

Financing options in the oil and gas industry

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A note on the structures and financing options and risks typically associated with the oil and gas industry.

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Scope of this note

This note considers the structures, financing options and risks typically associated with the oil and gas industry. It is written from the perspective of a lawyer seeking to structure a project capable of being financed and the note also addresses the aspects of funding various components of the industry from exploration and extraction to refining, processing, storage and transportation.

In addition, this note considers the typical features of oil and gas financing including that such projects:

- Can be on a very large scale.
- Often take many years from inception to the point at which the end product is sold to consumers.
- Almost invariably involve government bodies, including in relation to the granting of rights relating to, as well as investing in, the naturally occurring national resources.
- Are subject to certain specific risks over and above those more generally found in a project financing context.
- Are becoming increasingly difficult to finance using traditional sources of debt given the number of financing participants that are seeking to diversify away from oil and gas projects in favour of financing “greener” energy and infrastructure projects.

The note is intended to provide an overview for those advising on the financing of projects in the oil or gas industries, or to those who are seeking to understand the typical structures and risks involved in oil and gas projects.

For more general information on the nature of gas and/or oil projects, see Practice notes:

- *Anatomy of an oil and gas field development* (sectors only).
- *Practice note, Upstream oil and gas concession contracts* (sectors only).
- *Downstream gas industry: overview*.
- *Downstream gas sector: terminology*.
- *Financing liquefied natural gas projects*.
- *Anatomy of a gas-fired power project*.
- *International joint ventures: oil & gas*.

Industry overview

The oil and gas industry underpins many national economies through:

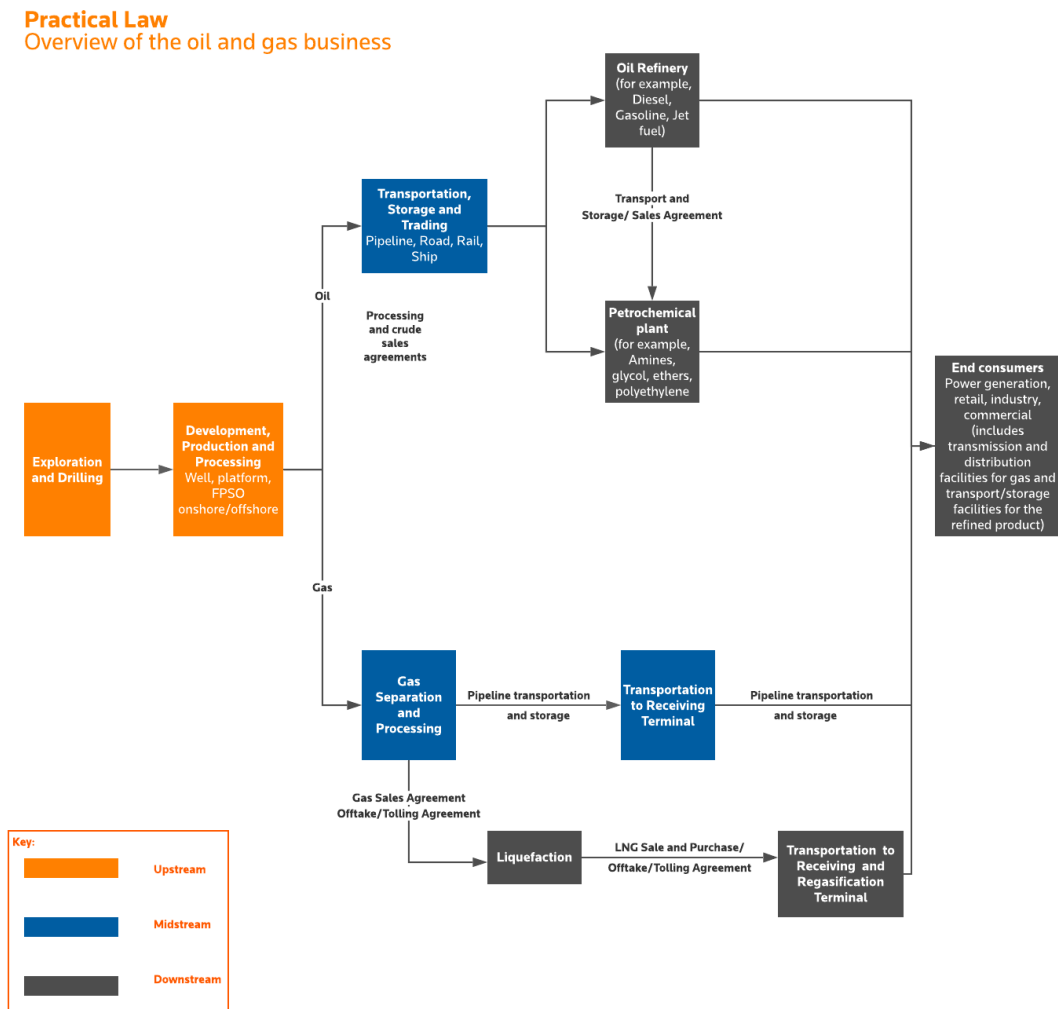
- Its supply of energy to industry and the domestic end consumer (particularly in economies where renewable energy generation is underdeveloped).
- The export and import of raw materials, and derivative manufactured and refined products.
- Job creation.

- Revenue generation.
- Furthering of inter-governmental connections and trade links.
- The generation of royalties and tax income.

The industry is typically divided into three major operational components:

- Upstream (or exploration and production (E&P)).
- Midstream.
- Downstream.

An overview of the various components of the industry is set out below:



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Providing access and exploration rights to, and consequently monetising, a country's hydrocarbons alongside the development of transportation and processing facilities for such products can be of considerable benefit to a national economy. Private sector

technical expertise and equity investment potential is leveraged alongside the participation of state-owned national oil and gas and energy companies (NOCs) to maximise the benefit obtained by the relevant state (as well as the equity investors) and to enable the NOCs to grow their technical expertise. For more information in relation to the monetisation of a state's natural resources and the concession and other contracts typically used for this purpose, please see *Practice note, Upstream oil and gas concession contracts* (sectors only).

Equity participants in the oil and gas industry include the following (many of which have in recent years diversified into other technologies but who retain a focus on oil and gas projects):

- Large oil and gas and energy-focused corporate entities, who have historically dominated this sector and who are distinguished by market capitalisation into:
 - super majors (for example, ExxonMobil, BP, Shell and TotalEnergies);
 - majors (for example, ENI and Repsol); and
 - mid-cap/independents (for example, Ophir, Tullow, Noble Energy and Harbour Energy),

each of which may also have allocated sections of their business to serve other, non-equity investment purposes in the sector, such as trading.

- NOCs (for example, Aramco, Qatar Energy, ADNOC, Petrobras, Gazprom, CNOOC, PETRONAS and KNOC).
- Global energy and commodity traders (for example, Glencore, Vitol and Trafigura).
- Private equity and hedge funds (for example, KKR and Carlyle).
- State-owned investment funds (for example, China Investment Corp and ADIA).
- Pension funds and insurance companies (for example, Ontario Teachers).
- Energy technology services companies (for example, Nabors, SLB, Halliburton and Seadrill).
- Companies that provide shipping and other offshore facilities for liquefied natural gas (LNG) and other hydrocarbons (for example, Golar LNG, New Fortress Energy, GasLog and Mitsui).
- Industrial manufacturing companies and refiners (for example, Dow, Reliance Industries and Essar).

In view of the capital intensive nature of oil and gas projects and the varying degrees of risk to which stakeholders are exposed (in part, depending on the stage of a project's development and operations), equity investors typically require different sources of financing over the life of a project. Key financing options employed include:

- **Equity sources.** IPOs, cash calls (under a joint operating agreement (JOA) (see *Key commercial contracts in an upstream project* and *Practice notes, Upstream oil and gas concession contracts* and *Joint operating agreements: key issues for drafting, reviewing and negotiating* (sectors only)), shareholder loans and share subscriptions.
- **Third party financing products.** Corporate loans, acquisition financing, reserve based lending (RBL) (see *Practice note, Reserve based lending: the fundamentals*), equity bridge loans (EBLs), project finance, capital markets, hybrid financings and hedging. As described in further detail below, many of the debt financing participants traditionally involved in oil and gas projects (particularly export credit agencies (ECAs) and commercial banks) have in recent years announced that they will stop or scale-back investments in new oil and gas projects in favour of investment in more climate-friendly energy generation projects and technologies.

- **Other sources.** Operational current or future cashflow and the raising of funds through asset disposals.

One feature common to many of the above financing options in an oil and gas context is the detailed technical, legal, market, environmental, financial, insurance and regulatory due diligence carried out on what can often be complex and bespoke projects. A petrochemicals complex comprising multiple interconnected units, such as the Sadara petrochemical plant in Saudi Arabia, for example, requires a comprehensive understanding of, among others, the interface risk in construction and operation, the licensing and technology arrangements and the relevant product markets and sales arrangements.

