

Oil in Asia and the Pacific: Production, Consumption, Imports, and Policy Options

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Asia Pacific

I S S U E S

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S U M M A R Y Concerns about energy security affect economic performance and political stability all over the world, but nowhere are these issues more critical than in Asia and the Pacific. Oil is at the heart of the region's energy challenge. Oil consumption is increasing nearly twice as fast in the region as in the world as a whole, while options for increasing production are severely limited. The result is a steadily growing dependence on imported oil, largely from the volatile Middle East. Apart from efforts to increase domestic production and slow consumption growth, recommendations for policymakers include initiating joint ventures with oil producers, improving the efficiency of domestic markets, building up strategic stocks, strengthening regional cooperation, reducing transportation bottlenecks, and establishing a regional market for oil futures. In the long run, policymakers need to devise new strategies for economic growth based on more efficient use of oil and natural gas, continuing dependence on coal, and ultimately, the development of alternative sources of energy.

The Asia Pacific region consumes three times more oil than it produces

The large and growing demand for oil in Asia and the Pacific, combined with sharply limited domestic supplies, poses a major challenge for energy security and economic growth. In 2006, countries in Asia and the Pacific consumed three times more oil than they produced (figure 1). As a result, the Asia Pacific region is more dependent on imported oil than any other region in the world.

With less than 4 percent of the world's proven oil reserves, the region has few options to increase or even maintain current levels of production. Efforts to diversify to other types of energy, such as natural gas or renewable energy, have achieved only limited success. Not only is the Asia Pacific region heavily dependent on imports to meet its large and growing demand for oil, but it is particularly dependent on oil imports from the Middle East, perhaps the most volatile and unpredictable part of the world.

Current levels of oil production and consumption are cause for concern. But a number of policy options can help governments improve the security of their oil supplies and, in the long term, bring oil supply and demand into better alignment.

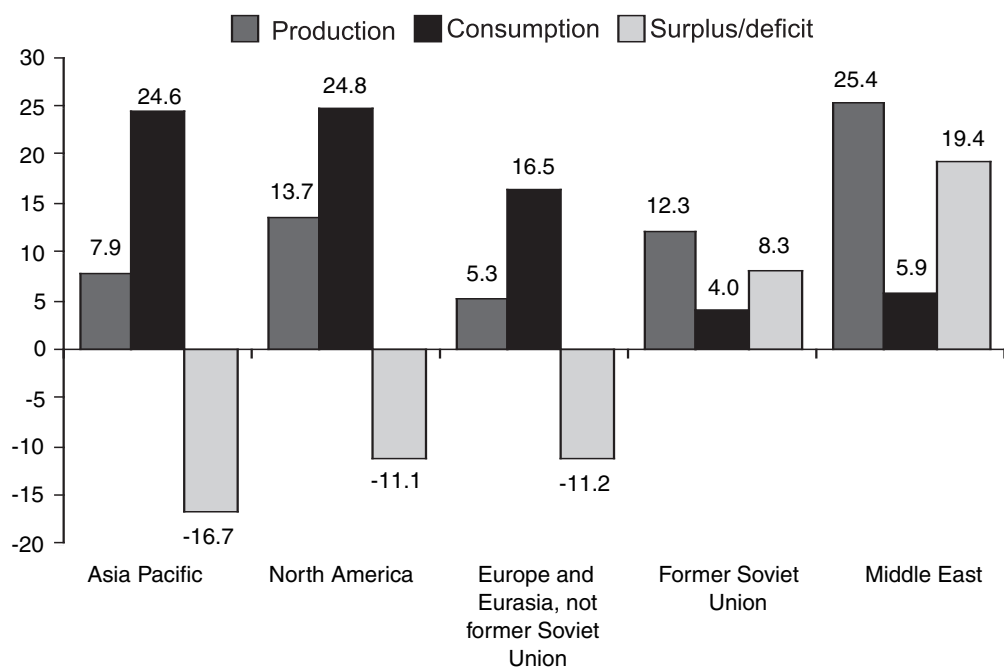
Can the Asia Pacific Region Produce More Oil?

Although not sufficient to meet the region's needs, oil production in Asia and the Pacific is not insignificant. China and Indonesia are among the top 20 oil-producing nations in the world, and Malaysia, India, Australia, Vietnam, Brunei Darussalam, and Thailand also produce significant amounts of oil.

