisation is driven by political aims - such as raising large revenues and widening share ownership - which are perceived to conflict with liberalisation, for which there is anyway no clear constituency.

Simplifying somewhat, in the cases of both gas and electricity (and as in other utility privatisations) the government privatised the industries without serious attempts to liberalise them and left it to the industry regulators (using their pro-competition duties) to open them up to competition. That is a very convenient route politically. Before privatisation, the most powerful interest groups are those which would oppose liberalisation - management of the industry concerned, its unions, some of its suppliers, and much of the City. The government can achieve its own aims by siding with this coalition and introducing little competition on privatisation. After privatisation, however, the coalition disbands and vocal large consumers begin to complain that the market is not competitive. At that stage it is very convenient to leave liberalisation to the industry regulator and the MMC which will be blamed for the inevitable disruption as a monopolised market is opened up to competition.

2.3 Competitive markets in the long run?

Even a privatisation, such as gas, which initially fails to open up a market to competition will very likely result in a competitive market in the long run. Once entry is possible companies will enter if there are 'supernormal' profits to be earned and will eventually undermine the market power of the incumbents. Under a regime like the British, where industry regulators have the duty to promote competition, these natural processes may well be helped along. Nevertheless, experience so far suggests that the process of introducing competition into markets which have been long monopolised so that there are well-entrenched incumbents and where privatisation schemes were rather illiberal, may prove extended and painful. I have been very critical of the government for failing to liberalise energy markets initially. However, I recognise that the new regime is a big advance on the old in the sense that it is

now possible (if difficult) to enter markets which used to be entirely the preserve of state-owned industries.

2.4 Effects on energy policy

An important side effect of energy privatisation has been that the old protective energy policy, conducted primarily through the electricity supply industry, has collapsed because it could not survive privatisation of electricity supply. The government insisted on transitional arrangements under which the generators continued to take more coal than they wanted for three years after privatisation but those arrangements ended in March 1993. Coal protection is now much reduced, though oil is still taxed and the new coal contracts which the generators have signed probably involve a small amount of government arm-twisting. But restrictions on coal imports have gone and gas use in power stations is no longer banned. There are some unfortunate features of the new regime - for example, continued support for nuclear power and some hidden biasses against coal in the electricity market - but at least the old highly protectionist regime has been disturbed.

In the process the coal industry has been decimated. Some decline was inevitable as protection was dismantled but the worst effects could have been avoided had the government adopted a proposal we made in 1985 - a parallel privatisation of electricity and coal by the sale of packages of pits and power stations.[1] But that is now water under the bridge. Coal privatisation is about to begin but there is not a great deal left to privatise.

2.5 The present state of the energy market

Where we now stand is that, after considerable efforts by OFGAS and two MMC Inquiries, there is already significant competition in the market for industrial and power generation gas. Competition is to be extended to residential and smaller business consumers because of the government's decision,

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1 Colin Robinson and Eileen Marshall, Can Coal be Saved?, Hobart Paper No.105, London: Institute of Economic Affairs, 1985.

following the August 1993 MMC Report[1], to abolish the British Gas monopoly in stages between April 1996 and April 1998. Consumers of more than 2,500 therms a year already have a choice of supplier. It is a pity the government did not take the opportunity to establish a separate pipeline company: that would have eased entry to the market by reassuring potential entrants that the gas transportation system is genuinely independent.

In electricity, there is competition among the generators and RECs to supply larger consumers; the 'franchise' threshold was reduced from 1 MW to 0.1 MW in 1994 and is due to be abolished in 1998, giving choice of supplier to all electricity consumers. The industry, however, has not fully been privatised. There is a state enclave in nuclear power and the government has not yet sold its remaining 40 per cent stakes in National Power and PowerGen. Moreover, in generation - which is naturally competitive but where the government established a duopoly - there are serious doubts about the strength of competition. Conceivably, the issue will be resolved, as in gas, by a MMC Inquiry. Alternatively, the generators - who are very aware of the danger of provoking a reference - may conduct themselves so as to avoid one.

3 Broader effects of energy privatisation and liberalisation

So far, the benefits of energy liberalisation have been limited because liberalisation has not gone very far. But the potential benefits are considerable.

