# Oil and Governance

## State-Owned Enterprises and the World Energy Supply

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CAMBRIDGE
UNIVERSITY PRESS

# 6 Oil, monarchy, revolution, and theocracy: a study on the National Iranian Oil Company (NIOC)

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## 1 Introduction

The symbol of Iran's independence is not the magnificent Azadi Tower that marks the formal entrance to Tehran, but the rather humble stone building on the corner of Taleghani and Hafez avenues, the headquarters of the National Iranian Oil Company. In 1951 Iran's oil company, more commonly referred to as NIOC, was the second major oil company to be nationalized (after Pemex). Unlike the swift nationalizations of the early 1970s that created most of today's national oil companies (NOCs), NIOC's nationalization began much earlier with a series of failed and quasi-nationalizations before it became fully nationalized in the period 1974–1979. Since its founding, NIOC has been the center of the country's economy, providing more than 45 percent of Iran's exports in the 1950s and peaking at 97 percent of exports at the height of the great oil shock of 1973–1974 (CBI 1980/1981–2008/2009; Karshenas 1990). In addition, NIOC supplies politically visible goods and services, including a costly but very popular subsidy for gasoline that makes retail energy in Iran nearly free.[1] Nearly all politics in Iran is at some level connected with NIOC and the hydrocarbon industry. Despite successful efforts to partly diversify the economy, the country remains in some respects heavily dependent on hydrocarbons: For the 2006–2008 period, oil and gas sales made up 80% of total exports and 50% of government revenue (though only accounting for 15% of GDP) (CBI 2008/2009; World Bank 2009).[2]

Previous studies on NIOC have focused on the fact that while the NOC has vast oil and gas reserves at its disposal the enterprise performs poorly. Some studies have addressed Iran's "resource curse,"[3] finding that increased government revenue from oil sales has damaged the country's economy and hindered democracy (Fardmanesh





1991; Khajedpour 2001). Some blame the petroleum industry's shortcomings on the structure of the Iranian government as a "rentier state"[4] that overtaxes the oil industry (rather than broader economic activity) to sustain government expenditures (Mahdavy 1970; Katouzian 1981; Skocpol 1982). More recently, two studies focus on the company itself, analyzing its organizational structure, the relationship between the company and the state (decision-making processes, financial flows), and the company's world-views (Marcel 2006; Brumberg and Ahram 2007). Despite keen interest in NIOC's operations, however, it has proved extremely difficult to unravel and assess the deep-rooted bureaucracies of Iran's government and petroleum sector. The present study aims to provide more clarity by focusing, especially, on how NIOC's structure and operations are integrated with the Iranian state and the company's political masters.

In assessing the inner workings of one of the most secretive and mysterious oil companies in the world, I make four main arguments. First, NIOC has weathered substantial shocks, such as the 1979 revolution, the Iran–Iraq War, the enactment of economic sanctions, and the frequent periods of organizational reshuffling, most recently completed by the Ahmadinejad administration. These factors – in effect, perennial chaos and uncertainty in the oil sector – have periodically resulted in drastic production shortfalls and the inability to develop new fields. In particular, I find that the war with Iraq and the enactment of sanctions have had the largest impacts on NIOC's production levels when compared with other factors. Moreover, the regimes governing foreign investment in the oil sector have made it difficult to attract IOCs as partners, and the arrival of sanctions has narrowed the prospects for foreign participation even further. As a result NIOC's performance as an oil and gas company (and that of the sector overall) has been terrible, particularly since 2005.

Second, explaining NIOC's structure, organization, and performance requires looking far beyond its role as a producer, refiner, and marketer of hydrocarbons. A thorough analysis of the company's strategy involves its handling of government demands. In making this analysis, I find that NIOC's strategy has been one of compliance under the Shah to autonomy after the revolution and back to compliance in the Ahmadinejad era. This dynamic strategy explains NIOC's organization with its many subsidiaries, its relationship with the government, and most importantly its performance – strong

before the revolution, weak during the early period of the Islamic Republic, moderately successful in the 1990s, and inefficient during the Ahmadinejad era.

Third, NIOC's poor performance reflects not just political uncertainty but also the fact that NIOC, itself, is not really an oil company. Rather, it is a confederation of partially independent enterprises – each responsible for different functions and none integrated around a common strategy. This fact (along with Iranian policies that make it exceptionally difficult for NIOC to engage outside firms as well as sanctions in recent years that make it hard for outside firms to operate in Iran) explains why the company has particularly poor performance in complex areas of operation. This is evident in the country's newest oil fields, which are too challenging for NIOC to operate on its own. And it is evident, more generally, in offshore operations and in natural gas. NIOC's offshore subsidiary produces only 18 percent of the country's oil despite sitting on two-thirds of its official reserves. And Iran, despite having the world's second-largest gas reserves, lags far behind world leaders such as Qatar, Algeria, Indonesia, and Australia in mustering LNG technology.

Fourth, when focusing on the company's performance as an oil company, in keeping with my second finding I suggest that the root cause of NIOC's troubles is its lack of autonomy from the government. Shortly after full nationalization (in 1974) until the revolution in 1979, NIOC enjoyed a golden age when it assumed the competence and assets of the foreign firms and continued to expand output. The revolution (which included many purges from NIOC's ranks) and the Iraq war (1980–1988) were especially debilitating for NIOC. While the company was able to carve out some autonomy from the late 1980s to the mid 2000s, it could never attract the investment capital or expertise needed to regain its former production levels, let alone expand into technically more complex areas. (Since 2005, the company has suffered another purge and has lost all of its carefully crafted autonomy.) The revolution and the Iraq war were severe shocks that tested the NOC to a degree greater than any other NOC examined in this book, and the enterprise failed to rebuild from those tests. Famously, the company adopted a "buyback" scheme for engaging outside firms that was unattractive to most foreign players; however, while others have consistently expressed their frustration with buyback contracts, I contend that buybacks have actually been a blessing to NIOC in as much as the buyback scheme allows the company to reengage with foreign firms after a long period of isolation. Yet the performance failures of that scheme lie less with NIOC than with the political compromises needed to get any kind of foreign participation in a political climate that was usually hostile to outsiders. External sanctions, especially the 1996 Iran–Libya Sanctions Act, dealt a final blow. Today, NIOC is able to elicit outside participation from only a small number of firms willing to risk pariah status, such as Chinese, Indian, and Russian oil companies. The turmoil today has made it even harder for NIOC to perform, although most of the company's problems were fully evident before the present political troubles began.



The remainder of this chapter is divided into three sections: section 2, the history of NIOC and the Iranian petroleum sector; section 3, the organization of and the relationship between NIOC and government institutions; and section 4, NIOC's historical performance and its causes, some of which are external to the company (e.g., the destruction of war) and some internal to its strategy and relationships to the Iranian government. Methodologically, I rely on previous scholarly work on NIOC and Iran, statistical evidence from the Ministry of Petroleum and the Central Bank, and anecdotal evidence from interviews conducted in August–September 2008 and July 2009.[5]

## 2 History and background of Iranian oil and gas

As of 2009, NIOC sits on 138 billion barrels of oil reserves and 994 trillion cubic feet of gas reserves (second only to Russia in terms of global gas reserves). Oil in Iran is primarily found between the southwestern ridges of the Zagros mountain range and the Persian Gulf coastline, as indicated in Figure 6.1. As for its chemical nature, Iranian crude is generally medium in sulfur content and notably heavy; in 2008, "heavy" crude (API gravity less than 31 degrees) made up 62.1 percent of exports (EIA 2008b).[6] Over time, the country has tapped its "easy" oil, and newly found structures have created large challenges for development. For example, the southern Azadegan oil field discovered in 1999 holds estimated reserves of 26 billion barrels of medium-sour crude. The field was considered too geologically complex for NIOC to develop on its own and development contracts were signed with Japan's Inpex in 2004 but terminated in 2007.[7] Yet bringing new fields online is essential, as Iran's

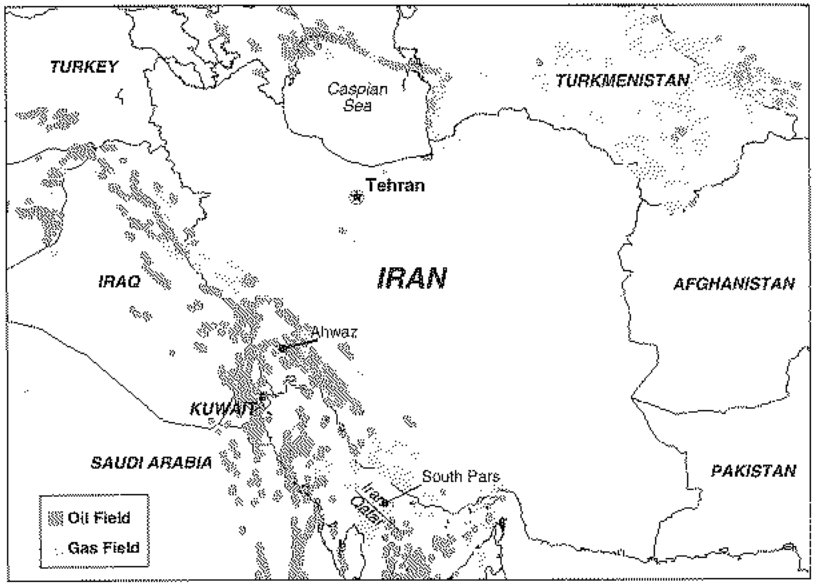


**Figure 6.1** Map of major oil and gas fields in Iran.
*Source for oil and gas field data:* Wood Mackenzie (2009b).

existing oil fields have been declining at roughly 8 percent per year since 2006 (Stern 2007).[8]

Even as Iran struggles to produce hydrocarbons, it has faced still larger difficulties in refining and marketing of oil products and building an effective infrastructure for delivery of natural gas. Most of Iran's gas resources are located far from its urban consumption centers in the north, in cities like Tehran, Mashhad, Tabriz, and in the urban cluster along the Caspian coast. As such, plans to add capacity to Iran's gas pipeline network are constantly under consideration,[9] but the infrastructure has lagged far behind demand. As for oil, most politicians and energy advisers have found it more cost effective to simply import refined products from Iran's northern neighbors and export its own crude from ports on the Persian Gulf. Lack of expertise and investment explains why Iran, itself, is largely unable to refine heavier and more sour Iranian crudes to petroleum products for domestic consumption; there is a planning deficiency in the country's oil sector strategy that fails to take advantage of the fact that heavier crudes fetch much lower prices



when exported and thus an orderly strategy would utilize more of that crude at home (V. Marcel personal correspondence 2009). The country relies on a large number of swaps in both gas and oil. This has been the case since the Shah first decided to build a gas pipeline to Azerbaijan (known as IGAT-I) in the 1960s. These "swap" arrangements became politically popular again in the 1990s (after the dissolution of the USSR and the restoration of Azeri, Turkmen, and Kazakh sovereignty) with the construction of a pipeline from the Caspian port city of Neka to Tehran allowing 350,000 barrels per day in oil swaps between Kazakhstan and Turkmenistan,[10] as well as the gas pipeline connecting Turkmenistan and Iran, which has been heavily politicized in recent years due to price disputes (Entessar 1999).

Iran's refining capacity has been steadily increasing since the end of the Iran–Iraq war. However, the technology employed in refineries has not kept pace with global best practice, primarily due to the harshness of outside sanctions that prevent Iran from obtaining foreign-made parts and machinery. Aside from sanctions problems, Iranian upper-level politicians, such as those in the office of the ayatollah or the presidency, have been wary about foreign participation in national energy projects; similarly, foreign contractors have not been interested in refining projects given the low-margin nature of refining, coupled with the high cost of doing business in Iran given the presence of sanctions. As of 2008, Iran carried a refining capacity of 1,566,000 barrels per day, with refineries at nine major sites.[11]

As for the history of natural gas in Iran, prior to the 1990s Iran's production was below 20 billion cubic meters (bcm) per year and had been chiefly directed toward modest domestic use. The discovery of gas in the massive offshore South Pars field (the northern section of a large field that across the dividing line of resource sovereignty to the south becomes Qatar's North field) dramatically changed NIOC's outlook for its gas strategy by offering the prospect of lucrative exports.[12] Yet South Pars has not yielded much production so far; only the first five of the planned total twenty-four phases have come online, accounting for roughly 10 bcm per year of gas (MEES 51:8 2008). The ongoing difficulties in developing South Pars as an export project, which requires LNG technologies, reflect the country's many setbacks in foreign contracting and partnerships.

