chex.ps/kg2/24

**CONFIDENTIAL**

Prime Minister
Treasury believe critical consultant's report would not leak if given to Mr Clarke (BC Chairman) directly.
Content for DEn to pass the report to Mr Clarke?
BHP
23/4

Yes

Treasury Chambers, Parliament Street, SW1P 3AG
071-270 3000

**PRIME MINISTER**

**BRITISH COAL PRIVATISATION**

I have seen John Wakeham's minute of 18 April to you on coal industry privatisation and the consultant's report circulated by John on BC's productivity.

As John says, the report makes clear that BC's poor productivity record could be greatly improved by improvements in the quality of its management and mining methods. In my view the report's conclusions on the quality of BC's management strengthen the case, set out in Francis Maude's minute of 27 March, for having private sector management in place to negotiate new contracts with the Gencos.

It is clearly important that, whatever the way forward we agree at your meeting on 1 May, BC should address the issues raised by the report. I see merit in the report being sent to Mr Clarke now (with the proposed excisions). BC's management will then be in a position to respond more quickly to any remit agreed on 1 May.

I am copying this minute to the Secretary of State for Energy, the Financial Secretary and to Sir Robin Butler.

N.L.

**[N.L.]**

**22 April 1991**

CONFIDENTIAL

file

10 DOWNING STREET

LONDON SW1A 2AA

*From the Private Secretary*

23 April 1991

Dear John,

**BRITISH COAL PRIVATISATION**

The Prime Minister was grateful for your Secretary of State's minute of 18 April about the consultant's report on British Coal's productivity. The Prime Minister has also seen the Chancellor's minute of 22 April on this subject.

The Prime Minister is content for your Secretary of State to send an edited version of the report to the Chairman of British Coal in strictest confidence.

I am copying this letter to Jeremy Heywood (Chancellor's Office), Philip Rutnam (Financial Secretary's Office) and to Sonia Phippard (Cabinet Office).

Yours ever,

Barry

**BARRY H POTTER**

John Neilson Esq
Department of Energy

CONFIDENTIAL

①

PRIME MINISTER

The Summary is revealing. A word about 1/5 – any instinct against letting the (redacted) report go to Coal? 21.4.

COAL: INDUSTRY PRIVATISATION

I attach a minute from the Energy Secretary, reporting on an independent study of the prospects for further productivity growth at British Goal.

I also attach the summary of the report. I have highlighted the important points. It makes fascinating reading. There is clearly enormous scope for further productivity growth.

I have passed the whole report to Policy Unit who may wish to give further comments in due course.

The action point is straightforward. The Energy Secretary sees attractions in circulating an edited version of the report in confidence to Neil Clarke, the new Chairmen of British Coal.

There are, however, always dangers in sending edited versions of reports, even in confidence, to the Chairman of British Coal. And the wider ramifications if a copy of the unedited/edited report were to get into the hands of the NUM are obvious.

You are meeting the Chancellor and the Energy Secretary on 1 May to discuss the way forward on privatisation. Treasury (and Policy Unit) are anxious to proceed with an accelerated timetable which would allow sale in 1992. Mr Wakeham believes that is impractical.

Handling the report on productivity is clearly linked to the privatisation plans. I suggest therefore you do not decide action on the report now. Instead you might also consider whether to send the report to Mr. Clarke (and if so when and in what form) at your meeting on privatisation of British Coal on 1 May.

Content to proceed on this basis?

BHP

BARRY H POTTER

19 April 1991

c\economic\coal (kw)

CCPU

Prime Minister

**COAL INDUSTRY PRIVATISATION**

In my minute to you of 27 March I referred to preparatory work currently in hand as a basis for future decisions on the privatisation of the coal industry. As one element of such work I arranged to commission an independent study on the prospects for further productivity growth, an issue crucial to the future scale and value of the industry, as the Financial Secretary has well recognised.

This study was carried out by Mr Alan Oakes, an experienced British mining engineer who has spent most of his career overseas, ending up as General Manager of BP's coal operations in Australia, before returning to the UK last year. He is a member of my Advisory Council on Energy Research and Development.