3.1 Shedding surplus labour

As in other privatised organisations, one of the first effects of privatisation on the electricity supply industry has been to shake out much of the underemployed labour which existed under nationalisation. The two big electricity generators, for example, have shed about two-thirds of their labour forces already (Table 3) which suggests that pressures for efficiency from the Treasury and the old Department of Energy were extremely ineffective - as they were bound to be since there is no objective way of judging how much labour and other resources

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1 Monopolies and Mergers Commission, Gas and British Gas plc, London: HMSO, Cm.2315, August 1993.

'should' be employed unless there is a competitive market to set standards. The CEGB seriously believed that it 'needed' all those people it used to employ.

The political fixes which made the CEGB burn more coal than a generator in a competitive market would have done were one of the reasons for the disguised unemployment in the industry. The labour requirements of new gas-fired power stations are a fraction of those of similar coal-fired plant. As more gas plant comes on to the system and coal plant is retired, more job losses are likely at the major generators which will be losing market share to new generators whose employment will increase. The end of the government ban on gas generation has removed a major block on technological change which had increased the labour-intensity of generation. Employment in the RECs is likely to decline faster over the next four years than in the recent past as they feel increased competitive pressures.

TABLE 3 Employment in Electricity Generation

	Vesting day 1990	end March 1994
National Power	17,200	6,000
PowerGen	9,500	4,400
	26,700	10,400

Source: National Power Annual Review 1993
PowerGen Report and Accounts 1993
and Press reports

In gas, which retained much of its monopoly power until very recently, the labour force has been reduced but by much less than in electricity (Table 4). In the four years immediately after privatisation (in 1986), British Gas reduced its workforce in the United Kingdom from over 90,000 to just below 80,000 (13 per cent) and then by another 12,000 (16 per cent) in the next three years.

In anticipation of increased competition, British Gas made a massive provision of £1.65 billion in its 1993 accounts to allow for 'corporate restructuring'. BGC now has 67,000 employees in the UK which it expects to cut by about 25,000 over the next five years. The unions expect the job cuts to be nearer 35,000. Since privatisation, job losses in gas have been much less than in electricity and telecommunications but by the late 1990s the reductions in gas employment may be on roughly the same scale as in electricity generation. If British Gas cuts the number of employees to just over 40,000 by the late 1990s, it will have less than half the employees it had on privatisation (92,000).

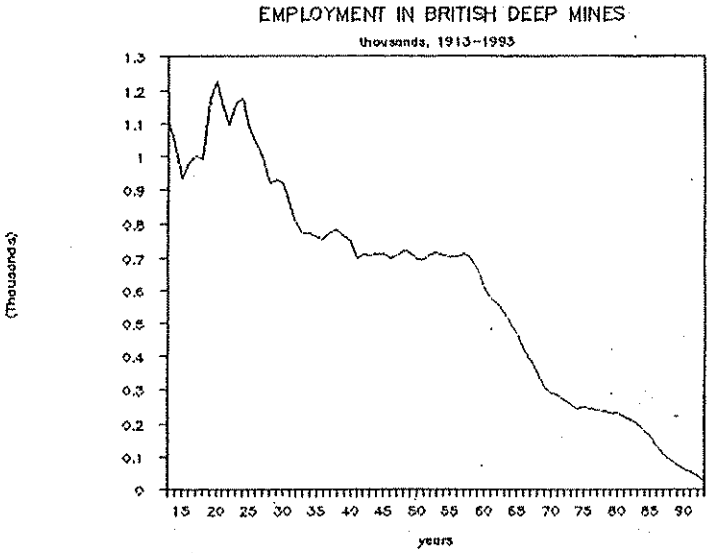
TABLE 4 Employment in British Gas Corporation

Year ending	Average number of employees in UK
March 1986	91,500
March 1990	79,400
December 1993	67,000

Source: British Gas Financial and Operating Statistics 1990
British Gas Directors' Report, year ended 31 December 1992
The Times, 25 February 1994

The most remarkable example of labour force reduction has come in coalmining which has yet to be privatised but where several events have forced efficiency improvements, starting with the government's 'victory' in the 1984-85 strike. Figure 1 puts the recent decline in the number of miners in context by showing trends since the beginning of the century. The number of miners has fallen dramatically since the end of the strike during a period in which coal has been thrust into a much more competitive market. The recent decline to only about 10,000 in Spring 1994 is primarily a function of the liberalisation of .the gas and (especially) electricity industries and the consequences for government policy which were discussed above.