## 2.1 *The history of hydrocarbons in Iran*[13]

All of Iran's modern history is comingled with oil.[14] The first permit agreement for oil exploration in Persia to the Western countries was given and signed by Nasseredin Shah of the Qajar dynasty and Baron Julius Reuter of the United Kingdom in 1872. Reuter proceeded by exploring the areas around Kazeroun and Gheshm Island, but after twenty-one years of largely dry holes Reuter finally quit in 1893. Further exploration by Westerners was similarly unsuccessful, until W. K. D'Arcy – working under the famous D'Arcy Oil Concession that gave Russian firms control over oil exploration in the northern provinces while D'Arcy reigned in the south – struck a major discovery in 1908 at the Masjed-e-Suleyman No. 1 well. Shortly after that find, in 1925 the Pahlavi dynasty consolidated its control over Persia. (The term Iran, coined by the Pahlavis, did not supplant Persia as the country's name until 1935.) And in 1932 the government of Iran – now led by the charismatic Pahlavi monarch, Reza Khan Shah – unilaterally canceled its contracts with all foreign companies. It is rumored that the Shah's lavish lifestyle combined with low oil revenues in 1932 had emptied the government coffers: To amend this situation, the Shah sought a new contract that would aid in replenishing the national treasury.[15]

A year later, the Iranian government negotiated a new contract (known as the 1933 agreement) with the newly minted Anglo-Iranian Oil Company (AIOC), a UK-backed firm that had been built upon D'Arcy's enterprise. Despite increasing government revenue, the new contract did not give the Iranians sovereignty over oil, and as a result AIOC had more benefits and rights to oil concessions than before. Under this contract (which has been referred to by Iran scholars as Reza Shah's "historic betrayal"[16]) intended to fuel the British war machine from the late 1930s, AIOC developed vast oil fields and refineries at Abadan, the area in the southwest corner of the country along the Iraq border that still houses Iran's largest refinery and much of today's oil industry. After the war, Iranian public sentiment toward British extraction of Iran's oil greatly worsened; news had spread to the cities of terrible working conditions in the oil fields for Iranians[17] while British employees had "rose beds, tennis courts, and swimming pools," which fueled images of the British as nineteenth-century imperialists (Farmanfarmaian and Farmanfarmaian 1997, p. 185). Beyond public aggression toward AIOC, there was also growing concern in the Majlis (the Iranian parliament) that AIOC was earning an excessive share of oil revenue.[18] Out of this charged disagreement emerged Dr. Mohammad Mossadeq, who prompted the creation of an NOC.



In the 1940s, Mossadeq was a prominent figure in Iranian politics – serving various roles in the Majlis as an MP and also as a provincial governor – and was known in the public sphere for his opposition to the monarchy's close relationships with foreign governments. When Mossadeq began to make public the revenue disparities between Iran and Britain, his nationalist party – the Jebhi Melli – grew in popularity. With his newfound political strength, Mossadeq sought to nationalize AIOC in 1949 but did not have enough power to impose that outcome; instead, he compromised and signed a "supplemental agreement" that only slightly increased the Iranian government's take but also forced AIOC to improve working conditions. When in November 1950 the Majlis rejected the new agreement, Jebhi Melli led the Majlis in March 1951 to legislatively nationalize British assets and operations in Iran. Concurrently, Ali Razmara, the Shah's appointed prime minister who was put in place to impede the political surge of Jebhi Melli, was found dead outside a mosque in Tehran.[19] Faced with a power vacuum, the Majlis overwhelmingly supported Mossadeq to be the new prime minister by a vote of seventy-nine to twelve; three days later, on May 1, 1951, Mossadeq had canceled AIOC's prior oil concession and fully expropriated its assets. Thus, NIOC came to be nationalized, for the sake of creating revenue for the government and protecting Iran's oil from foreign development.[20]

Western powers, along with AIOC (which had changed its name to BP in 1954), saw their interests threatened and successfully mobilized against Mossadeq – who had all but physically replaced the Shah[21] – and restored the Shah to power in 1953. New laws promptly followed and Western oil companies resumed an active role in the Iranian oil sector in 1954: The Majlis approved the establishment of an "international consortium" in order to make room for non-British companies to explore, produce, refine, and distribute Iranian oil. The consortium, which was made up of members of the Seven Sisters,[22] entered a fifty-fifty contract to split profits from the sale of oil with NIOC.[23] The nationalization process in 1951 actually allocated

reserve rights to NIOC alone whereas the consortium was granted exploration and production rights but not full ownership.[24]

Between 1957 and 1974, the Shah's new IOC-friendly arrangement brought the monarchy into closer contact with the United States – in particular companies like Standard Oil of New Jersey (now Exxon). During this period, while NIOC did not fully control either upstream or downstream activities, based on the terms of the consortium, it was able to negotiate its own contracts. One such contract grabbed the attention of the international oil market: In 1957 Enrico Mattei of the Italian firm Eni broke the internationally recognized fifty-fifty production-sharing framework and offered NIOC 75 percent of the profits from its fields (Maugeri 2006). In parallel, NIOC entered into contracts with a number of Japanese, Dutch, Korean, and Soviet companies to establish its foray into petrochemicals, refining, marketing, and natural gas production.

Only in 1974 did NIOC gain monopoly control over exploration, production, and operations of Iranian oil fields. Riding a wave of nationalizations in the region, the Petroleum Act of 1974 reiterated national ownership of petroleum resources and specifically prohibited foreign companies from investing in production or in downstream activities. NIOC took full control over operations in the consortium area and was barred from using the then-standard production sharing agreements (PSAs) with foreign companies, which allowed outsiders to invest in oil operations while earning a return through a variable share of the produced oil. Instead of PSAs, NIOC was obliged to engage foreign services through a service contract mechanism. (In this respect, NIOC followed the lead of Petróleos Mexicanos; Kuwait's NOC has also relied on similar arrangements as a way to keep control over the sector while encouraging, albeit haltingly, the participation of outside firms. See Chapters 7 and 8, respectively.) Whenever a foreign company struck oil, by law it had to hand it over to NIOC; on the other hand, if its efforts resulted in dry wells, then the foreign firm had to bear the costs on its own. By contrast, under the earlier Mossadeq "nationalization," foreign companies could still participate in Iran's oil sector – under contract through NIOC – in ways that created equity-like incentives to find oil. As with many companies in the region, such as in Saudi Arabia, the period up to nationalization saw many local NIOC employees working alongside members of the consortium. Thus by 1974 when the consortium quickly unraveled,



NIOC workers had gained the requisite technical skills for handling operations on their own – along with the benefits of Shah-funded engineering universities in Tehran and Ahwaz – and several Iranians promptly took over operational positions that previously belonged to AIOC British employees (Takin 2009).

Everything changed yet again in 1978–1979. The Islamic Revolution in Iran dramatically altered the way Iran and the rest of the world viewed each other. The new government abolished the monarchy and established a parliamentary theocracy, led by the Grand Ayatollah[25] or supreme leader and his cabinet and councils (the Guardian and Expediency Councils), a bi-cameral parliament (the Majlis) where the upper house is fully appointed while the lower house is elected by popular vote, and an appointed judicial council (the judiciary). As far as NIOC was concerned, one of the changes brought about by the revolutionary government was the abandonment of pre-revolution foreign oil contracts.

Perhaps the most drastic change brought about by the revolution was the establishment of the Ministry of Petroleum. Before 1979, there were ministers or viziers of oil but never a stand-alone ministry: the Shah merely appointed people to his cabinet who were in charge of the oil industry. After the revolution, the existence of a Ministry of Petroleum has made it easier for NIOC to communicate with different levels of government, specifically the Majlis and the executive, especially since in practice the ministry is fused with and not separate from NIOC.[26] In terms of the oil sector itself, the purpose of the ministry was to manage hydrocarbon operations by overseeing the new division of Iran's four state-owned hydrocarbon enterprises: NIOC, the National Iranian Gas Company (NIGC), the National Petrochemical Company (NPC), and the National Iranian Oil Refining and Distribution Company (NIORDC). These different enterprises were remnants of the Shah's era where various hydrocarbon operations were entrusted to different organizations. Unlike other countries where such groups were subsidiary to a central NOC, in practice these units were more like partners for NIOC rather than subordinate units.[27]

After the revolution and the concomitant flight of foreign oil companies from Iran due to the annulment of foreign contracts, NIOC finally took all the reins of the country's oil operations. With the departure of foreign companies from drilling sites, NIOC was forced

to operate some twenty-seven oil rigs that had been abandoned in this exodus. Already burdened with the task of managing all upstream and downstream activities, NIOC decided to establish a subsidiary specifically designed to handle all drilling operations. Indeed, in later periods when NIOC would temporarily gain more independence from the government, it would establish still more para-statal or semi-private companies – a pattern (especially evident in the 1990s) that is discussed in more detail later.

## 3 Relationships between NIOC and the Iranian state

In order to understand the nature of state–NOC relations in Iran, it is helpful to discuss, first, NIOC's organizational structure and then, second, the structure of the Iranian political system. I then turn to a detailed analysis of the relationship between the company and the government in terms of NIOC's avenues of communication with various state actors and institutions, and in terms of what the government expects and demands from its NOC.

Outsiders regularly criticize NIOC as opaque, inward looking, and overly bureaucratic; similarly from the inside, NIOC employees, despite their strong sense of company loyalty and pride, emphasize the opacity at the upper levels of the organization. While the organization is notably lacking in transparency, in fact the organizational structure itself is comprehensible. On paper, NIOC oversees a number of semi-independent state enterprises that provide operational functions such as drilling, production, and refining. Within this organizational chart, shown in Figure 6.2, NIOC's function is less as an oil company and more as an overseer of its many subsidiaries. It works with the Majlis to develop policies that are incorporated in the nation's five-year development plans; in turn, NIOC embeds those plans into the operational plans that the subsidiaries implement.[28]

The National Iranian Offshore Oil Company (NIOOC), the major offshore subsidiary, controls production on a reserves base of 91 billion barrels of oil (two-thirds of the national total) and 173 trillion cubic feet of gas (18% of the total) (APRC 2008). Despite this huge base, as of 2008, NIOOC produced only 16% of Iran's oil and a tiny fraction of the nation's gas. The largest subsidiary – measured by production levels – is the National Iranian South Oil Company, which



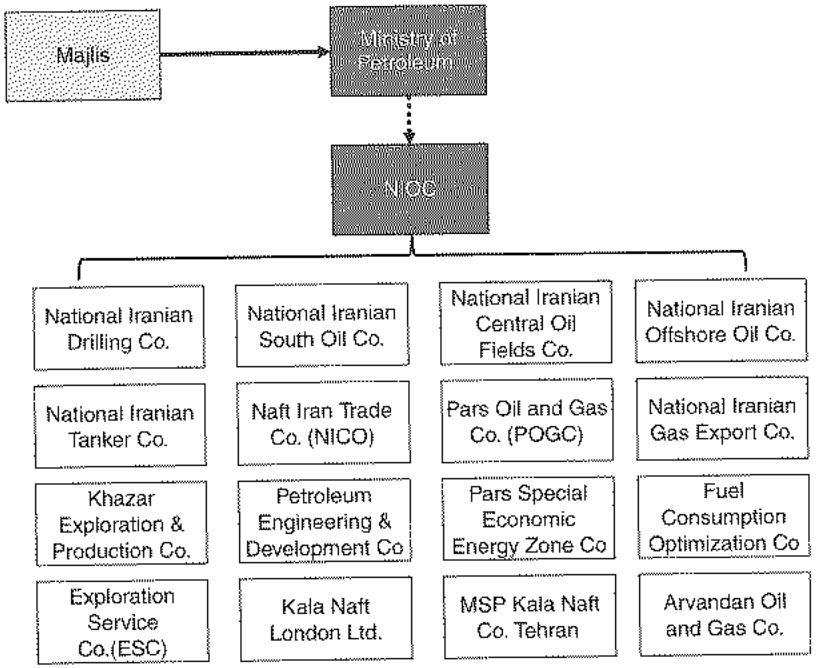


**Figure 6.2** Organizational chart of NIOC and its subsidiaries.
*Note:* The dotted line between the Ministry of Petroleum and NIOC represents the notion that they are largely the same entity, as I have pointed out in the main text. Several members of NIOC's board also work for the ministry and vice versa. As such, NIOC officials communicate directly with the Majlis given that they are part of the Ministry of Petroleum as well.

produced 3.3 million barrels per day (81% of Iran's total production) and 97.4 mcm per day of gas (22% of total gas production) in 2008. Most of the balance of Iran's gas is produced by the National Iranian Central Oilfields Company – which despite its name is predominantly a gas operator – that accounts for 271 mcm per day or 62% of total gas production (Islamic Republic of Iran Ministry of Petroleum 2008).[29] In addition to these production enterprises, NIOC oversees the Oil Exploration Operations Company, which is primarily a service company engaged in geologic surveying.

