

Energy Politics

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energy markets. Gazprom, unintentionally, may be more a benefactor of this process than European consumers. While European companies face legal bars to consolidation, Gazprom has been entering the distribution market in a number of EU countries and uniting the functions of producer and distributor while remaining Europe's leading source of natural gas. Moreover, some European companies have formed cooperation agreements with Gazprom—at times not transparently—in order to preserve the two functions. The European Union's ability to defend itself from Gazprom's acquisition of both supply and distribution functions is compromised by the fact that many European companies have undercut the EU efforts. In return for long-term supplies, these distribution companies have offered Gazprom access to their local marketing business, essentially leaving the two functions in hands that are intertwined.¹⁴

While Gazprom has access to the supply and distribution markets in the EU, there is no reciprocity for EU companies in Russia. Reciprocity could enhance interdependency between the two sides and thus enhance the EU energy security. Former Russian president Vladimir Putin's refusal to allow European companies access to the Russian distribution system and transport pipelines has become a thorn in Russia's dealing with the EU, and specifically with German underchancellor Angela Merkel. The European Union competition commissioner has said that Moscow must grant access to its gas pipelines: "We are seeking a level playing field, a win-win for both sides."¹⁵

Policy Implications: Reducing Vulnerability

To achieve enhanced energy security, Europe will have to take advantage of its size and act as a single customer. Small markets in Europe will be more vulnerable to supply disruptions and political pressure than would a large united market. Moreover, Russia in its energy dealings is investor, landlord, and regulator. If Europe is going to deal with Russia on the supply side, it must take advantage of its potential strength and size as a united energy market.

Since 2006, Moscow through a variety of regulatory schemes has progressively pushed foreign companies out of upstream gas exploration and production ventures in Russia. Moreover, Russia has refused to open its supply and distribution networks to foreign companies. Importers of Gazprom's gas should demand reciprocity in the sphere of investment in upstream and downstream ventures of Russian energy supplies and demand that Russia join the European energy charter as a condition for it serving as Europe's dominant natural gas supplier.

Chapter 9 **The United States**

Because it is the world's largest energy consumer and economy, the United States has more impact on global energy trends than any other country. Indeed, not only is the United States the world's largest energy consumer, it is also the largest energy producer and net importer. The United States possesses the world's largest coal reserves, sixth-largest natural gas reserves, and eleventh-largest oil reserves. It is also the second-largest producer of climate-altering gases, and the largest on a per capita basis.¹

Energy policy is integrated thoroughly into U.S. foreign and national security policies, and Washington frequently uses energy sanctions and policies as a tool to advance policies. For decades, the United States has approached energy security from a global perspective. In an integrated world oil market, securing supplies for its own market does not grant immunity from the economic costs of high world oil prices. As a global commodity, imported or domestically produced oil costs the same to U.S. consumers. Thus, Washington has traditionally tended to work to bring more oil to world markets, not just to its own shores. In addition, the United States views ensuring reliable energy supplies to its allies as an integral part of security guarantees. Domestic political discussions in recent years have also emphasized energy independence as a factor in energy security, in contrast to the previous approach. In a poll conducted in 2006, Americans described "energy dependence" as their second greatest concern after the war in Iraq.² Accordingly, President George W. Bush and other officials joined those calling for reduction of oil imports, not just oil use. For example, in his January 2006 State of the Union address, Bush called for reducing oil imports from the Middle East by 75 percent by 2025. In his official campaign materials, President Obama called for eliminating oil imports from Venezuela and the Middle East within ten years. Moreover, in candidates' statements from all parts of the political spectrum in the 2008 U.S. presidential elections,

it seems that the concepts of energy security and energy independence became blurred, despite their questionable connection.

The bulk of U.S. oil imports arrive and are processed at installations in states along the shore of the Gulf of Mexico. More than one-third of U.S. oil production comes from the Gulf Coast and the offshore waters between Alabama and Texas, and more than 50 percent of U.S. refining capacity is located in the same region. Hurricanes Katrina and Rita in 2005 illustrated to Washington that not only can global energy supplies be threatened by disruptions in critical producer states and important naval chokepoints, such as the Hormuz and Malacca Straits, but supplies that have reached the Gulf of Mexico are vulnerable to the whims of Mother Nature. Washington has not yet succeeded in providing a policy answer to this vulnerability.