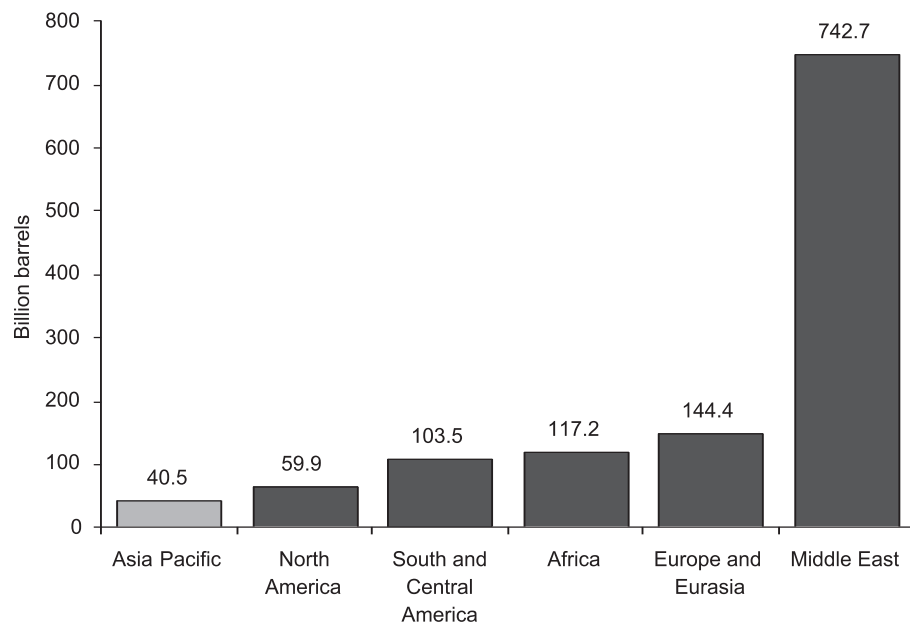
The potential for increasing production, or even maintaining existing levels, is limited, however. In the 10 years from 1997 to 2007, oil production in the region went up by only 0.2 percent a year.

At the end of 2006, the Asia Pacific region had an estimated 41 billion barrels of proven oil reserves, the smallest of any of the world's major regions (figure 2). If these reserves are extracted at the rate prevalent in 2007—and if no significant new oil supplies are discovered—they will last only until 2020. Notwithstanding these severe supply limitations, increasing domestic production is a top priority for virtually every country in the region, particularly since international oil prices began to soar in 2004.

Fig. 1. Oil production, consumption, and net surplus or deficit in major regions of the world, 2006 (million barrels per day)



Source: BP (2007).

Fig. 2. Proven oil reserves at the end of 2006 (billions of barrels)

Source: BP (2007).

Note: Measurements of proven reserves are imprecise, because there is no globally accepted system to certify reserves, and reports from individual companies or countries cannot be verified.

Thailand, for example, only began producing oil in 1980, and up to 1990 Thai oil production was less than 60,000 barrels per day (b/d). Since then, production has more than tripled—to more than 190,000 b/d in 2007—as a result of offshore exploration in the Gulf of Thailand, partly in cooperation with Malaysia. Even Japan and Taiwan maintain small levels of domestic oil production.

Domestic oil production in China and India has remained stagnant for many years, despite some new discoveries—in Rajasthan in India and the Tarim Basin and offshore in China. At the end of 2006, China had proven oil reserves of 16.3 billion barrels, and India had reserves of 5.7 billion barrels (BP 2007). Unless significant new sources are discovered, China's domestic oil supply will last an estimated 12 years at 2007 production levels, and India's will last 19 years.

Both China and India are working to improve domestic oil exploration and production. To increase domestic supplies, the Indian government is trying to attract foreign companies to participate in exploration and production activities, while state oil companies in China have stepped up their exploration efforts in the remote Tarim and Ordos basins as well as offshore.

In addition to conventional sources of oil, some Asia Pacific countries have potential to produce “heavy oil” (oil with high specific gravity and viscosity) (OECD/IEA 2005), and China and Australia possess oil shale that could potentially be mined. It is too soon to tell to what extent these resources will be commercially viable, however, given the high investment requirements and the limited exploration work done up to now.

To increase domestic production, governments in the region need to (1) provide better terms and conditions for exploration and development of domestic oil supplies, including tax holidays, lower government royalties, a streamlined permitting process, and less red tape; and (2) increase financial assistance for the development of infrastructure. Given the region's limited reserves, however, oil production cannot continue increasing over the long term. Between 2007 and 2015, oil production in Asia and the Pacific is projected to grow by 1 percent a year, compared with 3 percent annual growth in oil consumption. As a result, by 2015, a projected 71 percent of all the oil consumed in the region will be imported.

Increasing domestic oil production is a top priority for virtually every country in the region

Countries can slow consumption growth by using oil more efficiently

Can the Region Slow the Growth of Oil Consumption?

Oil consumption is growing more quickly in Asia and the Pacific than anywhere else in the world. In 1970, the region accounted for 15 percent of global oil consumption. By 2006, its share had doubled—to more than 30 percent of the world total.

