Box 1. Energy security and long-term contracts

The development of energy markets leads to diversification of the contractual instruments employed and to the reduction and/or elimination of monopoly control in the sector. Thus in addition to the long-term supply contracts (LTCs) that predominate at the initial period of market development, other contract types—medium- and short-term contracts, spot transactions, futures, and options deals—are added over time. This increase in the number of competing instruments, where each one of them has its own niche, reduces what was historically a very significant role for LTCs.

At the initial stages of market development, LTCs may fill a legislative lacuna in a host state lacking an adequate legislative framework, thereby securing investors against this common risk, as well as against the specific risks relating to that particular energy supply project. Here LTCs function as an effective instrument for reducing investment risks through guaranteeing to the lending institution that long-term project revenues will be available to payback capital raised on the international markets. When a stable legal framework has emerged, common risks are removed yet LTCs continue to occupy a significant niche in safeguarding against specific project risks.

As indicated above, contract type is determined by the particular characteristics of each project. New projects in mature regions, such as western, central, and eastern Europe, with existing infrastructure and transportation capacities, are usually less capital intensive and relatively small compared to the scale of existing markets. These projects might need short-term ('take and/or pay') contracts for the duration of the payback period, and/or spot deals when the payback period is over.

When new projects are considered in new regions, such as Russian Siberia and the Far East, Caspian states, or other regions in Asia, the absence of a general economic infrastructure for production and transportation renders such projects generally more capital-intensive and larger-scale. Long-term 'take and/or pay' contracts will be required as a financing instrument, in order to minimize project financing risks.

The scale of financing is dependent on available revenue flows, ie it is a function of volume and price. LTCs as a long-term supply 'take and/or pay' agreement are a valid mechanism for supply risk (ie volume risk) reduction. The combination of this agreement with an adequate pricing mechanism ensures price risk reduction. If a project is implemented with gas sales in the market without exchange pricing (as was the case in the earlier stages of market development in, eg continental Europe—see Figure 3.2), escalation formulas minimize price risk. In the case of gas sales in a market with exchange pricing, such as in the United States or the United Kingdom, the volatility of futures quotations will be reduced by hedging instruments.

By appropriately diminishing both volume and price risk, LTCs are considered by the business and banking community as a valid mechanism of project financing for long-term capital-intensive projects, in particular in new regions with insufficient production and transportation infrastructure. In emerging energy markets, there is no reasonable alternative to long-term 'take and/or pay' contracts as a mechanism of risk reduction related to investments into new gas projects. This is a view now shared by the European Commission (having earlier been criticized by some gas producers for opposing LTCs as contrary to competition laws): 'Long-term contracts will continue to be an important part of the gas supply of Member States and should be maintained as an option for gas supply undertakings in so far as they do not undermine the objectives of this Directive and are compatible with the Treaty, including competition rules.'[7]

III. Evolution of concepts and dominant instruments of energy security at different stages of world energy markets' development

What is 'energy security' from the economic point of view? Definitions are various, and range in comprehensiveness. Put simply, energy security is the maintenance of a consistent and reliable supply of basic energy needs.[8] It may be viewed from different perspectives:

- whether the nation or the region in question is an importer (security of supply) or an exporter of energy (security of demand);
- the particular energy resource(s) in question, bearing in mind the substitutability of energy resources;
- whether the importer/exporter is a developed or a developing country;
- what particular time-frame is taken into consideration (short-term, measured by days/weeks/months, or longer-term, measured by years to decades, or longest-term, expanding the time-frame of the energy security term to generations);
- whether the perspective is that of the individual citizen or the company (either energy-producing or energy-consuming) or of society as a whole;
- the geographical scale of the market, ie whether it is an individual country, a group of countries or region, or a global market (the latter already in existence in the case of oil and emerging in the case of gas);

[7] Amended proposal for a Directive of the European Parliament and the Council amending Dirs 96/92 and 98/30 concerning rules for the internal markets in electricity and natural gas, item 22.

[8] See the introductory chapter above.

- whether the correlation between state regulation and market forces in providing energy security is taken into account; and
- what types of risk are identified as an integral part of energy security and what risks need to be covered to provide secure energy supplies.

It is instructive briefly to consider two major countries on the world energy map with two very different energy economies—Russia and the United States—and how each defines energy security, bearing in mind some of the diverse perspectives identified above.

