ENERGY PROJECT FINANCING
— AFTER WOODSIDE

by

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INTRODUCTION

This paper deals principally with project financing in the post-Woodside environment. The Woodside financing was arranged about two years ago, when the outlook for oil, gas and coal was very promising in terms of both prospective demand and price. That financing has been perceived in the market as breaking new ground in the banking community's acceptance of project risk. This perception is understandable in view of the generally favourable climate at that time, but further comment would be inappropriate as the Lloyds Bank Group, in common with all other organisations involved in the Woodside project, is bound by a confidentiality agreement.

OUTLOOK

The outlook for new energy resource projects, at least for the medium term, is very much less optimistic than it was two or three years ago, particularly for fuels other than oil. Economic activity in the developed world will be very restrained for the next twelve to eighteen months and could well decline. A resumption of growth is widely expected by 1984 but is by no means assured.

Energy usage will reflect economic activity and demand for the major fuels — oil, gas, coal and uranium — will be far more subdued, at least in the medium term, than was expected two or three years ago. The lower growth in projected demand has been reflected in current prices of the major fuels and in future price expectations. The combination of reduced expectations for demand and prices has greatly affected the perceived profitability of many energy resource projects which two years ago offered the prospect of good investments for sponsors and sound financing opportunities for lenders. Although it can be argued that there has been an over-reaction to short term trends, there is no doubt that energy resource projects today face a very different environment compared with 1980 in terms of markets, financing costs and the perceptions of investors and bankers. Uncertainty is high. Confidence is low. The analysis of risks has therefore assumed greater importance than ever in energy resource projects.

ENERGY PROJECT FINANCING

For the purposes of this paper, the term energy project financing is confined to the financing by commercial banks of projects for the production, transportation, processing and sale of oil, gas and coal. Uranium, hydroelectricity, shale oil and the various other alternative energy sources are excluded.

Project financing is not the provision of high risk funds by banks. This obvious point needs to be made because the banking industry has created its own problems by allowing potential borrowers to believe that commercial banks are willing to accept substantial risks in financing projects and to provide funds to the project without any recourse whatsoever to its sponsors. Recent history is filled with examples of disappointed corporate treasurers who believed that they were obtaining a genuine non-recourse facility only to find at a fairly late date that the loan documentation abounded with best endeavours undertakings, non-abandonment commitments and


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The most important elements are operating costs, tax payments and thus the cash flow. This involves cash dealt with by the bank or third party such as a purchaser. Loan structures are not directly covered by the sponsor or third party such as a borrower. Developments in project finance should be seen within this context.

Banks may be perceived as progressively accepting more risk but, in reality, what is happening is that banks consider that more and more risks fall within an acceptable banking probability.

This results from one or more of four factors:

- experience;
- improved technical analysis;
- new perceptions of lender control; and
- financial innovation.

Experience is clearly the most important of these. Actual experience of risk reduces uncertainty and allays or confirms the bankers' concerns. The other three factors are important, however. Banks increasingly rely on technical advice from both in-house specialists and from independent consultants. Loan structures are also used which enable lenders to accelerate repayment where future problems are anticipated. Financial innovation is, alas, the least important factor, although there are notable exceptions which will be dealt with later.

The most important analytical tool is the analysis of cash flows and their sensitivity to changes in the key elements of the project profitability. Cash flow analysis involves projecting, for the life of the project (which might be 20 or 25 years), the annual production and sales volumes, selling prices, sales revenue, capital and operating costs, tax payments and thus the cash surplus available for debt service and the return to the project sponsor. It involves not only projecting the most probable levels of the key elements such as volume, price capital cost, interests rates, and debt repayments but, most importantly, the sensitivity of the cash surplus before and after debt service to changes in the key elements. Such a sensitivity analysis lies at the heart of a real understanding of a project's risks and the prospective returns to its sponsors.

