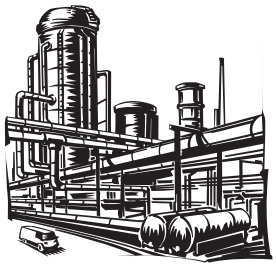
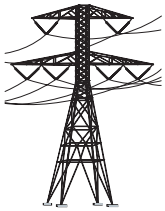
# LOUISIANA ENERGY FACTS ANNUAL





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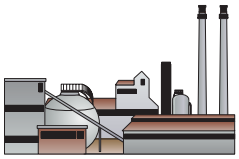

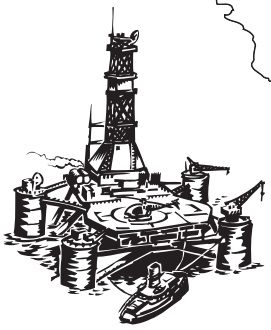

DEPARTMENT OF NATURAL RESOURCES
Technology Assessment Division
January 31, 2006

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# LOUISIANA ENERGY FACTS

## ANNUAL 2005

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January 31, 2006

# General Questions and Comments

The **Louisiana Energy Facts Annual - 2005** was published by the Technology Assessment Division of the Louisiana Department of Natural Resources under the direction of Manuel Lam. The Director of the Division is T. Michael French, and the Assistant Director is William J. Delmar, Jr.

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# Table of Contents

**Table** **Page**



## RESERVES



## OTHER



## APPENDICES



## Appendix E

## Louisiana Energy Topics

# List of Figures

**A Jackson Parish's well site**

# Louisiana Energy Facts
# Annual 2005

## INTRODUCTION

### ABOUT THIS PUBLICATION

The **Louisiana Energy Facts Annual** is published to provide a comprehensive compendium of Louisiana related energy production and use statistics on a yearly basis. The data tables are supplemented with numerous graphs and charts to aid in the interpretation of the data and the discernment of trends. The **Annual** is published as soon as sufficient data for the previous calendar year is available. Due to time lags in the availability of some of the data, there is approximately a nine month lag before the current **Annual** can be published. Some changes have been introduced in order to incorporate the latest available data.

If you receive our monthly **Louisiana Energy Facts**, you may find that some of the previously published data has been revised in the **Annual**. This data, by its nature, continues to be revised, sometimes years after its initial publication. We try to bring attention to these changes by marking them as revisions.

The most recent **Louisiana Energy Facts** monthly may contain even more updates. Please refer to the recent monthlies for the very latest data. The **Louisiana Energy Facts** monthly is available in print and online at our website:

**http://www.dnr.louisiana.gov/tad**

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**Energy Facts and Figures**

Note: the data in these tables will be updated throughout the year. The data files are not audited and will change as more reliable data becomes available.

The state oil and gas production data has been modified. Starting with the 2002 Annual, current production data and all future reports will reflect changes due to modifications in the reporting system by the DNR Office of Conservation, Production Audit Section. The new data for oil does not include crude oil, condensate, or raw make recovered from gas plants. In the past, these products were added to the state production as crude oil or condensate. A separate report on gas plant liquids production is not available at present. The gas data system was adjusted to reflect production from the well on the date produced. It was previously reported on the date first purchased.

This new reporting system aims to produce more accurate and timely data. The Technology Assessment Division is not the source of the data, but merely reports data provided to us by the responsible agency. We understand that users of our time series data need consistency and, for that reason, our time series have been adjusted backward to reflect these new modifications.

We hope you find this document useful, and we welcome any comments or suggestions.

Any comments or suggestions about this publication should be directed to the Technology Assessment Division staff members listed on the General Questions and Comments page.

## 2005 HIGHLIGHTS

The data in the 2005 **Louisiana Energy Facts Annual** contains some recent trends.

### Crude oil and natural gas prices increased

Gas spot price average was $6.76 per MCF in December 2004, and $12.86 per MCF in December 2005. The Louisiana natural gas spot market average hit bottom at $1.85 per MCF in October 2001, the lowest price in five years, and peaked in October 2005 at $13.61 per MCF. The 2006 average price for gas is expected to be around $7.40 per MCF.

