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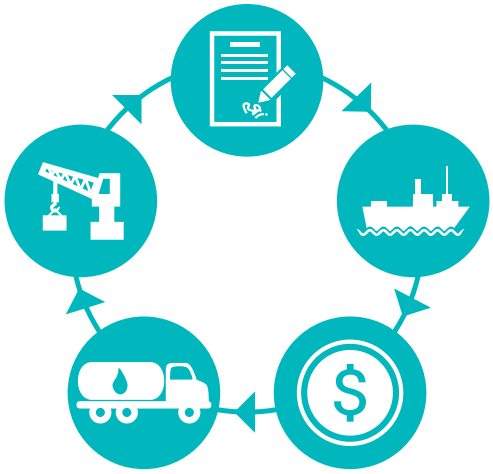
Decommissioning Hydrocarbon Assets:

Finding Value in a Shifting Regulatory Landscape

Introduction

Oil and gas facilities around the world are aging. Globally, there are over 7,000 offshore upstream hydrocarbon installations, spread across the continental shelves of 53 countries. At least 116 countries are engaged in some form of onshore hydrocarbon extraction or processing. Many of these offshore and onshore facilities are reaching the end of their useful life due to resource depletion or shifting economics in hydrocarbon production. Offshore alone, as many as 600 aging offshore oil and gas platforms are expected to be decommissioned in the next five years, with as many as 2,000 more decommissioning projects to be completed by 2040. This translates into a projected increase in decommissioning spending from approximately $2.4 billion to $13 billion per year. The situation onshore is no different, with owners and operators similarly facing rapidly approaching decommissioning obligations.

For the owners and operators of aging facilities, decommissioning presents a complex array of financial and legal considerations. In emerging market countries, the process of decommissioning is further complicated by limited experience and regulatory frameworks that are vague or non-existent. This results in a lack of predictability in emerging markets that exposes owners and operators to increased financial and legal risks.



The governments of emerging market countries are starting to give more attention to how decommissioning is regulated due to the increasing number of late-life assets and a corresponding uptick in decommissioning activity. These governments are reexamining decommissioning activity in the context of a growing environmental focus and a desire to shift more extraction costs to concessionaires. Already, several emerging market countries have enacted or proposed changes to the laws and regulations governing the decommissioning of hydrocarbon assets. To overcome their lack of experience in this area, governments often look to the examples set by more developed decommissioning regimes.

Staying abreast of changes in how decommissioning activity is and will be regulated is imperative for hydrocarbon facility owners and operators seeking to limit risk and control potential liabilities. Understanding oil and gas facility decommissioning obligations – and how such obligations might be affected by an evolving legal and regulatory environment – in mergers and acquisitions and other liability transfer contexts, is of particular importance in today's market because purchasers seeking value from late-life assets will need to plan for and price in decommissioning liabilities that are associated with the facilities that they are purchasing.

In this overview of the decommissioning landscape, we will introduce legal considerations that are, in our view, of critical importance given the increasing number of facilities approaching the end of their useful life and highlight issues that are on the horizon for all stakeholders. First, we will provide a general overview of decommissioning obligations and highlight how legal considerations shape decommissioning planning, with a focus on how liability and risks are allocated. We will then discuss decommissioning regimes in developed markets and explore the influence of those regimes by highlighting trends in emerging markets. This overview will conclude with a discussion of recent changes in emerging market regimes, exploring issues related to late-life asset transfers and providing examples of innovative stakeholder responses. Of course, each decommissioning project is unique and any approach should be tailored to meet the requirements of applicable laws and regulations and any other relevant circumstances.

Decommissioning Obligations: Planning Considerations

Decommissioning Offshore Assets

Decommissioning maritime hydrocarbon facilities presents stakeholders with an array of technical removal options, ranging from complete removal of the assets to leaving part of the platform and/or pipelines in place. While planning decisions are shaped by project-specific financial

and geographic considerations, the range of permissible decommissioning options is determined by the obligations imposed by the applicable regulatory regime. Applicable laws and regulations might mandate a specific technical option, or allow those responsible for decommissioning the asset to choose from a menu of permissible options. Decommissioning planning must involve a consideration of the regulatory requirements that expand or contract the universe of relevant technical options or impact the financial viability of a given proposal. For example, in the United States, a responsible party should consider that the mechanical severance of offshore structures implicates a different set of environmental and labor laws than those that apply to an explosive severance methodology. The requirements of these laws, while not specific to decommissioning, impact the costs of a decommissioning project. In Vietnam, recycling and environmental restoration obligations eliminate several technical approaches that have been used with success in the North Sea, but create alternative opportunities for value. Accordingly, a well-advised decommissioning strategy will consider technical, strategic, economic, and legal aspects holistically.