A cash flow and sensitivity analysis provides the basis of calculation of cover ratios which are universal indicators of the margin of comfort for lenders relative to the relevant risks. Cover ratios may be calculated on an annual basis — for example the ratio of cash flow before debt service payments to those debt service payments. Alternatively the present value of the projected cash surplus over the project life, based on a discount rate equal to the after tax equivalent of the projected interest rate, is expressed as a multiple of the outstanding amount of the loan.

In energy project financing, the major risk areas can be considered to be the development/completion risk, the reserve and production risk, the market risk, the political risk and the force majeure risk.

**DEVELOPMENT/COMPLETION RISK**

In the area of development and completion risk, four forces which lead to advance in project finance are evident — experience, improved analytical techniques, new methods of control and genuine financial innovation — moving in different directions.

Bankers have always viewed with concern the risk that a project will be abandoned before it is in a position to generate cash flow, i.e. before it is completed. It has been an article of faith that completion risk is unbankable. Experience has given substance to that belief. Cost overruns have become so massive that the oft quoted "Q's law", coined in 1974 by Quentin Morris of BP — that however much is spent on a development, the amount required to complete it remains constant — seems a positively optimistic statement. It is optimistic because it did not envisage non-completion — it merely acknowledged the realities of inflation and the problems of engineering in an untried environment.

It is now common for energy projects to be abandoned or postponed, often after very significant development expenditures have been made. The last year has seen progress stop or at best slow down on Bonny LNG, the U.K. North Sea gas gathering system, several North Sea fields with reserves of 100 million barrels or more, a significant number of coal export projects and virtually all synthetic oil projects in the U.S.A., Canada and Australia.

Despite this experience, the energy industry has increasingly put pressure on banks to accept the completion risk. Examples can be quoted (but won't
be here) of numerous major international banks yielding to that pressure.

The reason for this is not that the banks have increased their capitalisation and decided to alter the risk profile of their assets but that new ways of looking at projects have emerged. Two key questions are now being asked — these are, within an acceptable banking profitability: just how bad can cost overruns be? and just how wrong can the project go? The answer to these questions will then give the answer to two other questions; will the project be abandoned? and what amount of funds must be available to ensure completion can be financed?

Improved analytical techniques are required because it is no use looking at a project with a hatchet. Cash flow projections on assumptions of 300 per cent cost overruns, 25 per cent interest rates and declining energy prices need not be made because the answer is a foregone conclusion — abandonment. Proper, professional engineering advice is needed to investigate the areas of cost which are vulnerable to escalation. Secondly, a sensible cash flow sensitivity analysis has to be carried out for the life of the project to assess its inherent attractiveness, taking into account a range of outcomes for key elements such a product prices, capital costs and interest rates.

Once the viability of the project has been analysed under a range of assumptions, the profitability of abandonment can be assessed. If that profitability is bankable, consideration has then to given to the provision of all of the funds which might be required. It is up to the banks to ensure that adequate funds to complete the project are available. These can be made up by a mix of medium term bank loans, sufficient to fund the most probable cost estimates, including a contingency provision; standby bank loans to meet cost overruns; and finally, equity or subordinated loan injections by sponsors and, possibly, third tier bank loans, to meet a worst case situation. Each of these tiers would be priced to reflect the risk involved. This is similar in concept to the layering of risks in the insurance industry.

This technique for providing for cost overruns can be considered innovative as it does more than just allow the banks to understand a risk better — it allows them to actually reduce a risk so that they can accept it.

The final element is the fourth factor in the advancement of project finance — increased lender control. This technique requires that the lenders can force the project sponsors to spend all the funds available whether or nor they would rather abandon the project.

Although there have been advances in bank acceptance of completion risk, it is expensive and there is no doubt that many banks believe that, when the chips are down, they will have some negotiating point with which to get a strong project sponsor back to the table.

