

Surrey Energy Economics Centre

THE ECONOMICS OF PIT CLOSURES IN THE UK

Edited by: Peter Pearson

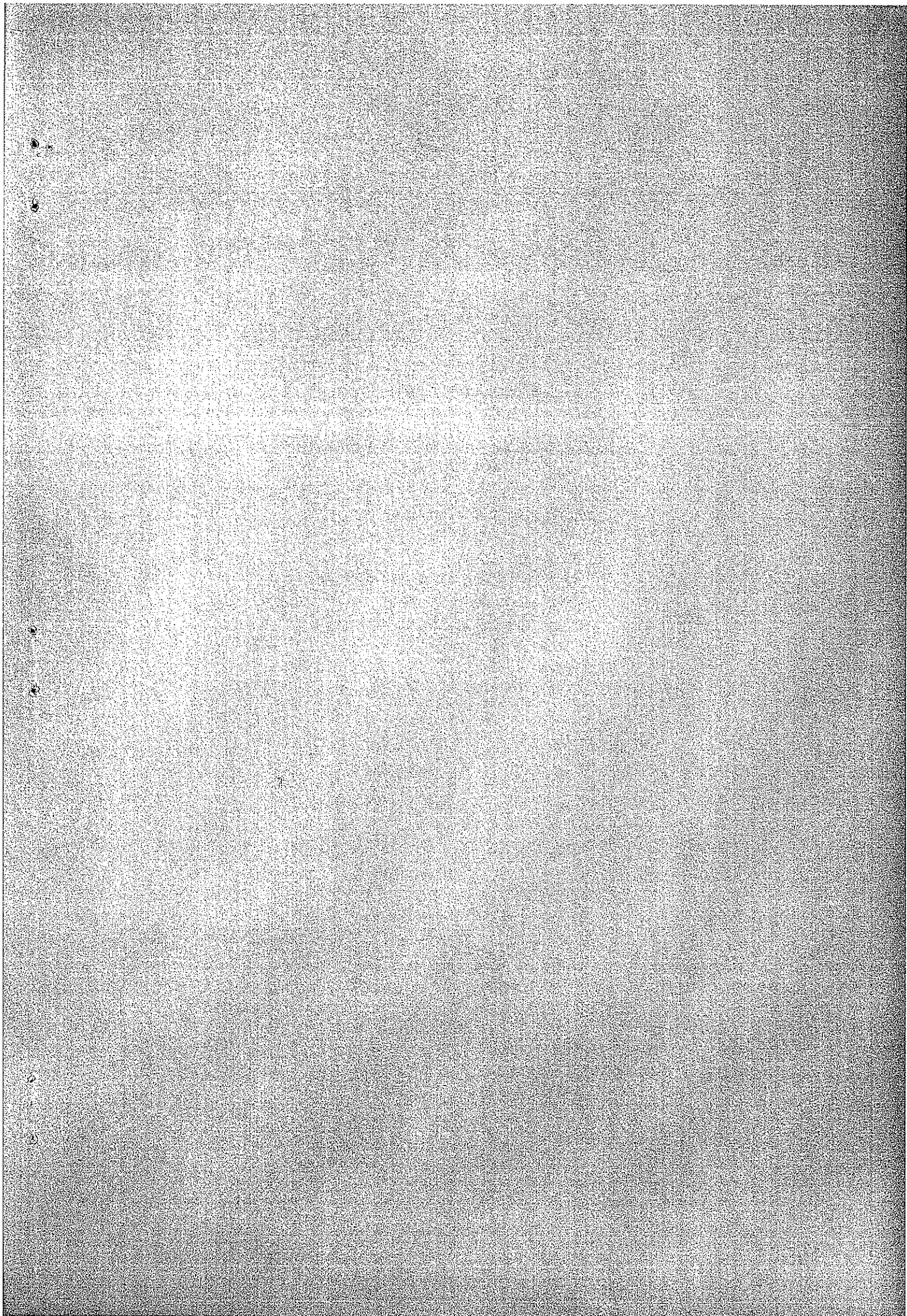
With papers by:
Anthony Baker, Stephen Fothergill,
Nigel Guy, Peter Pearson,
Helen Rendall and Colin Robinson

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The papers arose out of a seminar on The Economics of Pit Closures in the UK held at the University of Surrey in December 1992

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THE ECONOMICS OF PIT CLOSURES IN THE UK (1)

by Colin Robinson
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INTRODUCTION

Now that Mr Heseltine's wide-ranging coal and energy review has begun, it is clear that there are few differences in diagnoses. Blame for British Coal's latest problems - revealed in its October proposal to shut three fifths of its pits and shed three fifths of its employees - is attributed mainly to the unsatisfactory way in which the government privatised the electricity supply industry. There are, however, considerable differences among the various prescriptions which are being offered.

A government-conducted 'Coal Review' is indeed a mixed blessing. It was necessary to have a moratorium on the closure of so many pits at once. But the pressure groups which thrive in the energy sector because of past government activity naturally see the review as another occasion on which they can gain preferential positions from government. Inevitably they are investing resources in lobbying in the hope that they will receive their share of the favours they expect government to grant.

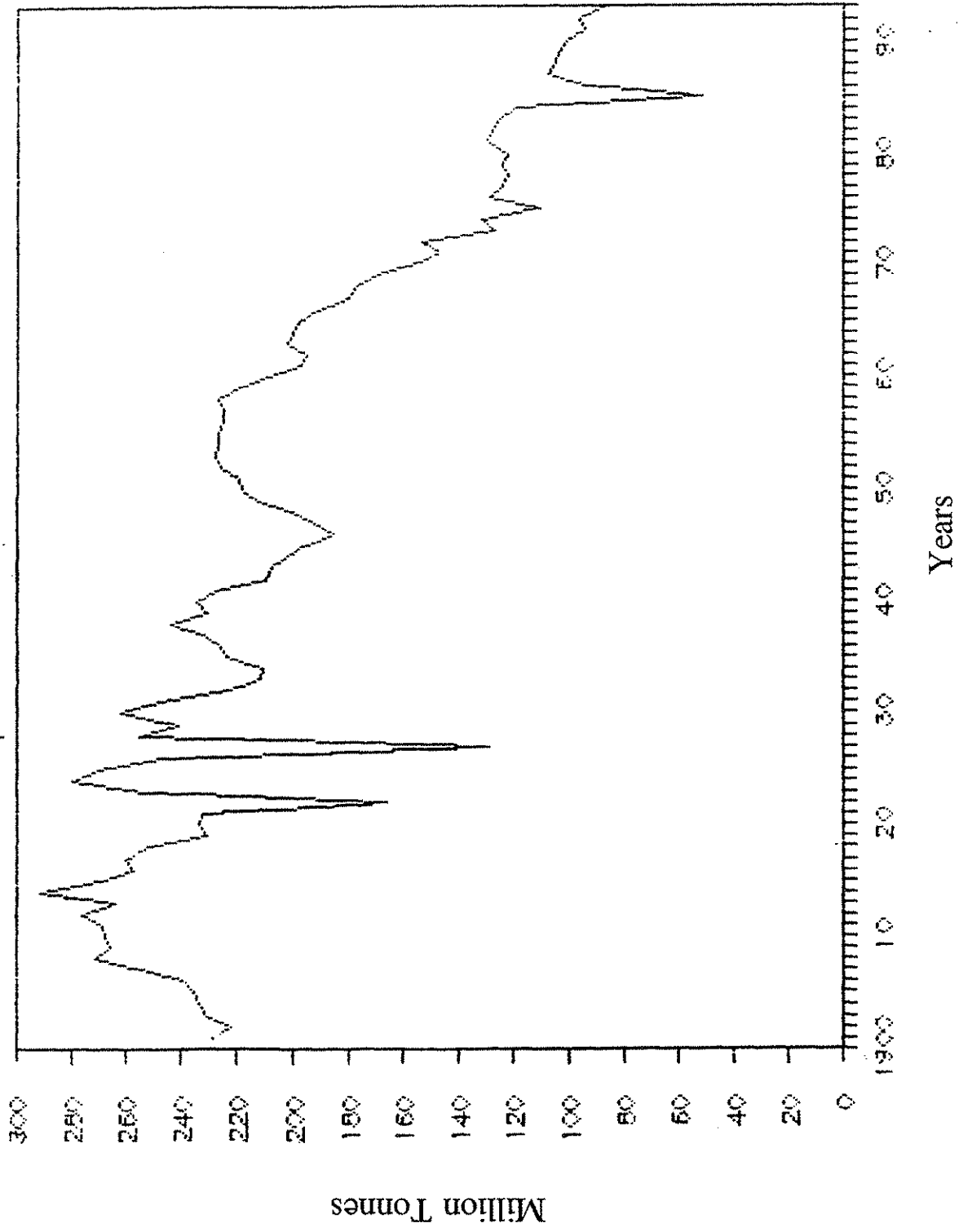
But do we want yet another short term political fix which will certainly have unintended side-effects and consequently lead to yet more fixes before long? Since current problems are the consequence of past political action (heavily influenced by pressure groups), there is a good case for arguing that the prime aim of policy now should be to make the energy market less politicised and more competitive so that it will adjust to problems as they arise. Government efforts in the energy market have proved very unsuccessful in the past and there seems no reason to believe that they will be any better in the future.

1. THE LONG DECLINE IN COAL

Coalmining in Britain has been in decline for about 80 years (2). The peak of British coal output occurred on the eve of the First World War (Figure 1) when production was 292 million tonnes (of which almost one-third was exported). Since then the trend of output has been clearly downwards, apart from the mid-1940s to the mid-

FIG 1. UK COAL PRODUCTION

Deep mined and opencast, 1900-1992



1950s when output, severely depressed during the Second World War, rose from about 185 million tonnes to nearly 230 million tonnes.

During the inter-war years, coal's decline had been almost entirely due to falling exports: home consumption remained within the range 170-190 million tonnes a year apart from times of depression and strikes. But from 1957 onwards (by which time exports were very small) coal's home market began to decline, in spite of increasing government support, because of competition from low-cost oil. From the late 1960s, North Sea natural gas started to penetrate coal's home heating and industrial markets. Then, from the mid-1980s onwards as informal restrictions on coal imports were relaxed, imported coal provided new competition for British deep mines. Imports now constitute about one-sixth of supplies to the British coal market. There is also indirect competition from French electricity, imported via cross-Channel cable, which substitutes for British-generated electricity. Table 1 illustrates the falling share of coal in Britain's energy market, from 87 per cent in 1950 to 35 per cent in 1973 and to 29 per cent in 1991.

As a consequence of competition from other fuels, deep-mined output dropped sharply. In 1992 it will probably be little more than 65 million tonnes - about 30 per cent of its postwar peak of 217 million tonnes in 1954. Opencast output, which has much lower extraction costs than most deep-mined coal, increased from 13-14 million tonnes a year in the late 1970s to 18-19 million tonnes a year in the early 1990s. Total coal production (deep-mined and opencast), which was virtually 100 per cent of indigenous fuel production in 1950 was down to only 27 per cent in 1991 (Table 1).

Employment declined much faster than production (Figure 2). In 1913, over 1.1 million men were employed in over 3000 deep mines and, on nationalisation in 1946, there were still more than 1500 pits employing nearly three quarters of a million men. By August 1992, however, there were only 41,000 miners in 51 pits operated by British Coal (though there were also a number of small private mines). The employment decline was particularly fast following the 1984-85 strike. Between the beginning of that strike and mid-1992, about 120 pits were closed (about 15 pits per year on average) and the number of miners fell by some 140,000 (an average of about 17,000 a year).