South Louisiana spot crude oil was priced at $37.85 per barrel in December 2004 and in December 2005 it was $52.71 per barrel, a 38% increase compared to 2004. The 2006 average is expected to be around $58.80 per barrel.

### Oil and gas production decreased

Louisiana state crude oil and condensate production, excluding federal Outer Continental Shelf (OCS), dropped to 71 million barrels in 2005, a 15% decrease from 2004. An additional 3% decrease in production is expected in 2006. Louisiana state natural gas and casinghead, excluding federal OCS, production dropped to 1.21 TCF in 2005, a 10% decrease from 2004. It is expected to decrease another 3% in 2005. The decline in oil and gas production in 2005 was related to mature reservoirs and hurricanes despite the high prices.

### Drilling activity increased in state jurisdiction areas and flat on federal areas

The overall rig count in Louisiana, including the federal offshore area, increased 9% from an average of 167 rigs operating each month in 2004 to 182 in 2005. Looking at where the activity was, though, shows drilling activity flat in federal waters, up 25% in state offshore waters, up 27.8% in state inland waters, up 6.7% in South Louisiana on land, and up 23.1% in North Louisiana. Hurricanes Katrina and Rita slowed the rising trend of drilling activities in Louisiana, especially over water areas.

### Other significant items

Louisiana's proved oil reserve was lower in 2004 than in 2003. This was due to most drilling activities were looking for gas and high cost in mature producing fields. Natural gas proved reserve increased due to higher gas drilling activities and increase prices. Non-agricultural employment was lower in 2005, as opposed to 2004, due to hurricanes damage in South Louisiana's parishes.

# SUBDIVISIONS OF LOUISIANA

# Table 1

## LOUISIANA STATE CRUDE OIL PRODUCTION

**Excluding OCS**
**(Barrels)**

| DATE | NORTH | SOUTH | OFFSHORE | TOTAL |
|---|---|---|---|---|
| 1984 | 29,590,376 | 96,690,421 | 25,117,916 | 151,398,713 |
| 1985 | 29,436,551 | 97,622,513 | 24,292,173 | 151,351,237 |
| 1986 | 26,795,748 | 97,853,602 | 24,619,169 | 149,268,519 |
| 1987 | 25,036,758 | 95,476,492 | 23,372,480 | 143,885,730 |
| 1988 | 23,966,252 | 88,701,776 | 22,800,047 | 135,468,075 |
| 1989 | 22,249,645 | 78,352,396 | 20,890,198 | 121,492,239 |
| 1990 | 22,681,173 | 72,770,216 | 21,356,618 | 116,808,007 |
| 1991 | 22,693,470 | 69,567,532 | 22,498,111 | 114,759,114 |
| 1992 | 21,914,801 | 68,285,536 | 21,820,087 | 112,020,424 |
| 1993 | 20,088,542 | 65,698,407 | 21,593,063 | 107,380,012 |
| 1994 | 17,236,407 | 59,754,375 | 21,163,672 | 98,154,453 |
| 1995 | 16,643,923 | 59,472,528 | 20,140,864 | 96,257,315 |
| 1996 | 16,900,516 | 58,970,676 | 19,117,088 | 94,988,280 |
| 1997 | 17,099,931 | 60,458,696 | 17,213,800 | 94,772,427 |
| 1998 | 15,607,719 | 60,784,952 | 15,120,246 | 91,512,918 |
| 1999 | 12,904,010 | 56,035,888 | 12,098,536 | 81,038,434 |
| 2000 | 11,740,980 | 53,090,500 | 11,131,564 | 75,963,044 |
| 2001 | 10,642,232 | 50,306,152 | 10,089,509 | 71,037,893 |
| 2002 | 8,862,262 | 43,575,159 | 8,072,999 | 60,510,420 |
| 2003 | 8,957,502 r | 42,980,844 r | 8,204,386 r | 60,142,733 r |
| | | | | |
| January | 727,804 r | 3,579,041 r | 657,213 r | 4,964,058 r |
| February | 680,245 r | 3,349,084 r | 613,480 r | 4,642,809 r |
| March | 744,492 r | 3,669,834 r | 670,600 r | 5,084,926 r |
| April | 693,785 r | 3,496,700 r | 615,303 r | 4,805,788 r |
| May | 737,374 r | 3,561,248 r | 662,706 r | 4,961,328 r |
| June | 699,877 r | 3,384,627 r | 628,385 r | 4,712,889 r |
| July | 738,354 r | 3,575,746 r | 662,346 r | 4,976,446 r |
| August | 744,190 r | 3,667,109 r | 666,813 r | 5,078,113 r |
| September | 625,701 r | 3,003,349 r | 607,997 r | 4,237,047 r |
| October | 690,938 r | 3,270,002 r | 679,449 r | 4,640,388 r |
| November | 667,367 r | 3,347,868 r | 666,248 r | 4,681,482 r |
| December | 672,714 r | 3,463,665 r | 670,014 r | 4,806,392 r |
| **2004 Total** | **8,422,839 r** | **41,368,272 r** | **7,800,555 r** | **57,591,666 r** |
| | | | | |
| January | 697,283 | 3,557,482 | 680,153 | 4,934,918 |
| February | 640,283 | 3,269,203 | 633,755 | 4,543,241 |
| March | 710,147 | 3,688,146 | 702,142 | 5,100,436 |
| April | 693,111 | 3,606,420 | 685,001 | 4,984,532 |
| May | 716,132 | 3,733,285 | 707,678 | 5,157,095 |
| June | 678,620 | 3,544,472 | 680,939 | 4,904,031 |
| July | 659,710 | 3,452,289 | 662,065 | 4,774,064 |
| August | 625,595 | 3,280,196 | 647,159 | 4,552,950 |
| September | 705,933 e | 1,367,237 e | 269,262 e | 2,342,432 e |
| October | 785,743 e | 1,525,630 e | 300,455 e | 2,611,828 e |
| November | 692,360 e | 1,499,553 e | 294,788 e | 2,486,701 e |
| December | 609,389 e | 1,498,681 e | 294,091 e | 2,402,160 e |
| **2005 Total** | **8,214,306 e** | **34,022,595 e** | **6,557,488 e** | **48,794,388 e** |

