The vast and largely unexplored energy resources of the Caspian region present new opportunities for world oil markets, the region, and the United States:1

- The emergence of energy supplies would diversify world oil supplies and help restrain price increases during an expected period of rapidly growing demand for global oil. Significant quantities of Caspian oil exports would ease pressure on Persian Gulf production capacity and provide a hedge against oil supply disruptions.

- If well managed (and this is a big if), profits from oil and gas exports could stimulate economic growth and a rise in living standards in the energy-producing states, and thus alleviate many of the conditions that are a source of tension and instability. At today’s market prices, the potential oil reserves of the Caspian Sea zone have an estimated value of between $2–$4 trillion. The availability of Caspian energy supplies on world markets will likewise enhance prospects for economic growth and political stability in key countries surrounding the region.

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1Data on Caspian energy production and exports have been compiled from multiple sources. Choosing among the numerous and often divergent estimates of Caspian energy potential is fraught with difficulties. Our figures are derived primarily from the U.S. Department of Energy’s *International Energy Outlook* (1997) and data cited in secondary sources. The most reliable and accurate of these are cited in Ruseckas (1998), fn. 6, 10.
There are tremendous commercial opportunities for U.S. and Western multinational oil companies in Caspian Sea oil development and, more generally, in the development of the region’s mineral resources and manufacturing and agricultural sectors. Today, over a dozen companies (mainly Western) have invested over $40 billion in the states of the region.\(^2\) Under optimistic assumptions, the potential income for U.S.-dominated multinational oil companies could reach as high as $5–$10 billion annually by 2010. Chevron alone is projecting a total profit of $20 billion from its investment in Kazakhstan. It is expected that the major oil-producing fields in Azerbaijan will yield profits of $50 billion or more at current prices.

The long-term outlook for global oil demand and supply underscores the potential significance of Caspian oil. According to the U.S. Energy Information Administration (EIA), current global demand for oil is around 72 million barrels per day (mb/d) and is expected to increase to about 103 mb/d by the year 2015.\(^3\) Total natural gas consumption is currently around 78 trillion cubic feet (TCF) a year and natural gas could be used more heavily in the future instead of oil to meet new energy requirements in Europe and Asia, especially since there is a worldwide surplus of gas production capacity.

The lion’s share of the increased demand for oil will be met by producers in the Persian Gulf. However, Caspian Sea oil could help meet these burgeoning energy needs. According to the U.S. government, the region has proven reserves of roughly 16 billion (bn) barrels of oil, which puts it roughly on a par with North Sea oil (see Figures 4 and 5).\(^4\) Some estimates of the region’s potential oil reserves range from 70 to 200 bn barrels, although most internal estimates of oil and gas industry analysts put the figure at 40 to 75 bn barrels, roughly

\(^2\)This figure is quoted in S. Frederick Starr, “U.S. Interests in the Central Asian Republics,” testimony delivered to the House Committee on International Relations (Subcommittee on Asia and the Pacific), February 12, 1998, pp. 1–2.


\(^4\)Clawson (1997). Some estimates of proven oil reserves for the region range as high as 15 billion to 31 billion barrels.
comparable to North Sea reserves or, at best, Iraq’s potential.\(^5\) Estimates of the area’s proven and probable gas reserves range from 230–360 trillion TCF—as much as the combined reserves of the United States and Mexico, or about 7 percent of total world proven gas reserves.\(^6\) According to the International Energy Agency forecast, oil exports from the Caspian Basin could reach 1.5 mb/d by early in the next century; under optimistic circumstances the region could export close to 2.3 mb/d by 2010, and thus meet about 7 percent of incremental growth in worldwide oil during this timeframe. In short, under any scenario, the Caspian could improve global energy security at the margins.

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**Figure 4—Caspian Region Oil Outlook**

\(^5\)Ruseckas (1998), p. 4. There is much geological uncertainty surrounding estimates of possible oil reserves, and categorical projections should be treated with a grain of salt. Most estimates, however, fall within the 50–160 billion barrel range.

