

A Crude Wake Up Call: What the Price of Oil Means for Reserve-Based Lending

Introduction

Since 2014, energy prices have precipitously declined by nearly 60% and are expected to remain depressed for the remainder of 2015. The market has impacted all areas of the oil and gas industry and in particular, exploration and production (E&P) companies. E&P companies are unique from other industry players in that they are a commodity business wherein their primary asset, being their oil and gas reserves, is depleting. Accordingly, they must continually drill or acquire new interests by way of projects and developments, which makes oil and gas exploration and production a capital intensive industry.

The majority of E&P companies rely on reserves-based lending (RBL), a type of asset-based lending, for their working capital needs. RBL facilities are a type of specialized loan collateralized by the value of the borrower's oil reserves. Thus, a fundamental component of RBL facilities is the valuation of the borrower's oil and gas reserves, which determine the amount of credit the lender will extend to the borrower. This article provides an overview of reserve valuations and recent issues with RBL facilities in the context of the North American market in light of the recent decline in oil prices.

Reserve Valuation

Reserves are defined as those quantities of oil which have the potential to be commercially recoverable from known accumulations considering current technology. Notably, reserve valuations do not determine fair market value. Instead, they include many sets of data, such as: estimates of gross quantity, future expected producing rates, expected net revenue from the reserve based on approximate operating expenses and capital expenditures, and the value of the net revenue from the reserve considering the company's ownership interest.

Information gathered from the reserve valuation is utilized to prepare a reserve report, which is evaluated by the lender when determining the amount of credit to extend to the borrower under the RBL facility.

Reserve reporting typically involves 3 components: classification of the reserve, procedures and calculations for estimating reserves, and level of confidence in and verification of reserve computations.

a) Classification

Oil may either be Discovered or Undiscovered. The classification of Discovered oil is discussed below. Undiscovered reserves are classified as Prospective resources since it unknown whether or not they will be ever be commercially recoverable.

The most common method of classifying Discovered oil involves 3 primary classifications of Discovered commercially-recoverable oil based on the degree of certainty associated with recovery: Proved, Probable or Possible. Certainty of recovery refers to quantities of oil that are expected to be commercially recoverable from known accumulations as of a certain date, based on analysis of data, established technology and certain specified economic conditions. The definitions below are from the Canadian Oil and Gas Evaluation (COGE) Handbook, which is the standard for the preparation of oil and gas reservoir evaluations in Canada.

- **Proved:** These are reserves that can be estimated with a high degree of certainty to be recoverable. For Proved reserves that are reported, the level of certainty that the quantities recovered will equal or exceed the estimated Proved reserves is at least 90%.
- **Probable:** These are reserves that are less certain to be recovered than Proved reserves. For Probable reserves that are reported, the level of certainty that the quantities recovered will equal or exceed the sum of the estimated Proved plus Probable reserves is at least 50%.
- **Possible:** These are reserves that are less certain to be recovered than probable reserves. For Possible reserves that are reported, the level of certainty that the quantities recovered will equal or exceed the sum of the estimated Proved plus Probable plus Possible reserves is at least 10%.

Oil that is Discovered but that does not fall into the commercially-recoverable categories is classified as Contingent resources since commercial recovery is unlikely (less than 10%).

In addition, each of the Discovered commercially-recoverable reserves categories can be further broken down into 2 other subcategories based on the status of development and production: Developed and Undeveloped. The definitions below are also from the COGE Handbook.

- **Developed:** Reserves that are expected to be recovered from existing wells and facilities, or if such facilities have not been developed, that would involve a low expenditure to put the reserves on production.
 - **Developed Producing:** Reserves that are expected to be recovered from completion intervals open at the time of the estimate. These reserves may be currently producing or may be shut-in, but if so, must have previously been on production and have a known date of resumption.

- Developed Non-Producing: Reserves that either have not been put on production, or have previously been on production but are currently shut-in without a known date of resumption.
- Undeveloped: Reserves that are expected to be recoverable from known accumulations where a significant expenditure is required to render them capable of production.

