

International gas and LNG sale and purchase contracts

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1. Introduction to natural gas production and the domestic market in Brazil

Investment in the development of oil and gas resources in South America varies from country to country due to a variety of factors including economics, politics and availability of resources. Brazil has been seeking ways in which to increase its production levels and potentially recoverable reserves while maintaining contractual transparency and competitive terms. The country has enjoyed a historic moment with the discovery of new, world-class oil and gas reserves in recent years and ongoing bids rounds which recommenced in 2013 after a five-year hiatus, and Brazil continues to establish itself as a driving force.

Brazil was reported as the eighth largest energy consumer in the world and the third largest in the Americas, behind the United States and Canada, according to the latest complete US Energy Information Administration (EIA) statistics.¹ Total primary energy consumption in Brazil has increased by more than one third in the past decade due to sustained economic growth. Natural gas constitutes only a small portion of Brazil's total energy consumption. The statistics also show Brazil as the tenth largest energy producer in the world.

1.1 Exploration and production in Brazil

Recent offshore exploration activities in Brazil have yielded substantial discoveries of pre-salt oil fields. Such discoveries have also generated excitement about new gas production because the pre-salt areas are estimated to contain sizable natural gas reserves. The regulatory, operational and financial demands required to develop the pre-salt areas are not to be underestimated, but once production levels increase it is anticipated that opportunities to exploit gas reserves will also increase.

Brazil held its first pre-salt bid round in October 2013 for the Libra field, which reportedly holds estimated reserves of 8 to 12 billion barrels of oil according to the Agência Nacional do Petróleo, Gás Natural e Biocombustíveis (ANP), making it Brazil's largest-ever oil discovery. Brazil's 12th bid round was subsequently held in November 2013 offering onshore frontier and mature basins.

Natural gas exploration and production is subject to the same rules that apply to oil exploration and production activities, namely Federal Law No. 9,478/1997 (the Petroleum Law) and Federal Law No. 12,351/2010 (the Pre-Salt Law).

1 Latest complete EIA statistics for all countries (2010), available at www.eia.gov/countries/cab.cfm?fips=BR

1.2 Brazil's unconventional potential

Brazil has been ranked tenth globally for shale gas reserves with 245 trillion cubic feet of gas.² It is thought that the biggest upside may be six other basins identified by the EIA with shale potential – but having insufficient geological information to quantify reserves.

Brazil is not new to unconventional oil and gas production, but tight oil production is negligible and there is no commercial shale gas production, as yet. Brazil's shale potential has not been analysed in detail to date, but initial studies show the greatest potential for unconventional resources may exist in the Parnaíba, Paraná, Recôncavo, Tocantins and São Francisco basins.

However, the promise of unconventional gas brings with it a number of challenges. Environmental concerns will play a key role in one of the world's most biodiverse nations, as could use of controversial technologies. Regulation by Brazil's local environmental agency (Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis – IBAMA) will probably be rigorous and companies may face significant liabilities in connection with potential environmental damage. There are also major infrastructure issues, requiring roads and pipelines to be constructed in remote parts of the country, where many of Brazil's prospective shale basins are located. With attention heavily focused on pre-salt exploration, there is low expectation of large volumes of unconventional gas being commercialised in the short term.

1.3 Overview of gas market

The Gas Law³ regulates gas activities in Brazil relating to gas transportation, gas storage and liquefied natural gas (LNG) facilities. Such activities may be carried out by any company incorporated in Brazil although it is important to note that *Petróleo Brasileiro SA* (Petrobras) currently owns the major gas pipelines and LNG facilities.

The sale and purchase of gas in Brazil occurs through agreements negotiated between the parties. A company incorporated in Brazil may request an authorisation to trade gas from ANP⁴ and once authorised may execute gas sale and purchase agreements. Such agreements must be registered with ANP. Prices may be negotiated by the parties and ANP is only involved if agreement cannot be reached. A company incorporated in Brazil may also apply for authorisation to import or export gas.⁵

Distribution and commercialisation of gas to residential, commercial and industrial customers is limited to the local distribution company of the relevant state.⁶ There are some exceptions for the distribution of gas to industrial consumers; first, for a gas concessionaire that intends to use its production as raw material or fuel in its own facilities and, secondly, for a company that imports gas to be used as a raw material or fuel in its facilities.⁷

2 EIA June 2013 resource report.

3 Federal Law No. 11,909/2009 (the Gas Law).

4 Section 4 of ANP Ordinance No. 52/2011.

5 Section 36 of the Gas Law.

6 Section 177 of the Brazilian Federal Constitution.

7 Section 2 of the Gas Law.

Third parties may have open access to gas transportation pipelines that are under the concession system, but such access is not available to transfer or gas production pipelines³ and ANP has not yet established new rules on the regulation of open access to gas transportation pipelines.

Brazil's onshore natural gas production largely supplies local markets in the states of Bahia and Amazonas as a result of a lack of infrastructure to transport the gas to other markets. The current centre of natural gas production in Brazil is the state of Rio de Janeiro, from offshore fields in the Campos Basin.

1.4 Overview of LNG market

As a region of growing demand, South America is competing with Asian markets for LNG. Since 2010, despite the export projects at Atlantic LNG and Peru LNG, much of South America is a net importer of LNG – particularly in South America's Southern Cone in Chile, Argentina and Brazil. LNG is used as a substitute for less expensive hydroelectric power in Brazil. When conditions such as drought reduce the availability of hydroelectric power, LNG is purchased on the spot market.

Brazil has two LNG floating storage and regasification units, the Pecem terminal in the northeast and the Guanabara Bay terminal in the southeast, and there are plans to bring two additional terminals online in the states of Bahia and Rio Grande do Sul. The LNG terminals are not subject to open access.