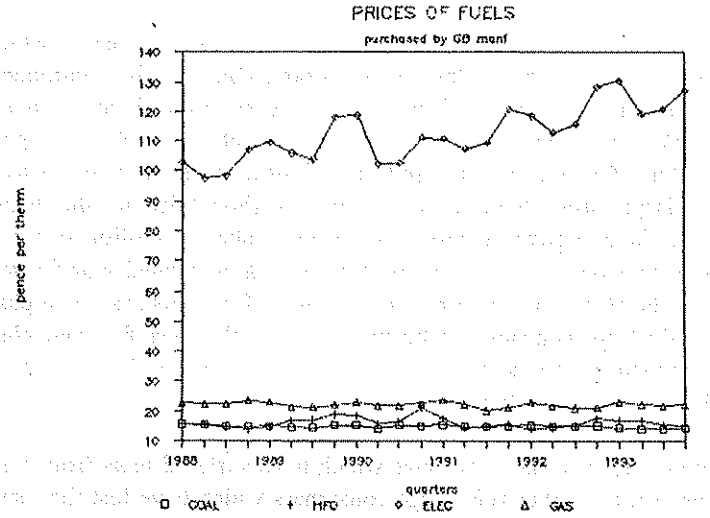
Figure 1



3.2 Limited effects on prices

The impact of liberalisation on prices has not so far been as dramatic as the shakeout in labour. Figure 2 illustrates trends in coal, fuel oil, gas and electricity prices to industry (all expressed in thermal equivalent terms) by quarter since the beginning of 1988. In essence, what it shows is that coal prices have fallen a little, gas prices have fluctuated around a more-or-less constant level, fuel oil prices responded sharply to the Iraqi invasion of Kuwait in 1990 but otherwise have not changed greatly on balance, and electricity prices have risen significantly (by about 24 per cent from first quarter 1988 to fourth quarter 1993).

Figure 2



3.3 Why not bigger effects?

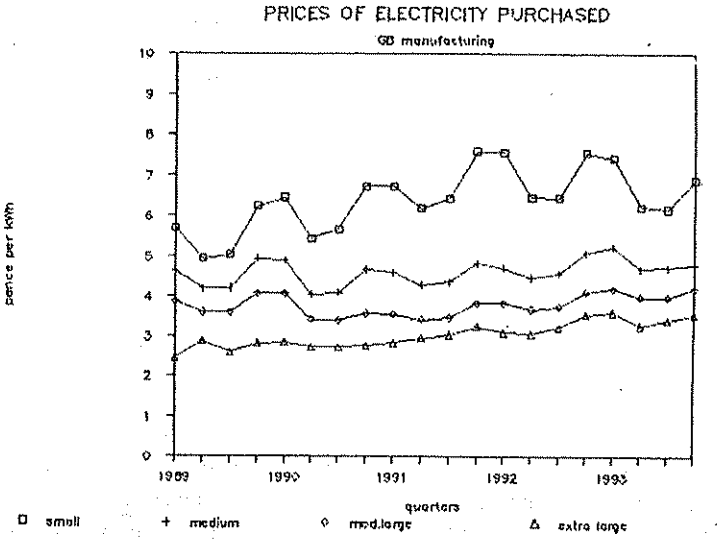
Why has there not been more downward pressure on prices? A general reason is that, as explained earlier, British privatisation schemes have all tended to hand considerable market power to the privatised companies. Such liberalisation as has been achieved so far has stemmed from the post-privatisation efforts of industry regulators and the MMC. Thus, in their early years, privatised companies have realised big cost reductions but the pressure of competition has been insufficient to ensure that the bulk of these gains were passed on to consumers. In the gas market, competition is now beginning to have some effect on prices but electricity - privatised four years later - lags behind.