Background: U.S. Energy Use

Possession of expansive energy resources fueled the development of the U.S. economy during the nineteenth and first half of the twentieth century. Unlike most oil and gas producers today, the United States decided in the nineteenth century that the private sector rather than the government should own natural resource commodities. The central government also established a strong system that upheld property rights over energy resources, which helped attract investments in this sector. More than 80 percent of U.S. reserves are concentrated in four states: Texas (22 percent), Louisiana (20 percent), Alaska (20 percent), and California (18 percent). Oil played a significant role in the economic and social development of these states.

The 1970s oil crisis fundamentally changed the way the United States consumes oil. Until the 1970s, oil was an all-purpose fuel. In contrast, today it is primarily a transportation fuel, with 65 percent of consumption used for transportation. Other parts of the economy, especially manufacturing, switched to alternative fuels such as natural gas. U.S. consumers also used technology to increase energy efficiency immensely. Consequently, today the United States uses half the amount of oil per dollar of GDP compared to the 1970s.

Since oil is now a less important input to the economy, the United States is able to sustain higher oil prices longer before recession kicks in. This ability to tolerate high oil prices also means that U.S. consumption is less affected by price hikes than in the past, and thus prices are likely to stay high for longer periods. In addition, high oil prices have a mixed impact on the U.S. economy. Increased wealth is transferred abroad to pay for oil imports, but U.S.-based oil companies and oil-related industries (drilling, engineering, transport) benefit.

While the relative role of oil in U.S. fuel consumption has declined

dramatically since the 1970s, actual volumes of oil consumption have grown because of the country's population and economic growth. Moreover, domestic production is declining, so net oil imports have climbed steadily in recent decades. In 1973, the United States imported 35 percent of the oil it consumed; in 2007 it imported close to 60 percent. The bulk of U.S. oil imports come from Canada, Mexico, Saudi Arabia, Venezuela, and Nigeria.

The United States has the largest oil-refining capacity in the world. However, this capacity has not significantly grown in three decades: no new oil refineries have been built in the United States since the 1970s, although capacity has been expanded at existing refineries. In the fall of 2005, the vulnerability of U.S. refining capacity was exposed when Hurricanes Katrina and Rita paralyzed refineries throughout the Gulf Coast region.

The United States is the second-largest producer of coal in the world, after China. It also widely consumes coal, especially for electricity generation; nearly 50 percent of the electricity produced in the United States is generated from coal. This sector consumes 90 percent of the coal used in the United States. Representatives from coal-producing states and coal industry lobbies consequently have significant impact on energy policy outcomes.

In recent decades, another significant trend in the United States has been the rapid growth of natural gas consumption, which has increased by approximately 20 percent since 1990. Natural gas is used in the United States mainly in the industrial (38 percent), electric power (24 percent), residential (22 percent), and commercial (13 percent) sectors. Liquid natural gas imports are also rising significantly and are expected to grow further in the coming decades.

Immediately after the 1973 oil crisis, nuclear power use grew rapidly in the United States, but within a few years it subsided; the last new order for a nuclear plant was in 1978, and this plant was ultimately canceled. Some companies have recently indicated interest in moving forward with new facilities. The United States continues to be the world's largest producer of nuclear energy, and American companies are leading exporters of nuclear power plants. Approximately 20 percent of U.S. electricity is generated by nuclear power. Wind, solar, biomass, and geothermal power, although growing, continue to supply only a tiny fraction of total energy consumption in the United States.

Energy as an Element of U.S. Foreign and National Security Policy

Energy is an integrated policy tool in U.S. foreign policy, and energy security is a clear goal of national security policy. Due to the massive

scale of both its energy production and consumption, the United States is uniquely positioned to affect energy policy globally and in a variety of regional settings.

While the potential use of the oil weapon by producing states is frequently discussed, the United States in fact has used its role as the leading consumer to wield the oil weapon against energy exporters. Denial of markets has been used far more frequently in recent decades than denial of supplies by producers. Since August 1996, the United States has imposed mandatory and discretionary sanctions within the framework of the Iran-Libya Sanctions Act (ILSA) on companies that invest more than \$20 million annually (lowered in August 1997 from \$40 million) in the Iranian oil and natural gas sectors.³ In April 2004, Washington removed Libya from ILSA sanctions after deciding that Libya was committed to ridding itself of weapons of mass destruction and had renounced terrorism. The United States maintains sanctions on two oil-producing states in addition to Iran: Sudan and Syria (in Sudan, aimed at stopping human rights violations and genocide; in Syria, formally due to its support for terrorism, but most likely due to its assistance to representatives of the Saddam Hussein regime that found refuge in Syria). Furthermore, prior to the U.S. invasion of Iraq in 2003, UN sanctions were imposed on Iraq's oil exports, and the United States served as the main power imposing and enforcing them.