2. International principles for gas and LNG sale and purchase contracts

In the past gas was commonly sold on a long-term basis, often with gas from a particular field dedicated to a single buyer. Gas and LNG sales have evolved in more recent times, and so have the forms of gas and LNG sale and purchase contracts. A sale and purchase agreement sets out the terms upon which the sale and purchase of gas or LNG will be undertaken by the parties. The agreement will set forth the seller and the buyer, the quantity and quality of gas to be sold, the price, the point of delivery, transportation and delivery provisions, and liabilities for failure to perform. An agreement for the sale of gas is typically referred to as a GSA, and for the sale of LNG an SPL. The basic contract terms for both gas and LNG are similar and will be discussed in parallel, with notable differences highlighted.

2.1 Depletion-based and supply-based contracts

A depletion-based contract provides the buyer with the expectation of receiving the entire reserves of gas in a particular field, or being dedicated a specified percentage of the economically recoverable reserves. In return, the seller secures the sale of the entire gas reserves in such field. Such structure has traditionally been utilised in order to allow a seller to invest the capital necessary for the development of a gas field and to build infrastructure for production and transportation on the basis of the buyer's long-term commitment under the sale and purchase agreement underpinning the investment.

Depletion-based contracts may still be used as a model for new gas fields or LNG

project development. However, supply-based contracts tend to be more appropriate where the seller has more than one option for the production and transportation of gas or LNG. As more facilities are built and commissioned, the seller can supply gas from different sources. There has been a growing trend towards supply-based contracts, particularly as gas markets develop and parties seek greater flexibility in their gas and LNG marketing activities.

A supply-based contract provides for the sale of certain quantities of gas or LNG to the buyer during a specified period. Such model relies upon the seller having access to gas reserves without dedication of gas from a particular field. This means that the seller could supply gas or LNG from its portfolio of gas fields, substitute with gas from alternative fields or source gas or LNG from third parties.

In practice a sale and purchase agreement will probably demonstrate characteristics of both a depletion-based contract and a supply-based contract. Rather than having a gas supply profile which mirrors the production profile of the dedicated gas field (with a start-up period, a steady rate of production until the gas field reaches peak production, and a decline period), the agreement may specify an absolute quantity of gas to be delivered at a constant rate during a defined term. In addition, the seller may dedicate a nominated gas field to the buyer but also undertake to deliver gas from alternative sources if there is a problem with the nominated field. Another example is the extent to which broader *force majeure* relief may be granted for seller's upstream facilities, noting that under a supply-based contract the seller will not typically be able to claim *force majeure* relief in respect of the gas fields which underpin the sale and purchase agreement whereas under a depletion-based contract the seller will seek to protect itself from bearing the risk of non-performance of the dedicated gas field.

In reality the form of sale and purchase agreement will be negotiated between the parties based on the facts at hand and often to reflect a more balanced allocation of obligations and benefits.

2.2 Term contracts

The agreement may provide for the sale and purchase of gas between the parties for a specified period. A fixed-term agreement is often described by reference to the length of the contract. For example, a contract of one to five years is typically referred to as a mid-term contract and one over five years as a long-term contract. However, there is a growing trend for more flexible terms, meaning such categorisation is not absolute. Such demand for greater flexibility has also resulted in parties pursuing gas and LNG trading activities on a short-term, spot basis. Spot trades allow the possibility of exploiting short-term gas and LNG price variations. A spot trade will be for the delivery of a specified quantity of gas or LNG at a specified price and for a certain date (or period).

2.3 Spot trading and master sale and purchase agreements

Historically gas marketing and trading has been more developed than LNG, but LNG trading has grown in importance in global energy markets. Increasingly parties have utilised master sale and purchase agreements to effect a particular transaction for the

sale and purchase of gas or LNG under pre-agreed general terms and conditions. A master sale and purchase agreement will typically set forth those terms that will be common to all transactions which are contemplated pursuant thereto. There are a number of industry standard model forms including those of the Association of International Petroleum Negotiators (AIPN), the North American Energy Standards Board (NAESB) and the European Federation of Energy Traders (EFET). It is also common for parties to have developed their own preferred form of master sale and purchase agreement. Such an agreement will set out the framework pursuant to which the parties may agree to buy or sell gas or LNG. However, under such an agreement there is no obligation or commitment to buy or sell gas or LNG. At the time the parties wish to enter into a transaction, they will enter into a confirmation which will set forth specific terms such as quantity, price, the delivery point and the delivery period, and such confirmation will be deemed to incorporate the general terms of the master sale and purchase agreement. Only at that time will a binding commitment to buy or sell gas or LNG be created.

2.4 Parties

The seller and the buyer need to be clearly identified. This will be straightforward where there is a single seller and a single buyer, but the contractual arrangements become more complicated where multiple entities will be party to the sale and purchase agreement. The agreement will need to set forth each party and the capacity in which it is acting. It is common for gas projects to be developed by multiple parties through an incorporated or unincorporated joint venture. In the case of an incorporated joint venture, the buyer's contractual relationship will be with the joint venture company as the seller and not the shareholders themselves (unless the shareholders separately agree to stand behind the obligations of the joint venture company). In the case of an unincorporated joint venture, the sellers could decide to contract in a number of ways which may include: (i) each to have their own agreement with the buyer (on identical terms), (ii) to enter jointly into a single agreement with the buyer (with specified participating interests); or (iii) to nominate one entity to enter into an agreement with the buyer, for and on behalf of itself and acting as agent for the other parties (under English law acting as a disclosed agent means that such party will bind the principals). Careful drafting will be required in each of these cases together with appropriate agreements to coordinate nominations, sales and lifting and balancing arrangements.

2.5 Term

The sale and purchase agreement will often have a basic term which runs from the date on which the agreement is signed until its expiry or termination. The date on which deliveries will commence usually occurs at a later date.

