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Can the Transfer of Tax History Enhance Later Field Life Transactions in the UKCS?

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NORTH SEA ECONOMICS

Research in North Sea Economics has been conducted in the Economics Department since 1973. The present and likely future effects of oil and gas developments on the Scottish economy formed the subject of a long term study undertaken for the Scottish Office. The final report of this study, The Economic Impact of North Sea Oil on Scotland, was published by HMSO in 1978. In more recent years further work has been done on the impact of oil on local economies and on the barriers to entry and characteristics of the supply companies in the offshore oil industry.

The second and longer lasting theme of research has been an analysis of licensing and fiscal regimes applied to petroleum exploitation. Work in this field was initially financed by a major firm of accountants, by British Petroleum, and subsequently by the Shell Grants Committee. Much of this work has involved analysis of fiscal systems in other oil producing countries including Australia, Canada, the United States, Indonesia, Egypt, Nigeria and Malaysia. Because of the continuing interest in the UK fiscal system many papers have been produced on the effects of this regime.

From 1985 to 1987 the Economic and Social Science Research Council financed research on the relationship between oil companies and Governments in the UK, Norway, Denmark and The Netherlands. A main part of this work involved the construction of Monte Carlo simulation models which have been employed to measure the extents to which fiscal systems share in exploration and development risks.

Over the last few years the research has examined the many evolving economic issues generally relating to petroleum investment and related fiscal and regulatory matters. Subjects researched include the economics of incremental investments in mature oil fields, economic aspects of the CRINE initiative, economics of gas developments and contracts in the new market situation, economic and tax aspects of tariffing, economics of infrastructure cost sharing, the effects of comparative petroleum fiscal systems on incentives to develop fields and undertake new exploration, the oil price responsiveness of the UK petroleum tax system, and the economics of decommissioning, mothballing and re-use of facilities. This work has been financed by a group of oil companies and Scottish Enterprise, Energy. The work on CO₂ Capture, EOR and storage was financed by a grant from the Natural Environmental Research Council (NERC) in the period 2005 – 2008.

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**Can the Transfer of Tax History Enhance Later Field Life
Transactions in the UKCS?**

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Can the Transfer of Tax History Enhance Later Field Life Transactions in the UKCS?

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1. Context

In discussions of the ways by which maximum economic recovery (MER) can be obtained from the UKCS the proposition is frequently made that assets should be directed into the hands of those best able to utilise them to maximum effect. It is widely believed that this statement applies to mature oil and gas fields. The original licensees may no longer regard such assets as core activities. Correspondingly, other investors with specialist knowledge in operating old fields and enhancing recovery from them, may be interested in acquiring them. It is clearly in the interests of procuring MER that such transactions are not discouraged by Government policies. Of course the OGA has to be satisfied that any new licensee is financially and technically competent and offers the prospect of enhancing economic recovery.

It has been suggested that one factor which could inhibit later field life transactions relates to the arrangements for obtaining tax relief for the decommissioning costs. Given the high costs of decommissioning tax relief for them is a major consideration when an asset transaction takes place in late field life. The buyer can obtain relief for corporation tax (CT) and Supplementary Charge (SC) against current or future income from other fields. In present circumstances he may well not have other current income, in which case he can carry back decommissioning losses against profits and tax paid in previous years. Under current tax law he can do so only for the years in which he has been the

licensee. The seller may well have made profits and paid tax in years prior to the transaction. If he retained ownership of the licence and asset he could carry back decommissioning losses against CT and SC as far as 2002. But the tax history prior to the transaction cannot be transferred to the buyer.

The purpose of this study is to investigate the possible existence and extent of this problem, and, to the extent that it does exist, to examine to what extent the transfer of tax history gives more effective relief for decommissioning costs to the potential buyer and thus ensures that the tax system does not inhibit otherwise worthwhile transactions.

2. Methodology

The study was undertaken using financial simulation modelling relating to oil fields where potential transfers were contemplated in later field life. The model incorporates the details of the current North Sea tax system applicable to non-PRT fields. PRT fields are outside the scope of the study. The modelling highlights the CT and SC effects. Reflecting the current capital rationing it is assumed that the initial field investor has insufficient income from other fields against which to set his capital allowances for CT and SC, and thus he employs the Ring Fence Expenditure Supplement (RFES) when assessing the returns to the field investment.

The modelling was conducted on (a) a substantial number of representative model fields chosen to reflect the range of sizes and costs of fields currently existing in the UKCS, and (b) a substantial number of “real” fields again reflecting the existing situation in the UKCS. The analysis of the model fields highlights the changing real remaining NPVs (RNPVs) and tax relief for decommissioning of the seller and buyer at various dates of the asset transaction in later field life. The chosen “real” fields were generally developed at various times in the past, but, to

enhance the clarity and meaningfulness of the comparative results, all the fields were rebased to the year 2017 which was used throughout as the base year for all remaining net present value (RNPV) calculations. Using this base year understates the RNPV as estimated at the date of the asset transaction. For example, a RNPV of £100m. at base year 2017 becomes £214m. for a transaction base in 2025, £285m. for a transaction base in 2028, £345m. for a transaction base in 2030, £506m. for a transaction base in 2034, and £673m. for a transaction base in 2037.

The modelling highlights the post-tax NPVs for the whole field and the remaining NPVs of the potential seller and buyer at different dates in the later years of field life. Decommissioning relief for the seller is calculated by carrying back the losses and setting them against taxable income for CT and SC in earlier years (as far back as 2002), and thus refunds can be made up to the amounts paid. The potential buyer undertakes the same calculation, but he receives refunds only as far back as the date of the asset transaction when he started to make tax payments. The present study examines the extent to which he obtains effective relief and compares this with the position of the potential seller.

This study also incorporates other relevant tax complications. Thus, under current rules the carry back of decommissioning losses can displace the IA for SC and reduce effective relief. The incidence of this is included in the study. It is also possible that, at the time of the asset transaction, the IA for SC has not been fully used. Under current rules, the IA, once activated, cannot be transferred. The possible effect of this issue is examined. If the IA has not been fully utilised at the time of the asset transaction the RNPV of the seller exceeds that of the buyer. Similarly, it is possible that, at the time of the asset transaction, the field investor has not utilised all his Ring Fence Expenditure Supplement (RFES). The unutilised part cannot be transferred to the buyer. This issue is

included in the modelling which can result in the RNPV of the seller exceeding that of the buyer.

It is quite likely that a buyer will undertake an incremental investment in a field which he acquires. Accordingly, the effects of incremental investments on the remaining post-tax NPVs are calculated. This includes estimating the decommissioning relief. The overall field life is extended by the incremental investment. It also involves a new IA for SC. The study calculates effective decommissioning relief taking into account any possible displacement effect. The calculations are made from the perspective of both the potential seller and buyer.

The modelling is undertaken with 3 oil prices scenarios, namely \$50, \$55 and \$60 per barrel in real terms. The extent of effective relief depends upon the profitability of the later field life operations in relation to the decommissioning costs, and a fuller understanding is achieved by considering a range of plausible oil prices. The economic limit (COP date) is extended with higher oil prices and this is incorporated in the modelling.

3. Results

a) Representative Model Fields

In this section the results of the modelling of a set of representative model fields are summarised for a range of transaction years.

It is instructive to examine the remaining NPVs of the seller and buyer at different dates for asset transactions during field life. This highlights not only decommissioning relief but other possible tax influences on RNPVs such as the IA for SC and the RFES. Accordingly the results are shown for representative model fields reflecting typical sizes and cost conditions. The modelling

calculates RNPVs and decommissioning relief for the buyer and seller every year from 2024 onwards to the date of the economic limit of the field. The results shown in the tables are for selected years only. The full results are available from the authors.

Table 1
Key Results for Field 1

	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	148.31	177.80	207.35
Decommissioning relief	40%	40%	40%
Seller 2025 Real post tax NPV at 10% (£m. 2017)	49.16	56.01	62.87
Buyer 2025 Real post tax NPV at 10% (£m. 2017)	49.16	56.01	62.87
Decommissioning relief	40%	40%	40%
Seller 2027 Real post tax NPV at 10% (£m. 2017)	24.44	28.23	32.02
Buyer 2027 Real post tax NPV at 10% (£m. 2017)	24.44	28.32	32.02
Decommissioning relief	40%	40%	40%

Field 1 has reserves of c.21 mmbbls with development costs of \$10/bbl. It is seen from Table 1 that the whole field has substantially healthy post-tax NPVs at 2017 base year at the 3 oil prices with decommissioning relief being at 40%. It was found that, if an asset transaction took place in any of the years from 2023-30 the RNPV for the buyer and seller would be the same with decommissioning relief being at 40%. An example where the transaction took place in 2027 is shown in Table 1. If the transaction took place in 2031 at the \$50 price decommissioning relief for the buyer is at 37%. He has inadequate income and tax against which to set decommissioning losses. The seller has sufficient income and tax paid to transfer to the buyer to permit the latter to achieve relief at 40%.

Table 2
Key Results for Field 2

	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	61.38	92.67	122.77
Decommissioning relief	40%	40%	40%
Seller 2024 Real post tax NPV at 10% (£m. 2017)	60.14	67.85	75.11
Buyer 2024 Real post tax NPV at 10% (£m. 2017)	55.62	64.62	73.42
Decommissioning relief	40%	40%	40%
Seller 2025 Real post tax NPV at 10% (£m. 2017)	44.51	50.05	55.53
Buyer 2025 Real post tax NPV at 10% (£m. 2017)	41.63	48.68	55.53
Decommissioning relief	40%	40%	40%
Seller 2028 Real post tax NPV at 10% (£m. 2017)	11.65	14.54	17.24
Buyer 2028 Real post tax NPV at 10% (£m. 2017)	11.65	14.54	17.24
Decommissioning relief	40%	40%	40%
Seller 2030 Real post tax NPV at 10% (£m. 2017)	2.38	3.84	5.10
Buyer 2030 Real post tax NPV at 10% (£m. 2017)	2.38	3.84	5.10
Decommissioning relief	40%	40%	40%

Field 2 has reserves of c.21 mmbbls and development costs of \$16/bbl. It is seen from Table 2 that the whole field post-tax NPVs are healthily positive with decommissioning relief at 40%. If the asset were sold in any of the years 2024-2027 the RNPV of the seller exceeds that of the buyer though decommissioning relief is at 40% in both cases. At the \$50 price the seller can utilise only 29% of his IA for SC if the transaction took place in 2024, 52% with the transaction in 2025, 74% with the transaction in 2026, and 95% with the transaction in 2027. As the IA cannot be transferred to the buyer the RNPV of the seller exceeds that of the buyer. Decommissioning relief remains available for both parties at 40%. With the transaction in 2028, 2029, and 2030 the RNPVs for the 2 parties are equal and decommissioning relief is at 40%. For a transaction in 2031 at the \$50 price the buyer's RNPV is negative and decommissioning relief is at only 13%. With transfer of the seller's tax history the RNPVs of the 2 parties are equal (though both are negative) and the buyer obtains decommissioning relief at 40%.