e Estimated r Revised p Preliminary

# Table 2

## LOUISIANA STATE CONDENSATE PRODUCTION

**Excluding OCS**
**(Barrels)**

| DATE | NORTH | SOUTH | OFFSHORE | TOTAL |
|---|---|---|---|---|
| 1984 | 3,140,006 | 30,785,661 | 1,918,564 | 35,844,231 |
| 1985 | 2,668,233 | 29,260,762 | 1,721,098 | 33,650,093 |
| 1986 | 2,755,749 | 26,709,496 | 2,176,970 | 31,642,215 |
| 1987 | 2,512,024 | 25,594,838 | 1,811,598 | 29,918,460 |
| 1988 | 2,780,394 | 27,008,968 | 1,739,471 | 31,528,833 |
| 1989 | 2,979,706 | 26,767,411 | 1,856,899 | 31,604,016 |
| 1990 | 3,341,804 | 26,878,867 | 1,686,289 | 31,906,959 |
| 1991 | 4,009,441 | 26,227,271 | 1,685,555 | 31,922,267 |
| 1992 | 3,787,973 | 25,395,894 | 1,601,573 | 30,785,440 |
| 1993 | 3,647,665 | 25,236,291 | 1,629,298 | 30,513,254 |
| 1994 | 3,726,903 | 23,751,352 | 1,497,320 | 28,975,575 |
| 1995 | 3,927,927 | 22,866,531 | 2,177,611 | 28,972,069 |
| 1996 | 5,162,593 | 26,495,266 | 2,313,383 | 33,971,242 |
| 1997 | 4,397,384 | 24,247,395 | 2,737,982 | 31,382,760 |
| 1998 | 3,962,756 | 24,405,878 | 2,400,173 | 30,768,807 |
| 1999 | 3,555,355 | 24,032,940 | 2,233,271 | 29,821,566 |
| 2000 | 3,670,053 | 25,212,928 | 2,339,594 | 31,222,575 |
| 2001 | 3,915,644 | 27,380,913 | 2,571,735 | 33,868,292 |
| 2002 | 3,830,883 | 26,872,200 | 2,483,858 | 33,186,941 |
| 2003 | 3,304,681 r | 24,587,318 r | 2,405,378 r | 30,297,376 r |
| | | | | |
| January | 238,605 r | 1,869,072 r | 170,931 r | 2,278,608 r |
| February | 228,895 r | 1,799,825 r | 164,532 r | 2,193,252 r |
| March | 246,280 r | 1,943,924 r | 177,633 r | 2,367,837 r |
| April | 235,963 r | 1,869,631 r | 170,776 r | 2,276,370 r |
| May | 241,634 r | 1,921,936 r | 175,487 r | 2,339,057 r |
| June | 226,700 r | 1,810,102 r | 165,213 r | 2,202,015 r |
| July | 226,561 r | 1,815,974 r | 165,689 r | 2,208,224 r |
| August | 219,349 r | 1,765,067 r | 160,980 r | 2,145,396 r |
| September | 191,595 r | 1,547,808 r | 141,110 r | 1,880,513 r |
| October | 210,768 r | 1,677,138 r | 155,786 r | 2,043,692 r |
| November | 206,919 r | 1,708,021 r | 152,707 r | 2,067,647 r |
| December | 208,585 r | 1,727,159 r | 150,622 r | 2,086,367 r |
| **2004 Total** | **2,681,854 r** | **21,455,657 r** | **1,951,467 r** | **26,088,978 r** |
| | | | | |
| January | 210,991 | 1,733,798 | 157,778 | 2,102,567 |
| February | 204,240 | 1,593,350 | 154,967 | 1,952,557 |
| March | 227,578 | 1,886,153 | 171,490 | 2,285,221 |
| April | 223,928 | 1,864,033 | 169,401 | 2,257,363 |
| May | 226,718 | 1,895,655 | 172,194 | 2,294,567 |
| June | 213,753 | 1,795,344 | 163,003 | 2,172,100 |
| July | 207,531 | 1,751,141 | 158,909 | 2,117,581 |
| August | 197,880 | 1,677,280 | 152,135 | 2,027,295 |
| September | 237,447 e | 1,080,913 e | 97,996 e | 1,416,356 e |
| October | 295,614 e | 1,136,896 e | 90,354 e | 1,522,863 e |
| November | 295,344 e | 1,166,318 e | 105,688 e | 1,567,350 e |
| December | 182,731 e | 769,033 e | 69,653 e | 1,021,417 e |
| **2005 Total** | **2,723,755 e** | **18,349,915 e** | **1,663,567 e** | **22,737,237 e** |