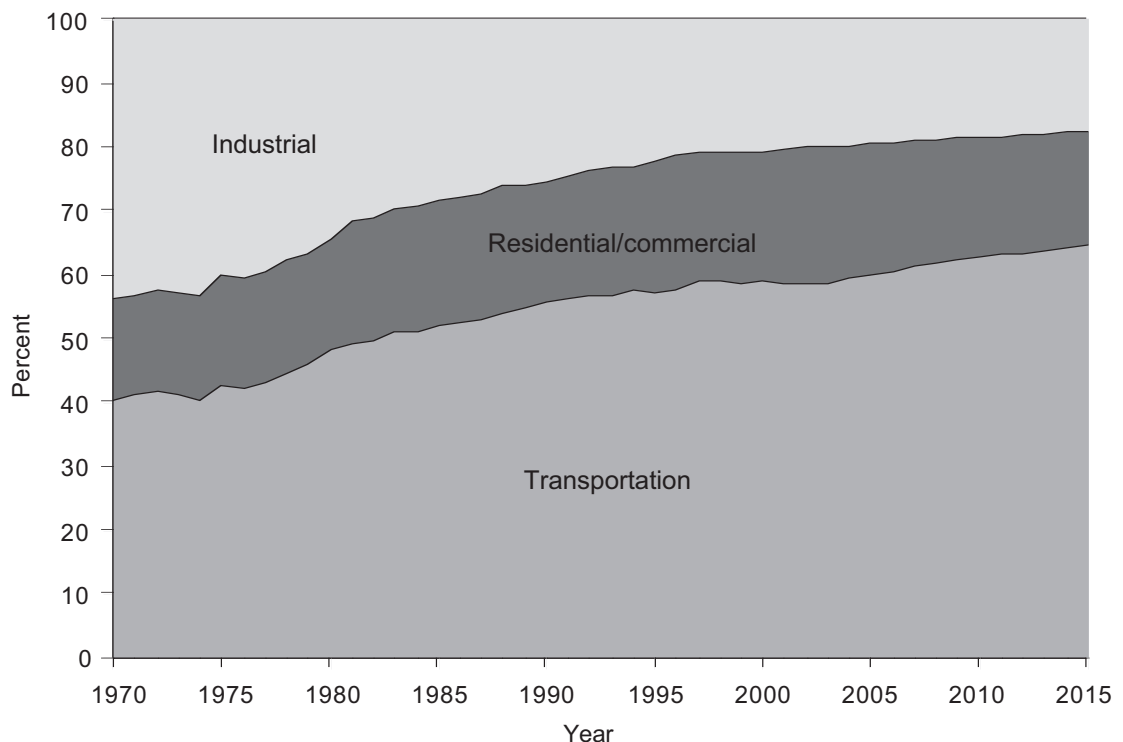
Is it possible to reverse this trend? Growing oil consumption is linked to economic growth and rising standards of living, primarily in the region's largest developing economies—China and India. Yet these huge populations still consume much less oil per capita than the citizens of economically advanced nations. As of 2006, one person in the United States consumed more oil than 12 people in China or 29 people in India. This low level of oil consumption in Asia's largest developing countries points to enormous potential for consumption growth.

Demand for oil is skyrocketing primarily because of the growing number of motor vehicles, reflected in

the growing importance of the transportation sector (figure 3). Over the next few decades, the total number of cars, trucks, and buses in Asia and the Pacific is expected to grow exponentially. As a result, consumer demand for diesel and gasoline can be expected to grow at a similar rate. More communities in the region are also gaining access to electric power. Although coal is the most important energy source for power generation, oil plays a role in this sector. Industry's share in overall oil consumption is going down, but oil will continue to provide an important feedstock in the region's petrochemical industry.

One important approach to slowing the growth of oil consumption is to improve the efficiency of oil use—that is, to produce the same goods and services using less oil. Many industrialized countries improved efficiency when oil prices shot up during the 1970s, and concerns that reductions in oil consumption might slow economic growth have generally not been borne out. In fact, the countries that were first to develop more efficient technologies

Fig. 3. Share of petroleum-product consumption by the industrial, residential/commercial, and transportation sectors, Asia Pacific region, 1970–2015



Source: FACTS Global Energy (2008).

Note: Petroleum products consumed in the transportation sector include gasoline, diesel, and kerosene/jet fuel. Data for 2008–2015 are forecasts.

were able to increase exports and thus actually benefited economically.

Japan is one of the world's most efficient energy users, thanks in part to strict energy-conservation policies. Beginning in the 1980s, Japanese manufacturers became world leaders in the development of fuel-saving technologies for the transportation sector. When Honda and Toyota introduced automobiles that gave better mileage per gallon than earlier models, they captured a sizable share of the global automobile market. Today, hybrid automobiles developed in Japan are again contributing to better energy efficiency on a global scale. Current levels of energy efficiency vary widely among Asia Pacific countries, but all would do well to emulate Japan's example.

The rise in oil consumption can also be slowed through structural changes in an economy—shifting from heavy industry toward more emphasis on the information and service sectors. India's increasing focus on the information industry, for example, is leading to a decline in energy use per unit of gross domestic product (GDP). Partly for this reason, oil

consumption is increasing somewhat more slowly in India than in China, with its greater emphasis on heavy industry. The annual rate of increase between 1970 and 2006 was 5.4 percent in India compared with 7.5 percent in China.