Whilst the lenders to some oil and gas projects may base their funding case on a long-term offtake arrangement that is contracted upfront alongside the other key project agreements, it may not be possible for the project to enter into other forms of contract, such as, trading contracts for spot sales, or shorter term marketing contracts for petrochemicals projects, until such time as the project is itself operational. In such cases, the marketing adviser analysis is a vital part of the due diligence as lenders seek to better understand the potential size and scale of revenue streams as the project becomes operational as well as the competitive landscape into which the project will be coming online. As is the case across the project sectors, increasingly rigorous environmental and social standards are expected by debt and equity financiers alike to ensure a clear upfront and ongoing regime of environmental and social assessment, with very regular monitoring and reporting obligations as well as mitigation and action plans to avoid the occurrence of catastrophes of significant commercial or reputational consequence (or both).

As is the case for other large-scale projects, factors framing the risk assessment for an oil and gas project and, in turn, the availability of financing, include:

- The type of project and the nature of the transaction.
- The project's location and consequential political, legal, regulatory, economic, social and environmental considerations.
- The identity, creditworthiness, existing liabilities and contractual rights and obligations of key project stakeholders and participants, including the sponsors, offtakers, feedstock suppliers, regulators, contractors, utility suppliers and operator (as applicable).
- The availability and coverage of insurances.
- Individual institutional requirements (for example, capital reserve allocations) and risk appetites (for example, sector risk, country risk, environmental and social responsibility, source of funds and sanctions regimes).

Over time, the industry has established means of addressing these risks to facilitate the structuring of "bankable" projects through the adoption of recognised frameworks with modifications required to ensure financiers are able to obtain internal credit approvals to proceed. For further details on risk factors, see [Practice note, Identifying and managing project finance risks: overview \(UK\)](#).

Upstream

What is an upstream oil and gas project?

The upstream sector is also known as the E&P division of the business. Activities consist of:

- The exploration of reserves.

- The drilling and evaluation of the commercial viability of wells.
- The recovery and production (including initial processing) from fields.

Product is recovered for onward transportation and processing utilising midstream and downstream infrastructure through which crude oil, natural gas and other related natural resource by-products such as condensates, ethane, propane, butane and sulphur are ultimately sold.

Hydrocarbon deposits are typically confined at high pressure within rock formations. Drilling into these rocks alleviates the pressure and enables extraction of the relevant natural resources. Reserves may be located deep underground on land (known as onshore) or under the seabed on the continental shelf (known as offshore). The country within whose borders fields are located usually retains sovereignty over them. See [Key commercial contracts in an upstream project](#).

In an offshore context, upstream activities can be performed by way of drilling rigs from an offshore platform installation or a vessel. Floating production storage and offloading units (FPSOs) are often used to exploit hydrocarbons offshore. These are floating vessels which receive the relevant hydrocarbon(s) either from nearby platforms or from direct production for processing, storage and onward transportation (by vessel or pipeline). Vessels can be preferred by financiers and equity investors to pipelines depending on the ultimate location of the offtaker and localised geographical constraints.

Additionally, and more recently used to recover hydrocarbons including shale gas from onshore sources, "fracking" refers to a process of drilling (often horizontally) into the earth before releasing a high-pressure water mixture to release natural gas trapped within. For a guide to Practical Law's key materials on the extraction of shale gas using hydraulic fracturing, see [Shale gas toolkit](#).

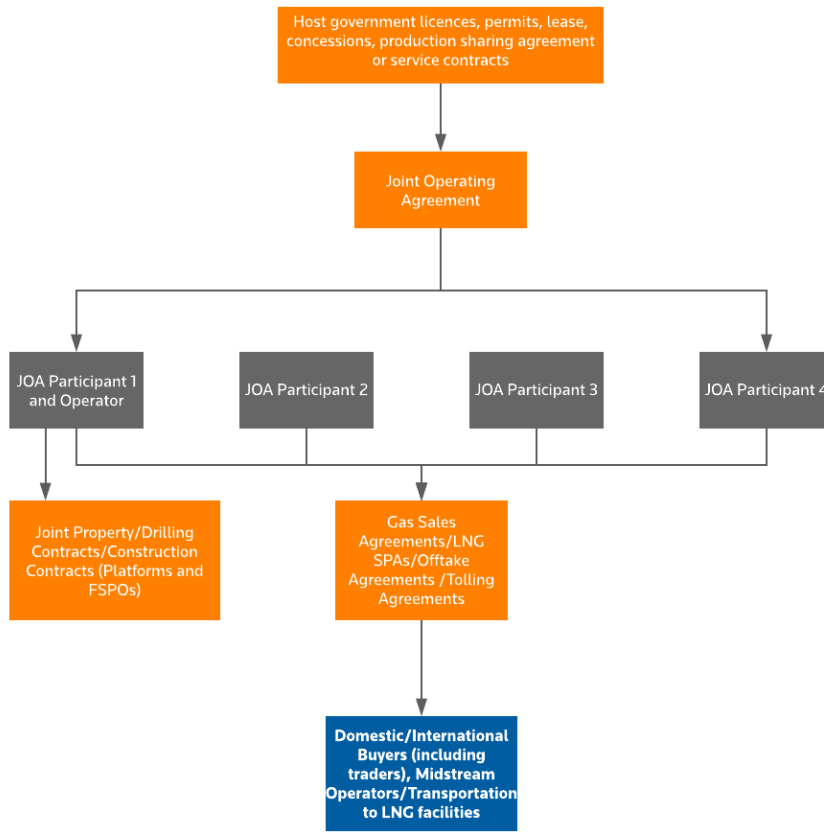
Typical equity structure

It is unusual for a single sponsor to finance, develop and operate an upstream field, except if the field is small-scale or the sponsor has sufficient balance sheet financing capability. The latter may be the case in the pre-production phase of a field's exploration, which can be difficult to finance through third party means. Investment in upstream projects is arguably more risky and less predictable than downstream oil and gas ventures, as the amount of cash required to monetise an upstream resource and the timing of such investment contributions will not always be apparent at the outset.

An unincorporated joint venture (UJV) is the more commonly used structure to access sources of upfront equity finance and spread the cost (and risk) amongst participants.

Set out below is an upstream UJV structure showing the equity parties to a JOA and examples of the key government and commercial contracts that are customarily put in place. For more on these agreements, see [Key commercial contracts in an upstream project](#) and [Practice note, Upstream oil and gas concession contracts](#) (sectors only).

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Upstream: unincorporated joint venture structure



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Each participant holds an undivided interest in the relevant government-granted licence or contractual arrangement, as well as a direct interest in the assets and production from the project (depending on the nature of the government-granted rights) in proportion to its specified working interest. Participants may also be entitled to lift and sell hydrocarbons recovered from the reserve in proportion to this interest (see *Practice note, Upstream oil and gas concession contracts* (sectors only)). Failure to do so will typically grant the others a right to lift their share.

An operator is identified in the JOA and government-facing documents to lead the construction and operation of the field. The operator plays an important role in proposing development activities, budgets and collection of funding from the non-operators.

The above is not a typical project finance limited recourse structure and, as a result, the value of the relevant field interests will appear on the consolidated accounts of each sponsor. Incorporated joint ventures (IJVs) that are more similar to a traditional project finance structure (see *Typical equity structure*) are less commonly used in an upstream context, and this, in turn, influences the nature of the financing open to the participants.

Relationship with the state

Countries may wish to retain an equity or production stake (or both) in any national oil and gas development projects while simultaneously seeking to attract private sector investment and expertise, as a matter of security of supply, to maximise local

economic benefits and to preserve their rights in national natural resources (including through Service Contracts and Production Sharing Contracts, see *Key commercial contracts in an upstream project* and *Practice note, Upstream oil and gas concession contracts* (sectors only)).

Upstream participants will be granted the right to explore, develop and finally extract hydrocarbons from the reserves located within the specified bounds. This is effected by the entry into, or issuance of, a concession agreement, production sharing contract, service contract, lease or licence (or a combination of these), each consistent with the applicable national legislation. Whether or not the participants will be granted ultimate title to their share of the offtake and right of sale following extraction will depend on the nature of the contract that is awarded.

Key commercial contracts in an upstream project

Upstream oil and gas projects can involve a variety of commercial contracts depending on the jurisdiction where the resources are located and the national regime for exploiting those resources. The main types of commercial contracts used in upstream projects are summarised below. For more detailed information on these contracts, see *Practice note, Upstream oil and gas concession contracts* (sectors only).

Concession agreement

This is the contract under which sponsors are granted rights to develop a specified area for a specified period of time and are granted title to any hydrocarbons extracted from the area, in exchange for the payment to the government of royalties and taxes. The relevant host government may stipulate a percentage of offtake to be applied for domestic use.

Production sharing contract

Production sharing contracts (PSCs) are entered into frequently in the Asian market. Similar to a concession agreement, they entitle the sponsor to develop the relevant field for a fixed term but, importantly, title to the extracted product remains with the relevant host government.

Terms used in this context include "cost recovery oil", which is the product sold to cover the reimbursable development costs of the sponsor and "profit oil", being all remaining oil to be sold.

A host government may require certain bonuses to be paid by the sponsors on reaching specified milestones.

Service contract

Under a service contract, a sponsor will develop an area on behalf of a host government in exchange for a fixed fee which is sized to cover development and operating costs and a pre-agreed profit for the sponsors.

Licences

Licences are granted by some host governments under national legislation for a party or several parties to develop a specified area. Approved activities are typically the subject of legislative limitations including with regards to budget setting.