That said, the importance of Caspian energy resources to global energy supplies and energy security should not be overstated. In comparison to the global energy resource base, Caspian oil and gas reserves, as shown in Figures 4 and 5, represent a tiny fraction of overall supplies. Total proven reserves in the Caspian represent only 2.0 percent of total world proven oil reserves—one quarter of Venezuela’s, one-seventh of Iraq’s, and one-seventeenth of Saudi Arabia’s (see Figure 4). Even if the region reached its maximum oil production potential, by the year 2010, exports would account for slightly less than 3 percent of global oil consumption (see Figure 6).7

Moreover, the degree to which the Caspian region’s potential reserves are recovered and exported over the next 10–15 years remains uncertain.8 Caspian oil will be expensive and technologically difficult

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8The following discussion draws heavily on Rosemarie Forsythe, *The Politics of Oil in the Caucasus and Central Asia*, Adelphi Paper 300, Oxford University Press for IISS, Oxford, 1996. Forsythe was one of the first observers to detail the many difficulties the Caspian
to find and develop. Indeed, there are numerous obstacles that must be overcome if these countries are to transport their oil and gas to market. The most significant of these constraints include:

• **Geography.** There is no easy way to export energy from the Caspian Basin. The major energy-producing countries are land-locked and thus must rely on the cooperation of neighboring countries to ship their energy to market. Many of the potential

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pipeline routes pass through highly unstable and conflict-prone regions, such as Afghanistan and parts of the Caucasus and Turkey, or countries like Iran that are unreliable or undesirable partners for political reasons. Thus, without a diversified network of reliable access routes, the prospects for moving the oil from the ground to international markets are uncertain.

• **Technical Constraints.** Technological factors will increase the cost and difficulty of developing Caspian Sea oil. Impediments include high transportation costs that make equipment expensive to import and oil costly to export; obsolescent and inefficient oil exploration equipment and technology; a decaying infrastructure; oil fields heavily damaged by unsophisticated exploitation methods; the poor quality of oil produced in some countries; the lack of indigenous commercial, financial, and legal expertise; the absence of effective legal structures to protect investments, which discourages capital for development; and the difficult geological conditions surrounding much of the region’s resources. The shortage of modern drilling platforms and drilling support material is an especially acute constraint on rapid exploration and development. As a result, even when production increases, operating and transportation expenses for Caspian oil will be substantially higher than the same costs in other major oil-producing regions.

• **Political Problems.** Political developments within the region could pose barriers to oil development and export, including internal instability within oil-producing countries; administrative disorganization, mismanagement, and corruption; and Russian interventionism or obstructionism.

• **Capital.** Although oil and gas companies are lining up to secure lucrative contracts, it remains to be seen how much exploration, recovery, production, and transportation they will be able to finance with their own resources or in international capital markets. According to Cambridge Energy Research Associates, it will take $70–$100 billion to develop and transport the region’s oil reserves

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9See Jaffe (1998).
and roughly the same amount to develop its gas reserves.\textsuperscript{10} In particular, the availability of financing for very expensive pipeline construction projects, such as the proposed Baku-Ceyhan pipeline, is questionable.\textsuperscript{11} Although, in theory, the major international capital markets could provide assistance, many multinational companies may seek higher returns on capital investments elsewhere (e.g., by opening new fields in Saudi Arabia), and may be further inhibited by the political and economic risks associated with oil exploitation and export as well as rampant corruption and administrative mismanagement. The recent turmoil in Asian financial markets and the general uneasiness about investing in emerging markets may also discourage capitalization of Caspian energy projects.

- **Legal Problems.** Continuing disputes over conflicting territorial claims, as well as lack of protection for private property rights, are also roadblocks to oil production and distribution in that they create uncertainty about ownership of investments and oil resources. In addition to the unresolved issue of Caspian sea boundaries, there are outstanding questions concerning the legal status of the Bosporus Straits that cloud access to the most viable route for Caspian Sea oil to reach the Mediterranean and world markets.

Furthermore, as Patrick Clawson has observed, other trends affecting the global oil outlook could also work against a significant role for Caspian Sea oil.\textsuperscript{12} First, world demand for oil could grow less rapidly than forecasted. For example, world economic growth could slow down, concern over global warming could lead to new restrictions on fuel consumption, subsidies for energy consumption in the developing world could be reduced, energy-inefficient state-owned industries


\textsuperscript{11}Prospects have dimmed recently for the construction of a main export pipeline that would carry the bulk of Azeri long-term oil to the Turkish Mediterranean port of Ceyhan. The estimated cost of $4 billion was a major factor in the decision to delay the project, along with low crude oil prices and disappointing results from ongoing drilling operations in Azerbaijan that have led some oil company analysts to question the size of the region’s recoverable reserves.

\textsuperscript{12}See Clawson (1998) for an excellent treatment of trends in the international oil market, which is summarized here.
in China and Russia could be modernized or closed, and natural gas could be substituted for oil. Because of the high costs of Caspian oil production, slack world demand for oil and low or declining oil prices would make Caspian oil exploitation less commercially attractive. Indeed, it is estimated that the cost to produce a barrel of Caspian oil will be three to five times higher than that of other low-cost producing areas.