The parties will commonly set forth a defined term. This avoids the difficulty of ascertaining the probable production from a gas field, the lifetime of the infrastructure for production and transportation, and the estimated gas reserves. It may also be the case that applicable laws need to be taken into account in determining an appropriate duration.

There may be a desire for the parties to agree an extension to the basic term, for example, if the seller has remaining gas reserves which might not be attractive to a new buyer or if the buyer has accrued make-up rights, and such rights of extension may be set forth in the agreement.

2.6 Conditions precedent

Conditions precedent are commonly included in a sale and purchase agreement to postpone certain obligations and liabilities of the parties, including the expenditure of significant amounts of money, until such time as the parties are certain that their obligations under the agreement may be performed. The agreement will become effective upon execution, but with the intention that specific provisions will be suspended such as the seller's obligation to deliver gas, the seller's liability for a failure to deliver gas and the buyer's obligation to take or pay for the gas. Other provisions of the agreement will usually be expressed to come into effect upon execution in order to create legally binding obligations on the parties; for example, governing law and dispute resolution, notices, and confidentiality.

The conditions precedent should seek to protect the parties from making commitments under the sale and purchase agreement without other critical components of the project being in place but at the same time bring the agreement into full force and effect as soon as possible. Typically conditions precedent will therefore be limited to those which are essential for the project to succeed and which may be met within a sensible timeframe following execution of the agreement.

Conditions precedent may include necessary consents and approvals, securing financing, the construction of facilities necessary for performance of the gas supply, or issuance of a notice to proceed for the engineering, procurement and construction contract in relation thereto, or confirmation that other project agreements have been executed, noting that the conditions precedent will need to be carefully drafted to avoid circularity where those project agreements also contain their own conditions precedent.

If the conditions precedent are not satisfied (or, where permitted, waived) by the long stop date, each party will usually have the right to terminate the sale and purchase agreement upon giving notice.

2.7 Start up and commissioning

The date on which the seller will be obliged to make gas or LNG available for delivery and the date on which buyer's take or pay commitment will commence may be a fixed start date or may be determined by a window mechanism. A window mechanism allows a start date to be determined on the basis of specified parameters while allowing some flexibility in the scheduling of the parties' commitments.

The seller will wish to ensure that its obligation to deliver gas or LNG does not commence before the production facilities are operational. Equally, the buyer will want to be operationally and commercially ready to take delivery of gas or LNG. Both parties will therefore seek to determine the start date within pre-agreed parameters and with adequate notice periods.

Due to the fundamental nature of the start date, the parties may introduce

specific remedies for a failure to be ready to deliver or accept gas or LNG on the start date. For the buyer this may be commencement of its take or pay obligations and for the seller a liquidated damages liability, with a long-stop termination right.

Where new facilities are being built, it will be necessary to conduct commissioning and testing prior to the start date. For these purposes the seller may make a quantity of gas or LNG available for commissioning purposes to allow testing to take place during a commissioning period. Typically there might be a reasonable endeavours obligation for the seller to provide commissioning gas and the buyer to purchase the gas or LNG at a special commissioning price, with the possibility of further details being set out in a separate commissioning agreement.

2.8 Credit support

The contracting parties will need to demonstrate sufficient creditworthiness to support their respective obligations for the duration of the sale and purchase agreement. It is important clearly to identify the buyer and the seller and any guarantor that will support their commitments.

The seller's primary obligation will be to perform, that is, to deliver the gas or LNG. While payment may be due from the seller to the buyer in certain circumstances, the seller's experience, reliability and reputation will be of utmost importance. The seller may be able to provide other assurances to the buyer supported by a reserves certificate for the committed gas. If the seller is a joint venture company, the buyer may request that the shareholders of the joint venture company guarantee its obligations or performance.

The buyer's primary obligation will be to pay the seller. While this risk can be assessed at the time the parties enter into the agreement, the creditworthiness of the buyer may change over the lifetime of the sale and purchase agreement. Therefore the seller may request that the buyer provides a parent company guarantee, a letter of credit or other form of credit support to support the buyer's commitments. This might be required at the outset of the agreement or triggered if the buyer's creditworthiness weakens. The ability for the seller to trigger this requirement based on its own assessment of the buyer's creditworthiness will probably be resisted by the buyer and the parties may instead seek to rely upon a downgrade of the buyer's credit rating, as determined by a recognised credit rating agency. A failure to provide the necessary credit support will often result in the right for the seller to suspend deliveries to the buyer and to terminate the agreement.

Given their magnitude, and the financial commitments involved in a mid- to long-term sale and purchase agreement, it is unlikely that a bank would offer any kind of guarantee for the total value of gas over the lifetime of the agreement or that a parent company guarantee would be enforceable for the entirety of amounts unpaid by the buyer. Consequently the seller will need to be prepared to accept some degree of risk. In practice the parties will take into consideration the overall viability of the underlying project (or projects) and its economic sustainability.

2.9 Delivery and delivery point

The seller's obligation to deliver gas or LNG to the buyer will take place at a specified

delivery point. The delivery point is the point at which gas or LNG transfers from the seller to the buyer.

The terms of the sale and purchase agreement will need clearly to identify the seller's obligation to deliver gas or LNG at the delivery point. The seller will need to ensure that the satisfaction of its obligation to deliver is not dependent upon the actual taking of the gas or LNG by the buyer at the delivery point, in order to prevent any argument as to whether the seller has met its delivery obligation. In addition, there may be certain circumstances in which the seller is relieved from its obligation to deliver, such as *force majeure* relief. Consequently, the circumstances of any particular failure must be analysed and the relevant provisions of the sale and purchase agreement applied to such failure.

