APPENDIX 8.8
(referred to in paragraphs 2.167 and 2.175 Vol 1 FTA, and paragraph 8.34)

BG's estimates of separation costs

1. The MMC asked BG to estimate the cost of various degrees of separation of its activities. BG analysed four cases:

(a) post-OFT undertakings;

(b) transportation/storage and a separately-owned trading company;

(c) transportation/storage and a number of separately-owned trading companies (12); and

(d) transmission/storage, with a number of separately-owned regional distribution and trading companies (the `ESI model').

2. BG said that its analysis was not intended exhaustively to list all possible sources of cost and loss of benefit. To the extent possible, its estimates took into account measures that might be taken to reduce the gross costs. However, BG pointed out that many of these measures would involve the establishment of contractual relationships across key interfaces; and that any structure with a multiplicity of such relationships would require a substantial bureaucracy with attendant inefficiencies. BG assumed that, in all cases, the trading unit, company, or companies had a monopoly tariff franchise with a threshold of 2,500 therms a year. BG said that there would be substantial further costs in addition to those identified below should the tariff monopoly be abolished. These would be associated with: the reassignment of existing gas purchase contracts; the increased risks faced by gas producers due to shorter-term supply contracts; increased costs of maintaining present supply security levels in a fragmented market; and further storage requirements to enable within-day balancing to be achieved. BG said that there were also significant unquantified national trading and marketing benefits for an integrated business. These occurred in terms of a single point of contact for all customers, through national advertising and promotional activity, and the development of emergency and safety policy, both internally and in liaison with external bodies. Some of the costs are of a revenue nature whilst others are capital-related. A net present cost has been estimated by discounting the capital and revenue pre-tax cash flows at 10.8 per cent over ten years. All costs given are at 1992 prices.

The post-OFT undertakings case

3. This case examined the implementation of the OFT undertakings to create separate transportation/storage and trading units within BG. BG argued that this maximized the retention of the economies of scale and scope within an integrated company and that the separation would appear `seamless' to tariff customers with the single point of contact for all enquiries remaining. BG assumed that arrangements could be put in place that will enable each of the units to continue jointly to use assets or facilities (eg district office accommodation, communications infrastructure). BG's organizational proposals include the separation of trading into two distinct units; public gas supply and contract trading. BG left out of account the relatively small costs associated with this separation in preparing its analysis of this case.

4. The issues that introduced cost and losses of benefit at this stage were summarized as:

(a) supply/demand balancing regime;

(b) district administration;

(c) integrated IT;

(d) provision of dataloggers; and

(e) transaction costs.

Supply/demand balancing regime

5. BG told us that the present methods of achieving a daily balance were based on using beach nomination/renomination rights and supply interruption. In the most extreme case if these rights were not available at all to BG Transportation it was estimated that additional storage and line-pack would be required, costing approximately £2 billion. Clearly the provision of such massive volumes of storage was not realistic and it was essential that a balancing regime was implemented which enabled a large proportion of the existing flexibility in gas supply contracts to be maintained.

6. For example, if downward nomination of supply was available when necessary, then only shortages of gas would have to be dealt with. Depending entirely on storage, and not having available upward renomination or interruption to meet shortages `within-day', would add £40 million a year to storage costs.

7. Schemes for obtaining the necessary flexibility, however, were being considered and included such possibilities as transfer of renomination rights, flexibility bidding, and marginal pooling (see Chapter 5). The main differences between the various schemes were the commercial arrangements for making supply flexibility available to BG Transportation. BG Transportation's main role in these transactions would be to administer the scheme according to predetermined rules and/or according to system requirements.

8. The net costs of any new system would depend upon the detailed arrangements that were put in place and would include:

(a) *Set-up costs*. These included the cost of establishing the system, hardware and software and the cost of contract amendments to support the desired regime. It had been estimated that these costs could be up to £10 million for a scheme dealing with balancing. This had been assessed as a capital cost incurred in the first year of operation.

(b) *Running costs*. In addition to administrative costs of the system these also included the imbalance allocation and financial settlement system costs for BG Transportation and the shippers. There might also be ongoing costs in maintaining renomination rights. It was estimated that these running costs could be up to £10 million a year.