TABLE 1
UNITED KINGDOM FUEL PRODUCTION AND CONSUMPTION 1950-1991

	1950	1973	1985	1991				
	mtce	mtce	mtce	mtce	% of total	% of total	% of total	% of total
CONSUMPTION¹								
Coal	208	133	105	108	35	30	29	
Oil	30	193	134	142	50	39	38	
Hydro	1	2	2	2	1	1	1	
Nuclear	-	10	22	26	3	6	7	
Natural Gas	-	44	82	90	11	24	24	
Imported Electricity ²	-	-	-	7	-	-	2	
TOTAL	239	382	345	375	100	100	100	
PRODUCTION								
Coal	219	132	94	96	70	24	27	
Oil	-	1	217	155	1	54	43	
Hydro	1	2	2	2	1	1	1	
Nuclear	-	10	22	26	5	5	7	
Natural Gas	-	43	63	80	23	16	22	
TOTAL	220	188	398	359	100	100	100	

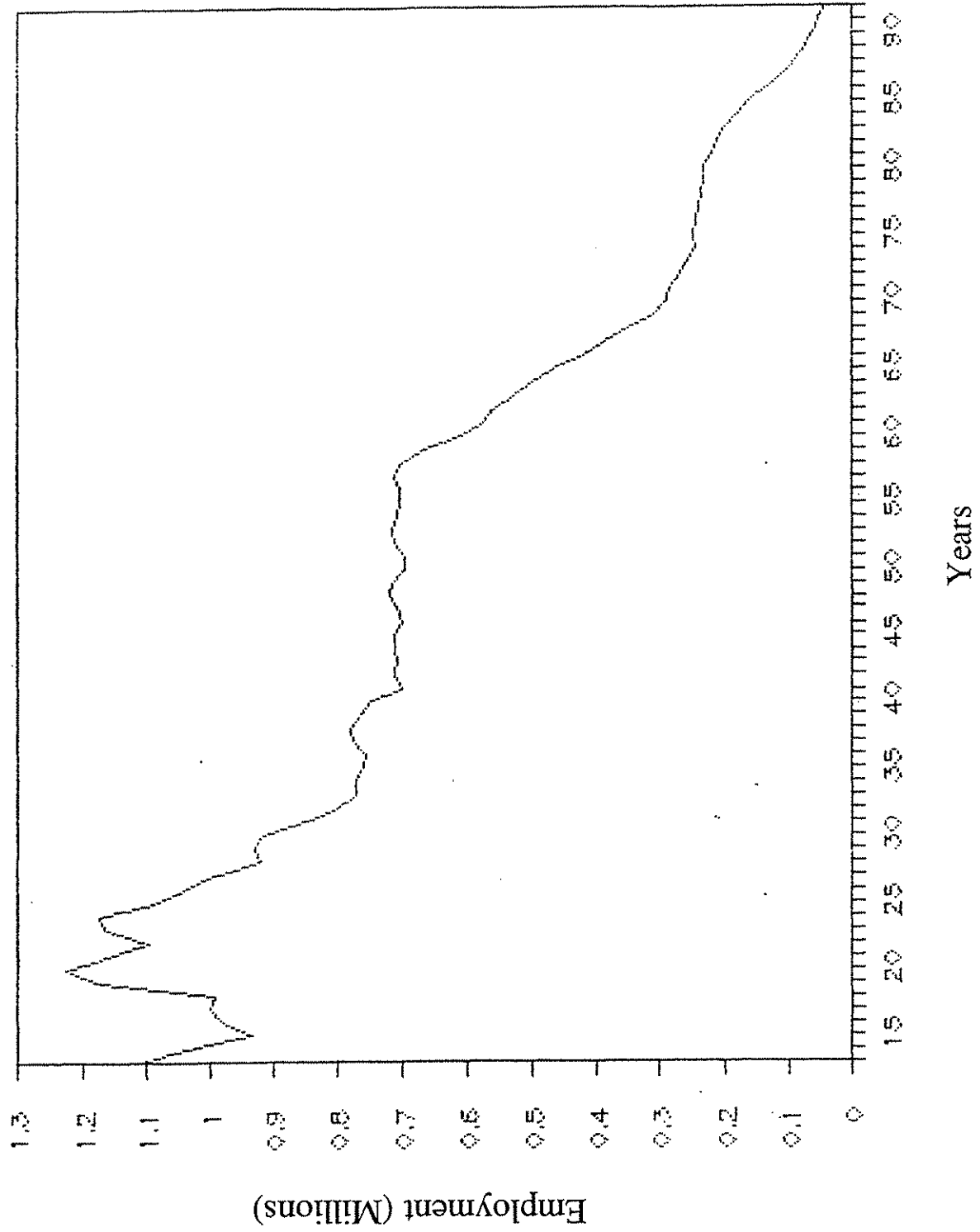
¹ home consumption, including non-energy uses, and bunker fuel from France

² means less than 0.5 mtce or less than 0.5 %

Sources: Department of Energy, Digests of UK Energy Statistics, Energy Trends

FIG 2. EMPLOYMENT IN BRITISH DEEP MINES

Millions, 1913-1992



The much bigger drop in employment than in output implies a considerable rise in productivity - one of the few hopeful signs for the industry in recent years. From 1985 (when the last major strike ended) to the first half of 1992, output per manshift rose from 2.49 to 5.9 tonnes - a very rapid annual average rate of increase of 14 per cent.

Even in the context of the recent sharp decline in British coalmining, the announcement in October 1992 that 31 pits were to be closed with the loss of about 30,000 jobs (including administrative staff as well as miners) was unusual. If the proposed cuts are made they will, in proportionate terms, be by far the largest in British coalmining in such a short period.

2. REASONS FOR THE PROPOSED CUTBACKS: "MARKET FORCES" OR NOT?

It may appear that coal is now in a competitive market whereas in the past it was not. Thus the proposed closures are apparently a consequence of "market forces". But the situation is more complex. From 1957 onwards, governments of both major political parties protected British coalmining as the demand for British coal fell. By keeping out coal imports, taxing fuel oil, banning the use of natural gas in power stations and forcing the electricity supply industry to burn more British-mined coal than it wanted, coal production was kept well above what would otherwise have been demanded from the nationalised coal industry (3).

Indeed, British energy "policy" consisted principally of protecting coal and promoting nuclear power. The two aims were linked, not intentionally but because of the perverse consequences of policy. Coal was protected, it was argued, to enhance security of energy supply, to reduce the balance of payments costs of imported oil and to avoid the rapid rundown of mining communities. In practice, security of supply was reduced by coal protection: the policy gave increased monopoly power to British Coal and the mining unions and so resulted in disruptive strikes and threats of strikes. Nor was the balance of payments improved: British energy costs were increased, thus making British goods and services less competitive in home and overseas markets.

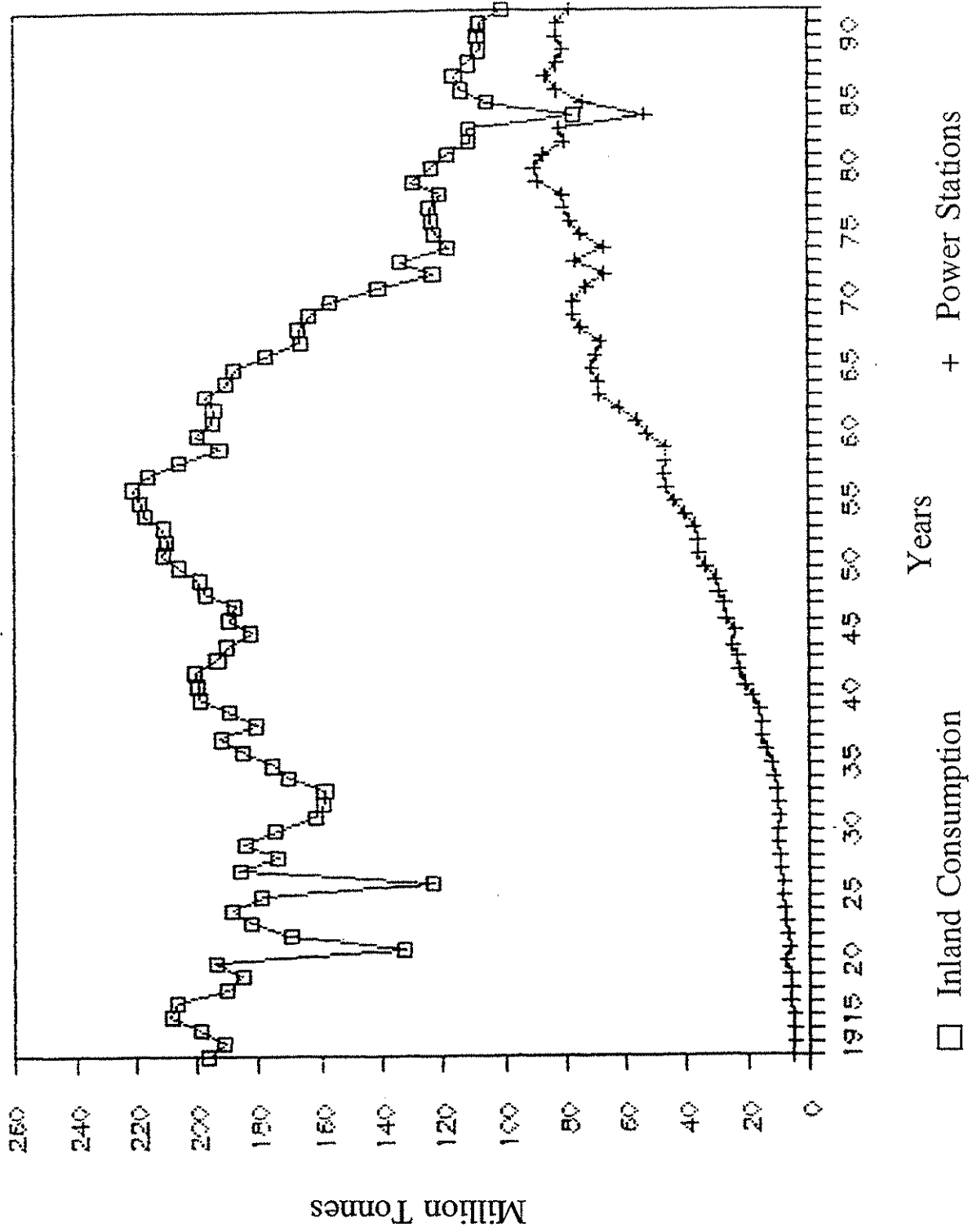
Not only did coal protection fail to achieve most of its objectives, in a peculiar twist of policy it led to more support for nuclear power. Though the First and Second Nuclear Power Programmes had originally been conceived in the 1950s and 1960s as means of producing low-cost electricity, it became obvious by the late 1970s that nuclear costs always far exceeded initial estimates and that it was a relatively high-cost means of generation. Nevertheless governments, concerned at the power which their own policies had given to the mining industry and its unions, continued to promote nuclear fission as a counterweight to that monopoly power (4).

Before electricity privatisation, energy policy relied primarily on arm-twisting of the leaders of the nationalised electricity supply industry: although they protested, their resistance was much weakened by the knowledge that, under nationalisation, they could pass on to consumers the costs of protecting coal and nuclear power. From 1979 onwards, protection for coal via electricity generation became more explicit as the previous preference for coal was expressed more formally in a series of "Joint Understandings" under which government persuaded the CEGB to sign up for more coal from British Coal than it really wanted (5). There were similar arrangements for Scotland. These Understandings were the forerunners of the initial contracts signed (also under pressure from government and also in the knowledge that costs could be passed on to consumers) between the two major generators in England and Wales and British Coal to cover the first three years of privatised electricity (to March 1993).