A. Energy security from a major consumer/importer perspective: the United States[9]

After the oil shocks of the 1970s the term 'energy security' became synonymous with 'oil security' and 'security of supply' in oil-importing countries, such as the United States and other OECD states. According to Zanoyan, 'global energy security issues cover both oil and natural gas. The definitions of supply security of oil and natural gas are the same: sustainable, reliable supplies at reasonable prices'.[10] But he stresses an important distinction between security of crude oil supplies and security of natural gas supplies, because these two commodities represent entirely different security challenges globally. Oil is a global commodity. Conditions in crude oil markets in different regions change together, and in the same direction. Global oil markets equilibrate. Gas, on the other hand, is not yet a global commodity and international gas markets do not always equilibrate. For example, it is possible to have a natural gas supply shortage in North America without causing a disruption in Europe or elsewhere.

There is a further dimension to energy security beyond security of supply, namely, security of demand. Major oil exporters, with a domestic economy that is not adequately diversified, remain strongly dependent on oil revenues. Indeed, oil exporters may well have much more reason to worry about the security of their markets than do oil importers regarding security of supply. Zanoyan concludes that security of oil supply is no longer a burning concern;[11] Williams and Alhajji disagree, perceiving recent US energy security measures as indicative of a nascent US energy crisis.[12] They identify five principal measures in evaluating petroleum security from a national perspective: domestic productive capacity, dependence on imports, the degree of import concentration, petroleum inventory relative to imports, and the ability to second-source petroleum imports in the event of an interruption from one or more suppliers. Violation of the

[9] See further detailed discussion by Zillman and Bigos ch 6 below.

[10] V. Zanoyan, 'Global Energy Security' XLVI Middle East Economic Survey (2003).

[11] ibid.

[12] J. L. Williams and A. F. Alhajji, 'Parallels with Earlier Energy Crises Underscore US Vulnerability to Oil Supply Shocks Today' (2003) 101:33 Oil & Gas Journal N5.

measures of energy security leads to an energy crisis which, according to some authors, is:

> [A] situation in which the nation suffers from a disruption of energy supplies accompanied by rapidly increasing energy prices and threatens economic and national security. The threat to economic security is represented by the possibility of declining economic growth, increasing inflation, rising unemployment, and the loss of billions of dollars in investment. The threat to national security is represented by the inability of the US government to exercise various foreign policy options, especially in regard to countries with substantial oil reserves.[13]

In his detailed historical analysis of the evolution of the energy security concerns and concepts in US energy policy, Coburn indicates that the 1981 National Energy Policy Plan (NEPP) included for the first time a separate chapter titled 'energy security' where the goal of 'an adequate supply of energy at reasonable costs' was the articulated policy. This goal remained in the NEPPs of the 1980s and 1990s under different administrations, with particular focus on oil from potentially unstable sources. For example, the May 2001 NEPP states: 'U.S. national energy security depends on sufficient energy supplies to support U.S. and global economic growth.' Post 11 September, the policy is similarly stated: 'Energy security is assured when the nation can deliver energy economically, reliably, environmentally soundly and safely, and in quantities sufficient to support our growing economy and defence needs.'[14] Dependence upon oil imports for a significant portion of US energy supply is mentioned as a predominant element in energy security concerns.

While some consider that increasing petroleum imports alone constitute a threat to national security, many experts, including the present author, consider that the level of imports in and of itself does not have significant impact on energy and/or national security. Reliance on imports only becomes a problem when import vulnerability increases as petroleum imports rise. This occurs when consuming countries increase the share of petroleum imports from politically unstable areas of the world. In their recent analysis Williams and Alhajji have shown that OECD countries', especially US, vulnerability is at an historic high, higher that during any of the preceding energy crises. OECD imports from the top five suppliers has increased from 44.7 per cent of total petroleum imports to 48.5 per cent. US dependence on the top five suppliers increased from 62 per cent in 2001 to 76 per cent in 2002.[15]

When vulnerability of supply is taken into consideration, diversity of supply clearly enhances security of supply. Increasing diversity of supply is a function of energy investment, though there is a limit to how much diversity can be

[13] ibid.

[14] L. L. Coburn, 'Energy Security: Is the Past Prologue?', IAEE Newsletter 4–8 (2003, First Quarter).