(c) *Efficiency of the new arrangements*. The arrangements that were put in place would need to access the flexibilities that were currently available and minimize the need for additional storage. It was anticipated that there would be a need for additional storage based on an increase in operating margins and that this could result in the need to provide additional storage at a capital cost of £150 million. It had been estimated that this would be provided over a four-year period.

Capital cost £160 million

Operating cost £10 million a year

District administration

9. As a result of the implementation of the regional organization review, engineering and marketing were integrated and it had been possible to reduce administrative and clerical staff at district level by approximately 800 people. The implementation of the undertakings would require some of that work to be undone to ensure transparency and non-discriminatory operation between the units. It has been estimated that three to four full-time equivalent staff per district would be needed to re-establish a separate engineering (transportation) administration. This would lead to an additional operating cost of approximately £10 million a year.

Operating cost **£10 million a year**

Integrated IT

10. There were currently a number of IT systems that support an integrated gas supply business. It had been estimated that to ensure a satisfactory split between units it might be necessary to have physically separate computer systems. There would need to be significant transfers of data each way between the two units' systems though the bulk of the data would need to be duplicated. It had been estimated that this scenario would have a gross cost in the order of £20 million a year. It might be possible, however, to use common systems with robust password and access control. Duplication of records would be reduced. This arrangement would reduce the additional operating cost to approximately £5 million a year.

Operating cost **£5 million a year**

Provision of dataloggers

11. There would be substantial costs in installing dataloggers on both BG-supplied and third party shippers' customers. Those installed on BG CT-supplied customers could be attributed to the implementation of the undertakings. They were necessary to support system balancing, correct capacity allocation and charging, particularly for non-core customers. The actual load thresholds at which full logging and sample logging would be carried out is yet to be settled.

12. The capital cost of a datalogger is currently about £1,085 but would fall to about £800 if datalogging were extended to all users of over 25,000 therms. An estimate based on logging loads in excess of 25,000 therms a year was that approximately 26,000 loggers would be required on BG CT-supplied customers. It was estimated that this would cost approximately £21 million and be incurred over four years. However, BG proposals for non-core customers would necessitate only logging loads in excess of 100,000 therms a year. On this basis it was estimated that it would be necessary to install approximately 7,000 units on BG CT-supplied customers at a total cost of £7.6 million. This would be incurred over two years. The running cost of approximately £150 a year per unit had been included as an additional operating cost.

Capital cost **£7.6 million**

Operating cost **£1 million a year**

Transaction costs between units

13. In many instances it would be possible to identify activities which could be separately costed and directly charged to either transportation or trading. Where this was not possible a basis for recharging or allocation of costs between the units would need to be determined. The agreement or contract that would exist between the units would cover a range of contacts at different levels. Operational monitoring of these contracts would be essential. The additional operating cost had been estimated to be £2 million a year based on an analysis of costs.

Operating cost **£2 million a year**

14. BG's estimates of total costs are summarized in Table 1.

TABLE 1 **Summary of total cost, post-OFT undertakings**

	Year									
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Capital (£m)	44	44	40	40	-	-	-	-	-	-
Operating (£m pa)	28	28	28	28	28	28	28	28	28	28
Total cost (£m) (operating + depreciation of capital + return on capital)	33	39	44	49	50	49	48	48	48	47
Total capital cost	£168 million									
Total NPC over ten years	£330 million									

Source: BG.

Intermediate case

15. It was possible to consider an intermediate step between the undertakings structure discussed above and complete separation of transportation and trading as discussed below. This would involve the creation of separate subsidiaries for transportation and trading both wholly owned by BG. In BG's view there would be little incremental cost relative to the post-undertakings structure from such an intermediate case. However, the creation of subsidiaries would require changes to primary legislation leading to an indirect cost in Parliamentary time.

Transportation/storage company and a separately-owned trading company

16. This considered the separation of the present BG into a transportation company owned by BG and an independent national trading company. BG argued that it resulted in a reduction in a number of the economies associated with an integrated company. However, it should be noted that the issues identified applied equally should transportation be divested. There would be a loss of the single point of contact for tariff customers. There would also, in BG's estimation, be a loss of efficiency in the carrying out of the operational work at a district level and a duplication of the corporate overhead associated with the establishment of a separate company. BG estimated the costs as follows.