Before examining the relationships between NIOC and the Iranian state, it is essential to discuss the nature of the political system. *Velayat-e-faqih* is the Persian term that sums up Iran's political structure and can be loosely translated as "the Rule of the Jurisprudent."

It refers to the top level of the theocracy: the ayatollah and his control over all of Iranian politics. After the revolution, Ayatollah Ruhollah Musavi Khomeini established the *velayat-e-faqih* system as a completely top-down government where the supreme leader (the title that Khomeini bestowed on himself and that was given to the current Ayatollah Ali Khamene'i after Khomeini's death) is the ultimate head of state and is mandated to rule according to Islamic Law. The supreme leader has final say over the actions and decisions of the Majlis (the legislative branch that approves presidential appointments and drafts the country's laws), the Office of the President, and the ever-mysterious Assembly of Experts, which is in charge of the selection of successive supreme leaders. Aside from these three branches of government, the supreme leader also oversees three bodies that essentially run the entire country: the Guardian Council, the Expediency Council, and the judiciary.[30] The Guardian Council vets presidential candidates and has veto power over legislative decisions made in the Majlis. With a more opaque role in the government, the Expediency Council is responsible for settling disputes between the Guardian Council and the Majlis, but also serves as an advisory board for the supreme leader. Lastly, the judiciary enforces rule of law, nominates candidates for the Guardian Council, and is appointed and completely controlled by the supreme leader. In practice, the *velayat-e-faqih* also bestows upon the supreme leader direct control over the armed forces, the intelligence ministry, the judicial system, the national broadcast network, and the selection of the government's top officials (Naji 2008). When the *velayat-e-faqih* system was set up in 1979, Khomeini also rewrote the constitution of Iran to impose severe restrictions on the ability of foreign oil companies to own hydrocarbon assets, thus finalizing the process of nationalization of the oil sector. (For more detail, see Box 6.1.)

Thus in theory, all power flows from the supreme leader. In practice, Iran's system of administration is extremely complicated and the ability of the many arms of government to understand and administer the society – including the country's oil industry – is highly variable. Periodically, the government has been wracked by financial crises linked to its extreme dependence on oil revenues, shown in Figure 6.3, which are highly variable with the price of oil and over the long term the capability of the oil sector to yield exports. From the inception of NIOC in 1951, the government budget became increasingly reliant



**Box 6.1 The constitution of Iran**

One of the obvious themes in Iran's constitution is the drive towards nationalization and a state-controlled economy. Fear of foreign "colonialism" drove the Revolutionaries who authored the constitution to design a system that would ensure the security of Iran's natural resources. This is reflected in Article 3.5 – one of the state goals of the new Islamic Republic is "the complete elimination of imperialism and the prevention of foreign influence" – and Article 43.8 where one of the principles of the Iranian economy is the "prevention of foreign economic domination over the country's economy" (Islamic Republic of Iran 1979). To protect the oil sector, the authors of the new constitution mandated that foreign companies be prohibited from owning equity stakes in hydrocarbon projects. Unsurprisingly, the constitution acts as a constraint on the oil sector. World Bank researchers Audinet, Stevens, and Streifel note that the burdensome constitution "tends to act as a rather blunt instrument when it comes to the sector's operations" (World Bank 2007, p. v). In practice, over time Iran has tried to relax those restrictions. Article 44 was amended in 2006 to allow an increasing role of foreign companies in Iran. The amendments specifically allow for the sale of state-owned enterprises and properties, excluding of course NIOC and its assets, but including downstream assets of NIOC's three sister organizations (NIGC, NPC, and NIORDC).

on oil revenues up until the 1979 revolution. After the revolution and during the war with Iraq, declining oil revenues significantly damaged the government budget while at the same time the budget began to rely more on income taxes (CBI multiple years). Dependence on oil revenues in the 1990s was largely responsible for the budget crisis in 1996–1998, as the government relied on oil and gas revenues for 55 percent of the budget between 1996 and 2001: As a result of crashing oil prices in the mid to late 1990s, Iranian government revenue fell from 62.6 billion rials in 1997 to 53.6 billion rials in 1998, but with a boost in oil prices by 2000, total government revenues dramatically increased to 104.6 billion rials (CBI 2000/2001).

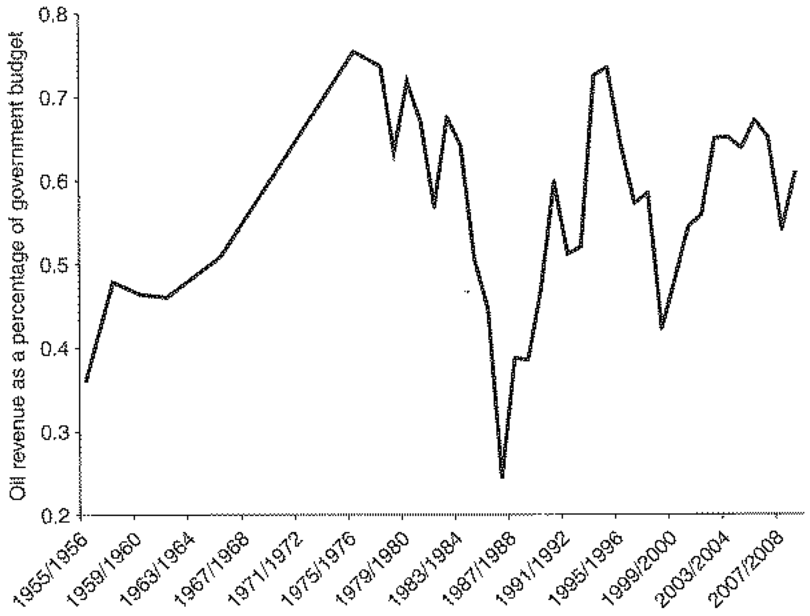


Figure 6.3 Government revenue from oil and gas sales, 1955–2009.
*Sources:* CBI multiple years; Karshenas (1990); author's calculations.

To help reduce this volatility, Iran followed a practice widely used in oil-rich countries and established an Oil Stabilization Fund (OSF) in 2000. Table 6.1 gives a snapshot of the reliance on oil revenue since the inception of the OSF. NIOC now sends funds both to the government directly and the OSF. As detailed in Box 6.2, the government uses the OSF to smooth budgetary spending, notably for social programs as well as filling in gaps in the government balance sheet (CBI 1998–2008; IMF 2008).

OSF rules allowed the government – through the Central Bank and the Ministry of Economic and Financial Affairs – to borrow against the fund and thus create the risk of uncontrolled debts (if oil prices stayed low in the long term), as OSF extractions would exceed contributions (Davis *et al.* 2003).[31] Unlike other wealth funds, Iran's OSF has a special role in reinvestment in the nation's oil industry because investment in oil operations is, like the OSF, integrated into the government budget. During the first Ahmadinejad administration (2005–2009), the amount of money reinvested in

Table 6.1. *Oil revenues in the fiscal budget*

| (In billions of Iranian rials) | 2000–01 | 2001–02 | 2002–03 | 2003–04 | 2004–05 | 2005–06 | 2006–07 | 2007–08 | 2008–09 |
|---|---|---|---|---|---|---|---|---|---|
| Total government revenue | 109,407 | 128,860 | 213,148 | 263,375 | 335,694 | 470,990 | 574,989 | 639,109 | 814,235 |
| Revenue from oil sales and taxes | 59,449 | 71,957 | 102,553 | 128,154 | 150,413 | 186,342 | 181,881 | 173,519 | 215,650 |
| Injection from Oil Stabilization Fund | — | — | 35,876 | 43,290 | 63,752 | 69,383 | 142,573 | 116,494 | 184,224 |
| Oil as a percent of total revenue | 54% | 56% | 65% | 65% | 64% | 67% | 65% | 54% | 61% |

*Note:* Starting in 2005 new funds emerged through which the government collects additional oil revenue.
*Sources:* MEES, based on data from IMF, CBI multiple years.

### Box 6.2 Iran's Oil Stabilization Fund and the rent collection process

Initially established as a means to control fluctuating oil revenues, the OSF quickly became a "piggy bank" that the government periodically raids.[32] The OSF was set up in 2000 as a foreign currency account to hold oil revenues, at a time when oil prices hovered around $16/barrel; the idea was to dampen the effect of volatile oil prices and stabilize the government's annual budgets while providing a financial means for commercial banks to invest in projects prioritized by the government's five-year plans. Article 60 of the Third Five-Year Development Plan (TFYDP 2000–2004) mandated that the difference between projected and actual oil revenues be contributed to the OSF. For example, the TFYDP predicted that in 2003/2004 fiscal oil revenue would be $11.1 billion, when in fact the actual fiscal oil revenue was $18.5 billion; thus in theory the difference of $7.4 billion would be allocated to the OSF (IMF 2008). Yet in reality, only $5.8 billion actually made it into the fund.[33] As for government withdrawals from the fund, the TFYDP and Fourth Five-Year Development Plan (FFYDP 2005–2009) limited the withdrawals to periods when the government's oil export receipts could not cover the budgeted amount for that period. As an addendum, the five-year plans also allowed for the withdrawal of funds for the purposes of lending to priority private entrepreneurs.

Control of the OSF was in the hands of a seven-member Board of Trustees, the majority of whom were appointed by the president, up until May 2008, when oversight of the OSF was given to the Government Economic Committee (a Majlis subcommittee). In theory, the Majlis has the authority to approve OSF transactions by using forecasted figures from five-year plans. The parliamentary body also has the power to cap OSF lending to domestic companies. Yet in reality, OSF transactions are made without parliamentary oversight. A 2008 report by the IMF found that certain OSF operations are left out of the central government's budget documents, shielding these transactions from parliamentary scrutiny (IMF 2008, p. 39). The World Bank notes that government withdrawals from the OSF have increased dramatically, with the government drawing an estimated 70 percent of oil revenue in the OSF during the 2002–2006 period (World Bank 2006a, pp. 29–30).