For gas sales, the delivery point will usually be the interconnection between the upstream and downstream facilities. A specific point will be identified by the parties, for example, the exit point of the seller's facilities which connects to the offtake pipeline or the entry point of the buyer's facilities where gas is received from the pipeline. The delivery point could also be the point at which gas enters the gas distribution pipeline network and in this case the buyer will be responsible for the transportation of gas through the network and will have the right to offtake an equivalent quantity of gas at a separate offtake point.

The most popular sales arrangements used for determining the point of delivery for LNG have been free on board (FOB) sales or delivered ex-ship (DES), each as established by the International Chamber of Commerce Incoterms 2000. When the Incoterms were revised in 2010 DES was removed and essentially replaced with a new delivery term delivered at place (DAP). There has been some debate as to whether DAP or delivered at terminal (DAT) is the most appropriate term to replace DES for LNG sales. Under DAP the seller completes its delivery obligations when the goods are placed at the disposal of the buyer. In contrast, under DAT the seller completes its delivery obligations when the goods are unloaded and placed at the disposal of the buyer.

In practice, such terms are often used as a way of characterising a sale rather than actually incorporating the Incoterms. Usually the agreement will set forth each of the parties' obligations and liabilities in relation to deliveries without referring specifically to the Incoterms. Under FOB terms, the seller delivers LNG to the buyer at the loading port at the point of interconnection between the buyer's ship and the seller's loading facilities and the buyer is responsible for transporting and insuring the LNG from the loading port to the unloading port. Under DAP terms, the seller delivers LNG to the buyer at the unloading port at the point of interconnection between the seller's ship and the buyer's unloading facilities and the seller is responsible for transporting and insuring the LNG from the loading port to the unloading port.

LNG deliveries have the advantage of flexibility to deliver into global markets as compared with traditional gas sales from point to point within a gas pipeline or network.

The buyer may prefer the FOB sales agreement because it provides control of the shipping function between the loading port and the unloading port. The sale occurs when the buyer takes the LNG at the loading port thereby allowing diversion of the

ship to an alternative unloading point without seller's involvement. For similar reasons, the seller may prefer DAP or DAT sales because it better enables the management of any LNG diversion provisions. Either party may require the flexibility to divert a cargo or cargoes of LNG from the intended unloading port to an alternative delivery point. Such diversion will be driven by the ability to achieve a better sales price for the LNG at the alternative delivery point. In such circumstances the seller and the buyer may agree to undertake a cargo diversion on the basis of a pre-agreed profit-sharing mechanism or other price revision which allocates the net profits between the parties.

2.10 Title and risk

The delivery point will usually be the point at which title to, custody of and risk of loss of the gas or LNG transfer from the seller to the buyer. Often it will also determine the allocation of tax liabilities between the parties.

With respect to a cross-border pipeline gas sale, the parties may agree that title to gas will transfer to the buyer at the border but that custody to and risk of loss of the gas will remain with the seller up to the delivery point. Such a division enables the buyer to ensure that commercial risk remains with the seller up to the point of delivery but to demonstrate that the buyer is importing gas at the border, which may be important to both parties for tax reasons.

In the same way, there may be circumstances or commercial reasons in the context of LNG sales where the parties wish to adopt a different regime for the transfer of custody, title and risk of loss. For example, where the seller delivers LNG to the buyer at the unloading port there may be a perceived risk of the tax authorities declaring a tax presence for the seller. Sometimes this risk is addressed by the parties agreeing that the buyer will indemnify the seller for tax liabilities incurred by the seller in the country in which the unloading port is situated or that title to the LNG transfers from the seller to the buyer at a notional point immediately prior to the point at which the ship crosses from international waters to the territorial waters in which the unloading port is situated. The latter formulation requires further consideration where the seller wishes to use some of the LNG for fuel and heel, for example, a re-transfer or right to retain and use such quantities of LNG as needed.

2.11 Quantities

The quantity of gas or LNG to be sold by the seller and purchased by the buyer will often be set out in the sale and purchase agreement on an annual basis, with more frequent measures of quantities. Such quantities can be expressed in volumetric units or by reference to the calorific value of the gas or LNG.

The contract quantity may be determined by the parties taking into account the quantity of gas reserves which the seller anticipates having access to and the quantity of supply the buyer requires in order to fulfil its commercial needs. Alternatively, the parties may specify an annual contract quantity for each year during the term of the sale and purchase agreement, meaning that an overall contract quantity is not necessary. The annual contract quantity or 'ACQ' represents the quantity of gas or LNG that the seller is obliged to deliver to the buyer in any year.

(a) Annual contract quantity

In a depletion-based contract the ACQ may vary from year to year in order to reflect the production profile of the dedicated gas field or LNG liquefaction project. In a supply-based contract the ACQ should be the same for each contract year since gas or LNG is being supplied without reference to a particular gas field or LNG liquefaction project.

In the case of gas pipeline deliveries, the ACQ may be calculated by multiplying the applicable daily quantity by the total number of days in such year.

In the case of LNG deliveries, the seller will be required to deliver a volume of LNG which equals the ACQ. However, the sale and purchase agreement will probably require the LNG to be delivered as LNG cargoes according to the scheduling provisions, meaning that the delivery of LNG would be determined on a cargo-by-cargo basis rather than by reference to an aggregate quantity of LNG representing the ACQ.

At the end of a contract year it is unlikely that the total quantity of LNG delivered on the scheduled LNG ships will exactly match the ACQ. To address this reality the sale and purchase agreement may provide that the quantity of LNG delivered will be rounded up by such amount as required to reach the next full cargo lot. Such round-up quantity would be delivered and paid for in the usual way by the buyer but carried forward and applied as a deduction to the ACQ for the following contract year. An alternative approach is to round down, so that the quantity is deducted from the ACQ for that contract year and instead added to the ACQ for the following contract year.