Under the \$55 price the pattern of results is similar. At this price the seller can only utilise 53% of the IA for SC if the transaction takes place in 2024, and 79%

if the transaction is in 2025. Thus for transactions taking place before 2026 the RNPV of the seller exceeds that of the buyer. Decommissioning relief is available at 40% for both parties. For transactions from 2026-2030 inclusive the RNPVs of the seller and buyer are equal and decommissioning relief is at 40%. Transactions in 2031 are unlikely as both parties have negative RNPVs. Decommissioning relief for the buyer without transfer of tax history (TTH) is only 17% because of inadequate income and tax paid. The seller has just enough tax history which, if transferred, would enable the buyer to obtain relief at 40%. This would bring the (negative) RNPVs of the 2 parties into equality.

At the \$60 oil price the seller does not utilise all his IA for SC until after 2024. A transaction in 2024 would mean that 76% of the IA was utilised by the seller. Consequently the RNPV of the seller exceeds that of the buyer until 2025 onwards when they are equal. Decommissioning relief is at 40%. A transaction in 2031 results in negative RNPVs for both parties with decommissioning relief being only 23% for the buyer. Transfer of tax history would enable the buyer to obtain relief at 40% with the RNPVs being equal, though still negative, for both parties.

Table 3
Key Results for Field 3

	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	-11.72	23.79	55.88
Decommissioning relief	32%	33%	40%
Seller 2024 Real post tax NPV at 10% (£m. 2017)	63.16	65.10	71.76
Buyer 2024 Real post tax NPV at 10% (£m. 2017)	47.97	56.57	65.16
Decommissioning relief	40%	40%	40%
Seller 2026 Real post tax NPV at 10% (£m. 2017)	26.36	31.98	36.56
Buyer 2026 Real post tax NPV at 10% (£m. 2017)	23.65	28.65	33.64
Decommissioning relief	40%	40%	40%
Seller 2029 Real post tax NPV at 10% (£m. 2017)	2.94	4.84	6.01
Buyer 2029 Real post tax NPV at 10% (£m. 2017)	2.68	4.35	6.01
Decommissioning relief	40%	40%	40%
Seller 2030 Real post tax NPV at 10% (£m. 2017)	-0.26	0.97	1.94
Buyer 2030 Real post tax NPV at 10% (£m. 2017)	-0.90	0.75	1.94
Decommissioning relief	31%	38%	40%

Field 3 has reserves of c.21 mmbbls and development costs of \$21/bbl. Under the \$50 price case the whole field produces a positive pre-tax NPV but a negative post-tax NPV at 10%. Decommissioning relief would be at 32%. The field was able to use only 63% of the IA for SC before decommissioning and the displacement effect of these costs reduces the net benefit of the IA to 47%. At the \$50 price if the sale took place in 2024 only 4% of the RFES and none of the IA would have been obtained by the seller. If the sale occurred in 2028 36% of the IA would be obtained by the seller. By 2030 52% of the IA would have been obtained. Because the IA is not transferable the RNPV of the seller exceeds that of the buyer in all these cases. But the buyer obtains decommissioning relief at 40% for transactions taking place as late as 2029. He does not have the unused IA, but this means that there is no displacement effect resulting from the decommissioning relief. For a transaction in 2030 decommissioning relief for the buyer is at 31% because of inadequate income and tax paid, and the RNPV of the buyer is below that of the seller (though both are negative).

With the \$55 price case the whole field can utilise 96% of the IA. Decommissioning costs displace this to some extent providing effective relief at 33% with the IA effectively being at 81%. If a sale occurred in 2024 the seller would have used 80% of the RFES and 0% of the IA. With a sale in 2027 the seller would have utilised 49% of the IA. By 2030 he could utilise 82% of the IA. Sales in years up to and including 2029 result in the buyer being able to obtain decommissioning relief at 40%. For years up to and including 2030 the seller's RNPV exceeds that of the buyer. A sale in that year results in the buyer obtaining decommissioning relief at 38%. This exceeds the rate of relief for the seller. The latter experiences displacement of the IA for SC from the carried back decommissioning losses. The buyer has no access to the unused IA but his income and tax limit his relief for decommissioning to below 40%.

At the \$60 price the whole field obtains decommissioning relief at 40%. It is again noteworthy that the seller cannot utilise all his IA until late in the life of the field. If the sale took place in 2024 only 16% of the IA was utilised. At 2027 77% of the IA is utilised, and at 2028 92%. Thus the RNPV of the seller exceeds that of the buyer in all years up to 2029 when they are equal. The buyer obtains decommissioning relief at 40% at all dates of the transaction up to and including 2030 when the RNPVs of the 2 parties become equal.

Table 4
Key Results for Field 4

	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	262.17	320.28	377.17
Decommissioning relief	40%	40%	40%
Seller 2024 Real post tax NPV at 10% (£m. 2017)	192.41	214.33	238.19
Buyer 2024 Real post tax NPV at 10% (£m. 2017)	188.78	213.48	238.19
Decommissioning relief	40%	40%	40%
Seller 2030 Real post tax NPV at 10% (£m. 2017)	46.18	53.05	59.92
Buyer 2030 Real post tax NPV at 10% (£m. 2017)	46.18	53.05	59.92
Decommissioning relief	40%	40%	40%
Seller 2034 Real post tax NPV at 10% (£m. 2017)	7.26	8.98	10.70
Buyer 2034 Real post tax NPV at 10% (£m. 2017)	7.26	8.98	10.70
Decommissioning relief	40%	40%	40%
Seller 2036 Real post tax NPV at 10% (£m. 2017)	-0.62	-0.13	0.35
Buyer 2036 Real post tax NPV at 10% (£m. 2017)	-1.24	-0.47	0.31
Decommissioning relief	29%	34%	39%

Field 4 has recoverable reserves of c.50 mmbbls and development costs of \$10/bbl. The whole field has substantial positive NPVs at all 3 oil prices. Decommissioning relief for the whole field is at 40% with all 3 prices. At the \$50 price a sale in 2024 would mean that the seller utilised only 68% of his IA, as the IA cannot be transferred the RNPV of the seller exceeds that of the buyer if the transaction took place in that year even though the buyer obtains decommissioning relief at 40%. Transactions taking place in all years from 2025 to 2035 inclusive result in the RNPVs of the seller and buyer being equal with both parties obtaining decommissioning relief at 40%. In the year 2036 the RNPVs become negative. The buyer obtains decommissioning relief at 29% and his RNPV is below that of the seller because he has inadequate income and tax against which to set his decommissioning losses. The seller has sufficient income and tax paid which, if transferred, would result in the RNPVs for the 2 parties being equal.

At the \$55 price the whole field obtains decommissioning relief at 40%. The seller cannot utilise all his IA for SC until after 2024. From 2025 to 2035

inclusive the RNPVs of the seller and buyer are equal with both parties obtaining decommissioning relief at 40%. From 2036 onwards the RNPVs of both parties are negative and decommissioning relief for the buyer becomes 34%. If TTH were permitted the seller has adequate income and tax paid to permit the buyer to obtain relief at 40%. The RNPVs of the 2 parties then become equal.

At the \$60 price the RNPVs of the 2 parties are equal for transactions taking place in all years from 2024 to 2035. Decommissioning relief is at 40% for both parties. Only in 2036 when the field is near its economic limit does the buyer experience decommissioning relief at 39%.

Table 5
Key Results for Field 5

	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	57.83	122.72	182.00
Decommissioning relief	40%	40%	40%
Seller 2025 Real post tax NPV at 10% (£m. 2017)	143.01	156.51	174.95
Buyer 2025 Real post tax NPV at 10% (£m. 2017)	123.94	144.39	164.84
Decommissioning relief	40%	40%	40%
Seller 2030 Real post tax NPV at 10% (£m. 2017)	35.09	39.53	46.40
Buyer 2030 Real post tax NPV at 10% (£m. 2017)	32.66	39.53	46.40
Decommissioning relief	40%	40%	40%
Seller 2034 Real post tax NPV at 10% (£m. 2017)	1.31	3.03	4.74
Buyer 2034 Real post tax NPV at 10% (£m. 2017)	1.15	3.03	4.74
Decommissioning relief	38%	40%	40%
Seller 2035 Real post tax NPV at 10% (£m. 2017)	-1.97	-0.96	0.06
Buyer 2050 Real post tax NPV at 10% (£m. 2017)	-3.68	-2.09	-0.51
Decommissioning relief	22%	28%	34%

Field 5 has reserves of c.50 mmbbls and development costs of \$16/bbl. At the \$50 price the field obtains decommissioning relief at 40%. If the field were sold in 2025 the seller has only used 67% of the RFES and 0% of the IA for SC. In 2030 all the RFES is utilised but only 72% of the IA. By 2032 98% of the IA is utilised. Consequently, the RNPVs of the seller exceed that of the buyer, and it is not until 2033 that the RNPVs of the 2 parties are equal. The buyer continues

to receive decommissioning relief at 40% until 2034 when it becomes 38%. He has inadequate income and tax paid to obtain relief at 40%. The seller has adequate tax history which, if transferred, permits relief for the buyer at 40%. In years beyond 2034 the RNPVs are negative and decommissioning relief for the buyer becomes progressively lower for the buyer. He gets relief at only 22% for a transaction in 2035 and his (negative) RNPV is well below that of the seller. Transfer of tax history would permit relief for the buyer at 40% and equalise the RNPVs of the 2 parties.

At the \$55 price the whole field receives decommissioning relief at 40%. The seller can utilise only 10% of his IA in 2025, 70% by 2028 and 85% by 2029. Thus the RNPV of the seller exceeds that of the buyer until 2030 when they become equal. Decommissioning relief for the buyer is at 40% until 2035 when the RNPVs become negative. A transaction in that year gives the buyer relief at 28%. If the tax history of the seller were transferred relief would be at 40% and the (negative) RNPVs of the 2 parties would be equal.

Under the \$60 price the whole field obtains decommissioning relief at 40%. The seller can only utilise his IA to the extent of 31% in 2025. This rises to 99% in 2028. Thus until 2029 the RNPV of the seller exceeds that of the buyer. But the buyer continues to obtain decommissioning relief at 40% until beyond 2034. In 2035 the RNPV of the seller is just positive while that of the buyer is negative due to decommissioning relief being 34%. This reflects inadequate income and tax paid. Transfer of the tax history of the seller would produce relief at 40% and the RNPV of the buyer is transformed from negative to positive.

