

# CHAPTER 6 – [www.eisourcebook.org](http://www.eisourcebook.org)

## 6.2 Organization by Contract

A major driver behind sector organization is the need for arrangements to be made by contract *after* the grant of rights by the host government agreement to the investor(s). Usually, there is much focus on the kind of agreement to be negotiated between the host state and the investor but once that is in place, there are a host of second-order contractual arrangements that need to be built upon this foundation. These rely on decades of evolving industry practices. In this stage of extractives' activities the host state will still have an important monitoring role and will often be present as a participant. *Typically, it will either become a party to contracts largely driven by industry practices or it will have a need to understand them in order to perform its oversight role.* In effect, these are second-order arrangements will supplement and elaborate on the governance of the sector following the grant of rights in the basic host government agreement.

CEPMLP

6.2.1

### Hydrocarbons: the Main Contracts

Centre for Energy, Petroleum and Mineral Law and Policy

Many EI projects are carried out within the framework of a joint venture structure. This can spread risks in high-cost projects, and may be attractive for a variety of reasons, not least if there is an exploration risk amid uncertain geology. Irrespective of the form of the HGA, there is likely to be a joint venture structure underlying it. It is common for the state or its agent to be a party to such arrangements, often as a sleeping partner in the initial stages. For governments this can provide a useful source of information about the progress of a project in addition to any reporting requirements that are based on the contract between the host government and the foreign investors. It can also function as a way of building specialist capacity within the state sector. Indeed, in some cases the contract may be made by the foreign investors and a state company, acting on the government's behalf.

Commercial structures tend to show some differences between petroleum and mining sectors. Unincorporated joint ventures have been more common in oil and gas projects for reasons rooted in tax, financing and technology, with capital separately provided by the partners and production shared. These structures have been much less common in mining, with major companies owning majority stakes in locally incorporated vehicles.

The principal mechanism for the management of joint operations in the petroleum industry is the **Joint Operating Agreement**, which is discussed below. The Joint Operating Agreement or JOA is the typical legal mechanism by which several parties pool their resources to engage in a petroleum project. It assumes an agreement between the parties and the host state such as a production sharing agreement, or concession, and cannot exist without such an agreement. Whereas that agreement will set out the rights and obligations of the parties vis-à-vis the host government, the JOA will set out the rights and obligations of the parties among themselves. It will **not** establish a partnership in the legal sense. It is an **unincorporated joint venture** structure that is typically used. An early draft version of it is often seen as a **Joint Bidding Agreement** (see **Chapter 5**).

The importance of the JOA also lies in its being a starting point for further essential agreements concerning the business of oil and gas production, processing, sales and transportation, and for other agreements that may be concluded among the parties concerning assignment, unit development and decommissioning. If, for example, one or more of the parties elects to transfer its interest in the joint venture or even to sell it off entirely, a separate agreement, called a **Farm-out Agreement**, will normally be used for this purpose. Such transactions are very common in the international oil and gas industry. Similarly, the cooperation among parties to a joint venture may be developed further if petroleum deposits are found that appear to extend from one contract area to another. This will normally require the conclusion of a **Unitization Agreement**. Each of these three agreements is examined below. Another, important form of agreement that is commonly used in current industry practice concerns decommissioning (see **Chapter 9**).

## The Joint Operating Agreement

The union of diverse parties that a Joint Operating Agreement (JOA)<sup>1</sup> entails is analogous to the kind of alliance formed by a marriage, although their number may well be significantly more than two. They come together by mutual consent and bind themselves legally for richer, for poorer and for better or for worse<sup>2</sup>. The JOA is designed to last for the life of the project, which may be as much as 30 years, and the parties will remain together unless termination, withdrawal, assignment or default occur. Unlike most marriages, the parties write down the rules of conduct which they will be subject to. Therefore, the JOA will provide the framework and the

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<sup>1</sup> For a comprehensive survey of this subject see P Roberts, *Joint Operating Agreements: A Practical Guide* (2<sup>nd</sup> edn., 2012) Globe Business, London.

<sup>2</sup> The analogy was used by Sandy Shaw, a leading oil and gas lawyer, in 'Joint Operating Agreements', *Upstream Oil and Gas Agreements* (ed. Martyn R David) (1996), Sweet & Maxwell, London, pp.13-31.

detailed rules on which the joint venture will operate throughout this joint relationship. It will be in constant use by the parties during the operations, including their technical, financial, legal and operational teams, so it needs to be carefully negotiated at the outset. It will usually apply only to a single government concession or contract. *Given its key role and the overall asymmetry of information between host government and foreign or non-state companies, the absence of the government or its state company from a JOA means it will be at a serious disadvantage in the flow of day-to-day information about a field.*

**Relationship to the host government agreement (HGA).** The concession or contract sets out the *vertical* relationship between the government and the consortium of investors. In a PSC the investors are usually referred to simply as ‘Contractor’. The JOA itself sets out the *horizontal* relationship among the parties in that consortium in which they share out the rights and liabilities arising under the HGA. The two agreements are inseparable. Four features of the JOA are particularly relevant to the host government:

1. The work obligations in the HGA relating to exploration and appraisal wells to be drilled need to be carried out by the joint venture parties and the JOA has to reflect this paramount consideration. Further work, such as development and production activities, will usually require government consent.
2. The operator of the JOA will become the spokesman of the consortium and main point of contact with the government. It needs to be comfortable with this and confident that the choice is compatible with performance of the work under the HGA.
3. The physical area set out in the HGA will set limits on the scope of the JOA, and the rights the parties enjoy over it.
4. The duration of the HGA will set limits on the JOA not least if it makes distinctions between specific phases of activity or requires more than one form of authorization for a defined series of activities.

The HGA will typically provide that the various parties in the consortium are jointly and severally liable to the government for performance of the terms of the HGA. A failure by one or more of the parties to fulfil its responsibilities under the HGA could result in the government enforcing the terms of the HGA against the other parties.

**Contents of a JOA.** The JOA will not constrain the government but as a matter of priority it will be designed to reallocate among the parties the joint and several liability imposed in the HGA so that their liability is shared out according to the predetermined interests of each of the parties. This will determine each party’s ownership interest and benefits, and its liability to costs, expenses and risk, as well as its right to vote in relation to the management of the joint operations. The sharing

of liabilities works between the parties and not against the host government in the grant of rights made through the HGA (although sometimes the government may insist upon approval of the JOA). It will be supported by indemnities which will ensure the parties undertake to indemnify and hold harmless each other for claims, liabilities and so on, up to their percentage share.

In the interests of efficiency, the parties will appoint an Operator to run the joint venture on their behalf, with three main tasks: to carry out the joint operations; to represent the joint venture to the host government and third parties; and to manage the group's internal affairs such as chairing meetings and providing accounts. The operator does this on a no loss-no gain basis. As the agent for the other parties, the Operator is normally regarded as having a fiduciary duty towards them. What that means and what happens if it is breached are guided by the notion of what a 'reasonable and prudent operator' would do in similar circumstances, a standard that is provided in the JOA.

Control over the operations (and the Operator) will be exercised by means of an Operating Committee in which each of the parties are represented and which controls the direction of operations by means of 'passmark' voting (the aggregate percentage interest required to agree a proposal). These passmarks will differ according to the phase of operations and voting practices are likely to vary from one JOA to another.

A Norwegian JOA would typically state that the passmark required for approval is a bare majority:

“[A] management committee resolution is adopted and binding upon the joint venture when one or more members representing more than 50% of the participating interests have voted in favour of the proposal.”

A decision such as the relinquishment of an HGA or dismissal of the Operator would normally require a higher passmark than many other decisions. Another way the JOA can control operations is to impose controls on expenditure: all joint operations are funded from a Joint Account (with its workings set out in an Accounting Procedure which forms part of the JOA) into which the parties are liable to pay their respective percentage interest share. Procedures are established to agree programmes and budgets and this is a key area of importance to the parties for control of operations (and the Operator) and their exposure to costs. The Operating Committee will have the right to make Authorizations for Expenditure (AFE) within the budget over a certain amount. *The Operator's requirement to keep the Operating Committee fully informed underlines the value to the host government of a state body presence on this Committee.* There will also be procedures for contracting for certain types of

work (competitive tendering requirements, restrictions on use of Operator's affiliates, and so on) which are relevant to a local content policy, if one exists.

Other provisions will protect the parties' interests by providing for insurance, such as is required by law and such as is desired by the parties; litigation, and sole risk, which allows some parties to proceed with a proposal (drilling, appraisal or development) which does not meet with majority approval. The JOA will not usually address joint sales of production which is left to individual participants to arrange, nor will it address any use of infrastructure facilities such as terminals. However, the right to lift a share of production will also be matched with an obligation to do so, since the commercial, financial and technical aspects of a failure to do so would seriously impact upon the other parties to the JOA. There will also be provisions in the JOA on access to, and sharing of, data gathered in JOA operations and on force majeure.