The United States openly promotes oil and natural gas pipeline routes as a means to cement political and security relations. This policy can be seen in Washington's promotion during the 1990s of the Baku-Tbilisi-Ceyhan pipeline to export Caspian oil and natural gas (for more on the U.S. involvement in promoting this project, see Chapter 3). Moreover, Washington strives to reduce the dependencies of its allies on Russia and other natural gas exporters through promoting multiple natural gas supply sources. Since the beginning of European gas imports from the Soviet Union in the late 1970s, Washington has been prodding Europe to take on additional major gas suppliers. In recent years, the United States has actively promoted establishment of a trans-Caspian pipeline to supply Central Asian natural gas to European markets, illustrating its concern for European energy security on an issue that has no direct bearing on U.S. energy security.

The Strategic Petroleum Reserve

One of the most important tools in Washington's arsenal for impacting world oil trends is its strategic petroleum reserve (SPR). The SPR was established on the heels of the 1970s oil crisis. Formally inaugurated in December 1975, when Congress passed the Energy Policy and Conserva-

tion Act (EPCA), the reserve can hold up to a billion barrels of oil. In 2007, the SPR held 700 million barrels, making it the largest emergency oil stockpile in the world. The SPR is organized so that it can meet U.S. oil needs for 90 days. In 2007 the Bush administration called for Congress to double the capacity as part of policy efforts to increase US energy security.⁴

Under the EPCA legislation, there is no preset "trigger" for withdrawing oil from the SPR. Instead, the president determines that drawdown is required by "a severe energy supply interruption or by obligations of the United States" to the International Energy Agency. EPCA defines a "severe energy supply interruption" as one that (1) "is, or is likely to be, of significant scope and duration, and of an emergency nature"; (2) "may cause major adverse impact on national safety or the national economy" (including an oil price spike); or (3) "results, or is likely to result, from an interruption in the supply of imported petroleum products, or from sabotage or an act of God."

The reserve's very existence adds an element of security to the world oil market. In addition, through release of supplies at critical junctures, Washington has been able to affect world oil price trends. Even verbal threats to release volumes from the SPR have allowed Washington to moderate OPEC's behavior and calm world oil markets. U.S. energy policy experts differ, however, as to the appropriate function of the reserve: whether it is to be used only to prevent supply disruptions, or as a tool to moderate oil prices.

Formation of U.S. Energy Policy: All Policies Are Local

Despite the prominent place of energy policies in U.S. official documents and debates, energy policy in the United States remains uncoordinated and often driven by local interests. U.S. decision-making on energy is quite decentralized: it is divided among different government agencies; federal, state, and local governments; and different regulatory authorities that at times promote conflicting policies. Moreover, the private sector takes the lead in a number of areas related to energy policy. In addition, U.S.-based oil companies in recent decades have distanced themselves from Washington's agenda and policies. Accordingly, in analyzing U.S. policy stances, one needs to separate those of U.S.-based energy companies and those of the U.S. government.

The impact of domestic politics on U.S. energy policies, including those with international implications, is evident in a number of areas. In 1980, a *Washington Post* article eloquently summarized the inconsistencies produced in U.S. energy policies due to domestic considerations:

Consider this anomaly. The president and a great many more Americans are prepared to talk openly of war to secure the oil routes out of the Gulf. But neither the president nor many others are ready to impose a tax on gasoline to diminish imports that, everyone agrees, constitute a clear and present danger to national security.⁵

Indeed, despite the great contribution that higher gasoline taxes and stricter fuel efficiency standards have made in slowing down the growth of oil use in Europe and other countries, the United States has refrained from adopting these policies out of fear of domestic political retribution. U.S. fuel efficiency standards, known as Corporate Average Fuel Economy (CAFE), are among the lowest in industrialized states; even those of developing states like China are significantly higher. Raising fuel efficiency in vehicles to Japanese and European levels could decrease the amount of oil consumed in the United States by approximately 5 million barrels a day (of a total 20 million)—with no technological advances required. However, it was only in December 2007 that the White House signed a bill into law that raises the U.S. CAFE standards for the first time in thirty-two years. This same bill also establishes new efficiency requirements for household appliances and government buildings and sets a goal of phasing out the incandescent light bulb within ten years.

During the 2008 U.S. presidential election campaigns, U.S. energy security policies occupied an exceptionally prominent place. However, the plans of President Obama and Senator McCain did not differ significantly. Most candidates, including Obama, supported reducing U.S. imports of foreign oil, even though that does not make oil consumption more affordable or enhance U.S. or global energy security. Traditionally, presidential candidates who have voiced support for energy policies that threaten the U.S. coal industry or automakers have generally lost the elections. In the 2000 election, Al Gore is believed to have lost traditionally Democratic party-leaning coal-producing states such as West Virginia because he was perceived as supporting legislation that would impose limitations on the use of coal in the United States.

