Developing the Iraqi Gas Sector: Critical Issues for A Way Forward

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Summary of Key Recommendations

1. As it develops a comprehensive strategy for the revitalization of the natural gas sector, the Iraqi government should:

   • Begin with an integrated policy based on a vision of key priorities for the sector and overall national development;

   • Conduct or contract a thorough assessment of the geologic potential for natural gas development throughout the country, so as to have a better sense of geologic risk on which to base legal and contractual provisions, including those covering the size of exploration/exploitation areas and the length of contracts;

   • Strongly consider allocating exploration and production acreage on a staged, competitive basis that involves detailed bids and balances the interests and capacities of various companies with the needs and priorities of different Iraqi fields, rather than granting control over entire regions or provinces to one private partner or operating group;

   • Require operating oil companies to submit timelines for reducing or eliminating gas flares, and enforce significant penalties to ensure that these timelines are followed;

   • Incorporate an attention to the development of local industry and local capacity into strategies and legislative and contractual terms across the value chain;

   • Follow international best practice in sector oversight and management policy, including a requirement for open and competitive procurement;

   • Explore the potential benefits (and risks) of developing a domestic pricing market to enhance the sector’s ability to improve domestic energy markets and promote industrial development;

   • Invest heavily in partnerships and institutions that develop domestic capacity in data management, engineering, petroleum economics, project management, and other key activities along the natural gas value chain; and

   • Commit to an open and inclusive policy-setting process, transparent disclosure of eventual gas revenues, and credible checks on sector management.
Introduction

2. The revitalization of the natural gas sector in Iraq requires fundamental policy decisions that balance short- and long-term revenue-generation and domestic energy needs while preserving adequate incentives to maintain relationships with key private-sector partners. The debate over natural gas policy in Iraq has crystallized in recent months around the signature of a Heads of Agreement (“HOA”) between the Ministry of Oil and Shell Gas and Power Developments B.V. for natural gas exploitation rights in Basra province. As currently structured, the HOA contains several features that may limit the benefits that accrue to the Iraqi population from natural gas production in the region, and underscores the need for an integrated national gas development policy.¹

3. This briefing attempts to lay out some of the critical stages of policy-making in the natural gas sector, by which a government can move from a scenario in which gas remains in the ground or is flared to one in which a legal and contractual structure supports key public policy goals. It is based on the experience of the Revenue Watch Institute and its advisors in working with governments, civil society, and the private sector across the world to promote effective and accountable natural gas systems, as well as an initial review of the key features of the Iraqi gas sector. Many of the issues discussed here relate to the development of a gas sector that is productive in the long-term but can also promote stable short- to medium-term revenues, especially through development of associated gas.

4. There can be no one-size-fits-all recipe for the creation or revitalization of natural gas rules, business models, or contracts; each country’s specific geology, policy priorities, economic needs, and technical capacity play a dominant role in shaping its optimal strategy. But there is a set of core subjects that any regime needs to explore as it lays out laws and policies. The discussion that follows lays out these critical issues, and places them in context of the unique challenges facing the Iraqi government.

Defining National Goals

5. The first step that any country must undertake is to come to a decision about the most important goals to be achieved in the design of the sector, because different goals necessitate different structures and strategies. In public statements, the Iraqi government has outlined two core short- to medium-term goals for the gas sector:

- Maximizing public revenue through the capture of gas that is currently flared; and
- Fueling national development by using Iraq’s gas in the power and industrial sectors.

6. A focus on these goals should animate the government’s near-term strategy for gas-sector management. In a broader sense, the government, like most governments in petroleum-rich regions, seeks to maximize the value that the state captures from the gas sector, via both sales inside and outside Iraq and the development of strong spillovers from gas production into other elements of the Iraqi economy. The government should continue to refine its priorities for the sector and should use those priorities to drive technical terms and

relationships with partners, rather than the other way around. Iraq will face various trade-offs as it balances the need for short-term revenues against longer-term capacity development and domestic value-added. Thus, the government should carefully model the likely impacts of key options in light of national priorities.

