



INTERNATIONAL VALUATION STANDARDS COUNCIL

Valuations in the Extractive Industries

DISCUSSION PAPER

Comments on this Discussion Paper are invited before 20 October 2012. All replies may be put on public record unless confidentiality is requested by the respondent. Comments may be sent as email attachments to:

CommentLetters@ivsc.org

or by post to IVSC, 41 Moorgate, LONDON EC2R 6PP, United Kingdom.

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Background to this Discussion Paper

In 2005 the IVSC issued Guidance Note 14 *The Valuation of Properties in the Extractive Industries*. It formed part of a suite of Standards, Applications and Guidance Notes that collectively made up the International Valuation Standards (IVSs). In 2006 the IVSC commissioned a Critical Review of all its existing standards. The report of the Critical Review Group was published in July 2007 and comments were invited upon it. It identified a number of weaknesses with the IVSs as they existed at that time. These included:

- A real estate bias – while the IVS had included material on the valuation of other asset types for a number of years, their origins as a set of real estate standards meant that there remained an undue emphasis on this sector.
- A focus on financial reporting – there was substantial reference to, or commentary on, the International Financial Reporting Standards (IFRSs). This firstly gave rise to questions about the authority and accuracy of the IVSs in relation to the IFRSs. It also implied that the IFRSs had some influence over valuations for other purposes. Finally it led many to believe that the IVSs were only relevant to valuations under the IFRSs, and had no application either for valuations for financial reporting under other accounting standards or for other purposes.
- A lack of clarity of purpose – the report found that there was confusion between “technical standards”, ie relating to valuation processes, and “professional” standards relating to the conduct of valuers. It also considered that the standards often addressed matters that were specific to different jurisdictions instead of identifying matters that reflected the needs of the global market place. It recommended that the future standards be principles based, and avoid excessive prescription.
- Improvements were needed to structure and writing style – the report found that there was a lack of clarity in the status of different parts of the IVSs. The “Guidance Notes” followed a similar rigid structure to the “Standards” and contained prescriptive language, which seemed to imply that this was mandatory rather than guidance material. There was also considerable repetition and a large glossary that contained many definitions that only had a tenuous relevance to valuation.

In 2008 the IVSC Standards Board agreed to commence an Improvements Project to address the weaknesses identified by the Critical Review Group. This project involved a comprehensive reorganization and rewriting of the previous documents. The Improvements Project was completed in July 2011 with the publication of 12 new Standards. More about the Improvements Project can be found at www.ivsc.org. The new standards are being supplemented by a series of Technical Information Papers that provide non mandatory guidance to support the application of the standards.

Each previous published Standard, Application and Guidance Note was reviewed before being included in the Improvements Project. In relation to GN14 the Board took the view that while it contained useful material relating to the classification of reserves and resources, it was not appropriate to include this GN in the general improvement project because:

- a) the guidance referenced the provisions in the IFRSs in 2005. When the Improvements Project commenced the IASB was preparing a discussion paper on accounting for reserves and resources in the extractive industries and therefore it was considered prudent to see how this developed before remodeling the current contents of GN14;
- b) the Board was aware of a number of valuation issues that were causing difficulty in the sector that were not referenced in GN14.

Following an analysis of the responses to its discussion paper in 2010, the IASB paused its own project pending a consultation exercise on its future agenda. If it does reactivate a project to examine accounting in the extractive industries, IASB staff have indicated to the IVSC that it could be helpful if some globally accepted valuation standards and guidance for the sector had been developed. This would then help it in any future deliberations as to the extent to which fair values are a relevant and useful measure in financial statements.

The IVSC has also been encouraged to develop improved standards in this area by securities regulators who are concerned at the diversity of valuation information on extractive activities presented by companies under their jurisdiction.

The Board has therefore agreed that a dedicated project is required to determine appropriate valuation practice in the extractive industries and develop as necessary a dedicated standard and supporting technical guidance.

This Discussion Paper is the first stage of the project. It sets out a number of issues that the Board has identified and invites respondents from all those with an interest in valuation in the sector, including mining, oil and gas companies, valuation consultants specialising in the sector, investor groups and those with a regulatory role that is impacted by valuation.