e Estimated r Revised p Preliminary

# Table 3

## LOUISIANA STATE CRUDE OIL and CONDENSATE PRODUCTION

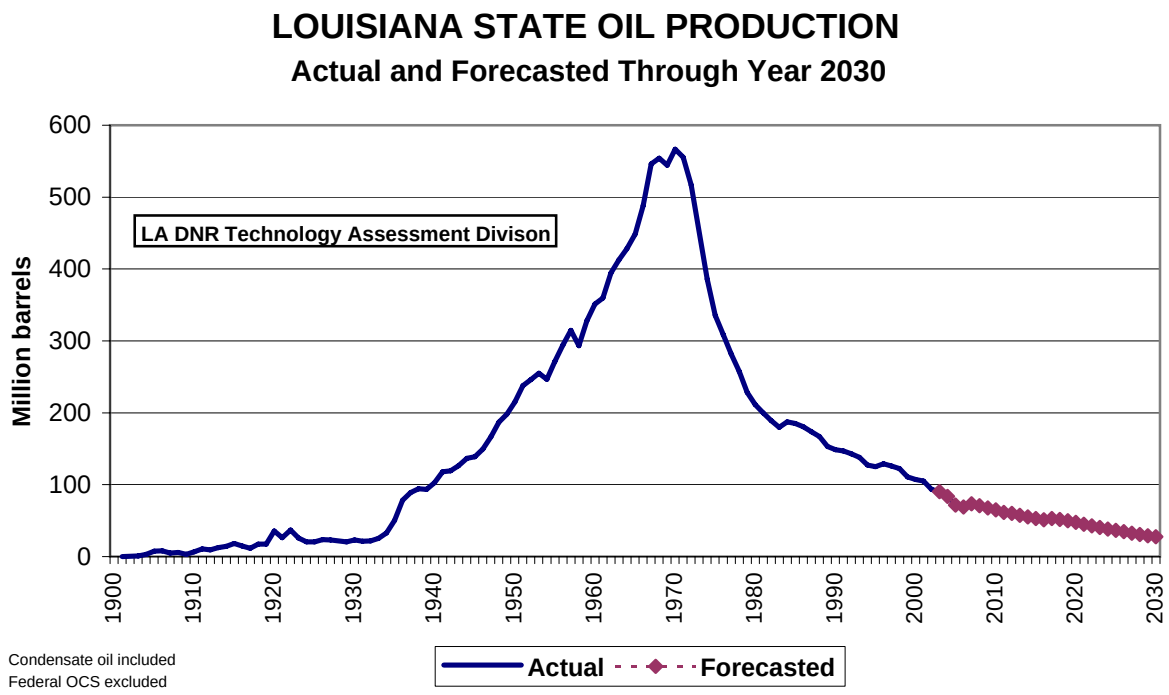
**Excluding OCS**
**(Barrels)**

| DATE | NORTH | SOUTH | OFFSHORE | TOTAL |
|---|---|---|---|---|
| 1984 | 32,730,382 | 127,476,082 | 27,036,480 | 187,242,944 |
| 1985 | 32,104,784 | 126,883,275 | 26,013,271 | 185,001,330 |
| 1986 | 29,551,497 | 124,563,098 | 26,796,139 | 180,910,734 |
| 1987 | 27,548,782 | 121,071,330 | 25,184,078 | 173,804,190 |
| 1988 | 26,746,646 | 115,710,745 | 24,539,518 | 166,996,908 |
| 1989 | 25,229,350 | 105,119,808 | 22,747,097 | 153,096,255 |
| 1990 | 26,022,976 | 99,649,083 | 23,042,907 | 148,714,966 |
| 1991 | 26,702,911 | 95,794,803 | 24,183,667 | 146,681,381 |
| 1992 | 25,702,774 | 93,681,430 | 23,421,660 | 142,805,864 |
| 1993 | 23,736,207 | 90,934,698 | 23,222,361 | 137,893,266 |
| 1994 | 20,963,310 | 83,505,726 | 22,660,992 | 127,130,028 |
| 1995 | 20,571,849 | 82,339,060 | 22,318,475 | 125,229,384 |
| 1996 | 22,063,110 | 85,465,942 | 21,430,471 | 128,959,522 |
| 1997 | 21,497,315 | 84,706,090 | 19,951,782 | 126,155,187 |
| 1998 | 19,570,475 | 85,190,830 | 17,520,419 | 122,281,725 |
| 1999 | 16,459,365 | 80,068,828 | 14,331,807 | 110,860,000 |
| 2000 | 15,411,033 | 78,303,428 | 13,471,159 | 107,185,619 |
| 2001 | 14,557,876 | 77,687,065 | 12,661,245 | 104,906,185 |
| 2002 | 12,693,145 | 70,447,360 | 10,556,856 | 93,697,361 |
| 2003 | 12,262,183 r | 67,568,162 r | 10,609,764 r | 90,440,109 r |
| | | | | |
| January | 966,409 r | 5,448,113 r | 828,144 r | 7,242,666 r |
