THE INTERNATIONAL ARBITRATION REVIEW

Eleventh Edition

Editor
James H Carter

THE LAWREVIEWS

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PREFACE

International arbitration is a fast-moving express train, with new awards and court decisions of significance somewhere in the world rushing past every week. Legislatures, too, constantly tinker with or entirely revamp arbitration statutes in one jurisdiction or another.

The international arbitration community has created a number of electronic and other publications that follow these developments regularly, requiring many more hours of reading from lawyers than was the case a few years ago.

Scholarly arbitration literature follows behind, at a more leisurely pace. However, there is a niche to be filled by an analytical review of what has occurred in each of the important arbitration jurisdictions during the past year, capturing recent developments but putting them in the context of the jurisdiction's legal arbitration structure and selecting the most important matters for comment. This volume, to which leading arbitration practitioners around the world have made valuable contributions, seeks to fill that space.

The arbitration world often debates whether relevant distinctions should be drawn between general international commercial arbitration and international investment arbitration, the procedures and subjects of which are similar but not identical. This volume seeks to provide current information on both of these precincts of international arbitration, treating important investor–state dispute developments in each jurisdiction as a separate but closely related topic.

I thank all of the contributors for their fine work in compiling this volume.

James H Carter
Wilmer Cutler Pickering Hale and Dorr LLP
New York
June 2020

Chapter 3

ENERGY AND COMMODITY ARBITRATIONS

Christian Jeffery[1]

I INTRODUCTION

A significant portion of international arbitrations are to be found in these sectors. Of the cases registered with ICSID in 2019, 52 per cent were in the energy and mining sectors, an increase from 41 per cent in 2018.[2] At the LCIA, the latest statistics available show 19 per cent of cases in 2019 were in energy and resources.[3]

Projects in energy and extractive commodity sectors are often characterised by large capital costs, long lead times from project conception to execution, and substantial risks when all does not go to plan. Against this background, the factual and analytical aspects of disputes in the energy and commodity sectors can pose unique challenges to those in the arbitration community. This chapter examines a number of such issues that have been affected by recent trends and developments in underlying markets, highlighting challenges that face experts, legal teams and tribunals operating in these areas.

II ISSUES

i Resource estimates

In disputes in extractive industries, a key issue is how much of a given resource can reasonably be assumed to have been available for extraction and eventual sale. In early stage oil, gas and mining projects, this issue is especially acute given the potential for substantial geological uncertainty. The methods by which resources are assessed are well-established. After detailed technical analysis, industry guidelines are available to describe resources in standardised categories. These resource estimates form a critical input in the valuation of any damages or lost profits.

In the oil and gas industries, the Petroleum Resource Management System (PRMS) is the internationally recognised standard.[4] Undiscovered resources (that is, those estimated to be in place but for which no successful well has been drilled) are characterised as 'prospective resources'. Once a discovery has been made through successful drilling of a well, resources are characterised as 'contingent resources' or 'reserves,' with reserves being those discovered resources that are deemed to be commercially recoverable.

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1 Christian Jeffery is a principal at Charles River Associates.

2 New ICSID case registered in 2018 and 2019 under 'Oil, Gas & Mining' and 'Electric Power and Other Energy' economic sectors. See ICSID, The ICSID Caseload – Statistics, Issues 2019-1 and 2020-1.

3 LCIA, 2018 Annual Casework Report.

4 Society of Petroleum Engineers, Petroleum Resource Management System, June 2018. This document replaced a previous version of the PRMS issued in 2007.

In any project that has reached the stage of having reserves classified, reasonable certainty can be placed on the recovery of at least those quantities of resource. However, before they get to reserve status, contingent resources that are reasonably considered to be present likely add value to any project to develop them, despite not having been shown to be commercially recoverable. Arbitrators can be faced with difficult decisions regarding the amount of resources to be assumed in any valuation. This can be true even in the case of discovered resources. After discovery, resources may be contingent and therefore uncertain to some degree. An arbitrator must assess what risks apply to these resource estimates. These may be geological risks, which will need to be assessed by a suitable expert. Alternatively, technical risks may still exist with no definitive development plan in place describing how resources will be extracted and transported to a point of sale. These questions require detailed expert evidence on the factors influencing eventual production and the chance of success of development options.