Notes for respondents:

In order for us to analyse and give due weight to your comments please observe the following:

1. Responses should be made in letter format, where appropriate on the organisation's letter heading.
2. Comments should not be submitted on an edited version of the Exposure Draft.
3. Unless anonymity is requested, all comments received may be displayed on the IVSC website.
4. Comments letters should be sent as an e mail attachment in either MS Word or an **unlocked** PDF format and no larger than 1mb. All documents will be converted to secured PDF files before being placed on the web site.
5. The e mail should be sent to commentletters@ivsc.org

1 PROJECT SCOPE

1.1 Extractive Industries.

- 1.1.1 The term “Extractive Industries” is commonly used to describe both mining operations and the extraction of oil and gas. In its former GN14, the IVSC combined guidance on both, with the only specific exclusion being the extraction of water from the earth. The IASB also has adopted a similar approach in creating a single standard, IFRS 6 *Exploration for and Evaluation of Mineral Resources*.
- 1.1.2 In support of this approach it is argued that there is no clear distinction between the extraction methods employed, with some metals being recovered by fluid dynamics and in situ recovery techniques that are identical to those used in secondary oil recovery. Geothermal energy production is also an extractive industry, and again the technology of hot water or steam production is similar to that developed with fluids like natural gas.
- 1.1.3 In addition to the similarities in the processes the relevant valuation inputs and considerations, such as the life of the asset, mean that the valuation methods used are very similar, subject to only minor variation between industry subsectors.
- 1.1.4 A contrary argument is that the mining and oil and gas industries are individually among the largest in the world and the major entities specialise in one sector or the other. The skills required in each are highly specialised and therefore to be meaningful valuation guidance has to be specific to one sector or the other.

Question 1.1:

Should IVSC produce combined standards and guidance for Extractive Industries or produce separate pronouncements for mining and for oil and gas? If you believe the latter please indicate the reasons why you consider separate guidance is appropriate.

1.2 Assets to be included

- 1.2.1 The former GN14 limited its scope to the valuation of assets or property interests (rights) held by entities involved in the Extractive Industries. A result of this the focus was on the identification and classification of reserves and resources. Although it stated that it “supplemented” the then current IVSC guidance on the valuation of plant & equipment, intangible assets and businesses, it did not provide any specific guidance on these asset classes in the Extractive Industries, nor discuss how these assets could affect the value of the reserve, or vice versa.
- 1.2.2 The Board considers that because of the interdependence of a) reserves and resources, b) capital equipment for extraction, c) infrastructure for extraction and, d) intangible assets employed in extraction the scope of this new project should examine the impact that all of these could have on the value of the assets, either in isolation or as part of an entire business involved in extractive activity.

Question 1.2:

- a) **Should the project focus just on the valuation of reserves and resources or should it extend to other assets employed in the industry and to entire businesses in the sector? Please provide reasons for your answer.**
- b) **How often do you assess or use (if it is readily ascertainable) the value of an extractive business as a starting point for the valuation of reserves and resources?**

1.3 Output required from IVSC:

1.3.1 The IVSC currently publishes both International Valuation Standards (IVSs) and Technical Information Papers.

1.3.2 The IVSs are divided into four distinct types:

The IVS Framework – sets out fundamental concepts and principles that apply in the application and interpretation of all the other standards.

The General Standards have general application for all asset types and valuation purposes, subject only to variations or additional requirements specified in the Asset Standards or the Valuation Applications. They cover actions to be taken when agreeing to accept a valuation assignment, the conduct of the assignment and the reporting of the valuation.

The Asset Standards are specific to a particular class of asset and set out requirements that either modify or augment the General Standards and include illustrations of how the principles in the General Standards are generally applied to the particular asset class. They include a commentary providing high level background information on the characteristics of each asset type that influence value and identifies the common valuation approaches and methods used.

Valuation Applications are produced for common purposes for which valuations are required. They include guidance on the requirements of any regulatory or other requirements that apply to valuations for the stated purpose.

1.3.3 The IVSs are designed to be capable of mandatory application by the bodies that adopt them.

1.3.4 The IVSC also recognises that because valuation is dependent upon the proper exercise of professional judgement, its mandatory pronouncements have to be limited to principles for the conduct of the assignment itself. There is also a need for valuation guidance that is non mandatory in nature, to help identify the parameters within which proper judgement should be exercised. The IVSC is therefore developing a series of Technical Information Papers (TIPs) that provide such guidance, for example examining matters that should normally be taken into account when either applying a specific valuation method or when valuing a particular type of asset.