[15] A. F. Alhajji and J. L. Williams, 'Measures of Petroleum Dependence and Vulnerability in OECD Countries', XLVI:16 Middle East Economic Survey (21 April 2003).

achieved in terms of security of supply not least because there is a critical limit to the ability of some producers to replace others as strategic suppliers of crude oil. For example, will Russia and/or the Caspian states replace Saudi Arabia and other Middle East suppliers of crude oil? For energy economists the answer is clearly negative; thus supply from risky regions will continue to play the dominant role in petroleum imports despite the improved diversity of supplies. So the solution to the problem of energy security in the consumer states is to limit the risks related to these external supplies and to stimulate investments into diversified energy supplies. This means that energy security, at least from the consumer (importer) perspective, includes the ability to manage energy-related investment risks, both domestically and internationally. Or, in other words, energy security of energy consumers/importers is a function of energy-related investments, both externally (diversification of overseas energy production) and domestically (increasing efficiency of energy consumption).

B. Energy security from a major producer/exporter perspective: Russia

In the 2000 version of the Russian Energy Strategy to the Year 2020,[16] energy security was defined as a 'state of protection of the country (region), its citizens, society, state, economy from threats to sustainable fuel and energy supplies. Under usual conditions such state of protection is adequate fully to cover demand for fuel and energy resources of the needed quality and at economically appropriate prices and, under extreme situations, to guaranteed covering of minimal energy demand.' Ensuring energy security was treated in the Energy Strategy (2000) as a necessary condition for protection of a needed level of national and economic security on the basis of effective utilization of the fuel and energy potential of the country.

Three major factors were identified as characterizing energy security:

- the ability of the fuel and energy complex to provide economically proven internal and export demand with adequate quantities of energy resources of appropriate quality;
- the ability of the consumer sector of the economy rationally to use energy resources, thus preventing irrational spending by society on its energy needs and creating an energy balance deficit;
- the ability of the energy sector (including both energy producing and consuming industries) to withstand external economic, political, technological, and natural threats, as well as its ability to minimize damage caused by the materialization of such threats (ie unfavourable world oil price development, non-payment, investment downturn, natural catastrophes and major accidents, external military, political, and economic actions).[17]

[16] Министерство энергетики Российской Федерации. *Энергемическая смрамегия России на периоð ðо 2020 гоða* (2001) (author's translation). The main provisions were approved by the government of the Russian Federation on 23 November 2000.

[17] Above n 16, c 27–28.

The Russian Energy Strategy (2000) identifies energy strategy indicators and makes a quantitative assessment on a broader basis than just oil- or gas-related issues (see Table 3.1). Recent studies on energy security issues[18] have shown that negative developments in the whole Russian energy sector remain the major threat to the energy security of Russia and its regions.

The New Energy Strategy of Russia to the Year 2020 of 2003[19] articulates the energy security concept with more investment-related wording, but does not alter the definition of energy security found in the 2000 version and reproduced

Table 3.1: Russia's main energy security indicators and their current quantitative assessment

	Energy security indicators	Level %
	1. Equipment and technologies	
Incl:	• main production facilities depreciation (equipment):	
	– in electricity generation	>60
	– in oil refining	>80
	• share of domestically produced equipment competitive at world level	>20
	2. Energy balance	
Incl:	• weighted average self-sufficiency of economic regions in European part of the country by their own primary energy supplies	46
	• same for electricity	75
	• diversification of energy supply, ie gas share in electricity generation in European part of the country	>75
	3. Reserves and stocks	
Incl:	• ratio of oil reserves additions to annual oil production	<100
	• coal stocks at power stations as a share of its annual consumption	<10 (less than 30 days)
	4. Economy and finance	
Incl:	• average annual change of GDP energy intensity (1990–98)	+2
	• tax burden (of sales volume)	>50
	• ratio of accounts receivable to annual production volume of energy industries	100
	5. Management in energy	
Incl:	• completeness of existing legislation	>60

Source: data from Ministry of Fuel and Energy of the Russian Federation. Russian Energy Strategy to the Year 2020 (version as of 2000), Moscow, 2001, 29.

[18] Безопасность России. Правовые, социалвно-экономические и научно-технические аслекты. Выпуск <Энергетическая безол-сность (ТЭК и государство)>, М.:МГФ «Знание», 2000; Выпуск «Знергетическая безопасность (Нефтяной комплекс России)», М.:МГФ «Знание», 2000.