**RESERVE AND PRODUCTION RISK**

The estimating of recoverable reserves for oil, gas and coal is a relatively exact and well established science. Competent consultants can provide reliable projection of annual production, grades, the life of the reserve and, where appropriate, operating and transportation costs. A good consultant can provide bankers with an excellent overview of the cost competitiveness of the project based on these projections and estimates of capital costs.

The reserve and production risk — that is, the risk that it will not be possible to produce the projected grades and tonnages for the designated period of time — is generally regarded as bankable.

Production payments have been a standard banking product of the North American banks for many years. The major European banks were not converts until the 1970s when the North Sea required development funds. After initial discomfort with security they could not see, European bank credit committees have become quite amenable to lending against future oil production where petroleum engineers have given projected production profiles and sponsors took the market risks.

Developments in this type of lending are not basically new, but they do give a good example of how risk taking develops. In the early days of project finance in the North Sea, non-US banks were extremely cautious. Therefore, sponsor commitments were onerous and, looking back, it is difficult to see what risks the banks actually took. Experience with various facilities which were rapidly repaid gave substantial comfort; as did familiarity with the major independent petroleum engineering consultants. More and more banks hired petroleum engineers and even those that stayed aloof were familiar with a DeGolyer MacNaughton or a Gaffney Cline; thus improved technical analysis played an important part, alongside experience, in persuading banks to take production risk.

Lender control and financial innovation were more concerned with extending the term for which bankers
were prepared to accept production risk. The half-life concept imported from the U.S., whereby a bank would lend against net present value of the cash flow from a hydrocarbon project up to the time at which 50 per cent of the recoverable reserves were depleted, was of little use in the North Sea. This was because the North Sea tax regimes, especially in the U.K. sector, resulted in very large cash flows in the early years and disproportionately large net present values.

Lender control and financial innovation got around this problem by creating the idea of a rolling security. The initial amount of the loan and the amortisation payments were based on the net present value of cash flows over the life of the project and an agreed cover ratio. Reserves and production projections would be reassessed periodically, usually by an engineering consultant acting on behalf of lenders, and the net present value recalculated. If the recalculated present value divided by the cover ratio exceeded the balance of the loan then outstanding, the lenders could require an acceleration of loan repayments until the cover ratios were met. This acceleration was, of course, subject to the availability of project cash flow, supplemented perhaps by limited recapture of prior cash flow.

Developments in the reserve and production risk area are hardly new and are most certainly not post-Woodside, but developments, when they did happen, resulted from the joint forces of experience, improved analysis, lender control and financial innovation.

MARKET RISKS

Market risks have always been an area of potential concern for bankers in financing energy projects. These concerns inevitably have been heightened by changes in the environment over the last two years, which have had far greater impact on market risks than on the other areas of risk in project financing. The differences between oil, gas and coal project financing are also greatest in the area of market risks.

Market risks include risks related to:
- sales volume;
- selling prices;
- transportations; and
- in some projects, exchange rates.

For oil or gas liquids projects which have ready access to a market, such as the Cooper Basin project in Central Australia, banks have normally been willing to accept the volume and other market risks. They would undoubtedly seek more generous cover ratios in the current environment than a couple of years ago and would use more conservative price assumptions in their cash flow analyses.

However, for coal and gas projects, sales volume and price risks would not generally be bankable and appropriate sales contracts with acceptable buyers would be a prerequisite for bank finance. The interesting issue is: what constitutes a bankable contract, and how are the perceptions of what is bankable changing?

In many gas projects, an inherent problem is that transportation, whether by pipeline or gas carriers is very expensive. Once the transportation system is in place, the project often has the risk of a monopoly buyer. For such projects, sales contracts have been considered bankable if they contained take-or-pay provisions, some of which were equivalent to guarantees from the purchasers because they stipulated that, whether or not the product is delivered or required, the purchaser will pay an amount which ensures the borrower has sufficient funds to service the project debt. Increasingly, full take-or-pay provisions are not required by banks who will take the delivery risk if an acceptable sponsor agrees to provide a transportation system. They will, however, still require a provision in the sale contract whereby the purchaser will take all gas delivered and at a price that ensures sufficient cash flow to service debt. The risks that they believe bankable, therefore, are the gas production risk and the risk that a sponsor cannot transport the product.