Oil consumption in the Republic of Korea (South Korea) illustrates this pattern. Between 1980 and 2000, South Korean oil consumption increased by more than 10 percent a year, spurred by low prices and rapid industrialization. Since then, consumption has grown much more slowly—at just over 1 percent a year—as prices soared and the economy shifted to some extent away from heavy industry.

Finally, in some sectors it is possible to switch from oil to another energy source. In 2006, oil supplied 32 percent of the Asia Pacific region's energy needs (figure 4). Among major Asian countries, the proportion of oil in overall energy consumption ranged from 88 percent in Singapore to 21 percent in China.

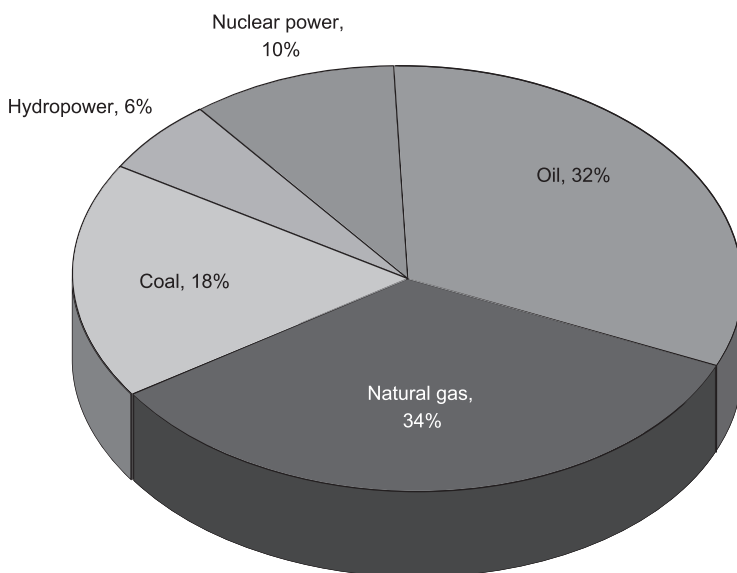
Coal, the major fuel source for power generation, is plentiful in many countries of the region, but governments face strong domestic and international pressure to reduce the use of coal on environmental grounds. As a result, much of the effort to switch fuel use away from oil has focused on natural gas.

Between 2005 and 2015, the consumption of natural gas is projected to increase more rapidly than the consumption of oil in nearly every country in the region. In the Philippines, for example, oil consumption is projected to increase at an annual rate of 1.8 percent, compared with annual increases averaging 10 percent for natural gas. In India and South Korea, government efforts to switch from oil to compressed natural gas (CNG) in public transportation have played a role in slowing the consumption of oil.

In addition, China, India, Japan, New Zealand, and Southeast Asian countries are developing production of ethanol and other biofuels that can partially substitute for oil in the transportation sector. Japan has recently introduced biofuels into the market, and use is expected to increase as supplies become more widely available. The Chinese and Indians have built several plants to produce biofuels.

Efforts to limit oil consumption in Japan, Australia, and New Zealand include comprehensive

Fig. 4. Share of oil, coal, natural gas, nuclear power, and hydropower in total primary energy consumption in the Asia Pacific region, 2006



Source: BP (2007).

Note: Estimates of primary energy consumption include only commercially traded fuels.

energy-conservation laws and government agencies responsible for their implementation. The Chinese government introduced an energy-conservation law in 1998 and initiated a Special Program on Mid- to Long-Term Energy Conservation in November 2004. In its 11th Five-Year Program, the Chinese government set a target to reduce energy intensity—the amount of energy used per unit of GDP—by 20 percent between 2006 and 2010.

Excessive oil consumption could be reduced by eliminating inappropriate government intervention in oil markets, removing price distortions, and allowing market prices to reflect the true cost of oil. Tax benefits and incentives should be designed to encourage the use of energy-saving goods and services, such as hybrid automobiles, and to support increased use of renewable energy. In addition to these “carrots,” policymakers will need to introduce “sticks” such as higher taxes on excessive energy consumption and higher mandatory standards for automobile fuel efficiency.

Yet the possibilities are limited. Given the region’s growing populations, expanding transportation needs, and rising expectations for a better standard of living, the demand for oil can only go up. Policymakers face the daunting task of balancing this escalating demand against the reality of limited domestic supplies and the security risk of dependence on imported oil.

**Dependence on Imports:
Is it Possible to Reduce the Risks?**

In 2006, Asian and Pacific countries imported two-thirds (68 percent) of the oil they consumed. Dependence on imported oil is most extreme in the highly industrialized economies of the region: Japan, Singapore, South Korea, and Taiwan import virtually all of the oil they use. But countries at a much lower level of economic development are also highly dependent on imported oil. Bangladesh and the Philippines import more than 90 percent of the oil they consume, Pakistan imports more than 80 percent, and Thailand imports about 70 percent.

Even the region’s major oil producers have become net importers. In 2006, China was the largest oil

producer in the region, but net imports accounted for nearly 50 percent of Chinese oil consumption. Net imports accounted for 73 percent of oil consumption in India. Only Brunei, Malaysia, Papua New Guinea, and Vietnam were net exporters of oil.