These problems become more important in the case of undiscovered prospective resources. In projects at this stage, chance-of-success factors may be available to give a best estimate of the resources that may be produced once geological risks are taken into account. However, in the absence of more advanced exploration work it may not be possible to accurately assess the technical risks in play, and hence it may also not be possible to say with reasonable certainty how resources would move from this phase to development. In this case, discounted cash flow (DCF) analysis may not be possible, and an arbitrator is often then faced with the question of what comparable valuation metrics to apply. As discussed below, such comparisons themselves pose challenges. Resources must be compared on a like-for-like basis, both within resource categories and on a risked or unrisked basis. Again, this requires detailed expert evidence.

In other extractive industries, a range of resource and valuation standards are available. In the context of valuation of resources in arbitration, the Joint Ore Reserves Committee, South African Code for the Reporting of Mineral Asset Valuation (SAMVAL Code), Australasian Code for the Public Reporting of Technical Assessments and Valuations of Mineral Assets (VALMIN Code) and CIMVAL Code for the Valuation of Mineral Properties (CIMVAL Code) are widely cited.[5] In general, these Codes classify mineral resource projects into exploration, pre-development, development and production categories, although different terminology and granularity apply depending on the specific code. There is broad agreement among the Codes on the valuation techniques to apply to different resource categories. For example, resources in early-stage exploration properties are generally to be valued using market or cost-based approaches, rather than a detailed DCF analysis.[6] This reflects the lack of reasonable certainty that would be present in the inputs of any DCF analysis of early stage exploration projects.

These Codes have been developed for the purposes of standardised public reporting of resources and their values. Different standards may apply outside of the public reporting context. For example, under the SAMVAL code, resources that are 'reasonable and realistic prospects for eventual economic extraction' are subdivided into inferred, indicated and

5 Joint Ore Reserves Committee, the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2012; the South African Code for the Reporting of Mineral Asset Valuation, 1 October 2018; the Australasian Code for the Public Reporting of Technical Assessments and Valuations of Mineral Assets, 2015; the CIMVAL Code for the Valuation of Mineral Properties, 29 November 2019.

6 SAMVAL Code, Figure 1, p. 14, VALMIN Code, Table 1, p. 29 and CIMVAL Code, Table 1, p. 16.

measure' categories, in increasing order of confidence.[7] Being the least certain, inferred resources are not always included in a valuation, particularly if that valuation is being conducted on a DCF basis. However, as the SAMVAL code makes clear, there may be cases when inferred resources should be included in a valuation, naming litigation as a specific example.[8] Again, an assessment of the appropriate valuation inputs will require detailed expert evidence on the geological and technical risks present in the specific case being considered.

Uncertainty in resource estimation may also be dealt with through the choice of valuation methodology. If significant risks remain in a project, a range of outcomes may be modelled under an expected monetary value (EMV) approach. Provided reasonable estimates of the occurrence of specific risks can be quantified, the EMV approach weights possible outcomes by the probability of their occurrence, therefore taking into account, analytically at least, some remaining risk.

ii Commodity pricing

Another critical input in any valuation in the energy and commodity sectors is the sales price. National and international markets exist for many of the relevant products, be that electricity, oil and gas, petroleum derivatives or metals and minerals.

The volatility of these markets can make an assessment of the appropriate price to apply in a valuation challenging. In oil markets, recent events, with the covid-19 pandemic depressing energy demand in combination with a potential price oil price war between OPEC members, have been a clear reminder of the sensitivity of energy prices to events globally. This has direct implications for the valuation of energy firms and their assets. Companies operating mostly in the exploration of oil and gas have been particularly exposed, with share prices falling dramatically. Events such as these can raise issues of foreseeability, and the reliability of pricing at specific points in time. This poses the question of the appropriate time frame over which to assess a realistic price to be input into any valuation. In a volatile market, it may be easy to arrive at a price series capturing a temporary peak or trough in pricing that does not reflect reasonable long-term price expectations at a particular date.