1.3.5 It is the preliminary view of the Board that a standard might be needed to confirm how the principles in the other IVSs should be applied in order to prevent misapplication of those principles

and maximise the protection to those who rely on valuations in the sector. However, it considers that the major part of its output will be in the form of a TIP providing non-mandatory guidance.

Question 1.3:

Do you agree with the Board’s preliminary view as to the type of pronouncements that IVSC should be making in relation to valuations in the Extractive Industries? If not please explain what alternative or additional material you believe would be useful.

2 GN 14

2.1 Former GN14

In 2005 the IVSC issued “GN14” *Valuation of Properties in the Extractive Industries*. As explained in the introduction to this paper, the Board decided during its review and updating of all the standards and guidance issued prior to 2008 that a fundamental review of this Guidance Note was required. The Board felt that although it provided a detailed commentary on the classification of minerals and of the codes used for this purpose, it had comparatively little detail on practical valuation issues, methods that could be used and the merits of those methods in different circumstances. It therefore decided that the material in GN14 could not easily be carried forward as either an International Valuation Standard or a Technical Information Paper without a fundamental reconsideration of the content. In 2010 the IVS Standards Board withdrew GN14 pending this current project.

Question 2:

- a) Are you familiar with the former GN14?**
- b) Is GN 14 used in the valuations that you provide or receive?**
- c) What elements of GN 14 do you find useful in either reporting or interpreting valuations?**

3 Reserves and Resources

3.1 Mineral Classification Codes.

GN 14 referenced the CRIRSCO and UNFC codes. However, the Board is aware that other codes are used for classifying minerals reserves and resources, including the PRMS Code for petroleum and the JORC for hard rock. Understanding the Codes used for identifying minerals is fundamental to the valuation of those assets.

Question 3

- a) Which classification code or codes are most commonly used in your industry / sector?**
- b) Which code do you normally use or rely on?**

- c) **Are you aware of differences across your / industry sector on the classification codes used? If so please indicate whether these differences cause problems in undertaking or understanding valuations.**

4 Valuation Methods - General

- 4.1 The IVS Framework identifies the three principal valuation approaches, the Market Approach, the Income Approach and the Cost Approach. Within each approach there are various methods that have evolved and that are used to a greater or lesser extent for different types of asset or in different markets. The Board understands that all three approaches are used in the Extractive Industries.
- 4.2 In the Extractive Industries the appropriateness of each approach or method will depend on a number of factors including:
- Stage of project (exploration, development, and production),
 - Ability to identify and classify extent of reserves or resources,
 - Ability to project production rate
 - Ability to project capital expenditure,
 - Ability to project operating expenditure,
 - Ability to forecast future prices for minerals/petroleum products,
 - Existence of public information regarding comparable projects,
 - Stage of regulatory approval, and ability to forecast risk in progressing to extraction (existence of environmental impact statements, etc),
 - Certainty regarding title, and other legal considerations (non-regulatory),
 - Availability of financing,
 - Availability and financing of infrastructure,
 - Marketing of resource considerations.
- 4.3 While the IVSC cannot prescribe that a specific method be used for a given purpose, one of the objectives of this project will be identify those methods that are recognised as being appropriate in different situations.

Question 4:

- a) **Please identify the valuation methods that you most commonly use or encounter for valuing:**
- **Producing reserves**

- Reserves undergoing development
- Reserves or resources subject to exploration

If you are a valuation provider, please indicate why you prefer these methods. If you are a valuation user, please indicate if you are confident in the result obtained by these methods.

5 Valuation Methods - Market Approach

- 5.1 The Market Approach provides an indication of value by comparing the subject asset with identical or similar assets for which price information is available. That price information may be for individual assets or a collection of assets that are utilised together in an extractive activity. Adjustments are frequently required to reflect differences between the reference asset and the subject asset and differences in timing. Price information is often analysed based on units of comparison, eg prices per tonne or multiples of earnings.
- 5.2 There are difficulties in applying the Market Approach in the Extractive Industries because extraction activities are heterogeneous in nature, meaning that it is often necessary to make significant adjustments to such price information that is available in relation to transactions involving similar assets. Examples of typical differences that may require transaction data to be adjusted include location factors, accessibility, cost of extraction, quality and status of reserve and the quality of the equipment used in the operation.