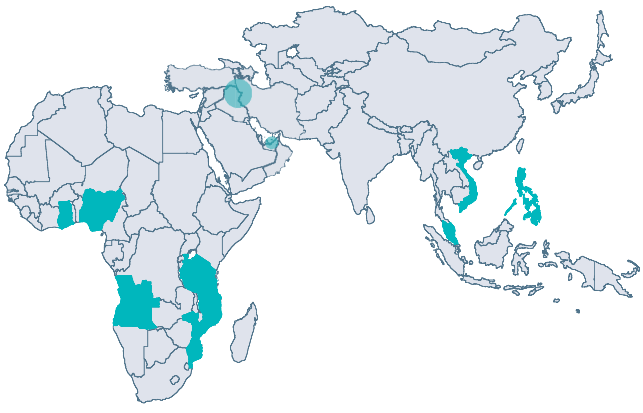
Decommissioning Onshore Assets

Onshore, industry stakeholders are similarly presented with choices and costs informed by installation type, architecture, and siting, as well as applicable regulatory overlays. Onshore decommissioning activity (sometimes referred to as plugging and abandoning) often includes the physical dismantling and the partial or complete removal of structures; the implementation of environmental remediation measures; and site restoration in-line with the expectations of government, community, and private stakeholders. In both the onshore and offshore context, firms may seek to decommission assets in-house, out-source, or may seek to sell late-life assets and transfer liabilities altogether.

Innovative Stakeholder Responses in Decommissioning Planning

The influence of legal considerations on the various technical and strategic aspects of decommissioning planning has become more readily apparent in how stakeholders have responded to decommissioning obligations in recent years. Stakeholders have developed a range of innovative solutions, particularly in developed markets, responding to these complex and often competing demands. For example, the practical difficulty, as well as increased labor and insurance costs, of the offshore dismantling operations mandated by the United Kingdom and Norway in the North Sea significantly increases decommissioning overhead. One solution has been to conduct as much work as possible onshore. Recently, ships have been specially designed to achieve this end. In 2017, the *Pioneering Spirit* set the record for the largest offshore lift by removing the Brent Delta platform in the North Sea. The platform was then transported to shore for dismantling and reuse. A larger platform-lifting ship, the *Amazing Grace*, is set to be complete by 2022.

As much of the forecasted growth in decommissioning activity will occur where stakeholders have limited experience with how technical, financial, and legal considerations interact, the bulk of innovation over the next several decades will be in emerging market countries. In Africa, stakeholders in Angola and Nigeria are set to lead the continent in offshore decommissioning spending over the next decade. While in the Asia Pacific region, stakeholders in Malaysia and Vietnam are poised to become the leaders in offshore decommissioning activity.



Emerging market leaders: Ghana, Mozambique, Nigeria, Tanzania, Kurdistan, Malaysia, Vietnam, Angola, the Philippines

Stakeholders in emerging markets will need to navigate the inevitable evolution of the laws and regulations that influence decommissioning planning decisions as governments gain more experience. Managing decommissioning obligations in these markets over the next decade will require flexibility and the ability to import and adapt lessons from the legal regimes established in developed markets as well as an understanding of how current regimes apportion liabilities.

Legal and Regulatory Frameworks: Apportionment of Liabilities

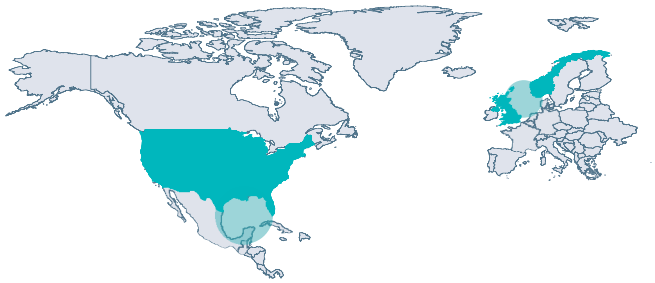
Legal frameworks that govern decommissioning activity vary significantly from jurisdiction to jurisdiction, both in their level of specificity and in how they allocate liabilities among the parties involved. Among whom and how the costs of decommissioning are to be apportioned are the most salient issues for stakeholders, whether the assets to be decommissioned are located onshore or offshore. In the context of transferring assets, where a field has had multiple operators and participants during its lifespan, a number of countries apportion liability for decommissioning obligations among them and may require each to secure all or part of predicted decommissioning costs. Other countries will hold only the present owner liable for decommissioning liabilities unless a transferor knew that their transferee could not bear the financial burden of decommissioning.