Joint operating agreement (JOA)

Upstream projects are often structured between a series of special purpose vehicles (SPVs) of each sponsor as UJVs, the arrangements for which will be governed by a JOA with each participant having an undivided interest in the relevant contractual arrangement or licence with the government and assets in proportion to their interest in the UJV. Parties often commence their negotiations using industrywide standard forms of these documents such as the Association of International Energy Negotiators (AIEN) form, adapting as required for the specific nature of the relevant project. Other standard forms are used, for example,

in the US where UJVs may involve lesser-experienced participants or smaller scale onshore operations, such as that of the American Association of Professional Landmen.

In analysing these arrangements, lenders will consider, in particular:

- Operator identity and creditworthiness, the scope of the operator's role (from a development planning, budgeting, construction and operating perspective), liabilities and the ability for the operator to be removed and/or replaced.
- Decision-making processes on developments and expenditure (for example, through an operating committee).
- Equity funding (known as cash calls that are made by the operator) including the means of, and timing for, cash calls and the consequences of a non-operator neglecting to respond to its proportionate share of a cash call. Failure to fund is typically addressed by a suspension of JOA rights and, ultimately, if it is not remedied after the expiry of any cure periods, it will lead to termination of the defaulting participant (and a corresponding funding obligation for the non-defaulting participants). Shareholders' agreements in an IJV context will contain equivalent provisions.
- Lifting rights in relation to proportionate shares of the production from the field and the consequences of failure to lift.
- Assignment rights, which can often be underpinned by the requirements of the host government with regard to absolute transfers or assignments (for example, requiring the parties to obtain prior consent or meet other specific criteria (or both)).

For more information on joint operating agreements in the oil and gas sector, see *Practice note, Joint operating agreements: key issues for drafting, reviewing and negotiating* (sectors only).

Sales contracts

In order to monetise the upstream processes, sales contracts will also be entered into, whether permitting sales individually (by each equity participant in proportion to its interest) or by one entity on behalf of all of the participants. Depending on the integrated nature of the project or otherwise, sales can be on a tolling, take-or-pay or marketed basis.

Drilling contracts

If upstream participants do not have the machinery to extract hydrocarbons onshore or offshore, they may also enter into drilling contracts negotiated bilaterally with service providers (for example, Nabors, SLB or Seadrill Limited) for a fixed, but renewable, term under which specific rigs, individuals and licensed information can be provided alongside the rig at specified day rates. This industry may experience downward pressure in times of turbulence in the oil and gas markets.

Specific risks in financing an upstream project

In addition to those common large scale project risks described in *Industry overview* and those set out in *Practice note, Identifying and managing project finance risks: overview (UK)*, third party investors will focus on certain key risks when evaluating an upstream project.

Reservoir risk

A reserves consultant will prepare a reserves report:

- As a financing condition precedent to establish the nature of the recoverable hydrocarbons and the existence of proven, probable and possible reserves.

- To verify the production profile projections and reasonableness of the proposed production costs.

The ultimate aim of this report is to ascertain the project's revenue generation capability and, therefore, the project's ultimate ability to service debt and/or produce a sustainable and attractive equity return (as applicable). The relevant commodity prices at such time will have an impact on this, although commodity hedging may be usefully applied in this context.

Field life is also key, having an impact on both financial ratios and debt tenor. The parties will establish the reserves tail, which is typically the estimated point in time at which only 25 to 30% of the proven reserves remain (the Reserves Tail Date).

For more information on reserves reports in an upstream oil and gas project, see *Practice note, Reserve based lending: the fundamentals: Reserves report*.

Operational risk

Proven technology is crucial in well performance as, together with the operator's identity and track record, it can have a substantial impact on hydrocarbon recovery rates. Technological advancements also contribute to longer field production lives and increased recovery percentages from the fields. Perceived benefits from a risk analysis perspective derive from the alignment of interest created where an equity participant is also the operator.

Another consideration in oil and gas operations relates to the adherence to international and national environmental, health and safety regulations and the associated costs for non-compliance and for instigation of environmental remediation.

Price risk

Particularly in times of oil price fluctuations, pricing risk in the context of the overall viability of a project merits careful consideration.

Hydrocarbons are typically priced on the basis of the quality of the product against the relevant benchmark. As has been seen in the recent past, market prices fluctuate very significantly and can be highly volatile, creating difficulties in assessing the ability to forecast and service debt (or provide a sustainable return on an equity investment). Commodity hedging agreements can be entered into to limit this exposure (see *Hedging*).

In recent years, the oil and gas sector has seen a number of significant macroeconomic events seriously impacting on crude oil price and long-term demand. The COVID-19 crisis hit the oil producing countries and their national economies hard, as crude oil sales plummeted, owing to travel of a business, recreational and haulage nature, by land, air and sea, being at best severely restricted, and, at worst, prohibited globally.

The COVID-19 crisis saw Brent crude oil price highs in 2020 of US\$70.25 per barrel plummeting as low as US\$9.12 and the US crude oil benchmark, the West Texas Intermediate, going negative for the first time in its history in April 2020. Whilst this is unlikely to reoccur on any near-term basis, there were wide-ranging and differing implications for oil producing countries and the producers themselves, depending on their respective financial strengths, supply rates, production/break-even costs, extent of state subsidies, and the fundamental ability to meet debt service obligations.

The ongoing war in Ukraine has had an opposite but equally disruptive impact on global oil and gas markets. Sanctions, other political action and explosions of the Nord Stream gas pipelines have led to supply cuts and increasing concerns around energy security. Countries that previously were heavily dependent on Russian gas - including Germany in particular – have found themselves urgently looking for replacement arrangements to secure short-term and long-term energy supply and global oil and gas prices have again surged to record highs.

The COVID-19 crisis and the war in Ukraine has intensified the desire among private sector energy participants, consumers and states alike to move towards an energy economy that is less dependent on imports from other countries or that relies on imports from less geopolitically risky countries. Germany, for example, is undertaking an intensive and fast-paced project to replace all Russian energy imports – most notably natural gas – by the end of 2024 through investment in a number of floating LNG import and regasification terminals.

The above events are set against a backdrop of ongoing energy transition, whereby all participants are having to consider the structural need to move away from carbon - heavy production facilities and related industries, towards a longer term, renewable energy based economy.

Regulation has been and will continue to be key to the nature and speed of execution of new energy and infrastructure projects, not only at the national level but supra nationally, with decisions being taken by other countries and regions globally directly impacting decision-making and budget allocations at the individual, corporate and state level.

It is clear that the impact of competing projects and pricing fluctuations can have a significant impact on a project and this will be a key consideration for lenders when diligencing pricing risk for a project.

JOA risks

It is not uncommon for each JOA participant to grant its JOA counterparties a security interest over its own interest in the JOA and UJV, in which case the priority of ranking will need to take this into account in any third party financing.

Lenders will also focus on the creditworthiness of JOA participants and the consequences of failure to fund cash calls, provisions for sole risk expansion projects and transfer restrictions relating to the ability to assign rights to a security trustee in an enforcement scenario.

In many instances, including in the UK, government consent is required at the point of enforcement due to national legislation or the applicable concession agreement (or equivalent).

Sources of financing in the upstream sector

The earliest exploration stages of an upstream project in which the parties have no guarantee of commercially viable production options from that field can be a challenging time for an equity investor to raise finance. There is usually a time lag between commencing the initial drilling activities and the recouping of costs from production, which may only come some years from when the exploration activities have identified commercially viable reserves and obtained appropriate approvals.

Equity funding

Large corporates will look to their own balance sheets to source funds or alternatively seek corporate loans or high-yield debt. Their proven track record means that they are more likely to be able to raise unsecured corporate debt.

A smaller to mid-cap player will not, however, have this option and will typically either seek third party secured financing, bring in additional partners to acquire a stake in the field, or inject further equity.

Reserve-based lending

A common source of financing employed in the upstream sector is reserve-based lending (RBL), which enables the raising of debt across a number of assets at various development stages and retention of a degree of operational flexibility. Structures have developed differently between the longer standing North American markets and those financed internationally. This product is often used in a refinancing context.

The key features of RBL in an international project context are:

- Commercial banks make funds available to cover capital expenditure, operating expenditure and the development costs of a number of specified assets (in doing so they spread the risk) and for general corporate or working capital purposes. In addition, drawings may cover the refinancing of existing equity/debt (including bridge financing) or the financing of an acquisition. Consistent with wider announcements on their energy transition strategies, certain commercial banks have announced that they will cease or reduce reserve-based lending going forwards. For example, in February 2023, NatWest announced that it would immediately stop all reserve-based lending for new customers financing oil and gas exploration and extraction, before phasing it out entirely by the end of 2025. This development may lead junior oil and gas companies to look to other sources of financing, such as private debt funds, some of whom may be able to raise funding from investors who are less sensitive than the increasingly ESG-focused institutional shareholders of the international commercial banks.
- Available loan commitments usually fluctuate on a six monthly basis by reference to the "borrowing base amount", calculated using the most recently delivered banking case that covers each of the included oil and gas fields and identifies:
 - the net present value (NPV) of future cashflows from each field, taking into account their current status (producing, non-producing or undeveloped);
 - availability of sponsor collateral; and
 - concentration limits on the borrower.
- As commodity prices fluctuate, so too does the available loan commitment. If key ratios are breached, the borrower must prepay a corresponding proportion of its loan.
- RBL lenders consider only proven, and proven and probable reserves (not possible and contingent reserves) and the extent to which projected production figures enable debt service ("proven reserves" means those with a 90% (known as a P90) chance of recovery and "proven and probable reserves" constitute those with a 50% (known as a P50) chance of recovery).
- RBL lenders typically require:
 - loan tenors to match production profiles as lenders seek full repayment by the earlier of the Reserves Tail Date and a short-to-medium term maturity of five to seven years;
 - maintenance of coverage ratios: loan life cover, project life cover and debt service coverage ratios;
 - fixed amortisation schedule and prepayment of cash (a cash sweep) to the extent that the outstandings of a loan facility exceed the borrowing base amount;
 - secured project accounts (including those of the sponsor party to the JOA) through which revenues are to pass in accordance with a payment waterfall;
 - restrictions on further indebtedness;
 - security including over borrower shares, collection and collateral accounts, borrower and group assets (including licences, JOAs, production sharing contracts, project documents), accounts, insurances, hedge agreements, cross-guarantees by the companies owning the relevant assets; and

- an ability to add, or dispose of, the field assets on which the borrowing base is founded, subject to various conditions being met, including in relation to the provision of security and ability to service debt.
- Sponsor support may be required in the event that the offtake arrangements do not match the field's production capacity and, in a gas field context, long term gas sale and purchase agreements are usually required.
- RBL pricing can be favourable if used in the later, less risky stages of an upstream project.