The Politics of Biofuels

Despite general U.S. belief that the market should drive the direction of innovation, the federal government, especially Congress, has determined some of the winners and losers of the scientific game with its decisions to subsidize certain industries and research directions. This is quite evident in the sphere of energy. Washington's choices in promoting various alternative energy sources and research on them is often dictated by domestic interests. Moreover, despite an American preference for open

trade, Congress at times imposes tariffs on energy imports. The politics surrounding corn-based ethanol exemplify both trends.

The Bush administration chose promotion of production and consumption of ethanol as a tool to address the challenge of climate change and U.S. dependence on oil imports. This approach was puzzling since the leading biofuel produced in the United States, corn-based ethanol produces only a minor net energy gain and little if any improvement in net carbon emissions. Most optimistic sources claim that the net energy gain from using biofuels over petroleum is a reduction of 20 percent of oil consumption, because of the intensive use of petroleum products in agriculture and the need to truck biofuels to fueling stations. Furthermore, use of ethanol as opposed to petroleum reduces climate-altering gases at best by 13 percent. Some scientists believe that if land-use change is taken into account, production of biofuels actually exacerbates climate change. Clearing natural vegetation to make way for biofuel crops also deprives the planet of "sponges" that absorb carbon. And burning vegetation to clear fields also has a negative impact on climate change. This has been especially evident in developing countries that have initiated biofuels projects, such as Indonesia and Brazil. In addition, biofuel groups require increases in water usage, which also raises energy consumption. Support for corn-based ethanol has another drawback: it does not give a fair chance for the development of other sources of ethanol that seem to offer more promise than their corn-based cousin. For example, the U.S. government gives a special tax credit of 51 cents a gallon for ethanol. But it has placed a tariff of 54 cents per gallon on ethanol imported from Brazil. This is despite the fact that Brazil's fuel is produced from sugarcane, which provides a far greater energy gain than corn.

U.S. policies on ethanol are probably best explained by the input of U.S. domestic politics and interests on Washington's energy policies. Corn is grown in the United States in electorally important states such as Iowa, and so perhaps it is not surprising that corn-based ethanol receives unparalleled government support and subsidies. In his 2007 State of the Union address, President Bush called for ethanol to replace 20 percent of U.S. gasoline consumption in twenty years. Members of Congress from corn-growing states have been at the forefront of efforts to preserve the subsidies for ethanol and the tariff on Brazilian imports. Despite the many government agencies and institutions that deal intensively with energy policy, Washington has yet to succeed in creating an energy policy focusing on U.S. national security interests: instead, these policies are driven primarily by the interests of various domestic concerns.

An important challenge for the U.S. government is to craft appropriate policy initiatives to stimulate innovation in the sphere of energy. Washington needs to provide incentives that will foster development of new sources of energy and energy-use conservation measures, without determining itself what those measures should be.⁶

Chapter 10

China

China's energy consumption patterns and policies have attracted widespread international interest. This is not surprising: China's consumption accounts for close to half the growth in world oil consumption in the last decade. This growth has transformed China into a major energy importer and helped fuel the run-up in international oil prices in the early twenty-first century. But it also reflects three other factors: the vast scale of China's energy production and consumption; uncertainty over future trends in China's energy policies; and the broader security, economic, and political implications of China's choices and behavior for the international system.

China is the world's second-largest consumer of energy. It is the world's largest producer and consumer of coal, second-largest importer and consumer of oil, and second-largest producer of electricity. However, China's energy consumption mix differs significantly from that of most industrialized countries: 70 percent coal and only a comparatively small amount of oil and natural gas. China is as a result the world's largest producer of greenhouse gases. Heavy consumption of coal has also generated tremendous environmental and health problem problems for the country domestically. This is particularly so because coal and solid biomass are in widespread use in home stoves, exposing hundreds of millions of people to indoor pollutants. The majority of China's rural population regularly use solid coal and biomass for heating and cooking.

China's energy production is very limited, with officials preferring to produce electricity cheaply and quickly with coal. In a 2007 energy document, the government declared its intention to expand its nuclear energy production.

The bulk of indigenous sources of energy in China are located far from the major centers of consumption on the southeast coast. Thus, a major task of Chinese energy policies is internal distribution. In addition, China has very low energy efficiency, consuming 50 percent more