3.4 Specific factors in electricity

Moreover, there are some specific factors in the electricity market which help explain the price increases of the last few years. One already mentioned is that there is, as yet, only limited competition in generation. Second, there were considerable price increases just before privatisation which were generally interpreted as 'fattening up' the industry. Third, subsidies which used to be given to large users have been withdrawn (hopefully to the benefit of taxpayers). Under a government/CEGB scheme, about 4 million tonnes of coal a year was provided to the CEGB by British Coal at around world prices: the benefits of the electricity deemed to be produced from this coal were passed on to about 400 large consumers who paid considerably less for their electricity than they would otherwise have done under the so-called QUICS (Qualifying Industrial Consumers' Scheme).

As Figure 3 shows, the companies which have suffered most from electricity price increases are either very large consumers which have lost their subsidies or consumers too small (less than 1 MW) to have a choice of supplier before April 1994 and so not able to benefit from competition. According to DTI statistics, the first group - which includes large, energy-intensive consumers - has had a price increase of 43 per cent since first quarter 1988 and the second group has had an increase of 20 per cent. It is hardly surprising that the large, energy-intensive users in particular have complained bitterly about price increases since privatisation.

Figure 3



Moderately large and medium size consumers - which are in the competitive market and had no subsidies to lose - have had fairly small price increases of about 8 per cent each since first quarter 1989 compared with an increase in the producer price (output) index of about 20 per cent over the same period. Although consumers generally are unorganised, industrial consumers are much better placed to lobby. In the case of gas, their complaints triggered the first MMC reference. The views of these large electricity consumers will be one of the principal factors in determining whether or not the generators are referred to the MMC or subject to some regulatory control after the present two year price-capping arrangements end.

4 The extent of the shock?

Looking at the evidence, it seems to me that most of the favourable supply side effects of privatisation and liberalisation in the energy market have yet to be felt. It is remarkable that so many steps have been taken which have set us on the road to a liberalised energy market. Indeed, none of us who for years pleaded for competition in the energy market only to be told that all the measures we suggested were 'politically impossible' can really believe that so many of our ideas have been implemented. But we are still travelling hopefully towards a liberalised energy market: it will be some years before we arrive.

The British energy market is in a transition phase in which the vestiges of protection remain, some sectors have yet to be privatised and, where privatisation has occurred, liberalisation lags behind. Privatisation of the remnant of the British coal industry should begin soon, when fortunately the industry will be broken up rather than sold whole; nuclear power may also be privatised; and the gas industry, where significant entry has already occurred in supply to large consumers, should before long experience much enhanced competition. Electricity is still in the early post-privatisation stage in which costs have been reduced but rivalry is not yet sufficiently strong to bring price reductions to most consumers. But I am hopeful that, through action by OFFER and perhaps the MMC, there will over the next few years be increasing competition in the industry so that by the later 1990s electricity supply will genuinely have been liberalised.

In 1988, when the electricity privatisation White Paper appeared, I expressed the fear that by the mid-1990s the state energy monopolies might merely have been replaced by private energy monopolies. Fortunately, that result now seems unlikely. The government's privatisation schemes, heavily influenced by short-term political considerations, were poorly devised and uncertainly executed. Nevertheless, entry to the industries became possible. The ingenuity of entrants and considerable efforts by the industry regulators and the MMC have begun to liberalise the electricity and gas markets.

There is a long way to go, but by the late 1990s there is a good chance that the whole British energy market will have been liberalised. If that is so, for the first time since anyone can remember there will be genuine rivalry to supply British energy consumers - not just competition, tempered by government action,

among different fuels but intra-fuel competition as well. That would mean more choice for consumers, lower prices than there would otherwise have been, enhanced security of supply and dynamic gains through more entrepreneurship and innovation. There would in turn be significant effects on Britain's competitive position, with particular benefits for energy-intensive industries relative to their competitors in other countries. Though there are stirrings of liberalisation around the world, with other countries starting to free their energy industries from the tight state control which used to be so common, none of our major competitor countries is likely in the next few years to go so far along the road to competition in fuel as Britain.

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