Table 6
Key Results for Field 6

	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	-106.89	-35.84	32.20
Decommissioning relief	33%	32%	40%
Seller 2026 Real post tax NPV at 10% (£m. 2017)	130.94	135.83	137.72
Buyer 2026 Real post tax NPV at 10% (£m. 2017)	88.76	105.34	121.93
Decommissioning relief	40%	40%	40%
Seller 2029 Real post tax NPV at 10% (£m. 2017)	51.93	55.85	65.34
Buyer 2029 Real post tax NPV at 10% (£m. 2017)	41.36	50.11	58.87
Decommissioning relief	40%	40%	40%
Seller 2033 Real post tax NPV at 10% (£m. 2017)	7.15	9.97	12.62
Buyer 2033 Real post tax NPV at 10% (£m. 2017)	6.41	9.04	11.66
Decommissioning relief	40%	40%	40%
Seller 2034 Real post tax NPV at 10% (£m. 2017)	1.91	3.73	5.37
Buyer 2034 Real post tax NPV at 10% (£m. 2017)	1.55	3.44	5.16
Decommissioning relief	39%	40%	40%
Seller 2035 Real post tax NPV at 10% (£m. 2017)	-2.64	-1.60	-0.32
Buyer 2035 Real post tax NPV at 10% (£m. 2017)	-34.51	-24.76	-15.01
Decommissioning relief	23%	28%	32%

Field 6 has recoverable reserves of c.50 mmbbls with development costs of \$21/bbl. At the \$50 price the field is non-commercial after tax though it has a substantially positive NPV before tax. For the whole field decommissioning relief is at 33%. Although the field is not small by current standards the high development costs mean that by 2025 the investor recovers only 82% of his actual costs but none of the RFES and none of the IA for SC. In 2030 he can use all of the RFES but none of the IA. By 2036 when the economic limit is reached he can use only 44% of the IA. Thus the RNPV of the seller exceeds that of the buyer throughout the life of the field as the buyer cannot utilise the unused IA. But the buyer obtains decommissioning relief at 40% for every year of possible asset transaction from 2025-2033 inclusive. As he does not receive the unused IA there is no displacement effect from decommissioning losses. With the asset transaction in 2034 the buyer's decommissioning relief is 39% and his RNPV remains below that of the seller. Transfer of the seller's tax history would give relief at 40%. In 2035 the buyer's relief falls to 23%, but at this stage the RNPV

becomes negative. The buyer's RNPV is now far below that of the seller due to the reduced decommissioning relief.

At the \$55 price decommissioning relief for the whole field is at 32%. Prior to decommissioning the field can only use 84% of the IA for SC and 66% after decommissioning. There is a displacement effect from the decommissioning losses. If a sale were undertaken in 2025 the seller has recovered only 93% of his costs and gets no benefit from the RFES or IA. Even at 2036 he can utilise only 78% of the IA. The consequence is that the RNPV for the seller exceeds that of the buyer in all years from 2025-2034 inclusive. The buyer does not obtain the unused IA and he receives decommissioning relief at 40% for years of transaction throughout the period 2025-2034 inclusive. For a transaction in 2035 the buyer's RNPV becomes very negative and well below that of the seller. Transfer of tax history would have a major positive effect on the buyer's RNPV.

At the \$60 price decommissioning relief for the whole field is at 40%. Even at this price by 2025 only 21% of the RFES and 0% of the IA for SC can be used. By 2028 he can use only 28% of the IA, and by 2034 he can use 97%. Thus the RNPV for the seller exceeds the RNPV of the buyer throughout these years. But the buyer does obtain decommissioning relief at 40% for transactions taking place in all years from 2025-2034 inclusive as he has no IA which could be displaced. In 2035 the RNPV of both parties becomes negative and decommissioning relief for the buyer becomes 32%. He has inadequate taxable income and tax to offset the losses. Transfer of the tax history could bridge the large gap between the RNPVs of the 2 parties.

Table 7
Key Results for Field 7

	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	509.19	623.54	738.62
Decommissioning relief	40%	40%	40%
Seller 2024 Real post tax NPV at 10% (£m. 2017)	341.68	381.68	427.52
Buyer 2024 Real post tax NPV at 10% (£m. 2017)	336.42	381.68	427.52
Decommissioning relief	40%	40%	40%
Seller 2030 Real post tax NPV at 10% (£m. 2017)	107.18	122.22	137.84
Buyer 2030 Real post tax NPV at 10% (£m. 2017)	107.18	122.22	137.84
Decommissioning relief	40%	40%	40%
Seller 2035 Real post tax NPV at 10% (£m. 2017)	34.92	40.19	46.03
Buyer 2035 Real post tax NPV at 10% (£m. 2017)	34.92	40.19	46.03
Decommissioning relief	40%	40%	40%
Seller 2039 Real post tax NPV at 10% (£m. 2017)	-0.71	0.09	1.48
Buyer 2039 Real post tax NPV at 10% (£m. 2017)	-1.69	-0.43	1.43
Decommissioning relief	28%	33%	39%

Field 7 has recoverable reserves of c.103 mmbbls and development costs of \$10/bbl. At the \$50 price the whole field obtains decommissioning relief at 40%. At 2024 the seller had only utilised 77% of his IA and so the RNPV of the seller exceeds that of the buyer. For all years from 2025-2038 inclusive the RNPV of the seller and buyer are equal. Both receive decommissioning relief at 40%. In 2039 the RNPVs of both parties become negative and the buyer receives decommissioning relief at 28%, reflecting inadequate income and tax paid. Transfer of the tax history of the seller would remove the difference between the RNPV of the buyer and the seller.

At the \$55 price the whole field obtains decommissioning relief at 40%. From 2024-2038 inclusive the RNPVs of the seller and buyer are equal with both obtaining relief at 40%. With a transaction in 2039 the RNPV of the seller is positive while that of the buyer is negative. Decommissioning relief for the buyer is 33% due to inadequate income and tax paid. Transfer of the tax history of the seller would result in relief being at 40% and the RNPV of the buyer being transformed from negative to positive.

At the \$60 price the whole field obtains decommissioning relief at 40%. For transactions in every year from 2024-2038 inclusive the RNPVs of the 2 parties are equal and decommissioning relief is at 40%. A transaction in 2039 results in the RNPV of the seller exceeding that of the buyer. The latter obtains decommissioning relief at 39% due to inadequate income and tax paid. Transfer of the seller's tax history would bring relief to 40% and the RNPVs of the 2 parties become equal.

Table 8
Key Results for Field 8

	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	93.14	221.61	340.69
Decommissioning relief	40%	40%	40%
Seller 2029 Real post tax NPV at 10% (£m. 2017)	103.86	118.88	131.20
Buyer 2029 Real post tax NPV at 10% (£m. 2017)	95.01	113.27	130.95
Decommissioning relief	40%	40%	40%
Seller 2034 Real post tax NPV at 10% (£m. 2017)	33.25	39.02	45.69
Buyer 2034 Real post tax NPV at 10% (£m. 2017)	31.77	39.02	45.69
Decommissioning relief	40%	40%	40%
Seller 2038 Real post tax NPV at 10% (£m. 2017)	-0.05	2.30	4.07
Buyer 2038 Real post tax NPV at 10% (£m. 2017)	-1.11	2.04	4.07
Decommissioning relief	32%	38%	40%

Field 8 has recoverable reserves of c.102 mmbbls and development costs of \$16/bbl. At \$50 price decommissioning relief for the whole field is 40%. By 2025 the investor has used only 77% of the RFES and none of the IA for SC. By 2028 he can use 33% of the IA, by 2032 66%, and by 2035 95%. The RNPV of the seller exceeds that of the buyer for all years in the period 2025-2035 as the buyer does not obtain unused IA. The buyer does obtain decommissioning relief at 40% for all transactions within the time period 2025-2037 inclusive. For a transaction in 2038 the buyer gets decommissioning relief at 32% and for a transaction in 2039 only at 8%. This reflects the inadequacy of income and tax paid. Transfer of the tax history of the seller would bring relief for the buyer to 40% and equalise the RNPVs of the 2 parties.

At the \$55 price the whole field obtains decommissioning relief at 40%. But the seller can use only 15% of his IA by 2025, 59% by 2028, 79% by 2030, and 99% by 2032. The RNPV of the seller exceeds that of the buyer in all years from 2025-2032 inclusive. The buyer obtains decommissioning relief at 40% for transactions taking place in all of the years from 2025-2037 inclusive. He does not receive the unused IA. For a transaction in 2038 the buyer receives decommissioning relief at 38%, reflecting inadequate income and tax paid. The seller has tax capacity which could be transferred. This would produce relief at 40% for the buyer and equalise the RNPVs for the 2 parties.

At the \$60 price the whole field obtains decommissioning relief at 40%. The seller can use only 36% of his IA by 2025, 72% by 2027, and 99% by 2029. The RNPV of the seller exceeds that of the buyer for all years in the period 2025-2029 inclusive. They are then equal over the period 2030-2038 inclusive. The buyer obtains decommissioning relief for transactions in all of the years 2025-2038 without the transfer of the seller's tax history.

Table 9

Key Results for Field 9

	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	-266.94	-118.97	18.75
Decommissioning relief	33%	33%	38%
Seller 2028 Real post tax NPV at 10% (£m. 2017)	132.28	128.62	146.83
Buyer 2028 Real post tax NPV at 10% (£m. 2017)	90.44	111.16	131.87
Decommissioning relief	40%	40%	40%
Seller 2033 Real post tax NPV at 10% (£m. 2017)	34.68	43.86	52.62
Buyer 2033 Real post tax NPV at 10% (£m. 2017)	31.13	39.32	47.51
Decommissioning relief	40%	40%	40%
Seller 2037 Real post tax NPV at 10% (£m. 2017)	1.51	4.38	6.83
Buyer 2037 Real post tax NPV at 10% (£m. 2017)	0.36	3.96	6.50
Decommissioning relief	34%	40%	40%

Field 9 has recoverable reserves of c.102 mmbbls and development costs of \$21/bbl. At the \$50 price the field, while producing a substantially positive pre-tax NPV, is not commercially attractive after tax. For the whole field decommissioning relief is at 33%. By 2027 the investor has recovered his costs but is still unable to use the RFES and the IA for SC. He can use all his RFES by 2033 but only 1% of his IA. Only by 2036 is he able to use 19% of his IA. The RNPV of the seller thus exceeds that of the buyer for transactions in all years of the economic life of the field. But the buyer can get decommissioning relief at 40% for transactions in all years from 2025-2036 inclusive. There is no displacement effect because he has no IA the presence of which reduces the effective rate of relief for the seller. For a transaction in 2037, however, the buyer's relief is at only 34%. The seller has inadequate income and tax against which to set the decommissioning losses. His RNPV is below that of the seller.