Mr Oakes has concluded that although there are adverse geological conditions in Britain which disadvantage our coal industry, there is nevertheless very substantial scope for future productivity growth through the general adoption of technologies common in the USA and Australia but only beginning to be introduced here, through changes in attitude of both management and workforce, and through continuing cost reduction. British Coal have of course made big improvements in productivity in recent years - up 85% since the miners' strike. Mr Oakes believes that as much again, or more, is achievable over the next three or four years, which would substantially improve the prospects for the industry.

My intention in commissioning this report was to be in a position to put searching questions to Neil Clarke, the new Chairman of British Coal, as to the realistic prospect for greater productivity growth in future than is presently assumed by the Corporation. I informed him earlier this year of my intention and it is clear that he himself well recognises the importance of

doing all that is possible in this area. Given that he has now had some time to get to grips with his new responsibilities, and the recent changes in the top management of the Corporation, I believe that now is the appropriate moment to urge on the industry changes both in technology and management approach based on best practice overseas.

I attach a copy of Mr Oakes' report. The sidelined passages have some sensitivity either because blunt comments on British Coal's management may be counter-productive, or because they refer to the future size of the industry or the possible consequences of privatisation. I would propose to excise these and provide copies of the edited version, in confidence, for Mr Clarke and two of his senior colleagues, the Corporation Members responsible for deep mining operations and for strategic planning. I would ask Neil Clarke personally to ensure that the issues raised in the report are fully addressed with a view to making a detailed response to me once he had been able to consider the matter fully.

Ideally I would like to open discussions with Mr Clarke as soon as possible. However, in view of the political sensitivities surrounding coal industry matters and our meeting on 1 May, I felt it right to ensure that you and other interested colleagues would be content before proceeding on the lines proposed.

I am copying this minute to the Chancellor of the Exchequer, the Financial Secretary, Treasury and to the Secretary to the Cabinet.

John

**SECRETARY OF STATE FOR ENERGY**

18 April 1991

# DEEP MINE PRODUCTIVITY COMPARISONS

## SUMMARY

### GEOLOGICAL ASPECTS

1. Geological environment of UK coalfields shows marked similarity to the main Appalachian coalfields of the eastern USA (they are of similar geological age, namely Pennsylvanian). Seam thicknesses, roof and floor characteristics and the nature of the coal seam surrounding strata are all comparable.

2. The Australian and South African geological environments do not show such close similarity to UK conditions. These southern hemisphere coalfields are of younger (Permian) age than UK and Appalachian coalfields. Their seams are generally thicker than those of the UK and their inherent ash contents are invariably higher. The surrounding strata is much stronger than in the UK coalfields (high proportion of sandstone) and there are problems with high lateral stresses in Australia.

3. The best seams in the UK in terms of quality, thickness and depth, have often been worked out and mines therefore have been forced to work lower quality and more difficult reserves. The reserve base of competitors overseas is large enough for them to select only economic reserves and to avoid difficult or poor quality deposits.

4. The average depth of mines in the USA, RSA and Australia is less than in the UK but the deepest mines in those countries are operating in conditions similar to medium depth mines (400 - 600 m) in the UK.

5. The economic reserves of the UK are too small a base to maintain the current capacity. Less than half of the remaining 67 UK mines have a reserve life in excess of 10 years, due to various boundary restraints. Less than 20 mines have open-sided boundaries that allow them a long life. Exposure to free market forces could reduce the number of economic mines to between 15 and 20.

5 ~~6~~. Longwall mining in the UK is constrained by many factors, including mine boundaries, intensive faulting, surface structures in built-up areas, to a far greater degree than the mines overseas, which are usually in rural or remote areas. This reduces the percentage of coal extracted from the in-situ reserves. Bord and pillar mining as practised extensively overseas is more flexible in the shape and size of coal reserves that can be worked and its adoption would increase the percentage extraction and the productivity.

6 ~~7~~. The quality of imported coals into the UK is superior to that supplied by BCC, specifically lower ash, sulphur and chlorine and a higher calorific value.