[19] Approved by government ordinance N 1234-r dated 28 August 2003: Энергетическая стратегия России на период до 2020 года, утверждена распоряжением Правительства Российской Федерации от 28 августа 2003 г. No. 1234-p, available at <www.mte.gov.ru>.

above. Threats to energy security are defined by external (geopolitical, macroeconomic, current state of the market) factors, as well as by the current condition and state of functioning of the energy sector of the country.[20] The threats themselves are not defined in the Energy Strategy (2003), but they were described in the earlier draft (2000) of the Main Provisions of the Russian Energy Strategy to the Year 2020.[21] The latter document[22] does not contain a definition of energy security, but includes a key paragraph which describes such major threats to the energy security of Russia as:

- potential deficit in one or more domestic energy resources available for export;
- insufficient availability of economically recoverable (ie proved) non-renewable energy resources and their inefficient use;
- inefficient structure of production and export of energy resources, with excessive reliance on export of unprocessed material;
- uncontrolled and unbalanced growth in internal demand for energy, leading to the excessive dependence of the national economy on one particular energy source;
- loss of Russia's competitive position in global energy markets and the reduction of national benefits deriving from Russia's activities in external markets;
- threats of incidents and terrorism to energy installations and facilities; and
- environmental catastrophes and the negative ecologic consequences of fuel and energy exploration and production activities.

The New Energy Strategy (2003) indicates the aim of energy security policy, describes its principles, and then comes to the major point, from this author's view: the particular problems which need to be solved in order to provide energy security. Two of them are indicated, and both are dependent on investments:

> [F]irstly, it is necessary to modernize the mostly obsolete . . . equipment in energy industries, and to increase the resource base under development—which is usually taking place in new regions and under the worst natural conditions. In the current decade, due to the lack of investments (apart from the oil industry), technological modernization will take place firstly within existing capacities (with expansion of their life-cycle), and in further years, due to their radical reconstruction and creation of new capacities, implementing the best domestic and foreign technologies, adequate to Russian conditions; secondly, it is necessary to change the structure of consumption and geography of production of energy resources. It is presupposed to increase consumption [and production therefore] of nuclear and hydro electricity, coal and renewables as well as spread hydrocarbons

[20] ibid at 15–16.

[21] Министерство энергетики Российской Федерации. *Основные положения Энергетической стратегии России на период до 2020 года* (версия 2003 г.), available at <www.opec.ru>.

[22] Contrary to previous practice with the published Energy Strategies of Russia (ie of 1995 and of 2000), when two documents—the main document (Energy Strategy) and a condensed version (Main Provisions)—were prepared, in 2003 only one document in rather short format was prepared and presented to the government for approval under the title of 'Energy Strategy', though in form resembling previous 'Main Provisions' documents.

production from Western Siberia to other regions (to Eastern Siberia and Far East, European North and pre-Caspian region).[23]

Other major producer states, including OPEC, face similar problems. So the solution to the problem of energy security in the producer states is to stimulate investments into energy-technology modernization and into diversification of domestic energy supplies. This means that energy security from the producers' perspective includes the ability to manage energy-related investment risks, mainly domestic ones, and is finally a function of the inflow of energy-related investments.

In conclusion, the problem of energy security in Russia, as in the United States, is dependent on energy-related investments and, at the end, is a function of whether the domestic investment climate is investor-friendly (both for domestic and foreign investors). In this sense many similarities exist in the energy security concerns of the United States and of Russia despite the major differences in each country's economic and energy picture. The United States is a major energy importer, whilst Russia is an exporter; during the last 10 years the United States has been steadily developing its economy, while Russia has experienced radical transformation in its political and economic system which, inter alia, has been accompanied by a deep decline in energy sector production volumes during the main part of the 1990s. Both countries in fact identify energy security as the capability to manage different risks related to the functioning of the energy economy, including investment risks. Thus we can conclude that energy security is a function of energy investments, independent of the producer or the consumer character of the energy economy.

C. Energy security and the energy investment cycle

In a global and mutually dependent energy world, the concept of energy security needs to reflect the balance of interests of all the parties involved and thus to include the whole energy chain, ie primary supplies (exploration and production plus transportation), refining, transformation, and final consumption (see Table 3.2).

Energy consumers and producers are thus mutually interdependent, linked together not only by flows of energy already produced, but also by investment flows which are needed to produce this energy, ie to develop energy projects. Today, at the current state of development of the markets and technologies, it is possible to develop fields that are located in a more severe natural environment, including more severe climatic, geographical, and geological conditions. Thus the unit value of energy projects (ie the cost of exploration and development of a single project) has been steadily increasing, with capital expenditures in the range of billions of dollars per project. Prior to the 1970s, energy projects were usually financed from the companies' internal sources—basically from

[23] Above n 19, at 17 (author's translation).