At the \$55 price the decommissioning relief for the whole field is 33%. By 2025 the investor has recovered only 94% of his costs and made no use of the RFES and IA for SC. By 2034 he can still use only 39% of the IA. Thus there is displacement of the IA by the decommissioning costs. The buyer does receive relief at 40% for transactions in all years from 2025 to 2037 inclusive. He has no displacement of the RFES and IA because he does not receive them. It is only when the RNPVs become very small and negative that the decommissioning relief for the buyer becomes much less than 40% due to inadequate income and tax paid. This happens with a transaction in 2038 when relief for the buyer is only 23%.

At the \$60 price the field is substantially profitable before tax but not after tax. Decommissioning relief is at 38%. By 2025 only 29% of the RFES and none of the IA for SC. By 2030 35% of the IA can be used, and by 2036 84%. The RNPV of the seller exceeds that of the buyer in all years from 2025 to 2037 inclusive.

Decommissioning relief for the buyer is at 40% for all transaction years from 2025 to 2037. The buyer has no IA and thus no displacement effect for the decommissioning costs. It is only in 2038 when the RNPV becomes negative that decommissioning relief for the buyer becomes 27% due to inadequate income and tax paid.

b) Representative “Real” Fields

In this section the results of the modelling of a set of representative “real” fields are summarised. The emphasis is on elucidating the position for transactions taking place in years where the difference between the position of the seller and buyer is material and could affect the decision to effect the whole transaction. In this section the effect of the transfer of tax history is highlighted in detail. This section also includes a discussion of the effects of adding incremental projects of c.3 mmbbls and c.5 mmbbls at the time of a transaction when the prospective returns are marginal and the difference between the position of the buyer and seller is likely to be material. The incremental projects have development costs of \$16/bbl. Development of the projects commences in the year of the transaction.

Table 10

<u>Key Results for Field A</u>			
	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	46.33	65.64	84.65
Decommissioning relief	40.0%	40.0%	40.0%
Costs Recovered	100%	100%	100%
RFES	100%	100%	100%
IA Pre decom	100%	100%	100%
Devex/bbl (\$)	19.89	19.89	19.89
% Decom/Devex	14%	14%	14%
Seller 2027 Real post tax NPV at 10% (£m. 2017)	-0.55	0.10	0.75
Buyer 2027 Real post tax NPV at 10% (£m. 2017)	-1.54	-0.55	0.44
Decommissioning relief	26.8%	31.3%	35.8%
Buyer 2027 Real post tax NPV at 10% TTH used	-0.55	0.10	0.75
Decommissioning relief post TTH	40%	40%	40%

Field A is very small with recoverable reserves of c. 12 mmbbls. At all 3 prices it recovers all its costs and uses all the IA for SC. It also achieves decommissioning relief at 40%. At \$50 price if the field is sold in 2027 the RNPV at 10% is negative for both parties but the position is worse for the buyer. Decommissioning relief for the buyer is only 26.8% compared to 40% for the seller because the buyer can only carry back losses to the year of asset acquisition. If the tax history prior to the transaction were available the buyer could get relief at 40%. This would require the transfer of £9.30m. in real terms. The RNPV remains negative for both seller and buyer.

At \$55 price with a transaction in 2027 decommissioning relief for the buyer is 31.3% and 40% for the seller. The buyer has inadequate taxable income. If the TTH were available relief for the buyer could be obtained at 40%. The seller's nominal taxable income would be reduced by £6.1m. to £106.38m. The RNPV at 10% for the buyer becomes positive. It is negative without the tax history transfer and thus receipt of the tax history could positively affect the transaction decision.

At \$60 price decommissioning relief for the buyer is 35.8% and 40% for the seller. With the transfer of tax history to the buyer relief at 40% is obtained. This requires the transfer of £3.0 million in real terms. The buyer's RNPV is increased to a worthwhile extent, though it remains small.

The addition of incremental projects of 3 mmbbls and 5 mmbbls at the time of the transaction shown in Table 10 (2029) resulted in the buyer's RNPV becoming healthily positive at all 3 oil prices. He is also able to obtain decommissioning relief at 40% without recourse to the TTH.

Table 11

<u>Key Results for Field B</u>			
	\$50	\$55	\$60
Real post tax NPV at 10% (£m.)	46.60	58.55	70.86
Decommissioning relief	40.0%	40.0%	40.0%
Costs Recovered	100%	100%	100%
RFES	100%	100%	100%
IA Pre decom	100%	100%	100%
Devex/bbl (\$)	12.51	12.51	12.17
% Decom/Devex	18%	18%	18%
Seller 2024 Real post tax NPV at 10% (£m. 2017)	-0.97	0.29	1.96
Buyer 2024 Real post tax NPV at 10% (£m. 2017)	-2.00	-0.13	1.96
Decommissioning relief	17.3%	30.8%	40.0%
Buyer 2024 Real post tax NPV at 10% with TTH used (£m. 2017)	-0.97	0.29	1.96
Decommissioning relief post TTH	40%	40%	40%

Field B is very small with reserves of c. 7.4 mmbbls but it has a healthy post-tax NPV and can achieve decommissioning relief at 40%. If it is sold in 2024 the RNPV at 10% for the buyer is negative with oil prices of \$50. Decommissioning relief for the buyer is only 17.3% due to inadequate income and tax. If the seller's tax history could be transferred the buyer can achieve decommissioning relief at

40%. This requires the transfer of £8.2m. in real terms. The RNPV at 10% is still negative for the buyer but is significantly improved.

At \$55 oil price decommissioning relief for the buyer is 30.8%. If the seller's tax history were transferred the buyer can achieve decommissioning relief at 40%. This requires the transfer of £3.3m. in real terms. The RNPV at 10% for the buyer becomes positive whereas without the transfer of the tax history it was negative. The transfer is thus potentially important to the transaction decision. At the \$60 price the buyer can obtain relief at 40% without recourse to the TTH.

The addition of the incremental projects of 3 mmbbls and 5 mmbbls at the time of the transaction in 2024 results in the buyer's RNPV becoming healthily positive at all 3 oil prices. Decommissioning relief becomes 40% without recourse to the TTH at all 3 prices.

Table 12

<u>Key Results for Field C</u>			
	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	314.92	355.89	396.86
Decommissioning relief	40.0%	40.0%	40.0%
Costs Recovered	100%	100%	100%
RFES	100%	100%	100%
IA Pre decom	100%	100%	100%
Devex/bbl (\$)	9.98	9.98	9.98
% Decom/Devex	8%	8%	8%
Seller 2025 Real post tax NPV at 10% (£m. 2017)	-0.38	-0.06	0.26
Buyer 2025 Real post tax NPV at 10% (£m. 2017)	-1.15	-0.68	-0.21
Decommissioning relief	23.6%	26.8%	29.9%
Buyer 2025 Real post tax at 10% TTH used (£m. 2017)	-0.38	-0.06	0.26
Decommissioning relief post TTH	40%	40%	40%

Field C has reserves of c. 22.2 mmbbls. It can achieve decommissioning relief at 40%. If it is sold in 2025 the RNPV at 10% for the buyer is negative. At \$50 oil price decommissioning relief for the buyer is only 23.6% due to inadequate income and tax. If the tax history of the seller could be transferred the buyer can

achieve decommissioning relief at 40%. This requires the transfer of £6.7m. in real terms. While the RNPV at 10% is still negative for the buyer his position is significantly helped by the TTH.

At \$55 oil price decommissioning relief for the buyer is 26.8% due to inadequate income and tax. If the tax history of the seller could be transferred the buyer could achieve decommissioning relief at 40%. This requires the transfer of £5.4m. in real terms. The RNPV at 10% for the buyer is still negative but it is significantly improved by the TTH.

At \$60 oil price decommissioning relief for the buyer is 29.9% due to inadequate income and tax. If the tax history of the seller could be transferred the buyer achieves decommissioning relief at 40%. This requires the transfer of £4.1m. in real terms. The RNPV at 10% for the buyer becomes positive whereas without the tax history transfer it was negative. Thus the availability of the TTH could have a significant effect on the transaction decision.

The introduction of incremental projects of 3 mmbbls and 5 mmbbls at the time of the transaction (2025) results in the RNPVs of the buyer becoming healthily positive. Decommissioning relief for the buyer becomes 40% without recourse to the TTH under all 3 price cases.

Table 13

<u>Key Results for Field D</u>			
	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	29.01	34.76	40.45
Decommissioning relief	40.0%	40.0%	40.0%
Costs Recovered	100%	100%	100%
RFES	100%	100%	100%
IA Pre decom	100%	100%	100%
Devex/bbl (\$)	17.65	16.63	16.63
% Decom/Devex	8%	8%	8%
Seller 2021 Real post tax NPV at 10% (£m. 2017)	-0.81	0.34	0.08
Buyer 2021 Real post tax NPV at 10% (£m. 2017)	-1.38	-0.66	-0.02
Decommissioning relief	9.0%	18.3%	33.0%
Buyer 2021 Real post tax at 10% TTH used (£m. 2017)	-0.81	-0.34	0.08
Decommissioning relief post TTH	40%	40%	40%

Field D is very, very small with recoverable reserves of c.2.7 mmbbls. But it can achieve decommissioning relief at 40%. If it is sold in 2021 the RNPV at 10% for the buyer is negative at all 3 oil prices. At \$50 decommissioning relief for the buyer is only 9% due to inadequate income and tax. If the tax history of the seller were transferred the buyer achieves decommissioning relief at 40%. This requires the transfer of £2.4m. in real terms. The RNPV at 10% is still negative for the buyer but is significantly improved by the TTH.

At \$55 decommissioning relief for the buyer is only 18.3% due to inadequate income and tax. If the tax history of the seller were transferred the buyer achieves decommissioning relief at 40%. This required the transfer of £1.8m. in real terms. The RNPV at 10% for the buyer is still negative but is improved by the TTH.

At \$60 decommissioning relief for the buyer is 33% due to inadequate income and tax. If the tax history of the seller were transferred the buyer achieves decommissioning relief at 40%. This requires the transfer of £0.6m. in real terms. The RNPV at 10% for the buyer becomes positive whereas without the tax history

transfer it was negative. Thus the TTH could significantly influence the transaction decision.

Introduction of incremental projects of 3 mmbbls and 5 mmbbls at the time of the transaction (2021) result in the RNPVs of the buyer becoming healthily positive. Decommissioning relief is obtained at 40% without recourse to the TTH under all 3 price cases.

Table 14

<u>Key Results for Field E</u>			
	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	42.40	48.70	54.99
Decommissioning relief	40.0%	40.0%	40.0%
Costs Recovered	100%	100%	100%
RFES	100%	100%	100%
IA Pre decom	100%	100%	100%
Devex/bbl (\$)	12.84	12.84	12.84
% Decom/Devex	3%	3%	3%
Seller 2030 Real post tax NPV at 10% (£m. 2017)	0.09	0.11	0.13
Buyer 2030 Real post tax NPV at 10% (£m. 2017)	0.08	0.107	0.13
Decommissioning relief	34.0%	38.0%	40.0%
Buyer 2030 Real post tax at 10% TTH used (£m. 2017)	0.09	0.11	0.13
Decommissioning relief post TTH	40%	40%	40%

Field E is very small with recoverable reserves of 3.8 mmbbls. But it can achieve decommissioning relief at 40%. If it is sold in 2030 at \$50 price decommissioning relief for the buyer is 34% due to inadequate income and tax. If the tax history of the seller could be transferred the buyer achieves decommissioning relief at 40%. This requires the transfer of £0.23m. in real terms. The RNPV for the buyer is then equal to that of the seller.