Depending on the type or format of the reserve report, reserve categories can be combined or distinguished such that a variety of figures are provided. If a valuation is for a large or multi-pool resource, estimations may be provided in total or for specific wells, facilities and pools.

b) Procedures and Calculation

Reserve valuation involves calculations of science, geology, mathematics and economics. While there are generally accepted methods, assessment is complicated since the reserve data used for valuation is imprecise and there may be different calculations and applications of principles depending on the evaluator. For example, reserves can be estimated by determining the volume of oil in place, by reviewing historic production data and trends and estimating future performance, by applying mathematical models or simulations, or through analogy by comparing similar reserves. Moreover, there are usually technological updates or advances that change how reserves are valued, economic conditions or practices that need to be taken into account, and legal frameworks that apply. Some reserve evaluators make their reserve reports more practical by including calculations of applicable taxes, royalties, management and overhead costs, future operating costs and capital expenditures, and abandonment and reclamation costs.

The purpose of the valuation also affects how the reserves report is completed. For example, professional bodies such as the Society of Petroleum Engineers or Society of Petroleum Evaluation Engineers, certain stock exchanges such as the TSX and NYSE, and regulators such as the Alberta Securities Commission and US Securities and

Exchange Commission have their own definitions and requirements. Furthermore, certain lenders may also have preferred methods of valuation or needs on how reserve data can be presented or relied on.

c) Level of Certainty and Verification

To ensure impartiality in the evaluation, reserve valuation must be completed by objective evaluators. This is usually an independent third-party engineering firm or consultant. The evaluator must act independently of the company's interests while relying on information and data provided by the company. During this process, the evaluator will complete necessary due diligence to determine the basis for the information provided so that an opinion can be provided, subject to any qualifications. Additionally, the evaluator may independently verify the accuracy and completeness of the data provided depending on the scope or purpose of the reserve report.

Lastly, depending on the jurisdiction, certain governmental and regulatory requirements or professional standards may specify the rules and procedures for reserve valuation. Reserve reports should be prepared in compliance with these standards.

Reserve valuation involves many conditions of uncertainty and judgment on the part of the reserve evaluator. For this reason, confidence in a reserve valuation can be low and lenders relying on reserve reports are typically conservative and cautious in their approach. To provide greater certainty, some lenders will complete their own assessment of a borrower's financial and resource information using a third-party or their own internal engineering departments.

Reserves-Based Lending

a) A Primer on RBL Facilities

As noted above, RBL is an asset-based loan collateralized by the value of the borrower's oil reserves. Repayment of the RBL facility

stems from proceeds derived from the sale of oil and gas. The typical RBL facility takes the form of a borrowing base revolving credit facility. The revolving nature of the RBL facility is well-suited for the cyclical capital needs of an E&P company as it may use the facility proceeds to drill one well, use the revenue earned from the sale of oil and gas from such field to repay a portion of the loan and then, drawdown the facility again to finance the development of another field. RBL facilities generally have an initial 1-year term revolver that may be extended for further 1-year periods upon approval of the lender.

The amount of credit that a lender will extend to a borrower under an RBL facility is the lower of the borrowing base and the lender's aggregate committed amounts under the credit facility. The borrowing base is equal to the net present value of the future net income to be derived from the borrower's Proved reserves using a discount rate (customarily set at 10%) over the life of the reserve. In calculating the borrowing base, the lender will take into account, among other factors, the amount of Proved reserves and the future production rate of such reserves, both of which the lender evaluates based on a reserve report prepared by a reserve evaluator. In the reserve report, reserves may be classified as Proved Developed Producing (PDP), Proved Developed Non-Producing (PDNP), Proved Undeveloped (PUD), Probable or Possible. For Proved reserves, the lender will apply a risk factor to determine the amount of credit that will be extended under the different categories of Proved reserves. For example, the lender may give the borrower credit the full discounted present value of PDP reserves, 50% to 75% of PDNP reserves and 25% to 50% of PUD reserves. Additional risk adjustments may be made to the Proved reserves by the lender to account for other variables. For instance, the amount of the borrowing base attributable to PDNP and PUD reserves is often capped. For Probable or Possible reserves, no borrowing base credit is typically granted to the borrower.