| February | 909,140 r | 5,148,909 r | 778,012 r | 6,836,061 r |
| March | 990,771 r | 5,613,758 r | 848,234 r | 7,452,763 r |
| April | 929,747 r | 5,366,331 r | 786,080 r | 7,082,158 r |
| May | 979,008 r | 5,483,184 r | 838,193 r | 7,300,385 r |
| June | 926,577 r | 5,194,729 r | 793,598 r | 6,914,904 r |
| July | 964,915 r | 5,391,720 r | 828,035 r | 7,184,670 r |
| August | 963,540 r | 5,432,176 r | 827,793 r | 7,223,509 r |
| September | 817,295 r | 4,551,157 r | 749,108 r | 6,117,560 r |
| October | 901,705 r | 4,947,140 r | 835,235 r | 6,684,080 r |
| November | 874,286 r | 5,055,888 r | 818,955 r | 6,749,129 r |
| December | 881,299 r | 5,190,824 r | 820,636 r | 6,892,759 r |
| **2004 Total** | **11,104,693 r** | **62,823,930 r** | **9,752,021 r** | **83,680,644 r** |
| | | | | |
| January | 908,274 | 5,291,280 | 837,931 | 7,037,485 |
| February | 844,523 | 4,862,553 | 788,722 | 6,495,798 |
| March | 937,725 | 5,574,300 | 873,632 | 7,385,657 |
| April | 917,039 | 5,470,453 | 854,402 | 7,241,895 |
| May | 942,850 | 5,628,940 | 879,872 | 7,451,662 |
| June | 892,373 | 5,339,816 | 843,942 | 7,076,131 |
| July | 867,241 | 5,203,430 | 820,974 | 6,891,645 |
| August | 823,474 | 4,957,477 | 799,294 | 6,580,245 |
| September | 943,380 e | 2,448,151 e | 367,258 e | 3,758,788 e |
| October | 1,081,356 e | 2,662,526 e | 390,809 e | 4,134,691 e |
| November | 987,704 e | 2,665,871 e | 400,476 e | 4,054,051 e |
| December | 792,120 e | 2,267,714 e | 363,744 e | 3,423,577 e |
| **2005 Total** | **10,938,061 e** | **52,372,510 e** | **8,221,055 e** | **71,531,625 e** |