Understanding the Value Chain and Linking it to Key Development Goals

7. Even more than the oil sector, a well-developed natural gas industry requires an integrated strategy that encompasses each element of the process necessary to extract gas and develop it into a source of energy and income. Planning for the gas sector raises complications not present in the oil sector, both because gas development requires additional technology for processing and transportation, and because it implicates not only revenue-generation and transportation policy, but also national strategies on energy and industrial development. Each individual component of the value chain requires strategic decisions based on a clear vision for the sector as a whole.

8. The major stages of the natural gas value chain include the following:
   - Exploration and Production
   - Transportation
   - Conversion and Utilization
   - Marketing
   - Trade
   - Storage
   - Distribution

9. Conscious efforts must be made to promote national participation at each link, so as to foster local ownership and positive long-term spillovers. Enabling participation in support of national development is best achieved through policy, legislation and contracts that establish rights and obligations designed to achieve participation. To best reach the desired results, the policy must promote participation by both the State and the Iraqi private sector, and must consider those parts of the value chain that are both within and outside Iraq. To maximize the value of participation, domestic capacity must be developed in national companies, state entities and private Iraqi and international companies.

Working with Private Partners and Balancing Risk and Reward

10. The government has apparently made a strategic decision to work with private partners, including major international petroleum companies, on the development of the natural gas sector. This decision has the potential to confer many significant benefits — international companies can bring engineering and economic know-how, technology, capital, skilled people, access to markets and an understanding of all of the links along the value chain. They can also help the government plan and implement complex projects. The capacity possessed by strong international companies can be particularly important in developing or rebuilding economies like Iraq’s, where domestic capacity for quick mobilization of large projects is impaired.

11. There is significant overlap in the interests of government and private partners in developing a technically efficient gas sector that produces substantial revenue flows. But in
other areas the value drivers of government and private partner diverge, and governments must enact and enforce policies that ensure that public priorities, rather than company goals, drive sector development.

12. The central priority of any international company is to maximize the value that accrues to shareholders. Companies maximize net present value by seeking to generate as much revenue as they can as quickly as is feasible. As such, their incentive is to produce and market gas rapidly, seek the highest possible price for their product, and minimize costs (including taxes and royalties). International companies also have a strong financial incentive to get access to as much acreage as possible and to book additional reserves. At times companies may seek to acquire and hold onto fertile tracts — even ones that they have no near-term intention to develop — in order to prevent the tracts from being developed and depleted by competitors. Companies base operational decisions about where within their blocks to employ scarce capital and equipment on a comparison of projected rates of return across their global portfolios. Thus a company may choose not to invest heavily in a particular gas field, even though that field would produce a positive return, if the company could generate a higher return by focusing investment on another field in its portfolio, either within the same country or elsewhere.

13. Government goals are broader and have a longer-term horizon. In terms of revenue generation, the priority is maximizing public revenue — which is not the same as maximizing total revenue — and governments tend to be more wary than companies of production levels that maximize short-term revenues but risk reducing long-term field life. Value drivers include utilizing gas both for domestic consumption and to fuel industrial growth, which often requires developing lower-price domestic markets and thus reducing direct revenue to gas companies. Governments also seek to use the gas sector to develop national capacity via state participation in joint venture operating companies and the hiring and training of domestic companies and citizens.

14. Iraq’s government needs to put in place a regime that aligns technical and commercial practices in the sector with national interests, while still giving private companies sufficient assurances of adequate returns so as to maintain incentives to invest in the country and the sector. The keys to striking an effective balance are a) developing legal and fiscal systems that adequately distribute company and government risks and provide the private sector with returns commensurate with the risk they are undertaking; and b) being flexible in the face of changing conditions (such as price, size/production levels, costs, and technology changes) over time and taking both parties’ perspectives into consideration. In general, the higher the level of risk a government is asking potential companies to assume in investing, the more the system will need to entice company interest via favorable tax and royalty provisions, awards of large blocks and/or long terms, significant shares of upside benefits, generous rules on pricing, etc.

15. The key categories of risk that companies face can be defined as follows, from most significant to least significant in terms of their impact on company investment decisions:

   A. Geological Risk. This is by far the most important factor. When an area has not yet been significantly explored or the prospect of finding gas in large quantities is unknown, companies will require strongly favorable terms in order to invest in a
block. Governments sometimes respond to high geological risk by granting companies access to large geographic areas for long periods of time, so as to increase the odds that a company will make a meaningful find and have time to develop it.