Another factor the lender will take into account when determining the borrowing base is the future sales price of the oil being produced.

An internal price deck is utilized by the lender to determine the future sales price. In order to mitigate commodity price risk, the lender's price deck is generally conservative relative to the prevailing commodity price curve. Alternatively, commodity price risk may be addressed through price hedging in which case the lender will use prices established in the hedging agreements for the hedged amounts instead of the lender's price deck.

Under the standard RBL facility, the borrowing base is re-determined twice a year, often with the option for the borrower and/or the lender to request one additional redetermination, in each case in a 12-month period. The lender will perform the redetermination based on its own internal guidelines. If after such redetermination the outstanding principal under the facility exceeds the re-determined borrowing base, then there is a borrowing base deficiency. In order to cure such deficiency, the borrower can either pledge additional collateral or make mandatory principal payments in an amount equal to the deficiency. If the borrower opts to pay down the deficiency amount, such payments can usually be made in installments.

b) Limitations of RBL Facilities for the Borrower

Although the unique features of RBL facilities make them well-suited for debt financing by E&P companies, such credit facilities impose significant risks for the borrower particularly during times of volatility. As a result of the prolonged decline in oil prices, many industry players, especially in the upstream division, are experiencing a liquidity crunch. In fact impaired loans to the sector from Canada's 5 largest banks increased by more than 100% in the third quarter reporting period. American lenders have also experienced a rise in the number of impaired RBL facilities.

A number of Canadian and American oil and gas companies have already experienced decreased borrowing bases resulting from the first semi-annual redetermination which took place earlier this year. The number of impaired loans to oil and gas companies will most certainly further rise following the upcoming second semi-annual

borrowing base review in October and November of this year. Due to the downward pressure on energy prices, there has been a drop in production cash flows, which has negatively impacted reserve valuations. The reason for this is that reserves that were recently considered economically viable are no longer promising. While the gross quantity of oil does not fluctuate with falling or low oil prices, the expected net value and revenue has declined substantially. This means that an E&P company's assets now have less value and a single project or drilling program may be uneconomical. This is particularly true for the oilsands where a large amount of oil is contained within a single project. Once a project or drilling program is considered uneconomical and is deferred for the near future, the value of the reserve is no longer of worth for the purposes of the borrowing base.

Consequently, an oil and gas borrower may face a reduction in its borrowing base along with a corresponding cut in the amount of available credit. Borrowing base reductions may be further exacerbated by the lender's unilateral discretion to revise the commodity price assumptions it uses to calculate the borrowing base. Although the lender's discretion to determine the borrowing base is not unfettered, the borrower has minimal recourse if the re-determined borrowing base is lower than anticipated.

Ultimately, the reduction in the borrowing base may result in a borrowing base deficiency. As previously mentioned, the borrower can cure the deficiency by paying down or adding additional collateral equal to the value of the deficiency. Typically, the borrower has already pledged all or substantially all of its collateral and thus, the borrower's only option is to pay down the deficiency amount. By repaying the deficiency amount in installments, the borrower has a small window of opportunity to raise capital by securing additional credit through subordinated debt or by selling non-core assets. If the borrower however, is unable to cure the borrowing base deficiency during the required time period, this may trigger an event of default

under the loan agreement. Moreover, if the borrower has other debt facilities, the default under the RBL facility may lead to a cross default in these other debt facilities as well.

Conclusion

As this article has identified, RBL is an important form of financing for E&P companies and reserve valuations are a critical component of the lending process. While reserve valuations will remain an essential aspect of oil and gas debt financing, the low price of oil has and will continue to have tangible consequences on existing and new RBL facilities. Therefore, borrowing money will be more difficult, the number of impaired loans will continue to increase, deficiencies and events of default are expected to increase, and E&P companies will have to consider alternative sources of financing.

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[a cautionary note](#)

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