

COUNTRY ANALYSIS BRIEFS

Egypt

Last Updated: August 2008

Background

Egypt is a significant oil producer and a rapidly growing natural gas producer.

The country's first liquefied natural gas (LNG) export terminal began operation in January 2005. Suez Canal and Sumed Pipeline are strategic routes for Persian Gulf oil shipments, making Egypt an important transit corridor.

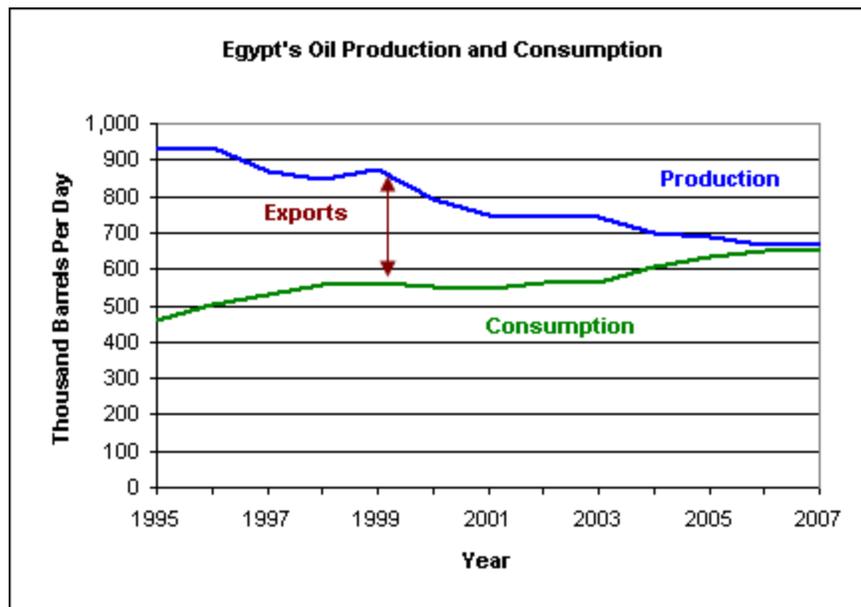
In 2007, Egypt produced 664,000 barrels of oil per day (bbl/d) continuing its fall from a high of 950,000 bbl/d in 1995. Yet having consumed 653,000 bbl/d in 2007, production was sufficient to prevent Egypt from becoming a net importer of oil as some had predicted. Production and consumption of natural gas continue to rise with a total of 1.9 trillion cubic feet (Tcf) produced and 1.3 Tcf consumed in 2006, making Egypt a net gas exporter.



Oil

Egypt's production has continued to decline from its 1996 peak of 922,000 barrels per day (bbl/d) of crude oil.

According to the *Oil and Gas Journal's* January 2008 estimate, Egypt's proven oil reserves stand at 3.7 billion barrels. In 2007, Egypt's oil production averaged 664,000 barrels per day (bbl/d), less than 1 percent of world production. Despite discoveries and enhanced oil recovery techniques at mature fields, production is declining annually. The Saqqara field, discovered in 2003 and estimated by BP to contain reserves of 80 million barrels, represented the last major find since 1989.



Source: EIA International Energy Annual

Consumption

Demand for petroleum products, after being relatively flat since 1999, is again rising rapidly. This increase is due partly to high domestic subsidies. According to official figures, the value of government subsidies to petroleum products has continued to rise, from 14.3 billion Egyptian pounds (EGP) in FY2004 to 62.7bn EGP in FY2008 - with the 2008 subsidy being 71.3% higher than that projected for the previous year at 36.6 bn EGP. Though the government hopes to reduce demand by gradually lifting subsidized prices and targeting subsidies more effectively, this is a politically sensitive issue that will take time to fully implement. The increased use of compressed natural gas (CNG) as a fuel for motor vehicles is one trend that may aid government efforts.

Sector Organization

Structured to accelerate decision making and facilitate cooperation with international oil companies, the energy sector is broken up into three holding companies in addition to the Egyptian General Petroleum Corporation (EGPC) and the Egyptian Mineral Resource Authority (EMRA). These include: the Egyptian Natural Gas Holding Company (EGAS), The Egyptian Petrochemicals Holding Company (ECHEM), and Ganoub El Wadi Petroleum Holding Company (GANOPE).