### TECHNICAL ASPECTS

#### Capital Intensity

1. The capital intensity of coal mines in the UK is greater by a factor of three than mines overseas, due to the lower productivity achieved.

Methods of Underground Mining

1. Longwall mining has been the traditional system of mining in the UK from before nationalisation, whereas mining by bord and pillar systems has been the norm overseas until the fairly recent introduction of retreat longwall systems.

2. Bord and pillar mining overseas has been successfully mechanised by the introduction of continuous miners and roof bolting techniques for roadway support. The same techniques for rapid roadway drivage have been used to block out longwall retreat panels in overseas mines.

3. The UK has concentrated on longwall advance faces, with the roadways supported by RSJ arches which give poor rates of drivage and high makes of roof rock. The slow introduction of roof bolting techniques and continuous miners has inhibited the introduction of longwall retreat faces in the UK.

4. Roof bolting trials with resin roof bolts have commenced in the UK and are proceeding satisfactorily in over 25 mines.

5. Overseas, the latest development in continuous miner pillar extraction is self-advancing hydraulic "breaker line supports." In addition, flexible conveyor trains are replacing shuttle cars in some development roadways.

Road Drivage Achievement

| | | |
|---|---|---|
| Development rates in the UK: | Average 2- 4 m/shift | Best c. 20 m/shift |
| Development rates in the USA: | Average 10 - 15 m/shift | Best c. 30 m/shift |
| Development rates in Australia: | Average 7 - 10 m/shift | Best c. 30 m/shift |

Development roadways in the UK require the use of continuous miners and roof bolting systems if they are to match overseas rates. Higher rates are required for successful longwall retreat development or bord and pillar working.

Underground Transport

1. Throughout the world, conveyors are invariably used for coal transport from the coal face, very often as far as the mine surface through an inclined shaft, or to a vertical shaft. In some cases, coal is transferred from conveyors to a locomotive system.

2. In the UK, most man-riding and material transport is on track-mounted systems. In the RSA, Australia and most mines in the USA, free-steered vehicles (FSV's) are used. If roof bolting was used in the UK, FSV's could also be used.

   Conveyors are also used in many UK mines for man-riding.

Shafts

1. Most modern coal mines overseas use inclined shafts to depths of 500 m. These inclined shafts or drifts utilise conveyors for coal transport and are also often used for men and materials. Vertical shafts are often utilised overseas at

depths where the lower efficiency of their operation is outweighed by the lower cost of sinking. They are also sometimes used for ventilation only shafts.

2. In the UK, most mines have vertical shafts for all facilities although the latest mines at Selby and Daw Mill have constructed inclines for coal transport. Inclined shafts have also been developed in several mine reconstruction schemes in the UK.

3. Inclined shafts are less expensive and labour-intensive to operate than vertical shafts.

Transfer & Salvage of Equipment (Longwall)

1. Longwall advance systems take several weeks or months to salvage since the equipment usually has to be broken down into components for transport along a deformed roadway. Spare longwall faces are therefore normally prepared ahead of time ready for transfer of the longwall teams. This requires additional capital investment.

2. Longwall retreat systems overseas can usually be transferred onto adjacent panels within one or two weeks employing specially designed free-steered vehicles and fork lifts.

Coal Preparation

1. The technology of coal washing or coal preparation is very similar around the world with the same major manufacturers of equipment represented in most plants.

2. Modern coal preparation plants overseas are designed efficiently to meet specific markets and would normally produce only one or two products.

3. The UK plants are generally much older and much modified as both the raw coal sources and the markets changed. They often supply several products. UK mines have to deal with far more contamination in the raw coal than mines overseas. The average yield of saleable coal raised from the total run of mine production in the UK is of the order of only 60% whereas, in Australia, it is over 80%. The overseas coals for export are of significantly higher quality than that supplied by BCC.