Issues previously identified and unchanged at this stage

17. These comprised:

(a) supply/demand balancing regime;

(b) district administration; and

(c) provision of dataloggers.

The costs of these items were estimated above as:

Capital cost £168 million

Operating cost £21 million a year

Issues previously identified and modified at this stage

18. *Integrated IT*. Complete separation of the computerized information systems could result in additional operating costs of approximately £20 million a year (see paragraph 10 above).

Operating cost £20 million a year

19. *Transaction costs between companies*. Transaction costs were likely to be greater than with the post-undertaking position in that there would be a need for the prices charged between the companies to be market-based. There would be price and service comparisons with alternative suppliers and the systems in place would need to be more flexible to allow for this. Enforcement of service level agreements, disputes and settlements were likely to be more difficult to manage on an ongoing basis. It had been estimated that this cost would be in the order of £5 million a year.

Operating cost £5 million a year

New issues at this stage

Stores strategy

20. BG proposed to implement a stores strategy to support the integrated gas supply business. After initial start-up costs in years 1 to 3 it was estimated that benefits of approximately £33 million a year would flow from the project. These benefits arose from reduction in numbers of stores and inventory, improved procurement costs, and manpower reductions. It had been assumed that the strategy would be pursued by the separate companies. There would, however, be additional costs to achieve the project benefits. These would arise as a result of there being no sharing of buildings, staff or transport. The engineering cluster stores would have to be expanded to cover a range of additional items which would result in a one-off capital cost of £4 million in the first year together with a net increase of 25 staff at the central stores. There would be an increase in transport operating costs of £1 million a year. There would also be a need for additional central administrative staff (12) and district staff (130) to operate the additional stores. These additional requirements to achieve the project benefits amounted to a capital expenditure of £4 million and operating expenditure of £3.5 million a year.

Capital cost £4 million

Operating cost £3.5 million a year

Sub-optimal use of labour

21. A proportion of the jobs carried out by BG at a district level involved both engineering (transportation) and marketing (trading) operatives. These included emergency activities, service alterations, relays and local authority modernization work. Typical job durations were quite different for engineering and marketing and as a result of integrated work scheduling it was possible to optimize the use of both sets of labour. With separate companies there would be a significant degree of unproductive time for the operatives. Currently if a combined job was not at a stage where a service engineer can carry out work as planned he was able to take a short duration job from the radio operator (eg boiler maintenance, or follow up fitting of a spare part). It would be very difficult to reproduce the current situation in a contractually bound regime. At present some 8 per cent (1,200) of service operatives are involved in engineering-related work and it was estimated that the additional cost of contractual arrangements for such work would be in the order of £9 million a year. BG had considered the option of employing customer service operatives within transportation. However, due to peak workload matching and training inefficiencies it was unlikely that this would result in an offsetting of any of this cost.

Operating cost £9 million a year

Duplication of corporate overhead

22. The level of separation considered at this stage indicated the division of ownership between two separate legal entities. Each would have its own Board, its own shareholders, and its own AGM. Each would have to publish its own accounts and to establish and maintain an employee pension scheme. There would also be costs associated with the provision of legal, secretarial, regulatory, corporate planning and central services for this additional corporate structure. The cost could be up to £9 million a year and would be incurred only once separation was well advanced, from year 3.

Operating cost £9 million a year

Vehicle fleet procurement

23. BG obtained significant purchasing benefits on its fleet of company and commercial vehicles as a result of its scale of operation. If the company were separated the levels of discount obtained would fall by approximately 6 per cent from an average of 28 per cent to 22 per cent. The annual capital spend on vehicles was approximately £95 million. There would therefore be an increase in annual capital expenditure of approximately £6 million. In a similar way there would be an increase in the operating/maintenance expenditure of approximately £2 million per year due to reduced discounts on fixed price maintenance and losses of economy on in-house maintenance.