Exploration and Production

International Oil Companies (IOCs) play a significant role in Egypt's upstream sector on a production-sharing basis with EGPC and EGAS. Exploration tenders attract supermajors such as ENI and BP, National Oil Companies (NOCs) such as Petronas and KUFPEC, and small IOCs such as Dana Gas and Burren Energy.

Egyptian oil production comes from four main areas: the Gulf of Suez (about 50 percent), the Western Desert, the Eastern Desert, and the Sinai Peninsula. Most Egyptian production is derived from mature, relatively small fields that are connected to larger regional production systems. The fields in the Gulf of Suez are declining most rapidly while independent producers such as Apache and Seagull Energy are helping to slow the decline through the development of small fields, especially in the Western Desert and Upper Egypt.

Oil from the Gulf of Suez basin is produced mainly by Gupco (Gulf of Suez Petroleum Company) under a Production Sharing Agreement (PSA) between BP and the Egyptian General Petroleum Corporation (EGPC). Production in the Gupco fields, with most wells in operation since the 1960s and 1970s, has fallen in recent years. Yet Gupco has slowed this decline through significant investments in enhanced oil recovery (EOR) as well as increased exploration. Egypt's second largest oil producer is Petrobel, which is a joint venture between EGPC and Agip of Italy. Petrobel operates the Belayim fields near the Gulf of Suez and also is undertaking an EOR program to stem declining production. Other major companies operating in the area include Badr el-Din Petroleum Company (EGPC and Shell); Suez Oil Company (EGPC and Deminex); and El Zaafarana Oil Company (EGPC and British Gas -- BG).

Since 2000, Western Desert production has risen substantially, accounting for roughly 27 percent of total oil production, more than double 2000 levels. Oil in this area is on average cheaper to produce and lighter than other domestic crudes. Apache and Seagull have developed the Beni Suef IX field in the East Beni Suef concession in Upper Egypt and the Wadi El-Sahl field in the South Hurghada block. A joint venture between EGPC and Agip is developing the Qattara Depression in the Western Desert, in the Meleiha and West Razzaq blocks. Khalda Petroleum, a joint venture between Apache and EGPC, operates in the Western Desert in the Khalda and East Bahariyya areas.

The Saqqara field, which represents the largest new crude oil discovery in Egypt since 1989, went online in May 2008. Located offshore adjacent to the existing El-Morgan field, Saqqara reached a flow rate of 30,000 bbl/d at the end of May 2008, and is expected to reach a peak production of around 40,000 to 50,000 bbl/d.

In early 2008 the government launched a licensing round offering between 20 and 30 blocks proposed by EGPC, Egas, and Ganoub el-Wadi Petroleum.

Oil Transit: Suez Canal/Sumed Pipeline

In addition to its role as an oil exporter, Egypt has strategic importance because of its operation of the Suez Canal and Sumed (Suez-Mediterranean) Pipeline, two routes for export of Persian Gulf oil.

Crude oil shipped through the Suez Canal in 2007 amounted to 980,000 bbl/d southbound and 280,000 bbl/d northbound, according to the Middle East Economic Survey. This compared with a flow of 160,000 bbl/d southbound and 1,100,000 bbl/d northbound in 2006. The change in the flow's direction reflects the decline in European demand and the continued demand growth in Asia.

The Suez Canal Authority (SCA) is continuing enhancement and enlargement projects on the canal. By the end of 2008, the canal's depth will be increased from 62 ft to 66 ft, but plans to extend the depth to 72 ft for supertankers by 2010 have been put on hold. The SCA is instead considering widening the canal to 322,000 ft to boost the pass-through rate. In the meantime, the SCA increased its fees in April 2008 by 10.5% for natural gas tankers, 10% for naval vessels, 7.3% for oil tankers, 5.7% for container ships, 5.2% for passenger ships and 5% for all other vessels. According to the SCA, revenues from the Suez Canal stood at US\$5.11 billion during fiscal year (FY) 2007/08, which ended on 30 June, compared with US\$4.16 billion recorded a year earlier. The total number of ships passing through the Suez Canal reached 21,080 in 2007/08, in contrast to 19,479 ships during the previous year.