For coal, the transportation and attendant monopoly purchaser risks are not as severe as for gas. It is likely that when sufficient coal export and import facilities are in place, and sufficient coal carriers have been constructed, a wider market will be available to each project and, as with oil, price will be the key factor which could be allowed for by setting appropriate loan cover ratios. As yet, this is not the case and suitable purchase contracts are a prerequisite of bank-provided, limited recourse loans for coal export projects.

However, take-or-pay provisions are not usual in coal contracts with buyers in this region or Europe. These coal contracts, which may be long term or evergreen, usually contain a base annual volume and price, plus provisions for variations in volume and adjustment of the price.

The contract might provide for volume to be varied by, say 10 per cent or 20 per cent under the base volume. However, recent experience has taught lenders to scrutinise closely these contract provisions and the
commercial practice of buyers in adhering to the letter of the contract. The Japanese, for example, as a matter of commercial philosophy, view contracts differently to Americans and Australians. In considering financing coal projects, lenders will need to give increased attention to assessing what the volumes might be if the buyer’s industry undergoes a prolonged period of depressed demand. It is illuminating to review current experience in relation to the alumina purchase contracts of Japanese aluminium companies which are terminating production. Recent experience in respect of iron ore contracts is also worthy of consideration.

The pricing provisions of coal contracts also require careful analysis by lenders. The contract may provide for all or, say, half of the price to be escalated, based on increases in labour and other costs. Contracts often also contain an equity review clause under which the price may be renegotiated based on market conditions. Experience with the operation of such provisions is limited. What assumptions should reasonably be made in projecting prices under such contracts? The banker must take a view in order to make a realistic assessment of the market risk.

Ship loader capacity is currently proving to be a major constraint on the volume of coal exports from certain parts of Australia, the United States and Canada. Several New South Wales coal projects — both completed and under construction — will not be able to meet their projected sales volumes by large margins over the next three years because of inadequate loader capacity. The provision of additional loader capacity is behind schedule and this will be a continuing problem for at least the next few years.

Lenders to coal projects located in areas where loader capacity is a real or potential problem need to monitor regularly the effective loader capacity which will be available to the project and to incorporate the findings in updated cash flow and sensitivity analyses. In Australia, any assessment of effective loader capacity must unfortunately take into account the impact of industrial disputation, which is currently significant.

In summary, experience and improved analysis are leading to a better understanding of market risks in the financing of coal projects remote from their markets.

The marketing risk for synthetic fuels, as for oil, should be more properly called a price risk. If the completion risk is made acceptable, then the question is: will the price of the product be sufficient for debt service? This risk cannot be regarded as bankable — which is demonstrated by the recent spate of cancellations for synthetic oil projects because costs are too high relative to anticipated oil prices.

**POLITICAL RISK**

If marketing risks can be coupled with the production risk as being rather old hat and lacking in recent developments for project finance, then the political risk category should be seen with the completion risk as offering examples of very significant progress. Three of our four forces for project finance development have played a part here. The exception is improved technical analysis.

The acceptance of political risk tends to be associated with straightforward projects. Where this is not the case, acceptable sponsor assurances are almost always available as it is the shedding of political risk which is paramount for the sponsor company.

Political risk in project finance is not as simple as sovereign lending, i.e. it is not a straightforward question of will the country remain politically stable and be able to service its debt. Political risk within our context should be more properly considered under the following headings:

- expropriation risk;
- fiscal risk; and
- local partner risk.

The first two put at risk a project’s cash flow. The third puts at risk the project’s potential scale for a sponsor, i.e. if the local partner is weak, the foreign sponsor may be required to underwrite its partner’s financial performance.