Various mechanisms might entitle the buyer to elect to take delivery of more LNG in a contract year than is provided for by the ACQ, or to nominate a reduction. Subject to the negotiating strength of the parties such rights will apply up to a pre-defined amount and the upward and downward flexibility will provide additional value to the buyer. The same may be true for the seller where the seller is entitled to nominate upward or downward quantities.

(b) Daily contract quantity

For pipeline gas deliveries, the seller and the buyer will calculate the quantity of gas which is to be delivered by the seller on each day during the year. Since the delivery of LNG is measured on a cargo basis, the concept of a daily contract quantity or 'DCQ' is not relevant to an LNG sale and purchase agreement. If the gas sale and purchase agreement recognises seasonal gas swings, the DCQ could vary on a monthly basis within the contract year. The buyer may also negotiate a right to reduce the DCQ over the lifetime of the gas sale and purchase agreement subject to the seller's expectations with regard to revenue return and a potential increase in the gas price in the event of a lower DCQ. The seller may also seek to reduce the DCQ if it is unable to continue supplying the same quantities of gas, for example, if there is a reduction in the projected gas reserves.

In addition to the DCQ, the buyer may be permitted to nominate an additional percentage of the DCQ representing peak quantities of gas that the buyer is able to access. Such additional percentage is commonly referred to as the 'swing factor', and may be subject to an overall annual cap. The DCQ plus the swing factor will

constitute the maximum daily contract quantity and consequently the maximum quantity of gas that the buyer may require for delivery at the delivery point on any day. The seller must therefore ensure that its gas production and transportation facilities are capable of delivering the maximum daily contract quantity of gas and consequently will build such costs into the contract price.

(c) ***Excess quantities***

There may be times during a day where the buyer requires delivery of a quantity of gas which is greater than the maximum daily contract quantity (or makes a request outside of the usual nomination provisions) or where the buyer requires delivery of LNG which is greater than the ACQ. With respect to gas pipeline deliveries, the determination of excess gas may be determined on a daily basis or on an annual basis. With respect to LNG, excess LNG may be determined at the time the annual programme is agreed for that contract year or during the course of the contract year. Typically the seller will be willing to use its reasonable endeavours to deliver such excess quantities provided that it is appropriately compensated.

If the seller accepts the buyer's request to deliver excess gas or LNG, the buyer will argue that such obligation should become firm so that the buyer may rely upon the agreed shortfall remedy in the event that the seller fails to deliver such excess gas or LNG. It will be necessary for the parties to negotiate whether such excess gas or LNG should reduce the annual contract quantity, may be taken into account towards satisfaction of the buyer's annual take or pay commitment, should constitute carry forward, and/or should be priced at a premium to the contract price.

2.12 **Nominations and scheduling**

The sale and purchase agreement will be based on a contract year – either a calendar year or a non-calendar year reflecting a gas contract year. The first contract year will typically run from the start date until the end of the calendar year in which the start date occurs and likewise the final contract year will run from January 1 to the anniversary of the start date. While not full contract years, equivalent rights and obligations will attach to such periods.

The sale and purchase agreement will contain a mechanism pursuant to which the buyer will nominate to the seller its requirements for the delivery of gas. Such a mechanism may be prescribed to a large extent where the gas is to be transported through a regulated or multi-user pipeline because the parties will need to comply with the nomination and variation procedures established by the gas transportation system.

The sale and purchase agreement for LNG will contain provisions which govern the scheduling of ships for the transportation of LNG cargoes. Similar to gas, certain nomination provisions may already be prescribed in respect of the delivery of LNG at multi-user terminals because the parties will need to comply with the scheduling procedures established by the terminal and/or the applicable port.

(a) ***Gas nominations***

Ordinarily the buyer will give a nomination to the seller for the quantity of gas it wishes to have delivered at the delivery point in respect of the relevant nomination

period. A seller's nomination regime is not so common but may be used in the case of associated gas – where the seller's prime source of revenue is the crude oil and associated gas will only be made available when the production of crude oil so dictates. Typically nominations will be given by the buyer at least once in respect of each day and potentially with greater frequency such that a 24-hour period may be divided into shorter nomination periods. Subject to receiving a nomination from the buyer which meets the contractual requirements, the seller will be under an obligation to deliver the nominated quantity of gas to the buyer in respect of the relevant nomination period.

The sale and purchase agreement will typically prescribe the timeframe for the submission of nominations, the method of communication, the procedure for requested variations and sometimes a pro forma notice. It may also require the buyer to give forecasts of its anticipated gas delivery requirements. Such forecasts will be provided on a best-estimate basis only for forward planning purposes to assist the seller with the operation of its gas production and transportation facilities.

Certain parameters may be set forth in the agreement such that the buyer's permissible nomination may be between a specified minimum level nomination and the maximum daily contract quantity. A zero nomination may be permissible if the seller's facilities are able to manage such nomination operationally. The agreement may set forth other limitations such that a nomination can only vary a certain amount above or below the preceding nomination. If the buyer fails to give a nomination as required by the terms of the agreement, a deemed nomination will usually apply.

In order to respond to variations in gas demand the buyer may wish subsequently to vary its nomination. The flexibility given to the buyer will probably depend on the physical limitations of the seller's facilities to manage a downward variation or to ramp up gas production to accommodate an upward variation. The buyer's flexibility to vary a nomination will need to be balanced against the limits that the seller seeks to impose as a result of operational limitations and to protect itself against an inability to deliver.

(b) LNG scheduling

A long-term LNG sale and purchase agreement will provide for the scheduling of LNG cargoes based upon an annual programme set at the beginning of each contract year and managed thereafter on the basis of a rolling 90-day schedule.