In other markets, increasing volatility adds ongoing uncertainty to price forecasting. In electricity markets, the increased penetration of renewable generation sources leads to increased price volatility. This will likely increase in the future, as climate change leads to more volatile weather conditions which in turn feed into more volatile generation from wind and solar sources.

The appropriate price series to be applied must be chosen with care. In the case of oil, a range of sources for spot price forecasts exist. These will vary from analyst to analyst and will depend on a range of underlying assumptions. Forecasts will vary widely depending on assumptions regarding the implementation of climate policies. As at the time of writing, the Brent crude oil spot price was around US$30/bbl. The range of forecasts assessed by Consensus Economics for March 2021 varies widely, from US$29/bbl to over US$68/bbl.[9] The suitability of any individual forecast being used in a valuation must therefore be assessed

7 SAMVAL Code, p. 30.

8 SAMVAL Code, pp. 15–16.

9 Consensus Economics, Energy and Metals Consensus Forecasts, March 2020.

with care. However, the number of methodologies and forecasts available in the energy and commodity sectors mean that a tribunal can be given reasonable certainty about the market expectations at or around any valuation date.[10]

Even after a reliable price forecast is found, it will need to be scrutinised for any further adjustments that may be required because of location or quality differentials. In the case of oil, this may be in the form of a discount or premium to be applied to a Brent or West Texas Intermediate crude oil price forecast. In metals and mining projects, it may be to account for differing production grades. For commodities delivered under large long-term contracts, other adjustments may also be necessary. This is particularly the case for gas and liquefied natural gas, which are often delivered under long-term contracts that contain custom provisions on issues such as flexibility, delivery location and diversion. These set pricing under such contracts apart from simple spot pricing. Any such provisions will have to be assessed to correctly account for their impact on price.

iii Risk allocation and foreseeability

Large parts of the energy industry are governed by long-term contracts that seek to allocate risks and rewards between parties in relationships that will last many decades. These long time frames, combined with the inherent geological, market, environmental and political risks, create problems regarding risk allocation and foreseeability. The 2008 financial crisis, the development of shale gas extraction in the US, and the Fukushima nuclear disaster all contributed to vast changes in international energy markets. As discussed above, the covid-19 pandemic and potential oil price war between OPEC members have themselves resulted in sudden, significant market changes, the effects of which will unfold over the coming months and years.

A good example of the challenges that arise out of risk allocation and foreseeability is given by the impact of renewable energy on Northwest European electricity prices. A common arrangement in this market has been for an electricity supplier to enter into a long-term tolling agreement under which it supplies gas to a power station and receives electricity in return for a tolling fee. This is profitable as long as the price received for electricity is greater than the cost of gas, the tolling fee and any other costs incurred. However, with the increased penetration of renewable electricity generation in Europe, electricity prices have been reduced. In parts of Europe, such arrangements will become less profitable or even loss-making for the electricity supplier. In a dispute context, this leads to a number of questions. Was this change foreseeable? What relevant information was available at the time for parties to assess the level of exposure that they faced? Which party was subject to the risk of this change? Should any changes be made to the contractual arrangements to account for this market change?

Such questions will be asked in disputes coming out of the major market changes that are currently occurring. In addition, they will become increasingly important in energy and commodity disputes as markets and societies shape climate change strategies and governments enact climate change policies. The impact of market changes on commercial arrangements entered into well before those market changes requires detailed knowledge of the underlying commercial drivers as well as of the relevant markets.

10 See, for example, *Burlington Resources Inc. v. Republic of Ecuador* (ICSID case ARB/08/5), decision on reconsideration and award, para. 481.

iv The use of 'modern' DCF

No discussion of issues currently confronting practitioners in energy and commodity arbitration would be complete without a discussion of the modern DCF approach. This was recently accepted by the tribunal in *Tethyan Copper Company Pty Limited v. Islamic Republic of Pakistan*.[11] The characterisation as modern implies that it is in some sense a recent innovation. While this may be true in the arbitration context, for valuation practitioners the underlying methodology is well known.