Capital cost £60 million

Operating cost £2 million a year

Buildings

24. At this stage separate accommodation would be required for transportation staff at both district office and depot level. Transportation at district level would be a smaller unit than trading, and depending upon geography some consolidation of districts could possibly take place. No detailed study had taken place to confirm the degree of consolidation possible but for purposes of this assessment a reduction of districts for transportation from 90 to 60 has been assumed. It had been assumed that the additional district office accommodation could be leased. For the 60 districts this would cost £24 million a year. It had been assumed that 50 per cent of this cost could be offset by the letting of released existing accommodation. In order to enable the released accommodation to be let there would be a requirement to carry out some restructuring of the existing district offices to provide suitable lease accommodation. It was estimated that to carry out appropriate works at the 90 district offices would cost in the order of £9 million. There were some 265 shared engineering/marketing depots within the company. These provided reporting centres for the local operational workforce. With the divestment split of transportation and trading it would be necessary to provide separate facilities. It was estimated that to provide separate transportation depots would cost in the order of £87 million in capital with additional annual running costs of up to £6 million a year. The total additional capital costs associated with buildings at this stage of separation was £96 million with additional operating costs in the range £10 million to £26 million a year.

Capital cost £96 million

Operating cost £10 million to £26 million a year

Communications

25. With a separation into two companies there were a number of potential areas where additional costs could arise. If it were necessary to duplicate any part of the existing BG communications system then these costs could be significant. For certain parts of the system, eg the public mobile radio system, it would be extremely difficult for both companies to obtain a frequency range to operate within. For example, the provision of a separate public mobile radio system could cost £35 million in capital and have operating costs of £10 million a year. It had been assumed that arrangements could be put in place that enabled both companies to operate using the existing infrastructure. The costs associated with additional PABX and associated equipment have been included within the buildings section. Therefore no additional capital or operating costs had been allocated.

Cost of divestment

26. With this stage of separation into two independently-owned companies there would be substantial one-off costs associated with divestment. These costs would include fees for advisers, financial and legal activities, etc. This cost had been estimated at approximately £30 million and it had been assumed that it would be incurred in the first two years. It had been treated as an operating cost of £15 million a year for two years.

Operating cost £15 million a year

27. BG estimates of total costs are summarized in Table 2.

TABLE 2 **Summary of total cost-transportation/storage company and a separately-owned trading company**

	Year									
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Capital (£m)	83	82	78	49	6	6	6	6	6	6
Operating (£m pa)	86	96	96	92	88	88	88	88	88	88
Total cost (£m) (operating + depreciation of capital + return on capital)	95	117	124	131	128	129	128	127	127	126
Total capital cost	£328 million									
Total NPC over ten years	£870 million									

Source: BG.

Transportation/storage company and a number of separately-owned trading companies

28. This case considered the separation of national trading into a number, say 12, of regional trading companies. BG argued that this would result in the fundamental break-up of the integrated gas purchasing and marketing structure that at present exists and would have major effects on development of UKCS gas resources, on the cost of gas and on the planning of storage and supply systems. BG said that there would also be substantial losses of benefit associated with reduced and less effective trading R&D effort, together with a reduction in benefits of present procurement policy. Additionally there would be further losses as current strategies such as IT and S&T cease to be viable.

29. BG thought that there would probably be a loss of uniform postalized pricing for the tariff market, together with a divergence of standards of service and operation. There would be substantial costs associated with the additional corporate overhead for each of the trading companies, and also with the allocation of supply contracts between the companies. At this stage of separation the benefits of the integrated transportation and storage system (but not trading), including those associated with unified design, and operational procedures were still maintained though any change in the boundaries of the new companies as compared with the existing regions would lead to additional costs.

Issues previously identified and unchanged in this case

30. These comprised:

(a) supply/demand balancing regime;

(b) district administration;

(c) provision of dataloggers;

(d) transaction costs between companies; and

(e) sub-optimal use of labour.