The Sumed pipeline runs 200-miles from Ain Sukhna on the Gulf of Suez to Sidi Kerir on the Mediterranean. The Sumed's original capacity was 1.6 million bbl/d, but with the completion of additional pumping stations, capacity has increased to 2.34 million bbl/d according to industry press. The pipeline is owned by the Arab Petroleum Pipeline Company (APP), a joint venture between Egypt (50 percent), Saudi Arabia (15 percent), Kuwait (15 percent), the U.A.E. (15 percent), and Qatar (5 percent). The APP also has been increasing storage capacity at the Ain Sukhna and Sidi Kerir terminals. As a competitor with the canal, the pipeline offers discounts for VLCCs offloading at Ain Sukhna and reloading at Sidi Kerir. During the 2007 FY, Summed shipped approximately 1.89 million bbl/d of Arab and Iranian crude, down nearly 400,000 b/d from 2006 levels according to the Middle East Economic Survey.

Egypt's major export grades are Suez Blend and Belayim Blend, most of which are sold straight into term contracts. Minor exports grades include Ras Gharib and West Desert.

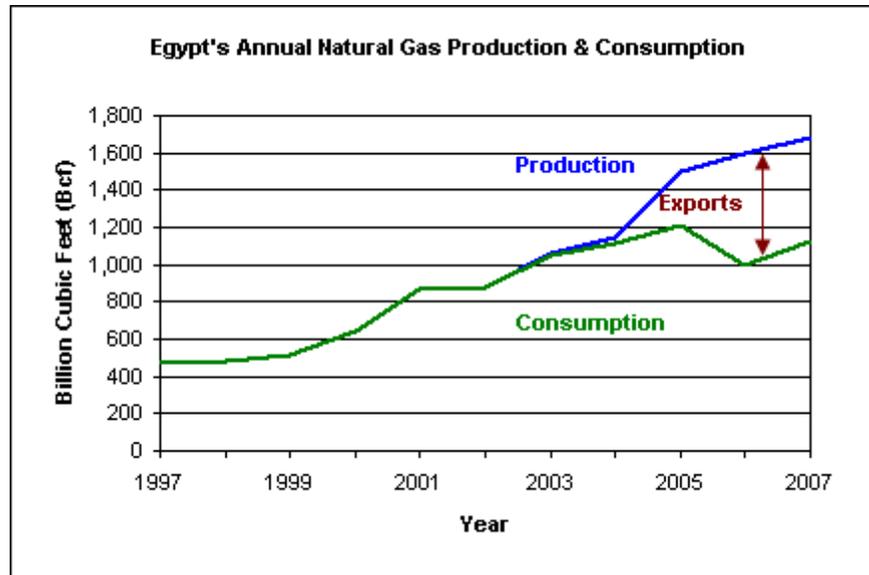
Refining

Egypt has the largest refining sector on the African continent with nine refineries that have a combined crude oil processing capacity of 726,000 bbl/d. The largest refinery is the 146,300-bbl/d El-Nasr refinery at Suez, which is owned by the Egyptian government through the EGPC and operated by its subsidiary, the El Nasr Petroleum Company. The government has plans to increase production of lighter products, petrochemicals, and higher octane gasoline by expanding and upgrading existing facilities and promoting two new projects. One is a 500,000 bbl/d refinery to be built near the Suez Canal. The second is a 130,000 bbl/d refinery to be built at Ain Sukhna, on the Red Sea coast. The 500,000 bbl/d export-oriented oil refinery is to be a joint venture among Egyptian, Saudi Arabian and Kuwaiti investors; start up is scheduled for summer 2009.

Natural Gas

Due to major recent discoveries, natural gas is likely to be the primary growth engine of Egypt's energy sector for the foreseeable future.

Due to major recent discoveries, natural gas is likely to be the primary growth engine of Egypt's energy sector for the foreseeable future. Egypt's natural gas sector is expanding rapidly with production having increased over 30 percent between 1999 and 2007. In 2006, Egypt produced roughly 1.9 trillion cubic feet (Tcf) and consumed 1.3 Tcf of natural gas. According to the *Oil and Gas Journal*, Egypt's estimated proven gas reserves stand at 58.5 Tcf, or roughly 1 percent of world reserves. With the continued expansion of the Arab Gas pipeline, which increased its exports to roughly 68 bcf during fiscal 2006 from 8 bcf in 2003, Egypt is on its way to becoming a leading supplier of natural gas throughout the Mediterranean region.