Where does the imported oil come from? Today and for the foreseeable future, by far the most important source of oil for Asia and the Pacific is the Middle East. With its vast reserves and close geographic proximity, the Middle East can provide oil to the Asia Pacific region at the lowest prices available. In 2006, 80 percent of the oil imported from outside the region came from the Middle East. By contrast, the Middle East supplied only 24 percent of the oil imported into Europe and only 17 percent of the oil imported into the United States.

The Atlantic Basin—most notably West Africa—began to play a supplementary but important role in supplying oil to the region around 1995. Some oil also comes from Russia and Central Asia. Yet despite efforts to diversify energy consumption away from oil and to diversify the region’s oil supply away from the Middle East, the absolute amount of oil (including both crude oil and petroleum products) imported from the Middle East is rising steadily (Wu 2002).

This level of dependence makes Asia Pacific economies extremely vulnerable to policy change, political upheaval, or warfare in Middle-Eastern countries that could interrupt oil supplies. Another vulnerability for the region is its high level of dependence on sea transport through the Malacca Strait. Today, more than 90 percent of oil imported into Asia and the Pacific is transported by sea tanker through this narrow channel, which separates peninsular Malaysia from the Indonesian island of Sumatra. The importance of this one sea lane raises concerns about possible supply disruptions due to accidents, piracy, or terrorism.

Singapore is close to the Malacca Strait, and there is concern that this important trading hub might also be the target of a terrorist attack. Any major attack on oil tankers in the Strait or on refineries or storage facilities in Singapore would set off a severe, albeit temporary, spike in oil prices, both in the region and around the world.

How can countries in the Asia Pacific region lower the risks associated with their high level of dependence on imported oil? In addition to increasing domestic production where possible and slowing consumption growth, governments need to adopt policies to hedge against supply interruptions and price volatility. The following six policy measures could make a significant contribution to energy security.

1. Initiate joint ventures with oil producers. Over the years, a number of governments and private companies in Asia and the Pacific have invested in oil exploration and production outside the region. China, India, and Malaysia have made considerable effort to get a foothold in exploration projects in the Middle East and other parts of the world.

Conversely, governments and companies from oil-producing regions have invested in refining and marketing enterprises in Asia and the Pacific. The Saudi Arabian state oil company, Saudi Aramco, for example, has substantial investments in Asia Pacific refining operations. Such joint investments have created equity partnerships that foster reliable flows of oil, enhancing energy security for Asian and Pacific consumers and revenue security for producers.

China began investing in overseas oil and natural-gas assets in the early 1990s. Since 2000, this international thrust has become a cornerstone of the overall investment strategy of every state oil company in China. Today, China's three largest oil companies have projects in Algeria, Azerbaijan, Brazil, Burma (Myanmar), Canada, Ecuador, Indonesia, Iran, Kazakhstan, Kenya, Kuwait, Mauritania, Morocco, Nigeria, Oman, Peru, Saudi Arabia, Sudan, Syria, Turkmenistan, Venezuela, and Yemen.

The government of India is also encouraging its national oil companies to participate in exploration and production projects overseas. Indian oil companies are currently involved in exploration and production projects in Burma (Myanmar), Côte d'Ivoire, Egypt, Iran, Iraq, Nigeria, Sudan, Syria, and Vietnam.

Joint projects could be expanded to include construction or expansion of oil-storage facilities in the Asia Pacific region. Middle Eastern companies possess substantial oil-storage facilities in Europe and the

Caribbean but none in Asia or the Pacific, despite the high volume of oil exported to the region. Atlantic Basin oil producers might find regional storage facilities particularly beneficial to save on transport costs through economies of scale.

Joint ventures could be especially effective in four areas: (1) exploration and production projects; (2) refineries and retail operations in the Asia Pacific region in cooperation with key oil producers; (3) shared storage facilities; and (4) joint infrastructure such as pipelines, ports, and terminals. While government support is crucial, each investment project has to make economic sense to survive.

2. Improve the efficiency of domestic oil markets. After decades of experience with different types of market interventions and regulations, policymakers in the Asia Pacific region are coming to realize that energy security—defined as an uninterrupted supply of energy at the lowest possible cost—can be achieved through the efficient operation of market forces. Yet many countries have interfered with the market to protect domestic suppliers or to help a local industry (such as agriculture) or population group (such as the urban poor). The Indian government, for example, taxes gasoline and diesel in order to subsidize the price of kerosene and liquefied petroleum gas (LPG), which are widely used for cooking by the urban poor and middle class.

In such situations, deregulating energy markets is likely to be disruptive to specific industries or segments of society. Because this can create serious political problems, energy deregulation in countries around the region has tended to move in stops and starts.

In the oil industry, differences in the regulatory environment have led to increased refining capacity in some countries/economies and refinery closures in others. India, China, Japan, South Korea, and Taiwan all provide substantial tariff protection to their refiners. Tariff protection in India, in particular, has led to excess refining capacity, resulting in large exports of petroleum products. These exports have tended to depress the profitability of refinery operations in other countries of the region.