The JOA will not usually contain more than an outline reference to decommissioning (see **Chapter 9**). Its main goal will be to assert that the parties remain responsible for their percentage interest share of decommissioning costs.

It is important to appreciate that over time the standard approach to even these typical JOA clauses will be modified to take account of new developments. An example is the Gulf of Mexico oil spill disaster and subsequent litigation, which is likely to impact on clauses dealing with the allocation of liability and insurance. In particular, this will involve a review of the common use of 'wilful misconduct' in a JOA to apply to intentional or reckless acts and the degree of foresight it requires, and the inclusion of 'gross negligence'. Other clauses may be adapted if the oil and gas subject matter is unconventional (like shale oil or gas) rather than conventional. The possible spread of shale gas operations outside the USA should lead to such adaptations.

**Ending the JOA Relationship.** The JOA parties may separate in one of three ways: (1) due to fault or default; (2) they may agree to separate by mutual consent; or (3) a party may choose to transfer its interest. Default may arise as a result of a failure by a party to pay its percentage interest share of cash calls within the time set for payment. Parties in default will normally lose their rights under the JOA and ultimately may lose their interest; non-defaulting parties will have to pay pro rata the amounts that are outstanding and may ultimately acquire the defaulting party's interest. Defaults could arise in connection with *decommissioning* obligations if a part sought to escape this liability, and the JOA should provide for this (but see the section below on decommissioning agreements). It may also arise in connection with liability for significant environmental damage.

If a party wishes to leave the JOA by transferring its interests by means of a sale, a swap or some other mechanism, consent by the host government is normal practice but, in addition, the JOA will include provisions on rights to, and limitations on, assignment. The main idea will be to balance the assigning party's freedom to sell what is, after all, an asset to a third party with the protection of the other parties as a joint venture group. The content of such assignment agreements is dealt with below under **Farm-Outs**. Among the typical provisions in a JOA about assignment limitations are: it must be an undivided interest that is assigned (the obligations corresponding to the rights have to be transferred as well as the rights); the other parties' consent is required before a transfer can take place, although this must be 'reasonable', and may well not apply if the transfer is to an affiliate; the other parties may limit transfers of interests in the JOA by including rights of pre-emption. The latter may vary from rights of first refusal (a fairly soft protection for the JOA parties) to the kind of pre-emption clause that allows a party to the JOA to acquire the interest on the same terms as those that have been negotiated with a third party. This can be complicated if the prospective purchasers have structured their proposal to include a combination of cash and other assets in the price.

**Model JOAs.** The origins of the JOA lie in practices of an oddly named body, the American Association of Petroleum Landmen. The rather simple approach they adopted within the US was not appropriate to the challenges of international petroleum operations, and more complex JOAs emerged. Attempts to develop a model JOA for international practice have emerged from the AIPN, which has produced successive models, the most recent being in 2012. The aim of these models is to reduce the time spent in drafting a JOA and in negotiating its content. In practice, there will still be plenty of scope for negotiation, even if the parties are able to commence with one of these industry-accepted models or a hybrid approach that combines provisions from one than one model form JOA. Importantly, any such model will have to be adapted to fit the terms of the HGA in a particular case, as well as the circumstances of the JOA parties and the project itself. Other examples of model JOAs are those ones provided by Oil & Gas UK (2009), which was intended to reflect common UKCS industry practice at the time, the Norwegian Petroleum Directorate (available in Norwegian only), the Rocky Mountain Mineral Law Foundation, the Canadian Association of Petroleum Landmen and the AAPL. While there have been others, those issued by the above bodies are the models which have been updated from time to time.

## The Farm-Out Agreement

If parties to a HGA subsequently decide that other parties should be invited into the HGA to spread the risk or share expenses, they will seek to conclude a 'farm-out' agreement (see **Chapter 5.5.3** under 'Assignment'). This kind of agreement, driven by geology or economics, is largely unique to the upstream petroleum industry, and usually applies to assets in the exploration or pre-development stages of activity. The terminology has its roots in US petroleum practice, and prior to that in agriculture. For governments the key issue will be approval of the transaction. Requirements about this are likely to be included in the HGA and JOA and are key to allowing these transactions to go forward. Another condition might be to carry out an environmental impact assessment of the contract area.

This is an agreement to assign a share of one party's participating interest in an HGA and possibly in the JOA to another party. It is not a separate form of petroleum agreement. The buyer will pay an agreed share of the defined work program costs and a 'carry' or 'promote' which means a contribution by the party farming in to the share of the work program costs, which may include reimbursement for historical expenditure and pre-payment of future budgeted expenditure. This is often cost recoverable in the HGA and is capped. In effect, the Farm-out Agreement is a Sale and Purchase Agreement, and its provisions are similar to that sort of agreement. Its aim is to allow a party to reduce its equity in a particular project and limit its responsibility for a share of the costs which it would be liable for or works it would be liable to carry out. It allows the party to retain an interest in the overall HGA. Usually, it occurs in the pre-production stage so that the party farming in will be making a modest upfront investment for a potentially large return. These transactions may well be based upon model form agreements such as those drawn up by the AIPN in its International Model Farm-out Agreement<sup>3</sup>, or the Canadian or American Landmen Associations.

In Norway the approach taken to such transactions was for many years a restrictive one. The standard JOA declared that "a party has no right to carry out an assignment... until the obligatory work program... has been carried out". Not only was government approval of the proposed transaction required, but the State had 40 days in which to exercise the option to purchase and take over the interest on offer. This pre-emptive right was in fact exercised by the state company, Statoil, until the 1990s.

There are other ways in which upstream assets can be bought and sold. A transaction may take the form of a share sale (the buyer purchases shares in the

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<sup>3</sup> <http://www.aipn.org> (last accessed 28 March 2016)

entity that owns the upstream asset) or an asset swap (one transfer being a consideration for the other). A key feature of all such transactions will be due diligence to identify and quantify the risks associated with the sale. It will also seek to verify the value of the upstream asset and identify the protections required by the parties to the sale. An important feature of all such transactions will be liability for decommissioning of assets since the parties owning the asset will be jointly liable for this.

## Unitization Agreements

The impact of geology on the demarcation of space for authorized petroleum operations has been a source of problems since the earliest origins of the industry. An oil or gas field may extend across several licensed areas held by different groups of companies. Each licensed company or group may proceed to develop the share of the resource under its area independently unless there are specific rules in place that require cooperation. This situation gave rise to the so-called Rule of Capture in the USA more than a hundred years ago (see **Box 6.10**). Essentially, it allowed the party that extracted petroleum from his portion of the sub-surface field to claim ownership of the petroleum without being liable to account to the contract holders or lessees in any adjacent areas. By using directional drilling a company could extract hydrocarbons horizontally from the subsoil of a neighbouring area without consent. As Professor Daintith states, it is “the principle of property law that gives ownership of an unowned object to the person who first reduces it to possession”.<sup>4</sup>

Unitization is a response to this problem and the potential waste of hydrocarbon resources that unregulated development threatens. It is a program for the development and production of petroleum from a deposit or deposits that aggregates several concession areas (or parts of them) into a single unit, in which all of the parties will take a percentage interest. It is commonly thought to be a more efficient way of developing the deposit, preserving its unity, and limiting damage to the geological structure, which may otherwise reduce the recoverable reserves of petroleum.

Outside of the USA, ownership structures typically vest property rights in the State. For the most part, this is true also for maritime areas, where states have rights to sub-surface minerals in their exclusive economic zones and continental shelf areas. However, the Rule of Capture concept has been influential, nonetheless, in

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<sup>4</sup> Terence C. Daintith, *Finders Keepers: How the Law of Capture Shaped the World Oil Industry* (2010), RRF/Earthscan, Washington DC/London, p.4.

persuading states that measures are necessary to include in their hydrocarbons regimes that effectively allow them to require parties to unitize in the event of a failure to reach a voluntary agreement. Such measures are typically found in all petroleum regimes where the petroleum resources are publicly owned. A legal requirement to conclude a unitization agreement in certain circumstances will usually be found in the petroleum law, but also in regulations and in the petroleum agreement itself. Examples of this are:

**Angola (Production Sharing Agreement, 1997):**

Art. 27(1): “In the event of there being petroleum deposits, capable of commercially viable development which extends beyond the contract area, and where other entities have agreements for the exploration and production of petroleum with a similar unitization provision, SONANGOL may... require that the petroleum in those deposits should be developed and produced in mutual co-operation.”