In this section, we will first consider how the developed market has apportioned decommissioning liability and risk. We will then explore differet approaches in the emerging market context. While the treatment of decommissioning liability will continue to evolve over time, developed market examples help inform predictions of where emerging markets are going. We will highlight emerging market trends in how liability is apportioned and show where emerging market regimes have already started to change in response to an increase in decommissioning activity. This section will conclude with a brief discussion of asset transfer considerations.

Decommissioning in Developed Markets

Stakeholders have a wealth of experience with the legal and regulatory frameworks in developed markets to draw upon. In these jurisdictions, it is well known that environmental, hazardous material, labor and waste disposal regimes are often highly detailed and vigorously enforced. Governments have had enough experience with responsible parties becoming insolvent or otherwise shirking decommissioning obligations to identify risks and apportion liability accordingly. Onshore, governments have sought to mitigate decommissioning risks through forms of public insurance: cost-sharing mechanisms or public funds allocated to ensure that decommissioning and subsequent environmental remediation will take place even when a responsible party has become insolvent or otherwise fails to carry out its decommissioning obligations.

In the offshore context, countries are obliged to consider the apportionment of financial risks inherent in an obligation arising at the end of an asset's productive life. The United Nations Convention on the Law of the Sea requires signatories to ensure that parties have the financial strength to cover potential decommissioning liabilities. How nations ensure that operators and licensees in developed markets can bear the costs of decommissioning differs greatly. The United States, United Kingdom, and Norway are home to a significant share of global decommissioning activity and illustrate different approaches to this issue.



Influential jurisdictions: the United States (the Gulf of Mexico) and the United Kingdom and Norway (the North Sea)

As a general rule, the issue of liability apportionment among current and former operators and participants in a given field is not treated in great detail, if at all, in applicable laws and regulations. The United Kingdom is an outlier in this regard

by providing clear treatment of this issue. The primary driver of the detail instituted in the United Kingdom is the stress-testing provided by the large number of transferred wells that have entered the decommissioning phase in the North Sea over the past decade.

In the United Kingdom, decommissioning activity is regulated by the government's Department of Energy and Climate Change. Operators and licensees are generally required to maintain the integrity of wells, pipelines, and associated infrastructure throughout the life cycle of operations. From the outset, facilities must be designed and built so that they can be decommissioned safely. At least three years prior to the end of production, contractors are required to prepare and submit a "safety case"—a written risk assessment for carrying out a decommissioning plan. Decommissioning obligations attach upon receipt of a notice from the Secretary of State that requires operators of a field and each licensee to submit programs for decommissioning. If the Department of Energy and Climate Change is not satisfied with the apportionment of risks in the plan, operators and licensees will need to post a security to ensure their liabilities will be covered. In addition, operators and licensees can be held jointly and severally liable for failure to satisfy decommissioning obligations and prior operators and licensees may not be able to fully extricate themselves from decommissioning liability upon transfer of the asset.

Norway's approach requires licensees to submit a decommissioning plan to the government's Ministry of Petroleum and Energy (the "Ministry") two to five years before a license expires or is terminated, or the use of a facility is terminated. The plan must contain a proposal for either continued production at the facility or the shutdown and disposal of the facility. The Ministry uses this decommissioning plan to determine the amount of security that the licensee must post and Contractors are required to maintain insurance that will cover the costs of a decommissioning-related environmental disaster. The Ministry may require the posting of decommissioning security upon granting a license, but may also wait until a decommissioning plan has been submitted. If a licensee fails or refuses to carry out a plan once it has been approved by the Ministry, the licensee might face criminal liability in the form of fines and graduated penalties for particularly aggravating circumstances. The Ministry may also step in and conduct disposal at the licensee's cost and risk.