Briefly, a traditional DCF analysis is conducted by quantifying the future net cash flows (from the viewpoint of the valuation date) that a project or company would reasonably have been expected to generate. These cash flows are inherently risky: country, industry or company-specific factors may impact whether or not they actually occur. The cash flows are therefore discounted to the valuation date using a discount rate that accounts for both the time value of money and the risks inherent in the cash flows that have been modelled. When certain conditions are met, this methodology has been widely accepted in the context of international arbitration.[12]

Conversely, under the modern DCF method, net cash flows are calculated in such a way as to be risk-free. Each cash flow type (for example, oil sales revenue, capital expenditure, operating costs) is adjusted to account for the risks inherent in that specific cash flow. These cash flows are then discounted to the valuation date at a risk-free discount rate.

In the *Tethyan Copper* case, this approach was combined with a real options analysis in which simulations are run over a wide variety of possible risk scenarios while accounting for possible changes due to managerial decisions. Probability distributions are assumed for key inputs, and the optionality of a project modelled through decision trees available to project managers. For example, in a copper mining project, if the price of copper declines, management of the project may have the option to delay production to a period when prices have increased again. If prices increase significantly, they may have the option to expand production to maximise the extent to which they capture such prices. Real option analysis is therefore intended to reflect the actual value that could be captured through the rational management of a productive asset.

Why might this method be particularly relevant in energy and commodity disputes? First, these sectors generally have well-established and reliable forward markets. Futures prices in these markets reflect the expectations of market participants and capture their risk preferences. This means that, to the extent that they are reliable and applicable for relevant time periods, the risk-free prices to be applied in calculating revenue streams are available.

Second, in energy and commodity projects, the options available in a project can account for a substantial proportion of the potential value of that project. These projects may allow for the reduction, expansion or delay of both investment and production. Doing so can create value, given the inherent volatility of the prices underlying revenue in these sectors. This volatility is precisely what is accounted for in a real options analysis, and the higher the volatility, the higher the possible value that can be captured.

Despite its attractiveness, the inputs and assumptions underlying the modern DCF approach should be approached with as much caution, if not more, as would be paid to

11 *Tethyan Copper Company Pty Limited v. Islamic Republic of Pakistan* (ICSID case ARB/12/1), paras. 1600–1601.

12 See, for example, SCC arbitration (2015/063), *Novenergia II - Energy & Environment (SCA) (Grand Duchy of Luxembourg), SICAR v. The Kingdom of Spain*, final award, para. 818.

those under a more traditional DCF analysis. As well as subjective assumptions about future risks to certain cash flows, when real options are considered a careful analysis will need to be made of what options are actually available and how these will impact all relevant cash flows. Questions that may need to be addressed include:

a To what extent is the exercising of options in the future dependent on prior investment?
b Do the relevant contractual and legal terms allow for the exercising of different options?
c To what extent is information available to make the exercising of options possible?
d What options would a hypothetical buyer of an asset take into account when valuing a company or asset, and how?

There may be complex issues regarding the extent to which options, and the underlying probability distributions or decision trees, would have been known at the relevant valuation date, and the extent to which these could reasonably have been assumed to have been followed over the life of a project. The real options method assumes that skilled, rational managers act efficiently for the life of a project, often for many decades. Even where particular options are available, it is not always reasonable to assume that they are followed to the letter. For example, in a decreased oil price environment the rational choice from a project perspective might be to decrease oil production, both to affect supply and demand dynamics and to wait to sell volumes at a higher price. However, a market participant may instead choose to hold steady or increase production to protect market share at the expense of lower revenue over the short term. The actual options that will be followed are not easy to observe, and may not mirror what is taken as wholly rational over the project life.

When carried out well, this approach can provide a robust valuation, but it increases the complexity of any valuation and needs to be approached with caution.

v The use of comparables

A common approach to the valuation of energy and commodity assets is the use of comparables. Under this approach, the value of an asset is assessed by reference to the value implied by transactions for comparable assets, or by the value of comparable companies. The asset itself may have been subject to a recent transaction, in which case that transaction itself may well form the best evidence of value. These values are either used as a benchmark to assess the reasonableness of primary valuation methods, or in some cases as standalone valuations.