Table 3.2: Energy security: concept

Energy security = stable, cheap, and environmentally friendly energy cycle (primary supplies + transportation + refining + transformation + final consumption)
ENERGY SECURITY = minimum volume risk + minimum price risk
EVOLUTION OF *ENERGY SECURITY* INSTRUMENTS: (1) colonies + traditional concessions; (2) military instruments + modernized concessions (PSAs, RSCs); (3) strategic reserves + stocks; (4) international law instruments.
EFFECTIVE *ENERGY SECURITY* INSTRUMENTS are different at different stages of energy markets development: –from monopoly to competition as a driving force of energy markets' development; –from energy independence to energy interdependence; and –from local markets for individual energy resources to global energy markets.
With further growth of energy interdependence, international law becomes more and more effective (relatively cheap per unit of supply/final consumption) in providing energy security

their cash flows. Energy financing has since changed radically in line with trends in global energy markets, with increased reliance on debt-financing.[24] Today the debt/equity ratio in financing oil and gas projects has increased to 60–80:20–40 from almost 0:100 before the 1970s.

Thus energy and investment flows are closely related in defining energy security from an economic and financial perspective. Investment at each stage in the energy cycle has particular energy security dimensions. In the case of upstream projects (primary energy supply) this means starting with the first project-related expenditures aiming at obtaining access to energy resources (the pre-investment stage) and ending with full economically proven depletion of the discovered field, including its abandonment, plus transportation of the energy produced to the market (or to a particular consumer if an upstream project is being developed under long-term supply contract). From this perspective, the energy cycle, whether at the individual country, regional, or global level, includes a consequential chain of investment projects with manageable risks and appropriate rewards. Both producer and consumer energy security interests are incorporated in this view.

[24] For a more detailed description of the trends in energy financing see: H. Razavi, *Financing Energy Projects in Emerging Economies* (1996); А. Конопляник and С. Лебедев, 'Проектное финансирование в нефтегазовой промышленности: мировой опыт и начало применения в России' (2000) 1 Нефть, Газ и Право 25–40 and (2000) 2 Нефть, Газ и Право 23–42; and А. Конопляник, 'Многосторонние международно-правовые инструменты как путь снижения рисков проектного финансирования и стоимости привлечения заемных средств' (2003) 5 Нефтяное хозяйство 24–30 6 Нефтяное хозяйство 18–22.

From an economic and financial viewpoint, stable and cheap energy supplies mean supplies with manageable volume and price risks. Since the 1970s, the concept of cheap and secure energy supply includes environmentally friendly supply, with environmental costs internalized. Today this means that in order to provide competitive energy supplies, not only must technical costs be taken into consideration but also the financial costs of the project (needed to raise capital) and its environmental costs (needed to prevent environmental damage). These are facets of energy security that have evolved over time, through the various stages of development in energy markets.

Table 3.3 represents this evolution of the dominant instruments providing energy security at different stages of market development, aimed at managing volume and price risks in comparison with the basis for pricing (traded item) and the driving force of market development. It is quite a departure from the traditional direct control of supplies 'at the well-head' found in traditional concessions, including the direct state participation of the concessionaire's home state, as an instrument of diminishing volume risks, to diversified energy supply infrastructure. The latter means that the 'multiple supplies' or 'multiple pipelines' concept is now firmly in place and provides all the necessary opportunities for consumers to have the freedom of switching among these competitive supplies.

Competition is dependent on the necessary technical infrastructure for implementation of diversified supplies, as an instrument for diminishing volume risks. Prior to the 1970s, price risk in the oil market was addressed through the mechanisms of stable and rather low posted prices, transfer pricing mechanisms deployed inside vertically integrated oil companies (the prices at which oil was transferred from the upstream division of the company to the downstream division which were situated in different countries), and the cost-plus mechanism of pricing related to the individual project. Nowadays an exchange-mechanism of pricing is employed that is based on futures and options. Thus unstable prices and increased price volatility are to be compensated by different hedging mechanisms (derivatives), so that financial markets are being deployed to diminish price risks, along with diversified technical infrastructure. Today, as a result of competition, there is an advanced financial market with diversified technical infrastructure.