Such policies not only propped up coal production but they concentrated sales on electricity generation. Coal production became essentially a means of fuelling power stations which in the 1980s were burning between 80 and 90 million tonnes of coal each year: by the year ending March 1992, over 80 per cent of British Coal's output went to electricity generators. Because coal had a captive market in electricity, naturally enough the industry geared its mining methods to the production of power generation grade coal and let other markets slip. Remarkably, even when oil prices soared in the 1970s, British Coal was unable to take advantage of what should have been its much improved competitive position (6). Figure 3 shows the rising share of power generation in total British Coal sales (though some of the increase is due to the loss of markets, such as the railways and the gas industry, which because of technological change coal probably could not have kept).

FIG 3. UK COAL CONSUMPTION

Total versus power stations, 1913-1992



It was, therefore, partly as a consequence of the policies of successive governments that coal lost the diversified markets it had once had. Concentration on power generation might not have mattered greatly had sales to that market been won in open competition with other fuels. But they were not: British Coal was selling over 80 million tonnes a year of power generation coal in the 1980s only because governments had acted to keep the competition out.

Thus it was predictable (and predicted) (7) that, if electricity was privatised before coal and the generators were given more freedom to buy fuels, a sharp decline in coal sales to electricity generators and in total production from deep mines would be bound to occur. Nevertheless, at the time of electricity privatisation, the government apparently gave little thought to the likely disastrous impact on the coal industry.

The proximate cause of the proposed pit closures is a step change in coal policy from heavy protection to the removal of much of that protection. To that extent the pit closures, if carried out, would appear to stem from "market forces". However, the markets in question are not competitive but monopolised so there is no reason to believe that their outcome will be more desirable than what went before.

Since British coalmines had, through government policy, become principally fuel suppliers to electricity generation, the structure of privatised electricity supply was crucial for the coal industry. For that reason, in a 1985 paper it was argued that coal and electricity should be privatised together (8), for example by selling pits and power stations in packages. In that way, an undesirable "accretion of power" to the electricity industry would be avoided. But, in the event, the government's privatisation scheme ensured that such an accretion occurred.

Electricity was privatised with two dominant generators each of which has considerable buying power relative to British Coal. The privatised electricity supply industry is an improvement on its nationalised predecessor which was a cost-plus industry dominated by a monopoly generation and transmission company (the Central Electricity Generating Board) where efficiency pressures were minimal. At least, in the privatised industry it is possible (if difficult) for new generators to enter and there is now some competition in supply for larger consumers.

Nevertheless, the privatised industry as a whole has undesirable features (9). As in the cases of other utilities, privatisation has been reasonably effective in reducing costs but, because competitive forces are not strong, much less effective in providing more choice and lower prices for consumers. Most of the constituent companies in the new electricity supply industry have substantial market leverage relative to their customers and suppliers and therefore probably have higher profit margins than would exist in a competitive industry. Their costs may also be higher than those of companies in highly competitive conditions, depending on how effective capital markets are in forcing greater productive efficiency.

A less obvious problem is that the old network of relationships in the industry was little disturbed by privatisation. For that reason, relationships which appear to have changed to being competitive or contractual in the privatised industry may still, in essence, be co-operative. The two big generators, for example, are unlikely to expect to gain from competing vigorously with each other in a market where demand for the product is highly inelastic with respect to price but where the demand for the (identical) product of each is very price-elastic. Each will expect to be better off avoiding close competition, instead taking advantage of the inelasticity of total market demand. That is not to say that the generators explicitly collude. But National Power and PowerGen are the CEGB's generation activities split into two parts and each part presumably has good knowledge of the other's costs and likely actions in given circumstances. Thus tacit collusion is a likely outcome.

The size of the coal industry is now being determined by the interactions between the kind of electricity industry just described and a state-owned coal industry with government Ministers playing an unknown but clearly influential role. That is a long way from a competitive market.

Whereas electricity was privatised in 1990, coal languished. An intention to privatise coal was stated in 1988 (when it was described by Mr Cecil Parkinson as the "ultimate privatisation (10)) but no action was taken. Consequently uncertainty hung over the industry as the government seemed unsure when, how and even whether to privatise. Few can have wanted to join the industry and a redundancy culture emerged since it seemed preferable to have one's pit close and take compensation rather than work on into an uncertain future.

For a while, coal protection continued in the form of initial contracts under which National Power and PowerGen agreed to take from British Coal at least 70 million tonnes a year in each of the years ending March 1991 and March 1992 and 65 million tonnes in the year ending March 1993. The quantities seem to have been very much on the high side since coal stocks rose far beyond what the generators would have wished to hold. By August 1992, stocks at power stations were over 33 million tonnes (about five months' supply) and total coal stocks were over 48 million tonnes. For comparison, power station stocks at the beginning of the 1984-85 coal strike (after some precautionary building) were only about 27 million tonnes though total stocks were then 51 million tonnes.

While the initial coal contracts were in place, in anticipation of more freedom to purchase fuels several significant changes took place, all of which will depress the demand for British-mined coal. First was the "dash for gas". National Power, PowerGen and "independent" generators (mainly with links to Regional Electricity Companies) decided to build relatively high efficiency natural gas fired Combined Cycle Gas Turbine (CCGT) stations. By the mid-1990s about 8500 MW of CCGT capacity seems almost certain to be in operation since that amount of capacity appears to be under construction and to have gas supply agreements. A good deal more is planned. Not all of it will be built (see below), but by the mid-1990s a total of about 12000-13000 MW of CCGT stations could well have been commissioned, displacing some 30 million tonnes a year of coal.

There were two other potentially important developments. One was that the two major generators began to import more coal and started work on new port facilities which will allow imports to increase in the future. The other was the small but increasing use of Orimulsion by PowerGen.

In this market, where sales of British coal were being squeezed by increasing use of natural gas, imported coal and Orimulsion, existing nuclear power plant remained heavily subsidised (to the extent of about £1.3 billion a year). Nuclear generated electricity increased its share of all electricity supplied in the United Kingdom as a whole to 24 per cent in January-August 1992 from 21 per cent in the corresponding period of 1991. In addition, the new nuclear station at Sizewell still has to be commissioned (in 1994 if it is on schedule).

Had the coal and electricity markets been competitive and had the electricity supply industry, with new-found ability to choose its fuels, decided to run down its coal purchases, there would have been little room for argument about whether it "should" do so. If a substantial decline in coal then ensued, the proper response would have been generous treatment for those affected rather than continued efforts to support production. But, in practice, because there are monopoly elements in the new electricity market and there are various other government-imposed distortions - the tax on fuel oil, the subsidisation of nuclear power and some continued preference for coal in power generation - fuel purchase decisions are not those of companies in a competitive market.

The recent "dash for gas" has become the biggest issue. In the early stages of privatisation, gas plant seemed a good buy with generation costs estimated at less than 2.5 pence per therm versus estimates of 3.5 pence for new coal plant and just over 2.5 pence for existing coal plant with flue gas desulphurisation (FGD) added (11). The dash for gas began not only because gas generation seemed relatively low-cost but for several other reasons.

Because of the absence of significant sulphur emissions and the relatively low carbon dioxide emissions from CCGT plant, building gas-fired plant was one means of helping meet EC environmental standards (both actual and prospective). The major generators in England and Wales also wished to diversify their fuel sources: past government policies had left them with more coal plant than they would freely have chosen in the circumstances of the early 1990s. Moreover, the Regional Electricity Companies (RECs) also wanted to diversify: in their case, they wished to have some plant under their own control or built by new generators with which they had contracts (or in some cases equity stakes) in an effort to side-step the market power of the two major generators. Gas plant, which could quickly be built (in about three years), was ideal for their purposes. The lack of competition in generation thus led to more investment in CCGT plant by the RECs than would otherwise have been likely.

Before long, gas prices were increased and the case for gas plant on the grounds of low cost seemed less compelling. Though the expected generating costs of new gas plant still seem significantly lower than the alternatives (and no one so far

appears to have suggested building a new plant which is not gas-fired), some estimates suggest that it may well be cheaper to operate existing coal plant and add FGD where necessary than to build new gas plant.

But it is a mistake to believe that generating costs are matters of fact which can be discovered by collecting information. In practice, one can only make rough estimates of what will be the cost of generating power from a plant which will operate for many years into the future. The forecast period is about thirty years for a plant just being commissioned and longer for one being planned. Given the serious failures in energy price forecasting which have always occurred in the past there is no reason to believe that present estimates of costs will be anywhere near correct except to the extent that costs are contractually fixed. A company which has a gas-fired plant in operation or nearing completion and has already contracted for a gas supply is best placed to estimate future generating costs: its contract will specify a price, subject to escalation against the prices of other fuels (and sometimes prices in general). There will, however, be uncertainty about movements in the prices against which the gas price is escalated, about operating costs other than fuel and about any remaining capital costs. A company which has not yet negotiated a gas contract will face still greater uncertainties about what its generating costs will be.

In a competitive market, companies would make investments only if they genuinely believed their costs would be at least as low as those of their competitors: otherwise they would fear losing market share and profits. Therefore, if there were a number of competing generators, they would invest in new gas plant only if they expected their avoidable costs (capital and operating) to be less than the avoidable costs of old plant (operating plus any incremental capital) such as coal. If they believed that old coal plant with a substantial proportion of its costs sunk would have lower avoidable costs than new gas plant they would not build the gas plant.

Generators' views about relative costs might be right or they might be wrong; in a competitive market different generators would be likely to take different views. But the competitive market would penalise those who made the wrong fuel choice decisions and reward those who made better decisions: thus it would provide incentives to make better fuel choices than one's competitors.

The central problem with the present electricity market is that there is not enough competition for fuel purchases to be determined in the way just described (12). Because there are only two major fossil fuel generators in England and Wales - both of them descendants of the CEGB - they are perceived to have the power to manipulate prices or volumes. It is therefore suspected that they do not take fuel choice decisions on the same basis as would companies in a competitive market. The duopolists have the power (given them by government rather than of their own making) to indulge in strategic gaming designed to maintain their positions at the expense of potential newcomers. They may, for example, announce plans to build particular types of plant (such as gas) even though their own estimates suggest that it would have been cheaper to keep coal plant in operation if they believe that, by making such announcements, they can deter entry. In the event, they may not build the gas stations but keep the coal plant open instead. Whichever course of action they choose, they have sufficient market power that they are not constrained from passing on to Regional Electricity Companies, and to large consumers they supply direct, the costs of the choice they make.

Because the major generators control the great bulk of fossil fuel generating capacity in England and Wales, they can significantly influence the expectations of potential market entrants about the extent of future generating capacity (and therefore about future prices). At the same time, they have some control over the actual amount of capacity and so they can, for example, close some of their plant if capacity shows signs of becoming excessive.

Such problems are compounded because, as explained earlier, the RECs have an incentive to avoid the market power of the major generators by building generating plant themselves. Consequently, they will opt for the lowest-cost choice among new plant (which appears to be gas at present). Since most of them have little existing generating plant, they do not compare the new gas plant with the alternative of keeping open existing coal or oil stations.

From the above, it is clear that there are three fundamental sources of the present problems in British coalmining, all stemming from government activity in the energy market rather than from competitive market forces.

First, is the inappropriate monopolistic structure of the coal industry arising from nationalisation. Second, is the continuous state interference from which it has suffered over the years. The state-owned monopoly of coalmining, in which governments interfered via a state owned monopoly of electricity generation stored up serious problems for the future by reducing the industry's incentives to perform efficiently and concentrating its sales in one market. In effect, they ensured that, if protection ever were removed, the effects on deep-mining would be massive.

Third, is a more recent development - the structure of the privatised electricity supply industry. The generation monopoly has gone but only to be replaced by a duopoly with freedom to choose fuels: there is no reason to believe that, if the duopoly remains and is unchecked, the result will be coal production and prices which are closer to the "optimum" than before. As explained above, because of the type of market which has been established there may well be some bias, in the decisions of both major generators and RECs, towards choosing new gas-fired power stations over the alternative of running existing coal or oil stations. Moreover, government still shows signs of wanting to interfere with fuel choice decisions even if its ability to do so is circumscribed now that electricity is privatised.