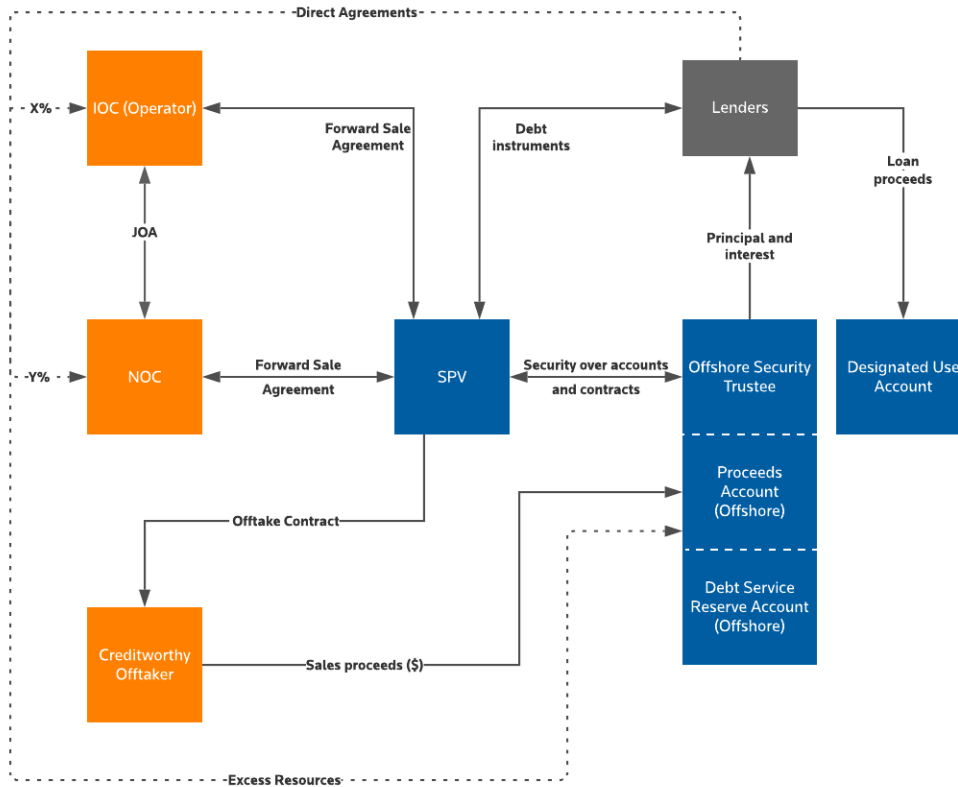
For information on borrowing base facilities in the oil and gas sector, see *Practice note, Reserve based lending: the fundamentals*.

Forward sales/Inventory monetisations

Forward sale financings have traditionally been used to finance upstream projects in Nigeria and certain other jurisdictions where the use of other secured financing structures is problematic (in particular due to the World Bank's negative pledge restrictions on granting security). A "forward sale" constitutes the sale of a commodity to be delivered at a specified time in the future at an agreed on price at the inception of a contract. In this financing scenario, both delivery and transfer of ownership are deferred but there may be a cash advance upfront as part of the consideration. The buyer has no proprietary entitlement to the commodity because an ownership interest does not arise until volumes are appropriated.

For local law purposes, the forward sales structure has to stand up to a "true sale" scrutiny to avoid being recharacterised as a loan supported by a security interest, which may, if and to the extent an NOC is involved in the financing, breach the relevant host government's negative pledge obligations. The challenge is, therefore, to ensure an outright transfer of title to the buyer, which will be determined by the laws of the jurisdiction in which the commodity is located at the time of transfer.

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Example forward sales structure



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The key features of a forward sales structure are:

- An SPV is incorporated by upstream joint venture parties who each enter into a forward sale agreement to deliver fixed commodity volumes on specified dates if commercially reasonable to do so.
- The forward sale agreement stipulates the commodity type, quality and quantity, time and place for delivery (and passing of title), the parties' rights and obligations, and the consequences of non-performance. The SPV and the lenders take the reserve risk (subject to satisfactory reserve reports being in place at closing) based on prudent operation of the relevant field.
- The SPV enters into offtake agreements with creditworthy, experienced offtakers nominated by the sponsors that, subject to any local requirements, mirror the forward sales agreements.
- The SPV enters into financing arrangements with the following features:
 - loan proceeds are required to be paid into an unsecured account controlled by the SPV and sponsor entities, which is held separately from the other project accounts and is subject to restrictions on application; and
 - utilisations are in such amounts and at such times as correspond to the sponsors' request for the SPV to take delivery at a specified time in the future of commodities at a specified price, the timing of which request will

ultimately correspond to the construction schedule. Utilisations are also applied by the SPV towards prepayment for future commodities to be delivered and a premium when commodities are delivered that equals the net proceeds received by the SPV from resale of the commodity.

- Sales proceeds from the offtaker are placed in a secured offshore account and applied towards debt service (in addition to which a secured reserve account is also held).
- The lenders in this type of financing benefit from a borrower security package that includes share security over the SPV itself as well as security over substantially all present and future assets (including commodities once appropriated under the forward sales agreement, accounts and balances and contractual rights under documents to which the SPV is a party).
- Financiers will only have limited recourse to the upstream participants, as would be the case in a project financing structure but direct agreements will typically be entered into with the joint venture partners (as sponsors and sellers) to cover key credit considerations and the operator in respect of operating covenants. Failure to meet the relevant obligations will result in an event of default under the financing.

Volumetric production payments

Historically used in the North American markets as a form of financing, a volumetric production payments (VPP) structure is useful for producers of lower credit strength, especially where commodity prices are high.

Key features of this structure are:

- The buyer (the VPP buyer) makes an upfront cash payment to a producing entity (the VPP seller) in exchange for a non-operating interest, for which in the future the VPP buyer will receive a specified portion of offtake according to a specified timeline.
- The VPP buyer receives payments from the VPP seller over a period of five to ten years in the form of cash or units of hydrocarbons up to an agreed amount calculated by reference to the proven reserves.
- Any shortfall in the agreed amount provided to the VPP buyer, except where this is due to production shortfalls, are met and compensated by additional deliveries in the future.
- Once the agreed quantity of hydrocarbons has been transferred, the non-operating interest is conveyed back to the VPP seller.

Other sources of financing

- **Corporate debt.** Corporate financing becomes relevant in an upstream context when:
 - an entity is large enough and has sufficient production track record to be in a position to borrow through a corporate credit facility adopting traditional historic EBITDA ratio testing; or
 - a sponsor is seeking to fund its own cash calls.

The benefit of proceeds going directly to the sponsors is that there is flexibility with regard to the operation of the project. For more general information on corporate loans, see *Practice note, Corporate loan facilities: a quick guide*.

- **Project finance.** An upstream facility is capable of, but does not always lend itself to, being project financed, not least because of the less frequent use of limited recourse structures. That said, hybrid RBL/project finance structures have been used in Mediterranean, African and offshore projects such as the Offshore Cape Three Points Integrated Oil and Gas project in Ghana, where the covenant packages, rights and restrictions (including in respect of the accounts structure) resemble those of a project financing but the security packages (which include the assets, interests and accounts of the sponsors to the project) look more like those encountered in an RBL facility. For more information on project finance, see [Multi-sourced project finance](#) and [Practice note, Project finance: UK law overview](#).
- **Bridge facilities.** Short term bridge facilities are not unusual in the upstream financing context where a sponsor is seeking to bridge a funding gap until it is able to raise a higher amount of debt on more favourable terms once its assets are better developed and can offer a greater degree of certainty. Bridge financings of an "equity bridge" nature were put in place by multiple investors in the early stages of the Tamar gas field development in Israel and were subsequently refinanced.
- **Project bonds.** Although traditionally more difficult to access for the smaller to mid-cap players in Europe, increasing activity has been seen in recent years in this area across the sectors, including the earlier issuances by Tullow Oil, Delek/Avner and Afren plc. For further information on project bonds, see [Project bonds](#) and [Practice note, Project bonds](#).