The net contributions and withdrawals of the OSF have considerably fluctuated since the fund's establishment in 2000: the yearly balances have ranged from $0.4 billion in 2003/2004 to -$1.1 billion in 2006/2007 to $12.1 billion in 2007/2008. The current balance reflects total inflows of $34.3 billion from oil revenues and loan payments and total outflows of $24.7 billion, with the government taking the lion's share of $20.3 billion while domestic firms only received $4.3 billion in loans (CBI 2008/2009; IMF 2008). The savings policy has been criticized heavily by those who favor more loans to domestic firms to support the struggling Iranian economy. As former Deputy Oil Minister for International Affairs, Hadi Nejad-Hosseinian points out, "Instead of using the money to extend loans to the private and public sectors, the funds are being used to make up for budget deficits … A major challenge to the economy at present is that the government is competing with the people to control the economy" (MEES 48:21 2008). However, one of the major deficiencies of the OSF is its lack of transparency. The Sovereign Wealth Fund Institute, a watchdog institute monitoring resource funds globally, has rated Iran's OSF as one of the least transparent resource funds in the world: The fund received a 1 out of a possible 10 points on the SWF Linaburg-Maduell Transparency Index.[34] As such, the above figures on the monetary contents of the OSF are merely estimates, as the true value of OSF transactions is unknown.



the oil industry suggests that the government had money to spare: in 2006/2007, the government allowed NIOC to spend $12 billion on oil and gas projects and in 2007/2008, $16 billion (Taghavi 2008). Furthermore, while total oil and gas revenue was $82 billion for 2008/2009, the actual total is most likely much higher if one includes a generous estimate of $32 billion that was deposited (net contributions) into the OSF (CBI 2008/2009; IMF 2008). Yet the reality is that not even members of parliament know how much is actually in the OSF, and some analysts put the oil fund figure as low as $7 billion.[35] What is clear is that the fund remains very small

compared with stabilization funds elsewhere in the Gulf, such as in Saudi Arabia and Abu Dhabi, and that it is small in comparison with the annual government budget and the annual investment needs of Iran's oil and gas sector. While it is possible in theory to raise substantial funds for oil projects by linking them to future revenues, in practice most of Iran's budget administration is focused on short-term issues and is not well organized to manage the financial risks that would accompany a large investment program. As such, money that could be going into reinvestment in the oil sector is instead channeled to the OSF. As a former IOC employee explained, "Iran does have the financial capacity to take risks in oil, but perhaps the political motivations prevent such risk."[36]

The government's actual ability to administer policy depends not only on its complicated lines of control but also on the stability and strength of the theocracy. When asked about how the revolution changed the nature of the oil industry, one former NIOC director remarked, "[In post-revolution Iran] all oil ventures are driven by politics and not by commercial reasoning."[37] With the advent of the theocracy, all executive and legislative decisions regarding NIOC became highly politicized, in the effort to use Iran's oil to build effective political alliances to counter growing political pressure from the West. Those political efforts hinge on the stability of the theocracy because that affects the time horizon of the country's political masters – long time horizons allow for more patient investment and broad-based social programs, but short ones lead to patronage and expropriation, including in the oil sector (see Chapter 2). The question of the stability of the Islamic Republic is hard to assess, especially at this writing. While instability is apparent, such as the rioting in the aftermath of the June 2009 elections, so far there has been no real and successful challenge to the current regime. Riots against a long-overdue policy to raise gasoline prices were quelled when the government changed the rationing system, indicating that while the government has command over the population, it still compromises when the stakes reach an appropriate threshold.[38] Indeed, the regime has proved quite resilient. And unlike the Shah (who could flee the country) the current elite has few options outside Iran and is likely to persist as long as possible. Thus, for the oil sector, NIOC's leaders know that they must be compliant to the government structure. The enterprise is thus wedded to instability, the lack



of long-term incentives to undertake oil development projects, and the inability to offer much to attract external expertise.

While Iran has, in theory, a centralized system of institutions, the reality is that institutional controls are much more fragmented. Iran's institutional framework is a multifarious, scattered web of semi-private organizations (referred to in Iran as *bonyads*), some as massive as the *Bonyad-e Mostazafen va Janbazan* (The Foundation for the Oppressed and Disabled), which by some accounts employs 200,000 people and essentially runs the industrial, tourism, and services sectors (Saeidi 2004). Such institutions, which have become fiefdoms, are both a drain on the government budget – although exact costs are hard to pin down – and a constraint on political decisions regarding the domestic economy.[39] These institutions are responsible for many costly flagship state projects, such as the massive reconstruction effort in the Imam Reza shrine in Mashhad. In times of privatization, *bonyads* and other politically connected individuals are first in line for underpriced purchases of public assets through mostly rigged or preferential auctions, which siphons resources away from the state (Thaler *et al.* 2010). The *bonyads* have also increased their presence in upstream oil and gas operation ventures, which NIOC has tried to prevent in the past.[40] In theory, budget controls would impose discipline on *bonyads* and other fiscal termites in the system. But the weakest link in this network of institutions is the Central Bank of Iran (CBI). Principally operating under Islamic anti-usury laws,[41] the CBI has done a poor job of creating incentives to price risk. Thus the bank has allowed more risky lending practices that promote heavy borrowing against the OSF, creating the illusion that the government has large resources at its disposal with little attention to the cost of using them – allowing actors such as the *bonyads* to siphon what they can.

In this way, the convoluted nature of Iran's political structure presents many challenges to NIOC. The government's goals are hard to discern; lines of control are convoluted; and the ponderous institutions create many checks and balances that favor gridlock. If NIOC were to strictly follow legal guidelines, every trivial operational decision would be subject to scrutiny by the Majlis, the Guardian Council, the Economic Board of Governors, and countless other bureaucracies. Figure 6.4 traces the major NIOC connections to the government. NIOC's relationship with each of these institutions is one of tiptoeing

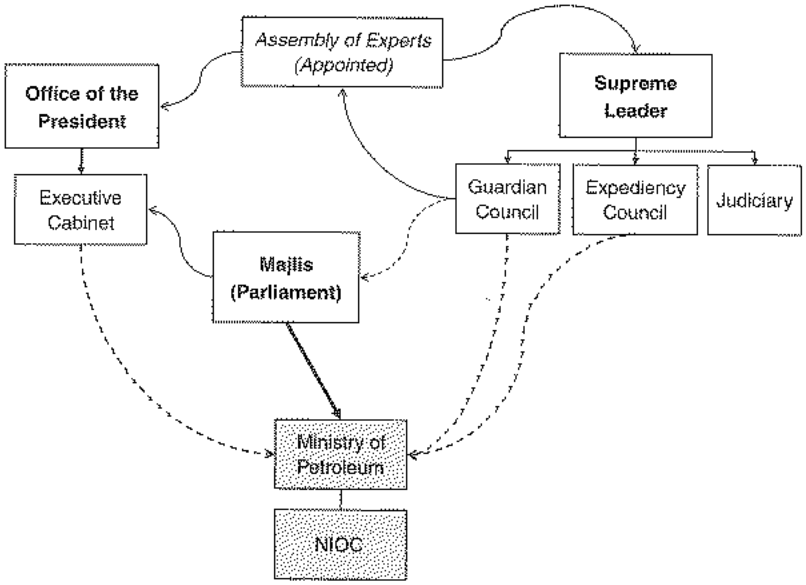


**Figure 6.4** Oil within the Iranian political system.
*Note:* Dotted lines represent informal connections, whereas solid lines represent de jure links; arrows indicate the direction of influence. For instance, the Guardian Council appoints the Assembly of Experts, while the Assembly of Experts determines the list of candidates who can run in elections. The Guardian Council also has an indirect connection with the Ministry of Petroleum, between the chairman of the council and the minister.
*Sources:* World Bank (2005); Gonzalez (2007); BBC News (2009a); author's interviews.

around overly bureaucratic lines and pursuing indirect or sometimes informal channels with specific government agencies.

Formally, the energy sector is overseen by the Supreme Energy Council, which includes the Iranian president and his cabinet, the Minister of Petroleum, and others.[42] Before July 2007, oil and gas projects were first approved by Iran's Management and Planning Organization (MPO) then by the High Economic Council (HEC), whose approval was necessary primarily for large projects and contracts with foreign oil companies. After July 2007 President Ahmadinejad dissolved the MPO and created a new council (the Supreme Energy Council) in which decisions are based on orders directly from the executive, at times without any consultation with NIOC.[43] Prior to 2007, NIOC could pursue its own priorities by navigating through



the chaos in public administration; after 2007 it was forced to be more compliant under stricter direct control from the president. In some other countries, executive control is mediated by a strong ministry that sets policy for the sector, but in Iran the ministry is indistinguishable from NIOC and thus is largely impotent as an independent force. One former IOC manager stated that "some people held two cards – one for NIOC and one for the ministry … I haven't seen a national oil company that has such an intermingle between political influences – the Majlis and the Ministry of Foreign Affairs, to name a few – and operating people."[44]

Indeed, since NIOC's inception the oil minister and NIOC's managing director have held very close ties and before 2001 were in fact the same person. Before 2001, the oil minister had always been the managing director of NIOC. This approach is rare but evident in a few other countries, such as Venezuela since 2004 (see Chapter 10). This pattern ended when Bijan Zanganeh, former oil minister (and former energy minister), handed over NIOC's reins to Seyed Mehdi Mir-Moezi. Seemingly, this decision was made to change NIOC's image in the global oil market into a more independent, less politically charged oil company; however, few outsiders believed that much had actually changed, as reported in a leading news source at the time: "while the government has indicated that it is in theory not opposed to separating NIOC from the ministry, Mr. Zanganeh is understood to be determined to retain control of Iran's oil and gas industry" (MEES 44:45 2001).[45]

The overarching goal of Iran's leaders is survival. Under this main goal, four particular goals guide most efforts by the government to manage NIOC: rent collection, job creation, freedom from foreign interference, and meeting domestic energy demands.

Aside from the financial importance of oil revenues in the government budget, which I have discussed above, the funding of social programs is vital to the stability of the Islamic government. During the times of relatively low oil prices in the period 2000–2004, when the reformist President Khatami was still in office, social spending was low. Since then, net lending to social programs has increased from $2.1 billion in 2005–2006 to $4.3 billion in 2007–2008. Through oil revenue redistribution, populists within the political system – led by President Ahmadinejad – have solidified their constituencies in impoverished areas of Iran. These social programs are

vital to Ahmadinejad's survival as he has drawn electoral strength from his base in rural Iran by promising the expansion of educational, health, and religious programs with oil money during his "provincial tours" (Naji 2008, pp. 216). Though Ahmadinejad's extreme populism is viewed critically by both reformers and hardline conservatives, these kinds of social programs are not new to the theocracy, as evident in the long-sranding role of the *bonyads*. While the government directs funds to social programs through the state budget, the *bonyads* are the operational arm of the public sector, overseen by the supreme leader, and are predominantly tax-exempt; as such, NIOC and its affiliates must foot the bill for these foundations.