The agreement may require the buyer to give notice to the seller setting forth its LNG requirements and indicating the number of LNG cargoes required for delivery in the following contract year, taking into consideration the anticipated LNG ship capacity and the delivery and unloading schedule. Such notice is often provided at least 90 days prior to the start of the contract year to allow the seller sufficient time to respond to the buyer's request and for the parties to consult and agree upon the final annual programme prior to the start of the contract year. The agreement will need to set forth which party should have the final say in the event that the parties are unable to reach agreement on the annual programme. This may vary depending on the bargaining strength of the parties and whether the sale is being undertaken

on an FOB or DAP basis. Parties will often have to manage operational challenges and shipping logistics to handle LNG facilities with different contract years and different nomination and scheduling requirements.

After the annual programme has been issued it may be necessary to request changes to address commercial, operational or practical issues. There is often an obligation for the parties to discuss and negotiate in good faith in order to agree changes to the annual programme. Where changes are required for operational or practical reasons, such as a change to port operations or the occurrence of an event of *force majeure*, the parties should be aligned in trying to accommodate such changes. However, a change proposed for commercial reasons, such as a reduction or increase to the respective delivery or offtake obligations of a party, will be more difficult to address without a corresponding commercial incentive for the other party. In such circumstances the other party could justifiably withhold its consent to a change to the annual programme.

2.13 Seller's liability for shortfall

A seller's failure to deliver any quantity of gas or LNG that the buyer has nominated (or which has otherwise been scheduled) will be deemed shortfall, unless the seller's failure is excused.

The gas sale and purchase agreement may provide for a shortfall gas tolerance so that where the delivery failure is *de minimis* it will not constitute shortfall. Such shortfall tolerance will protect the seller but the buyer may wish to limit its application, for example, by applying an annual limit. Such shortfall tolerance might apply according to each individual nomination or on a monthly or annual basis. Alternatively the shortfall might be measured over a series of successive nominations such that the risk of shortfall arising in respect of a single nomination may be evened out.

With respect to the seller's obligation to deliver LNG, a failure by the seller to deliver LNG in compliance with the scheduled delivery programme will be prima facie evidence of a shortfall by the seller. The agreement may allow the seller some flexibility, for example, a grace period allowing late delivery within a specified period. Unlike shortfall in respect of gas deliveries, which is measured by a quantity failure, a shortfall of LNG is measured by a failure to meet the scheduled delivery window.

The seller will not be liable for shortfall where gas or LNG is not delivered due to an event of *force majeure* affecting the buyer or the seller. However, the buyer will usually benefit from an adjustment to the ACQ if gas or LNG is not delivered due to *force majeure*. Other exclusions from liability may include gas or LNG not delivered due to acts or omissions of the buyer, where non-delivery is permitted under the terms of the agreement (eg, during scheduled maintenance) or where an alternative remedy is available to the buyer (eg, if there is a separate remedy for off-specification gas or LNG there should be no double counting of the seller's liability).

Most agreements provide for an express remedy for seller's liability for shortfall.

In respect of gas pipeline deliveries, a shortfall price discount mechanism may allow the seller's shortfall liability to be set off against future gas sales revenues due

to the seller in the form of a liquidated damages remedy. Essentially a quantity of gas equivalent to the shortfall quantity which is subsequently delivered by the seller will be sold to the buyer at a price that is discounted against the contract price. The contract price applicable at the time the shortfall occurred provides the most predictability for the shortfall price discount, but an alternative basis could be the contract price applicable when the subsequent quantities of gas are delivered. While the shortfall price discount provides a remedy for the buyer, the discount may not be sufficient to compensate the buyer for all costs and liabilities incurred as a result of the seller's failure to deliver gas and is only credible if the seller will actually deliver future quantities of gas against which the shortfall price discount may be applied. To address this issue the parties may agree to a cash-out mechanism whereby the seller agrees to pay the buyer an amount equivalent to the undischarged entitlements in cash or deliver alternative quantities of gas with an equivalent economic value. This may occur at the end of the term, but also on a periodical basis throughout the term to ensure that the levels are manageable. Otherwise, the gas sale and purchase agreement may provide for an extension to the term to allow gas to be delivered at the shortfall price discount, or a combination of an extension followed by a cash-out of any undischarged shortfall price discount entitlements.

An alternative remedy to the shortfall price discount is requiring the seller to compensate the buyer for any cost and liability the buyer might incur for its own failure to supply the gas for resale or for buying alternative gas in order to make good the seller's failure to deliver gas and for any liability incurred as a result of imbalance charges imposed in accordance with the rules of the gas distribution network.

In some cases both remedies may be included and the option given to the buyer or the seller to elect whether the shortfall price discount or the agreement to compensate will apply.

In respect of shortfall in the delivery of LNG, the shortfall price discount is not used. Generally, parties tend to agree upon a remedy which provides for the buyer to be compensated for its actual loss, the seller to pay a pre-determined amount of liquidated damages or the seller to indemnify the buyer for the incremental costs incurred in procuring an equivalent quantity of replacement LNG (or replacement gas). Generally, the seller's liability will be limited by the remedies set forth in the agreement and such remedies may be expressed to be the sole and exclusive remedies of the parties with respect to such breach.

Whichever remedy for shortfall applies, the buyer will seek an adjustment of the ACQ because it will not want to be under an obligation to pay for gas or LNG that has not been delivered. The sale and purchase agreement may also give rise to a termination right for the buyer if there is a prolonged period of shortfall, which will allow the buyer to seek alternative and more reliable supplies.