Midstream, downstream and integrated projects

Similar considerations are taken into account when approaching the equity structure and financing of projects in the midstream, downstream and integrated oil and gas markets. Their salient features are set out below followed by the equity structures most commonly employed and applicable forms of financing.

Typical equity structures

A variety of structures can be employed for midstream and downstream ventures depending on the type of project, whether integrated with another sector, or depending on the legal framework of the relevant jurisdiction. For example, in a midstream pipeline context, an IJV might be used where one SPV develops, constructs, owns and operates the assets, or alternatively separate SPVs may be established for each jurisdiction crossed, necessitating careful cross-guarantee structuring within a financing.

IJVs lend themselves well to a limited or non-recourse project financing where the project no longer features on the balance sheet of the sponsors, save to the extent of any parent company guarantees or debt service undertakings required to be provided by way of completion support for the project. The capital costs involved in these projects make them unlikely to be owned by a single stakeholder although certain types of asset, which generate a regulated return such as, for example, gas transmission and distribution systems may well be owned and operated by one or two entities.

In a more typical midstream context, and in contrast to the UJV structure used in upstream projects (see [Typical equity structure](#)), the SPV project company holds the necessary rights and licences and enters into most of the contractual framework required to develop, finance and construct the project itself.

What is a midstream oil and gas project?

The midstream sector of the oil and gas industry comprises the transportation and processing of extracted hydrocarbon products from the upstream directly to the onshore market or to port facilities for storage or onward passage to the relevant domestic

or international downstream market (or both). This sector comprises the construction, operation and maintenance of pipeline projects, vessels, storage and processing facilities and distribution systems (or any combination of these). Acquisition activity has become a significant feature in this oil and gas sector in recent years, for a number of different reasons, including:

- Diversification by national oil companies and major industry sponsors of traditionally oil and gas sole-focused portfolios towards renewable energy and other "green" technologies.
- Strategic investment and consolidation of assets.
- Monetisation of existing assets, facilitating the release of cash onto the balance sheet.

Two recent examples include the Aramco midstream pipeline acquisitions by investors led by EIG (relating to Aramco's oil pipeline infrastructure) and investors led by BlackRock (relating to Aramco's gas pipeline infrastructure).

One type of midstream asset used by upstream participants or their offshore customers (or both) is the floating storage regasification unit (FSRU), which enables effective transportation and eventual transfer of LNG from source to end customer. These operate to reheat chilled fuel on arrival at destination, with the regasification process carried out either through an independent FSRU or aboard the vessel actually transporting the LNG from source. The former is often found within the bounds of destination port facilities to minimise transfer time and costs, and the units can subsequently be used as storage vessels pending lifting for end use onward transportation. Potential financiers of such projects will take into account, among other risks, the risk of volume loss through external FSRU regasification and onward transportation. In recent years, there has been a marked increase in the development of LNG midstream and fully integrated projects, particularly in Latin America, owing to competitive pricing and other favourable investment conditions. The huge development project currently being undertaken by Germany as mentioned above involves deployment of a number of FSRUs. For more information on LNG projects, see [Practice note, Financing liquefied natural gas projects](#).

A midstream pipeline project, such as the pipeline to transport gas from the Shah Deniz field into Europe, will require the entry into of host government agreements (HGAs) with the governments of those countries in which the hydrocarbon reserves originate and across whose jurisdictions, for example, a pipeline will be constructed. The HGA provides a right to build and operate the pipeline for a specified period of time, right of free passage and various change in law and expropriation protections. In addition, as pipelines commonly traverse more than one set of national borders, these midstream projects will also necessitate the entry into of an intergovernmental agreement (IGA) and the granting of a wide-ranging selection of permits specific to the project.

Specific risks in financing a midstream project

Particular risks specific to financing a midstream project, include (but are not limited to) the following (however, note some of these risks typically apply in a greenfield (construction) financing context only, so not all will be relevant in an acquisition financing context).

Construction risk

In a midstream context, construction risks may include:

- Interface risk with completion of the upstream and downstream delivery points.
- Purpose built vessels not being built to the required specification or being delivered late.

- Challenges posed and delays caused by the extreme climates and inhospitable conditions that may be encountered in the environments where many of these projects can be located (for example, the Arctic), which may affect a project's ability to generate revenues.

Capacity risk

Financiers (and their technical and marketing advisers) need to consider pipe sizing, the extent of capacity use, the potential for future expansion and the ability to generate revenue from tolling or equity shipment tariffs.

Storage and transportation risk

Loss, delay or damage in storage or transportation is of considerable concern as it will directly affect the ongoing revenue generating capability of the assets. This can include the lifting of the product or vessels not running to schedule.

Political risk

Lenders will focus closely on the expropriation and change in law protections and tax incentives afforded by the HGAs and IGAs, maritime laws (to the extent the pipeline is subsea), any necessary permits and whether any community support projects are required to be carried out, as well as, assessing the impact of other macropolitical events. The explosions at the Nord Stream gas pipelines in September 2022 provide a very real and very recent example of the impact that macropolitical events can have on midstream pipeline projects.

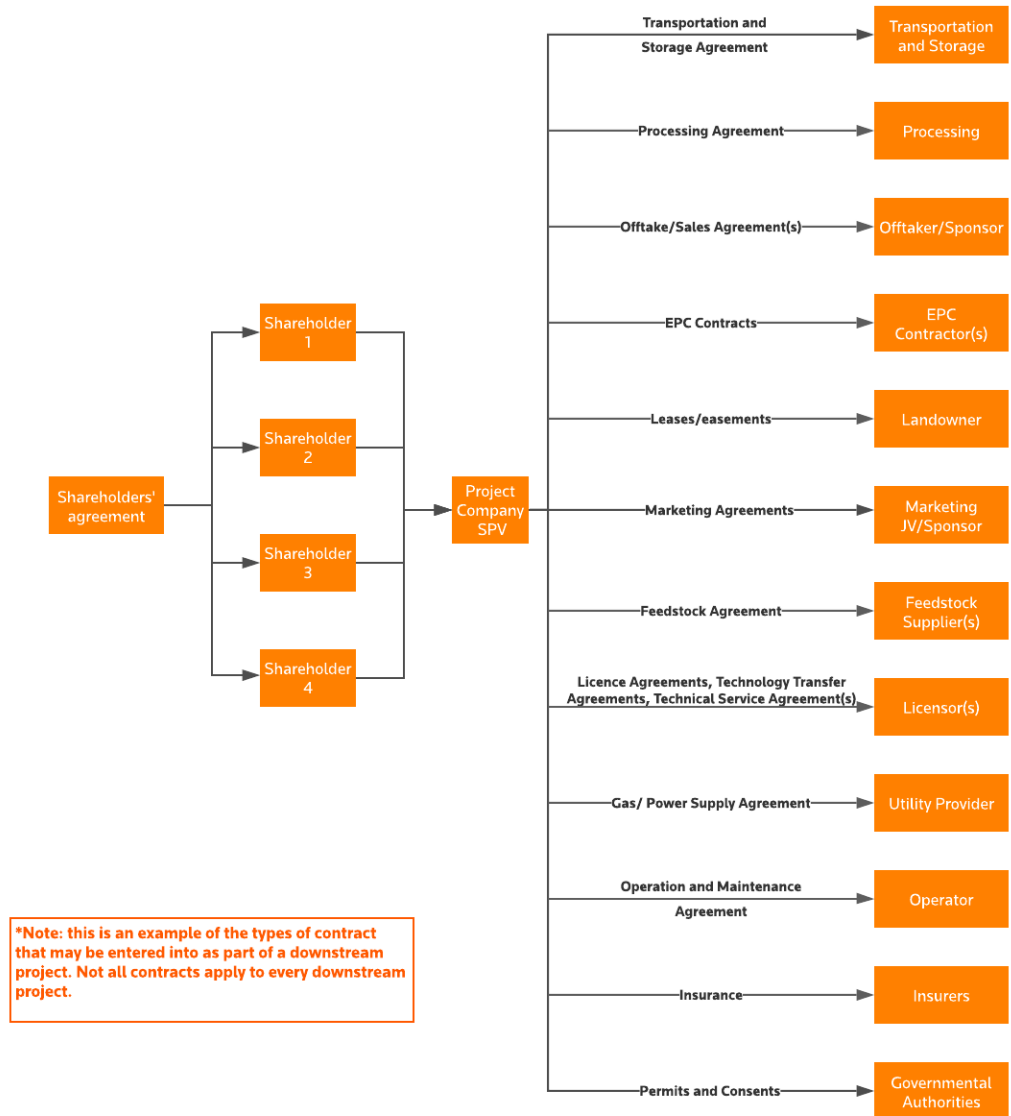
Environmental risk

Pipelines can be routed through challenging geographies with greater land or marine areas affected in an emergency scenario than, for example, a more self-contained power plant. Liabilities can be considerable for environmental damage not to mention the costs involved in a remediation context and the reputational consequences for those parties involved. Lenders will also need to carefully diligence the relevant decommissioning and abandonment regime.

What is a downstream oil and gas project?

A downstream operation refers to those projects that process extracted resources to make them into a usable end product or a source of energy supply, including by way of power plants, refineries, LNG liquefaction and regasification facilities and petrochemical plants. The diagram below illustrates the typical contracts that form part of a downstream framework.

