

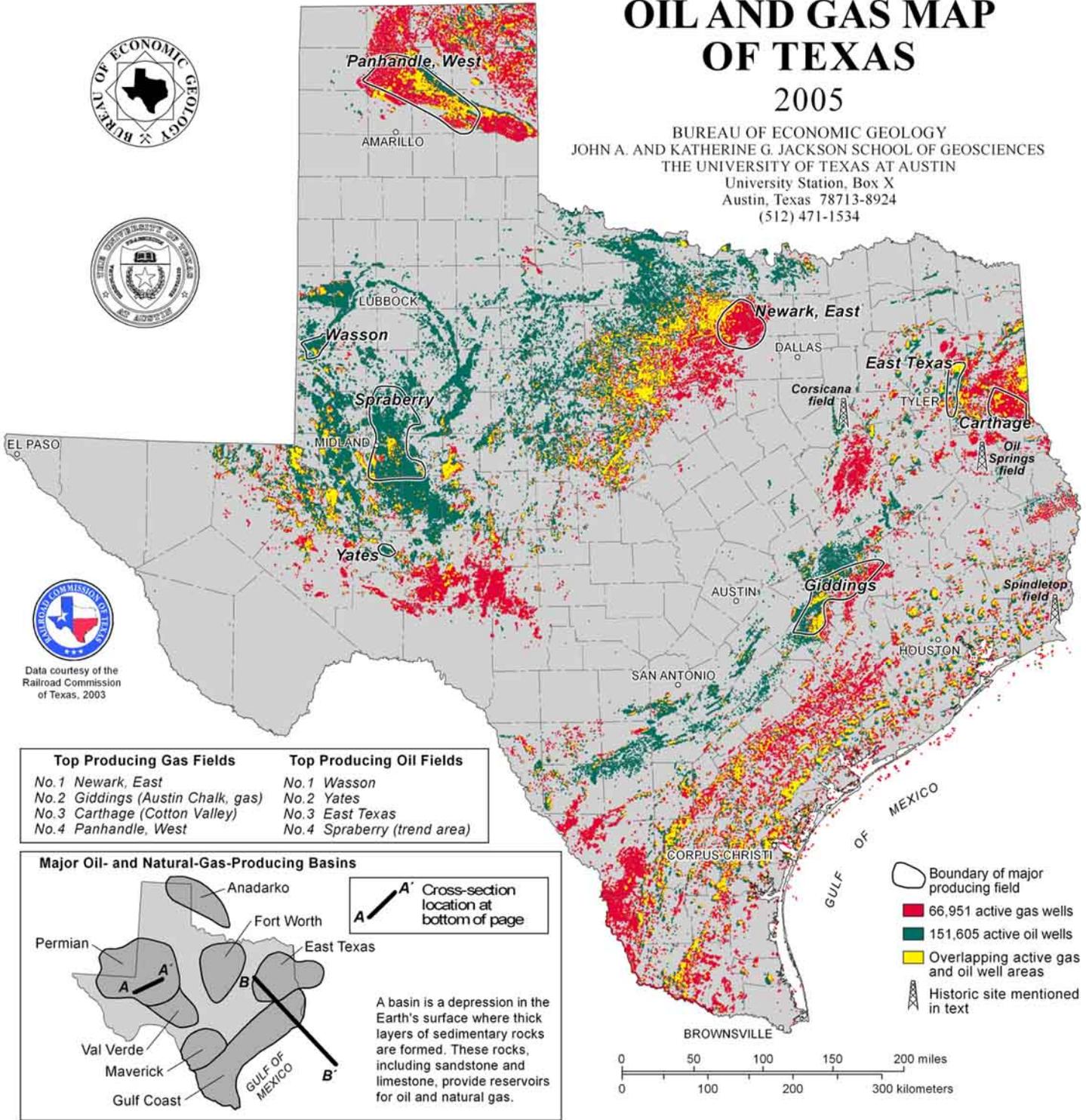
OIL AND GAS MAP OF TEXAS

2005

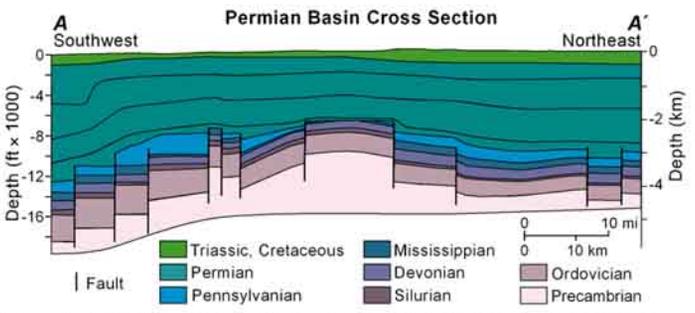
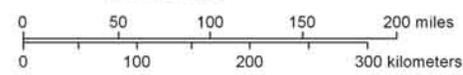
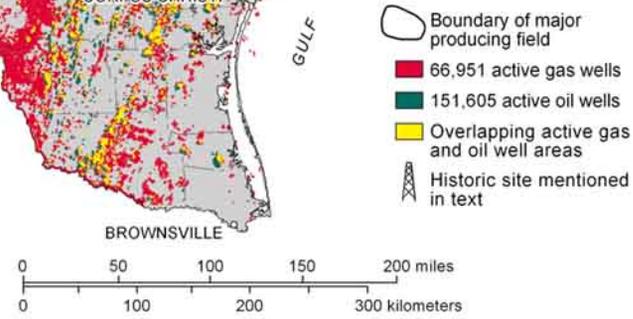
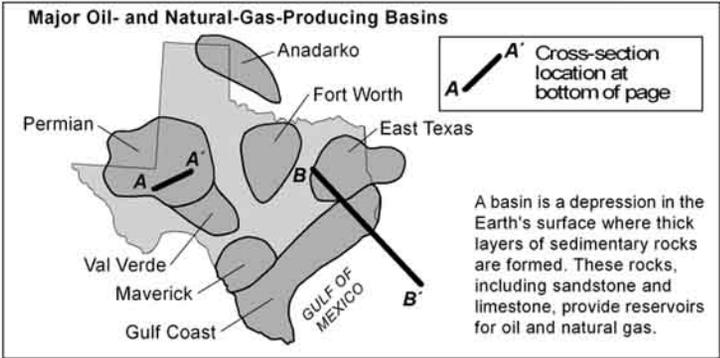
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Data courtesy of the Railroad Commission of Texas, 2003

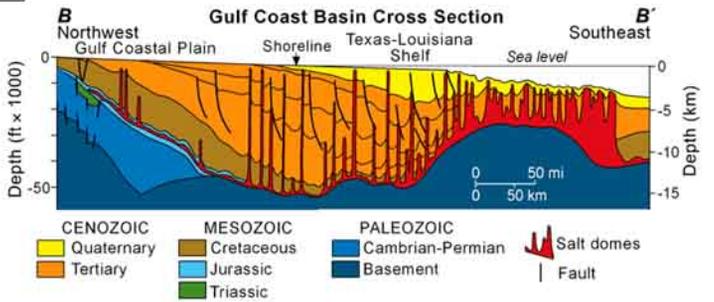


Top Producing Gas Fields	Top Producing Oil Fields
No. 1 Newark, East	No. 1 Wasson
No. 2 Giddings (Austin Chalk, gas)	No. 2 Yates
No. 3 Carthage (Cotton Valley)	No. 3 East Texas
No. 4 Panhandle, West	No. 4 Spraberry (trend area)



Modified from Bebout, D. G., and Meador, K. J., 1985, Regional cross sections—Central Basin Platform, West Texas: The University of Texas at Austin, Bureau of Economic Geology, 4 p., 11 pls.

More than half of the oil and gas production from Texas comes from the Permian Basin of West Texas. Nearly three-quarters of this production comes from carbonate rocks of Permian age.



Modified from Worrall, D. M., and Snelson, S., 1989, Evolution of the northern Gulf of Mexico with an emphasis on Cenozoic growth faulting and the role of salt tectonics, in Bally, A. W., and Palmer, A. R., eds., The geology of North America—an overview: Geology of North America, v. A, p. 97-138.