Second, over the past decade, there has been a substantial increase in the supply of oil from sources both within and outside of the Organization of Petroleum Exporting Countries (OPEC)—resulting mainly from lower production costs and the removal of restrictions impeding production—and the prospects for ample oil supplies, excluding Caspian Sea oil, are good for the foreseeable future. In the last decade, 13 non-OPEC countries increased their combined production by over 2.0 mb/d, and U.S. oil output is expected to increase for at least the next five years. Additionally, many Middle Eastern oil producers are poised to increase production capacity substantially, which is technically feasible given their ample oil reserves. Notwithstanding its recent decision to cut oil production, which was driven largely by short-term considerations, Saudi Arabia has long-term plans to increase its capacity by 3 mb/d (from 11 mb/d to 14 mb/d); other Gulf Arab oil-producing states are increasing their capacity by 2 mb/d, and both Iraq and Iran are producing well below their maximum capacity—a situation that is likely to change over the next 10 to 15 years. Furthermore, substantial reserves remain to be exploited in Africa, South America, and offshore Asia. Finally, the long-term possibility cannot be ruled out that Russia might reverse its decline in oil production and increase its output. On the margins, increasing oil production in any of these countries would be quicker, more profitable, and less difficult than an equivalent increase in Caspian oil production. Non-OPEC oil production has increased by 1 to 1.5 percent per annum, on average, since 1988. If this trend continues, and assuming continuing competition within OPEC, access to increased Caspian oil exports will have little or no effect in moderating oil price increases.

From the West and NATO’s perspective, therefore, while the emergence of the Caspian Sea region as an important source of global energy will contribute to improved energy security, Caspian energy supplies are unlikely to become critical to the West’s security and
prosperity, or a potential strategic vulnerability. Even under the most optimistic scenario, the role of Caspian energy supplies in world oil markets will be overshadowed by the Persian Gulf. Moreover, it is unlikely that the region will realize its full potential for some time (if at all), given the constraints on rapid oil development and other factors that are likely to create an oversupply of oil for the next decade, even if the demand for it is high. Consequently, it is highly unlikely that the world will become heavily dependent on Caspian energy. Second, any severe interruption in the flow of Caspian oil is unlikely to cause more than a temporary dislocation in the availability of oil on the world market and a modest increase in prices. There are several reasons for this prognosis:

- Any short-term disruption in Caspian oil supplies would trigger an increase in oil prices; at these higher prices, some wells that have been capped temporarily for commercial reasons would be reopened. Though there would almost certainly be a lag time, the long-term availability of this oil would calm the market and cushion the long-term effects of an interruption in Caspian Sea oil. Saudi Arabia, in particular, has the technical capacity to bring additional oil on-line fairly quickly and at a relatively low cost. Other oil supplies from outside the Persian Gulf would also be available to offset the loss of Caspian oil.

- Even under the most optimistic conditions, the world will likely import only a tiny fraction of its energy requirements from the Caspian Sea region. By the year 2010, world demand for oil is expected to reach roughly 100 mb/d. Almost half (14 mb/d) of the projected increase in the global demand for oil in 2010 will come from east Asia (excluding Indonesia and India). By contrast, demand in the advanced industrial nations of Europe and North America is projected to grow only 6 mb/d. According to one estimate, crude oil imports from the Asia-Pacific region are projected to increase from 58 percent to 72 percent over the next seven years, and by 2010, it is estimated that this region, with China and India in the forefront, will consume 18 mb/d of Persian Gulf oil, or more than Europe and the United States combined.  

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• As noted earlier, even if all the obstacles to Caspian Sea oil development were overcome, the region would account for a tiny portion of global oil production. Moreover, oil reserves in the Caspian Sea put the region on a par with oil from the North Sea or Iraq. For the past seven years, only a trickle of oil has been exported from Iraq, yet the international oil market has adjusted quite well to this decline. Even if the growth in world demand for oil should exceed expectations, there is likely to be considerable spare or underutilized capacity in the Persian Gulf—and perhaps Russia—that could be brought on-line fairly quickly.

- Depending on the degree of diversification of oil export outlets in the region, a total interruption of oil supplies appears highly unlikely. Even under the most pessimistic assumptions, there will probably be at least two main pipelines for long-term exports of Caspian oil. If this degree of redundancy is achieved, it is hard to imagine the spigot going completely dry.