In the United States, the location of a facility determines applicable decommissioning permitting requirements that may require security. Permit violations at the federal, state, or local level may subject operators to administrative or criminal fines. In the most egregious instances, a responsible individual or corporate officer may face imprisonment. Onshore, operators must often obtain a series of permits from federal and state agencies as well as the applicable city or county in which the facility is located. Localities may require security to be posted before issuing a permit. Offshore, federal agencies regulate the outer-continental shelf and state agencies regulate waters near shore—i.e., within three nautical miles of shore (except in Texas and the Florida Gulf coast, where the distance is nine nautical miles). Operators on the outer-continental shelf must obtain approval from appropriate federal agencies prior to initiating abandonment operations. Closer to the shore, state and local approval requirements vary significantly. For example, financial assurance requirements of the Texas Railroad Commission (the state entity that governs Texas offshore decommissioning obligations) are significantly less than those of federal agencies. Lease agreements between government sea bed owners and private developer lessees will often require the lessee to post security that guarantees site restoration. In the Gulf states, obligations and risks relating to decommissioning are generally imposed on the international contractors through the negotiated terms of the applicable production sharing contract or concession. Negotiated terms typically include financial commitments and mandatory submission of decommissioning plans.

Decommissioning in Emerging Markets

Countries where most fields have yet to approach the end of their productive life and decommissioning activity has been less common have associated regulatory regimes that have not yet had to undergo the type of stress-testing that regimes in the United Kingdom, Norway, and the United States have experienced. Navigating existing regulations presents a challenge for owners and operators contemplating the closure of older oil and gas facilities.

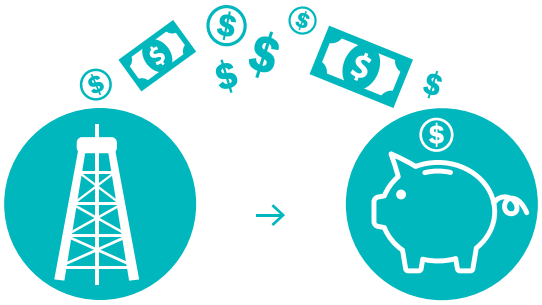
Laws and regulations in emerging markets can be vague, may be largely untested, and are often subject to rapid changes or inconsistent application. Countries have adopted a variety of approaches, embodied in legislation, regulations, and model agreements or licenses, that collectively dictate the plans and processes as to how decommissioning will take place,

but often leave some important questions unanswered. In many cases, any revised obligations may not be applicable to projects governed by older contractual regimes that failed to adequately address responsibilities for decommissioning activities. In these cases, responsibility for decommissioning may devolve to the parastatal entity that owns the petroleum resources or the government directly, accounting for the relatively slow pace of decommissioning activity to date. Therefore, a well-advised decommissioning plan will consider past, present, and potential future regulatory requirements relevant to evaluation of technical options.

A survey of how emerging markets apportion decommissioning liability illuminates three broad methods of assigning responsibility and allocating risks: (i) reserve funds that require owners and operators to contribute throughout the productive cycle of the facility to insure against a default on decommissioning obligations, (ii) production sharing contracts that apportion risks on a case-by-case basis with relatively limited transparency, and (iii) hybrid-type approaches in which liability is apportioned through both of these tools, requiring stakeholders to look to both to understand the scope of their obligations.

Reserve Funds

Regimes in Tanzania, Mozambique, and Ghana are examples of how reserve funds may be used to secure decommissioning liability. In Mozambique, contractors must agree to submit a decommissioning plan to the Ministry of Mineral Resources and establish a decommissioning reserve fund. However, applicable regulations in Mozambique do not specify the precise amount of funding to cover decommissioning operations. In Tanzania, legislation requires licensees to establish decommissioning funds for each development area, specify when funding commences, and provide that funding be adequate to cover the cost of the decommissioning operation contemplated in a decommissioning plan submitted to the Petroleum Upstream Regulatory Authority. In Ghana, still pending legislation would require the state-owned petroleum company or a licensed contractor to establish a decommissioning fund calculated to cover the full cost of decommissioning as described in a decommissioning plan submitted to the Petroleum Regulatory Authority. In some jurisdictions, an owner or operator may not necessarily be entitled to a return of unused funds.



Many of these jurisdictions also require an owner or operator to have insurance adequate to cover the cost of environmental disasters incident to decommissioning operations and a few, such as Tanzania, impose joint and several liability on successive operators of facilities in the event of a default on decommissioning obligations or an inadequate reserve fund.