Practical Law
Downstream contractual framework*



***Note: this is an example of the types of contract that may be entered into as part of a downstream project. Not all contracts apply to every downstream project.**

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Offtake arrangements in a downstream context can be by way of long-term sole offtake where, for example, equity stakeholders, a government entity or industry purchases all of the refined oil products or LNG, as the case may be. Alternatively, and depending on the type of product, sales may be structured by way of short-term or spot sales contracts or through a separate marketing IJV selling to end users. Again, in all cases, the lender focus will be on the ability of the project to meet its debt service requirements.

For more on downstream projects, specifically in the context of gas projects, see Practice notes:

- *Downstream gas industry: overview.*
- *Downstream gas sector: terminology.*

- *Anatomy of a gas-fired power project.*
- *Toolkit, Downstream gas industry toolkit* (sectors only).

Specific risks in financing a downstream project

Key risks faced by any downstream project include, and are not limited to, the following.

Feedstock supply risk

Ultimate revenue streams for the project life and relevant financing tenor depend on the security of supply of the raw oil and natural gas products (feedstock) to the project. For integrated projects (see *Integrated projects*), this risk can be partially mitigated by aligning, as far as possible, the interests of the upstream participants with the eventual output product.

Construction and completion risk

Downstream (and integrated) projects often include a complex set of interdependent components each with its own specialist technology, presenting interface risk between the contractors during construction (as well as on an ongoing basis during operations).

Pricing risk

Pricing of the offtake and how this will be built into the lenders' models is usually the subject of some discussion. S&P Global Platts is one of the typical benchmark providers for the commodities and energy markets. For other products, such as LNG, this will vary according to geography and delivery terms. Petrochemical pricing, however, can be much more varied and will, as noted above (see *Industry overview*), be diligenced upfront through marketing consultant reports examining the typical bases for contracting petrochemical product sales and competitive landscape.

Offtake risk

Financiers of LNG projects typically focus on ensuring that long term LNG SPAs (commonly on a take-or-pay basis) are in place for a minimum annual contracted quantity to ensure that the relevant project is more likely to meet its debt service obligations. This is important given the less liquid nature of the market for LNG than crude oil.

Similarly, for large petrochemical projects, project financing institutions require significant marketing diligence to be undertaken to better understand the geography, pricing and certainty of the markets into which the relevant product will be sold, together with competition to which each such product is subject and whether such sales are typically undertaken on a spot sale or contracted basis (and, if so, for what term). Lenders in the downstream markets will often have to be comfortable with the offtake not being contracted when the financing is advanced, but they will typically require the inclusion of covenants and aspects of the completion testing to take into account their minimum contracting requirements at various stages of operations once the asset is operative.

Integrated projects

Certain downstream participants often seek to maximise the value chain benefits by taking stakes in the E&P elements of a field with a view to the profits that may be made by securing long-term reliable supply to other complementary parts of their sales business, whether in domestic markets or internationally.

This approach is common in an LNG project context, where equity investors develop and operate an upstream gas field, construct the pipeline to transport the hydrocarbon for processing at their downstream liquefaction facility to purify and refrigerate the gas into a liquid state. Such a project may then involve:

- The acquisition and leasing of a fleet of LNG tankers.
- Further pipelines and the construction of a regasification plant to convert the LNG back to gas (regasification) for distribution to final end users.

It can also be the case where upstream partners are not granted title to all extracted hydrocarbons under their government-granted rights but can profitably transport their portion of production to a market downstream for onward sales. Building transportation infrastructure through the midstream into a different jurisdiction or downstream market can often generate more enhanced returns for each individual sponsor than may have been the case by upstream participation alone.

In an integrated project, IJVs are often used for the midstream and downstream project elements and financing can be sourced on either a project finance IJV or silo'd basis (either across the sponsors or between different sectors of the project) depending on the financing needs of the parties. Integrated projects require significant amounts of debt to be raised and a project finance framework is commonly used to facilitate long-term and large-scale financing during construction, potentially refinancing at completion through a capital markets solution.

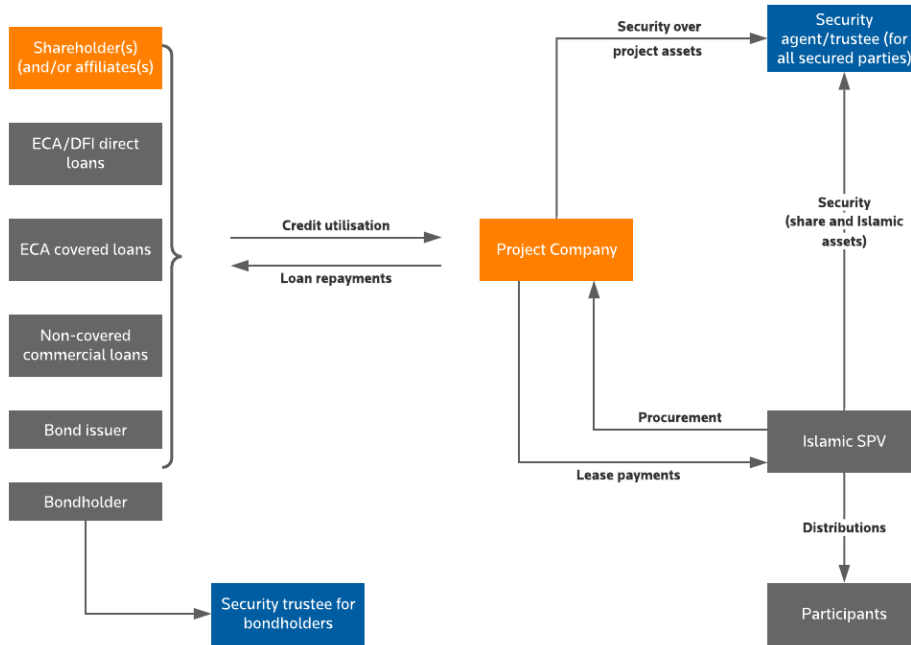
Sources of financing in midstream, downstream and integrated projects

There are a number of potential sources of financing for midstream, downstream and integrated projects in the oil and gas sectors.

Multi-sourced project finance

Midstream, downstream and integrated oil and gas projects can be complex with huge capital costs involved. These kinds of projects typically follow the multi-sourced project financing route during the construction phase. An overview of the lenders who may be involved in such a financing is set out below.

Practical Law
Multi-sourced project financing structure



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Third party financiers in this sector include a combination of international and local commercial banks, ECAs, Islamic banks, pension funds, insurance companies, development finance institutions (DFIs) and multilaterals such as those from the World Bank Group and the European Investment Bank. To a certain degree, the strength of the sponsor and the extent of existing commercial relationships with such a sponsor may dictate the ability of a project to raise funds and influence the relevant financing terms, although a detailed risk analysis will also be key (see *Industry overview, Specific risks in financing a downstream project* and *Practice note, Identifying and managing project finance risks: overview (UK)*).

When considering which institutions may be open for business to a particular oil and gas project, sponsors and their financial advisers will consider, among others:

- Whether there are any DFIs with a mandate to support projects in that particular jurisdiction.
- Which ECAs might be able to finance the procurement sources for the project.
- Whether the jurisdiction is open to accessing Islamic financing.
- What kind of products such institutions might be offering: debt and equity, direct loans or guarantees, as the case may be.
- What kind of fossil fuel policy exists for each institution (as there has been a marked shift towards renewable energies in recent years). Certain DFIs and ECAs have recently announced bans on new financing for any fossil fuels, while many others have announced bans or restrictions on new financing for most fossil fuels, with some allowance for gas project financing. The European Investment Bank (the EIB) has taken one of the hardest lines on this – including a

complete ban on financing of gas projects and even going one step further by banning the provision of financing to polluting companies that are seeking to finance low-carbon projects. Therefore, for example, the EIB will no longer finance an oil and gas company's wind energy project.

From a transaction cost perspective, the financing and pricing terms (which will include transaction fees, interest calculation (including margin) but also will be reflective of tenor) offered by DFIs and ECAs may be more competitive than those of commercial banks and typically these sources will be able to finance larger loans than their commercial counterparts. In addition, ECAs and DFIs are able to lend to countries that may present more political and commercial risk and their involvement can also mitigate political risk exposure from a commercial bank perspective and provide for more stringent environmental, social and safety standards to be adopted.

Local bank involvement can also be helpful to mitigate certain risks including through providing local regulatory and political knowledge, as well as local currency financing, which is useful in mitigating some of the currency risk that may arise if the offtake is to be paid for in a currency other than that of the main loan agreements. These local sources of funding may also prove to be of increasing importance in the decarbonising market.