There is nothing government can now do about the effects of nationalisation and past state interference on British coalmining except compensate workers who lose their jobs because of these past policy failures. It can, however, do something about electricity privatisation and it can also make a start on the much-delayed privatisation of coal.

3. ESTABLISHING PRINCIPLES FOR THE ENERGY REVIEW

Many of the proposals now appearing - ostensibly offering ways out of the confusion which followed the announcement of pit closures and then Mr Heseltine's statement that there would be a wide-ranging review - are from pressure groups which stand to gain from the results of the review. Such proposals inevitably appear whenever decisions are politicised since pressure groups will invest considerable time and effort if they perceive government to be considering policy changes which could boost their own activities: the potential gains appear very large relative to the costs.

Other schemes, emanating from apparently "independent" sources, are often proposed by people who believe they are wise and far-sighted enough to know what is good for the rest of society and see government as a vehicle for forcing their opinions on the mass of the population. There is a powerful authoritarian streak in pleas for "co-ordinated" or "long-term" energy policies and in the claims by some scientists that they know which fuels should be used for which purposes (13). It is evidently easy to forget how unsuccessful all government efforts at forecasting energy trends and planning energy markets were in Britain before they ceased about ten years ago. Furthermore, there is the fundamental and well-known problem that the informational and calculational requirements of centralised forecasting and planning are such that it is not feasible to simulate the outcomes of competitive markets (which are themselves powerful co-ordinating mechanisms).

A serious problem for the Department of Trade and Industry, in conducting its review of the proposed pit closures, is to find a means of distinguishing good proposals from bad. It is easy enough to produce schemes which would promote the use of coal and so avoid some of the proposed closures. Coal burning capacity available in power stations is still far in excess of the 40 million tonnes a year evidently under discussion in the power station coal contracts which are being negotiated. A scheme can readily be devised which would increase coal sales by limiting competition for the British coal industry: after all, British governments have been indulging in such practices for nearly forty years. As in the past, the major generators in England and Wales would not object strongly provided they could pass the costs on to consumers (14). The means would, for instance, be to restrict coal imports, veto some gas-fired power plant proposals, reduce electricity imports from France or shut some nuclear stations. Thus coal production would, in the short term, be boosted by some "politically acceptable" amount. The question, however, is to decide whether there would be any substantial economic benefits to offset the adverse effects of such anti-competitive moves.

Rather than indulging in short term political fixes, the Department of Trade and Industry should establish some principles for the review to guide it through the conflicting views which will inevitably be expressed. Otherwise, it will be blown one way and another by competing claims and it will end up supporting the views of the

most powerful or the most plausible of the advocates of special interests and those views congruent with immediate political objectives.

The government should follow along the path on which it has already started - which is to de-politicise decisions about the energy industries and to open up individual energy markets to competition. That is sometimes mistaken for a "hands-off" policy. It is not. The focus of policy changes from direct interference in business decisions to a strong pro-competition stance: a continuous watch is kept on the industries via the competition authorities or a regulator appointed for the purpose whose main duty is to pursue a pro-competition policy (and to supervise any genuine "natural monopoly" sectors). Moreover, government should be involved in tempering the personal and social effects of the run down of certain industries (since in a dynamic economy some industries will always be in decline). It may also have a place in countering the effects of industrial activities on the natural environment, though most governments have been extremely ineffective in doing so. In addition, it is sometimes claimed that the government has a role in promoting security of energy supply: there is a case in principle for such action but in practice it often acts as a cloak for actions taken for quite different reasons. In general, the existence of several competing suppliers is the best way of ensuring that consumers have secure supplies.

There are great practical advantages in making energy markets competitive and letting them work. Competitive markets are effective providers of information (which is transmitted from consumers to producers and back again via the price mechanism) and co-ordinators of actions. Consumers have the power of exit from suppliers which do not suit them and so enjoy lower prices and greater security of supply than when they are in the hands of monopolists. Producers find that efficiency standards are automatically set for them because they cannot afford to fall behind their competitors. Thus competitive markets provide pressures to minimise costs and to keep prices in line with costs, avoiding excessive profit margins. At any point in time they provide consumers with choice and, over a period of time, they give powerful incentives to discover new ways of doing things. Consequently they stimulate innovation and entrepreneurship. Because competition is a process of discovery, its results cannot be simulated by regulation, government control or other means. They can only be discovered by the competitive process.

Would-be planners claim that markets are short-sighted. They are wrong. It is people who are short-sighted. The myopia from which everyone suffers cannot be

cured by collecting together so-called "experts" - say, in an Energy Commission or Agency - and asking them to plan the energy future. In fact, there are serious dangers in centralised forecasting and planning because it inevitably hinders the operation of market processes and it leads to massive errors because the central view will (except by chance) be wrong. It leads also to political uncertainty and to a concentration on lobbying by companies which invest resources in attempts to combat that uncertainty.

Centrally-prepared energy forecasts and plans, both in Britain and elsewhere, have generally been wildly incorrect. It is little more than ten years, for example, since the (then) National Coal Board - supported by the government's own projections - was forecasting that it would be selling 170 million tonnes of coal a year by the late 1990s (15). British Coal seems now to have so lowered its sights that it expects to sell less than one third of that figure (around 50 million tonnes). The forecasts of the late 1970s and early 1980s were not merely misleading. They were damaging because they led to disappointed expectations, resulting in strike action which was disastrous for the industry and then to a severe loss of morale in recent years.

There are many examples in the private sector where energy forecasts have also been very inaccurate - for instance, in the crude oil market where forecasters have missed crucial turning points. It follows from human short-sightedness that, except by chance, all forecasters will be wrong all the time. But there is a difference. In competitive markets every individual and every organisation makes its own forecasts, explicit or implicit, as a basis for its decisions. Though none of the forecasts will be precisely correct, some will be better than others. Other things being equal, better forecasters will make better decisions and so there is a process of forecaster selection. Centralised forecasting tries to eliminate competition in forecasting and to force everyone to work on the same set of forecasts in the false belief that a few clever people can actually see into the future. That is an illusion and it is one of the main reasons why plans based on such forecasts collapse.

4.USING THE ENERGY REVIEW CONSTRUCTIVELY

There is now a strong case for a radical change in the emphasis of policy. Piecemeal intervention in the energy market (which invariably stores up trouble for the future) should be minimised. Instead, government should work towards the clear objective of creating privatised coal and electricity markets within each of which there is rivalry among actual and potential suppliers. That is the opposite of the

advice which will be given by most special interest groups which see advantages for themselves in rigging energy markets in one way or another rather than allowing them to operate freely.

The electricity and coal markets are particularly important because the uncompetitive nature of those markets lies behind present problems. More decentralisation and more diversity through more competition are most needed in those markets. In other energy markets, monopolistic elements are either less powerful or are already being investigated. In oil, the market is reasonably competitive (though competition between oil and other fuels is distorted by the fuel oil tax): vigilance is needed to ensure that it remains competitive. In gas, after a most unfortunate privatisation scheme which transferred British Gas into the private sector with its monopoly power virtually untouched, the process of retrieval is fairly well advanced because of the actions of the industry regulator and the latest reference to the Monopolies and Mergers Commission.

More competition is needed in electricity as a precondition of any action which will help the British coal industry. So long as there are two dominant buyers of the bulk of British coal, investment in coalmining will remain unattractive.

A number of steps are required. First, the structure of generation should be changed so that, instead of duopoly, there are a number of competing generators with fossil fuel burning plant. A break-up of the duopoly is required rather than waiting for new entry to bring competition. Most actual and prospective entrants are linked in one way or another to existing members of the industry rather than being truly independent; in any case, all newcomers in the foreseeable future will be building CCGT plant and so their entry will not increase the number of coal buyers.

A case may exist for splitting the generators on the grounds that they have too much market power relative to the RECs and to larger consumers: more generators would mean more competition in supply, leading to lower generation costs and reduced margins for both generators and RECs and lower prices. But, in the present context, the purpose would be to ensure that fuel choice decisions were being taken in a competitive market in which companies were forced to keep up with standards set by rivals, found it very difficult to collude (explicitly or tacitly) and made decisions about building new power plants or closing old ones only if they believed they were following their lowest-cost options. Restructuring generation so soon after privatisation would clearly be embarrassing for the government but the

alternative is mounting complaints from electricity consumers and serious problems in privatising British Coal.

Second, there should be an early end (before the presently-intended date of 1998) to subsidies for nuclear power. It is difficult to believe that consumers receive any real benefits from the large sums which are paid to Nuclear Electric (16). Indeed, there are many problems in having an enclave of state-owned power plants tucked away in an industry which has been privatised.

For example, their investment projects are evaluated according to criteria different from those which apply in the private sector electricity companies. Because state-owned companies typically have lower borrowing costs and use lower rates of return in project evaluation, they accept projects which private sector companies would reject and so they tend to divert resources towards themselves. Thus there are inbuilt distortions in the market which might, for instance, mean that nuclear companies decide to extend the lives of existing plants and plan to build new ones even though a private sector company would not have proceeded with either investment. To avoid such distortions, the nuclear power companies should be privatised as soon as possible so that their decision-making is consistent with that in private sector electricity supply. It is particularly important not to allow either nuclear company to build any more nuclear plants so long as it is in the state sector.

In coal, the moratorium on the proposed pit closures has, at least, given a breathing space. It would have been wrong to proceed with the closures so precipitately, given the many market distortions which have been mentioned above - and, in particular, the nature of the privatised electricity market.

Apart from the problem of the uncompetitive electricity market, another reason for not proceeding to close the pits is that under the present structure of the mining industry British Coal is the sole arbiter of whether or not pits should remain in production (subject to its review procedure in which it has, in any case, the final say). All outsiders know about the thirty one pits on the original "hit list" is that British Coal claims it cannot operate them profitably. But that is not to say that no-one could do so. Other organisations should be allowed to try; in effect, they would test whether in coal, as in industries previously privatised, costs could be significantly reduced. It would be extremely surprising if, despite the productivity gains of recent years, there were not substantial further cost savings to be made after over 45 years of state monopoly.

Private mining companies might well take a more forward-looking and more flexible view of costing and pricing than does British Coal. There would be price competition as between different companies. Following a division of the generating industry, a number of coal companies would negotiate with a number of electricity generating companies (and with other consumers) so that market prices for coal would appear. At times when coalmining was in temporary difficulty, private companies in a competitive market would most likely keep pits open provided they could cover avoidable costs (rather than trying to cover full costs including those which are sunk). Competing companies would also try to develop markets for coal other than power generation so that their sales would become more diversified. As explained earlier, British Coal has had no incentive to develop such markets since its sales to power generators were protected by government.

If it eventually agrees to the closure of the thirty one without a market test, the government will in effect be allowing British Coal to dictate which pits should be sold to the private sector. Since it is unlikely that anyone will be willing to bear the costs of reopening closed mines unless coal prices rise sharply, any pits which are closed will be taken off the privatisation list at the instance of British Coal. It would be absurd for a government which says it wishes to privatise coal soon to permit its options to be limited in that way. No more pits should be closed until they have been offered to potential purchasers who will need a reasonable opportunity to assess their prospects and, if they wish, to put in bids for them. They will also require an assurance that they will not be shut out of the market by agreements between British Coal and the two major generators in England and Wales.

The government could turn its present problem into an opportunity by announcing an offer for sale of the thirty one as the first stage in a coal privatisation programme in which all existing pits (and opencast operations) are sold as soon as British Coal's monopoly over "working and getting" coal has been abolished and coal reserves are no longer in its hands. To make a start, even before the legislation has been changed, pits could be leased to private owners.

Private mining companies in Britain have for years produced coal profitably despite being encumbered by severe restrictions and the requirement to pay royalties to British Coal. Both they and larger international mining companies may be interested in mines which would otherwise be closed. Furthermore, managers may wish to buy out some mines and miners may wish to form groups to operate others.