The costs of these were estimated above as:

Capital cost £168 million

Operating cost £35 million a year

Issues previously identified and modified at this stage

Integrated IT

31. BG's IT strategy had two main areas from which future benefits would flow. These were: the development and implementation of Company Core Systems (which would in turn facilitate the development of Best Working Practices), and Company Data Centre/Data Network Consolidation. These two development projects were projected to be worth about £105 million a year in year 6 of the project. In the previous two stages of separation this strategy would have continued to be pursued and the benefits achieved. With a number of separate trading companies this possibility of consolidating data centres and developing common core systems was not available. The potential loss of benefit was £105 million a year but it was considered that the work already carried out in identifying best practices would enable some benefit to be achieved even without the full implementation of the IT strategy. It was estimated that these benefits could be in the order of £25 million a year so reducing the overall loss of benefit to approximately £80 million a year from year 6 onwards. The additional operating cost of £20 million a year identified at stage 2 would remain.

Operating cost £20 million to £100 million a year

Stores strategy

32. With this stage of separation the stores strategy would cease to be viable. Approximately 75 per cent of the benefits were attributable to the marketing activity. The remaining engineering benefits would be offset by the additional costs necessary to achieve these benefits. This loss of benefit would occur from year 3 and had been treated as an additional operating cost.

Operating cost £33 million a year

Corporate overhead

33. The establishment of a number of trading companies would lead to an increase in corporate overhead cost. The elements contained within this item were detailed in the previous stage. At that stage a sum of £9 million a year was given as the estimated overhead for a national trading company. With 12 regional trading companies all operating as PLCs it had been estimated that the corporate overhead would be approximately £5 million a year for each company. This resulted in a total cost of £60 million a year.

Operating cost £60 million a year

Vehicle fleet procurement

34. The previous stage of separation identified losses of procurement and operating benefit of £6 million a year and £1 million a year respectively. With a number of trading companies there would be an associated further reduction in discount on the vehicle fleet purchase and maintenance. The further loss of discount could be of the order of 4 per cent of the trading companies' fleet, ie approximately 2 per cent of BG's total fleet or an additional £2 million a year of capital expenditure. This equated to an additional £20 million capital cost over ten years. There would be an additional maintenance cost of £2 million a year. The total capital cost over ten years was £80 million with an operating cost of £3 million a year.

Capital cost £80 million

Operating cost £3 million a year

Buildings

35. This stage of separation required similar district office and depot accommodation as in the previous stage, ie an additional capital cost of £96 million with operating costs in the range of £10 million to £26 million a year. However, there would be a change at regional level, with an increase from eight regional offices to 16 regional offices (4 transportation and 12 regional trading companies). The utilization of existing offices and the purchasing/leasing of alternative offices would offer a whole range of potential solutions. No detailed assessment had been made but a conservative assumption based on leasing of the additional office accommodation had been made and it was estimated that an additional cost of £10 million a year would be incurred, phased in over three years.

Capital cost £96 million

Operating cost £13 million to £36 million a year

Cost of divestment

36. There would be substantial costs associated with the divestment of trading from BG and the creation of 12 regional trading companies. The cost would be associated with the items described in the previous stage. It had been assumed that the new companies would be PLCs with separate ownership. The cost of carrying out this form of divestment had been estimated at approximately £95 million. It had been estimated that this would be incurred over a two-year period. This expenditure had been treated as an additional operating cost occurring for two years only.

Operating cost £48 million a year

New issues at this stage

Future seasonal storage requirements

37. Rough had been constructed to help match the variation of seasonal demand with the swing purchased at the beach. As an integrated company, BG could efficiently co-ordinate the management of storage as a whole to meet peak demands. In particular it had been able to co-ordinate the large increment of storage when Rough came into service with reducing beach swing as the northern basin was developed, with the South Morecambe project and with interruptible sales. Due to the continuing decline in average beach swing and the anticipated decline of seasonal supplies from the Sean and South Morecambe fields, a further seasonal store similar to Rough was likely to be required over the next 20 years. The current replacement cost of Rough would be approximately £1.4 billion. For such a development to go ahead there would need to be large up-front investment backed by confidence in long-term commitment to its use. With a number of trading companies, if the market were fragmented or operating on a shorter-term basis, then it was likely that incremental storage in the form of salt cavities and LNG would be constructed to meet individual requirements rather than the substantial single investment in a Rough-type facility. The cost of providing the equivalent storage from salt cavities was estimated to be £2 billion on an incremental basis, and from LNG up to £5 billion. It was unlikely that the necessary volume could have been provided from salt cavities alone, and hence it was considered that alternative storage equivalent to Rough would have cost at least £1 billion more. This additional expenditure had been assumed to be incurred during years 11 to 15 at a rate of £200 million a year. This capital sum has been included in the capital total but not in the ten-year net present cost total. The operating costs for each regime were only marginally different and so this element of additional cost had been ignored in this case. It was considered very unlikely that the trading companies would combine to commission such a store given the degree of uncertainty over their individual future requirements, the lead time with such a project and the investment required.