**Somalia (Petroleum Law, 2008, providing for the Unitization Agreement):**

“Art 32.1 If and when a Reservoir is discovered to lie partly within a Contract Area, and partly in another Contract Area:

32.1.1.1 the SPA (Somali Petroleum Authority) may require by written notice the Contractors to enter into a unitization agreement with each other for the purpose of securing the more effective and optimized production of Petroleum from the Reservoir, and

32.1.1.2 If no agreement has been reached within a period of eighteen (18) months from receipt of written notice as required in Section 32.1.1.1, the SPA shall decide on the unitization agreement.

32.1.2 If and when a Reservoir is discovered to lie partly within a Contract Area and partly in an area that is not the subject of a Petroleum Agreement:

32.1.2.1 the SPA may require by written notice the Contractor to enter into a unitization agreement with the SPA of the purpose of securing the more effective and optimized production of Petroleum from the Reservoir; and

32.1.2.2 If no agreement has been reached within a period of eighteen (18) months from receipt of written notice as required in Section 32.1.2.1, the PSA shall decide on the unitization agreement, unless otherwise provided in the Production Sharing Agreement.

32.2 Without limiting the matters to be dealt with, the unitization agreement shall define the amount of Petroleum in each area covered by the unitization agreement, and shall appoint the Operator responsible for production of the Petroleum covered by the unitization agreement”.

**United Kingdom (Petroleum Licensing Regulations, 2008):**

Clause 27 (1): “If at any time at which this licence is in force the Minister shall be satisfied that the strata in the Licensed Area or any part thereof form part of a single geological Petroleum structure or Petroleum field... other parts whereof are formed by strata in areas in respect of which other licences granted in pursuance of the Act are then in force and the Minister shall consider that it is in the national interest in order to secure the maximum ultimate recovery of Petroleum and in order to avoid unnecessary competitive drilling that the Oil Field should be worked and developed as a unit in cooperation by all persons including the Licensee whose licences extend to or include any part thereof the following provisions of this clause shall apply”.

**Content of the Agreement** A unitization or unit operating agreement will involve the various companies holding concessions to proceed to aggregate the management of the various JOAs, and appoint a unit operator to act on behalf of all of the parties in the unitized area. These two elements of the agreement (the combining of various interests in a unit and the operation of that unit) are distinct but normally managed within the framework of a single agreement. Given the time it usually takes to negotiate a unitization agreement, the parties sometimes agree to a pre-unitization agreement to allow initial evaluation work to commence. What the parties discover during this process (such as geological and reservoir engineering studies) may lead to a different allocation of interests in the final agreement. The effect of this agreement will be to overlie, but not to replace, the various JOAs: they will remain in operation. However, in its content it will resemble a JOA. The provisions on calculation and sharing of the reserves between the contract holders to the various blocks in which the field lies will be found in a unitization agreement but not in a typical JOA.

Among the provisions in a Unitization Agreement, several are worth noting here. The parties to the agreement will determine their respective participations in the unit area underlying the licence or contract (granted by the host government), and describe their portion of the field area covered by their concession as a *tract*. This is a key element in any Unitization Agreement since the parties will strive to ensure that the group of which they are a part has the largest tract participation and so the largest percentage share of the resulting production from the unit. Determination of the tracts will involve some estimation of the petroleum reserves, based on data that is sketchy. It is, therefore, necessary to provide for redetermination at a later

date. This can be an expensive and time-consuming activity, with disputes resulting from different assessments of the technical data, and the prospective reallocation of costs and production among the parties<sup>5</sup>. Referral to an expert in the event of a dispute is a common procedure; in practice, this is usually a company with the necessary resources and expertise to carry out highly technical work, rather than an individual. The expert is not usually appointed to act as an arbitrator, even though the role is similar since he is being asked to decide the respective merits of competing claims once a dispute has arisen. In a redetermination, the expert may be called in at various stages and not necessarily at the end.

It is important to appreciate that conclusion of a Unitization Agreement is not the only way in which a commercial arrangement may be reached that respects the unity of the deposit and keeps the host government happy with the outcome. One of the parties may, for example, purchase the adjoining block or contract area or an assignment may be made so that each group of JOA parties takes a matching interest in the other JOA group's licence. If the adjoining area is not under contract, an application may be submitted for all, or part, of the adjacent contract area.

**Models** The various terms of a Unitization Agreement are the subject of a model form published by the AIPN, based on two PSCs ([www.aipn.org](http://www.aipn.org)). Other models have been published by the Petroleum Joint Venture Association of Canada ([www.pjva.com](http://www.pjva.com)), the American Petroleum Institute ([www.api.org](http://www.api.org)) and the Rocky Mountain Mineral Law Foundation ([www.rmmlf.org](http://www.rmmlf.org)).<sup>6</sup>

**Cross-Border Units** Unitizations can cross international boundaries. In such cases, where boundaries are already established, the first step to securing investment in petroleum activity is the conclusion of a bilateral treaty between the relevant states, such as those between the United States and Mexico, Venezuela and Trinidad and Tobago, and the United Kingdom and Norway<sup>7</sup>. On this basis, unitizations can be organized across borders by the relevant companies with mechanisms for sharing the revenues between the parties<sup>8</sup>.

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<sup>5</sup> For a review of redeterminations in cross-border cases in the North Sea, see PD Cameron, *The Rules of Engagement: Developing Cross-border Petroleum Deposits in the North Sea and the Caribbean*, 55 *International & Comparative Law Quarterly* (2006) 559-586.

<sup>6</sup> Websites last accessed 28 March 2016.

<sup>7</sup> US-Mexico Transboundary Hydrocarbons Agreement (2012); Unitization Agreement for the Exploitation and Development of Hydrocarbons Reservoirs of the Loran-Manatee Field that extends across the Delimitation Line between the Republic of Trinidad and Tobago and the Bolivarian Republic of Venezuela (2010); Framework Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the Kingdom of Norway Concerning Cross-Boundary Petroleum Co-operation (2005).

<sup>8</sup> The issues are extensively discussed by D Asmus and J L Weaver, 'Unitizing Oil and Gas Fields around the World: A Comparative Analysis of National Laws and Private Contracts', 28 *Houston J of International Law* (2006); see also Cameron (2006).

### Box 6.10: The Rule of Capture

The conventional view of unilateral state action to develop a hydrocarbons deposit is in terms of 'the rule of capture' which originated in the USA in the early 20<sup>th</sup> century. In that context, it seemed to allow a licensed company (a lessee) to extract as much of a straddling petroleum deposit as it was able to take from a neighbor's acreage; some court decisions held that petroleum had a 'wild' or *fugacious* character, and belonged to whoever could 'capture' it. This doctrine led to highly competitive drilling practices and was quickly seen as likely to lead to overproduction, excessive expenditure and wasteful exploitation of the deposit.

When offshore petroleum development began, many years later in the North Sea, the initial steps by States were taken in a context of considerable legal uncertainty. The relevant international law was in flux, with a new Convention on the law of the sea still at the negotiation stage, and the only known body of law on development of a common petroleum deposit was in the USA. The prevalence of US companies in the international petroleum industry meant that questions were raised about the possibility of such a rule of capture emerging in the North Sea jurisdictions. An important consideration in the design of the North Sea countries' oil and gas regimes at this time was to prohibit the kind of competitive drilling (and related waste of recoverable petroleum resources) that the US legal regime was thought to entail and allow. With respect to petroleum deposits which crossed national boundaries, the governments of the UK and Norway addressed this issue by first concluding an inter-governmental agreement and then reaching several pioneering bilateral agreements for the joint development of cross-border gas- and oilfields on the North Sea continental shelf.

These proved time-consuming to negotiate, although that did not prevent the relevant companies from commencing development and production. They were superseded by a framework agreement between the Governments of Norway and the UK in 2005 which was designed to facilitate cross-border cooperation in unitization. In the USA, however, the *Coastal Oil* case (2008) which involved extraction by means of the technique of fracking, showed that the Rule of Capture is still influential in the US courts.

### Box 6.11: Unitization in maritime waters

Innovation in technique and growing knowledge of EI potential has increased interest in maritime areas. Beyond national land and territorial sea areas, international law plays the key role. The UN Law of the Sea Convention (UNCLOS) confers sovereign rights upon coastal States “for the purpose of exploring and exploiting, conserving and managing the natural resources”. A coastal State’s sovereign rights to explore the seabed and exploit its natural resources are treated as both inherent and exclusive in the continental shelf regime. This is stated clearly in Article 77(1) and (2) of UNCLOS. No-one may undertake activities of exploration or exploitation without the express consent of the coastal State. The exclusive nature of these rights prevents them from being lost to another State in the absence of any express agreement to the contrary. Their exclusive character is reaffirmed by Article 81 UNCLOS, which grants the coastal State the exclusive right to authorize and regulate drilling on the continental shelf for all purposes. They do not, therefore, depend upon occupation, either express or notional, or on any express proclamation by the coastal State. The rights cannot be lost through neglect.