Multi-sourced project financing may enable an SPV and its sponsors to:

- Access a higher debt quantum to meet significant capital costs, although this will require equity "skin in the game".
- Leverage equity investment to raise capital on a non-recourse or limited-recourse basis, though note that in an oil and gas context:
 - due to the complexities and risks of cost overruns, debt to equity ratios are higher than in other sectors (70:30 being not uncommon) and significant contingencies can be built into the projected project costs in the banks' financial model;
 - completion risk can be perceived as high, necessitating the provision of debt service undertakings or parent company guarantees (or both) from the sponsors, though this in turn lowers the margins financiers can earn on the outstanding debt; and
 - where equity is funded directly by the sponsors, lenders may require letters of credit, assignments of subscription agreements or cash collateral in respect of equity funding obligations.
- Access large commitments from ECAs for funding which the SPV can apply towards payment for specifically stated, eligible construction goods and services. This can also provide additional political risk cover to commercial banks and enable them to participate in jurisdictions that might not otherwise be possible due to internal risk analysis policies and restrictions.
- Access a combination of fixed and floating rate facilities, the combination of which may, in turn, provide a natural interest rate hedge for the financing and lessen the need for formal interest rate hedging arrangements.
- Facilitate the efficient drawing of debt with utilisations during the availability period that match the phased spending on construction and are consistent with the milestones that may be set out in the applicable construction contracts.
- Develop more stringent environmental and social requirements through the involvement of DFIs going beyond the Equator Principles of the commercial lending institutions (for an introduction to these issues, see *Practice note, Project finance: UK law overview: Social, ethical and environmental issues*).
- Access longer term debt including from capital markets.

The advantages of entering into a multi-source project financing described above will be weighed by an SPV and its sponsors against the complications of a project finance structure. The project financing route imposes significant restrictions on the project construction and operations, including in relation to the granting of security and comprehensive representations, warranties, covenants and events of default. Additionally, there will be substantive and regular ongoing reporting obligations so that the lenders are kept apprised of the project's status, including in respect of delays and cost overruns, which, as mentioned above, can be significant. Many of these restrictions and obligations will be bespoke to the relevant project and will result from the extensive due diligence exercise that is carried out and the lenders' analysis of the various risks inherent in the project.

Financings of oil and gas projects (including hybrid transactions in the upstream, midstream pipeline, and petrochemical and refining sectors) will typically include a detailed and robust completion testing regime. This is of particular importance where the project comprises multiple interdependent components, either as part of a downstream financing, such as a multiple construction contract petrochemical complex, or where constructed and operated on an integrated basis, such as an LNG integrated value chain project. The completion testing will comprise mechanical, volume and reliability testing as well as other elements (such as the funding of a debt service reserve account, operational insurances being in place, no events of default being outstanding and all environmental requirements being complied with). The significance of these tests being met is that it usually results in a lifting of recourse to, and restrictions on the sponsors (for example, completion support and transfer prohibitions) and the sponsors are able to start receiving distributions from the project. On passing the completion tests, the lenders often then only have recourse to the borrower and its assets for the repayment of the debt where previously they may have had an ability to call under a parent company guarantee or similar instrument in the event of, for example cost overruns.

The significant price volatility of oil and gas products has a number of consequences in a project financing context, including in relation to higher debt service coverage ratios and obligations to ensure that any excess cashflow is applied in prepayment of outstanding debt.

Shareholder funding

The use of shareholder capital as a source of funding is common across the various components of the oil and gas sector where, for example, equity investors might be required to ensure the maintenance of gearing ratios under the terms of a project financing or where they independently fund a project ahead of any third party financing being put in place. Shareholders may consider extending shareholder loans or subscribing for shares depending on various tax, corporate and local legal considerations. A shareholder loan can be extended on a commercial, arm's length basis, and may be secured, but will have to be subordinated to that of any external financiers under the terms of the relevant intercreditor agreement.

In a project finance context, the required quantum of shareholder loans (or pure equity share subscriptions, as the case may be) will take into account the maintenance of minimum gearing ratios and, thus, the drawdown schedule under the loan agreements. Until the project finance facilities are repaid in full, repayment of principal or interest on shareholder loans will only be possible to the extent that distributions are permitted under the terms of the financing documents and in accordance with the payment waterfall set out therein. The sponsors will typically not be able to accelerate the repayment of their shareholder loans or to trigger a cross-default as the lenders will expect to be repaid in all cases ahead of equity stakeholders. A construction phase project financing will usually prohibit a sponsor from any value extraction before the completion testing requirements have been met (or potentially earlier, if there is to be significant early revenue generation ahead of the full completion test requirements being fulfilled).

DFIs, infrastructure and pension funds and private equity investors have all invested in projects across the oil and gas sector by way of subscribing for shares in the project structure. Rights attaching to such shareholder investment will be set out in the relevant governance documents but will be subordinated, and subject, to those of the third party financiers of any outstanding senior debt to the project.

Equity bridge financing

Stakeholders can maximise their capital returns by meeting their equity funding obligations in a project financing through the use of equity bridge loans (EBLs). EBLs typically mature at, or sometimes, shortly after the end of construction, and their availability depends partly on whether the project finance lenders or local law require any "hard" equity contributions from the sponsors.

Key features of EBLs include:

- Drawdown is usually in full upfront, but if the parties agree to EBL drawings pro rata with senior project finance utilisations, the senior project lenders will seek sponsor support to ensure there is no funding shortfall in the event that the EBL lenders do not fund.
- The sponsors are required to provide a guarantee of the project company's repayment obligations, since the senior project finance lenders retain priority of repayment from the project cashflows (save to the extent that distributions are permitted and for a capped amount of interest payments). The presence of a guarantee enables favourable interest rates.
- If a default occurs and is continuing under the EBL, given the subordinated position of the EBL lenders, there will not usually be a cross-default trigger under the senior project financing.

Additional sources of financing

Initial public offerings

Initial public offerings (IPOs) are becoming more common in the oil and gas sector with NOCs taking all or part of their businesses public, including:

- Aramco, which opened on the Saudi Arabian stock exchange in December 2019.
- The fuel distribution unit of ADNOC.
- The very recent offering of several business units of Indonesia's Pertamina.

Additionally, certain large scale downstream projects can, as a consequence of local law or government policy, be required to make public share offerings, such as was the case with the Sadara petrochemicals project in Saudi Arabia.

For more on IPOs, see [Practice note, Initial public offerings \(IPOs\): overview](#).

Private equity

Private equity investment can arise either by way of acquisition (perhaps using leveraged financing) during the operational life of an asset or through investment from the outset, as was the case for the ADNOC pipeline acquisition and in the context of a number of American assets in recent years. However, the relatively short-term exit strategies of private equity houses are not always commensurate with the more distant development and construction horizons of the upstream sector. Consequently, private equity investment may be more suitable in the midstream or downstream context or for an asset which is already in operations.

The challenges for private equity players ultimately seeking to project finance their assets include:

- Restrictions placed on the sale of their shares.
- The inability to extract value from the business due to distribution lock-ups until certain specified points at the end of the project's construction.

As a result, these stakeholders are more commonly seen in the brownfield context, with accompanying hybrid leveraged financing requirements but private equity investment in the oil and gas sector has become increasingly common as a number of DFIs, ECAs and commercial banks diversify away from oil and gas projects.

Corporate loan facilities

In a midstream or downstream context, corporate loan facilities will typically only be available once the project is itself fully operational and has the proven operational and financial track-record required for the commercial banks and/or certain institutional investors such as insurers or infrastructure funds.

Mezzanine debt

Mezzanine debt may be used as part of a project financing (or in an upstream RBL context) to optimise the financing plan or fill a funding gap. This can be a secured loan but repayment will, in all cases, be subordinated to the senior lenders' rights of repayment (and ahead of the equity distributions with repayment being dependent on there being sufficient cashflow through the payment waterfall and typically with significant disenfranchisement of voting and enforcement rights of the relevant subordinated lender. However, such subordinated lenders may already be a related party, perhaps as a contractor or senior lender, with a clear alignment of interests with the other lender stakeholders. Interest usually accrues at a higher rate to compensate the mezzanine lender for its subordination to the senior debt and may accrue on a capitalised ("rolled up") basis or additionally the structure may provide a right for a mezzanine lender to convert the debt to equity at the end of the term.

Acquisition debt

This category of finance is often relevant in a midstream or downstream context where, for example, an investor is seeking to purchase an existing gas distribution or transmission asset. Leveraged financing sourced through a combination of commercial banks and institutional investors may be used for this purpose.

Islamic finance

This is primarily a type of asset-based financing that is concerned with the conduct of commercial and financial activities in accordance with Islamic law (*Sharia*). The structures are analogous to typical financing structures and techniques and are increasingly popular due to the longer tenors and more attractive pricing that has become available from Islamic financing institutions. Of particular interest is the *sukuk* instrument, which is a Sharia-compliant bond where any profit or benefit derived from the *sukuk* must be linked to the performance of a real asset and associated risks of ownership of the asset.

A *sukuk* was issued by the project company as part of the multi-sourced financing structure for the \$18 billion Sadara petrochemicals plant in Saudi Arabia. Additionally, in February 2023, an SPV controlled by investors led by BlackRock issued a \$1.5 billion project *sukuk* listed on the London Stock Exchange to partially refinance bridge loans used to acquire a 49% shareholding in Aramco's gas pipeline infrastructure.

Project bonds

In this instance, the issuer is the project company or a specially incorporated entity of the sponsors with bondholder institutional investors. Projects have long accessed the bond market, particularly following the completion of the construction phase where fewer waivers are likely to be sought from the bondholders.

The advantage of bonds, as compared to other sources of debt, is that long term debt can be sourced in large amounts with greater operational flexibility than project finance provided by commercial banks or agency lenders. Decision-making can be unwieldy and the investors may be less sophisticated and able to process some of the technical or legal requests arising in a waiver context. Bonds are also time-consuming, with significant disclosure requirements. Where an investor is interested in long-term stable cashflows (such as an insurance company or a pension fund), a bond can provide an attractive investment opportunity, particularly once a project is operational. Additionally, once projects have matured, corporate bonds might be issued. For more information on project bonds, see *Practice note, Project bonds*.