Production Sharing Contracts and Concessions

Apportioning decommissioning liabilities through a production sharing arrangement or concession is prevalent where hydrocarbon development is managed by parastatal petroleum companies. A contractor may be required to post security initially or contribute to a fund throughout the life of the project. In Malaysia, all rights to petroleum resource development are held by PETRONAS, the state-owned oil monopoly. Third-party operators execute production sharing contracts with PETRONAS that require the funding of an abandonment cess fund in addition to allocating decommissioning liability. In Vietnam, the Vietnam Oil and Gas Corporation ("PVN") conducts all petroleum operations and is empowered to enter into agreements with third parties for implementing operations. These agreements require contractors to submit decommissioning plans and budgets to PVN, with oversight from the Ministry of Industry and Trade, and to post a security as a cash reserve consistent with applicable environmental protection law. Because contributions are negotiated in production sharing agreements rather than required by public laws, there is often less predictability under this approach.

Hybrid Approaches

The two general approaches described above are frequently used in combination, creating an array of hybrid mechanisms. To provide a few examples: Angola has departed from the approach taken by its neighbors and negotiates with operators through its parastatal entity, Sonangol. Sonangol is the sole conecessionaire and contracts with third parties to develop fields. Sonangol is required by law to submit decommissioning plans and make funds available to ensure that decommissioning obligations are met. Sonangol is thus incentivized to push as much of this financial risk to its contractors as possible. In the event funds are insufficient, Sonangol and its contracting associates are jointly and severally liable for the cost of decommissioning and site restoration. In Abu Dhabi, no legislation expressly governs decommissioning. However, the terms of modern concessions generally envisage the appointment of a decommissioning consultant approved by the Supreme Petroleum Council to prepare a decommissioning plan. The national oil company, ADNOC, has a majority interest in each concession and also plays a critical role in formulating the decommissioning plan. Concessionaires are generally required to fund a decommissioning account in proportion to their participating interest in the concession.

Service agreements can add a layer of complexity to decommissioning operations. In the Philippines, the government, through the Department of Energy, directly enters into service contracts with developers for the exploitation of oil and gas resources. These service contracts make the contractor responsible for the decommissioning of the project and require the contractor to include abandonment costs in annual operating expenses. Kurdistan obligates its onshore contractors to remove infrastructure and restore the development area once petroleum operations are concluded, but reserve funding during operations is only required at the option of the contractor. If the contractor elects to contribute to a reserve fund, the government may use this fund to decommission facilities or make payments to the contractor to conduct decommissioning activities. Prior contractors remain jointly and severally liable for decommissioning costs even after negotiating assets, creating a market incentive to apportion and mitigate risk.

Changes in Emerging Market Regimes

Several emerging market countries home to substantial hydrocarbon assets are in the process of reforming their decommissioning regimes. For example, in 2013 the ASEAN Council on Petroleum (ASCOPE) published detailed decommissioning guidelines that have been formally incorporated into existing legislation by Brunei and will soon be incorporated into the regimes of various member countries. In recognition of the lack of predictability afforded stakeholders in production sharing contract regimes, Thailand has recently moved toward a more transparent system and will also demand further assurances from operators. The nation is expected to introduce regulations that will ensure operators can meet the estimated USD 3 to 5 billion cost of near-term decommissioning in the Gulf of Thailand.

In Nigeria a suite of pending oil and gas industry laws are likely to alter onshore decommissioning obligations. These changes reflect increased experience with the externalized costs of decommissioning as well as shifting attitudes towards environmental, social, and health regulation. The package of reform bills will echo the planning approach taken in Norway and the United Kingdom, but will continue to handle security requirements through contract. Currently, concessionaires or their assignees must obtain a license from the Minister of Petroleum Resources. If the new legislation is enacted, licensees will need to submit a decommissioning plan that meets the general requirement to remove all buildings, installations, and works in the relevant area. While there will likely not be a legislative requirement to post a decommissioning security, Nigeria's Model Production Sharing Contract requires contractors to enter into a Decommissioning Security Agreement with the Ministry and provide security equal to the sum of decommissioning costs incurred or taken as recoverable costs in all prior years. This Decommissioning Security Agreement is to be proposed as part of the Development Plan submitted for the field.

Planning for the Future

Emerging market regimes will continue to evolve as regulators gain experience with the decommissioning process. Many of the lessons learned by stakeholders in these markets will be relevant in the emerging market context as decommissioning activity increases and governments import successful regimes from more industrialized countries. In short, successfully translating decommissioning expertise from developed regimes to emerging markets will help stakeholders navigate the increasingly choppy waters of decommissioning regulation in these countries. A well-advised decommissioning plan thus requires experience with and understanding of existing emerging market legal regimes as well as experience in developed markets.