To be sure, given the range of uncertainties surrounding projections of global oil demand and supply, it is possible that the above projections could be off target. Under a worst-case scenario, world demand for oil could greatly exceed production; excess capacity both within and outside the Persian Gulf region could dry up; Caspian Sea oil exports could reach their maximum potential; and the one or two pipelines carrying Caspian Sea oil to market would be highly vulnerable to interdiction.

Under these gloomy assumptions, the West—and especially Turkey—could be hard hit by a prolonged interruption in Caspian Sea oil supplies. If the disruption were caused by a state or states that controlled pipelines, NATO or some coalition of Western countries would have the option of bringing military pressure to bear to coerce the state into resuming the flow of oil. For this option to be credible, Turkey’s cooperation would be required, because of its proximity to the region and the difficulty NATO would have in projecting conventional forces into the region without access to Turkish bases. Even with full Turkish cooperation, however, the coercive use of force to compel a country to resume oil exports would be highly controversial, especially if the country were Russia, and it is uncertain at best that NATO would agree to such an undertaking or that the United States could assemble an effective ad hoc coalition for such a
purpose. Indeed, under these circumstances, the impulse of most countries would likely be to tolerate dislocations arising from higher oil prices rather than incur the political, resource, and military costs associated with the use of force to restore oil exports from the Caspian. 14

An interdiction of Caspian Sea oil supplies resulting from terrorist or subnational attacks on oil pipelines and the associated infrastructure would pose a more difficult challenge to NATO. As most studies have shown, pipeline distribution systems are highly vulnerable to attack, even though the damage often can be quickly repaired. If the pipeline is above ground, portions of it can be blown up using a variety of low-tech methods; if the pipeline is buried, it is nonetheless vulnerable at its exposed and usually undefended pumping stations, input terminals, river crossings, and intersystem linkings. For instance, any one of the over 100 points on the Trans-Arabian pipeline could, if damaged or destroyed, halt product movement. Destroying pumping stations may cripple the use of a pipeline for up to six months. Also vulnerable to attack are the centralized, computerized control of pipeline systems that enables valves to be opened or closed and pumps to be started or stopped remotely. Natural gas pipelines are especially vulnerable to interdiction because they must maintain a constant flow of pressure. In short, even under a worst-case scenario, it is far from clear that NATO’s use of military force would be appropriate or effective. Equally problematical is whether NATO could reach consensus on a decision to use force in such circumstances.

Finally, there are other factors to bear in mind. First, until recently there was no Western access to Caspian oil supplies. Throughout the Cold War, this situation was of no strategic consequence to the West, and trends in the global oil market over the next 10–15 years will not alter this reality.

Second, the world economy needs to ensure the availability of oil to the global market. Because oil is a global commodity that is traded on an international market, the West benefits from the delivery of oil to

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14 This is also the judgment of Martha Brill Olcott (Summer 1998), p. 111.
any market, regardless of the source or the buyer, unless there are true oil shortages, which is clearly not the case for the foreseeable future.

Third, physical possession of oil wells is no longer a vital concern; thus, fear that Caspian oil could “fall into the wrong hands” is a slogan of dubious value, since much of the world’s energy is already in the “wrong hands” and yet is of little consequence. Qaddafi, Saddam, and the Ayatollahs of Iran have never hesitated to sell oil to the West, in as much quantity as we want. Even in the unlikely event that Russia established control over all Caspian oil, it would hardly matter, either economically or geopolitically, because even Russia will sell this oil.

Notwithstanding much of the hyperbole that surrounds what has been written about Caspian oil, it is hard to escape the conclusion that the energy potential of the Caspian basin is of limited geostrategic significance. As two prominent experts on the region have noted, the global strategic significance of the Caspian region with respect to energy resources pales in comparison to that of the Persian Gulf. Indeed, based on most reliable estimates, including those of the EIA, by the year 2010, Persian Gulf oil exports will amount to 40–45 mb/d, a little under half of the world’s total requirements. Hence, there is no realistic alternative to Persian Gulf oil supplies to meet the growing demand during this period.¹⁵

In sum, the treatment of energy security in the Caspian, which mirrors in general the discussion in the academic literature, has become oversimplified and sloganized. Western access to Caspian oil is not strategically significant. Rather, the West has a modest stake in helping to ensure that (1) conflict in the region does not impede the flow of oil, (2) no truly hostile state has a huge monopoly over oil, (3) U.S. and Western companies have a shot at the profits from oil development, and (4) no state has a monopoly over regional pipelines. Overall, these are important, but hardly vital, interests.