The basis for pricing, of course, differs according to time-frame. At previous stages of market development physical energy was the basis for pricing. Today the dominant trading instrument is not actual physical energy but paper energy (oil and gas contracts). Step by step changes towards a competitive, demand-based pricing mechanism based on futures trading and exchange quotations provides finally a wide spectrum of instruments for minimizing volume and price risks. Since these instruments are rather different, they need to be unified in order to minimize unnecessary diversity-related risks. So, in exchange trading, such unification was achieved by developing model contracts, eg Brent at IPE, WTI at NYMEX.

Table 3.3: Particular mechanisms for diminishing volume and price risks under different energy security instruments

Mechanisms of diminishing	Concession system	Strategic reserves + stocks	International law
Volume risk	Traditional and modernized concessions, PSAs, risk-service contracts (direct control of supplies via LTC for duration of agreement between host country and foreign company)	Producer states' production and export quotas + strategic reserves + stocks in both producer and consumer states (idle producing capacities, float tanker storage vs. SPR, government and company owned commercial stocks) + LTCs	Diversified energy supply infrastructure (multiple supplies concept) + consumers with switching (competitive supplies)
Price risk	Stable and low posted prices + transfer pricing + cost-plus (isolated projects)	Spot + forward pricing = unstable prices; increased price volatility to be compensated by producers' export quotas (major exporters = swing producers) + consumers' stocks regulation policy + escalation formulas	Exchange pricing = futures + options = unstable prices; increased price volatility to be compensated by hedging (derivatives)
Basis for pricing (traded item)	Physical energy (oil, gas)	Physical energy (oil, gas)	Paper energy (oil, gas contract)
Driving force of market development	Monopoly (individual consumer states/cartel of private companies	Monopoly (cartel of producer states/state companies)	Competition

This, then, is how energy security instruments have developed, aiming at minimizing investment-related risks, from the contractual structures to harmonizing international law instruments. These instruments will now be explored in more detail.

D. Early energy security instruments: the concession system

Energy security in the modern era probably starts with the decision by Winston Churchill before the start of the First World War to change the fuel of the British navy from coal to oil. Coal was a domestic fuel, while at that time the United Kingdom did not produce oil. This led to the British government's intervention in Iran in order to develop its oil resources to ensure a stable supply of oil for the British navy.[25] The economic and legal mechanism to ensure such stable supply already existed—the concession.

Before concessions were utilized, there were colonies, which were mainly used as a mechanism for providing non-energy natural resources security for the metropolitan countries. The principal distinction between these mechanisms is that colonies did not possess sovereignty over their territory and their natural resources; these rights belonged to the metropolitan state and natural resources in the colonies were developed as their own. Under the concessions system, sovereignty over the territory and its natural resources remained with the host state, which transmitted resource rights to the concessionaire for a limited (though initially rather long) period of time and on a chargeable basis. Initially the duration of such concessions was very long-term (many would endure today if not nationalized[26]) and the charges rather modest.[27]

Major development of concession mechanisms was related to the Middle East oil. The first petroleum agreement to be signed in the Middle East was between the British Baron Julius de Reuter (the founder of the Reuters information agency) and the Persian Shah Nasr-ed-Din on 25 July 1872.[28] It granted de Reuter a 70-year exclusive concession to explore for and to produce oil, gas, and other mineral resources except for silver, gold, and precious stones, as well as the right to operate railways and trams throughout Persia. Lord Curzon was to comment that it represented 'the most complete and extraordinary surrender

[25] Above n 14.

[26] Here are approximate expiry dates of former concessions in some OPEC countries, had they not been nationalized in the 1970s: Abu-Dhabi–2014/2018, Iran–1994, Iraq–2000/2013, Kuwait–2003/2026, Qatar–2010/2027, Saudi Arabia–1999/2000, Libya–2011/2016,Nigeria–1989/1999. See *When do the concessions end?*, Petroleum Press Service 449–450 (December 1971).

[27] See G. Barrows publications, *Alternative Arrangements for Petroleum Development: A Guide for Government Policy-Makers and Negotiators* (1982); А. Конопляник, 'Основные виды и условия соглашений, дейсмвующих в нефмяной промышленносми капималисмических государсмв между ТНК и принимающими смранами' (1989) 10 Вюллетень иностранной коммерческой информации (БИКИ) 3–23.

[28] B. Shwadran, *The Middle East Oil and the Great Powers* (2nd edn, 1959).