B. Technical/Commercial Risk. This is a function of factors that are both general across the international petroleum industry — price fluctuations, distribution bottlenecks, the availability of capital and equipment — and specific to a particular country or field, such as operational challenges to extraction, or access to markets and processing, liquefaction, or transport facilities.

C. Political and Social Risk. Where there is cause for concern that operations or marketing will be disrupted by violence, expropriation, political instability, or strikes, companies will require a premium to be reflected somewhere in the terms governing their activities.

Policy and Contract Priorities: Upstream

16. As the Iraqi government puts in place a new legal/contractual framework, it will best serve the country’s interests by negotiating contracts that adequately compensate investors for the risks they are undertaking without unnecessarily ceding windfall benefits that could accrue to the state. The major drawback of the Shell HOA as currently constituted is that it appears to acquiesce to company preferences on acreage, institutional control, fiscal terms, pricing, and a range of other issues to a degree that may not be justified by the risk profile of the sector in Southern Iraq.

17. Competitive Allocation of Exploration and Production Rights. As the government considers how to allocate its acreage, it would be well-advised to recall the power of competitive auctions, both as a signal of market perceptions of risk (and the concomitant structures that need to be developed), and as a means of comparing the technical and financial competencies of various companies and selecting the optimal partner for a given block. Open auctions also serve to enhance public understanding of the process, and to reduce the suspicion that often clouds relationships between citizens and operating companies. The Iraqi government has recognized the benefits associated with competitive auctions in the oil sector, and should be encouraged to extend this policy to natural gas as well.

18. Determining Block Sizes and Lengths of Contracts. The geological risk in Iraq is low. The country has the tenth-largest proven gas reserves in the world, and those figures are widely expected to grow as exploration increases. Even the quantity of gas currently being flared is sufficiently sizable as to warrant, on its own, substantial interest from competent petroleum companies — estimates indicate that between 400,000 and 700,000 Mcf per day are being flared in Southern Iraq alone.2 The high degree of certainty vis-à-vis the country’s gas endowment suggests that geological risk weighs against the necessity of granting operational control over natural gas development in all of Basra province for 25 years to the Shell-managed joint venture, as is envisioned in the HOA. In some countries, governments have formed strategic alliances with IOCs that grant long terms and/or control over large tracts in

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exchange for significant government access to downstream components of the value chain that might otherwise be controlled by the IOC, such as markets, facilities, technology, or other assets. This does not appear to be the set-up envisioned in the HOA, which gives the Shell-led consortium a de facto leading role in downstream priority-setting.

19. Preliminary analysis suggests that Iraq should heed the example of countries across the world with well-known geological endowments (including the United Kingdom, Trinidad and Tobago, Norway, and Angola) that have moved toward promoting increased competition by granting companies contractual rights over much smaller geographic areas. Awarding E&P rights on a staged, competitive basis confers several important advantages:

- It allows the government to decide when and how to develop its fields, and to seek partners for the development of each field that can optimally carry out the government’s priorities. By contrast, when rights to all of the explored and unexplored fields within a large geographic area have been granted to a single partner, that partner will choose which fields to prioritize and where to focus investment dollars in light of its own worldwide strategy, based on an analysis of potential returns on its investment within the country and internationally.

- Individual allocation can attract niche players that specialize in small fields that would be of little interest to a big company, thus increasing the total amount of gas developed in the country. Big companies with access to large acreage often leave small fields undeveloped until the tail end of their contracts, and then request special consideration, including fiscal relief, in order to develop them. A sector-wide strategy on the staging of field development will allow the government to balance higher- and lower-cost operations and leverage infrastructure for optimal long-term value-generation.

- It enables the government to better react to changes in market conditions, technology, or public policy priorities. This is especially valuable in the natural gas industry, where both supply and demand markets are extremely dynamic, and where technologies continue to evolve. The staged approach serves to hedge against the risk that shifts in conditions rendering any one contract less-than-favorable to the country could undermine the sector as a whole.

- The more players that are involved in the sector, the more each one is able to focus on a specific area, challenge, or market. This would bring Iraq a greater diversity of people, ideas, and approaches, and would promote open market competition for opportunities, which serves both to optimize field development and spur the development of an Iraqi service sector.