For a discussion of the benefits and drawbacks of project finance bond offerings, see *Practice note, Financing structures used in project finance transactions: advantages and disadvantages: Capital markets offerings: advantages and disadvantages*

Other financing considerations for the oil and gas sectors

Aside from the question of sourcing of funds for an oil and gas project, the following are some of the additional considerations that the parties may have regard to during the life of a project and its financing.

Expansion financings

It is not uncommon in an oil and gas financing context for the sponsors to seek a change in project scope, whether by way of neighbouring field development for which the sponsor already has permits and licences, or whether by constructing a new complementary unit within an existing complex. Production from complex petrochemical plants or refineries can be enhanced through a process known as "debottlenecking", through which existing operating components of the project are modified to enable them to run more efficiently. The loan agreements will often permit a pre-agreed quantum of project revenues to be applied from the project company's accounts waterfall for debottlenecking but only after first meeting any principal and financing cost payment and prepayment obligations and ahead of the making of any distributions.

Such expansion projects can also be achieved through the application of the project's revenue streams, but the finance documents may specifically provide for expansions. Existing third-party financiers will be concerned to ensure that there is no material impact on the existing operations to the detriment of the cashflow applied to meet the project's debt service obligations. In a downstream project financing context, the sponsors may agree upfront with their financiers that the documents provide for such potential expansion, subject to various conditions being fulfilled including that:

- It will not occur until completion of construction of the initial project facilities.
- There is an identified acceptable offtake arrangement for products from the expansion facilities.

The lenders may allow the project to incur further secured debt in connection with an expansion or debottlenecking or, alternatively, the sponsor parties may consider refinancing in full if more favourable or cheaper terms are available in the market.

Hedging

Typically, minimum and maximum hedging requirements are specified in the terms of the finance documents. The commodity hedging element of this is particularly important in an oil and gas context to the extent that the offtake (and therefore the borrower and its ability to service debt) is exposed to changing commodities prices (that is, external market forces over which the borrower has little or no control) without any floor or if the project is not yet at a phase of development where it is possible to enter into long-term offtake arrangements, or indeed if such long-term offtake arrangements are not possible but where potential financing institutions require certainty of future cashflows.

The inclusion of commodity hedging within a financing structure will be in addition to:

- Any interest rate hedging that may be required to mitigate the extent of floating rate facilities.
- Any required currency hedging in respect of key project contracts, which may be payable to or by the project company in an alternative currency to that of the loan disbursements and loan repayments.

It is critical also in an RBL context that the calculation of the borrowing base amount should be negotiated to take into account any hedging payments or receipts, and that the lenders are protected from the borrower overhedging (that is, hedging an amount greater than the total risk exposure).

Refinancing

As noted in a number of sections above, it is not uncommon for the financing of an oil and gas project to contemplate and permit refinancings. Interest rates have risen sharply in 2022 and 2023 and therefore many project companies currently negotiating loan documentation will wish to ensure that they have flexibility to refinance one or more of their facilities with cheaper debt if and when available.

Certain financings even incentivise refinancings at a later juncture through step-up adjustments to margin over time (a margin "ratchet") and often using alternative financing structures.

Project bonds have been used to refinance loan facilities in the midstream and upstream sectors, including, for example, in relation to the Dolphin Energy pipeline between the United Arab Emirates and Qatar and also by the Delek and Avner sponsors on the Tamar gas field in Israel.

Once construction is complete, the sponsors may consider refinancing on more advantageous terms due to the lower risk associated with operational projects and investors no longer having to assume construction risk depending on market terms at the applicable time.

One option for a sponsor to generate cash when a project is operational is to transfer all or part of a sponsor's shareholding or working interest in the project, subject to the existing transfer restrictions in the constitutive documents and any third party financing documents already in place. Pension funds and insurers, for example, have long-term investment horizons but seek to minimise volatility of returns, which means that operational assets will tend to be more attractive to them.

Current market trends

- Diversification away from fossil fuels is increasingly prevalent, not only within the financing institutions who typically finance the development or acquisition of projects in the oil and gas sector but also within key equity players, the majors, and midstream players who are all increasingly focussing on energy efficiency and low carbon projects. Some examples include:
 - the previously significant player in the gas market, Engie (formerly GDF Suez) sold its LNG business to TotalEnergies and has become a developer of energy projects with a focus on sustainability; and
 - the majors such as BP and TotalEnergies are now also very much turning their focus to renewable energy with numerous investments in the likes of BP Lightsource and various TotalEnergies affiliates and projects through which TotalEnergies is targeting to attain electricity production of 120 TWh by 2030, mainly through the development of solar and wind power.

The response of the players in the oil and gas sector to diversification depends on their nature and size of business and other strategies to diversification can involve acquisitions, consolidation, investment in R&D and forming of strategic advances.

- Increased public focus and NGO pressure on industries reliant upon, or exploring and producing, fossil fuels. The industry is having to adapt in the medium to longer term to the new asks from an energy production and feedstocks perspective as the world transitions to low carbon economies, which, as noted above, is an important consideration when determining financing sources available to upstream, midstream and downstream assets of both a greenfield and brownfield nature. However, demand for oil and gas products will nevertheless continue over the coming decades and, in particular, gas and LNG products are expected to be central to the energy transition.
- An increased amount of regulation in the car industry relating to fuel emissions has led to movement towards electrification and hybridisation of road vehicles and investment in related industries and R&D. It has been estimated by the International Energy Agency in Paris that electric vehicle (EV) deployment in line with existing pledges and announcements suggests a displacement of 1.6 million barrels per day (mb/d) of oil by 2025, and 4.6 mb/d by 2030.
- Growing dissenting sentiment from the wider public relating to fossil fuels has forced financial institutions to also begin moving further towards the backing of renewable energy sources and carbon neutral, energy efficient projects. In the same way that institutions have moved away from backing coal-fired power plants, we are increasingly seeing the same in relation to oil and gas projects (particularly upstream). For example, HSBC, one of the biggest banks in the world, announced in 2022 that it will no longer fund new oil and gas fields. It is unclear whether this impact will be felt as keenly in some of the emerging markets as it is elsewhere, where increasing regulation and public pressure to invest in clean technologies and energies, together with reputational risk concerns, are resulting in real change in financing liquidity and investor (dis)incentive.
- An increasing demand for gas and LNG as a "transitional fuel". The medium-term outlook for the LNG sector is positive owing to the more environmentally friendly nature of the ultimate product, including its fuelling of ships and in particular its use as feedstock in power plants downstream. Much of this activity has been witnessed in the Americas' market including CELSE's largest ever LNG to power plant in Latin America and the New Fortress Energy 2021 acquisitions (see *What is a midstream oil and gas project?*). This sector is also seeing the advent of new LNG storage projects in the form of bunkering such as the TotalEnergies investment in Oman. The collective desire among the wider public and players in the market to move away from fossil fuels will continue to be weighed against the availability of renewable energy sources, the speed at which renewable energy projects can be developed and the need for energy security, particularly in light of the ongoing Russian invasion of Ukraine. Gas and LNG will continue to be part of the diversified energy matrix for some time to come.
- Growth in the LNG sector has resulted in substantial increases in the volumes of LNG traded on a spot and short-term basis, which is in turn shaping strategies of those participants who are active in the sector. LNG pricing has been volatile over the past few years. However, longer term, twenty-year contracts (required by financiers) have been historically linked to crude prices. This presents opportunities to renegotiate positions when contracts come up for renewal, tying pricing to gas indices, offering shorter term purchase arrangements and generally creating liquidity for the LNG spot sales, which in turn brings with it increasing hedging opportunities and transaction volumes. US LNG export growth continues to be significant with numerous additional new projects currently under construction coming to completion and soon to be online.
- Public flotations of some of the NOCs and investment funds such as the heavily publicised successful IPO of Aramco and certain ADNOC units are indicators of moves away from previously adopted investment strategy to diversify risk and exposure to market pricing.
- Increasing focus on decommissioning costs with borrowers being required to set aside separate allocations including providing collateral in respect of decommissioning obligations.

- NOCs are rapidly emerging as controllers of a large share of the world's upstream production units and are seeking to finance projects on the basis of their own credit ratings albeit that they are less able to access the cheaper corporate debt available to the large corporates. NOCs produce most of the world's oil and gas reserves and are looking at increasingly flexible means of structuring the monetisation of their upstream resources while also instigating downstream activities. They are also seeking technological excellence and greater operational efficiencies.
- Commercial banks are facing financing constraints in addition to the environmental concerns described above, notably in respect of Basel III, which result in shorter tenors and higher pricing to reflect higher capital and regulatory costs. Structured financings are increasingly "club deals" rather than underwritten/syndicated as the commercial bank market becomes tighter and less liquid. Across the banking sector, there is lower appetite for longer maturities. Hence borrowers have to maximise the use of alternative funding sources including through securitisations, US private placements, sovereign wealth fund investments, ECAs, DFIs, multilateral agencies, bonds and the high yield market (see also *Practice note, Types of lending: alternative finance: Energy and mining projects*).

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