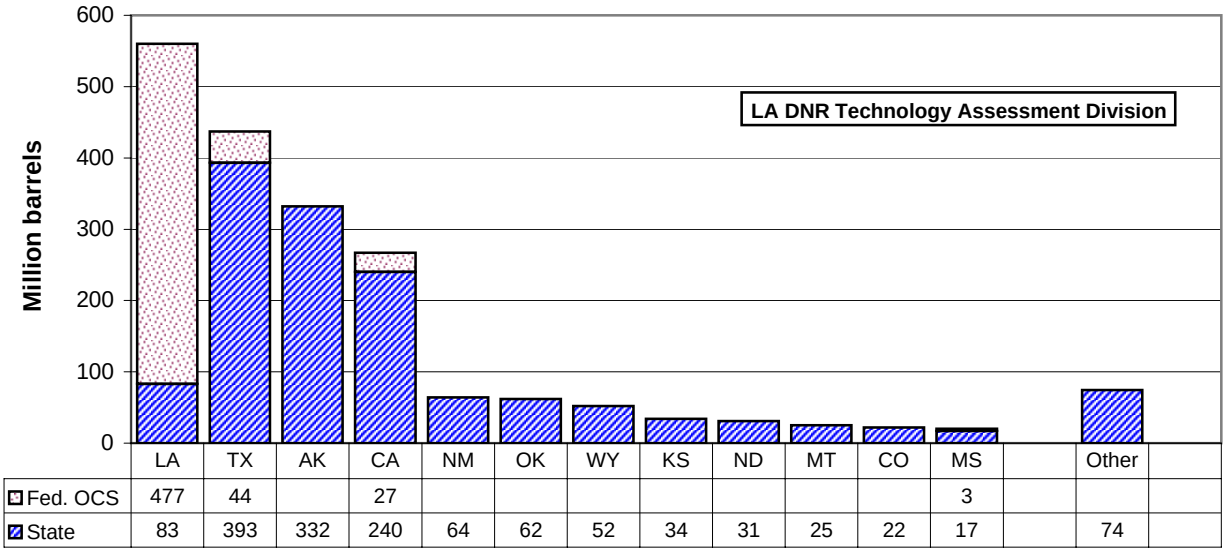
e Estimated r Revised p Preliminary

**LA DNR Technology Assessment Division**

## Figure 1




## Figure 2




| | LA | TX | AK | CA | NM | OK | WY | KS | ND | MT | CO | MS | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fed. OCS | 477 | 44 | | 27 | | | | | | | | 3 | | | |
| State | 83 | 393 | 332 | 240 | 64 | 62 | 52 | 34 | 31 | 25 | 22 | 17 | | 74 | |