20. Near-Term Revenue Generation. Given that the Iraqi government has indicated that revenue generation over the next 12-18 months is a priority, it bears noting that taking a scaled approach to the allocation of acreage and E & P rights can promote the monetization of associated gas as rapidly or more rapidly than the award of massive acreage to a single partner, because a) it will ensure that the rights to an individual associated gas area are controlled by a company with a specific interest in developing that area; b) it facilitates the formation of specific benchmarks for the harnessing of gas in that area that would otherwise
be flared; and c) it creates a more dynamic market and service sector, which can lead to innovations that help bring about a faster end to flaring.

21. It is important to note that it is challenging to reduce flaring in times of low government revenues, as the first response of many sector participants is to assert that any action taken to reduce flaring will necessarily impair oil production. But if the government takes a comprehensive view of the sector, it can minimize the loss of revenue caused by wasted time by establishing legislation and/or contracts that require operating companies to submit timelines for reducing and eliminating flares when they submit project plans. Being able to choose among alternative approaches to flare-reduction represents another compelling reason for a bid process. There should be penalties associated with missing these deadlines, especially where the operator would not otherwise be severely affected by a fall in oil production.

22. Fiscal Terms in Law and Contracts. The tax, royalty and/or production-sharing provisions in the natural gas law or in contracts signed with individual companies are the primary determinants of both the share of the revenue benefits that accrue to private and government partners and the degree to which companies will be rewarded for commercial, technical, and political risk. The specific decisions that the Iraqi government makes about how to structure fiscal relations will depend on national priorities, detailed geological data evaluation and economic modeling, and discussions with interested companies. The fiscal regime-setting process should, however, adhere to certain general principles, including:

- It should distribute upside benefits and downside risks among both parties. To the degree possible, fiscal regimes should be progressive, so that the state share of financial benefits increases when prices and/or rates of return rise;

- It should be based as much as possible on government priorities and standard rules and rates, limiting the discretion of companies to push for exceptions during individual negotiations. To some degree differences in field profiles will require flexibility in fiscal arrangements, but by standardizing as much as possible in line with clear policy priorities, the government can limit the imbalances in negotiating leverage that sometimes lead to unfavorable deals.

- It should take administrability and the timing of benefit streams into account. As the government continues to build its administrative capacity, it should keep in mind that what ultimately matters for revenue-generation is not what is projected on paper, but what is actually collected. Certain fiscal tools (such as production-based royalties) provide for earlier or more regularized payments, and are easier for a government with limited capabilities to monitor and audit. This attention to administration should be balanced against an assessment of total projected (risk-adjusted) present value under various scenarios in order to determine the best mix of instruments.

- It should include rigorous valuations of all proposed benefit streams, including infrastructure construction. The Iraqi government has entered into negotiations with Chinese and Korean partners that envision exchanging rights to explore and extract petroleum fields for the construction of large-scale infrastructure projects. This sort of arrangement, which adapts a model developed by Asian governments elsewhere in
the developing world, may present positive opportunities to rapidly revitalize Iraq’s damaged infrastructure. But these deals also present certain risks, and the government should take care to ensure that a) the construction projects track closely with national priorities; b) it obtains detailed and independent assessments of the value of the proposed projects before finalizing agreements, so as to avoid facing a disproportionate balance of benefits; c) the parties agree on detailed oversight procedures for project design and construction, to minimize risks of corruption and cost overruns that would diminish the benefits that accrue to the Iraqi populace; and d) they do not transfer a disproportionate share of price risk to the government.

23. Oversight of Exploration and Production. Governments often lose revenues or see other priorities disrupted because of ineffective oversight provisions, which create problems in two general ways. First, if the government does not have a meaningful role in shaping major operational decisions — pace of production, for example, or where within a block to focus investment dollars — it can be difficult to maintain key public priorities. Second, tight scrutiny over costs is necessary in order to ensure that the procurement of expensive goods or services do not result in the government losing excessive revenue via cost-recovery.

24. The Iraqi government should consider including in its legal/contractual regime procurement policies that track with international best practice and require rule-based, transparent bidding for expenditures over a certain threshold. It should require extensive reporting on operations and meaningful government review and approval of budgets, work plans, environmental impact assessments, and progress reports. The government should develop its own assessments of key geological, engineering, and economic questions, either internally or through the use of independent international consultants, rather than relying exclusively on analyses conducted by the private operating company.