. . . that it has ever been dreamt of'.[29] Another concession, including exploration for and production of oil, was bought by de Reuters in Persia in 1889. But both concessions stimulated a wave of protests in Persia itself and strong resistance from the Russian Empire. In any event they proved very costly owing to unsystematic and unsuccessful attempts to discover oil. Both concessions were ultimately annulled.

Perhaps the best-known concession historically is the D'Arcy concession in Persia, which gave eventual birth to British Petroleum. On 28 May 1901, His Imperial Majesty Muzaffar al-Din Shah signed a concession granting William Knox D'Arcy 'a special and exclusive privilege to search for, obtain, exploit, develop, render suitable for trade, carry away and sell natural gas, petroleum, asphalt and ozokerite . . . for a term of sixty years'. The concession granted to D'Arcy covered all of Persia except five northern provinces near the Russian border (see Figure 3.3).

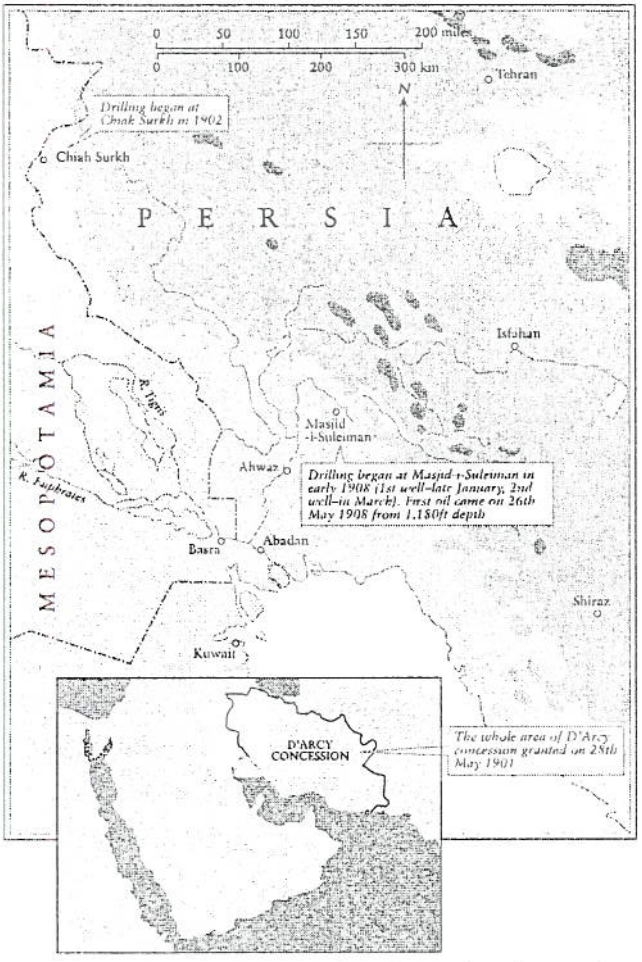

Figure 3.3: D'Arcy concession geography. This figure has been developed from the figure on p. 11 of *Berry Ritchie, Portrait in Oil: An Illustrated History of BP* (James & James Ltd., 1995) © 1995, The British Petroleum Company p.l.c., reproduced here by kind permission.

[29] M. A. G. Bunter, 'Early Concessions in Iraq and the Middle East' (2003) 1 Oil, Gas and Energy Law Intelligence.

The concession granted Shah's government UK£20,000 in cash within one month of the formation of the first company to exploit any oil discovery, UK£20,000 in shares, and a promise of 16 per cent of net profits.[30] Yergin considers this deal to be of historical importance because it opened an era of Middle East oil activities.[31] From the perspective of this volume, the D'Arcy concession is significant in that it gave birth to the establishment of particular mechanisms for protecting importing states' energy security. Indeed, energy security started with oil and, in particular, with British energy security and Persian oil.

Some key advisors within the British government appreciated the significance of the Navy's switch from coal to oil and encouraged British companies to develop oil fields under British control. In their view, oil was ideally to be discovered by British companies in areas close to Europe, and which could be controlled by Britain. Persia was not a part of the British Empire but otherwise was an ideal place in these terms. This policy coincided with D'Arcy's quest for additional finance. Indeed, when an Admiralty-supported request for a state loan for his concession was refused by the Ministry of Finance, a syndicate under the control of the Admiralty was created. During this period there was strong competition between Russia and Great Britain for influence in Persia, and there were concerns that D'Arcy would obtain his finance from these competing parties and that British control over the concession would be lost. Thus in 1905 the so-called 'concession syndicate' was established between D'Arcy and Burmah Oil.[32] After the first commercial oil discovery took place at Masjid-i-Suleiman on 26 May 1908, the 'Anglo-Persian' company was established (renamed the Anglo-Iranian Oil Company in 1935 and then British Petroleum in 1954).