Unitization can follow the conclusion of a bilateral treaty between the relevant states. Such treaties frequently include a mineral deposit clause such as the one below:

“If any single geological structure or petroleum field ... extends across the delimitation line and the part of such structure or field which is situated on one side of the delimitation line is exploitable, wholly or in part, from the other side of the said line, the Contracting Parties shall, after holding consultations, seek to reach agreement as to the manner in which the structure or field shall be most effectively exploited and the manner in which the costs and benefits arising from such exploitation shall be apportioned.”

These treaty arrangements are much easier to conclude if there is agreement between the states on the boundary between them. In many maritime areas this is not however the case. There are more than 200 maritime disputes ongoing around the world and more boundary disputes on-land, creating significant disincentives to investment in prospective oil and gas deposits. As a result, there have been efforts to develop joint development arrangements which are provisional with respect to the boundary dispute but which allow hydrocarbons activities to proceed. Examples of this are in the Joint Development Zone (JDZ) of Timor-Leste and Australia, and that between Nigeria and Sao Tome e Principe. The governance structure of JDZs differs from that of a unitized development usually in the following manner: in the JDZ, a Code is likely to be used with a separate hierarchy and a dedicated administration; in unitized development, there is likely to be a JOA, with allocation of jurisdiction to existing institutions, and material and procedural rules will govern supervised conduct.

## The Service Sector

The development of extractives raises issues of how a domestic industry might be stimulated which is driven by oil, gas or mining projects with a finite life. Domestic companies could supply goods, works and services to the operators of extractives activities and related infrastructure projects. Such operators could of course be NRCs, like Kazmunaigaz in Kazakhstan, or Petrobras in Brazil. In the near term, they could generate a significant boost to employment, and in the long term such spin-off activity offers potential for creating new industries with local, and perhaps regional, and even international, standing. This is the context in which debates about Local Content take place (see **Chapters 5 and 9**).

Governance of this ‘service’ sector has typically been left largely to the operator, but the growth of local content policies has brought it increasingly under the scrutiny of government bodies.

Service contracts are concluded between the **Operator** of a petroleum concession or contract and a contractor providing the services, works and goods required. They comprise diverse kinds of contract covering, for example, drilling services, seismic acquisition, construction and vessel services. Many of their provisions will be standard and so there are many model forms that are typically used in this sector. They will typically form the starting point in any contract negotiations. Some of these standard contracts will be ones that large internationally operating companies have developed ‘in-house’, while others will be ones that have been developed by industry associations such as the AIPN and the UK’s LOGIC offshore oil and gas industry body, and in the maritime services sector, the Baltic and International Maritime Council (BIMCO) Documentary Committee<sup>9</sup>.

The regulatory context in which such contracts are concluded will vary from one country to another and will be impacted by the system of general contract law applicable in the jurisdiction. Some regimes will be civil law based and some based on common law regimes. Islamic law can be expected to play a role in some regions.

It may be noted that service companies are sometimes able to share risk with NRCs and participate in a joint venture similar to the kind that an NRC might conclude with an international oil and gas company. They might charge a fee for drilling a well or take a small equity share of an exploration project.

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<sup>9</sup> Respectively, [www.aipn.org](http://www.aipn.org); [www.logic-oil.com](http://www.logic-oil.com); and [www.bimco.org](http://www.bimco.org) (websites last accessed 28 March 2016).

## Unconventional Oil and Gas

Greater knowledge is becoming available of how the specific characteristics of unconventional resources impact upon agreements that are typically used in the oil and gas sector. Relevant characteristics of unconventional resource operations include, for example, the fact that it requires the drilling of many small, short-lived wells and that the activities of exploration, appraisal and development will normally overlap. The timeframe for development is also likely to be considerably extended compared with conventional oil and gas projects.

The consequences of such specific features have been highlighted in a new model operating agreement developed by the AIPN<sup>10</sup>. The Unconventional Resources Operating Agreement (UROA) is the first operating agreement to cover joint operations in shale oil and gas, tight oil and gas, coal-bed methane, and other unconventional production methodologies involving wellbore operations. It is based on an existing model for conventional resources but takes into account evolving industry practices and issues that are unique to unconventional resources. These unique issues include: pilot projects, sub-area, multi-pad drilling and production and other aspects of horizontal drilling. As an alternative to using an entirely new operating agreement, the UROA includes provisions that would allow an adaptation of existing operating agreements to address the new issues arising from unconventional resources. They affect the standard provisions on the operating committee, work programs and budget, exclusive operations and disposition of production.

## Pipelines

Oil and gas pipeline networks have been described as “the arteries that bring energy supplies from wellhead to market”<sup>11</sup>. For land-locked countries an export pipeline to a sea port is likely to be of crucial significance for the monetization of its produced resources. For all countries, interruptions to flows of oil and gas can quickly bring about disruption along the energy chain. Since such networks often cross multiple national borders and jurisdictions, the legal and diplomatic complexities can be significant, involving international treaties, national laws and regulations, as well as a barrage of commercial contracts.

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<sup>10</sup> [www.aipn.org](http://www.aipn.org) (website last accessed 28 March 2016). The UROA includes Guidance Notes and takes into account differences between common law and civil law jurisdictions. The process of drafting the model involved more than 160 industry representatives from 26 countries across five continents.

<sup>11</sup> “From Wellhead to Market: Oil Pipeline Tariffs and Tariff Methodologies in Selected Energy Charter Member Countries”, January 2007: Energy Charter Secretariat.

A very large quantity of oil and natural gas is transported every day across international borders. For oil, this amounts to around 65 percent of production, usually by ship but also by pipeline, and by rail and road truck if volumes are small. For gas it amounts to around 31 percent of production, mainly by pipeline but also by LNG ship. *For a number of countries that have recently discovered extractive resources, the issues of transportation and transit take on a special significance as ones involving the transportation of the resource from a **land-locked** state and emerging hydrocarbons producer such as Uganda or the Congo to another with port facilities and LNG terminals*<sup>12</sup>.

In terms of sector organization, there are differences between oil and gas pipeline networks, between on-land and offshore pipeline networks and between main pipelines and gathering pipelines (which gathers the crude oil from multiple wells in a production field before initial processing and shipping), and between these and transit pipelines. The states involved can be suppliers including land-locked states, or consumer states or transit states. Yet, apart from operational aspects, oil and gas pipelines “look essentially the same, perform the same service, and obey the same laws of physics. They are installed in largely the same manner and face the same regulatory and social dilemmas”<sup>13</sup>. However, this does not mean that the terminology governing oil and gas pipelines is the same. It is not. There are also important differences, for example, between crude oil pipelines and refined products pipelines.

**Oil and Gas Pipelines** While natural gas transmission companies have the same customers as oil companies, they have – instead of refiners – local distribution companies and large volume customers. The former usually enjoy an exclusive right to serve a particular area. In contrast to natural gas, oil does not reach the end-user in the same form: it is transformed in refineries before it is suitable for consumption by its various customers.

*Continental Pipeline Networks* Some countries have land mass that has permitted or necessitated the construction of continental pipeline networks for oil and/or gas. Examples are the USA, Russia and Canada. The US has more than 2.43 million miles of pipelines carrying natural gas and hazardous liquids such as crude oil and refined products<sup>14</sup>. They are used to transport almost 70 percent of the crude oil and refined products that are transported in the USA. Of these networks the pipelines

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<sup>12</sup> There are 44 land-locked countries in the world and 10 of them are hydrocarbons producers or have reserves waiting to come into production: Bolivia, Chad, Uganda, Kazakhstan, Azerbaijan, Turkmenistan, Uzbekistan and the Republic of South Sudan are examples: see TJ Dimitroff, *Cross-border Oil and Gas Pipeline Risk and Sustainable Mitigations*, 7 J of World Energy Law and Business (2014), 287-339, at 295-298.

<sup>13</sup> Thomas O. Miesner and William L. Leffler, ‘Oil & Gas Pipelines in Non-Technical Language’, PennWell: Tulsa, 2006.

<sup>14</sup> A. Inkpen and MH Moffett, ‘The Global Oil and Gas Industry’, PennWell: Tulsa, 2011, p.403-4.

that transport gas comprise the largest part, connecting cities to neighbourhoods, and addressing the geographic imbalance between producers and consumers.

There are also pipelines that cross continents, such as the Mahgreb-Europe gas pipeline. This kind of project can be motivated by the goals of diversifying clients and minimizing transport costs. In the case of the Mahgreb-Europe pipeline project, a complex corporate structure was established with respect to the construction and operation of the pipeline. Legal title over the pipeline was vested in a company owned by the Moroccan State.