At \$55 decommissioning relief for the buyer is 38%. If the tax history of the seller could be transferred the buyer achieves decommissioning relief at 40%. This requires the transfer of £0.08m. in real terms. The buyer's RNPV then equals that of the seller.

At \$60 price decommissioning relief for the buyer is 40% without the transfer of tax history.

Incremental projects of 3 mmbbls and 5 mmbbls introduced in 2030 at the time of the transaction result in the RNPVs of the buyer becoming healthily positive with decommissioning relief obtained at 40% without recourse to the TTH.

Table 15

<u>Key Results for Field F</u>			
	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	449.42	519.30	588.84
Decommissioning relief	40.0%	40.0%	40.0%
Costs Recovered	100%	100%	100%
RFES	100%	100%	100%
IA Pre decom	100%	100%	100%
Devex/bbl (\$)	9.15	9.01	9.01
% Decom/Devex	14%	14%	14%
Seller 2036 Real post tax NPV at 10% (£m. 2017)	0.89	2.70	4.13
Buyer 2036 Real post tax NPV at 10% (£m. 2017)	0.52	2.70	4.13
Decommissioning relief	31.1%	40.0%	40.0%
Buyer 2036 Real post tax at 10% TTH used (£m. 2017)	0.89	2.70	4.13
Decommissioning relief post TTH	40%	40%	40%

Field F has reserves of over 50 mmbbls. It can achieve decommissioning relief at 40%. If it is sold in 2036 at \$50 oil price decommissioning relief for the buyer is 31.1% due to inadequate income and tax. If the tax history of the seller could be transferred the buyer can achieve decommissioning relief at 40%. This requires the transfer of £13.0m. in real terms. The buyer's RNPV is increased to a worthwhile extent. With oil prices of \$55 and \$60 the buyer receives decommissioning relief at 40% without recourse to TTH and the RNPVs of the buyer and seller are equal.

Introduction of incremental projects of 3 mmbbls and 5 mmbbls at the time of the transaction (2036) result in the RNPVs of the buyer being healthily positive. Decommissioning relief is at 40% without recourse to the TTH.

Table 16

<u>Key Results for Field G</u>			
	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	102.73	126.89	151.49
Decommissioning relief	36.9%	36.9%	37.1%
Costs Recovered	100%	100%	99%
RFES	100%	100%	100%
IA Pre decom	100%	100%	100%
IA Post decom	69%	70%	70%
Devex/bbl (\$)	10.40	10.40	10.15
% Decom/Devex	43%	43%	43%
Seller 2028 Real post tax NPV at 10% (£m. 2017)	4.86	7.40	10.38
Costs Recovered	77.28%	78.66%	80.04%
RFES	15.35%	15.99%	16.70%
IA Pre decom	75.02%	75.02%	75.02%
Buyer 2028 Real post tax NPV at 10% (£m. 2017)	-0.06	3.02	6.58
Decommissioning relief	23.1%	32.5%	40.0%
Buyer 2028 Real post tax NPV at 10% TTH used (£m. 2017)	1.18	3.57	6.58
Decommissioning relief	40%	40%	40%

Field G has reserves of c.17 mmbbls. It has relatively high decommissioning costs. It cannot achieve full decommissioning relief at 40%. At \$50 the field can recover its costs and use the RFES, but, after decommissioning, it can only obtain 69% of the IA because the decommissioning losses displace the IA. Effective decommissioning relief is 36.9%. At \$55 the field can recover its costs and use the RFES but, after decommissioning, it can only use 70% of the IA because the decommissioning relief displaces the IA. Effective decommissioning relief is 36.9%. At \$60 the field can only recover 99% of its costs (because of a loss in late field life). It can use the RFES but, after decommissioning, it can only use 69% of the IA because the decommissioning losses displace the IA. Effective

decommissioning relief is 37.1%. With a transaction in 2028 the seller's RNPV exceeds that of the buyer at all 3 prices.

At \$50 if the field is sold in 2028 the decommissioning relief for the buyer is 23.1% if there is no TTH. He has insufficient income and tax against which to offset his losses. If the tax history of the seller is transferred the buyer can achieve decommissioning relief at 40%. This requires the transfer of £31.0m. in real terms. Now the buyer's relief is higher than that of the seller because the buyer has no displacement effect from the decommissioning losses. The RNPV at 10% for the buyer becomes positive whereas it was negative without the TTH. Thus the TTH could positively influence the transaction decision. But the RNPV of the buyer is still less than the RNPV of the seller because the buyer is unable to utilise the unused part of the IA at the time of the asset transaction under current tax rules.

At \$55 price if the field is sold in 2028 the decommissioning relief for the buyer is 32.5% if there is no TTH. He has insufficient income and tax against which to offset his losses. If the tax history of the seller is transferred the buyer can achieve decommissioning relief at 40%. This requires the transfer of £14.0m. in real terms. The buyer's relief is higher than that of the seller because the buyer has no displacement effect from the decommissioning losses. But the RNPV of the buyer is still less than the RNPV of the seller because the buyer is unable to utilise the unused part of the IA at the time of the asset transaction under current tax rules.

At \$60 the decommissioning relief for the field is 37.1% but, if sold in 2028, the decommissioning relief for the buyer is 40% without TTH. The buyer's relief is higher than that of the seller because the buyer has no displacement effect from the decommissioning losses. The post-tax RNPVs of buyer and seller now

become equal. The buyer benefits from higher decommissioning relief but does not receive the unused RFES and part of the IA for SC at the time of the transaction.

Introduction of incremental projects of 3 mmbbls and 5 mmbbls in 2028 at the time of the transaction result in the RNPVs of the buyer becoming healthily positive. Decommissioning relief is at 40% without recourse to the TTH.

Table 17

<u>Key Results for Field H</u>			
	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	658.94	768.08	877.33
Decommissioning relief	39.6%	39.6%	39.6%
Costs Recovered	100%	100%	100%
RFES	100%	100%	100%
IA Pre decom	100%	100%	100%
IA Post decom	97%	97%	97%
Devex/bbl (\$)	6.32	6.32	6.32
% Decom/Devex	19%	19%	19%
Seller 2051 Real post tax NPV at 10% (£m. 2017)	-0.09	0.01	0.12
Buyer 2051 Real post tax NPV at 10% (£m. 2017)	-0.41	-0.27	-0.12
Decommissioning relief	21.0%	23.4%	25.7%
Buyer 2051 Real post tax NPV at 10% TTH used (£m. 2017)	-0.08	0.02	0.12
Decommissioning relief	40%	40%	40%

Field H has reserves of c.84.5 mmbbls but it cannot achieve decommissioning relief at 40%. The field can recover its costs and use all the RFES, but, after decommissioning, it can only use 97% of the IA because the decommissioning relief displaces the IA. The effective decommissioning relief is 39.6% at all 3 prices. If it is sold in 2051 the RNPV at 10% for the buyer is negative at all 3 prices and the buyer cannot achieve decommissioning relief of 40%. The RNPV of the seller exceeds that of the buyer at all 3 prices.

At \$50 the decommissioning relief for the buyer is only 21% due to inadequate income and tax. If the tax history of the seller can be transferred the buyer can achieve decommissioning relief at 40%. This requires the transfer of £42.9m. in real terms. The buyer's relief is then just higher than that of the seller. The RNPV at 10% is still negative for the buyer but approximately equal to the RNPV of the seller. Before TTH the buyer's RNPV was clearly less than the seller's RNPV. Thus the asset transaction decision can be positively influenced by the TTH.

At \$55 the decommissioning relief for the buyer is 23.4% due to inadequate income and tax. If the tax history of the seller can be transferred the buyer can achieve decommissioning relief at 40%. This requires the transfer of £37.7m. in real terms. The buyer's relief is just higher than that of the seller. The RNPV at 10% for the buyer becomes positive and approximately equal to that of the seller. Without the TTH the buyer's RNPV was negative. Thus the asset transaction decision can be positively influenced by the TTH.

At \$60 the decommissioning relief for the buyer is 25.7% due to inadequate income and tax. If the tax history of the seller can be transferred the buyer achieve decommissioning relief at 40%. This requires the transfer of £32.4m. in real terms. The buyer's relief is higher than that of the seller because there is no displacement effect from decommissioning losses for the buyer. The RNPV at 10% for the buyer becomes positive and equal to that of the seller. Without the TTH the buyer's RNPV was negative. Thus the asset transaction can be favourably influenced by the TTH.

When an incremental investment of 3 mmbbls with first development in 2051 is introduced the whole field obtains decommissioning relief at 40% at all of the 3 oil prices. At the \$50 price the buyer's RNPV becomes positive and his decommissioning relief goes up from 21% to 38.8%. He obtains the benefit of

only 53% of the IA. If TTH were available the buyer could obtain decommissioning relief at 40%. At the \$55 and \$60 prices the addition of the incremental project results in a positive RNPV for the buyer and decommissioning relief at 40%. He obtains the full benefit of the IA. In these 2 cases there is no need to have recourse to the TTH.

With the 5 mmbbls incremental project starting in 2051 the buyer's RNPV is positive at all 3 prices and decommissioning relief is at 40% without recourse to the TTH.

Table 18

<u>Key Results for Field I</u>			
	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	500.65	571.50	642.46
Decommissioning relief	40.0%	40.0%	40.0%
Costs Recovered	100%	100%	100%
RFES	100%	100%	100%
IA Pre decom	100%	100%	100%
IA Post decom	100%	100%	100%
Devex/bbl (\$)	4.81	4.81	4.81
% Decom/Devex	38%	38%	38%
Seller 2035 Real post tax NPV at 10% (£m. 2017)	-0.83	-0.03	0.77
Buyer 2035 Real post tax NPV at 10% (£m. 2017)	-2.19	-0.97	0.25
Decommissioning relief	27.4%	31.3%	35.2%
Buyer 2035 Real post tax NPV at 10% TTH used (£m. 2017)	-0.83	-0.03	0.77
Decommissioning relief	40%	40%	40%

Field I has reserves of c.55 mmbbls. It can achieve decommissioning relief at 40% at all 3 prices. If it is sold in 2035 the RNPV at 10% for the buyer at \$50 or \$55 is negative, and the buyer cannot achieve decommissioning relief of 40% at any of the 3 prices. The RNPV of the seller exceeds that of the buyer at all 3 oil prices because the latter has inadequate income and tax paid.