The efficient operation of market forces can improve energy security

The expansion and regional coordination of oil stocks is an important policy priority

Since joining the World Trade Organization (WTO) in 2001, the Chinese have begun opening their oil market to foreign investors while still attempting to assure the central role of their state oil companies. In Japan and Taiwan, oil imports are fully deregulated in principle, but restrictions are still in place that hinder participation by companies that are not refiners. In Malaysia, the wholesale market for petroleum products is open and competitive, but the government regulates retail prices and limits the number of companies that can participate in the retail market.

In 2006, the Malaysian government reduced subsidies and allowed retail prices to rise sharply. The Indonesian government recently passed legislation opening the domestic market, ending some price subsidies, and raising retail prices of petroleum products by more than 100 percent. These moves have led to a sharp reduction in oil consumption.

Although market deregulation can lead to improved energy security in the long term, governments must sometimes intervene to deal with short-term disruptions. If a market disruption rises to the level of a supply emergency, a government may consider releasing strategic stocks or calling for international assistance. If the disruption takes the form of a price spike, the best approach is generally to leave price determination to the market and to concentrate on ensuring that market mechanisms are fully functional and that physical supplies are not disrupted. In some cases, policymakers may consider a managed price linkage, in which domestic prices are managed administratively but changes in international prices are reflected, at least partially, in the domestic market.

Alternatively, a government may choose to provide direct subsidies to domestic energy suppliers or consumers, rather than imposing price or production controls administratively. Any administrative measure should be temporary, however, and should be replaced as soon as possible by long-term policies that allow market forces to determine the price of energy.

3. Build up strategic oil stocks. One of the most obvious approaches to preventing supply disruptions is to develop or augment strategic stocks of

oil. As members of the Organisation for Economic Co-operation and Development's International Energy Agency (OECD/IEA), Japan, South Korea, Australia, and New Zealand maintain mandatory stocks of oil equivalent to at least 90 days of net oil imports. Although not an OECD/IEA member, Taiwan is also relatively well prepared for potential supply disruptions, and Singapore, as a regional refining center and oil-trading hub, has large commercial stocks on hand at any given time.

Other countries in the region are much more exposed to supply shortages. In 2004, the Chinese government began constructing storage facilities for oil stocks at four sites. Phase I of the plan is largely complete, and China now has the capacity to hold strategic oil stocks equivalent to 25–30 days of net oil imports at 2007 levels. This capacity is expected to double by 2010. India is planning to establish strategic oil stocks equivalent to about 20 days of current net oil imports.

The high cost of constructing and maintaining oil storage facilities suggests the value of international assistance or cooperation among neighboring countries. Apart from obtaining financing, policymakers must choose an appropriate site and ensure the safety of oil stocks, which may remain unused for many years. Other policy decisions include the timing of oil purchases to build up stocks, the organizational structure of the stockpiling system, the optimum size of stocks, and decision criteria and mechanisms for releasing stocks onto the market. Policymakers throughout the Asia Pacific region need to tackle these issues and move toward the OECD/IEA standard of maintaining stocks equivalent to 90 days of net oil imports.

4. Strengthen regional cooperation. Many proposals have been made in recent years to enhance regional cooperation, often involving joint investments outside the region or joint development of infrastructure such as pipelines, ports, or processing facilities. In 1986, members of the Association of Southeast Asian Nations (ASEAN) signed the ASEAN Petroleum Security Agreement (APSA), which calls for oil-producing members to increase their exports to

member countries that face oil shortages. ASEAN members include four oil producers and exporters—Brunei, Indonesia, Malaysia, and Vietnam—and one major petroleum-product exporter—Singapore. The five other members are oil importers—Burma (Myanmar), Cambodia, the Lao People's Democratic Republic, the Philippines, and Thailand. The 1986 agreement also calls on oil-importing countries to increase their imports from any exporting members that face a situation of oversupply.

In fact, the measures laid out under APSA have never been invoked. It will be even more difficult to invoke the agreement in the future than it has been in the past because, with production flat and domestic consumption rising, the oil-producing countries in ASEAN have less and less crude oil available for export.

A more practical alternative would be to coordinate the maintenance of emergency stockpiles among countries in the region. A group of experts and representatives from Asia-Pacific Economic Cooperation (APEC) member economies met at the East-West Center in August 2005 to discuss options for joint oil stockpiling and related cooperation. Members of APEC include Australia, Brunei, Canada, Chile, China, Hong Kong Special Administrative Region (SAR), Indonesia, Japan, South Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, the Philippines, Russia, Singapore, Taiwan, Thailand, the United States, and Vietnam. Similar measures could also be adopted through the framework of ASEAN-Plus-3 (China, Japan, and South Korea) plus India.

The expansion and regional coordination of oil stocks is an important policy priority given the ever-increasing volume of oil imported into the region. The benefits of a coordinated effort may justify establishing a mechanism for more-affluent countries in the region to provide some initial financial assistance to their less-affluent neighbors.