No one can know how many pits would be sold but, in a sense, that is irrelevant. The important policy change is to institute a market test - so that a state-owned monopoly is no longer the sole judge of whether or not mines should be kept open - not to try to guess what the outcome of the test will be.

Two alternative broad policy approaches now confront the government. One is to bend to the wishes of the many pressure groups which wish to influence events, relying on short term political fixes to stave off the immediate difficulties - for instance, by using one of the many available means to shore up coal sales to the electricity industry in the immediate future. The result will almost certainly be the same as it always has been in the past - to lay up troubles for the future.

A preferable policy is to make both electricity and coal markets more competitive. The British energy market is still distorted by government actions - in particular, subsidies for nuclear power and (to a much lesser extent) renewables, taxation of fuel oil, some remaining preference for coal in contracts with the major generators - which have been the prime cause of present problems. Instead of intervening more to counter the unfortunate effects of what it has done already, the government should try to make more of a market in energy. In the case of coal, that means breaking the unnatural monopoly of British coalmining, allowing new management and new companies to move into the coal market and creating an independent market test for mining operations. The result is uncertain. But the likely results of returning to past interventionist policies are all too clear: there is ample evidence of how unsuccessful they were. The answer to the problems which have arisen in coalmining and in energy generally is a more not a less competitive energy regime.

FOOTNOTES AND REFERENCES

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A LEVEL PLAYING FIELD FOR ELECTRICITY SUPPLY

by Stephen Fothergill and Nigel Guy
Coalfield Communities Campaign

1. INTRODUCTION

In a short paper such as this it is not possible to do justice to the full complexity of the current situation facing the UK's coal industry. We shall instead attempt to summarise briefly two aspects of the work of the Coalfield Communities Campaign in response to the crisis facing the mining industry. The next section outlines the impact on employment in coalfield communities if the closure programme proposed by British Coal on 13 October 1992 is implemented. The remainder of the paper summarises the CCC's submission to the House of Commons Trade and Industry Select Committee which puts forward principles upon which a sound, long term energy policy for the UK could be based.

2. THE EMPLOYMENT IMPACT OF THE PROPOSED CLOSURE PROGRAMME

The CCC's estimates of the job losses in coalfield communities which would result from the closure of 31 pits planned by British Coal have been submitted to the House of Commons Employment Select Committee¹ and are shown in Table 1.

These job losses can be divided into two categories: direct and indirect job losses. There are five components to the calculation of the direct impact. The 31 pits themselves currently employ around 25,500 men. If the current ratio of miners to other British Coal staff is maintained, this would result in 8,500 job losses among other British Coal employees and headquarters staff. In addition to these losses, there are now around 7,000 private contractors' employees in British Coal's pits. Assuming an even spread of contractors around the industry, 4,000 contractors would be likely to lose their jobs in the 31 pits.

¹ Coalfield Communities Campaign, 1992. **The Employment Consequences of British Coal's Proposed Programme of Pit Closures.** Memorandum submitted to the Employment Select Committee, November.

TABLE 1: JOB LOSSES IN COALFIELD AREAS ARISING FROM THE PROPOSED CLOSURES

Direct Losses	
BC miners	25,500
Other BC staff	8,500
Contractors at BC mines	4,000
Suppliers	12,000
Railways & power stations	5,000
	<hr/>
	55,000
Indirect Losses	
Income multiplier effect	11,000
Economic base multiplier	44,000
	<hr/>
Total job losses	110,000
	<hr/>

Source: Coalfield Communities Campaign.

There would be further job losses in industries which depend directly upon the mines. It has been estimated that 66,000 UK workers provide inputs for domestic mines². Some 30,000 of these jobs could be lost as a result of closures on the proposed scale. We have estimated that 12,000 of these jobs would be located in coalfield areas. There would also be job cuts in rail freight, the method by which most coal is moved around the country, and in coal-fired power stations, many of which would close if these plans are carried out. Total job losses in these two sectors could be 10,000, of which half would occur in coalfield areas. The total of direct job losses resulting from the planned closures in coalfield areas would be 55,000, with a further 20-25,000 jobs being lost elsewhere.

The indirect job losses include the effects of two distinguishable multiplier effects. The income multiplier works via the reduction in demand for local goods and services following a drop in income. Using a multiplier of 1.2, a further 11,000 job losses could be expected in coalfield areas in the 18 months or two years following the closures, resulting in a total of 65-70,000 job losses in coalfield areas.

The economic base multiplier takes longer to work through a local economy. It occurs partly through supply-side decline resulting from lower investment in areas with declining economies, and partly through relative depopulation as people move away to find employment, thereby further reducing the need for local consumer and population-related services. Over the long term, as a result of all these direct and indirect employment effects, coalfield areas could lose a total of 110,000 jobs as a result of the proposed pit closures.

3. THE LEVEL PLAYING FIELD PRINCIPLE

At present, the electricity supply market is inherently anti-competitive and heavily rigged against coal as a power station fuel.

Since the privatisation of the electricity supply industry, competition between power stations to decide which power stations provide electricity to the national grid has been replaced by competition between the companies which now operate in this market. Each of these companies is continually manoeuvring to secure the best

² A. Glyn, 1992. *The economic costs of the pit closure programme*. Report prepared for the National Union of Mineworkers, October.

possible niche for itself. The result has been that the consumer no longer receives the cheapest available electricity at any one point in time, and coal as a power station fuel has been marginalised.

The nuclear industry has a protected market since the Regional Electricity Companies (RECs) are obliged to take all the electricity produced by nuclear power stations, and receives a £1.3bn a year subsidy from the electricity consumer. Many of the gas-fired power stations will also have effectively a protected market. This is because all but one of the RECs have equity holdings in the gas projects and have protected these investments by signing 15-year contracts to buy all the electricity they produce. However, independent experts believe that most of the new gas-fired stations will have higher total generating costs than existing coal-fired stations. Since the RECs' operating licences allow them to pass on the costs of the electricity they buy, the consumer will have no choice but to pay unnecessarily high prices for electricity which is insulated from competition with coal-fired stations. The increasing quantity of imports (electricity from France and coal imports) sterilises British coal reserves which will be needed in the future.

In its evidence to the current House of Commons Trade and Industry Select Committee inquiry, the CCC proposed a way out of the current crisis facing the coal industry which will:

- keep all 31 threatened pits open at no extra cost to the taxpayer;
- provide savings of around £400m a year to the electricity consumer;
- not close off any options for the way in which electricity can be generated in the future.

Under the level playing field principle, these anomalies would be eliminated. A strict 'merit order' would operate, under which the power stations with the lowest operating costs, whatever their fuel source, would provide the most electricity and the high-cost stations would only provide peak-time power.

The only caveat to the strict operation of this principle would be a commitment to use energy sources which are consistent with the long-term cheap supply of electricity to the consumer.

In order to show the impact of the application of the level playing field principle on the future of Britain's deep mines, in Section 4 we show how it will

affect the electricity generating market as a whole, and then in Section 5 show how the resulting final demand for coal could be supplied.

4. THE IMPACT ON THE OVERALL POWER STATION DEMAND FOR COAL

(i) **Nuclear power.** The relatively old Magnox nuclear power stations are have high operating costs³, and would close if forced to compete against other power stations purely on the basis of their avoidable costs. These closures would create a market for an additional 7m tonnes of coal a year.

(ii) **Gas.** The 10,000MW of capacity in new gas-fired stations currently under construction would be completed. Those already completed or under construction can be treated on the same basis as existing power stations - their capital costs can be regarded as written off, and they would compete against other stations on the basis of their avoidable costs. It is likely that these costs are low, enabling these stations to run on 'base-load'. The new capacity would displace almost 30m tonnes of coal a year. However, the pay-back period on the investment in these stations would be extended because they would have to sell power at competitive rather than premium prices.

Any further gas-fired stations would be uneconomic to build under the new market regime. The inability to sell at premium prices, as they currently expect to be able to do by signing long term contracts with the RECs who simply pass on the higher generating costs to the consumer, would make them an unattractive proposition for their existing financial backers.

(iii) **Orimulsion.** No new coal-fired station would be allowed to operate without Flue Gas Desulphurisation (FGD) equipment, so on a level playing field, no converted oil-fired station should be able to burn high-sulphur Orimulsion without FGD. The application by National Power to burn Orimulsion at two of its power

³ Supplementary memorandum submitted by the South of Scotland Electricity Board, published in minutes of evidence to the Energy Select Committee, 7 March 1990.

stations should therefore be rejected by Her Majesty's Inspectorate of Pollution unless they agree to fit FGD equipment. The application of this principle to the 2 PowerGen stations currently burning Orimulsion would prevent them from continuing with its use without FGD, and create a market for over 1m tonnes a year of coal.

(iv) **The French link.** The 2000MW link which connects the National Grid with France, originally intended to be a two-way link to ease difficulties at peak demand times in each country, has in practice been used for the sale of French electricity to Britain at base-load. Estimates of the cost of French nuclear-generated electricity are hard to come by, but there is some evidence to suggest that this electricity is no longer significantly cheaper than domestic power⁴. These electricity imports put at risk the sustainability of cheap electricity in the future since domestic mines are being closed and coal reserves sterilised as a result. The current contracts with France expire in March 1993, and the ending of the current one-way flow of electricity would create a market for an extra 7m tonnes a year of coal.

Table 2 illustrates the impact of the level playing field principle on the mix of fuel use for electricity generation in the UK as a whole for the rest of the 1990s. We assume that total electricity demand will grow by one per cent a year during this period, consistent with an annual average growth of GDP of around two per cent from 1993 to the end of the decade. On these assumptions, there is room in the generating market for the use of over 70m tonnes a year of coal throughout the 1990s.

⁴ F. Nectoux, 1991. **Crisis in the French nuclear industry.** Report prepared for Greenpeace.

TABLE 2: PROJECTED FUEL USE IN THE UK ELECTRICITY GENERATION
(million tonnes of coal or coal equivalent)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Nuclear	25	26	26	24	24	22	19	19	19	19	19
Hydro	2	2	2	2	2	2	2	2	2	2	2
Oil/ orimulsion	10	9	10	9	9	9	9	9	9	9	9
Electricity imports (net)	7	7	7	2	0	0	0	0	0	0	0
Gas	0	0	4	9	17	25	29	29	29	29	29
Coal	82	81	75	79	75	70	70	71	73	74	75
Total	126	125	124	125	127	128	129	130	132	133	134

5. THE IMPACT ON THE SOURCES OF SUPPLY OF POWER STATION COAL

The concept of a level playing field consistent with cheap, secure energy supplies in the future should also be applied to the supply of coal. There are a number of competitors to domestic deep-mined coal which can supply the market. These are principally opencast coal, imports and a small tonnage from private deep mines.

(i) Opencast coal. In the static or declining overall market now faced by coal in the UK, opencast coal is a direct competitor with domestic deep-mined coal. Output has increased to 19m tonnes a year, largely because of a presumption in favour of opencasting planning applications inserted by the government and which applies to no other type of planning development. Removal of this presumption would reduce the rate at which new opencasting sites come onstream, and accord with the level playing field principle in the realm of the supply of coal. It is likely that this step would reduce the level of opencast output to around 12m tonnes by the late 1990s.

(ii) Coal imports. At an exchange rate of around \$1.50 to the pound, the 12m tonnes of coal which will be imported for power station use this year costs between £30-37 per tonne, just £5 per tonne or so cheaper than British Coal's likely price from April 1993. This is a small gain when set against the closure of pits and subsequent sterilisation of reserves which results from such a high level of imports. CCC proposes that the current level of imported coal used in power stations should be halved to 6m tonnes a year. This would allow a sizeable volume of imports against which British Coal could judge its prices to the generators, and would not affect the coal imported for other uses.