At \$50 the decommissioning relief for the buyer is only 27.4% due to inadequate income and tax paid. If the tax history of the seller can be transferred the buyer can achieve decommissioning relief at 40%. This requires the transfer of £27.2m. in real terms. The RNPVs at 10% are now equal but negative for both buyer and seller. The availability of TTH thus improves the situation for the buyer and does not inhibit an asset transaction.

At \$55 the decommissioning relief for the buyer is 31.3% due to inadequate income and tax. If the tax history of the seller were transferred the buyer could achieve decommissioning relief at 40%. This requires the transfer of £18.8m. in real terms. The RNPVs at 10% for the buyer and seller are now equal but negative. The availability of TTH no longer negatively influences an asset transaction decision.

At \$60 the decommissioning relief for the buyer is 35.2%. If the tax history of the seller were transferred the buyer can achieve decommissioning relief at 40%. This requires the transfer of £10.4m. in real terms. The RNPV at 10% for the buyer is positive and equal to that of the seller. The presence of TTH no longer adversely affects an asset transaction decision.

With the addition of an incremental project of 3 mmbbls with first development in 2035, at the \$50 price decommissioning relief for the whole field is 37.2%. There is 100% displacement of the IA by decommissioning losses. The RNPV of the buyer improves but is still negative and less than the RNPV of the seller which is positive. Decommissioning relief for the buyer is at 29.3% with the incremental project compared to 27.4% without the increment. If TTH were available the buyer could get maximum decommissioning relief at 39.4% which exceeds the relief for the whole field. In this event the RNPV of the buyer exceeds that of the seller. This outcome requires a transfer of £22.7m. in real

terms. A smaller transfer of £16.1m. gives relief at 37.2% which equals that for the whole field.

With the \$55 price the incremental project results in the RNPV of the buyer changing from negative to positive. Decommissioning relief increases from 31.3% to 37.2%. There is still 10% displacement of the IA by decommissioning losses and so the RNPV of the seller exceeds that of the buyer. If TTH were permitted the relief becomes the maximum of 39.4% with transfer of £15m. in real terms. Transfer of £3.45m. in real terms produces relief at 37.7% which is the rate for the whole field.

With the \$60 price the incremental project results in the RNPV of the buyer improving and decommissioning relief increasing from 35.2% to 37.8%. The buyer benefits to the extent of only 20% of the IA. If TTH were available the relief could increase to a maximum of 39.4% with the transfer of £9m. in real terms.

With the addition of a 5 mmbbls incremental project at the \$50 price the buyer's RNPV improves from negative to positive. Decommissioning relief is at 35.5% compared to 27.4% without the incremental project and 36.3% for the whole field. Thus the RNPV of the seller exceeds that of the buyer. There is displacement of the IA to the extent of 98%. If TTH were available the buyer's decommissioning relief could be enhanced to a maximum of 39.1% through the transfer of £22.8m. in real terms.

At the \$55 price the buyer's RNPV improves from negative to positive with the additional project. His decommissioning relief is at 37.6% with the project compared to 31.3% without it. The seller's relief is at 40%. The buyer can utilise only 47% of his IA. The seller's RNPV thus exceeds that of the buyer. If TTH

were available the buyer's relief could increase to 40% with the transfer of £30.7m. in real terms.

At the \$60 price the buyer's RNPV is positive and decommissioning relief is at 39.6% compared to 35.2% without the project and 40% for the whole field. The seller's RNPV thus exceeds that of the buyer. With TTH decommissioning relief becomes 40% with the transfer of £1.7m. in real terms.

Table 19

<u>Key Results for Field J</u>			
	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	70.60	99.45	127.43
Decommissioning relief	40.0%	40.0%	40.0%
Costs Recovered	100%	100%	100%
RFES	100%	100%	100%
IA Pre decom	100%	100%	100%
IA Post decom	100%	100%	100%
Devex/bbl (\$)	20.54	20.54	20.54
% Decom/Devex	19%	19%	19%
Seller 2033 Real post tax NPV at 10% (£m. 2017)	0.92	1.54	2.16
Buyer 2033 Real post tax NPV at 10% (£m. 2017)	0.08	0.95	1.81
Decommissioning relief	28.9%	32.2%	35.4%
Buyer 2033 Real post tax NPV at 10% TTH used (£m. 2017)	0.92	1.54	2.16
Decommissioning relief	40%	40%	40%

Field J has reserves of c.21 mmbbls. It achieves decommissioning relief at 40%. If it is sold in 2033 the buyer cannot achieve decommissioning relief of 40% at any of the 3 prices because he has inadequate income and tax paid. The seller's RNPV exceeds that of the buyer at all 3 prices.

At \$50 the decommissioning relief for the buyer is only 28.9%. If the tax history of the seller were transferred the buyer could achieve decommissioning relief at 40%. This requires the transfer of £19.7m. in real terms. The RNPVs of the 2

parties are now equal and the presence of the TTH ensures that the asset transaction is no longer adversely affected by tax relief for decommissioning losses.

At \$55 the decommissioning relief for the buyer is 32.2%. If the tax history of the seller were transferred the buyer could achieve decommissioning relief at 40%. This requires the transfer of £13.9m. in real terms. The RNPVs of the 2 parties are now equal and relief for decommissioning losses no longer negatively affects an asset transaction.

At \$60 the decommissioning relief for the buyer is 35.4%. If the tax history of the seller were transferred the buyer could achieve decommissioning relief at 40%. This requires the transfer of £8.2m. in real terms. The RNPVs of the 2 parties are now equal and relief for decommissioning no longer negatively affects an asset transaction.

When incremental investments of 3 mmbbls or 5 mmbbls starting in 2033 are added to Field J there are significant improvements to the RNPVs of the buyer. At the \$50 price decommissioning relief becomes 40% whereas without the project relief is only 28.9%. No recourse is needed to the TTH. At the \$55 price decommissioning relief becomes 40% whereas without the project it was 32.2%. No recourse is needed to TTH.

At the \$60 price relief for the buyer is at 40% whereas without the project it was 35.4%. No recourse to the TTH is needed.

Table 20

Key Results for Field K			
	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	148.31	177.80	207.35
Decommissioning relief	40.0%	40.0%	40.0%
Costs Recovered	100%	100%	100%
RFES	100%	100%	100%
IA Pre decom	100%	100%	100%
IA Post decom	100%	100%	100%
Devex/bbl (\$)	9.50	9.50	9.50
% Decom/Devex	10%	10%	10%
Seller 2031 Real post tax NPV at 10% (£m. 2017)	0.29	0.87	1.45
Buyer 2031 Real post tax NPV at 10% (£m. 2017)	0.19	0.87	1.45
Decommissioning relief	37.0%	40.0%	40.0%
Buyer 2031 Real post tax NPV at 10% TTH used (£m. 2017)	0.29	0.87	1.45
Decommissioning relief	40%	40%	40%

Field K has recoverable reserves of c.21 mmbbls. The whole field can achieve decommissioning relief at 40% under all 3 prices. If it is sold in 2031 at \$50 the decommissioning relief for the buyer is 37%. He has inadequate income and tax. If the tax history of the seller were transferred the buyer can achieve decommissioning relief at 40%. This requires the transfer of £1.3m. in real terms. Under the \$55 and \$60 prices cases the decommissioning relief for both buyer and seller is 40% without use of TTH.

When a 3 mmbbls incremental project with investment starting in 2031 is introduced decommissioning relief for the whole field is at 40% under all 3 oil prices. The RNPV of the buyer is enhanced. At the \$50 price his decommissioning relief is at 38.4% compared to 37% without the project. There is some displacement of the IA for SC by the decommissioning losses. If TTH were permitted relief for the buyer could be obtained at 40% with the transfer of £4.01m. in real terms.

With an incremental project of 5 mmbbls the RNPV of the buyer increases significantly. Decommissioning relief becomes available at 40% for the buyer at all 3 prices without recourse to the TTH.

Table 21

<u>Key Results for Field L</u>			
	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	61.38	92.67	122.77
Decommissioning relief	40.0%	40.0%	40.0%
Costs Recovered	100%	100%	100%
RFES	100%	100%	100%
IA Pre decom	100%	100%	100%
IA Post decom	100%	100%	100%
Devex/bbl (\$)	15.46	15.19	15.19
% Decom/Devex	10%	10%	10%
Seller 2031 Real post tax NPV at 10% (£m. 2017)	-2.28	-1.51	-0.93
Buyer 2031 Real post tax NPV at 10% (£m. 2017)	-3.90	-2.76	-1.86
Decommissioning relief	13.2%	17.3%	23.1%
Buyer 2031 Real post tax NPV at 10% TTH used (£m. 2017)	-2.28	-1.51	-0.93
Decommissioning relief	40%	40%	40%

Field L has reserves of c.21 mmbbls. The whole field can achieve decommissioning relief at 40% at all 3 prices. If it is sold in 2031 the buyer cannot achieve decommissioning relief at 40% at any of the 3 prices. He has inadequate income and tax. The RNPV for the seller thus exceeds that for the buyer at all prices though both are negative.

At \$50 the decommissioning relief for the buyer is only 13.2%. If the tax history of the seller were transferred the buyer could achieve decommissioning relief at 40%. This requires the transfer of £17.6m. in real terms. The buyer's RNPV at 10% now equals that of the seller but is still negative. This still constitutes an improvement regarding incentives to trade.

At \$55 the decommissioning relief for the buyer is only 17.3%. He has inadequate income and tax. If the tax history of the seller were transferred the buyer could achieve decommissioning relief at 40%. This requires the transfer of £15.3m. in real terms. The buyer's RNPV at 10% equals that of the seller but is still negative. This still constitutes an improvement regarding incentives to trade.

At \$60 the decommissioning relief for the buyer is only 23.1%. He has inadequate income and tax. If the tax history of the seller were transferred the buyer can achieve decommissioning relief at 40%. This requires the transfer of £11.4m. in real terms. The buyer's RNPV at 10% then equals that of the seller but is still negative. This still constitutes an improvement regarding incentives to transfer.

When an incremental project of 3 mmbbls from 2031 is added at the \$50 price the RNPV for the buyer improves but remains negative and below that of the seller. Decommissioning relief for the buyer is at 17.3% compared to 13.2% without the project. He cannot utilise any of his IA. Relief for the whole field is at 31.5% including the incremental project. Without the incremental project the relief for the whole field was at 40%. The buyer suffers badly and he receives no net benefit from the IA. If TTH were permitted relief at 31.5% for the buyer could be obtained with the transfer of £8.24m. in real terms. A larger transfer of £13.49m. in real terms would be needed to obtain relief at 40%.