Another potential area of cooperation is collective bargaining to obtain lower prices and better terms on oil imports from the Middle East. This concept has been widely discussed, but no collective-bargaining arrangement has yet been formulated because of concerns about a negative response from oil-exporting nations.

Although there are clear benefits to regional cooperation, there are also challenges. In recent years, countries in the region have been less concerned about their ties to each other than about forging links with oil-producing nations in the Middle East and elsewhere. The rise of China as a growing oil importer has caused uneasiness among other oil importers in the region, particularly Japan.

Regional cooperation is also hampered by market restrictions. With countries in the region pursuing varying degrees of market deregulation, differences in domestic pricing policies and quality specifications for refined petroleum products have created a level of market segmentation that inhibits bilateral and multilateral trade. Despite the obvious benefits, there has not yet been any effort to coordinate product standards throughout the region. Domestic politics and international tensions between countries pose additional barriers.

Two steps toward regional cooperation should receive immediate priority: (1) developing joint oil stocks with financial assistance from Western nations, and (2) harmonizing quality standards for petroleum products to facilitate interregional trade.

5. Reduce transportation bottlenecks. The Malacca Strait is the Achilles heel of oil supply to East Asia and the Pacific. If the Strait had to be closed for any reason, ships would be diverted to a much longer route, dramatically increasing transport costs.

Because the Asia Pacific region is so fragmented geographically and because oil resources are distributed so unevenly across the region, the potential for transporting oil by pipeline is extremely limited. Two modest pipeline projects are currently at the planning or construction stage to bring oil to Northeast Asia from Kazakhstan and Russia. Future development of oil pipelines could help China, Japan, and other Asia Pacific nations diversify their sources of supply to some extent.

Pipelines and ports must be built based on economic considerations and not just political or security concerns. The most effective channel for exploring and assessing the possibilities would be through the creation of a multinational taskforce in the region to

*The Malacca Strait
is the Achilles heel
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Asia and the Pacific*

(1) study alternative sea routes and ways to improve security in the Malacca Strait through joint patrols, and (2) study potential pipeline routes, involving the private sector to assure that economic considerations receive priority.

6. Establish a regional oil futures market. The two existing international markets in oil futures—the IntercontinentalExchange (ICE) in London and the New York Mercantile Exchange (NYMEX)—play a critical role in the global oil trade. In the United States and Europe, the volume of oil futures (“paper contracts”) amounts to about 300 million b/d. This volume of trade, which includes contracts for oil to be delivered up to five years in the future, is substantially larger than the trade in physical crude oil, which ranges from about 40 to 45 million b/d. The constant turnover of futures contracts leads to better price clarity for both buyers and sellers. In addition, the use of financial tools, such as hedging, options, and derivatives, has brought a great deal of transparency to the market and has allowed both buyers and sellers to hedge their risks.

Buyers and sellers in Asia and the Pacific cannot easily use the oil futures markets in the United States or Europe because they are, in effect, trading a different commodity. Oil trading in the United States is based on West Texas Intermediate crude oil, and trade in Europe is based on Brent crude, while trade in the Asia Pacific region is based on Dubai crude. Although it is possible to use any futures market to mitigate risk, traders in Asia and the Pacific have been reluctant to use the American or European futures markets to hedge their positions because direct linkages are difficult to establish. This disconnect between global oil markets at times allows sellers to charge higher prices to customers in the Asia Pacific region.

A promising new development, the Dubai Mercantile Exchange (DME), opened in 2006. With 50 percent ownership by NYMEX, the DME is the first energy futures exchange in the Middle East. In addition, the Dubai Multi Commodities Centre (DMCC) began trading fuel-oil futures at the end of 2006. It is not yet certain whether these two new initiatives

will succeed, but they merit strong support from consumers in the Asia Pacific region.

The Global Context

The world has used oil for more than a century without paying serious attention to future availability. Today, we are reaching a limit on our potential to expand oil production, both in the Asia Pacific region and around the world. There are many unexplored areas that may contain oil, but the big, low-cost, easily accessible supplies of oil have most likely already been found. The sources of oil that remain to be discovered are likely to be smaller, more expensive to recover, and more difficult to deliver to consumers. Global oil production, which now stands at about 85 million b/d, might increase to 100 million b/d, but it cannot go up indefinitely.