Table 3 is in two parts. The first section shows the total demand for coal in the non-power station markets which has to be added to the power station demand estimated in Table 2 in order to arrive at figures for total consumption of coal in the UK during the 1990s. There are three main non-power station markets: households, coking ovens and other industrial or commercial users. Total sales of coal in these markets have been declining in these markets for some time, and we have assumed a decline of a further third between 1992 and the end of the decade.

TABLE 3: UK COAL CONSUMPTION AND SUPPLY (million tonnes)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
CONSUMPTION											
Electricity	82	81	75	79	75	70	70	71	73	74	75
Other sectors	27	25	24	23	22	21	20	19	18	17	16
Total UK Market	109	105	99	102	99	91	90	90	91	91	91
SUPPLY											
Imports - to power stations	7	10	12	8	6	6	6	6	6	6	6
Imports - other	10	10	10	10	10	10	10	10	10	10	10
Decrease in stocks*	1	-6	-4	5	5	0	0	0	0	0	0
Opencast	18	19	19	18	17	16	14	13	12	12	12
Deep-mines	73	73	64	61	61	59	60	61	63	63	63
minus Exports	2	2	1	0	0	0	0	0	0	0	0
Total UK Market	109	105	99	102	99	91	90	90	91	91	91

* negative figure denotes increase in stocks

The second part of Table 3 shows how this total demand would be met. We have made two further assumptions in this section. Firstly, that the market share of imported coal in the non-power station market rises in line with recent trends, so that there is a steady total of 10m tonnes a year imported for those markets. Secondly, the current high level of stocks of coal held by the generators and British Coal is run down by five million tonnes in each of the next two years. This is not as large a reduction as the generators might wish, but would be consistent with the principle of long term security of energy supply.

Allowing for the assumptions we have made concerning the total level of imported coal, opencasting and changes in stocks, there will be a market for total deep-mine production of 60m tonnes a year or more throughout the 1990s.

This is sufficient to keep open all of British Coal's pits, including the 31 threatened with closure. A number will be closed because of exhaustion during the decade, but this can be counterbalanced by full production from the new Asfordby pit and from increasing production from other pits as productivity continues to increase.

6. THE FINANCIAL BALANCE SHEET

Very importantly, from the point of view of the Exchequer and the electricity consumer, these proposals will not involve any additional burden on the taxpayer, and should result in considerable savings to the electricity user. Table 4 attempts to quantify the annual costs and savings from CCC's proposals during the late 1990s when the new arrangements would be fully in place.

It should be noted that the mining of these larger volumes of coal would mean that average production costs would be higher than if mining were restricted to fewer pits. We have assumed a price of £1.65/GJ, compared to the expected price of £1.50 which British Coal is expected to charge as from April 1993. This would mean that generating costs at existing large coal-fired stations would be 2.25p/kWh, which would leave the generators able to charge a price of around 2.7p/kWh for base-load power, giving them sufficient margin to cover a reasonable return and to part finance the potential requirements to fit more FGD equipment to coal-fired stations if required. Any future reductions in mining production costs would result in larger gains from our proposals, but these are not built into the Table.

TABLE 4: ANNUAL COSTS AND SAVINGS TO THE ELECTRICITY CONSUMER

	£ million
Savings	
Reduced use of nuclear power	240
Competitive pricing of output from committed gas stations	130
Avoidance of additional gas stations	260
	—
Total Savings	630
 Costs	
Discontinuation of net imports via French link	50
Discontinuation of orimulsion use	15
Reduction in coal imports	50
Higher average cost of UK coal	105
	—
Total Savings	220
	—
Net Saving	410

Using these assumptions about the price of coal-fired electricity, there would be gains to the electricity consumer from the closure of expensive Magnox stations, from the lower prices charged by the completed gas-fired stations, and from the avoidance of use of more expensive power from gas-fired stations which will not be built. These savings could total over £600m a year by the late 1990s.

The additional costs of our proposals arise from the use of coal-fired electricity to replace the net imports from France, the discontinuation of the use of Orimulsion, the reduction in coal imports and from the higher average price of domestic coal. We estimate these costs to be over £200m a year. There should therefore be a net saving to the electricity consumer of £400m a year by the late 1990s.

7. CONCLUSIONS

British Coal's proposed closure programme of 13 October 1992 would have a disastrous effect on employment, on economic activity and on the social fabric of coalfield communities. These proposals arose because the current framework of the electricity supply market is anti-competitive and unfairly discriminates against domestic deep-mined coal as an energy source.

A 'level playing field' in the electricity supply market, tempered by the need to ensure sustainable, cheap energy supplies, offers a way out of the present crisis that does not require new public subsidy and would actually reduce electricity prices.

The framework outlined here closes off no future option for electricity supply. A substantial nuclear industry would remain, while all the gas-fired power stations currently under construction would be completed and operated to supply base-load power. Power station coal imports would continue, though at a reduced level, providing a reference point for UK coal costs. Opencast coal would continue to compete with deep-mined coal. The current high level of coal stocks would be reduced somewhat in the short term.

These proposals would sustain a power station market for coal of 70m tonnes a year throughout the 1990s, which in turn would allow contracts between British Coal and the generators for 60m tonnes a year for the remainder of the 1990s. This would be sufficient to justify keeping open all British Coal's remaining collieries.

PIT CLOSURES - ECONOMICS OR STRUCTURE AS THE CAUSE?

by Anthony Baker and Helen Rendall
British Coal

INTRODUCTION

The recent announcement on 13 October 1992 of the planned closure of 31 collieries took the country by surprise and caused a massive public response in support of the mining industry.

This paper summarises the reasons for the proposals for colliery closures, including the deficiencies of market structures that were largely responsible. It suggests what might be done if some of the constraints on the competitive 'black fuels' market can be removed.

WHAT'S NEW IN COLLIERY CLOSURES?

However if we look into the past, colliery closures have been a regular phenomenon in the mining world. At nationalisation in 1947 there were nearly 1,000 NCB collieries. By 1965 there were less than 500. More recently reductions have still been necessary, and closures since 1981 are shown below:

	Pits closed	Collieries remaining at year end
1981/2 - 1985/6	79	133 *
1986/7 - 1990/1	72	65 *
1991/2	15	50

* New collieries in the Selby complex opened in each of these periods

So what is new in the current round of closures? In one sense, nothing. But there are two major differences that we perceive at present:

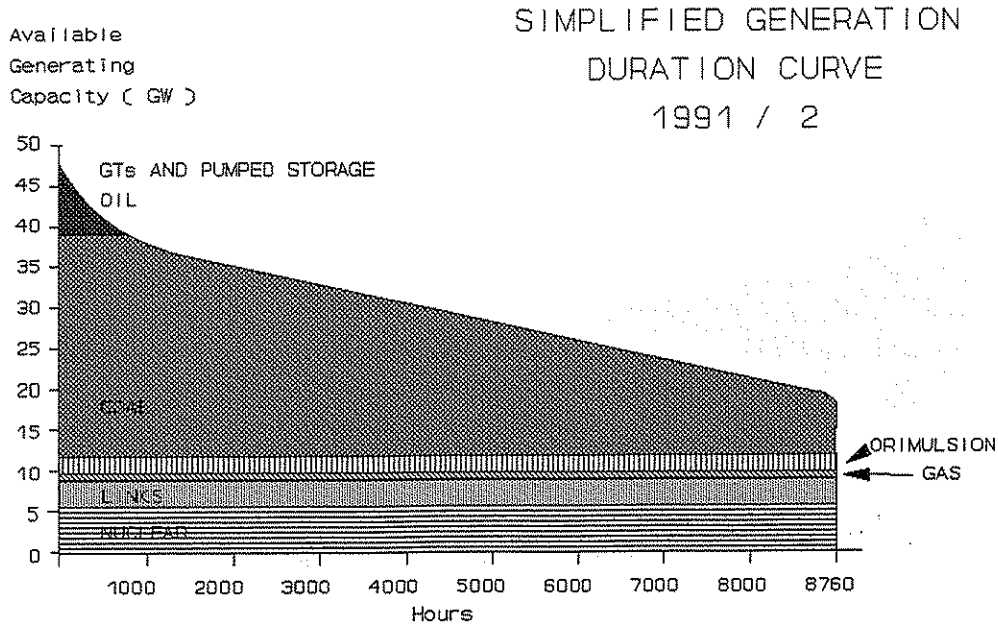
- a) The proposed reduction from 50 mines would amount to halving the remaining size of the industry, incurring heavy job losses in a recession;
- b) The issue is primarily one of market structure, rather than the economics of competition.

No doubt one of the reasons for the vigorous public response to the October announcement is that these perceptions are widely shared.

WHY THE CHANGE?

The fundamental reason for the October closure proposals was the collapse of the Electricity Supply Industry (ESI) market for coal beyond March 1993, when British Coal's current contracts with National Power and PowerGen terminate. British Coal sells to other markets (some 13 million tonnes, mainly to the domestic and industrial sectors, in addition to substantial supplies to Scottish Power), but it faces strong competition from other fuels, particularly gas. All steam coal producers in the world supply fuel principally for the power generation market. Figures 1 and 2 illustrate the problem. The graphs show, for the ESI market in England and Wales, a typical fuelling load curve for the range of fuels in the system for two years, 1991/2 and 1995/6. The *base load*, running all the time, all year, is at present provided by nuclear power (which must run), electricity from France and Scotland via links, gas and orimulsion in small quantities, and a substantial tonnage of coal (probably about 15 million tonnes for base load use). Additional power above base load is provided predominantly by coal. Peak demand, which must be flexible, is provided by oil, gas turbines and by pumped storage.

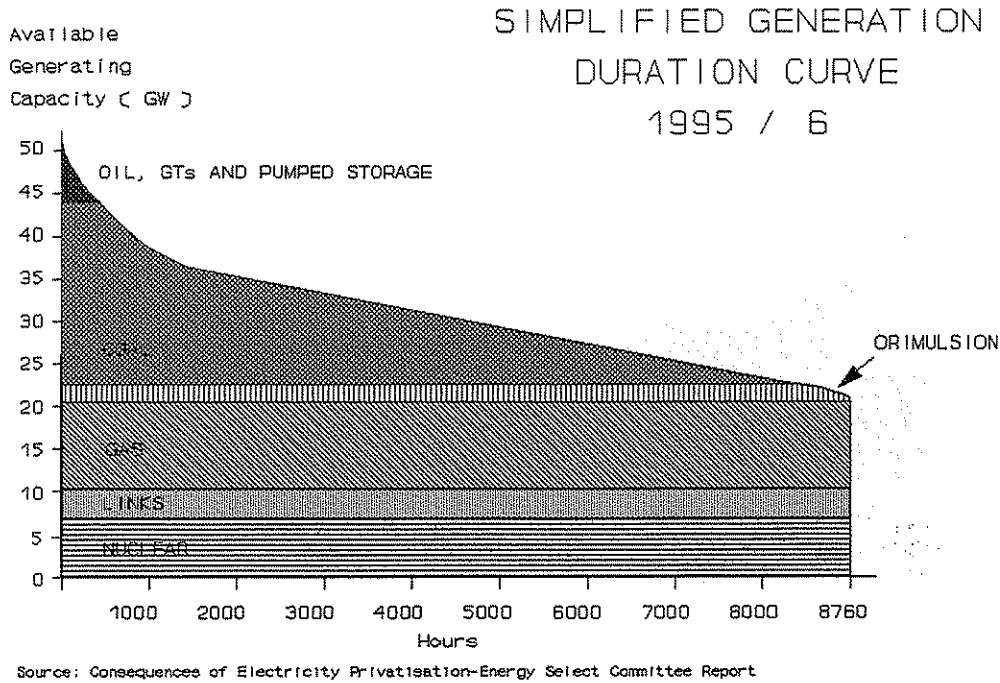
Figure 1: Electricity fuelling load curve 1991/2



Source: Consequences of Electricity Privatisation-Energy Select Committee Report

In the future, power from combined-cycle gas turbines (CCGTs) will displace a substantial part of the present coal-fired generation. Figure 2 suggests that up to 10 gigawatts (GW) (or 10,000 megawatts (MW)) of generation capacity will be gas-fired by 1995/6. Because of technical design and the existence of long term contracts with the Regional Electricity Companies (RECs) those stations will be obliged to run, if possible, on baseload. This will displace up to 30 million tonnes of coal from the system.