At the \$55 price the buyer's RNPV improves from negative to positive with the incremental project but it remains below that of the seller. Decommissioning relief becomes 33% for the buyer. He obtains net benefit of only 12% of the IA. For the seller relief is at 40%. With TTH there is sufficient tax history of the

seller to enable relief for the buyer to increase to 40%. This requires the transfer of £13.95m. in real terms.

At the \$60 price the buyer's RNPV is enhanced by the incremental project to such an extent that it becomes positive whereas formerly it was negative. Decommissioning relief is now at 36.8%. Without the incremental project it was at 23.1%. There is displacement of the IA with decommissioning losses such that 62% net benefit from the IA is obtained. The field obtains relief at 40%. If TTH were permitted the relief for the buyer could be increased to 40% through the transfer of £12.8m. in real terms.

With an incremental project of 5mmbbls at the \$50 price the buyer's RNPV is enhanced from negative to positive. Decommissioning relief becomes 33% compared to 13.2% without the project and 40% for the whole field. Use of the TTH can increase the buyer's RNPV to a modest extent and produce full decommissioning relief.

At the \$55 and \$60 prices with the 5 mmbbls incremental project the buyer's RNPV is improved from negative to positive. Decommissioning relief increases to 40% without use of the TTH.

Table 22

Key Results for Field M			
	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	262.17	320.28	377.17
Decommissioning relief	40.0%	40.0%	40.0%
Costs Recovered	100%	100%	100%
RFES	100%	100%	100%
IA Pre decom	100%	100%	100%
IA Post decom	100%	100%	100%
Devex/bbl (\$)	10.00	10.00	9.90
% Decom/Devex	10%	10%	10%
Seller 2036 Real post tax NPV at 10% (£m. 2017)	-0.62	-0.13	0.35
Buyer 2036 Real post tax NPV at 10% (£m. 2017)	-1.24	-0.47	0.31
Decommissioning relief	29.4%	34.3%	39.2%
Buyer 2036 Real post tax NPV at 10% TTH used (£m. 2017)	-0.62	-0.13	0.35
Decommissioning relief	40%	40%	40%

Field M has reserves of c.50 mmbbls. It can achieve decommissioning relief at 40%. If it is sold in 2036 the buyer cannot achieve decommissioning relief at 40% at any of the 3 prices. He has inadequate income and tax. The RNPV of the seller always exceeds that of the buyer though both are negative at \$50 and \$55.

At \$50 the decommissioning relief for the buyer is 29.4%. If the tax history of the seller were transferred the buyer could achieve decommissioning relief at 40%. This requires the transfer of £10.9m. in real terms. The buyer's RNPV at 10% then equals that of the seller but is still negative. This still constitutes an improvement to incentives to transfer.

At \$55 the decommissioning relief for the buyer is 34.3%. If the tax history of the seller were transferred the buyer could achieve decommissioning relief at 40%. This requires the transfer of £5.9m. in real terms. The buyer's RNPV at 10% then equals that of the seller but is still negative. This still constitutes an improvement to incentives to transfer.

At \$60 the decommissioning relief for the buyer is 39.2%. If the tax history of the seller were transferred the buyer could achieve decommissioning relief at 40%. This requires the transfer of £0.83m. in real terms. The buyer's RNPV then equals that of the seller. This constitutes an improvement to incentives to transfer.

When an incremental project with 3 mmbbls is triggered in 2036 the result is that for the whole field the extra costs cannot be recovered at the \$50 and \$55 prices. At the \$50 price only 63% of the RFES can be utilised and 87% at the \$55 price. Decommissioning relief for the whole field is at 38.9% with the \$50 and \$55 prices. The RNPV of the buyer is below that of the seller at all 3 prices.

At the \$50 price the consequence of the above is that the RNPV of the buyer is reduced by the incremental project. Decommissioning relief for the buyer is only 19.5%. He receives no net benefit from the IA. To bring decommissioning relief to 40% a large transfer of £21.1m. in real terms would be required under TTH.

At the \$55 price decommissioning relief for the buyer is at 24.1%. He receives no net benefit from the IA. To achieve relief at 40% a transfer of £16.1m. in real terms under TTH would be required.

At the \$60 price the decommissioning relief for the buyer is 31.4%. He continues to receive no net benefit from the IA. In this case if the buyer were to achieve relief at 40% a transfer of £16m. in real terms under TTH would be needed.

With an incremental project of 5 mmbbls the RNPVs are significantly improved under all 3 oil prices. But the RNPV of the seller in 2036 remains negative at \$50 price. At the \$55 price the RNPV becomes positive whereas without the incremental project it was negative. But decommissioning relief for the whole

field including the incremental project is reduced from 40% to 30.8% at the \$50 price, and 32.7% at the \$55 price. The RNPVs of the seller exceed those of the buyer at all 3 prices. For the buyer at \$50 price decommissioning relief is at 19.6% including the incremental project compared to 29.4% without it. There is a complete displacement of the IA with decommissioning losses. The presence of TTH could enhance relief to the overall field level of 30.8% if £9.94m. in real terms were transferred. A larger transfer of £18.2m. is required to procure relief at 40%.

At the \$55 price decommissioning relief for the buyer is at 35.1%. A transfer of tax history of £11.1m. in real terms could increase this to 40%. This would make the relief for the buyer exceed that of the whole field including the incremental project.

At the \$60 price decommissioning relief for the buyer is at 35.6%. Transfer of tax history to the extent of £6.1m. in real terms permits relief at 40% which is also the rate for the field plus incremental project.

Table 23

Key Results for Field N			
	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	57.83	122.72	182.00
Decommissioning relief	40.0%	40.0%	40.0%
Costs Recovered	100%	100%	100%
RFES	100%	100%	100%
IA Pre decom	100%	100%	100%
IA Post decom	100%	100%	100%
Devex/bbl (\$)	16.00	16.00	16.00
% Decom/Devex	10%	10%	10%
Seller 2034 Real post tax NPV at 10% (£m. 2017)	1.31	3.03	4.74
Buyer 2034 Real post tax NPV at 10% (£m. 2017)	1.15	3.03	4.74
Decommissioning relief	38.3%	40.0%	40.0%
Buyer 2034 Real post tax NPV at 10% TTH used (£m. 2017)	1.31	3.03	4.74
Decommissioning relief	40%	40%	40%

Field N has reserves of 50 mmbbls. It can achieve decommissioning relief at 40% under all 3 oil price cases. If it is sold in 2034 at \$50 price the decommissioning relief for the buyer is 38.3%. There is insufficient income and tax. Thus the RNPV of the seller exceeds that of the buyer. If the tax history of the seller were transferred the buyer could achieve decommissioning relief at 40% constituting an improvement to incentives to transfer. This requires the transfer of £2.9m. in real terms. Under the \$55 and \$60 prices cases the decommissioning relief is 40% for the buyer without use of the TTH.

With an incremental project of 3 mmbbls the decommissioning relief for the whole field including the incremental project is 36.5% at the \$50 price, 37.2% at the \$55 price, and 39.3% at the \$60 price. The decommissioning losses to some extent displace the IA for SC. But the buyer in the year 2034 obtains decommissioning relief at lower rates and his RNPV is below that of the seller in all price cases.

At the \$50 price the buyer's RNPV is enhanced by the extra project. But the buyer's decommissioning relief is at 34.5% which is less than the position without the extra project. He receives no net benefit from the IA. A transfer of £3.2m. in real terms could bring relief to the 36.5% rate for the overall field. Maximum relief is at 39.3% which requires a TTH of £15.8m. in real terms.

At the \$55 price the buyer obtains decommissioning relief at 37.2%. He receives a net benefit of only 20% from the IA. A transfer of tax history of £4.1m. in real terms would bring relief to 39.3% which is the maximum attainable.

At the \$60 price the buyer obtains relief at 39.3%. A small transfer of £2.2m. in real terms brings this to 40%.

With an incremental project of 5 mmbbls at the \$50 price the buyer's RNPV increases. Decommissioning relief for the seller and buyer in 2034 is at 35.3%. There is displacement of the IA by decommissioning losses. The buyer's RNPV is below that of the seller. If TTH were available then the transfer of £14.3m. in real terms brings relief to 38.8% which is the maximum achievable.

At the \$55 price decommissioning relief is 40% for the seller and for the buyer it is 37.2%. There is a significant IA displacement effect. The buyer's RNPV is less than that of the seller. If TTH were available then the transfer of £17.8m. in real terms would produce relief at 40%.

At the \$60 price the relief is available to the buyer at 40% without recourse to the TTH.

Table 24

Key Results for Field O			
	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	509.19	623.54	738.62
Decommissioning relief	40.0%	40.0%	40.0%
Costs Recovered	100%	100%	100%
RFES	100%	100%	100%
IA Pre decom	100%	100%	100%
IA Post decom	100%	100%	100%
Devex/bbl (\$)	9.72	9.72	9.66
% Decom/Devex	10%	10%	10%
Seller 2039 Real post tax NPV at 10% (£m. 2017)	-0.71	0.09	1.48
Buyer 2039 Real post tax NPV at 10% (£m. 2017)	-1.69	-0.43	1.43
Decommissioning relief	27.7%	33.4%	39.3%
Buyer 2039 Real post tax NPV at 10% TTH used (£m. 2017)	-0.71	0.09	1.48
Decommissioning relief	40%	40%	40%

Field O has reserves of c.103 mmbbls. It can achieve decommissioning relief at 40% at all 3 prices. If it is sold in 2039 the buyer cannot achieve decommissioning relief of 40% at any of the 3 prices. The RNPV at 10% is negative for the buyer at the \$50 and \$55 prices and positive at \$60, but is less than that of the seller at all 3 prices.

At \$50 the decommissioning relief for the buyer is only 27.8%. He has inadequate income and tax. If the tax history of the seller were transferred the buyer could achieve decommissioning relief at 40%. This requires the transfer of £25.6m. in real terms. The RNPV at 10% is still negative but equal for both buyer and seller. This still constitutes an improvement to incentives to transfer.

At \$55 the decommissioning relief for the buyer is 33.4%. He has inadequate income and tax. If the tax history of the seller were transferred the buyer can achieve decommissioning relief at 40%. This requires the transfer of £13.9m. in real terms. The RNPV at 10% becomes positive whereas without this relief it

was negative. The buyer's RNPV now equals that of the seller. This clearly constitutes an improvement to incentives to transfer.

At \$60 the decommissioning relief for the buyer is 39.3%. If the tax history of the seller were transferred the buyer can achieve decommissioning relief at 40%. To achieve this £1.5m. in real terms has to be transferred.

When an incremental project of 3 mmbbls is added the whole field is unable to obtain decommissioning relief at 40%. It is 37.2% at the \$50 and \$55 prices and 37.8% at the \$60 price. There is displacement of the IA by the decommissioning losses. Without the incremental project decommissioning relief was at 40% for all 3 prices. For a transaction in 2039 the buyer's RNPV is less than that of the seller at \$50 and \$55 prices. The buyer's decommissioning relief is at only 25.4% with the \$50 price. He receives no net benefit from the IA. If TTH were available the buyer could obtain relief to a maximum of 39.4% through the transfer of £26.9m. in real terms. The result is that the buyer's RNPV is transformed from a negative to a positive value.