Capital cost £1,000 million

Loss of R&D benefits on trading activities

38. The annual Gas Business marketing R&D budget was approximately £17 million with, BG estimated, a pro rata net present value benefit of £50 million. Whilst with a fragmented trading base individual companies or suppliers might instigate development programmes, these would generally be limited to product development and would not extend to fundamental research. An alternative scenario was one in which an industry levy supported a centrally co-ordinated research programme. In the USA the Gas Research Institute co-ordinated the use of the fund, the work being carried out by universities and contract research institutes. Characteristics of this regime were the low commitment of individual companies, and the unfocused nature of the work. Topics were worked on without identifying clear problem areas and without establishing implementation programmes. BG believed that such a scenario would lead to a reduced programme with much reduced benefits. It estimated that perhaps two-thirds of the benefit might be lost in this situation. This loss of benefit of approximately £34 million a year had been treated as an operating cost.

Operating cost £34 million a year

Sub-optimization of procurement policy for trading

39. BG S&T had estimated that a fragmented purchasing policy would lead to an increase in costs of approximately 20 per cent. Trading material purchases that were currently sourced centrally amounted to approximately £240 million a year. A loss of future benefit of approximately £48 million a year could occur through the establishment of separate companies. Whilst it was possible that some companies might establish a joint procurement venture for a particular project or might establish retail consortia, they would not tend to organize themselves to purchase centrally on an ongoing basis. BG estimated that approximately 30 per cent of the benefit could be secured by offsetting procedures. This loss of benefit of approximately £34 million a year had been treated as an operating cost.

Operating cost £34 million a year

Loss of countervailing power against producers

40. BG said that UKCS gas production, offshore transportation and processing were characterized by a relatively small number of large multinational companies. Many of these companies also had a commercial interest in the main competing fuels in the non-domestic market and in the growing direct gas market. These companies therefore had considerable market power. BG believed that it was beneficial to have a national trading company with a sizeable and assured market to act as a countervailing force to the market power of these producers. With a number of trading companies competing to purchase supplies it was likely that there would be an upward movement in beach gas prices. This view had been substantiated by the fact that during the recent surge of third party interest in supplying gas for power generation there was a marked upward movement in offered prices. Increases in cost in the range 10 to 15 per cent were experienced. It was, however, difficult to isolate the price effect due to a reduction in the countervailing power from the general movement of future prices caused by a number of market factors (including future competition). Additionally the effect of any upward movement due to this effect would only become apparent over time as new contracts replaced depleted ones. BG had estimated that there could be an increase of 5 per cent in the beach gas cost. Assuming that this increase would occur on all new purchased gas over the first five years of such a new structure and that there is a lead time of three years before the more expensive gas is first taken gave an increase in operating costs of £18 million a year in year 4 rising to £90 million a year in year 8 results.

Operating cost £18 to £90 million a year

Management of existing gas purchase contracts

41. BG will have to allocate the existing supply contracts between the trading companies. To ensure equitability it was likely that there would need to be transitional arrangements for the management of the existing portfolio of contracts. One possibility was a management company jointly owned by the regional trading companies. Each of the trading companies would also need their own gas supply group to determine and negotiate for their own future requirements. The costs associated with the establishment and ongoing operation of the management company had been estimated at £5 million a year. This cost would be incurred from year 3. No attempt had been made to quantify the cost of sub-optimization of the current supply contract portfolio.