**Financing** Organizationally, pipelines are constructed using debt financing, and often on the basis of a consortium using project financing. They also usually involve consortia of organizations which include government bodies and development banks, such as the International Finance Corporation (IFC), The World Bank or a regional bank such as the European Bank for Reconstruction and Development (EBRD). These bodies may provide various kinds of support such as ensuring access to land or capital. An example of this is the Baku-Tbilisi-Ceyhan (BTC) pipeline for crude oil transport from Azerbaijan to Turkey across Georgia. The pipeline was financed using a very high level of debt via project financing and the consortium included the IFC and the EBRD.

**Pipeline Agreements** The contractual and commercial character of pipeline agreements is driven by some common principles. The pipeline networks are to be organized as low risk, low or moderate profit entities (with most of the profits to be generated at the field) with a regulated rate of return based on cost sharing. The positions of shippers and owners in the transportation system are to be balanced so as to reduce the conflict of interest between the parties involved. Within a single country the ownership models that result are essentially twofold. The first is a Joint Venture model, which has traditionally been preferred among international oil companies. The second is a joint stock company model (private, state owned or a mixture). In this model, the rights and obligations of the parties involved will be formalized through a Participants Agreement. As far as operation is concerned, this will usually be undertaken by the participants' own organization or contracted to third parties under an Operating or Service Agreement. In the BTC case, it is undertaken by one of the shareholders in the pipeline itself.

For transportation a commercial tariff will be set for the service rendered. This is distinct from a transit fee which is a charge assessed by a sovereign state. Typically, one of three transportation tariff models will be adopted for cost recovery:

- A throughput based tariff (the unit tariff will vary according to the throughput) so that a low throughput would lead to a high tariff and vice versa;
- A Fixed unit tariff (where the unit tariff is independent of the actual throughput);
- A combination of the above (the capital element of the tariff is fixed but the operating element will vary according to throughput; a rebate may be available if more volume is committed).

Transportation agreements are required to establish the rights and obligations of owners of a transportation system (the Transporter) and owners of the product to be transported (the Shippers). It will normally contain three kinds of clauses: technical, commercial and financial and legal. Only a few items in the second category are of importance<sup>15</sup>.

In one of the leading works on oil and gas agreements, the writers of the chapter on transportation agreements, Lucille De Silva and Justyna Bremen, state that the provisions dealing with transportation charges or the tariff “are of central importance in a transportation agreement”<sup>16</sup>. Under the sub-heading, ‘What would a transporter be expected to recover?’, the authors state<sup>17</sup>:

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- “The main elements that the transporter would expect to recover through the tariff can be summarized as follows:
  - o The pipeline capital costs (e.g. construction related) incurred mostly prior to the start date;
  - o The pipeline operating costs (and other variable costs, for example spares), incurred during the life of the transportation agreement; and
  - o An element of profit. This assumes that the transportation activity is a profit generating unit of its own, separate from the other segments of a particular project”<sup>18</sup>.

The actual tariff structure that may be adopted in a transportation agreement is however one that the authors recognize may be take several forms. If, for example, it is a cost recovery structure, the charges will be related to the actual costs and in

<sup>15</sup> Typically, the contents of a transportation agreement will include a description of the system; points of delivery and redelivery; operating conditions, quality requirements and control; measurements and allocation; delivery and transportation commitment; priority, curtailment and shut off; tariff, billing and reports; liens and warranty; termination; assignment; liabilities and insurance; force majeure and applicable law. In the appendices that accompany a typical agreement there will usually be a description of the structure and operation of the tariff calculation methodology and operations manual.

<sup>16</sup> Anthony Jennings (ed), *Oil and Gas Production Contracts* (1st edn, 2008, Sweet & Maxwell), 204.

<sup>17</sup> Ibid.

<sup>18</sup> Ibid.

particular the variable ones “incurred by the transporter during the term of the transportation agreement”. They continue: “The purpose of this structure is to pass through the risk of changes in these costs to the shipper”. They conclude: “Most importantly, the tariff should reflect the commercial arrangement reached between the parties”<sup>19</sup>.

The above remarks apply to pipeline transportation of oil and/or gas both **within** national frontiers and across borders. However, the commercial principles are likely to be the same for both. Their survey covers “the issues that need to be dealt with in a typical gas transportation agreement (GTA) or crude oil transportation agreement (COTA)”<sup>20</sup>. It is perhaps revealing that when referring to both of these agreements they use the common term of ‘transportation agreement’, suggesting that the commercial arrangements contain many more similarities than differences.

## Cross Borders, Transit and Land-locked States

There is no single legal model for pipeline ownership when more than one country is involved. The two most common models are for each state to own each section of the pipeline that is placed within its national frontiers: the ‘connected’ national pipelines model; alternatively, a pipeline project may be developed as a single unit: the integrated pipeline model. An example of the former is evident in the agreement between Turkey and Iraq on oil transportation:

“Each of the two States guarantees to operate, maintain, manage and finance, and to provide all requirements for the part of the system located within its own territory to transport Crude Oil through the pipeline across Iraqi and Turkish territories and to deliver into Ceyhan terminal on the Mediterranean shore”<sup>21</sup>.

The integrated pipeline model requires an inter-governmental treaty and agreements between the individual states and the pipeline company. The result is a mixture of international law, commercial contracts and domestic laws. The BTC pipeline is an example of this.

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<sup>19</sup> Ibid.

<sup>20</sup> Ibid, p.150.

<sup>21</sup> Crude Oil Pipeline Agreement dated 27 August 1973 between the Government of the Republic of Turkey and the Government of the Republic of Iraq, as amended 19 September 2010: Article 2. The South Stream gas pipeline project in SE Europe is the most recent example of this model: <http://www.south-stream-offshore.com>.

When a pipeline takes a commodity from Country A to Country B, but transits Country C in the process, it is to be expected that Country C may levy a fee on the carriage, either as compensation for providing a right-of-way or for services rendered such as protection or safety. There are no standard rules applicable to transit fees and they tend to be based on negotiation, once the principle of levying a fee has been accepted. Fees are usually the subject of pipeline agreements entered into between the countries concerned and the owners of the pipelines (which may involve the respective states or their enterprises), or in an inter-governmental treaty. International law plays no role in setting transit fees.

As cross-border pipelines become increasingly important for international trade, public international law is likely to play a growing role in constructing more harmonized and coherent legal regimes for cross-border pipeline construction and operation<sup>22</sup>. The kind of international treaties that are potentially relevant to a discussion of transit include: the Energy Charter Treaty (particularly Article 7 on Transit); the General Agreement on Trade and Tariffs 1947 and World Trade Agreement 1994, as well as the New York Convention on Transit Trade of Land-Locked States and the UN Law of the Sea Convention, which contains provisions for land-locked states in Articles 124-125, 127 and 129. Model Agreements for Cross-Border Pipelines have been developed to assist governments in their organization of frameworks for cross-border trade in oil and gas<sup>23</sup>. Important principles that emerge from these treaties are: freedom of transit, non-discrimination; non-interference for political or economic reasons; non-interruption; fair and reasonable tariffs; notification in the event of emergencies and mutual assistance.

Experience of international transit pipelines for oil and gas has not usually been happy. It has a very chequered history with frequent disruptions due to government-to-government disputes. This has been very evident in the Middle East and the former Soviet Union countries; the acrimonious results have been documented in some detail<sup>24</sup>. In part the source of dispute lies in the various kinds of transit system that a regulatory regime has to apply to. The kind of transit system that is purest, with no connection to the gas supply system in the transit country is rare. More likely, the transit pipeline will also be used to supply gas of the same origin to the

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<sup>22</sup> S Vinogradov and G Mete, 'Cross-Border Oil and Gas Pipelines in International Law', 56 *German Yearbook of International Law* (2013).

<sup>23</sup> Intergovernmental Pipeline Model Agreement and Host Government Pipeline Model Agreement are models developed within the framework of the Energy Charter Secretariat for respectively agreements between states and between individual states and project investors (2<sup>nd</sup> edn. 2008): [www.encharter.org/index.php?id=38](http://www.encharter.org/index.php?id=38).

<sup>24</sup> For example, P. Stevens, 'Transit Troubles: Pipelines, a source of Conflict', Chatham House: London, 2009; S Pirani, J Stern and K Yafimava, *The Russo-Ukrainian gas dispute of January 2009: a comprehensive assessment*, Oxford Institute of Energy Studies, 2009; S. Vinogradov, *Cross-Border Pipelines: Legal and Regulatory Regimes*, AIPN: [www.aipn.org](http://www.aipn.org) (last accessed 28 March 2016) 2001.

transit country itself. It may even be integrated into the domestic supply system and owned and operated by the main national transmission operator<sup>25</sup>.