With the \$55 price the buyer obtains decommissioning relief at 36.1%. There is complete displacement of the IA by the decommissioning losses. If TTH were available the maximum rate of relief which could be obtained is 39.4%. This requires the transfer of £15.2m. in real terms.

At the \$60 price the buyer receives decommissioning relief at 37.8% which equals that of the field as a whole. His RNPV equals that of the seller. In this case there is no need for recourse to TTH.

When a 5 mmbbls incremental project is added the decommissioning relief for the whole field becomes 35.4% at the \$50 price, 36.4% at the \$55 price, and 40%

at the \$60 price. There is some displacement of the IA by decommissioning costs in the \$50 and \$55 cases.

At the \$50 price the decommissioning relief for the buyer is 32.2%. He receives no net benefit from the IA. If TTH were available relief could be increased to a maximum of 39.1%. This would require a transfer of £26.9m. in real terms.

With the \$55 price decommissioning relief for the buyer is at 36.4% which is the same as that for the seller. There is inadequate income and tax. The TTH could increase the relief for the buyer to a maximum of 39.1% through the transfer of £2.4m. in real terms. At the \$60 price the buyer obtains relief at 40% without recourse to the TTH.

Table 25

<u>Key Results for Field P</u>			
	\$50	\$55	\$60
Real post tax NPV at 10% (£m. 2017)	93.14	221.61	340.69
Decommissioning relief	40.0%	40.0%	40.0%
Costs Recovered	100%	100%	100%
RFES	100%	100%	100%
IA Pre decom	100%	100%	100%
IA Post decom	100%	100%	100%
Devex/bbl (\$)	15.72	15.55	15.55
% Decom/Devex	10%	10%	10%
Seller 2038 Real post tax NPV at 10% (£m. 2017)	-0.05	2.30	4.07
Buyer 2038 Real post tax NPV at 10% (£m. 2017)	-1.11	2.04	4.07
Decommissioning relief	32.5%	38.0%	40.0%
Buyer 2038 Real post tax NPV at 10% TTH used (£m. 2017)	-0.05	2.30	4.07
Decommissioning relief	40%	40%	40%

Field P has reserves of c.102 mmbbls. It can achieve decommissioning relief at 40%. If it is sold in 2038 the buyer cannot achieve decommissioning relief of

40% at \$50 or \$55. The RNPV at 10% for the buyer is below that for the seller at both prices.

At \$50 decommissioning relief for the buyer is 32.5%. He has inadequate income and tax. If the tax history of the seller were transferred the buyer can achieve decommissioning relief at 40%. This requires a transfer of £25.3m. in real terms. The RNPV at 10% is still negative for the buyer but now equal to that of the seller which constitutes an improvement to incentives to transfer.

At \$55 the decommissioning relief for the buyer is 38%. If the tax history of the seller were transferred the buyer can achieve decommissioning relief at 40%. The required transfer is £7m. in real terms. The buyer's RNPV now equals that of the seller. This constitutes an improvement to incentives to transfer.

At the \$60 price the buyer receives decommissioning relief at 40% without requiring use of the TTH.

When a 3 mmbbls incremental project is added decommissioning relief for the whole field is 38.2% at the \$50 and \$55 prices, and 38.6% at the \$60 price. There is displacement of some of the IA by the decommissioning losses. For the field excluding the incremental project relief is at 40%. At the \$50 price the buyer's decommissioning relief for the field plus increment is at 28.9% due to the displacement effect of all of his IA. His RNPV is negative whereas that for the seller is positive. If TTH were available it would enhance the RNPV. Thus with relief at 38.2% (the same as for the whole field) his RNPV becomes significantly positive. The required transfer would then be £30.5m. in real terms.

At the \$55 price decommissioning relief for the buyer is 38.02%, a little below that for the whole field. The TTH could readily bring equality of treatment

through a transfer of £0.62m. in real terms. It could also be used to produce decommissioning relief at a maximum of 39.6%.

At the \$60 price the buyer obtains decommissioning relief at 38.58% which equals that for the whole field. The availability of TTH could increase the relief to a maximum of 39.6% through a transfer of £0.02m. in real terms.

With an incremental project of 5 mmbbls the whole field obtains decommissioning relief at 37.1% with the \$50 price, 37.6% with the \$55 price, and 37.7% at the \$60 price. For the field excluding the incremental project relief is at 40% with all 3 prices.

At the \$50 price the buyer's decommissioning relief is at 31%. There is complete displacement of the IA by decommissioning losses. If TTH were available the rate of relief could be increased to 37.1% which is the rate for the whole field. This requires the transfer of £19.6m. in real terms. The maximum relief which TTH could facilitate is 39.4% which requires a transfer of £34m. in real terms.

At the \$55 price the buyer obtains decommissioning relief at 37.6% which equals that for the whole field. The use of TTH could be used to produce relief at a maximum rate of 39.4%. This involves the transfer of £14.5m. in real terms.

At the \$60 price the buyer receives relief at 37.7% which equals that for the whole field. Transfer of £0.63m. in real terms results in maximum relief at 39.4%

4. Summary and Conclusions

In this study the question of whether the transfer of tax history among investors in the UK Continental Shelf (UKCS) could help to remove impediments to later field life asset transactions has been examined in detail. Currently the transfer of

corporation tax (CT) and Supplementary Charge (SC) from seller to buyer is not permitted. It is thus possible that the buyer will be unable to obtain full relief for the decommissioning costs at 40%, namely the combined rates of CT and SC. He may have inadequate income and tax paid from the time of the transaction to obtain the full relief which would be available to the seller. In that event the seller's remaining post-tax net present value (RNPV) can exceed that of the prospective buyer. This constitutes a potential impediment to the transaction which in other respects could be desirable in fostering maximum economic recovery (MER). It is well known that some investors regard mature fields as being no longer core assets but other investors are keen to purchase them and enhance recovery from them. Thus the tax system should not discourage these transactions.

The question of the extent to which such discouragement exists is clearly an empirical one. In this study the subject has been investigated in depth. Detailed economic modelling has been undertaken of the effective returns including relief for decommissioning costs for a substantial number of representative model and real fields in the UKCS with the purpose of enabling informed conclusions to be made. The modelling is based on assumptions which conform to the present investment environment. Thus oil prices of \$50, \$55, and \$60 in real terms are assumed to be appropriate for assessing investments.

With respect to the tax system it is assumed that the original field investor makes use of the Ring Fence Expenditure Supplement (RFES) and the Investment Allowance (IA) for SC reflecting current market realities. The discount rate employed to assess investments is 10% for both parties. The modelling incorporates the current reality that the IA once activated by an investor cannot be transferred to another investor when an asset transaction is made. With respect to decommissioning relief, and again reflecting the current reality, it is assumed

that the investor will carry back the losses against earlier income and tax paid. For the original field investor and potential seller this can extend to April 2002. For the potential buyer the limit for effective relief is at the time of the asset transaction. The modelling also incorporates the current tax position that decommissioning losses carried back would displace the IA for SC. The modelling includes a case where an incremental investment in the late years of field life is contemplated. In that event a new IA allowance for SC would be available. The buyer could receive it if he undertook the investment.

The modelling was conducted on a representative set of 9 model fields with reserves of c.21 mmbbls, c.50 mmbbls, and c.102 mmbbls. For each of them development costs of \$10, \$16, and \$21 per bbl were incorporated in the modelling. Asset transactions at several years in the later part of the lives of the fields were examined. A rather obvious finding is that the later in field life, and so the closer the date of the transaction to the economic limit of the field, the greater is the possibility that decommissioning relief for the buyer becomes less than that for the seller because the buyer has less profits and tax against which he can set the decommissioning losses compared to the seller. The RNPV of the seller is then greater than that of the buyer. However, it was found that this problem generally arose only when the transaction date was quite close to that of the economic limit of the field and the RNPVs were thus small. But it is when the RNPVs are small that differences in returns may be important to decision-making.

The modelling also revealed other complications emanating from the operation of the tax system. A considerable number of occasions were found where, at the date of transaction, the seller had not utilised all his IA for SC. As this could not be transferred to the buyer his RNPV exceeded that of the buyer which could inhibit the asset transaction. It was also found in several cases that the buyer

could obtain decommissioning relief at 40% only because he did not have access to the unused part of the IA and sometimes to some of the RFES which was unused at the date of the possible transaction. Thus the finding that the buyer could obtain decommissioning relief at 40% in a considerable number of cases does not mean that the tax system is not inhibiting transactions. The RNPV of the seller can exceed the RNPV of buyer because of the complications discussed above. Generally transfer of the seller's tax history would enable the buyer to obtain decommissioning relief at 40%.

Further detailed modelling was conducted on a representative set of 16 (mostly) real fields. Their reserves range from 2.7 mmbbls to 103 mmbbls. Development costs range from c.\$5/bbl to c.\$20/bbl., reflecting the very wide range found in practice. Detailed modelling concentrated on late field life situations near to the economic limit of the field where the problem being investigated was more likely to be present. This modelling of the real fields also considered the effects of incremental projects of c.3 mmbbls and c.5 mmbbls taking place from the date of the possible asset transaction. (When substantially larger incremental projects were modelled it was generally found that the buyer could procure decommissioning relief at 40% for the whole field from the income from the incremental project. These cases are not included in the present study).

The modelling confirmed that, in real fields where the RNPVs are quite small, situations can readily arise where the buyer obtains decommissioning relief at less than 40% and the RNPV of the seller exceeds that of the buyer. The buyer has insufficient income and tax from the time of the transaction onwards to obtain full relief whereas the seller is more likely to have sufficient tax history to obtain relief at 40%. Cases were also found where the field investments were economically fairly marginal and the seller could not obtain relief at 40% because

of displacement of the IA by the decommissioning losses. In such cases the buyer sometimes still received relief at less than the rate obtained by the seller.

The incremental projects of 3 mmbbls and 5 mmbbls often resulted in the buyer still receiving overall relief at less than the seller's rate. Particularly at the \$50 price there could be displacement of the IA with the decommissioning losses.

The modelling indicated that, where the buyer's relief was less than that of the seller, transfer of the tax history from the seller to the buyer could generally equalise the rates of the relief and so remove this inhibition to the asset transaction. The modelling indicates the value of the transfer which would be needed to produce relief at 40%. In some cases the seller's rate of relief is less than 40% and the modelling indicates the (lower) value of the transfer which would result in the buyer's rate of relief being equal to that for the whole field.

The overall conclusion is that there is a case for introducing transfer of tax history for CT and SC to remove disincentives to later field asset transactions which could enhance MER in the UKCS.