In addition, in order to better manage potential shortfalls, the sale and purchase agreement will include an obligation on the seller to notify the buyer if it has suffered or is likely to suffer an event which results in a potential shortfall of gas or LNG. Further, if the seller is delivering gas or LNG to a number of buyers, the sale and purchase agreement will generally contain a mechanism whereby the available gas or LNG is allocated pro rata between the buyers. Such an allocation will ensure

that the seller's shortfall is shared between the buyers and that no single buyer gets preferential treatment. However, if one buyer has a particularly strong bargaining position it is possible that such buyer may be able to secure priority rights to gas or LNG actually delivered. A failure to comply with the rateable allocation of shortfall may mean that the buyer can rely on the shortfall remedy or request that the buyer should subsequently be entitled to receive the non-delivered quantity of gas or LNG. If the seller has been guilty of wilful misconduct in allocating the gas or LNG to a particular buyer (eg, where better terms will apply or if the seller will benefit from a higher contract price), the buyer may be able to claim losses incurred as a result of such breach. However, in practice it is often difficult for a party to claim successfully that the other party is guilty of an act of wilful misconduct in connection with a failure to carry out its contractual obligations.

The buyer may require that the seller provides regular reports and grants rights of access to the seller's facilities for purposes of inspecting and monitoring shortfall and an audit right so that it can ensure allocation has been properly carried out by the seller. Expert determination may also be provided for in the event of a dispute between the parties as to whether a particular quantity of gas or LNG is shortfall under the sale and purchase agreement.

2.14 Buyer's take or pay obligation

The seller will seek to obligate the buyer to commit to taking and paying for a certain quantity of gas or LNG. In long-term sale and purchase agreements such commitment will underpin the seller's capital investment for developing the necessary project infrastructure by creating a secured source of revenue.

The sale and purchase agreement will typically provide that the seller commits to sell and deliver and the buyer commits to take delivery of and pay for gas. In the case of gas the quantity will be based on the buyer's nomination and in the case of LNG the quantity will be defined on a cargo basis (or on an annual basis in accordance with the specified ACQ).

A failure by the buyer to take delivery of and to pay for the nominated quantity of gas or the defined quantity of LNG will result in an obligation on the buyer to compensate the seller. The seller's remedy will often be expressed as an amount equal to the difference between the quantity of gas or LNG that the buyer was obliged to take and the quantity which the buyer actually took (if any), multiplied by the applicable contract price. In the context of LNG, the take or pay obligation may be expressed on a cargo-by-cargo basis as the amount the buyer would have paid to the seller had the relevant quantity of LNG been delivered. This formulation is more commonly seen in short- and medium-term sale and purchase agreements.

The annual take or pay quantity may be expressed as a percentage of the ACQ or of the adjusted ACQ. In the case of a take or pay commitment that is based on an annual obligation, the ACQ may be adjusted with respect to a particular contract year to reflect gas or LNG not delivered by the seller and gas or LNG not taken by the buyer for specified reasons such as gas or LNG which the seller was unable to deliver or the buyer was unable to take delivery of for reasons of *force majeure*, or carry forward where the buyer has taken quantities in excess of the requirements for the

preceding year. The manner in which the take or pay calculation is expressed should be carefully reviewed so that the extent of the buyer's take or pay commitment may be accurately assessed by the parties. It will also be important to assess the other provisions of the sale and purchase agreement to ensure there is no double counting of remedies.

The take or pay commitment may be viewed as an alternative method of contractual performance by the buyer since some legal regimes could consider a take or pay obligation as unenforceable where it constitutes a penalty. For example, with respect to an agreement governed by English law, it will be important not to categorise a take or pay payment as a limit on the buyer's liability for a failure to take delivery of gas or LNG but instead as a reasonable pre-estimate of the losses the seller would probably suffer following breach by the buyer.

It is crucial for the take or pay commitment to be considered in the context of the contract price since that will determine the extent of the buyer's take or pay liability. Short-term sale and purchase agreements will allow the parties to assess the gas or LNG market and provide for a take or pay obligation which is commercially acceptable to both parties. Such a formulation has proved more difficult in the context of long-term sale and purchase agreements where the buyer's commitment may become unsustainable when compared with other opportunities in the market for gas and LNG sales. This led to forced renegotiation in some markets where gas demand dropped as a result of deregulation, and an increase in gas supply introducing more competitive pricing and resulting in buyers being unable to meet high take or pay commitments. Rather than relying on a claim for breach of contract in such circumstances, some sale and purchase agreements contain price review provisions in order to take into account potential economic hardship and the impact that a changing market may have on the economics of the sale and purchase agreement.

2.15 **Make-up and carry forward**

During the course of a contract year the buyer may take delivery of more gas or LNG or less gas or LNG than its required take or pay commitment for that contract year. In the event that the buyer takes less gas or LNG than its contractual commitment, a make-up mechanism may apply such that the buyer will be credited with make-up rights to take such quantity in the following contract year. Similarly, if the buyer takes more gas or LNG than its contractual commitment, a carry forward mechanism may apply such that the buyer will receive a credit to reduce its take or pay commitment for the following contract year. The buyer will consider these rights as essential for managing its take or pay commitments both at a commercial and operational level.

(a) **Make-up**

The right of make-up reflects the fact it might be considered as unfair if the seller receives a take or pay payment from the buyer and also has the right to keep the gas or LNG that it was otherwise prepared to deliver to the buyer. Therefore the parties may agree that the take or pay payment made by buyer for a contract year will be

credited to a 'make-up account'. In the following contract year, once the buyer has taken a quantity of gas or LNG which satisfies its annual take or pay commitment, the buyer may take an additional quantity of gas or LNG up to the quantity in the make-up account.

The take or pay payment is essentially considered to be a pre-payment for the gas or LNG such that no further payment is due from the buyer to the seller at the time of delivery. However, since it is possible that gas or LNG prices may have changed between the time at which the buyer made payment and the time at which the gas or LNG is delivered, the parties may seek to include additional provisions in the sale and purchase agreement. For example, the seller may request the buyer to pay the difference between the amount paid by the buyer as a take or pay payment and the value of the make-up gas or LNG at the time of delivery.