This short phase of indirect state support for prospective oil supplies led to direct state participation in the company after Winston Churchill became First Lord of the Admiralty in 1911. A strong supporter of the switch to oil, he nonetheless considered that an external source of supply and foreign company producers raised significant energy and national security concerns. Churchill considered that if 'Anglo-Persian' were placed under direct government control, these security issues would be addressed. This took place in 1914, three days prior to the beginning of the First World War,[33] with legislation providing the British government with 51 per cent of the voting rights in the Anglo-Persian Oil Company in exchange for £2 million and the right to appoint two members of the Board with the power of veto over all decisions of a strategic character.[34] This inaugurated a period of providing energy security through direct state control. For example, the British experience was repeated in France with the establishment in 1923 of the Companie Française du Pétrole in which the French government bought its share, which in 1931 was equal to 35 per cent of common

[30] B. Ritchie, *Portrait in Oil: An Illustrated History of BP* (1995).
[31] D. Yergin, *The Prize* (Russian edn, 1999) 147.
[32] Tugendhat and Hamilton, *Oil the Biggest Business* (Russian edn, 1978); Yergin, ibid.
[33] Tugendhat and Hamilton (Yergin suggests it was 10 days after the First World War began, ibid).
[34] ibid.

shares with 40 per cent of the voting rights.[35] Without strong home-state support/intervention, concessions would not have been a stable source of supply and would constitute a high volume risk, even in the case of successful exploration. Of course, concessionaires and host-state governments did not necessarily share a common interest in respect of security of future supplies. The then British consul in this region of Persia wrote: 'Englishmen see an agreement as a written document in English which will withstand legal attacks in the court, but Persians would like to have just a most general declaration of intent, as well as a significant amount in cash, annually or on the spot.'[36]

Traditional concessions were the primary economic and legal mechanism ensuring direct control over resources by the concessionaire until 1948, when Venezuela introduced a profit tax into the system of concession payments. This marks the start of the modernized concession: by the 1960s, production-sharing agreements were introduced in Indonesia. Thus the spectrum of instruments has shifted over time, though their common features are minimizing volume and price risks for the concessionaire and for the home state. Each of these instruments was aimed at ensuring access to resources for the longest possible period. In the 1970s, host states increasingly sought direct control of the resources under their permanent sovereignty through the creation of national oil companies concerned not so much with issues of energy security but with repatriation of the profits of resource exploitation.

On the other hand, energy security has been a key element in debates in post-Soviet Russia and some other CIS states where, despite intensive privatization processes, the idea of creating a national or state oil company aimed at providing energy security is a major issue. Under the current conditions of economies in transition, where market mechanisms are not yet fully effective, and with the existing experience of Soviet administrative and command systems, a number of politicians and experts consider that a state oil company would address many contemporary problems. These include 'severny zavoz' (petroleum products supplies to the northern territories during the limited weather window); acting as a compensator or 'swing supplier' in case of emergency; and creating and operating strategic petroleum reserves which can be used for softening oil price fluctuations (similar to the currency interventions policy of the Central banks to support their national currencies under floating exchange rate systems).[37]

[35] Tugendhat and Hamilton at 108.

[36] Yergin (above n 31) at 163. Consider an historical parallel: In the beginning of the 1990s, in the early days of post-Soviet Russia, at the initial phase of shifting from free-of-charge subsoil use to a chargeable and time-framed use of the subsoil in this country, the then licensing agreements (a legally binding attachment to the licence, when the latter is a title of ownership, but all the operational conditions of the licence had to be presented in the licensing agreement) were also very general in substance. Indeed, in this sense they were similar to the first concession agreements in the Middle East, since both gave an opportunity for rather broad interpretations, and the stimuli of local authorities then and now were sometimes similar as well since both were lacking finance, though due to different reasons and in different economic and historical circumstances.

[37] For debate on this issue in Russia, see А. Конопляник, 'К вопорсу создании в России Государсмвенной Нефмяной' (1999) 4 Нефть, Газ и Право 23–49.