## Environmental and Human Rights issues

Long-distance, cross-border pipelines usually involve significant environmental and social impacts, whether they are on-land or under-water. Proposals may well involve plans to construct near or through sensitive areas such as rain forest, protected habitats or the Arctic. This has led to a growing role for international regulation, both global and regional, in addition to the relevant national environmental legal framework. These norms can be legally binding but also can take the form of soft law obligations developed by industry associations and international financial institutions. They may impose restrictions on the choice of route or pipeline design. Among the many international conventions is the Espoo Convention on Environmental Impact Assessment in a Transboundary Context provides for extensive consultation procedures prior to the construction of large-diameter transmission pipelines, both on-land and off-shore.

Pipelines have become significantly safer as well as more efficient as a means of transporting oil and gas over long distances, crossing mountains, valleys and rivers or going undersea. However, spills and leaks do still occur, and much more commonly than is socially acceptable. Major efforts therefore go in to the design and execution of environmental and social impact assessments. Recent debates about the construction of a new North American pipeline, Keystone XL, from Canada to Nebraska in the USA, and about Arctic drilling and related pipeline infrastructure, have underlined the continuing sensitivity of this subject (See **Chapter 9**).

Pipelines can also raise human rights issues, as has been evident in the large cross-border projects, the Chad-Cameroon Pipeline and the BTC Pipeline<sup>26</sup>. To mitigate this, the UN Guiding Principles on Business and Human Rights set out an expectation that pipeline companies shall adopt policies that demonstrate that human rights are respected by them<sup>27</sup>. They are also expected to carry out a due diligence process, and ensure that processes are in place to enable a remediation of adverse impacts. A key contextual feature of these Principles is that they are to be applied even in circumstances where the domestic law of a jurisdiction in which the pipeline

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<sup>25</sup> For a discussion of transit systems and many case studies see: 'Bringing Gas to the Market: Gas Transit and Transmission Tariffs in Energy Charter Treaty Countries, Regulatory Aspects and Tariff Methodologies', Energy Charter Secretariat (2012), Brussels.

<sup>26</sup> See the discussion of these pipeline investments in P. Cameron, 'International Energy Investment Law: the Pursuit of Stability' (OUP, 2010), at respectively, pp. 398-401 and 402-407, and citations on these pages.

<sup>27</sup> Guiding Principle (4). See the discussion in Dimitroff (2014) and the Table at p.332.

company operates is silent on international requirements, or is not enforced or conflicts with those requirements<sup>28</sup>.

## 6.2.2 Natural Gas

Sector organization for gas development presents a government with very different challenges from oil. The two segments, upstream and downstream, are interconnected, comprising a chain of discrete links (the gas chain) with gas required in sufficient quantities along the chain. For a gas discovery to be commercial, it needs to be sold at a fair market price. Yet each of these two segments is, as Dr Leleuch notes, “covered by specific legal, regulatory, fiscal and contractual regimes as the costs, risks, economics and business models of each ... are not comparable”<sup>29</sup>. Once a government has provided for the award of rights to explore for and exploit gas, it therefore needs to consider the framework for activities *beyond* the field delivery point. These activities – downstream<sup>30</sup> from production – are essential for the monetization of gas resources. As the *Source Book* has emphasized, the close linkages between upstream and downstream mean that gas activities, in contrast to oil - require significant forward planning before investment can be made in the development of a gas industry, whether for domestic consumption or for export. Not only that, but the size of the investment is also very large indeed, and requires coordination among several investors. For a gas policy this means that it faces a challenge in encouraging timely investments in each segment of the supply chain, from the well-head to the projects on transmission and distribution.

In these circumstances, a government with significant proven gas deposits may decide to supplement its Petroleum Law with a dedicated Gas Law based on a distinct policy for the gas sector. Its focus is likely to be on encouraging the most efficient and economic utilization of the produced gas. The local context will be decisive here, since the policy will have to establish priorities between the various possible commercial uses of the gas in conjunction with the stakeholders such as upstream investors. These could be first the development of domestic gas demand, providing for exports and establishing a regulatory framework for gas including a gas regulator. The choice will be strongly influenced by whether the country is limited by its reserves or by its market for gas use. In Egypt, for example, priority was given to

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<sup>28</sup> Guiding Principles 23-24.

<sup>29</sup> Leleuch, Gas Guidance Note, p.13.

<sup>30</sup> It may be noted that in some countries the term ‘midstream’ is preferred, with ‘downstream’ limited to the distribution sector in such cases. ‘Downstream’ here means transportation and distribution up to the end user. It includes transmission pipeline networks and related facilities; storage facilities, and distribution facilities to transport the gas from the outlet of the transmission and storage systems up to the consumers and end-users of gas. It can also include LNG facilities.

the domestic uses of gas and the establishment of a national reserve to secure a long-term supply for local gas requirements, with additional sources of gas available for export if the reserves are identified. A similar approach was adopted in Canada and the USA, with a license requirement for gas export and delivery limited to circumstances in which it can be shown that sufficient gas resources exist to adequately cover the local demand in the long-term. Even a country with medium-sized gas reserves, like Cote d'Ivoire, decided to promote development to supply only the local markets, mainly for power generation<sup>31</sup>. By contrast, Qatar has a limited domestic market for its very considerable reserves of gas and priority was therefore set for exports after the supply of the country's limited needs.

Establishing these policy priorities will assist in organizing the timely construction of the necessary processing, transmission and distribution infrastructure facilities. However, even if a Gas Law is adopted as a result, *most of the connections between upstream and downstream will be established by contract law rather than by statute.*

## Gas Master Plan

Given the potential for using the discovery of large gas deposits as a vehicle for wider economic development for the country, more and more governments see it as a worthwhile exercise to develop and publish a distinct Gas Sector policy (or at the very least a Petroleum Policy that includes gas sector issues). In 2014 Mozambique approved just such a Natural Gas Master Plan, including a proposal to construct a pipeline from the location of the gas deposits to the capital, Maputo, which is the main centre of population<sup>32</sup>. A year earlier, its neighbour, Tanzania, published a Natural Gas Policy<sup>33</sup>. The overall aim of these East African initiatives is to maximize industrial benefits from the development of gas rather than to rely upon benefits from export revenues alone. To ensure that gas development achieved improvements in the quality of life for citizens while at the same time minimizing social and environmental impacts, the Mozambican Plan set five priorities:

- Growth in domestic public and private sector institutional competences;
- Growth in domestic industry and businesses, especially small and medium scale industries;

<sup>31</sup> For an examination of six countries' gas policies, see Leleuch, Gas Guidance, Appendix 5.

<sup>32</sup> For background on the Plan see ICF (2013): 'The Future of Natural Gas in Mozambique: Towards a Natural Gas Master Plan'. Final Report submitted to the World Bank and the Government of Mozambique: <http://www.ppiaf.org/sites/ppiaf.org/files/publication/Mozambique-Gas-Master-Plan-executive-summary.pdf> (last accessed 28 March 2016).

<sup>33</sup> The National Natural Gas Policy of Tanzania: [http://www.tanzania.go.tz/egov\\_uploads/documents/Natural\\_Gas\\_Policy\\_-\\_Approved\\_sw.pdf](http://www.tanzania.go.tz/egov_uploads/documents/Natural_Gas_Policy_-_Approved_sw.pdf) (last accessed 28 March 2016).

- Increased employment throughout the country, especially in the less-developed provinces;
- Infrastructure to support expanded economic activities (port and rail infrastructure, for example), especially in the less-developed provinces; and
- Expanded access to training and education.

Given the complexity of gas market development and the ambition of a growing number of gas producing countries for domestic benefits from resource development in addition to revenues, the experience of Mozambique with the Gas Master Plan (GMP) instrument may be instructive. Among the lessons which early experience has yielded are<sup>34</sup>:

- A GMP needs to focus on a strategic analysis of policies, institutions and regulations in the gas sector, rather than just technical details and specific build-out plans;
- GMP recommendations should contain a hierarchy of decisions so that the government can take specific decisions immediately and then carry out additional analyses over time to inform future decisions. The goal of a GMP should not be to define all decisions about the emerging gas sector, and the GMP should evolve over time according to actual circumstances;
- Government needs to actively plan for implementation of GMP decisions, early on in the planning process. It may need to seek additional resources for more detailed studies and to plan for policy and regulatory changes, which require legislative measures.
- The development of a GMP needs to include and have the active participation of key government ministries;
- Broader stakeholder groups need to be involved in the GMP development process to foster a consensus-building context.