Figure 2: Electricity fuelling load curve 1995/6



This change amounts to the pre-emption of the 'black fuel' market (coal, orimulsion, heavy fuel oil (HFO)) by "must-run" power plants, such as nuclear and CCGT plants. Within the 'black fuel' market there will be fierce competition between coal from generators' stockpiles, orimulsion, coal imports and UK coal from BCC and private mines. The effect is to exert a strong downward pressure on prices, to the level where BCC will be competitive with coal imports around the mid-1990s.

An illustrative fuelling balance for the ESI in England and Wales is shown at Figure 3.

Figure 3: ESI Illustrative Fuelling Balance

Million tonnes coal equivalent	1992/3	1993/4	1997/8
Total ESI:	110	111	118
Nuclear	22	22	24
CCGT	2	10	33
Links/Interconnector	8	8	9
Black Fuels:	78	71	52
HFO/Orimulsion	6	7	8
Coal Imports	6	10	8
UK non-BCC Coal	2	4	6
Generator Stocks	-	10	-
BCC Coal	64	40	30

ECONOMICS OR STRUCTURE?

We accept that the need for competition between the privatised ESI generators implies that they must be able to make economic choices. As an alternative to their indigenous coal supplies they can choose to make reductions in the stocks that they currently hold; imports of foreign coals to coastal stations provide another option, and one that is cheaper at present, but obviously will depend on the exchange rate and movement in coal prices.

However our concern is about distortions in the market; in particular we have doubts about any increase in the protected nuclear component of the ESI market. The nuclear premium (levy) enables them to contract for supplies to customers at below the true cost to them; sales in 1991/2 were at 2.3p per unit against a cost of 3.9p per unit. The levy also appears to enable the French generators to export nuclear power to the UK and to gain benefit from that subsidy.

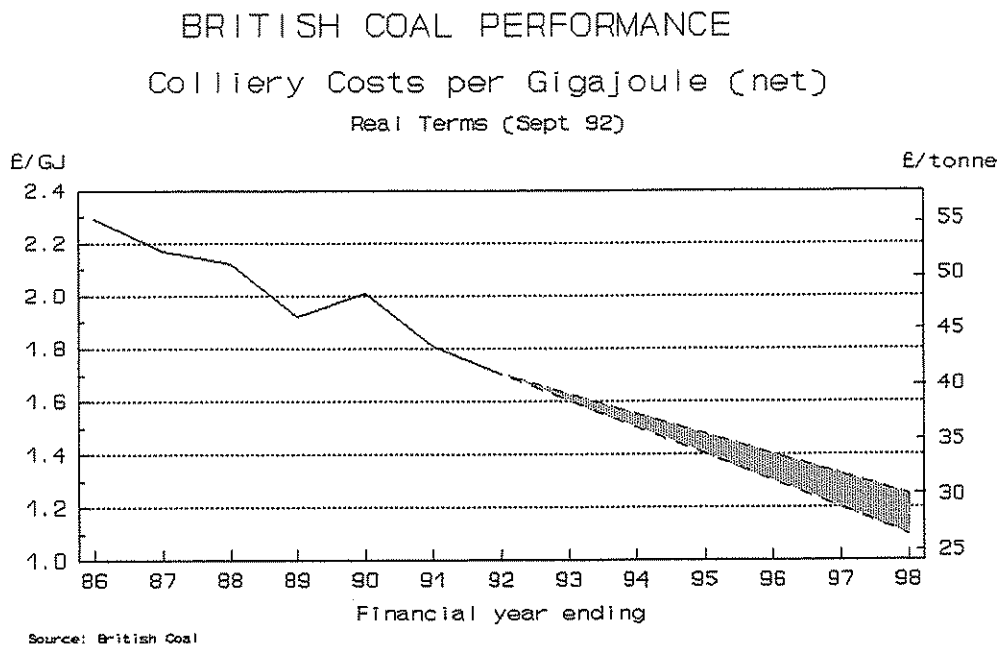
The other major concern is the development of CCGT projects ahead of economic need. This has been dictated by the ESI structure. There is some rivalry between the two Generators, and between the Generators and the RECs; the RECs in their turn have a strong desire for some independence in the power generation market as a foil for the duopoly power of National Power and PowerGen. They have the advantage that in the franchise market (small consumers) they are able to pass through in full the prices that they incur in power purchase.

Moreover within the electricity industry the expanding gas generation market pre-empted an existing coal generation market supplied by an increasingly competitive indigenous coal industry. Since 1985 British Coal have reduced their costs steadily, and will do so more.

PRODUCTIVITY

Figure 4 shows the reductions in real costs that have been achieved in the past six years. Looking forward six years shows the range in which we expect costs to lie in the future.

Figure 4: Improvements in colliery costs



The British coal industry is, rightly, controlled in many respects by legislation. Much of the legal framework dates back to pre-nationalisation days, some of it to the early days of this century. Working practices and conditions have changed enormously since then, and some of the constraints are very restricting in modern large coal mines which are very different to those for which the legislation was prescribed. British Coal could be more quickly competitive if legislation constraints were removed on working hours, and on the supervisory regime.

Working shifts are limited to 7½ hours by the Coal Mines Regulations Act 1908. In UK coal mines, because of the distances of the coal faces from the mine shafts, travel time

reduces significantly the amount of time available to work on the face. British Coal would prefer to be more flexible in shift lengths, so as to have a greater proportion of working time in a shift, and a reduced number of shifts per week or per month to keep a man's working hours to the same total as he currently enjoys.

Changes to the existing colliery management structure are in part constrained by legislation. British Coal would like to simplify that structure, whilst at the same time having full regard for safety. This would provide more flexibility in working and allow for greater improvements in efficiency at collieries.

WHAT FUTURE?

British Coal seeks, *if the size of the black fuel market will allow*, to retain 45 mt/year of supply to power generators in 1994/5 and beyond. To achieve this the 'black fuel' market would have to be retained at something akin to its present size. This would be in a total coal market of some 55 mt/year in the UK. We anticipate that this may well be within the framework of an industry that has been privatised in some form or other.

We do not pretend to be expert in what can be done to correct this distortion of the market: refusal of Magnox life extension requests, and avoiding building some of the gas-fired plants are two key parts if competition is to be promoted in the black fuels market. There will be a need for Government intervention; only Government can correct the situation which its past decisions have allowed to happen.

Before 1997/8 British Coal [or its successor(s)] could reduce costs to the level where 45 mt would be competitive at inland stations against imported coal. BCC estimates that costs will reach £1.30 per gigajoule (GJ) (net basis) in 1997/8. The degree of competitiveness will depend on movements in the £/\$ exchange rate, since international coal prices are in US dollars. British Coal's main customers appear to accept that £1.30 /GJ will be a competitive price in 1997 on best estimates.

British Coal concedes that it would need some degree of price protection for the next 3-4 years. *Judged against international coal prices*, (and not against nuclear or CCGT plants) it would need support of around £7/tonne in 1994/5 but this would reduce to zero by 1997/8. It would also be necessary to provide some degree of environmental protection eg the 8 gigawatts of Flue Gas Desulphurisation plant (FGD) as originally undertaken by National Power and PowerGen on privatisation; to date only 6 GW have been committed by the generators.

There is no essential dispute between British Coal and international mining consultants eg Boyds about the potential to reduce mining costs. There probably is disagreement among commentators about whether it would best be done by privatising BCC in a fragmented way, or as predominantly one or two units.

It is a question of degree and depends on the size of British Coal that remains. Anyone who argues for a considerable degree of fragmentation of the company has to decide:

- how to protect individual mines and fragmented companies against inevitable performance fluctuations posed by uneven geology
- how to resist generator duopsony power amid fierce competition from imported coal.

CONCLUSIONS

This paper has attempted to show why British Coal was forced to the October proposals on colliery closures. Looking to the future, the paper suggests:

- a) that the main issue is how to redress distortions in the market - the nuclear industry's priority in the market and its protection via the levy, and the very rapid development of gas-fired power generation ahead of economic need;
- b) that British Coal is prepared to compete with international coal in the competitive 'black fuel' market;
- c) In order to achieve this competitive position British Coal will require a transition period which would allow mines to hold markets while they reduce their costs over the next few years.

If there can be no change in the market size for coal, the October scenario will still be necessary. Our contention is that it need not and desirably should not be so.

Note:

The views expressed in this paper are those of the authors, and do not necessarily represent the views of British Coal.

UK ENERGY POLICY: A BRIEF SURVEY OF OPINION¹

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1 The Origin of the Survey

In the light of the announcement on 13 October 1992 of the closure of 31 coal pits, and of the subsequent Government decision to carry out a review of pit closures in particular and of energy policy in general, it seemed appropriate to canvass opinions on the subject of UK energy policy from professionals in the energy field. A short questionnaire was sent out in the second week of November to the Surrey Energy Economics Centre (SEEC) mailing list, with a request to return it within one week. This paper outlines the main findings from an initial analysis of the responses.²

2 The Survey Respondents

118 responses were received from the 542 people on the SEEC mailing list. The response rate of 21% is not high but seems reasonable, given the short response-time and the absence of follow-up reminders. The respondents can be split into four groups (all shares are approximate): one-third were from the energy industries; one-third were from a group comprising City energy professionals, and journalists and consultants; one-quarter were academics; the remaining one-tenth formed a residual group.

3 Views of Current UK Energy Policy

More than 90% of the respondents said that there is a need for a UK energy policy. Clear majorities were also dissatisfied with several aspects of present UK policy. More than two-thirds said that it was 'inappropriate', while three-quarters thought it 'ineffective'. On regulation, 55% said that the regulation of the gas industry was ineffective, while 80% said the same for electricity regulation. Seventy per cent wanted more competition (rather than centralisation) in gas, while 60% wanted it in

¹ This is a revised version of a paper submitted to the Trade and Industry Select Committee of the House of Commons in December 1992.

² A numerical summary of the responses and a copy of the questionnaire are to be found at the end of this document.

electricity. Sixty per cent also thought that the President of the Board of Trade should have more power to intervene in the fuel choice decisions of electricity generators.

4 The Nature of UK Energy Policy

More than 70% said that UK policy should consist of forecasts/scenarios, objectives and measures to achieve and monitor them, and that the policy time-frame should be more than ten years. Less than 15% said that policy should be made only at the level of the EC; around 80% said that it should be at the UK level or at both levels. More than 90% said that energy policy should aim to complement markets rather than to substitute for them. When asked to rank the objectives of energy policy, it was clear that the most popular objectives were (in order): 'reducing the cost of energy supplies', 'enhancing the security of energy supplies', 'improving the efficiency of energy use', and 'improving environmental quality'. All the other objectives were ranked much lower, including the maintenance of employment, the avoidance of adverse regional economic impacts and the balance of payments. Two other objectives with a relatively low ranking were competition and especially privatisation - although it could be argued that these are instruments of policy rather than objectives.

5 Privatisation and/or a Special Place for UK Coal?

Just over half (54%) of respondents said that the privatisation of British Coal should proceed, while 38% said that it should not. Nearly 60% also said that domestic coal should occupy a special place in UK energy policy. Views on coal privatisation were linked to some other attitudes in a broadly consistent way. For example, while those who wanted privatisation were evenly split between those who thought coal should and those who thought it should not have a special place, nearly 80% of those who did not want privatisation wanted a special place for domestic coal. Similarly, three-quarters of those who did not want a special place for domestic coal wanted privatisation. Moreover, while three-quarters of those who did not want coal privatisation wanted the President of the Board of Trade to have more powers to intervene in the fuel choices of electricity generators, nearly three-quarters of those who did not want the President of the Board of Trade to have more powers wanted coal privatisation.