Operating cost **£5 million a year**

42. BG's estimates of total costs are summarized in Table 3.

TABLE 3 **Summary of total cost-transportation/storage company and a number of separately-owned trading companies**

	Year									
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Capital (£m)	81	84	80	51	8	8	8	8	8	8
Operating (£m pa)	187	201	260	274	288	386	404	422	422	422
Total cost (£m) (operating + depreciation of capital + return on capital)	196	222	292	314	330	429	446	464	463	462
Total capital cost	£1,344 million (£1,000 million in years 11 to 15)									
Total net present cost over ten years	£2,266 million									

Source: BG.

Transmission/storage company with a number of separately-owned regional distribution and trading companies (the `ESI model')

43. This case considered the separation of transportation/storage into a national transmission/storage company owned by BG with a number, say 12, of regional distribution and trading companies (similar to the split between the national grid and the RECs). The gas supply system would be split at the RTS/RDS interface. BG argued that this case raised many of the issues arising from the case described above. In addition, to the extent that there were concerns about common ownership of trading and transportation these would remain (at least for local distribution), while costs of operational complexities would be substantially increased. The advantages to the customer of the single point of contact at the district for a combined engineering and marketing operation would be reintroduced.

44. It was assumed that there would be a need for clear information barriers between trading and distribution activities within the regional companies to ensure transparency and non-discriminatory operation. For this reason the losses of benefit associated with district administration, and IT, would remain. There would be further substantial losses of benefit through the reduced effectiveness of engineering R&D, the sub-optimization of procurement policy, and the transmission/distribution system split. There could be increased competition between BG regions, both direct and comparative, but with a divergence of standards and operating methods. Such a structural change would probably take a significant period of time to introduce and it had been estimated that this may be of the order of three years.

Issues previously identified and unchanged in this case

45. These comprised:

(a) supply/demand balancing regime;

(b) district administration;

(c) vehicle fleet procurement;

(d) provision of dataloggers;

(e) corporate overhead;

*(f)*countervailing power against producers;

(g) management of existing gas purchase contracts;

(h) future seasonal storage requirements;

*(i)*cost of divestment;

*(j)*sub-optimal use of labour;

(k) stores strategy; and

*(l)*IT strategy.

The costs of these were estimated above as:

Capital cost £1,248 million (£1,000 million in years 11 to 15)

Operating cost £101 million a year in year 1 to £321 million a year in year 10

Issues previously identified and modified at this stage

Transaction costs (operation + transportation charging)

46. The division of the supply system between a national transmission/storage company and a number of regional companies would increase the level of transactions between those companies. Additionally for each third party shipper supplying a customer off the regional company's distribution network there would be two separate transportation charges with an increased level of transaction costs. This cost was estimated to be £2 million a year. The transaction costs previously identified would still be incurred. This resulted in the total value of transaction costs being estimated at approximately £7 million a year.

Operating cost £7 million a year

Buildings

47. The 12 regional companies would occupy the existing regional Headquarters accommodation. This would involve the retention of four regional Headquarters buildings that would have been disposed of in the previous stages. This has been treated as an additional operating cost of £14 million a year based on current leasing and maintenance charges. It would be necessary to lease accommodation for the four regional transportation offices. This had been estimated to cost £4 million a year. There would be no requirement for additional district office and depot accommodation with this stage over the BG base case. There would be a need for approximately 30 transportation operational depots. This had been estimated to cost approximately £15 million capital with operating costs of £1.5 million a year.

Capital cost £15 million

Operating cost £17 to £20 million a year

Loss of R&D benefit

48. The annual Gas Business engineering R&D budget was approximately £16 million with a pro rata net present value benefit of £50 million. A fragmented engineering base would lead to a run-down in support of a centrally funded programme extending across both transmission and distribution engineering. In the previous stage an alternative scenario was described where an industry levy was used to provide for a central research fund. The limitations of such an approach were described. In a similar way to that described in the previous stage it was estimated that up to two-thirds of the benefit might be lost. This had been quantified as an additional operating cost of £34 million a year. The total operating cost at this stage was £68 million a year.