## Legal and Regulatory Framework

Many countries in the developed and developing world have adopted Gas Laws. Examples include the Gas Code of 30 December 2002 in Cameroon; the Law on Electricity and Gas of 21 May of 1999 in Georgia, and in Latin America the Law on Gas of Brazil supplemented by its decree on application of 2010. Often there is an influence of US and UK gas laws, particularly on subjects such as the role of a gas

<sup>34</sup> L. Hurdeman, A. Chikkatur, L. Crook, 'Planning and Modeling under Uncertainty: Development of the Mozambique Natural Gas Master Plan': [http://www.usaee.org/usaee2014/submissions/OnlineProceedings/Chikkatur\\_ASEE\\_OnlineProceedings.pdf](http://www.usaee.org/usaee2014/submissions/OnlineProceedings/Chikkatur_ASEE_OnlineProceedings.pdf) (last visited 27 March 2016).

regulator; the regulatory framework for construction and use of transmission pipelines; storage facilities; distribution networks; supply and marketing activities; imports and exports of gas and gas pricing. There is therefore plenty of scope for drawing upon the experience and approaches of other countries in designing a legal framework. However, the scope of a particular Gas Law will depend very much on the specific circumstances, including known gas deposits and policies. In particular, it will be influenced by the priority given to the development of a domestic gas market and to domestic supply over exports.

In establishing an agency for the gas sector, some countries will experience capacity constraints. The solution to this is in most cases readily available. If there is an existing petroleum regulatory agency for upstream activities, its role can be expanded to include gas operations downstream. This was the solution adopted by Brazil pursuant to the Gas Law of 2009. The petroleum agency, ANP, was charged with promoting gas activities along the entire gas supply chain by targeted actions. In particular, this involved the promotion of new gas projects, facilitating third party access to existing gas infrastructure at fair tariffs and introducing a greater degree of transparency over domestic gas markets and use of infrastructure. To achieve the latter goal, ANP created a dedicated public web-based gas portal.

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**Example:** in the Cameroon Gas Code 2002 the downstream gas sector is regulated by the minister responsible for petroleum with the option of establishing a regulatory agency in future.

Gas transmission and distribution are subject to the grant of a concession awarded for a renewable period of 25 years on the conditions stated in a concession contract defining the rights and obligations of the transporter or distributor. The principles of pricing of services and gas provide for a cost of service plus reasonable return on equity approach. For activities such as processing, import, export and storage, a licence is required rather than a concession.

## The Main Gas Agreements

Long term contracts play a crucial role in providing the foundations for the sector after commercial deposits of gas have been found. These are not the only kinds of contract in use: shorter term contracts or spot sales are also in use, particularly in well-established regional markets such as Europe and the USA. While these have grown in recent years, long-term gas sales commitments remain fundamental, and are likely to remain so until regional and global gas markets become so fully liquid that long-term pricing mechanisms are no longer needed.

Generally, there are three main kinds of contract used in the international gas industry: (1) gas sales and purchase contracts; (2) gas transportation contracts and (3) gas balancing contracts, used to allocate under-lifted gas among producers<sup>35</sup>.

1. **Gas Sales Agreements** (GSAs) are signed between producers of gas (sellers) and buyers of the gas. Often known as gas sales and purchase agreements (GSPAs), they provide for the long-term sale of certain quantities of gas by the producer, at a base gas price on a given date, and delivered at a given point of the gas supply chain. They have a duration of between 15 and 25 years, especially when they are related to the sale of LNG or to exports of pipeline gas using a specially built pipeline. The base price is subject to a specific revision formula containing a list of agreed indices such as the quoted prices for a set of crude oils and/or competing fuels to gas as well as indices representative of costs, inflation and sometimes currency exchange rates. For the *Source Book* focus on the extractive phase, this kind of contract is particularly important. Without it being put in place, extraction of the gas deposit will almost certainly not commence. *It is also the kind of contractual arrangement that most developing countries will prefer, in the absence of high cost gas infrastructure.*

There are two main kinds of GSA depending upon whether or not the future gas production in the agreement is dedicated by the seller to be produced from specific gas/oil reservoirs or fields and supplied at the delivery point. If it is, the agreement provides for a detailed mechanism to adjust the daily and annual quantities to be supplied and purchased relative to the dedicated gas reserves, as they are periodically re-estimated under procedures set out in the GSA. This kind of agreement is often found in developing countries for new projects when the investor seeks to obtain project financing for monetizing the discovered gas resources.

The other type of GSA is a pure supply agreement under which the seller is free to select the source of the gas to be supplied at the delivery point to the buyer. This means that the quantities of gas to be supplied and purchased are equal to the quantities stipulated in the initial agreement without any adjustment on reserves.

The provisions in each type of GSA will number around 30, covering legal, contractual, operational, economic and fiscal matters. They will typically include provisions on price determination and possibly a price review; contract quantities and gas quality; a take-or-pay obligation for the buyer to accept on an annual basis the minimum quantities specified in the GSA. In the event of a failure to do so (and it may amount to up to 80 percent of the total amount), the buyer will compensate the seller by paying for the gas not taken up to a certain agreed amount. These are high

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<sup>35</sup> See the Guidance Note at <http://www.eisourcebook.org/cms/files/Upstream%20Natural%20Gas%20-%20H%20LeLeuch%20-%20updated%20Sept%202012.pdf> (last accessed 28 March 2016) by H LeLeuch, 'Upstream Natural Gas', Appendix 8.

value contracts which tend to have complex dispute resolution procedures to cope with any disagreements.

Examples of model text are available in the Model Form for Gas Sales Agreement developed by the Association of International Petroleum Negotiators, along with Guidance Notes<sup>36</sup>. The main provisions of a GSA are discussed below.

## Gas Pricing

It should be emphasized that price is the crucial variable. Without a price, there will not be a contract. The price is also determined on principles quite different from those governing the sale of oil in international markets. Gas prices will depend upon its uses and will differ between different regional markets. This means that a gas valuation clause has to be inserted into the contract to ensure the gas is sold at a fair market value. This will deal with the price of sales to third parties as well as sales to domestic users and for export. It is often the case that the gas sales contracts must be approved by the government, including approval of the gas pricing clause. *It may be noted that some governments impose a gas price that is lower than the fair market value in order to support domestic consumption. This is likely to have negative effects on the economics of gas projects and the long-term interests of the country.*

The contract gas price typically consists of a base price that is adjusted from time to time according to several indices with each one having a specific percentage weight in the price adjustment formula. Most of the gas traded in Europe and Asia will have prices linked to oil through a formula. The index will set a floor price and a ceiling price to limit the range of gas price variations over a given period. This protects the seller for its investment in the upstream project and the buyer by ensuring that the purchased gas does not become non-competitive with alternative sources of energy or feedstock. A price review or reopener clause is often included to allow a revision of the price in certain defined circumstances. It will typically identify a trigger event that permits the review procedure to be invoked immediately or at some date; a procedure for negotiation and dispute resolution and some criteria against which possible revisions to the price formula can be assessed; and provision for accounting adjustments once the new price has been determined<sup>37</sup>.

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<sup>36</sup> [www.aijn.org](http://www.aijn.org) (last accessed 28 March 2016)

<sup>37</sup> David Mildon, Gas Pricing Disputes (2012): EI Source Book: <http://www.eisourcebook.org/cms/Gas%20Pricing%20Disputes.pdf> (last accessed 28 March 2016)

**2. Gas Transportation Agreements** These agreements deal with the use of existing pipelines, usually treated as distinct projects from the upstream activities, owned and operated by a separate legal entity. Long-term gas transportation agreements are concluded between the company owning the pipeline and each of the users of the pipeline (the Shippers), the shareholders of the pipeline company and/or third parties.

They provide for the annual contractual quantities to be transported, quality of gas, the capacity reservation and the determination of the tariffs along with a ship-or-pay obligation for the shippers. Model gas transportation agreements have been produced by the AIPN with guidance notes.

**3. Gas Balancing Agreements** These serve to allocate the balance of under-lifted and over-lifted gas between the producers of a gas field when joint selling is not possible or desirable for commercial or legal reasons.

When a pipeline route is designed to cross the border between two or more countries, the above contract structure will require a treaty to be put in place between the countries concerned. There are many examples of such treaties, from the North Sea to East-West pipeline routes into Europe.

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**LNG**

An LNG project will usually be considered as part of the downstream (or midstream) sector or as a distinct sector in its own right. There are 17 countries around the world with more than 30 such projects<sup>38</sup>. Of these, no less than 14 are from outside the OECD area. Developing countries have 92 percent of the LNG capacity already built. In Africa, these are Algeria, Nigeria, Egypt, and Equatorial Guinea. In Latin America, the countries are Trinidad and Tobago, while in the Middle East they comprise Qatar, Abu Dhabi, and Oman. In Asia and the CIS, the countries are Indonesia, Malaysia, Brunei, Papua New Guinea and Russia. The only OECD countries on the list are Australia and Norway, with the USA a long way behind them.