Source: EIA International Energy Annual

Sameh Fahmy, Egypt's Minister of Petroleum, reports that the electricity sector has the largest share of natural gas consumption at 58%, followed by industrial sector with 26%. The government is encouraging households, commercial premises and industries to consider natural gas as a substitute for costlier and more polluting fuels. In January 2008, the World Bank approved loans for the Natural Gas Connections Project, which serves to switch consumption of liquefied petroleum gas (LPG) to natural gas through investment in new connections and further expand natural gas use in densely populated low income areas.

Sector Organization

Egyptian Natural Gas company (Gasco) was established in 1997 to manage, operate and maintain the national gas grid and its facilities. The Egyptian Natural Gas Holding company (EGAS) guides development strategy. In 2000, the Egyptian government decided to allocate one third of the then proven reserves for domestic market requirements for 25 years, the second third for strategic purposes, and the remaining third, plus most gas discoveries from 2001 onward, for export. Major foreign companies involved in natural gas exploration and production in Egypt include BG, BP, Eni, and Shell. Apache is also a producer of natural gas in the Western Desert. Egypt's oil minister declared in mid-2008 that no new gas export contracts would be made until 2010 in response to popular pressure against the terms of the country's current LNG and gas export contracts (particularly that with Israel), which were signed when prices were significantly lower than they are today.

Exploration and Production

Most current exploration and production is sourced in the Nile Delta region and in the Western Desert. The Abu Madi, Badreddin and Abu Qir fields in the Nile Delta account for approximately one-half of Egypt's gas production, and are non-associated and mature fields. Other offshore developments include Port Fuad, South Tamsah, Wakah, Rosetta, the Scarab/Saffron fields and the newly discovered Satis field found by BP and Eni in early 2008. In the Western Desert, the Obeiyed and Khalda fields are the most important natural gas areas. They have lower development and operating costs than fields in the Mediterranean region due to an expanding network of pipelines and processing plants that allow for quick transport upstream to Alexandria via a 180-mile pipeline.

Exports

Pipeline Exports

Egypt's most expansive export project is the Arab Gas Pipeline that currently connects Egypt to

Jordan and Syria. In 2008, the Jordan-Syria section of the Arab Gas Pipeline was completed and Egypt is expected to export some 32.2 bcf rising to 77.3 bcf in 2013. In 2008, Turkey and Syria also signed an agreement to connect the pipeline to the Turkish grid for use in 2011 and extend the pipeline into Europe for export to Austria, via Bulgaria, Romania, and Hungary. There is also discussion of connecting the pipeline to Lebanon and Cyprus. The Arish-Ashkelon gas pipeline to Israel became operational in 2008 and began transferring what is expected to be 60 bcf per year. Recently, Libya also agreed to build a natural gas pipeline between Alexandria and the eastern Libyan city Tobruk to import gas from the Nile Delta region and the Mediterranean deepwater permits

LNG

Egypt has three LNG trains and in 2006 reached an estimated 528 bcf of LNG, including 129 bcf to the United States. The Spanish firm Union Fenosa built a single-train liquefaction facility at Damietta, which started production of 240 bcf per year in late 2004. In June 2006, partners Eni, BP and Union Fenosa signed a framework agreement for the expansion of the plant and production with a second train planed to begin in 2010-11. However, this agreement may be put at risk by Egypt's June 2008 announcement that all export contracts are on hold until 2010. Egyptian Petroleum Minister Sameh Fahmy warned that the second train faces opposition within parliament.