25. Maximizing Value across the Industry Life-Cycle. Beyond the fiscal terms governing revenue generation, governments seeking to take full advantage of the opportunities presented by the sector should seek to maximize the benefits that accrue via domestic value-added, national participation along the value chain; local content and participation, local capacity development, and cross-industry transfer. Achieving this goal requires not only maximizing the amount of resource recovered, but also paying close attention to the specific challenges associated with different types of fields and different stages of fields’ life-cycles.

26. Finding, assessing, developing and producing smaller or lower-value reserves require focus and coordination. Some companies’ strategies allow them to focus exclusively on either small or large pools. Countries do not have this luxury of choice, over the long term, so they need to understand the full life cycle of the resource and its development. They need to leverage the infrastructure, facilities, and markets that are developed in relation to the exploitation of the larger pools in order to facilitate the commercial development and production of the smaller ones.

27. As fields get older or reserves decline, the ability to extract economically requires a careful coordination of strategies and incentives that takes into account operator capabilities, the cost and availability of goods and services, technological requirements, environmental considerations, and viable measurements of possible production levels. Given that different private partners will have different priorities, the state needs a strong release/surrender
program that allows the “right” players to access opportunities at the right time. As fields get smaller or more difficult or require special technology or attention, the fiscal regime must also be flexible enough to allow for commerciality.

28. To succeed in any of the foregoing areas, and to allow new players to devise new approaches to the asset development, it is essential to develop effective data collection and dissemination mechanisms.

29. In Trinidad & Tobago, which has successfully developed into one of the world’s leading natural gas producers and has used the sector to fuel broad-based national development, the government has incorporated a commitment to national participation into all stages of the industry life-cycle, through regulations, contracts, and the creation of specialized institutions. The government established a Permanent Local Content Committee (PLCC), made up of representatives of the Ministries of Energy and Finance, local oil and gas operating and services companies, chambers of commerce, and civil society. The PLCC reports to the Cabinet, through the Minister of Energy. The Committee formulated a Local Content and Participation (LCP) Policy, and meets regularly to review and report on progress, new opportunities, and areas of focus. The LCP Policy has been implemented via different mechanisms. Its goals are incorporated into production sharing contracts, and companies use local content and local capacity development as metrics in evaluating tenders. Specific areas have been targeted for developing local capability, based on the sustainability of demand, value, and current domestic capability and gaps. The country has developed training institutions and programs in sync with the policy, and companies, government and universities/schools collaborate on training program design and delivery. The upside of this strategy has been an increase in human development, innovation, research and development, and the availability of and demand for local services.

Policy and Contract Priorities: Downstream

30. It is in the downstream sector that natural gas provides particularly expansive opportunities to drive national development, by using the country’s natural endowments to develop electricity markets, fuel light and heavy industry (including petrochemicals), and enhance the overall dynamism of the economy so that the country can eventually progress from a factor- or investment-driven economy to one driven by an ability to produce innovative products and services using advanced methods.

31. The overarching decisions that the Iraqi government needs to make are how much of its gas it wants to utilize in the domestic economy rather than selling into the international market at international prices, and how far downstream it wants this domestically consumed gas to be taken. These decisions will shape the investment priorities of the government and its private partners (e.g., timing and level of spending on liquefaction or transport facilities for export vs. pipelines and terminals to deliver to domestic end-users). It will also impact fiscal terms and the management structure necessary for the sector.

32. If the Iraqi government maintains its preference for using Iraq’s natural gas to provide a significant boost to energy and industrial development, it should explore the development of a pricing mechanism that makes gas affordable for Iraqi utilities, businesses, and/or families. Unlike oil, there is no unified global market for natural gas (especially non-liquefied gas).
Rather, domestic prices are linked to a local (or sometimes regional) market, and local pricing methodologies vary around the world. Some countries employ more than one pricing mechanism — in Trinidad & Tobago, for example, there are different pricing schemes for domestic gas (based on production costs) and gas for export (based on international market prices).