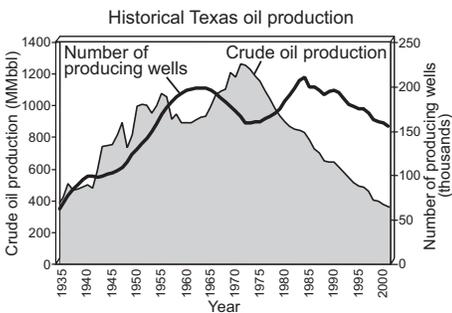
Most oil and gas production in the Texas Gulf Coast comes from Tertiary-aged sandstones. Many reservoirs are associated with faults and salt domes.

Oil and Gas Production in Texas

Texas has produced more oil and natural gas than any other state and to date remains the largest daily producer. Oil and natural gas are found in most parts of the state. No state or any other region worldwide has been as heavily explored or drilled for oil and natural gas as Texas. Currently (August 2003), 151,605 active oil wells and 66,951 active gas wells produce oil and natural gas in the state.

TEXAS OIL PRODUCTION

Although Texas wasn't the first state to produce oil, Texans weren't far behind. Drilling for oil in Texas occurred at Oil Springs, near Nacogdoches in East Texas, in 1866, less than a decade after Colonel Edwin Drake's 1859 Titusville, Pennsylvania, well brought the U.S. into the age of oil. Oil had been found before in Texas, but it had been either through natural surface seeps or drilling for water. Then, in 1894, the Texas age of oil began with the first major discovery, Corsicana field, in East Texas. The first boom came in 1901 with Spindletop field in the Gulf Coast Basin. Thousands of other discoveries have followed. East Texas oil field, the largest oil field in Texas or in any of the U.S. Lower 48 states, was discovered in 1930. Annual Texas oil production peaked in 1972 at 1,263 MMbbl (million barrels), and thereafter production rapidly dwindled. Although oil production in Texas is in decline, significant opportunities for incremental recovery exist in advanced exploration and production technologies.



On average, only 35 percent of original oil in place in Texas reservoirs has been recovered. Technology plays a pivotal role in increasing recovery rate, improving economics, and assisting in exploration of complex oil reservoirs. If technology can be applied to an increasingly complex and mature resource base, oil production decline in Texas can be slowed.

TEXAS NATURAL GAS PRODUCTION

Historically, natural gas in Texas was discovered as a byproduct of oil. This form of natural gas, which is in contact with crude oil in the reservoir, is termed *associated gas*, and in earlier years it was wastefully flared and vented off without being produced. With increased oil exploration and discoveries in Texas, annual natural gas production steadily rose and peaked also in 1972 at 9.6 Tcf (trillion cubic feet). However, unlike oil production, since the early 1980's, Texas gas production has maintained a steady production level. This was achieved through several large field discoveries,

such as Newark, East, field in North-Central Texas, as well as a multitude of smaller sized fields that required application of advanced exploration and development technologies. Texas natural gas production levels were maintained by increasing numbers of producing wells, which are now at an all-time high. Today many of the new exploration and production activities involve natural gas rather than oil.

U.S. AND WORLD RANKING

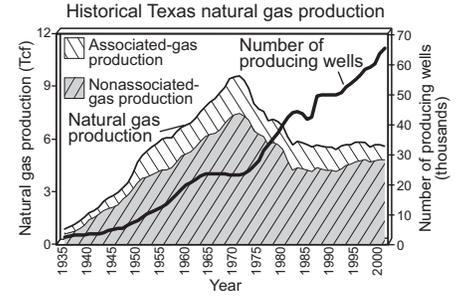
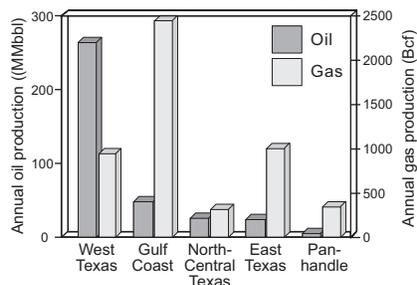
Through the application of advanced technologies, incremental oil recovery from mature oil fields continues to make Texas the state that leads in oil production. In terms of year 2002 oil and natural gas production, Texas produced 17 percent (366 MMbbl) and 30 percent (5.7 Tcf), respectively, of the U.S. total. Indeed, if Texas were a nation, it would rank as one of the top 10 producers in the world. In terms of proved oil and natural gas reserves, Texas has 22 percent (5,015 MMbbl) and 23 percent (44.3 Tcf), respectively, of the U.S. total. Reserves are the estimated quantities that analysis of geological and engineering data demonstrates with reasonable certainty in future years to be recoverable from known reservoirs, under existing economic and operating conditions.