The government also uses petrodollars to finance its own political stability by investing heavily in defense and in the state police. A particular beneficiary of this spending is the Revolutionary Guard, whose primary objective is to protect the Islamic Republic and maintain peace and stability in the country. As a former NIOC mid-level manager explained, "Ahmadinejad has been taking a lot out [of the OSF] for various projects of his, not in a corrupt way, but it is going to things like the Revolutionary Guard."[46] Furthermore, the guard has been steadily taking control of downstream assets through clerical appointments to oversee the *bonyads*.[47] As one Iran scholar puts it, "It is certainly a sign of muscling their way into oil, but the *bonyad* is not an official part of the Revolutionary Guard ... [The guard] has been involved in the oil and gas sector heavily, building pipelines and ports, etc."[48] The guard involves itself in the oil sector not only through *bonyads* but also through the guard's many economic subsidiaries, which have invested in several downstream projects and, some believe, at least one upstream project.[49]

In Iran, like most of the other countries rich in petroleum, the government uses prodigious oil resources for job creation. The state sees itself as *the* provider of jobs in the country, especially for college graduates, as the public sector employs 84 percent of eligible workers with at least a bachelor's degree (Salehi-Isfahani 2009); yet unemployment is still rampant, where 21 percent of eligible workers under 29 are without a job (CBI 2008/2009). Yet unlike many other countries, which saddle the NOC with the task of creating jobs, the signals in Iran are more mixed. The government has not strongly encouraged NIOC to increase its employment – in 2008 the



company had 140,000 employees with 40,000 more employed as contractors, which are small numbers in a populous country – as the state institutions (e.g., Majlis and Economic Board of Governors) have focused instead on improving the quality of employee training at NIOC.[50] This suggests that the burden of state employment rests more on other institutions that the state controls more directly, namely the *bonyads* involved in the agricultural, metals, and manufacturing sectors (CBI 2008/2009; Thaler *et al.* 2010). The goal of job creation has waned a bit as a priority, given recent growth in the private oil sector (a topic I discuss more below) and employment opportunities outside the realm of the public oil sector (Takin 2009). Compared with other NOCs, NIOC faces some of the same employment challenges that Sonatrach has been adapting to in the past few years, as the Algerian government has been discouraging the oil company from creating more jobs in an attempt to replace the goal of job creation with increased rent collection (Marcel 2006, pp. 130; Chapter 13). This is quite contrary to what we normally expect from an NOC, though as Marcel points out, "more sophisticated human resources policies are increasingly the norm."[51] NIOC has not filled its organization with nearly "useless" employees, as we have seen with other NOCs such as in India and China (see Chapters 17 and 9, respectively.)

Another central goal of the Iranian state is protection of the country's oil wealth from foreign interference. Iranians have long held the perception that Iranian oil is theirs and theirs alone: As one NIOC former employee stressed, "[We] wanted recognition of Iran's sovereignty over foreign agents ... and the main goal [of nationalization] was this recognition of sovereignty. The oil was Iran's and not England's."[52] Out of this sentiment, NIOC was initially created as the protectorate of oil supplies to maintain sovereignty against "foreign imperialists," along with its more traditional role of generating revenue for the government. (Mexico's oil sector was nationalized on the same logic. See Chapter 7.) The executive and the higher-ups in the theocracy also use NIOC to build up partnerships with other NOCs, whom the government views as more trustworthy partners than Western IOCs. (Recently, the Venezuelan state has followed a similar path, and Brazil may be headed in the same direction with its rich new oil finds. See Chapters 10 and 12, respectively.) Given its precarious position vis-à-vis the Western world, Iran has pursued

a strategy of attracting countries that are prone to avoiding or skirting Western sanctions for involvement in the country's oil and gas fields. Most notably, Iran has strengthened its alliances with Russia (through Gazprom), China (through CNPC), and Venezuela (through work in the Orinoco oil belt via NIOC's subsidiary PetroPars). One former NIOC director and OPEC diplomat stressed that NIOC "always wanted to become an international company ... Even during the period of the Shah, they had [projects] in South Korea, South Africa, and India ... But now the employees who are in Venezuela are there for completely political reasons and not economic [reasons]."[53] The theocracy does not necessarily push for increased profitability in the oil sector but would seemingly rather use NIOC and its sister affiliates as political tools to strengthen Iran's position in the region and in the world.

Finally, since the time of the Shah, it has always been the government's goal to provide the domestic market with cheap energy drawn from Iran's wealth of natural resources. As a practical matter, this has required addressing the troubling lack of natural gas infrastructure (discussed above). And it has especially centered on securing the supply of gasoline, whose consumption is growing rapidly. During the period 2000–2008, Iran imported roughly 40 percent of its gasoline due to capacity constraints in the refining sector.[54] Since the OSF was established in 2000, the government has been forced to withdraw money from the fund to finance gasoline imports at a rate of $5 billion per year (MEES 49:42 2006; MEES 51:25 2008), as the government – through NIORDC – must pay global market prices to import gasoline while heavily subsidizing gasoline for domestic usage at 10 cents per liter or roughly 37 cents per gallon (CBI 2008/2009). Iran's domestic use of oil and gas resources has been in a dangerous position ever since former Minister of Oil Bijan Zanganeh (1997–2005) made the decision to rely on imports of gasoline to account for the shortfall in refining capacity instead of installing new refineries. (The lack of refining capacity is and has been due to poor investment strategies and, more significantly, damage done to hydrocarbon infrastructure during the brutal Iran–Iraq War in the 1980s.) As demand for energy in Iran continued to grow unfettered in the late 1990s and 2000s, the gap between gasoline production and domestic demand has widened. Asked why refining capacity has not kept pace with growing demand, one interviewee agreed that "[Zanganeh] was not in favor



of building refineries, even though people criticized him widely for it. His argument really was that it is cheaper to import than it is to build new [refineries]. But the main reason for shortage now [and increasing domestic demand] is the cheap price of gasoline."[55] (At the time of writing this chapter, NIORDC has attempted to alleviate this problem by upgrading and expanding current refining capacity by as much as 266,000 barrels per day by 2013.[56])

Fixing the gasoline problem through price reforms has proved politically difficult, and fiscal troubles ripple through the oil sector. Like other NOCs, NIOC is used to satisfy the government's promise to the people for cheap energy, despite the growing concerns within Iran about the country's rapidly increasing energy demand.[57] Much to its detriment, NIOC must supply refining companies[58] with crude oil that is priced well below global prices to ensure that refineries and distributors can provide consumers with gasoline and diesel at $0.10 per gallon and $0.03 per gallon, respectively.[59] If this subsidy were not present, NIOC would be able to sell crude at market prices and reap the profits.

Thus NIOC, like many NOCs, actually faces many objectives. In the next section I turn to the question of how well it performs in meeting them.

## 4 NIOC's performance and strategy

Oil analysts repeatedly point to Iran's failure to achieve its pre-revolution production levels of 6 million barrels per day as the prime indicator of the inefficiencies and shortcomings of NIOC. Previous scholars explain this failure by telling the story of the Iran–Iraq War and the heavy damage the oil sector incurred as a result of Iraqi bombings in southwestern Iran, the traditional center of the country's oil industry (Brumberg and Ahram 2007; Takin 2009). Others point to factors that are internal to Iran, notably Ahmadinejad's efforts to steer the country toward a statist and populist economy, which has seen government budgets swell and dependence on oil earnings grow as well as direct intervention to assert greater (and more debilitating) control over NIOC (Naji 2008). Political scientists have pointed to the rentier effect and its impacts on the oil industry (Mahdavy 1970; Katouzian 1981; Skocpol 1982). NIOC has particularly suffered from increased state budgets (see Table 6.1) because it has been unable to invest in

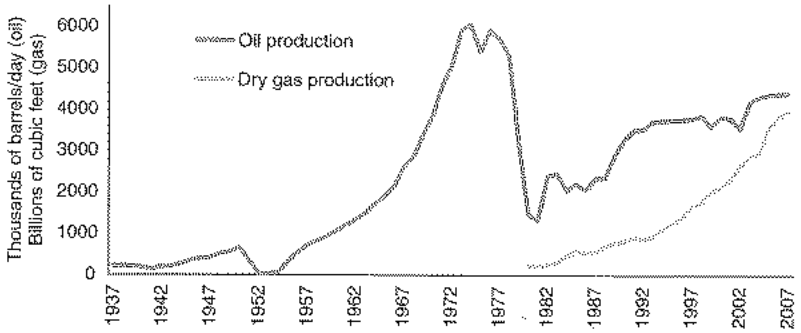


Figure 6.5 Iranian oil and gas production, 1937–2007.
*Sources:* OPEC (2004–2007); BP (2009a).

new capacity. But NIOC's troubles are more profound: Even when the government has allocated large sums of money for reinvestment into the oil economy, the enterprise has not been able to spend those resources. Some of the difficulty stems from international sanctions, which constrain foreign investment (Esfahani and Pesaran 2009). Here I explore these factors, and I begin by focusing on NIOC's performance as an oil and gas producer.

## *4.1 Explaining NIOC's poor performance*

Iran's oil output has been highly variable (Figure 6.5) and today struggles far below its potential. In this section I focus on oil, although the country is also a poor performer in gas.[60] In the period before 1974, oil and gas production was largely in the hands of foreign companies (under the consortium agreement) and NIOC played a less active role in operations. Between 1974 and the 1979 revolution, NIOC was able to slightly boost production during a time when IOCs were forced to leave the sector and the company was asked to play a larger role.

Iran's oil performance is broadly the result of four forces at work. One is foreign policy – notably Iran's participation in OPEC. A second factor is NIOC's organization as an enterprise – that is, its ability to mobilize external assistance where needed and to plan and execute a coherent strategy (which has been heavily influenced by two major waves of reorganization: the 1979 revolution and the post-2005 reshuffling by Ahmadinejad). The third factor is the damaging effect



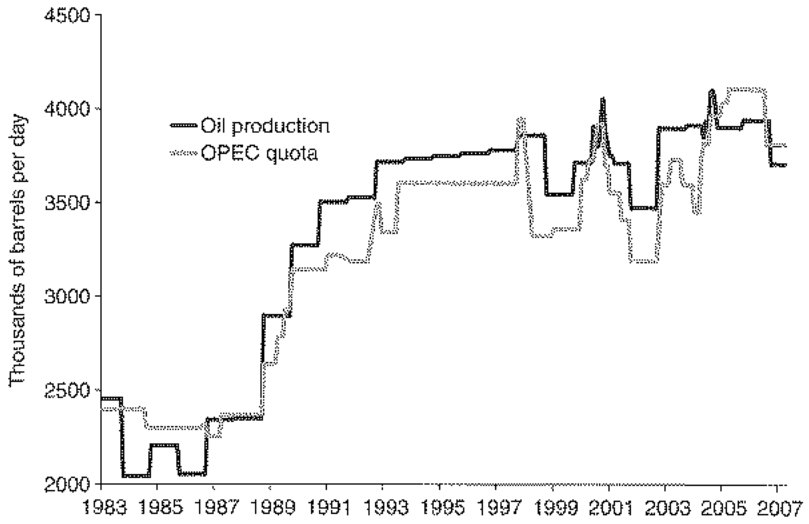


Figure 6.6 NIOC and OPEC.
*Sources:* MEES; OPEC (2004–2007).

of major external shocks, notably the 1980–1988 war with Iraq, and the periodic enactment of international sanctions since 1979. In terms of impact on oil volumes, these external factors have had the largest impact on NIOC. This destruction is the principal cause of NIOC's inability to achieve pre-revolution production levels, which exceeded 6 million barrels per day. And a fourth factor is the relationship between the oil company and the government, which has at times strained NIOC's ability to perform at its optimal level. In the next section I address the first three factors, which I consider to be external factors with respect to NIOC. In the subsequent section I explore the fourth, more complicated factor of NIOC's relationship with the government: NIOC's strategy in managing state demands, in particular, which will fill out the picture of underperformance.

## *4.2 Explaining NIOC's poor performance: external factors*

The first of these factors – OPEC – is relatively easy to dismiss. For other case studies in this volume, notably Saudi Arabia, OPEC constraints have had a major impact on output and it has been difficult to disentangle the performance of the state oil company from

the policy decision to restrict output (see Chapter 5). For Iran, it is much easier to disentangle the forces. It is possible that OPEC quotas were a binding constraint on NIOC during the late 1980s and early 1990s when the enterprise had excess production capacity, but more recently, NIOC has failed to reach its quotas. Figure 6.6 shows post-revolution Iranian oil production alongside Iran's OPEC quotas. Since 2005, NIOC has produced roughly 250,000 barrels per day short of its allotted OPEC production levels. This shortfall has little to do with OPEC and is mainly a sign of NIOC's recent poor performance combined with external shocks.