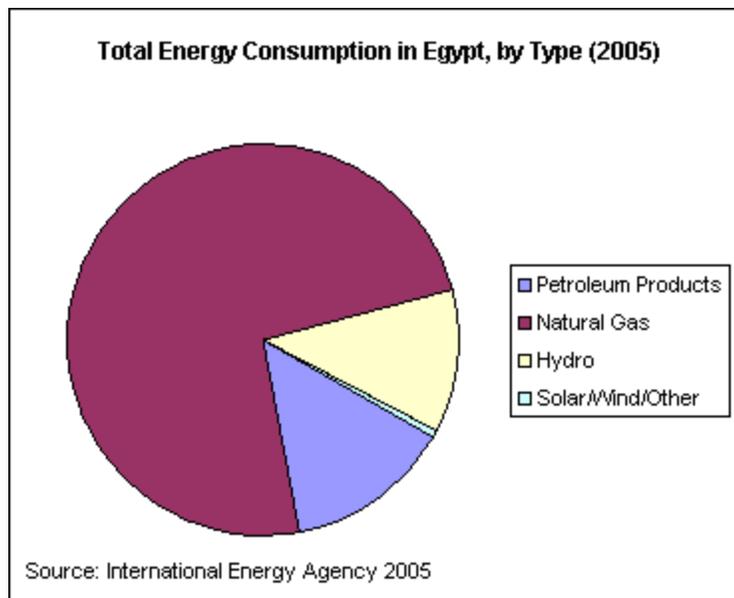
A second LNG export project called Egyptian LNG, at Idku, was built by BG in partnership with Petronas and currently has two 173 bcf per year trains. The project is tied in to natural gas production from BG's Simian/Sienna offshore fields, and began production in 2005. BG hopes to build a third liquefaction plant, partly fed by gas from Palestinian-controlled Gaza Marine Field in the Mediterranean Sea, with targeted start up in 2011.

Another potential use for Egypt's natural gas reserves is gas-to-liquids (GTL) projects. Shell has proposed a 75,000-bbl/d GTL plant to be co-located with its planned LNG export terminal using natural gas production from its offshore NEMED field. The LNG and GTL plants could be built within three years, but a final decision is awaiting the outcome of Shell's exploration program on NEMED, which is not expected to be completed until early 2009.

Electricity

Egypt's installed generating capacity stood at 18.5 gigawatts (GW) as of 2005, with plans to expand capacity to 32,000 megawatts (MW) over the next five years, according the Ministry of Energy and Electricity's five year plan.

Egypt plans to expand electricity capacity to 32,000 megawatts (MW) over the next five years. The minister, Hassan Yunis, announced that the additional capacity will come principally from 11 new thermal plants and expansions: Kureimat 2 and 3, Talkha, Tabbin, Nuberiya 3, Cairo West, Sidi Krier, el-Atf, Abu Qir, Ain Sokhna and Sharm el-Sheikh. In 2005, nearly 75 percent of Egypt's electric generating capacity was powered by natural gas, some 14 percent by petroleum products, and the remaining 12 percent by hydroelectric, mostly from the Aswan High Dam according to the IEA.



Growing electricity demand in the late 1990s spurred industry restructuring and plans for limited privatization of the electric power sector, although this process has yet to result in significant independent power projects. Egypt's power sector is currently comprised of seven regional

state-owned power production and distribution companies that are held by the Egyptian Electricity Authority (EEA). In July 2000, the EEA was converted into a holding company, though still owned by the state.

Egypt has several privately-owned power plants currently under construction which are financed under Build, Own, Operate, and Transfer (BOOT) financing schemes. The first BOOT project was a gas-fired steam power plant with two 325-megawatt (MW) generating units, located at Sidi Kerir on the Gulf of Suez. The plant cost \$450 million, and began commercial operation in late 2001. U.S.-based InterGen (a joint venture of Bechtel Enterprises and Shell Generating Ltd.), along with local partners Kato Investment and First Arabian Development and Investment, have the 20-year BOOT contract for Sidi Kerir. The second BOOT power project award went to Electricite de France (EDF), for two natural gas-fired plants located near the cities of Suez and Port Said. The two plants, which came online in 2003, have a total capacity of 1,366 MW.

In February 2006, the World Bank agreed to fund a 700-MW plant expected to cost roughly \$260 million which will contain two 350-MW steam turbines. In April 2007, Egypt's Orascom Construction Industries (OCI) was awarded a contract to build a 700-MW power station al-Tebbin power plant outside Cairo slated for completion by 2012. In July 2007, General Electric (GE) and its Italian partner Techint Cimi Montubi (TCM) were selected to build two gas turbine generators at the new 750-MW al-Kureimat III combined cycle power plant south of Cairo