4. Highly automated plants in the USA will operate with only two to four men per shift and will be multi-skilled. In the UK and Australia, demarcation demands skilled artisans for some maintenance work. A typical Australian coal preparation plant would employ between 10 and 12 men per shift (including train loading and waste disposal) whereas, in the UK, due to the less compact and inefficient layout, the corresponding workforce would be in the range 15 - 20 men per shift.

5. A feature of overseas mines producing high quality, tightly controlled specifications would be the sophisticated blending/homogenising equipment to ensure consistent quality.

Surface Arrangements

Surface facilities overseas are generally more compact and operate more efficiently than those of UK mines, which were generally built in a different generation. Tall headgears are a feature of the landscape in the UK but rarely seen overseas.

Coal Loading Facilities

1. In RSA and Australia, coal mines "tied" to power stations are connected directly by conveyors. Coal exports are transported to the coal terminals at the coast by large dedicated trains, 3,000 t - 10,000 t capacity, which can be loaded in three to four hours. In the UK, a "merry-go-round" rail system, consisting of 3,000 t trains operates quite efficiently between mines and the power stations.

2. The generators and British Rail will no doubt be cooperating on improved coal terminals and rail services as coal imports increase.

CULTURAL ASPECTS

Management Attitudes

1. Until recently, BCC's policy was production at any price since they had a guaranteed market. Competition from overseas was not envisaged under the Coal Industry Nationalisation Act. Management have found it hard to come to terms with market forces and the commercial reality of competition from overseas.

2. A policy of no forced retrenchments makes it difficult to cut back on labour at producing mines.

Workforce Attitudes

1. The motivation for hard work in UK pits disappeared with the abolition of "piece work" by the NCB in 1966. Subsequent incentive schemes have not worked effectively. UK miners prefer extra wages for overtime rather than work harder incentives.

2. In the USA, all mines are on a standard day wage without any bonuses and overtime is tightly controlled. Both management and unions understand that a mine must remain profitable if it is to remain open.

3. In Australia, the incentive is high percentage of wages being paid in bonus form. Overtime is limited by the union.

Benefits & Disbenefits of Unitary Management

1. British Coal remains a highly centralised organization with many peripheral activities to coal mining. There were over 11,000 non-industrial staff out of a total of 85,000 employees in March, 1989.

2. Large overseas coal companies are generally more decentralised with mines performing as pure profit centres. Headquarters staff are kept to a minimum with a much lower percentage than BCC.

3. Many activities traditionally performed by BCC are contracted out overseas, e.g. workshops for major overhauls and specialist firms or contractors are used wherever possible.

Attitudes to Safety

1. The Inspectorate's attitude to developments overseas appears biased and has inhibited much technology well proven overseas from being adopted in the UK (as exemplified by rules attached to roof bolting trials).

2. Management of BCC has often used the "safety and health" issue as an excuse for failure to adapt to new technology.

3. The unions, although obviously concerned with 'safety and health" invariably use the issue of the introduction of new technology as a factor in negotiations of terms and conditions.

4. Other than fatal accidents, injury statistics are notoriously difficult to compare between countries since the basis of determination is different in each case, e.g. one day, three days and 12 days absence from work; per million man hours, per 200,000 shifts, per 1,000 employees, etc.

5. The UK has the best fatal accident record based on numbers of men employed, closely followed by Australia. Based on production, the USA, and Australia are in front of the UK.

PRODUCTIVITY COMPARISONS

1. Although productivity has almost doubled in the UK over the past five years, it was from a very low base. In absolute terms, the gap between the UK, Australia and the USA has, in fact, widened from over 2,000 tonnes per man year in 1985/86 to over 2,500 tonnes in the case of NSW and over 3,000 tonnes in the USA by 1989/90.

2. New technology is being introduced more quickly into Australia and the USA than in the UK and so the trend will continue, with the UK likely to fall further behind.

3. A comparison of the "best 10 longwalls" in the USA, NSW (Australia) and the UK reveals the real potential for the system and confirms British Coal's very poor performance with an average of +8,000 tonnes per man year in the USA, + 4,500 tonnes in NSW and less than 2,000 tonnes in the UK.