The second of these factors – NIOC's organizational troubles – is best explained by looking at two critical events in NIOC's history. The first is the 1979 revolution; the second is the 2005 elections. Before the revolution, NIOC's performance was markedly improving every year with the aid of foreign operators and a reasonably high level of reinvestment into the oil industry. With the Shah's exile and eventual deposition in 1979, NIOC tremendously suffered with the flight of many of the oil industry's top officials and their replacement with inexperienced revolutionaries who were appointed by the theocracy. Production dropped to 3.2 million barrels per day in 1979 and by 1980 to 1.5 million barrels per day (BP 2008). Understandably, these personnel changes wreaked havoc on NIOC and the oil industry. A former NIOC director notes, "Since the revolution, appointments came down to the lower levels, and these political appointees didn't have the experience ... They tried to act as politicians and not in the interest of the company. Competent employees under these new managers left and some even tried to play the game and became more political and 'grew beards and tried to become Islamic'. "[61] These "politicized" replacements made it difficult to establish credible ties among NIOC workers and their managers, and as a result NIOC saw much of its staff resign out of frustration toward new managers or because of disagreements with their new managers' political stances (Takin 2009). The same process occurred again in 2005 when Ahmadinejad was elected president and promised to rid the country of the "oil mafia." The organizational changes in 2005 have also seen the replacement of experienced and technically knowledgeable senior staff with inexperienced "cronies" of the Ahmadinejad administration. The fact that NIOC has twice been stirred up by the state, only to be left with technically inexperienced management, has undoubtedly taken its toll on NIOC's ability to make sound investment and production decisions.



The two major reorganizations of NIOC – one after the revolution and the second under President Ahmadinejad – are probably the single most important factors in explaining why NIOC has performed poorly. External shocks, the third factor driving Iran's oil performance, have amplified the harmful effects of these reorganizations and have been studied in depth by a number of scholars. Historians have pointed to the Iran–Iraq War as a cause for the slow recovery of Iranian oil production following the revolution (Elm 1992; Brumberg and Ahram 2007; Takin 2009). Economists have argued that the costs of American-imposed sanctions are crippling for the oil and gas sector (Amuzegar 1997; Torbat 2005). In truth, these explanations are defensible and have some merit in analyzing the performance troubles of the Iranian oil industry.

With casualty figures for both sides estimated at 1 million soldiers, paramilitaries, and civilians, the Iran–Iraq War was the deadliest in Iran's 5,000-year history and the eight-year war cost both states an estimated $150 billion (Mearsheimer and Walt 2003). NIOC was not spared from the conflict, unlike NOCs such as Sonangol, whose oil assets were located far from Angola's civil war zone (see Chapter 19). Saddam Hussein's military, along with US airstrikes, heavily damaged Iran's coastal oil infrastructure, destroying oil platforms, terminals, and tankers (Segal 1988). The particularly vital Kharg Island export facility was severely damaged by persistent and effective Iraqi air raids, and its destruction hampered foreign shipping and reduced NIOC's export capacity. The production difficulties that NIOC faced are evident, as during the war NIOC never broke the 2.5 million barrel-per-day mark (see Figure 6.5). Further, the war prevented large reinvestment even in fields that were not physically hit by the Iraqis. These fields, notably the massive Khuzestan fields in the southwest, began their natural decline during the war period and needed investment for enhanced oil recovery, but the money needed for reinvestment was being used to fund the war.[62] Even after the 1988 ceasefire agreement, the war had lasting effects on the economy and on the oil industry. Massive reconstruction efforts required funding at a time when oil prices were low, leaving few resources for NIOC's own reinvestment. Gradually, oil output grew but had barely reached

two-thirds the peak level of the late 1970s before revolution and war disrupted the sector.

The implementation of economic sanctions by the United States, and more recently by the United Nations, has damaged NIOC's capacity to reinvest into the oil industry as well as attract technically competent foreign operators for the production of its natural gas fields. Before 1995, the United States had applied targeted sanctions on Iran in response to the revolution and the hostage crisis, but these were relatively minor as they only affected US-Iranian trade.[63] In theory, those sanctions should not have had much impact on NIOC, although during most of that period the Iran–Iraq War (in which the United States informally participated on the Iraqi side) proved highly distracting and debilitating for NIOC. With the passage of the Iran–Libya Sanctions Act (ILSA) in 1995–1996, the United States targeted any company that invested in Iran's petroleum industry, both domestic and foreign companies and states. Any firm or agency investing more than $40 million in the Iranian oil sector in a given year became subject to a series of economic punishments by the United States targeted at the defiant firm or agency (Katzman 2007). ILSA and its aftermath have had a much larger impact on NIOC. Total's abandonment of its contract to develop South Pars in 2006–2007 was at the request of the French government, which did not want to suffer the political consequences of violating the ILSA (MEES 50:40 2007). Similarly, NIOC's ambitions to develop Caspian oil and gas fields with Azerbaijan were denied when the United States pressured the Azeri government to exclude NIOC from its operations (Entessar 1999). As one Iranian oil executive explained, "The current low production levels in Iran are [driven] by a failure of NIOC to increase exploration and production due to limited domestic capital, technology, manpower, and management resources and the lack of proper financial incentives for foreign investment. Of course the enforcement of US-led sanctions on outside investments by the largest Western companies is [a] significant impediment."[64] Multilateral sanctions have had an even stronger impact: the enactment of UN Security Council Resolutions 1736 (in 2006) and 1747 (in 2007) focused on Iran's nuclear ambitions and its state-sponsoring terrorism activities by targeting (among others) the Iranian banking system. As such, both UNSCR 1736 and 1747 have made it even more difficult for NIOC to obtain enough financial backing from the Central Bank of Iran for large-scale projects.[65]



### 4.3 *Explaining NIOC's poor performance: internal factors*

The complex relationship between NIOC and the state makes it unduly difficult to separate out the strategy of the oil company from the goals and demands imposed on it by the government. Historically, the oil company's strategy was one of compliance with the monarchy and the demands of the consortium. In the formative years of NIOC's operations, between the 1950s and the revolution, the company was largely compliant with the state's demands for the oil sector. NIOC's role was mainly to oversee the foreign IOCs while gaining valuable technical knowledge from consortium employees and facilities. Thus the early period for NIOC was not one in which it had a conscious strategy but instead followed the wishes of the Shah and the oil viziers that the Shah had appointed to manage the oil industry. The central goal was to maximize the revenues for the state, and NIOC – as regulator rather than operator – performed that goal well.

Following the Petroleum Act of 1974 and the institutional changes of the revolution, NIOC was given unrivaled control over the oil and gas sector with the departure of the consortium and other foreign IOCs. Within the context of the new revolutionary political system, NIOC was able to work with the government to create new channels of communication with the state and new ways to shape oil policy. In particular, the creation of an executive branch and the assignment of greater power to the Majlis allowed for two such avenues of communication between NIOC and the government (as Figure 6.2 shows). Such communication was not possible prior to the revolution, as the Shah had absolute authority over any and all oil matters. But the strain of the Iran–Iraq War soon forced the company to adopt a new strategy – one focused on constant repairs and partial reconstruction of damaged facilities. Thus NIOC was not able to benefit from its relative autonomy until the war was over in the late 1980s. In the midst of postwar massive reconstruction efforts at sites that had been heavily shelled by the Iraqi military, NIOC was able to assert control over setting the political and regulatory agenda for the oil industry. Taking advantage of a weak state hampered by the war and by sanctions following the revolution, NIOC reclaimed for itself a much greater influence over oil policies in the drafting of five-year development plans by the Majlis. As discussed earlier, the de jure separation

of the Ministry of Petroleum and NIOC was, in practice, a fusion of the two based on the overlap in personnel. Thus, the company's position with the Majlis vis-à-vis the Ministry of Petroleum was essentially a direct channel for NIOC to influence legislation. Ultimately, the war made NIOC much stronger in setting oil policy and much weaker in actually producing oil.

From 1985 to 1997, Minister of Petroleum and NIOC MD Gholam Reza Aghazadeh worked to improve NIOC's operating capabilities in a challenging war and postwar environment. In effect, he created a more autonomous NOC and laid the groundwork for the company to be able to rebuild capacity – which it did slowly, constrained by the massive loss of talented personnel and the strict fiscal environment that made it hard to obtain funding for investment projects. His efforts are seen as a success story, as production figures rose from 2.4 million barrels per day in 1988 to 3.7 million barrels per day by 1993 (Dadwal 1998; BP 2008). Furthermore, the number of active rotary oil rigs in that same period increased from eighteen to forty-five (Baker Hughes 2008). Aghazadeh's efforts to make NIOC into a functioning oil company, independent from the political turmoil of the state at the time, culminated with the selection of his successor to the Ministry of Petroleum.

Aghazadeh's departure led to the appointment of Bijan Zanganeh as minister of petroleum and MD of NIOC, who held power over the oil sector from 1997 to 2005. The policy of allowing NIOC to operate semi-autonomously continued. Fundamental to his political strength, Zanganeh had favorable connections with President Rafsanjani (1989–1997) – some have even called him a "pragmatist and protégé of Rafsanjani" – whose ideals of economic liberalization coincided with Zanganeh's (APS 56:16 2001). Even when the Rafsanjani administration ended, Zanganeh was able to seek out greater autonomy for NIOC, as he also enjoyed strong ties to President Khatami (1997–2005).[66] Even as Iran took a harder line politically, its oil sector continued to enjoy a measure of autonomy. As a sign of NIOC's autonomy in pursuing its profit-seeking strategy, in 1997 Zanganeh proclaimed, "I support decentralization and autonomy for various companies and better performance. I believe that all units of NIOC ... should operate strictly on economic and commercial terms. They should also make profit on their own" (MEES 40:49 1997). This was quite a departure from prior oil ministers, who while they believed



in Zanganeh's message, were still bound to satisfy the theocracy's desires for the oil sector (APS 56:16 2001).[67]

One sign of NIOC's growing autonomy was the nature of the "buyback" contract system, which was in large part designed by Zanganeh as a strategic compromise between full autonomy and total compliance with the state. Between 1979 and 1997, foreign oil companies were largely absent from operations in the Iranian oil sector except in a small number of projects, including failed operations with Gazprom in the Caspian and Persian Gulf operations with Total (Brumberg and Ahram 2007). Furthermore, the presence of new American-backed sanctions in 1995 and 1996 made it even harder for foreign operators to do business in Iran. In this isolated position, NIOC needed to find foreign assistance – especially for complex projects such as operating the extraction of difficult heavy oils and essentially all operations offshore. Mindful of the framework for analyzing NOC and IOC choices (presented in Chapter 4), NIOC was barely able to operate fields that were already in production and required only mature technologies and practices; the frontier was far beyond its reach and NIOC's managers knew that. The trick was to find a means of engaging foreigners while not running afoul of the conservative forces inside Iran's government – those same forces had led the revolution and, with unfavorable scrutiny, could squash the independence that NIOC had carefully carved for itself since the mid 1980s. As one IOC manager pointed out, "By and large, NIOC would have liked to be more involved with the IOCs. They saw their role as a recipient of technological transfer, general and performance management, strategy and development, business planning, and info management skills. They saw the IOCs as being very knowledgeable and wanted to learn from them."[68]

Desperate for foreign investment in the oil sector, NIOC pressed the state for an amendment to the constitution or at least a preferential clause that would allow NIOC to create incentives to bring foreign operators back to the oil industry. Out of these negotiations between NIOC and the state came the "buyback" system, which replaced the existing framework for foreign operators in the Iranian oil sector. Instead of a thirty-year period for IOCs to explore, develop, and operate a field (as is common for most PSAs), the government implemented a unique contract service mechanism: The buyback system only allowed for a five- to seven-year exploration and operation

period (until 2004 when the time length was increased to twenty-five years), after which the operation of the field would be given to NIOC and the initial investment would be returned.[69] The government knew that this arrangement would be unattractive to IOCs that had options in other countries, so it fixed the return on investment at a 15–17 percent profit margin. The thinking among government planners was that a fixed return would reduce risk and attract more foreign operators, although in practice this is not how foreign operators evaluate risk. Moreover, the IOCs following the adoption of the buyback scheme have regularly complained that the government changed the buyback terms, thus making an investment proposition that was barely attractive to begin with into one that included much more risk in practice.[70]

Despite its many flaws, the buybacks did provide incentives for the return of some IOCs into the Iranian hydrocarbon sector. New contracts were negotiated in 2001 with Inpex for the Azadegan oil fields, in 1997 with Total for South Pars phases two and three,[71] and in 1999 with Shell for the offshore Soroush/Nowruz fields (*APS Review Gas Market Trends* 68:14 2007; MEES 42:47 1999). Essentially all of Iran's 1 million barrel-per-day expansion in oil production capacity from 1998 to 2005 can be traced to the benefits of the buybacks (MEES 48:32 2005). That the buyback system was approved by the Majlis and the upper levels of the state was a strategic success for NIOC and Zanganeh. Though NIOC was not fully successful in opening the oil industry to IOCs – given the state-favoring clauses of the buyback – the buybacks still confirmed NIOC's growing influence over key oil decisions. Crucially, the buybacks offered a politically viable way for NIOC to reengage with the outside world of more expert operators.