The need for legal expertise is particularly acute in the context of a late-life asset transfer. In this area, environmental and tax legislation significantly impact how a transfer may be structured. International conventions on the shipping of waste, differing remediation standards, and geographic factors unique to each site combine to provide responsible parties with a heady cocktail of complex considerations in developing a transfer agreement.

Finding Value in a Late-life Asset Transfer

A late-life asset transfer is an attractive alternative to undertaking a decommissioning plan, but is subject to its own considerations that often complicate the prospective deal and can make it challenging for the transferring or acquiring party to find value. For example, the transfer of decommissioning liabilities through a sale of late-life positions in aging assets appears to have the most appeal in jurisdictions that do not use a reserve fund approach. However, many jurisdictions provide that owners or operators who have acquired such facilities have also acquired full liability for decommissioning obligations. Application of these rules may depend on whether the owner or operator acquired an offshore platform or an onshore facility. Further, jurisdictions that use a reserve fund approach often do not permit assignors to escape liability if an assignee is unable to meet their reserve fund obligations.

In developed markets, transfers are typically regulated and can have unintended tax consequences. For example, under regulations in the United Kingdom, a transfer of decommissioning liability is considered provisional and liability will revert to the original owner if the subsequent owner is not financially able to carry out the applicable obligations. A transfer deal must appropriately allocate the risk of transferee or transferor default.

Tax considerations can also be complex. For example, although decommissioning costs are tax deductible in the United Kingdom, a tax payer must have a sufficient tax history to fully enjoy the benefits of subsidized decommissioning for offshore assets. An entity with an insufficient tax history can effectively pay double to decommission an asset. Different tax rules apply to decommissioning onshore plants and machinery. To realize the benefits of a successful late-life asset transfer, a transferee must, like the transferor shedding the late-life asset, understand how the applicable regime impacts value.

Stakeholders have responded to the challenges highlighted above with innovative solutions. For example, owners and operators have leveraged an interest in second-use applications to relieve some of the financial burden of decommissioning and create value in a late-life acquisitions. Among public options, governments may offer incentive programs that provide second-use options in addition to subsidizing costs. The United States has been a leader in this realm. The U.S. Bureau of Safety and Environmental Enforcement developed a National Artificial Reef Plan that encourages responsible parties to decommission offshore platforms by toppling them in place resulting in the creation of an artificial reef which serves as a habitat for marine life. Under the plan, the responsible party removes equipment and enters into an agreement with the applicable state or federal authority to permit them to topple the remaining structure. Under the terms of the agreement, the operator will pay a portion of the amount of removal costs avoided into state or federal funds for marine life conservation. Numerous non-governmental organizations offer assistance for operators seeking to mitigate decommissioning costs through this rigs-to-reefs-program. This can be particularly valuable in the case of storm damaged structures required to be removed under the federal "idle iron" program, but the availability of such programs may be contingent on the owner or operator meeting certain financial criteria. Similar programs may appear in emerging markets seeking to cope with a large number of decommissioned assets.

Private entities increasingly see value in late-life ownership of offshore assets. For example, Malaysian designer Ku Yee Kee has produced a series of concept designs for luxury hotels built on decommissioned platforms. In the Celebes Sea, Seaventures Dive Resort is an active scuba diving school and

hotel built on the platform of a decommissioned oil rig. As decommissioning activity increases world-wide, we are likely to see a corresponding uptick in innovative sources of value from late-life assets that will encourage growth in the late-life asset transfer market. However, a well-advised asset transfer must consider how decommissioning liabilities are apportioned in the applicable regulatory regime to maximize value.

Conclusion

The shifting regulatory landscape surrounding decommissioning activity can be daunting, particularly in jurisdictions will little hydrocarbon asset decommissioning experience. Hunton Andrews Kurth is a global law firm with more than 1,000 lawyers practicing from 20 offices across the United States, Europe, and Asia. The firm's global experience extends to myriad legal disciplines, including energy and infrastructure, oil and gas, corporate transactions and securities law, international and government relations, regulatory law, privacy and cybersecurity, labor and employment, as well as all aspects of commercial litigation. We have the experience, knowledge, and expertise to navigate the wide array of issues related to decommissioning. Our emerging market practice highlights are illustrated in the map on the following page.

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