MAJOR PRODUCING REGIONS

Oil and natural gas production in Texas can be divided into seven major producing basins. The Permian Basin dominates oil production in the state, and the Gulf Coast Basin dominates natural gas production. Major oil fields in Texas include Wasson, Yates, and Spraberry in West Texas, as well as the largest Texas oil field, East Texas field in the East Texas Basin. The Permian Basin has been the most prolific oil-producing province in U.S. history. East Texas field has produced more oil than any other field in the lower 48 states. Major natural gas fields in Texas, in terms of today's production rate, include Newark, East, field in the Fort Worth Basin; Carthage field in East Texas; Panhandle, West, field in the Anadarko Basin; and Giddings field in the Gulf Coast Basin. Excluding Panhandle, West, field, all major natural gas fields in Texas are a product of application of advanced technologies, such as hydraulic fracturing and horizontal drilling, which have resulted in increased production from these low-permeability and complex fields.

Although oil and natural gas production in Texas has declined from its peak, advanced exploration and development technologies will enable

Major Texas oil- and gas-producing regions, 2002



Texas to remain the major oil and natural gas producer in the U.S. Because easy-to-find oil and natural gas resources have been fully exploited in Texas, the future mix of oil and gas resources will be increasingly complex and technologically challenging.

ECONOMIC IMPACT

Oil and natural gas production in Texas, although not as great as in the past, remains an important source of economic benefit, in terms of value, jobs created, and taxes. According to the Texas Comptroller's input-output model of Texas' economy, the total economic value of oil and gas is 2.91 times the value of production. Additionally, 19.1 jobs are created per million dollars of oil and gas production. Assuming oil and natural gas prices of \$25/bbl and \$5/Mcf, and year 2002 annual production of 366 MMbbl and 5.7 Tcf, wellhead value exceeds \$37 billion. Annual natural gas value is currently 3.1 times that of the oil wellhead value to Texas. In terms of economic value trickled down through the Texas economy and jobs created, this figure equates to nearly \$110 billion and 719,115 jobs. Severance, ad valorem, and indirect taxes provide additional economic benefits of more than \$6 billion to Texas. The leasing of mineral rights to State- and University-owned lands statewide, moreover, provides royalty and leasing revenue that replenishes the Permanent University and School Funds, important sources of revenue for public education in Texas.

RAILROAD COMMISSION OF TEXAS

The Railroad Commission of Texas, established in 1891, is the oldest regulatory agency in the state and one of the oldest of its kind in the nation. The Railroad Commission has regulatory divisions that oversee Texas' oil and natural gas industry, gas utilities, pipeline and rail safety, safety in the liquefied petroleum gas industry, and surface mining of coal and uranium. As the regulatory agency for the oil and gas industry, it provides extensive drilling and production statistics. The Railroad Commission continues to serve Texas in its stewardship of natural resources and the environment, its concern for the individual and communal safety of citizens, and its support of enhancing development and economic vitality for the betterment of Texas as a whole.

—Text contributed by Eugene M. Kim and Stephen C. Ruppel

Bureau of Economic Geology

The **Bureau of Economic Geology**, established in 1909, is a research entity of The University of Texas at Austin that also functions as the State Geological Survey. The Bureau, part of the Jackson School of Geosciences, conducts basic and applied research projects in energy and mineral resources, coastal and environmental studies, land resources, and geologic mapping. Reports and maps published by the Bureau are available for a nominal price. A list of publications is available on request.