Experience enables the banks to accept all of these political risks more readily than can a sponsor. Frequently, the banks have much more experience of doing business in the country and often the local partner has a relationship with international banks which has made it entirely credit worthy in the eyes of the banking community. In these circumstances, the banks are willing to accept risks because they perceive them as being bankable. This is one situation in which the commercial sponsor company is less well placed than a bank to analyse a project related risk.

Almost as important as experience is the perception of lender control. The assumption is that a host country will be less ready to expropriate foreign company assets or put up taxes to a penal level if the loss will be borne by the international banking community, not a foreign commercial company. The syndication of such financings tends to be done so that American,
Canadian, British, German and French banks are included to increase the potential odium for the host country. Although this type of risk spreading is seen as being most relevant to projects in the third world, it should be remembered that political risk deals have been put together in both the Norwegian and U.K. sectors of the North Sea.

Financial innovation has also played its part. Political risk loans are structured so that the risk sharing is clearly definable. The source of repayment defines how the risk is to be shared. If a loan is to be repaid out of revenues net of royalties, with a sponsor underwriting all other costs, then expropriation is the only risk accepted by the banks. If after tax cash flow is the source, then fiscal risk is added.

Where local partner risk is relevant, acceptance of this risk by the banks will be determined by whether the banks provide loan funds to the project as a whole or to each of the participants in it. In concluding my remarks on political risks, I would point out that acceptance of these risks has been to the advantage of the banks as well as to the project sponsors. All banks have country credit exposure limits. Banks would rather allocate the available credit to project loans offering an identifiable source of repayment, and with the involvement of a professional operator, than to balance of payments loans which, realistically, can only be repaid by refinancing.

**FORCE MAJEURE RISK**

The last risk category, force majeure, cannot be considered in isolation. War risk is normally considered within the context of political risk and the strike risk within those of completion, production or marketing. Some work has been done on obtaining commercial insurance against such risks, but the cost of this has usually proved unacceptable to both borrower and lender.

**EXAMPLE OF AN INNOVATIVE FINANCING**

The CSR Delhi project financing, which is now in the final documentation stage, is innovative in several ways. Some of you are no doubt very familiar with that facility.

Unfortunately for reasons of confidentiality, it is only possible to refer to publicly known aspects of the financing.

CSR Limited, a major Australian resource company, acquired about six months ago an American company, Delhi International Oil Corporation, whose principal asset consisted of very extensive petroleum exploration interests in the Cooper Basin and adjoining areas of Central Australia, and substantial interests in the Cooper Basin gas field (which is already a major producer) and in the Cooper Basin oil and gas liquids project, construction of which has now commenced.

CSR and several banks developed a $950 million financing which, together with $250 million of equity from CSR, will fund: the refinancing of the acquisition of Delhi; Delhi’s contribution to the Cooper Basin liquids project; and Delhi’s share of the costs of developing new fields, principally in the Cooper Basin.

The facility is a mixture of non-recourse and recourse tranches with provision for transferring between the recourse and the non-recourse tranches based on increases (or decreases) in proven reserves in existing and new fields.

Off balance sheet financing was achieved using a unit trust in which CSR holds 50 per cent of the units. The trust is the borrower and will receive the income from Delhi’s interest in the Cooper Basin liquids project. CSR will receive the gas income from the Cooper Basin. The use of a unit trust is, I believe, an innovation in energy project financing.

There can be perceived in this financing all of the key elements which are the basis of new developments in project financing — experience, technical analysis, lender control and innovation.

**CONCLUSION**

It is appropriate to conclude by summarising the major points made in this paper.

1. Project finance is about the identification, analysis and control of risk. It is not about bankers taking substantial risks in lending to projects. Therefore —

2. developments in project finance can only occur when a risk previously considered to be unbankable is perceived as falling within a banking probability;

3. this generally occurs as the result of experience, improved technical analysis, new methods of lender control or financial innovation;

4. such recent developments have occurred mainly in the area of completion risk and political risk.

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