4. Productivity varies between the countries for several reasons, of which geology is only one important constraint. Where it can be shown that similar geological conditions exist in the USA and Australia as in the UK, the productivity remains much higher in the overseas countries.

5. One reason for lower productivity on the coal face is lack of motivation and incentive. Generally speaking, the average UK coal face worker does not appreciate working continuously "flat out," but prefers a "comfortable rate" which he knows is the minimum effort that management will accept, plus overtime!

6. Although poor coal face production in UK mines is the root of the problem, overmanning is a significant contributor to poor productivity. The ratio of persons employed "elsewhere below ground" (EBG's) to coal face or "production workers," i.e. 3:1 in the UK compared with 1:1 or less overseas.

7. Only 60% of the material hoisted to the surface in UK mines is of saleable quality, whereas overseas it would not be considered economic to work on such low yields. NSW statistics show an average yield of over 80% of saleable coal from the run-of-mine (ROM) coal produced.

8. The largest detrimental effect of geological conditions in the UK compared with Appalachia and NSW is that BCC mines continue working intensively faulted areas which would be avoided overseas. [BCC finds it difficult to abandon mines or projects when it has invested very large amounts of capital which would have to be written off.]

9. Use of continuous miners in bord and pillar systems should be considered as an alternative or addition to longwall mining in some UK mines where the reserves are faulted or irregularly shaped. This could lead to higher overall productivities (reduced costs) and increase the percentage of in situ coal extracted.

10. It is considered that at least 30 out of the current 67 working mines in BCC would not have been exploited or would have been abandoned by overseas coal companies due to the geological conditions.

THE SCOPE FOR PRODUCTIVITY IMPROVEMENTS

1. Major productivity improvements in UK mines would come from the widespread use of roof bolting for roof support instead of RSJ arches. This will permit the development of longwall retreat faces and greatly improve the logistics of transporting coal, men and materials.

2. Roof bolt supported roadway conditions will improve, and thereby greatly reduce the amount of road maintenance work.

3. Free-steered vehicles (FSV's) for men and materials can replace labour-intensive track-mounted systems in the rectangular section roadways constructed with roof bolt supports.

4. BCC mines may be divided into ~~four~~ three categories, namely:
**Category A** mines with large, "open-sided" reserves which should be able to produce 2.5 mtpa from two longwall retreat faces with 600 men underground. Output per man year would be 4,200 tonnes and the underground OMS 17 tonnes. [There are probably 17 mines in this category which should produce, in total, 45 mtpa.]

**Category B** mines with "confined reserves" would be able to produce 1.5 mtpa from one longwall retreat face and 400 men underground. Output per year would be 3,750 tonnes with an underground OMS of 15 tonnes. There are probably 10 mines in this category which should produce in total 15 mtpa.

**Category C** mines are those where roof bolting can be applied but the reserves are not suitable for longwall retreat systems. Production is taken as 1.0 mtpa for 400 men underground. Output per man year would be 2,500 tonnes and underground OMS 10 tonnes. There may be 10 mines in this category which should produce in total 10 mtpa.

**Category D** mines are those where roof bolting cannot be applied. These mines are considered as completely uneconomic and should be closed. There are some 30 mines in this category.

5. The potential total production from the 37 BCC mines in Categories A, B and C is 70 mtpa. However, due to the time needed to undertake roof bolting trials, the requirement to purchase additional equipment (continuous miners, shuttle cars, etc.) and train the manpower, the improvements could only proceed at selected mines over a period of three to four years ~~years~~. In addition, considerable time will be required to block out sufficient retreat longwall panels. The full potential cannot therefore be achieved before the generators conclude their next round of supply contracts in March, 1993.

6. Continued closure of poor performing mines will, of course, provide scope for overall productivity improvement by BCC. This should proceed as rapidly as possible with the closure of all Category D mines.

7. The challenge for BCC is to lift its game to achieve face productivities comparable with its overseas competitors. There is a long way to go but there is much that can be done.

8. It has to be said that the true potential of the BCC mines will only come from privatisation where hard-headed commercial principles take over from misguided protectionism.