Question 5:

- b) **If you have experience of using the market approach to value assets, please indicate the sectors and asset types where this is used.**
- c) **Please identify the three most important factors for which you frequently need to adjust price data when applying this approach.**

6 Valuation Methods - Discounted Cash Flow

- 6.1 The Discounted Cash Flow method is the most common method under the Income Approach and has many detailed variations. The IVSC's TIP 1 *The Discounted Cash Flow Method*¹ provides guidance on the principles involved in building a cash flow model. The Board is interested in exploring the diversity that exists when this method is applied in the Extractive Industries in order to identify where supplementary guidance may be required.
- 6.2 The Board is interested in learning which inputs are commonly used in projected cash flows, and the experience of valuation providers and users in their use.

¹ Published IVSC July 2012. ISBN 978-0-9569313-4-4

Question 6.1:

- a) **Production forecast – do you use internal production forecasts developed by the entity’s own geological and engineering specialists, external forecasts, or a combination of both?**
- b) **Do you adjust the production forecasts for risk by reserve category?**
- c) **Do you make an explicit cash flow forecast through the term of expected production, even though it might be a very long period of time, or do you use a “remainder period” for long lived reserves? If you use a remainder period, typically over what period is your explicit forecast?**
- d) **Do you use an internal management estimate for future pricing, eg the NYMEX, investment bank analysts’ estimates, industry sources, or a combination thereof to estimate future prices? If using the NYMEX strip pricing, what are the typical assumptions you make for prices beyond the NYMEX strip (e.g., flat, inflationary growth, etc.) Do you consider the impact of any hedging of future prices that might be in place in estimating the future revenue stream?**
- e) **Do you apply differentials to the future price estimates? If so, what is your source for estimated differentials?**
- f) **Do you reflect currency exchange risks to future income and operating cost projections in the cash flow or in the discount rate?**
- g) **Do you include corporate overheads when estimating the value of mining, oil and gas reserves, or just the selling, general and administrative costs associated with operating and producing the reserves?**
- h) **How often do you use the DCF method to value probable or possible reserves?**

6.3 The Board is aware that there is significant diversity in the approach adopted for deriving the discount rate when using a discounted cash flow method. IVSC TIP 1 *The Discounted Cash Flow Method* makes it clear that the discount rate should reflect the time value of money and the relative risks associated with the asset. Those risks can be divided into market (or systematic) risks and asset or entity specific risks. The discount rate also has to reflect the nature of the cash flows to which it is being applied.

6.4 The following have been identified as some of the common factors that are reflected in discount rates in the industry:

- Stage of development
- Stage of production (eg increasing discount rates as production forecast changes from probable to proven reserves);

- Whether applied uniformly to the net income or with separate discount rates to expenditures (such as necessary CAPEX) and higher rates to operating income;
- Weighted-Average-Cost-of-Capital for the sector;
- Country risk premia;
- Size premia;
- Project and/or asset specific risk;
- Inflation;
- How aggressive the pricing assumptions are in the cash flow, ie if more aggressive pricing assumptions are used a higher discount rate than would be used for more conservative assumptions would be appropriate.

Question 6.2:

- a) What methods do you use or are familiar with for determining the discount rate used for valuations of reserves and resources?**
- b) Do you separately consider and evaluate market (systemic) risk and asset specific risk?**
- c) Please indicate the factors that you normally consider and reflect in the discount rate and any source you use to determine the appropriate rate adjustment.**
- d) Do you use multiple discount rates to reflect the changing risk profile as an extractive process moves through its life cycle?**

7 Valuation Methods - Cost Approach

- 7.1 The Cost Approach can be applied in the Extractive Industries when there is either no relevant transactional data that can be applied to use a Market Approach or sufficiently reliable income projections to use an Income Approach.
- 7.2 The IVSC's TIP 2 *The Cost Approach for Tangible Assets*² describes the common application and methods used under the Cost Approach. Common difficulties in applying a Cost Approach include identifying the cost of an equivalent asset and establishing the appropriate depreciation allowances to reflect physical, functional or economic obsolescence. The Board is interested in learning what assets are commonly valued using the Cost Approach in the Extractive Industries and the inputs used to determine replacement cost and appropriate depreciation adjustments.