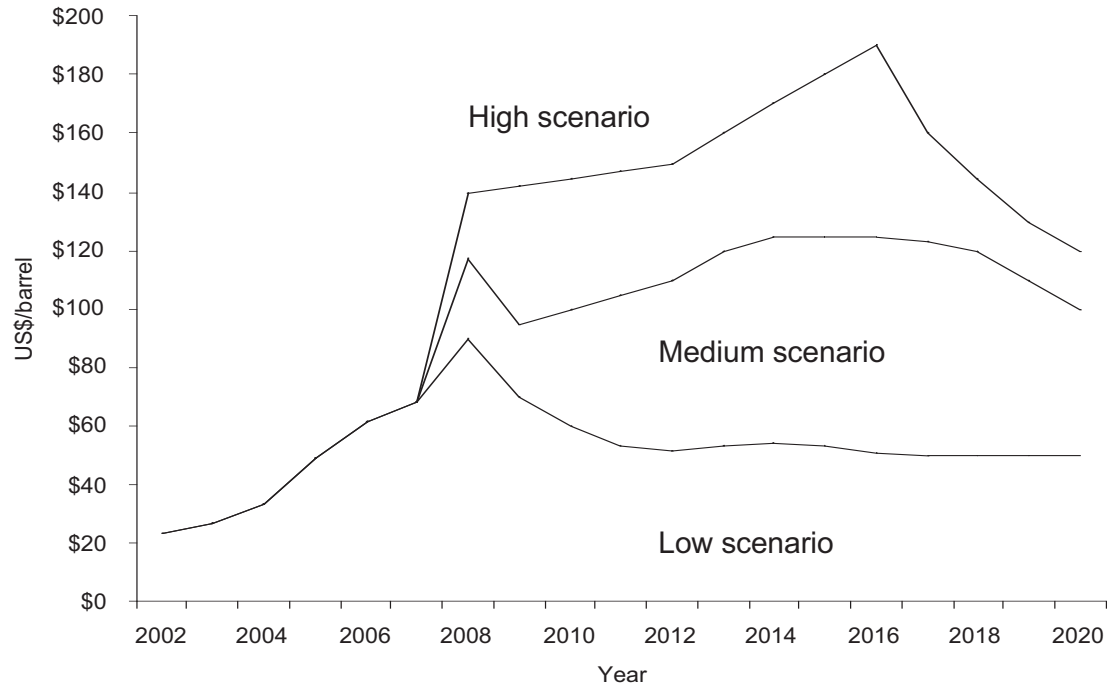
Oil consumption is affected by economic conditions, prices (including taxes), and regulatory controls. Much of future consumption will be linked to economic growth, which is notoriously difficult to predict. It is reasonable to project, however, that global demand for oil will grow in the range of 1 to 2 million b/d each year. Will enough oil be produced to meet this demand? The answer is “no.”

Some time in the next decade, global oil production will reach a plateau, and today’s rapid consumption growth will become unsustainable. The only option is for oil consumption to stop growing or even to decline. This can happen as a result of higher prices, economic recession, taxation, or other regulatory mechanisms. It may also happen as a result of technological breakthroughs that allow switching to other energy sources.

Meanwhile, consumers can expect to pay high prices for oil. In the short term, global oil prices might decline temporarily, because higher prices have triggered some degree of conservation and consumption growth has slowed, thanks in part to a downturn in the U.S. economy. But there is a fundamental floor below which prices are unlikely to fall. A medium projection is that the price of Dubai crude will go down in 2009 and then rise steadily until the next demand contraction (figure 5).

Will there be enough oil to meet projected global demand? The answer is ‘no’

Fig. 5. Actual and projected prices of Dubai crude oil: High, medium, and low scenarios, 2002–2020 annual averages (US\$ per barrel)



Source: FACTS Global Energy (2008).

Note: Data for 2002–2007 are actual, and data for 2008–2020 are forecasts in constant 2008 U.S. dollars. Historically, the price of Dubai crude tends to be lower than the price of West Texas Intermediate or Brent crude, the types of crude oil traded in the United States and Europe.

High prices for oil impose a strong brake on economic growth. For countries in Asia and the Pacific that expected to follow the pattern of energy-intensive growth seen in the West, the challenge ahead is daunting. They need energy and they need low prices, but they have arrived at the development gate

at an inauspicious time. They will need to devise new strategies for economic growth based on more efficient use of oil and natural gas, continuing or even increasing dependence on domestic supplies of coal, and ultimately, at least in part, the development of alternative sources of energy.

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About this issue

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Concerns about energy security affect economic performance and political stability all over the world. Yet nowhere is this issue more critical than in Asia and the Pacific.

The United States and Asia have much in common in terms of their basic energy situation. Both regions have substantial coal reserves, but both must import large quantities of oil and natural gas, creating a worrying level of dependency on the volatile Middle East. The United States has an economy and a life style highly dependent upon imported energy, and increasingly, so does Asia. The environmental implications of energy use are also of growing concern in both regions. Both share a common stake in an assured supply of oil and natural gas, in price stability in international energy markets, in efficient and sustainable use of oil and gas products, and in the development of technologies and fuel alternatives that can alleviate energy security and environmental concerns.

Asia's Energy Future comprises 164 pages, and all chapters are illustrated with photographs, charts, and tables. In addition, detailed appendix tables provide data on energy reserves, production, consumption, refining capacity, and imports for all major countries of the region from the 1970s through 2005 and projected up to 2015.

More information on this book can be found at www.eastwestcenter.org/pubs/2461, or contact the East-West Center to order at 808.944.7145 or ewcbooks@EastWestCenter.org.

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