Of the 60% who said that domestic coal should occupy a special place, the main reason cited was security of supply (linked by some with fuel diversity). Other important reasons were social/employment (some linked the employment concern with the recession but most did not), and the balance of payments. Also occasionally cited was the view that since the coal pits are in place, they should be used. Environment was given as a reason by some for investing in clean-burn technology, while for others it was a reason for using less coal.

A wide variety of methods for achieving the special place for domestic coal was cited. These included: intervention to ensure long-term contracts with the electricity generators, restraining the use of gas in power generation (sometimes by 'more effective' regulation), adjustment of the NFFO (sometimes to remove the 'nuclear subsidy'), more government funding for clean coal technologies, phased subsidies for coal, pricing all fuels to reflect their external costs, import restrictions, privatisation, and closure of uneconomic mines.

6 A Special Place for Other Energy Sources?

Respondents were asked whether other energy sources apart from coal should have a special place in UK energy policy. A little over sixty per cent thought that at least one such source should. For them, the highest ranking clearly was for electricity from renewables (68%), followed by nuclear electricity (44%).

7 Responses by the Four Groups

On the whole the responses by the four groups of respondents ran on broadly similar lines. However, especially when compared with the academic respondents, the energy industry respondents were somewhat less dissatisfied with the appropriateness and effectiveness of present UK energy policy and were keener to see more competition in gas and electricity. Attitudes to coal privatisation differed strikingly: while a clear majority of both the energy industry group and the City, journalist and consultant groups were in favour of BC privatisation, just over half of the academic group were against it. The academic group was also keenest to see a special place for domestic coal (65%), with the City, journalist and consultant group being the least keen, recording 50% in favour. This latter group was also least in favour of allocating a

special place to energy sources other than coal. Finally, and in some respects perhaps also surprisingly, whereas 60% of respondents chose not to add any comments at the end of the questionnaire, 72% of the academic group made this choice.

8 An Overall Picture of the Respondents' Views

Clear majorities of the respondents saw current UK energy policy as inappropriate and ineffective. The vast majority also wanted some form of explicit UK energy policy. However, on the whole they seemed to want the kind of approach in which the state sets the rules of the game and then holds back. In other words, the state intervenes to set the parameters within which the market is then broadly free to operate. For example, respondents appeared to want government to structure and regulate private industries to promote low-cost energy supplies, to protect security of supply, to encourage the efficiency of energy use and to improve environmental quality. In general, however, those who wanted an energy policy did not prioritise objectives relating to employment, regional economic impacts or the balance of payments (although in the case of domestic coal these objectives *were* cited, after security of supply). Moreover, competition and privatisation were also not listed as major objectives in themselves.

9 Comments on the Survey

This survey, with a questionnaire on two sides of a single sheet, was mounted quickly and was deliberately kept short in order to ensure a substantial and rapid response on an important current issue. In this it was successful. However, as a number of respondents noted, such brevity does have a cost, in terms both of the detail and the sophistication of the responses it can elicit. Evidently, a more detailed survey of a larger and possibly more representative sample would be required both to dig deeper into what lies behind these views of UK energy policy and to analyse more fully their consistency. Nevertheless, even this limited exercise seems to have been of some value. This is not least because it indicates that professionals in the energy field have clearly-held views about the nature of and need for a UK energy policy, even if they do not all agree on what it should be.

SURREY ENERGY ECONOMICS CENTRE
UNIVERSITY OF SURREY

UK ENERGY POLICY QUESTIONNAIRE: BASIC NUMERICAL ANALYSIS

Number of questionnaires sent out: 542; Responses: 118 (21%).

Respondent Groups: Energy industry group (32%), City, Journalist and Consultant group (31%), Academic group (25%), Other group (11%).

1 What is your general opinion of present UK energy policy?

- (a) (1) appropriate [14%] (2) inappropriate [69%] (3) Partly Approp. [2%] (99) NR³ [15%]
 (b) (1) effective [6%] (2) ineffective [75%] (3) Partly Approp. [3%] (99) NR [16%]

2 Is there a need for a UK energy policy? (1) Yes [93%] (2) No [5%] (3) No opinion [2%]
 [if No or No opinion, go to question 3]

2.1 If Yes, should such a policy consist of:

- (1) government forecasts for the energy sectors [2%]
 (2) government forecasts and objectives [2%]
 (3) forecasts, objectives & measures to achieve & monitor them [72%]
 (4) other (specify briefly) [22%]
 (99) NR [2%]

2.2 What should be the time-frame for energy policy?

- Up to 5 years: (1) Yes [27%] (2) No [12%] (99) NR [61%]
 5 to 10 years: (1) Yes [49%] (2) No [7%] (99) NR [44%]
 More than 10 years: (1) Yes [72%] (2) No [5%] (99) NR [23%]

2.3 Should energy policy aim to substitute for markets or to complement them?

- (1) Substitute [2%] (2) Complement [93%] (3) Other [4%] (99) NR [1%]

2.4 Should energy policy be at the level of:

- (1) the EC? [14%] (2) the UK? [54%] (3) Both [27%] (99) NR [5%]

2.5 Rank in order of importance (5 most important, 1 least important) up to five main objectives for an energy policy: [sum of percentage of respondents citing rank 4 or 5 for each objective]

- (a) Enhancing security of energy supplies 43%
 (b) Reducing the cost of energy supplies 49%
 (c) Increasing competition 14%
 (d) Improving environmental quality 38%
 (e) Improving the efficiency of energy use 41%
 (f) Privatisation 4%
 (g) Maintaining employment 5%
 (h) Avoiding adverse regional economic impacts 10%
 (i) Improving the balance of payments 8%
 (j) Other (rank and then specify below) 5%

³ NR indicates no response.

3 **Should there be more competition or more centralisation in:**

- (a) Gas: (1) More comp. [70%] (2) More central. [15%] (3) No change [9%] (99) NR [6%]
(b) Elec.: (1) More comp. [60%] (2) More central. [23%] (3) No change [11%] (99) NR [6%]

4 **Is the present regulation of the gas and electricity industries effective or ineffective?**

- (a) Gas: (1) Effective [43%] (2) Ineffective [55%] (99) NR [2%]
(b) Elec.: (1) Effective [18%] (2) Ineffective [80%] (99) NR [2%]

5 **Should the President of the Board of Trade have more powers to intervene in the fuel choice decisions of electricity generators?** (1) Yes [60%] (2) No [38%] (99) NR [2%]

6 **Should the privatisation of British Coal proceed?** (1) Yes [54%] (2) No [38%] (99) NR [8%]

7 **Should domestic coal occupy a special place in UK energy policy?**

- (1) Yes [58%] (2) No [39%] (99) NR [3%]
[If No, go to question 8]

7.1 **If Yes, cite the two most important reasons for this special place:**
[Percentage of those responding Yes to Q.7]

Reason 1: [99%] (99) NR [1%]

Reason 2: [90%] (99) NR [1%]

7.2 **How should this special place be achieved? Cite the two most effective methods of achievement:**

[Percentage of those responding Yes to Q.7]
Method 1: [97%] (99) NR [3%]

Method 2: [84%] (99) NR [16%]

8 **Should other energy sources occupy a special place in UK energy policy?**
(If No, go to Question 9)

- (1) Yes [64%] (2) No [32%] (99) NR [4%]

8.1 **If Yes, which source(s):**
[Percentage of those responding Yes to Q.8]

- (1) Gas [32%] (2) Oil [27%] (3) Nuclear electricity [44%] (4) Elec. from renewables [68%]
(5) Other [28%]

9 **What is your occupation?**

- (1) Coal industry [2%] (2) Electricity industry [7%] (3) Gas industry [2%] (4) Oil Industry [15%]
(5) local government employee [0%] (6) national government employee [2%] (7) Journalist [4%]
(8) City [8%] (9) Independent consultant [19%] (10) Academic [25%] (11) Other (please specify) [16%]

10 **Do you have any further comments on the issues raised in this questionnaire?**

Comments made: (1) Yes [39%] (99) NR [61%]

APPENDIX:

EXAMPLE OF UK ENERGY POLICY QUESTIONNAIRE

**SURREY ENERGY ECONOMICS CENTRE
UNIVERSITY OF SURREY**

UK ENERGY POLICY QUESTIONNAIRE

How to respond: unless otherwise specified, please circle the response of your choice.

1 What is your general opinion of present UK energy policy?

- (a) (1) appropriate (2) inappropriate
(b) (1) effective (2) ineffective

2 Is there a need for a UK energy policy? (1) Yes (2) No (3) No opinion
[if *No* or *No opinion*, go to question 3]

2.1 If Yes, should such a policy consist of:

- (1) government forecasts for the energy sectors (2) government forecasts and objectives
(3) forecasts, objectives and measures to achieve and monitor them (4) other (specify briefly)

2.2 What should be the time-frame for energy policy?

- (a) Up to 5 years: (1) Yes (2) No
(b) 5 to 10 years: (1) Yes (2) No
(c) More than 10 years: (1) Yes (2) No

2.3 Should energy policy aim to substitute for markets or to complement them?

- (1) Substitute (2) Complement (3) Other (please specify)

2.4 Should energy policy be at the level of: (1) the EC? (2) the UK?

2.5 Rank in order of importance (5 most important, 1 least important) up to five main objectives for an energy policy:

- (a) Enhancing security of energy supplies —
(b) Reducing the cost of energy supplies —
(c) Increasing competition —
(d) Improving environmental quality —
(e) Improving the efficiency of energy use —
(f) Privatisation —
(g) Maintaining employment —
(h) Avoiding adverse regional economic impacts —
(i) Improving the balance of payments —
(j) Other (rank and then specify below) —

3 Should there be more competition or more centralisation in:

- (a) Gas: (1) More competition (2) More centralisation (3) No change
(b) Electricity (1) More competition (2) More centralisation (3) No change

Please Turn Over

- 4 **Is the present regulation of the gas and electricity industries effective or ineffective?**
 (a) Gas: (1) Effective (2) Ineffective
 (b) Electricity: (1) Effective (2) Ineffective
- 5 **Should the President of the Board of Trade have more powers to intervene in the fuel choice decisions of electricity generators? (1) Yes (2) No.**
- 6 **Should the privatisation of British Coal proceed? (1) Yes (2) No**
- 7 **Should domestic coal occupy a special place in UK energy policy? (1) Yes (2) No**
 [If No, go to question 8]
 7.1 **If Yes, cite the two most important reasons for this special place:**
 Reason 1:

 Reason 2:
- 7.2 **How should this special place be achieved? Cite the two most effective methods of achievement:**
 Method 1:

 Method 2:
- 8 **Should other energy sources occupy a special place in UK energy policy? (1) Yes (2) No**
 (If No, go to question 9)
 8.1 **If Yes, which source(s):**
 (1) Gas (2) Oil (3) Nuclear electricity (4) Electricity from renewables (5) Other (please specify)
- 9 **What is your occupation?**
 (1) Coal industry (2) Electricity industry (3) Gas industry (4) Oil Industry
 (5) Local government employee (6) National government employee (7) Journalist (8) City
 (9) Independent consultant (10) Academic (11) Other (please specify)
- 10 **Do you have any further comments on the issues raised in this questionnaire? Please write them below, and continue on additional sheets if you wish.**

Thank you very much for participating in this survey!

Please return the questionnaire to: The Secretary (EPQ), SEEC, Dept. of Economics, University of Surrey, Guildford GU2 5XH [fax: 0483-303775]. [\ENPOLQ01\11\92]