33. In order to optimize the amount of gas that is available to domestic consumers, Iraq could establish a market for gas at domestic pricing, rather than employing the model envisioned in the Shell HOA, which provides for domestic sales at “prices linked to world market prices” — a standard likely to result in an inability of many Iraqi end-users to pay when international prices are high. This domestic market would exist side-by-side with a separate market for export. Governments seeking to make gas available via the creation of domestic markets have employed several mechanisms to ensure that a steady supply remains available, including production-sharing agreements that give public bodies a physical share of gas produced, in-kind payment for some portion of royalties or other payments due from operators to government, and rights of first refusal for some portion of gas. Some regimes also provide for gas to be made available by multinational companies to domestic bodies on a cost-plus basis or indexed to a regional price index or other specialized commodity market, rather than at the export price.

34. Arrangements that sell some gas at domestic market prices generally impact the profitability of private international partners, so the parties might need to make adjustments to other parts of the fiscal regime in order to ensure that the benefits and risks remain properly balanced. Tying domestic market prices to a formula that sometimes results in lower prices can also bear other risks, including distorting consumption patterns and discouraging efficiency improvements in power supply and distribution bodies. Though creating a domestic gas market does not create quite the same degree of risk of behavior-distortion or drained public coffers as the maintenance of public subsidies, the government still needs to make these policy decisions extremely carefully, and to consciously link the regimes governing gas extraction and transfer to long-term national development plans.

35. The downstream LNG market is evolving, as the LNG industry becomes more and more characterized by spot sales — as opposed to the long-term contracting that was typical up to the turn of the 21st century — and the product is fast becoming a tradable commodity. The LNG value chain has become disaggregated, with multiple specialist players in all parts. The key to maximizing value is controlling the commodity itself, rather than ceding it to a partner to trade and distribute to the end user, which takes potential revenue streams out of the state’s hands. For governments to get into the space outside their national jurisdiction, they will require significant human capacity and access to financing and services/facilities. Collaborating with other players, including E&P investors, clients, service companies and other countries (customers or producers) will allow governments to close the gap, in the short to medium term, while limiting their exposure to future changes in the marketplace.

36. To get the maximum leverage for downstream participation in natural gas, including LNG, governments face trade-offs, and may have to rebalance the upstream benefits so as to give investors a sufficient return. Thus priority-setting and robust technical and commercial modeling will be essential to decision-making throughout the chain.
**Enhancing Internal Capacity**

37. The development of Iraqi capacity across the value chain will be crucial to the effective implementation of the legal and fiscal regime, and to the long-term vitality of the sector. Even though partnerships with international companies will likely represent a central part of Iraqi gas production for years to come, expanded domestic expertise will provide tougher oversight, a more pro-public vision, and increased efficiency in achieving key goals. The more that Iraqi partners are integrated into day-to-day operational decisions, the greater are the opportunities that arise for knowledge transfer. The government should continue to a) develop partnerships for training and cooperation with governments and international organizations with significant expertise on managing natural gas endowments for the public good; b) promote the employment and advancement of Iraqis within international companies operating in the country; and c) invest in long-term education that focuses on the special features of the gas industry as distinct from oil.

**Governance and an Inclusive Process**

38. As the government refines the details of its natural gas laws and regulations and its relationships with private companies, it should commit to informing the Iraqi populace of the key decisions up for discussion and soliciting the input of civil society. A transparent and inclusive policy-setting process will generate more significant public buy-in and increase the likelihood that the legal and fiscal regimes will be linked to citizen priorities, rendering the system more stable and effective. Citizen involvement is especially important in the gas sector, as it involves not only large revenue flows but also fundamental linkages to energy, industry, and development policy.

39. Revenue transparency should constitute a fundamental commitment of the regime governing gas. The government has announced its intention to become an implementing country of the Extractive Industries Transparency Initiative (EITI), a laudable step that enhances the likelihood of citizen confidence and accountable revenue management. The government should ensure that government and company reporting on natural gas revenues are included in Iraq’s EITI system, and should seek from the outset to disaggregate reporting on oil and natural gas. Beyond its commitment to EITI, the government and the populace would also benefit from additional measures to promote accountable governance of the natural gas sector, including the conduct and publication of independent audits and meaningful, effective legislative and regulatory oversight of the sector.