Question 7:

- a) Please indicate what methods you use or are familiar with that fall under the Cost Approach and that are used in valuing assets in the Extractive Industries.**

² Published by IVSC March 2012. ISBN 978-0-9569313-1-3

- b) **If you use or are familiar with the Cost Approach, please indicate in your experience how the cost of an equivalent asset is determined.**
- c) **If you use or are familiar with the Cost Approach, please indicate the three most common adjustments that are made in your experience to reflect physical, functional or economic obsolescence, and what metrics are used to determine these adjustments.**

8 Treatment of Contributing or Complementary Assets

- 8.1 In paragraph 1.2 the need to consider the possible impact of complementary assets involved in the extraction process on the value of each of those assets is mentioned. This is most obviously an issue when using a discounted cash flow method as a combination of assets may contribute to the overall cash flow associated with a particular extractive activity, eg the reserve, infrastructure for access and shipping, plant & equipment and technical know-how. Also, there may be assets that either do not contribute towards the cash flows used in the analysis that may be of value, or that contribute to the cash flows but not to their full potential. However, where other methods are used, eg a market approach or cost approach, the need still arises to consider the particular combination of assets and the affect this has on the value of either the whole activity or to individual assets employed within it.
- 8.2 In considering the assets that may be complementary, there is also a need to determine the appropriate aggregation of assets to be assumed, or the “unit of valuation”. The IVS Framework states that it is important to clearly define whether it is the whole group or individual assets that are to be valued and if the latter, if the other assets are assumed to be available to a buyer or whether the asset is to be considered in isolation. This has parallels to the concept of the “unit of account” or “cash generating unit” described in the International Financial Reporting Standards, but is applicable in valuations for all other purposes.
- 8.3 Some national codes for mineral valuation define mineral assets as all property including, but not limited to, real property, intellectual property, extraction rights, exploration rights, plant, equipment and infrastructure required for the development, extraction and processing of minerals.
- 8.4 In the 2010 Discussion Paper prepared by the IASB the following was proposed:
- 3.63 The legal rights to extract minerals or oil and gas are the foundation of the unit of account. In considering the extent to which plant and equipment assets should also be included within this unit of account, the following possible dimensions of the unit of account have been identified:*
- (a) the rights associated with a specific property including any development works to access the deposit plus any plant and equipment used to produce the deposit; or*
 - (b) the rights associated with a specific property including any development works to access the deposit but excluding plant and equipment assets that are physically and commercially separable from the property rights. Consequently, any plant and equipment assets that are used to gain access to or to produce the minerals or oil and gas and are separable from the property rights are treated as separate assets.*

Question 8:

- a) **How should the unit of valuation (unit of account) be determined in the valuation of extractive activities?**
- b) **How is double counting of the contribution of different assets avoided?**
- c) **How should economic obsolescence or impairment, if present, be allocated proportionally to all contributory assets of the mineral asset?**
- d) **What methods do you use or are familiar with to attribute value to specific contributory assets?**
- e) **Are entity specific inputs appropriate when valuing contributory assets in extractive activities? What checks can be made on the reasonableness of entity specific inputs?**
- f) **Should components of goodwill other than value of assembled workforce be recognised?**

9 Asset retirement obligations

9.1 Reinstatement and other asset retirement obligations (AROs) vary significantly between different locations and types of reserve or resource. The Board has seen evidence of a wide diversity in the approach to placing a value (negative) on such liabilities. While most methods involve estimating the current costs of restoration and restitution based on obligations imposed by contract or law, the methods used to discount these sums to reflect the fact that they are not due until a future date vary significantly.

Question 9:

- a) **How do you estimate the cost of future reinstatement or environmental protection obligations?**
- b) **Do you discount the future cost of reinstatement obligations using a risk free rate or another rate? If another rate please identify and provide rationale for this approach.**

10 Reliance on specialists

10.1 A competent valuer in the Extractive Industries can be expected to have a thorough understanding of the economics of the industry, the demand for and the market price for the mineral in question. However, it is normal that in order to provide a valuation they will need to rely on inputs from third party specialists such as geologists to identify the nature and extent of the reserve and engineers to determine the feasibility and costs of exploitation.