Whatever nascent autonomy NIOC had been gaining through slow and halting efforts since the late 1980s was reversed with Ahmadinejad's presidential victory.[72] One of his priorities as president was to purge the oil industry of any officials he thought were cronies of Rafsanjani and Khatami and thus, in his mind, linked to corruption. His first act pertaining to the oil industry was to sack Zanganeh and replace him with a more reliable ally. It took three tries before the Majlis approved an oil minister: Nearly five months after Zanganeh was removed from his post the Majlis finally approved Vaziri-Hamaneh. From this first key replacement, Ahmadinejad



has since removed hundreds of senior ministry and NIOC staff and replaced them with more loyal officials. The process of purging the company partly resembles Chávez's purge of PDVSA. (Chávez ousted a much larger number of people, but PDVSA was much stronger as a company going into the purge and many of the key relationships with outside firms were left largely intact; see Chapter 10.)

With this change in the organizational structure of NIOC, the oil company returned to its strategy of compliance with the state. Both of the oil ministers after Zanganeh and many of the new senior NIOC officials have at times voiced their criticism of the state's interference with the oil sector but have largely directed NIOC to comply with the Ahmadinejad administration's goals.[73] In particular, upon Vaziri-Hamaneh's resignation as oil minister in 2007, Ahmadinejad was able to exert even more control over the oil sector with the appointment of Gholam-Hossein Nozari, a former NIOC MD with conservative-leaning politics (MEES 50:34 2007).[74] At this point in time, it is widely believed that Ahmadinejad has tightened his grip over the oil sector and has a strong influence over oil decisions given his network of loyalists placed in strategic appointments across the political system and across the oil sector (Hen-Tov 2007; Thaler *et al.* 2010). Thus, the post-2005 political landscape has organizationally changed NIOC and has driven the company to pursue its pre-revolutionary strategy of complete compliance with the state.

## 5 Conclusion

NIOC has been shaped by a unique confluence of historical events, geologic circumstances, and the changing political winds of Iran. Before the revolution, NIOC was seen as a success story by historians (Katouzian 1981; Zabih 1982). Its success reflected, in part, that it was not truly in charge of the oil industry; it regulated foreign oil companies that, in large measure, set the strategy for Iran's oil sector. The experienced presence of foreign operators in the Iranian oil sector allowed the newly formed NIOC to gain valuable technical and operational skills during the consortium period of 1954–1974, all the while remaining largely compliant with the Shah's oil policies and goals. When the foreign companies left during the period of 1974–1979, NIOC was able to assert itself as a fully functioning oil company, broadly competent in all aspects of

the oil industry, which it had overseen only from an arm's length in the preceding period. Those brief five years were perhaps NIOC's golden age.

Political fallout from the revolution dramatically changed NIOC's internal organization and saw the company stuffed with inexperienced (but politically loyal) managers. Significant damage to the oil industry from the Iran–Iraq War in the 1980s diminished NIOC's capacity to produce at its potential and to reinvest in aging oil fields. Sanctions in the 1990s limited the company's ability to procure badly needed technologies to develop offshore and unconventional oil resources. But with the rise of strong-minded oil ministers in the 1990s, NIOC was able to gain more influence in parliamentary decisions while at the same time bargaining with the conservative isolationists in the upper chambers of government to open up the oil industry once again to foreign investment. However, further restructuring in the 2000s has once again changed NIOC's management. Faced with yet another change in the political landscape in 2005 and with subsequent organizational and managerial changes, whatever autonomy NIOC had was lost with Ahmadinejad's political reshuffling of the "oil mafia." Though NIOC has been steadily improving its production despite its aging and declining oil fields, these events and circumstances have made it incredibly challenging for NIOC to live up to its potential. Despite any temporary improvements in autonomy or changes in strategy, NIOC remains a largely inefficient company. NIOC's failures are marked by its inability to produce Iran's vast natural gas resources and its incapacity to reachieve pre-revolution oil production levels.

However, as Iranian political philosopher Akbar Ganji has eloquently observed, "In Iran there is always plurality." The political system, as I have tried to show, is rife with competing factions with different ideas on how to handle the future of the oil and gas industry. While some in power favor increasing short-term profits over long-term stability, others have pushed for the constancy of the Islamic Republic over many years to come. Similarly, there are stark political divisions over what to do about the country's growing energy demand: many seek to redirect exports to the domestic economy while others clamor for higher government revenues through increased oil and gas exports. Since the Islamic Revolution in 1979, those who are loyal to the permanence of the regime continue to dominate debates over the country's oil and gas strategies and objectives. In Iran's tumultuous political landscape, this may be the only truism that can predict where NIOC and the oil industry are headed in the future.



## *Notes*

Department of Political Science, University of California, Los Angeles. I thank Siamak Adibi, Fereidun Fesharaki, Suzanne Maloney, and Valérie Marcel for helpful comments. Special thanks to David G. Victor, David Hults, and Mark C. Thurber for their assistance throughout the project. I also thank Pardis Mahdavi, Pete Nolan, Paul Stevens and my interviewees (who remain anonymous).

*Reference note:* I refer to articles from the Middle East Economic Survey (MEES) and the American Petroleum Society (APS) throughout the text by [Journal] [Volume]:[Number] [Year].

1 The state also uses oil revenues to fund subsidies for wheat, milk, cheese, rice, chemical fertilizers and pesticides, medicine, and mass transit in Tehran. In 2006/2007 government subsidies amounted to $6.3 billion (CBI 2006/2007). Note: The Iranian fiscal year corresponds with the Iranian calendar year, which starts March 21 and ends March 20. For example, the 2006/2007 year corresponds to the period March 21, 2006–March 20, 2007.

2 This percentage excludes petroleum products.

3 See Ross (2001) for more information on the resource curse. Simply put, a state dependent on rents from natural resources is less likely to become democratized, is more likely to be involved in transborder conflicts or civil wars, and will not develop economically to its full potential.

4 See Mahdavy (1970) and more recently Shambayati (1994) for a more thorough analysis of the theory of a rentier state as it applies to Iran. Essentially, a rentier state can fund government expenditures using resource rents (or any exogenous source of money, such as development aid) instead of using the more traditional method of constituency taxation. The theory posits that such a state will not be held accountable by its citizens because they are not forced to pay high taxes and thus expect very little from the state.

5 Due to all interviewees' requests for anonymity, every interviewee is given a number according to his/her affiliation. Twelve interviews in total were conducted: six with former NIOC employees (managers, directors, and contractors), coded as NIOC1–NIOC6; three with former IOC contractors working within Iran, coded as IOC1–IOC3; and three with academic experts (in Iran, the United Kingdom, and the United States), coded as IranScholar1–IranScholar 3.

6 Included in this category are the ultra-heavy Foroozan and Sirri blends, with an API gravity in the range 29–31 degrees. Both blends accounted for 165,000 barrels per day of Iran's total oil exports in 2008 (the trend has shifted toward heavier crude than in the past).
7 However, in 2007 these negotiations fell apart and as of the time of writing, NIOC has tentatively found a partner to develop the southern sector of Azadegan, having signed an MOU with CNPC in 2009 (MEES 50:15 2007; MEES 52:40 2009).
8 Similarly, NIOC estimates that the output of existing oil fields is declining at 9 percent or 350,000 barrels per day per annum since 2008 (APRC 2008, p. 138).
9 As of early 2011, construction of the IGAT-8 pipeline – which is set to deliver 100 mcm/day (or roughly 20 percent of Iran's natural gas consumption) from the Persian Gulf to Tehran via Qom – was still incomplete.
10 Despite a 350,000 barrel per day capacity, the actual throughput of the pipeline is roughly 100,000 barrels per day.
11 The largest refinery is located in Abadan, on the border with Iraq in the southwest province of Khuzestan, with roughly 30 percent of Iran's total refining capacity.
12 Discovered in 1991 by the National Iranian Offshore Oil Company (NIOOC), a subsidiary of NIOC, the South Pars fields now account for roughly half of Iran's gas reserves, with an estimated 13,500 bcm of gas and 17 billion barrels of condensate, of which 57 percent or 9.7 billion barrels are recoverable. (APRC 2008, p. 158; S Adibi, personal communication, September 14, 2009).
13 Along with the citations noted in the text, this section also draws from historical accounts found in Ala (1994); Daniel (2001); Keddie (2003); and Naji (2008).
14 "Ever since the discovery and production of oil in Iran, the political, economic, and social developments in our country have each been in a way intermingled with oil," NIOC Managing Director (MD) Seifollah Jashnsaz recounted in 2008 (MEES 51:22 2008).
15 For an excellent discussion of this turn of events, see Afkhami (2009).
16 See Elm (1992) for a discussion on the 1933 Agreement and its critics.
17 British accounts from that period offer a different view: "Not only does [the AIOC] provide steady jobs for some 70,000 Iranians; it provides, too, working conditions and amenities better than any which are obtainable elsewhere in Iran, or in neighboring countries either, for that matter" (AIOC 1951, p. 13).
18 Maugeri (2006) estimates that between 1947 and 1950, the British government collected more than 40 percent of AIOC gross profits, while only 20 percent went to the Iranian government.



19 It is believed that Ali Razmara was killed by a supporter of the pro-oil-nationalization group Fadayan-e Islam after Razmara pushed for a motion within the Majlis to oppose nationalization of AIOC assets. While not directly connected with the Fadayan-e Islam, Mossadeq was sympathetic to the group's goal of oil nationalization but was largely opposed to the use of violence as a means of political expression. (See Elm 1992 for more details on Razmara and his death.)
20 NIOC as a company was created in 1948 but was operating independent of state control until 1951.
21 Mossadeq had been granted full control over the military by the Majlis, who gave the prime minister a six-month term of emergency powers following mass protests in Iran in favor of Mossadeq when the Shah briefly forced him to resign his position as prime minister. By 1953, Mossadeq had been given emergency powers by the Majlis for another year, during which time he significantly weakened the powers of the monarchy and aristocracy by reducing the royal budget and prohibiting all foreign diplomats from relations with the Shah (Zabih 1982).
22 The Seven Sisters consisted of Exxon, Mobil, Texaco, Gulf, Chevron, Shell, and of course BP. Also included in the consortium was the Compagnie Française de Pétroles, which had a smaller share with roughly 6 percent control.
23 The first of these "fifty-fifty" agreements was made by PDVSA in 1948. Venezuela's lead on this producer-favoring contractual framework had a marked impact on how the consortium was set up, allowing Iran much more bargaining power over foreign companies. For a description of the first fifty-fifty agreements, see Chapter 10.
24 In this sense, Iran's oil industry was only partially nationalized in 1951 with the passage of Mossadeq's laws in the Majlis, given the presence of foreign companies controlling the bulk of operations. Full nationalization – what I refer to as "re-nationalization" – did not occur until much later, when in the 1970s the emergence of OPEC as a truly influential market force initiated a wave of nationalizations across oil-producing states around the world. Marcel notes that even after the coup, the foreign companies were acting as contractors to NIOC (Marcel 2006, p. 21). Other notable oil nationalizations in this period include the following: National Oil Corporation (Libya 1970), Saudi Aramco (60 percent government ownership by 1974), Petroleos de Venezuela S.A. (1976), Nigerian National Petroleum Corporation (1977), and Kuwait Petroleum Corporation (1980).
25 Note that the title "Grand Ayatollah" is a political title that is bestowed on the leader of an Islamic Republic, whereas "Ayatollah"

is a religious title that is granted to Islamic priests who have achieved the highest ranking among Shia clerics, indicative of their expertise in Islamic jurisprudence, ethics, philosophy, and the interpretation of the Qur'an.