Operating cost £68 million a year

Sub-optimization of procurement policy for regional supply

49. BG S&T had estimated that a fragmented purchasing policy would lead to an increase in costs of approximately 20 per cent. Engineering material purchases that were currently sourced centrally amounted to approximately £210 million a year. A loss of future benefit of approximately £42 million a year could occur though the establishment of separate companies. Whilst it was possible that a number of companies might establish a joint venture for a particular project they would not tend to organize themselves to purchase centrally on an ongoing basis. It had been estimated that approximately 30 per cent of the benefit might be secured through collaborative efforts or other offsetting procedures. This had been treated as an additional operating cost of £29 million a year. In the previous stage a similar cost was identified as a result of sub-optimization of trading procurement. There was limited commonality between trading and distribution materials and so there would be no offsetting gain as a result of creating the regional distribution and trading companies. The total cost at this stage was £63 million a year (£34 million + £29 million).

Operating cost £63 million a year

New issues at this stage

Provision of additional metering at RTS/RDS interface

50. A separation between transportation and regional distribution at the RTS/RDS boundary would require fiscal standard metering at this point. There were approximately 1,750 installations where metering would need to take place. It had been estimated that it would cost on average £50,000 per installation to install metering to the required standard. It would take approximately three years to complete the installation of meters, due to operational constraints, and would cost a total of £90 million.

Capital cost £90 million

Sub-optimization of system reinforcement/extension work between RTS/RDS

51. Where a vertical separation occurred between transmission and regional distribution it was possible to show that there would be a loss of benefit due to sub-optimization of system reinforcement and extension work between pressure tiers. BG spends approximately £200 million a year on system reinforcement and extension work within the NTS, RTS and RDS. With an integrated structure it was possible to take an overall view, reinforce within the most appropriate tier and at the optimum time. It was often possible to defer elements of expenditure and to phase work over several years. Examination of a number of projects showed that typically it was possible to save approximately £15 million a year due to deferment and optimizing between the RTS/RDS tiers. Contractual arrangements could offset some of this potential loss although the close liaison and degree of flexibility required to realize the saving would restrict this offsetting factor. However, a reduction of £5 million a year had been assumed for this. This additional cost of £10 million a year has been treated as a capital cost of £100 million over ten years.

Capital cost £100 million

Loss of future benefits on operational work

52. The implementation of centrally developed standards and methods had led to significant savings on operational work. Over the last five years real reductions in pipelaying unit costs of over 15 per cent have been achieved. By the year 1991 the savings on pipelaying had accrued to approximately £68 million a year. It was estimated that continued refinement of techniques already implemented, together with new developments, would lead to further savings. These had been estimated at approximately £17 million a year. This was considered to be a gross saving. There was no doubt that individual BG regions would continue to strive for productivity improvements and that their smaller mass would, perhaps, allow them to implement changes quicker. It was, however, difficult to envisage contractual arrangements enabling regions to identify, jointly develop and implement new ideas and systems as in the manner achieved by the integrated company. In particular the motivation to transfer technology would be removed. This loss of benefit had been treated as an additional operating cost of £17 million a year.

Operating cost £17 million a year

Enhancement/duplication of grid control facilities

53. If the supply system were split at the RTS/RDS interface the current regional grid control centres would form part of the national transmission/storage company's operations. For a number of reasons (demand forecasting, local incident control, monitoring/control of distribution system performance) it would be necessary partially to duplicate the control facilities within each of the regional companies. It had been estimated that the cost of this duplication would be approximately £10 million with running costs of £2 million a year.

Capital cost £10 million

Operating cost £2 million a year

54. BG's estimates of total costs are summarized in Table 4.

TABLE 4 **Summary of total cost-transportation/storage company, with a number of separately-owned regional distribution and trading companies (the `ESI model')**

	Year									
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Capital (£m)	102	102	93	58	18	18	18	18	18	18
Operating (£m pa)	275	277	328	346	364	462	481	498	498	498
Total cost (£m) (operating + depreciation of capital + return on capital)	286	303	368	394	415	515	535	552	552	552
Total capital cost	£1,463 million (£1,000 million in years 11 to 15)									
Total net present cost over ten years	£2,853 million									

Source: BG.