10.2 The Board has received evidence that some valuers provide valuations based on the third party inputs without undertaking any investigation or enquiry to satisfy themselves as to the reasonableness or otherwise of the data. This in turn has led to users questioning the validity of the valuation conclusions.

Question 10:

- a) **If you provide valuations of mineral assets, what investigations do you undertake to established the reasonableness or otherwise of estimates of the extent of reserves or resources provided by geologists?**
- b) **If you provide valuations of mineral assets, are you routinely provided with estimates from engineers of the cost and feasibility of extraction? What enquiries do you make to satisfy yourself as to the reasonableness of these estimates?**
- c) **If you are a recipient or other user of valuations of assets in the Extractive Industries, are you satisfied that the valuations properly reflect any uncertainties in the current estimates of either the extent of the reserves or the costs of recovery? What information would you expect to see in a valuation report that would improve your understanding of the sensitivity of the reported value to uncertainties in the identified reserve or the costs of recovery?**

11 Intangibles and Goodwill

11.1 There can be significant intangible assets associated with extractive activities. Examples include drill hole databases, computer software, procedure manuals, employee handbooks, operating manuals, engineering drawings, patents, environmental approvals, licences and materials and services supplier contracts.

11.2 IVS 210 *Intangible Assets* sets out principles to be observed when undertaking a valuation of intangible assets and TIP 3 *The Valuation of Intangible Assets*³ provides additional guidance including a discussion of the commonly accepted methods used for valuing different types of asset. The IVS contains the following definitions:

Intangible Asset: "A non-monetary asset that manifests itself by its economic properties. It does not have physical substance but grants rights and economic benefits to its owner."

Goodwill: Any future economic benefit arising from a business, an interest in a business or from the use of a group of assets which is not separable.

11.3 Goodwill is therefore a type of Intangible Asset but is distinguishable from other Intangible Assets in that it is not separable from the business. This definition of Goodwill is a valuation definition that reflects the fact that in some transactions value can be attributed to an Intangible Asset that is identifiable but not separable from the business. It differs from the definition in IFRS 3 and some

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other accounting literature which define goodwill as a residual amount after the deduction of the value of all identifiable tangible and intangible assets from the acquisition price of a business.

- 11.4 The Board observes that in comparison with other industries the output of many Extractive Industries are highly fungible commodities and therefore the value attaching to a producer's brand, trademarks or customer relationships is relatively low compared with other industries. In contrast the value attaching to knowledge of reserves and resources, an assembled workforce and the know-how on the most effective means of recovery, particularly where advances in technology allow previously uneconomic reserves to be exploited, can be significant.
- 11.5 The Board is interested in learning what intangible assets are commonly exchanged between entities in the Extractive Industries and the approaches used to value these, as well as those assets that are customarily separately identified and valued for acquisition accounting under IFRS 3 or any similar accounting requirement.

Question 11

- a) Please identify any intangible assets that are normally separately identified and valued;**
- i. In transactions between entities in the Extractive Industries and**
 - ii. When accounting for the acquisition of a business in the Extractive Industries.**
- b) In your experience what, if any, value is attributed to components of goodwill, eg an assembled skilled workforce, in corporate transactions in the Extractive Industries. Please briefly indicate any valuation techniques used to establish the value of goodwill in such circumstances.**
- c) When considering the valuation of previously uneconomic reserves that can now be recovered using advanced technology, eg shale gas, deep water drilling, do you attribute an element of the overall value to the intellectual property involved? If so please explain briefly the method used to estimate this.**

12 Government regulation

- 12.1 Mineral resources are subject to significant Government control around the world. Different regimes have different laws on ownership minerals in the ground, eg do they run with the surface rights or not, rights of extraction and the operating and restoration obligations required of operators. Also Extractive Activities are subject to specific fiscal policies, that can change without warning.
- 12.2 The Board is interested in examples of where firstly the legislative frameworks in different jurisdictions result in otherwise similar reserves or extractive activities having a significantly different value and, secondly, where unexpected or unforeseen changes have had a significant impact on value.

Question 12

- a) **Please provide any examples of which you are aware of significant differences between the value of otherwise similar resources arising solely from different Governmental policies.**
- b) **Please indicate how “country risk” factors are reflected in the way in which you price or value extractive assets.**