While commonly used and relatively simple to implement, the comparables approach has limitations. Ideally, such an analysis would be based on a large sample size of comparables. This would ensure that any outliers (that is, comparable transactions or companies with abnormally low or high values) have less of an influence on any analysis. However, in reality it is often difficult in the energy and commodity sectors to find a large set of comparables. For example, this may be particularly difficult when assessing the value of oil and gas exploration projects in frontier regions, or where assets are not commonly traded. To correctly reflect the value of an asset it may be necessary to use a small sample size.

This valuation approach must be used with care. Assets or companies that appear similar can have significant differences that must be examined and, if possible, corrected for. Such an

analysis should examine the fundamental factors driving the cash flow, growth prospects and risks of the relevant assets or companies. Significant differences could lead tribunals to reject the use of comparable transactions.[13]

All other things being equal, a comparable transaction provides better evidence of value the closer it took place to the valuation date being considered in an assessment of value. As noted above, it may be that there is not a large pool of comparable transactions on which to draw, meaning that there is not a significant set of transactions close to the valuation date on which to base an analysis. If this is the case then it may be necessary to extrapolate changes in value over time. Using an index of benchmark prices or benchmark companies is one way of attempting to bridge this gap in time. A carefully constructed index that reflects the factors underlying the value of the asset or company being valued can assist an expert, and hence a tribunal, to increase the reliability of values derived from transactions over a larger period of time.

Other factors that may need to be corrected for include project size, resource base and contractual terms. All of these areas must be assessed for their impact on potential future cash flows and risks.

III CONCLUSIONS

Disputes in the energy and commodity sectors give experts, legal teams and arbitrators a number of unique challenges. First, despite codified standards for reporting and valuation of resources throughout these sectors, uncertainty can still surround the amount of resource that should be considered in any damages calculation. Second, even once resource estimates are established, the price to apply to these resources when calculating future revenues can be problematic. While liquid markets exist for many commodities, forecasts for future prices can differ widely, and must be used with care. Third, given the long-term nature of many commercial relationships in the energy industry, issues of risk allocation and foreseeability can have large implications on how disputes, both commercial and investor–state, are decided. Fourth, because a significant portion of the value of a project in these sectors may lie in the volatility of the underlying market, use of the modern DCF method may well become more widespread in arbitration, following its adoption by the tribunal in the *Tethyan Copper* case. Finally, the use of comparable transactions or companies, either as a primary valuation tool or as a benchmarking metric, can create challenges in the application of relevant adjustments for known and quantifiable differences from the asset or company being valued.

Given the prevalence of disputes in the energy and commodity sectors, these challenges will only grow in importance. However, challenges also provide opportunity. While complex, they can be addressed through a detailed assessment of underlying industry-specific factors, and through the correct application of the relevant analytical techniques. This will lead to a robust, reliable assessment of the expert evidence. In the context of high-value disputes in the energy and commodity sectors, this should give legal teams and arbitrators confidence in the use of expert testimony.

13 As in *Occidental Petroleum Corporation and Occidental Exploration and Production Company v. The Republic of Ecuador* (ICSID case ARB/06/11), award, para. 787.

Appendix 1

ABOUT THE AUTHORS

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Charles River Associates

Mr Christian Jeffery is a principal in CRA's energy practice, based in London. Mr Jeffery provides consultancy services to clients in the international energy industry. He specialises in delivering commercial and analytical projects for clients in disputes and arbitration, having worked on such projects throughout Europe, the Middle East, Africa and Asia. He has extensive experience leading teams gathering and analysing relevant data, and presenting the analytic, commercial and factual evidence for arbitration proceedings. This includes commodity valuation, project and company financial modelling, and statistical analysis.

Mr Jeffery has been appointed as an expert witness in ICSID and commercial disputes. In addition to his experience in the energy industry, Mr Jeffery has experience in the construction, transportation and banking sectors, as well as in securities litigation.

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