The transportation solution which LNG offers to countries seeking to export gas is the reason why there is such a preponderance of developing countries in the LNG business. It suits those countries facing a distance between the producing fields and the consuming markets: say, over 4,000 km. As Leleuch notes, “LNG represents for

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<sup>38</sup> Leleuch (2012), p.53. For an accessible overview of LNG trade practices with country studies, see: ‘Fostering LNG Trade: Role of the Energy Charter (2008)’, Energy Charter Secretariat, Brussels. Some of these projects may be shelved as a result of the fall in gas prices since this study was undertaken.

developing countries a cost-benefit solution to unlock stranded gas resources and monetize them when the local gas demand is insufficient”<sup>39</sup>. Papua New Guinea illustrates this point. For decades, several large and medium-sized gas and condensate discoveries were stranded for economic reasons and the difficulties in finding domestic and international markets for the discovered gas. Eventually, a project was developed to export LNG and LPG under long-term purchase contracts to three Asian countries: China, Japan and Taiwan.

The fiscal regime is usually distinct from that which applies to the upstream sector. An LNG plant may have a fiscal regime that is more favourable to the investor than the upstream fiscal one, including for example temporary tax holidays. The kind of legal, contractual and fiscal framework that is applied to LNG plants can be classified into one of three types. In the first two non-integrated models the gas production and the LNG plant have different stakeholders. This is not surprising since the length of time required to develop an LNG project after a discovery of a gas field can be very long. Another reason is that governments and national oil and gas companies usually have a stake in the upstream activity but will have to collaborate with international investors to establish a joint venture to secure access to the technology, finance and marketing that is required when developing an LNG project. The three types of project are:

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If the LNG project is treated as a distinct project outside the scope of the upstream gas agreement, it will be treated as a **segmented industrial project** governed by a distinct agreement or licence. It is subject to a different regulatory system than the upstream gas project, and often provides for a lower government take in the profits generated by the LNG plant. The feed gas for the LNG plant is purchased from the upstream gas producers by the LNG plant owners at a negotiated price in a gas supply and purchase agreement and the produced LNG is sold by the plant owners to third parties or affiliates under a sale and purchase agreement. Examples of this are the LNG plants operating in Equatorial Guinea, Malaysia or Yemen.

A second approach is the use of a **tolling** contract, which the gas producers sign with a separate LNG plant company, and then sell the LNG generated by the plant on to third parties or affiliates. Title to the natural gas is not given even after it has been transformed into LNG. The LNG plant company receives a fee for the service of liquefaction. The LNG company may have shareholders that are different from those participating in the upstream activities, or with different percentages of participation than in the upstream activities. In this scenario, the LNG plant is operated as an industrial plant

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<sup>39</sup> Leleuch (2012), *ibid.*

subject to a fiscal regime distinct from the upstream one. This kind of scheme may be fully appropriate to an LNG facility that involves common use. Examples of this include the LNG plants in Egypt or Trinidad and Tobago, and the Browse facility in Australia.

A third approach is to combine both upstream activities and LNG plant operations within a single unit. The **integrated project** approach will only work if either one entity or the same entities hold identical participating interests in the upstream *and* LNG activities. This approach includes Australia's North West Shelf project, the Kenai project in Alaska, Papua New Guinea, and the ones in Algeria, Qatar and Russia (Sakhalin II). An effect of this structure is that it does not encourage third parties to utilize the LNG plant. This helps to explain why this approach is usually found in large gas exporting countries such as Qatar for some of its LNG plants and one gas-to-liquids plant. In such cases, it is used for projects dealing with the development of gas fields already discovered by other parties at the date when the contract was signed.

**Advantages and disadvantages** Each contractual approach carries with it strategic, economic and fiscal implications<sup>40</sup>. The segmented approach requires attention to be given to the transfer price of gas when affiliated companies participate in more than one project. Generally applicable transfer pricing rules need to be applied to affiliates to mitigate potential tax planning risks within a group of companies. Australia has tackled this by establishing 'Gas Transfer Pricing Rules' for LNG projects to prevent taxpayers from setting arbitrary upstream gas sales prices where both the upstream and the downstream interests are held by affiliated entities of a single group (for example, the Ichtys LNG project). In this case the Gas Transfer Price is the average of the Upstream Cost Plus Price and the Net Back Price, based on LNG FOB Sale Price minus Downstream Costs including the plant. Such a method has the consequence, however, that the petroleum rent is automatically allocated to the two projects, both upstream and downstream, instead of allocating it primarily to the upstream sector. As Leleuch comments, this is "a policy that other countries are not always prepared to accept as the risks for the investor differ significantly between upstream and LNG activities"<sup>41</sup>.

The risk of transfer pricing issues among affiliated companies is limited if a tolling tariff system is applied by the LNG plant.

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<sup>40</sup> For a comprehensive overview of LNG projects and related contracts, see P Weems and M Hwang, 'Overview of Issues common to Structuring, Negotiating and Documenting LNG Projects', 6 J of World Energy Law and Business (2013), 267-299.

<sup>41</sup> Leleuch, pp.37-38.

The integrated approach has the advantage of eliminating the obligation of fixing a gas transfer price at the field gate for the feed gas supplied to the LNG plant. The only constraint is that the same participating interests have to be maintained over the two components of the project. Nevertheless, this limits possible access by other producers to the LNG plant once it is on-stream; this will disincentivise third parties from investing in the search for gas in the country concerned. It may also act to reduce government revenues in the long term: if the integrated contract covering the LNG plant extends to cover exploration activities, the fiscal regime designed for the risky exploration activities will also apply to the less risky operations of the LNG plant.

### 5.2.3 Mining

Sector organization by contract in the mining sector bears many similarities with the hydrocarbons sector. Common industry agreements in mining are: preliminary agreements such as exclusivity or confidentiality agreements at the bidding stage; project evaluation and development agreements; joint operating agreements; supply agreements; acquisition agreements; financing agreements; consulting service agreements; community agreements; marketing and sales agreements and reclamation.

However, commercial structures between the sectors do show some differences. For example, unincorporated joint ventures have been more common in oil and gas projects. The reasons for this popularity are rooted in tax, financing and technology, with capital separately provided by the partners and production shared. In the mining sector, these structures have been much less common, with major companies owning majority stakes in locally incorporated vehicles. Where joint ventures are formed, they also present a contrast in tending to be formed *after* the discovery and appraisal of a mineral deposit to facilitate commercial development.

Models are available for some of the above agreements. For example, the Australian Mineral Law Association (AMPLA) has a model Joint Venture Agreement (Minerals)<sup>42</sup>. The Rocky Mountain Mineral Law Foundation (RMMLF) has standard forms called Forms 5, 5A and 5A LLC, while Canadian forms of agreement exist. Given that the country of origin of many internationally operating companies is one of these countries, the models above are worthy of note.

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<sup>42</sup>For AMPLA agreements, see: <http://www.ampla.org/modeldocuments/documents-2> (last visited 28 March 2016). These models are owned by the AMPLA.

The AMPLA Model Exploration JVA (Minerals) has separate models for 2 party and 3 party ventures. They cover only the exploration phase, through the preparation of a Bankable Feasibility Study, and use an unincorporated entity. These are designed for non-complex projects. Only a majority vote is required to proceed to Development. If a venture declines to participate in approved Development, its ownership interest is subject to a forced sale at fair value.

The intention of the models is to provide “flexible, generic and modular starting points” for parties to structure agreements for Australian mining ventures. They are designed to strike a “consistent and fair balance” between the parties on contentious issues. There are a number of complementary model forms covering farm-outs and farm-ins and deeds and charges.

The RMMLF Form 5 creates a common law joint venture, while Form 5A is a model for establishing an operating agreement (no legal entity) and Form 5A LLC creates a Delaware-based limited liability company. It is important to understand that these documents are useful mainly as a checklist and not to be used as ‘off-the-shelf’ forms of agreement. Form 5 was published in 1984 and is very widely used in the USA and Canada for exploration projects. It contains complicated procedures for approving and adopting annual programs and budgets. It does not adequately address liability for environmental compliance for a withdrawing party. Form 5A is an exploration, development and mine operating agreement and was created to address a number of issues which junior mining companies identified in Form 5, including issues relating to financing. Again, the structure created is a complex one, with a multi-step approach to the decision to develop a mine. Ongoing liability is imposed on parties after termination or withdrawal for environmental liabilities arising from conditions as of the date of termination or withdrawal. Important substantive terms are included in the Exhibits (tax arrangements and net proceeds calculations, for example). Form 5A LLC is a mode agreement that envisages the establishment of a Delaware based limited liability company, with pass-through tax treatment and limited liability. It has become the starting point for many US and Canadian joint ventures. This model eliminates some of the complexities of the Form 5A.

There is no *standard* form or *model* agreement in Canada. Form 5A (above) is often used as a starting point for drafting and negotiations.