26 On this relationship, see Marcel (2006, p. 102).

27 This chapter does not discuss the other three enterprises in detail, for they are outside the scope of this study. These three do not have control over Iran's hydrocarbons, as full operative control of oil and gas reserves in Iran are legally entitled to NIOC. NIGC is not involved in exploration and production but only performs the duties of an engineering advisory firm as regards the natural gas sector. NPC regulates and oversees the petrochemical sector, which is largely made up of private companies. Lastly, NIORDC controls the refining, transporting, and distributing of petroleum products and also markets and exports refined products.

28 In essence, the subsidiaries act as operators by taking oil policies from the government level and applying them in the field. For example, if a five-year development plan calls for an increase in drilling in a given oil field, this specific decision would be made by managers and ministry officials in the NIOC board and the Ministry of Petroleum – which often are the same people – and would be passed on to the National Iranian Drilling Company, a NIOC subsidiary. While NIOC is delegating the task to a subsidiary in this case, it is still important to note NIOC's role in the oil sector, listed on its website: "NIOC's 'Directors' act primarily in policy making and supervision while subsidiaries act as their executive arm in coordinating an array of operations such as exploration, drilling, production and delivery of crude oil and natural gas, for export and domestic consumption" (Islamic Republic of Iran Ministry of Petroleum 2008).

29 This will change over time as the offshore South Pars fields begin to come online, which will not be managed by ICOFC but instead by the Pars Oil and Gas Company, another NIOC subsidiary.

30 Even though the new revolutionary structure of government gives nearly ultimate control over the country to the Grand Ayatollah, other positions in the Iranian government also have powers. It should be noted however that Khamene'i is not officially a Grand Ayatollah on theological grounds but only on political grounds (thanks to Suzanne Maloney for clarifying this point). The Grand Ayatollah has unfettered control over major policy decisions, but others in the political system – notably the president and the head of the Expediency Council – have influence over other decisions. The current chair of the Guardian Council and the Assembly of Experts, Ayatollah Akbar Hashemi Rafsanjani, is widely believed to have a strong influence on the Majlis and the political success of the executive branch of power. An interviewee, whom I code NIOC2, has even gone so far to say, "The Majlis does not have control. People like Rafsanjani do."



31 MEES estimates that if the price of Iranian crude falls below $37.50/barrel (in 2009 dollars), the government would be unable to balance its budget if current expenditure trends continue, and would have to continue to pull funds from the OSF to make up the shortfall (MEES 52:4 2009).

32 Iran planned to replace the OSF with the National Development Fund in 2011, which the Central Bank hopes will be a more secure and regulated sovereign wealth fund (MEES 53:3 2010).

33 It is hard to trace down exactly where the missing $1.6 billion went, but most insiders believe the money is being siphoned off by those connected to high-level politicians and ayatollahs. Several former NIOC employees and managers indicated to me in interviews that people like Rafsanjani's son or the son of Ayatollah Khamene'i have been stealing oil money and depositing the funds overseas. Still, these beliefs must be taken with a grain of salt without hard evidence to support them.

34 This report by the Sovereign Wealth Fund Institute can be found here: www.swfinstitute.org/research/transparencyindex.php.

35 Interview with NIOC4, July 16, 2009.

36 Interview with IOC2, September 2009.

37 Interview with NIOC2, September 16, 2008.

38 Interview with IranScholar1, July 22, 2008.

39 Mazerei (1996) notes that despite the widely held belief that *bonyads* are the beneficiaries of large sums of government money, no official figures have been published.

40 Thanks to Suzanne Maloney for clarifying this issue.

41 As Mazerei (1996) indicates, "Islamic banking is, theoretically, an equity-based, profit-sharing system that eliminates fixed-interest deposits and loans in deference to Islamic injunctions against usury. Under Islamic banking the lender and borrower share the profits of enterprise (and hence the associated risk) according to some previously agreed upon share; the actual size of the remuneration to the lender, nevertheless, is determined only after the completion of the project."

42 The Supreme Energy Council also includes the directors of atomic energy, environmental protection, and management and planning, and the ministers of agriculture, economy, energy, mines and industries, and trade.

43 Thanks to Fereidun Fesharaki and Siamak Adibi for this analysis.

44 Interview with IOC1, September 16, 2008.

45 Operations have not drastically changed since the oil minister and NIOC managing director became separate posts. From 2001–2005, Zanganeh still controlled NIOC despite not being its managing director, a notion some attribute to Zanganeh's control over Mir-Moezi (APS 56:16 2001). The post-2001 system allows the oil minister to personally select the MDs of NIOC, NIGC, NPC, and NIORDC; these appointments essentially eliminate the gap between the NIOC director and minister of petroleum, as the minister has a strong incentive to appoint those who will not offer him any resistance on key oil decisions. In fact, the two oil ministers since Zanganeh had served on NIOC's Board of Directors prior to obtaining appointment to the ministry: Kazem Vaziri-Hamaneh had held board positions in NIOC and a number of its subsidiaries and current Minister of Oil Gholamhossein Nozari had been MD of NIOC before his 2007 appointment to the ministry. (In the early months of Ahmadinejad's presidency, he had tried to get three appointees through the Majlis approval process before getting parliamentary approval for Vaziri-Hamaneh. It is commonly believed that the three before Vaziri-Hamaneh were grossly unqualified for the position having little or no experience at all in the oil sector (MEES 48:36 2005).) As a former NIOC manager noted, NIOC and the ministry engage in "shared decision making: The Ministry of Petroleum has to keep a lot of people happy, whereas at NIOC, it's about 'corporate planning' that makes plans with projects, but it gets disrupted by other interests" (Interview with NIOC3, September 16, 2008).
46 Interview with NIOC1, September 17, 2008.
47 It is not clear how the Revolutionary Guard is being appointed to head the *bonyads*, but interviews suggest that the supreme leader himself manages the appointments.
48 Interview with IranScholar1, July 22, 2008.
49 Thanks to Suzanne Maloney for making this clarification.
50 Interview with NIOC3, September 16, 2008.
51 E-mail correspondence with V. Marcel, September 2009.
52 Interview with NIOC3, September 16, 2008.
53 Interview with NIOC1, September 17, 2008.
54 Data on imports drawn from BP (2008).
55 Interview with NIOC1, September 17, 2008.
56 This expansion, coupled with a new refinery project at Bandar Abbas being constructed by the Sinopec Design Institute, will help to nearly eliminate the need for gasoline imports in the short term. Yet the problem of addressing long-term demand remains unsettled: up to 600,000 barrels per day of new refining capacity that are in the planning stages have little chance to be properly financed anytime before 2015 and the detailed plans and budgets have yet to be drawn up (SHANA 2008).



57 One government strategy is to offset oil used for electricity generation (filling the gap with nuclear and natural gas), which has been increasing the recent precipitous increase in electricity demand. Rolling blackouts have been plaguing Iran throughout the summers, as there is currently a shortage of roughly 1 GW of peak capacity. The shortages are a significant political problem for the government, as it is forced to increase the electricity price to effectively curb demand. Deputy Minister of Energy Ahmadian has stated that there is no other way to force Iranians to conserve energy, since the subsidized electricity price of 160 rials/kWh ($0.02/kWh) is too low to encourage any kind of conservation (Fars News 2008). An Iranian scholar also criticized the heavily subsidized prices for creating a disincentive for efficient electricity generation, stating that "there is too much demand [for energy] and the government has not planned enough production because the current generation facilities are run by companies who aren't using [subsidized fuel] efficiently. When you have such cheap fuel to burn, then those who are generating electricity are not going to burn it efficiently" (interview with IranScholar3, July 22, 2008).
58 While NIORDC is the state-sponsored refining and distribution company, there are private refiners in the downstream sector. Some examples are Butane Company, Qeshm Island Oil Refinery, Pars Oil Company, and Samen Oil Projects Management Company.
59 These subsidies have recently come under fire, and as of the time of publication, the Ahmadinejad administration has successfully pushed through parliament a new plan to gradually increase the price of gasoline and diesel for the majority of the population.
60 In terms of natural gas, output is expanding, despite the increase in gas being reinjected into oil fields. Yet Iran is still far short of its production potentials. Iran has never exported large quantities of gas and is unlikely to do so in the near future. Most of Iran's gas production is consumed within the country, reflecting the ever-growing usage of natural gas in Iran's economy as a substitute where oil would otherwise be used. Though Iran has the second-largest gas reserves in the world, it is a stark sign of poor performance that it is a marginal and largely irrelevant player in the international gas market. In particular, NIOC and its subsidiaries have failed to fully develop the South Pars fields, which are getting smaller as time progresses: Qatar shares these fields with Iran, and ongoing Qatari production will deplete the availability of gas resources for Iran to develop. The fact that Iran has failed to do so is one of NIOC's biggest failures, as the window of

opportunity for the company to exploit South Pars's potential is rapidly shrinking.

61 Interview with NIOC1, September 17, 2008.

62 As one Iranian oil executive noted, "War damage was a constraint during and for many years after the Iran–Iraq War and it [didn't] help that the big Khuzestan fields [were] in decline and required extensive and expensive remedial work" (e-mail correspondence with NIOC4, June 4, 2009).

63 These were primarily asset freezes (in 1979), the prohibition of financial aid from the United States to Iran (in 1984), and the ban of all non-oil imports from Iran to the United States (in 1990). For more detail on these sanctions, see Torbat (2005).

64 E-mail correspondence with NIOC4, June 4, 2009.

65 This negative effect may be short-lived. Several scholars have found evidence that sanctions that persist over fifteen years may not have much impact on the Iranian economy, given the self-sufficiency and adaptability of many Iranian industries and sectors. See Torbat (2005) and Amuzegar (1997) for a discussion of these studies.

66 In the early years of the post-revolution Islamic Republic, Zanganeh was the deputy minister of culture and Islamic guidance during Khatami's tenure as minister.

67 To be sure, NIOC was not fully autonomous during this period. In fact, NIOC was not nearly as independent from the state when compared to NOCs such as PDVSA in the 1990s and to a certain extent Sonangol. Still, NIOC during Zanganeh's tenure as oil minister was able to pursue its own interests and influence the legislature on matters of oil and gas policy.

68 Interview with IOC1, September 16, 2008.

69 This description of the buyback scheme is drawn from Ebrahimi *et al.* (2003); Marcel (2006); and van Groenendaal and Mazraati (2006).

70 Interview with IOC1, September 16, 2008.

71 As of 2007, Total was pressured by the French government to leave the South Pars project; the new contract is (as of 2007) under negotiation with Austria's OMV. Also, as mentioned in footnote 8, Inpex has been pressured out and was replaced with CNPC.

72 There is also the belief that Ahmadinejad is not reversing the trend of liberalization but instead focusing only on controlling NIOC and the Ministry of Petroleum, while at the same time privatizing gas and services companies. (Thanks to Valerie Marcel for clarifying this point in an e-mail correspondence.)

73 Interview with NIOC6, July 17, 2009.



74 MEES notes that Ahmadinejad may have gained more control of his appointments by negotiation with Supreme Leader Khamenei over Khamenei's appointment of Rafsanjani, Ahmadinejad's opponent in the presidential elections of 2005, to a high political post in the upper levels of the theocracy (MEES 50:34 2007).