With respect to LNG, if there is an annual take or pay commitment then the sale and purchase agreement may contain provisions for the annual programme to be set or modified so that the lifting of any make-up LNG can be carried out.

The parties may agree that to the extent make-up gas or LNG has not been recovered by the end of the sale and purchase agreement the buyer loses its entitlements, the sale and purchase agreement is extended in order to enable the buyer to recover those entitlements, the buyer receives a cash out payment from the seller or the seller delivers to the buyer alternative quantities of gas or LNG as compensation for the unrecovered entitlements. The buyer will be required to exercise its make-up entitlements within certain limitations, for example, within a defined time from when the rights first accrued or within a defined percentage of the ACQ for any contract year.

(b) Carry forward

The right of carry forward may apply to the extent that the buyer has taken delivery of and paid for a quantity of gas or LNG which is in excess of its annual take or pay commitment, meaning that the buyer receives a credit for such excess quantity of gas or LNG which will be carried forward to reduce the buyer's take or pay commitment for the following contract year. Typically the carry forward rights will be limited to a defined percentage of the ACQ, for example, in order to prevent the buyer being able to take twice the amount of gas or LNG in one year and have a zero obligation in the following year.

The relationship between make-up, carry forward and other quantities of gas or LNG will need to be carefully considered. There is an unavoidable overlap which the sale and purchase agreement will need to address, for example, if the buyer is taking make-up entitlements, the quantity of gas or LNG taken by the buyer in excess of the annual take or pay quantity should not also be capable of classification as carry forward. Another situation to be addressed is where the seller fails to deliver gas or LNG when the buyer is recovering make-up. While the seller may argue that it should not constitute shortfall because the quantity of undelivered gas remains in the buyer's make-up account, there may be restrictions upon buyer's ability to recover make-up gas and the buyer may have suffered loss as a result of seller's failure to make the gas or LNG available.

2.16 Pricing

The sale and purchase agreement will contain a mechanism to determine the price at which the buyer agrees to purchase gas or LNG delivered by the seller. The price will be fundamental in establishing the relationship between the parties and influencing the other commercial terms which may be negotiated and agreed in the sale and purchase agreement. Generally, pricing will be negotiated within the context of each sale and purchase agreement since there is no generally recognised international trading price for gas or LNG (unlike oil), although certain local markets may have a trading price which can be used as a reference point.

The long-term sustainability of the sale and purchase agreement will depend upon the pricing, which will influence other key economic terms including excess gas or LNG and shortfall. In the context of a long-term sale and purchase agreement pricing will be fundamental. In short-term arrangements or spot trades the parties will be better placed to manage the impacts of pricing since it will apply for a limited period of time.

In general, the seller will seek to recover the costs of building the necessary infrastructure, its operating costs and an element of profit and the buyer will seek competitively priced gas or LNG. However, many factors need to be taken into account specific to the circumstances of the seller and the buyer and the market into which the gas or LNG is being sold.

For short-term or spot trades the parties will generally agree upon a fixed price and for longer-term transactions they may fix a base price which will be adjusted over time based on the fluctuation of a nominated index. Often the parties will elect to set the price by reference to an index and each will have their own views as to which indices should apply. Such indices need to be published and clearly defined (and the parties may be required to agree upon a replacement index in the event the specified index ceases to exist). The sale and purchase agreement will need to establish the price adjustment mechanism and the frequency with which adjustments will be carried out, typically annually. Although the price adjustment mechanism provides flexibility in response to movements in the market, it may also be necessary to set forth certain limitations in order to preserve an element of price predictability. The price adjustment mechanism could specify a point beyond which the price cannot fall (a floor) and a point beyond which the price cannot rise (a ceiling). Such a formulation will protect the seller by guaranteeing a minimum return and also protect the buyer against high price escalation.

The price adjustment mechanism aims to align the pricing of the sale and purchase agreement with movements in the market. However, more significant changes may render the adjustment mechanics inadequate to cope, resulting in the sale and purchase agreement becoming uneconomic. The parties may therefore seek to include a hardship provision or a price review clause in the sale and purchase agreement.

A hardship provision will require the parties to meet and discuss revisions to the price to the extent that a movement in the market has resulted in undue and unforeseen hardship to the buyer or the seller (it is advisable for the parties to define what constitutes hardship).

A price review provision will provide that the price will be subject to review on a periodic basis or upon the request of a party to the extent that it can show that the price is no longer appropriate based on the prevailing market conditions.

Each such mechanism may contemplate good faith negotiations between the parties or may set forth a prescribed formula to determine what the price revisions should be. It is likely that the sale and purchase agreement will provide for the matter to be referred to an expert for determination in the event that the parties are unable to agree upon what the new price should be. There will also be rules governing the period in respect of which a revised price should apply, the frequency of any further price revisions and excluded matters, such as modified prices imposed by the state.

All of the above must also be considered in the context of the relevant jurisdiction in which the gas or LNG is being sold. Price regulation imposed by the government may overrule the price negotiated by the parties under the sale and purchase agreement and prescribed revisions thereto.

While such provisions may provide the parties with some comfort, it is an area which often culminates in dispute.

3. Conclusion

The principles governing the sale and purchase of gas and LNG in an international context may serve as an illustration of the ways in which parties have sought to balance the interests of buyers and sellers. Nevertheless, the exploration, production and commercialisation of gas in Brazil is subject to an extensive and complex legal and regulatory framework. The exploitation of Brazil's potential reserves, and the production of gas for supply into the local market or for export, present a number of challenges including those relating to third party access to infrastructure and the significant investment required to expand the country's gas transportation and processing facilities and its gas distribution network.