Other Sources of Electricity Generation

In pursuance of its reform agenda, the Egyptian government has set an ambitious renewable energy program to generate 500 MW of solar energy, 600 MW of wind power, and 600 MW of hydroelectric power by 2017. Egypt is building a new hybrid power plant – the Integrated Solar Combined Cycle power plant - at Kureimat as a BOOT project, which will have 30 MW of solar capacity out of a total planned capacity of 150 MW. The World Bank will provide a \$327.57 million financing package from its Global Environmental Facility which will offset the cost difference between the solar capacity and thermal capacity. Egypt has also built a wind farm at Zafarana that has been operational since 2004 at an output capacity of 80 MW that is expected to increase to 160 MW during 2008. A Netherlands-funded project is also building 60 MW worth of wind power units in the Suez Canal area. Egypt is also working with Nuclear power. It has a 22-MW nuclear research reactor at Inshas in the Nile Delta, built by INVAP S.A. of Argentina, which began operation in 1997. In March 2008 Egypt also signed an agreement with Russia to assist in building Egypt's first 1,000-MW nuclear plant at al-Dabaa.

International Connections

Work has been completed on the interconnection of Egypt's electric transmission grid with other countries in the region. The Five-Country interconnection of Egypt's system with those of Jordan, Syria, and Turkey was completed by 2002. Egypt also activated a link to Libya's electric grid in December 1999.

Profile

Energy Overview

Proven Oil Reserves (January 1, 2008)	3.7 billion barrels (Oil & Gas Journal)
Oil Production (2007E)	664 thousand barrels per day, of which 75% was crude oil.
Oil Consumption (2006)	653 thousand barrels per day
Crude Oil Distillation Capacity (2007E)	726.3 thousand barrels per day
Proven Natural Gas Reserves (January 1, 2008)	58.5 trillion cubic feet (Oil & Gas Journal)
Natural Gas Production (2006E)	1.9 trillion cubic feet
Natural Gas Consumption (2006E)	1.3 trillion cubic feet
Recoverable Coal Reserves (2005)	23.1 million short tons
Coal Production (2006)	0.03 million short tons
Coal Consumption (2006)	1.25 million short tons
Electricity Installed Capacity (2005)	18 gigawatts
Electricity Production (2005)	102 billion kilowatt hours
Electricity Consumption (2005)	84 billion kilowatt hours
Total Energy Consumption (2005)	2.8 quadrillion Btus

Total Per Capita Energy Consumption (2005)	35.5 million Btus
Energy Intensity (2005)	8,037 Btu per \$2000-PPP**
Environmental Overview	
Energy-Related Carbon Dioxide Emissions (2006)	162 million metric tons
Per-Capita, Energy-Related Carbon Dioxide Emissions (2005)	2.1 metric tons
Carbon Dioxide Intensity (2005)	0.5 Metric tons per thousand \$2000-PPP**

* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power. The renewable energy consumption statistic is based on International Energy Agency (IEA) data and includes hydropower, solar, wind, tide, geothermal, solid biomass and animal products, biomass gas and liquids, industrial and municipal wastes. Sectoral shares of energy consumption and carbon emissions are also based on IEA data.

**GDP figures from OECD estimates based on purchasing power parity (PPP) exchange rates.

Links

U.S. Government

[CIA World Factbook - Egypt](#)

[EIA - Energy Profile for Egypt](#)

[U.S. State Department Background Notes](#)

[U.S. State Department Consular Information Sheet - Egypt](#)

[U.S. Embassy in Egypt](#)

General Information

[The Center for Middle Eastern Studies - Egypt](#)

[University of Pennsylvania African Studies Program - Egypt](#)

[ArabNet: Egypt](#)

[MBendi Information Services Country Profile - Egypt](#)

[AME Info Middle East Business Information](#)

Egyptian Government Agencies

[Egyptian Government Information Portal \(English\)](#)

[Egyptian Government Statistical Database](#)

[Egyptian Mineral Resources Authority](#)

[Egyptian Atomic Energy Authority](#)

Oil and Natural Gas

[Egyptian Natural Gas Holding Company \(EGAS\)](#)

[OILEgypt.com](#)

Sources

Business Middle East Select

Global Insight Middle East Economic Outlook

Hart's Africa Oil and Gas

International Energy Agency

Middle East and Africa Oil and Gas Insights

Middle East Economic Survey

Oil and Gas Journal

Petroleum Economist

Petroleum Intelligence Weekly

International Market Insight Reports

U.S. Energy Information Administration

Contact Info

cabs@eia.doe.gov

(202)586-8800

cabs@eia.doe.gov