# Table 4

## LOUISIANA TOTAL CRUDE OIL and CONDENSATE PRODUCTION

**(Barrels)**

| DATE | ONSHORE | OFFSHORE | | TOTAL |
|---|---|---|---|---|
| | | State | Federal OCS | |
| 1984 | 160,206,464 | 27,036,480 | 318,024,622 | 505,267,566 |
| 1985 | 158,988,059 | 26,013,271 | 338,901,863 | 523,903,193 |
| 1986 | 154,114,595 | 26,796,139 | 340,152,276 | 521,063,010 |
| 1987 | 148,620,112 | 25,184,078 | 307,950,881 | 481,755,071 |
| 1988 | 142,457,390 | 24,539,518 | 261,936,530 | 428,933,438 |
| 1989 | 130,349,158 | 22,747,097 | 246,207,653 | 399,303,908 |
| 1990 | 125,672,059 | 23,042,907 | 264,670,535 | 413,385,501 |
| 1991 | 122,497,714 | 24,183,667 | 262,647,733 | 409,329,114 |
| 1992 | 119,384,204 | 23,421,660 | 288,918,208 | 431,724,072 |
| 1993 | 114,670,905 | 23,222,361 | 293,443,881 | 431,337,147 |
| 1994 | 104,469,036 | 22,660,992 | 293,077,191 | 420,207,219 |
| 1995 | 102,910,909 | 22,318,475 | 320,255,087 | 445,484,471 |
| 1996 | 107,529,051 | 21,430,471 | 349,101,048 | 478,060,570 |
| 1997 | 106,203,405 | 19,951,782 | 399,536,004 | 525,691,191 |
| 1998 | 104,761,306 | 17,520,419 | 425,865,901 | 548,147,626 |
| 1999 | 96,528,193 | 14,331,807 | 451,391,454 | 562,251,454 |
| 2000 | 93,686,760 r | 13,468,780 r | 477,645,662 r | 584,801,202 r |
| 2001 | 92,177,849 r | 12,694,573 r | 502,115,031 r | 606,987,453 r |
| 2002 | 83,088,264 r | 10,583,773 r | 508,630,349 r | 602,302,386 r |
| 2003 | 79,830,345 r | 10,609,764 r | 505,203,116 r | 595,643,225 r |
| January | 6,414,522 r | 828,144 r | 42,353,026 r | 49,595,692 r |
| February | 6,058,049 r | 778,012 r | 40,385,281 r | 47,221,342 r |
| March | 6,604,529 r | 848,234 r | 42,364,587 r | 49,817,350 r |
| April | 6,296,078 r | 786,080 r | 40,747,596 r | 47,829,754 r |
| May | 6,462,192 r | 838,193 r | 42,343,234 r | 49,643,619 r |
| June | 6,121,306 r | 793,598 r | 38,454,651 r | 45,369,555 r |
| July | 6,356,635 r | 828,035 r | 45,874,244 r | 53,058,914 r |
| August | 6,395,716 r | 827,793 r | 43,769,148 r | 50,992,657 r |
| September | 5,368,452 r | 749,108 r | 30,809,920 r | 36,927,480 r |
| October | 5,848,845 r | 835,235 r | 31,836,480 r | 38,520,560 r |
| November | 5,930,174 r | 818,955 r | 37,662,360 r | 44,411,489 r |
| December | 6,072,123 r | 820,636 r | 40,582,061 r | 47,474,820 r |
| **2004 Total** | **73,928,623 r** | **9,752,021 r** | **477,182,586 r** | **560,863,230 r** |
| January | 6,199,554 | 837,931 | 40,958,824 | 47,996,309 |
| February | 5,707,076 | 788,722 | 36,760,094 | 43,255,892 |
| March | 6,512,025 | 873,632 | 42,900,762 | 50,286,419 |
| April | 6,387,493 | 854,402 | 41,703,364 | 48,945,259 |
| May | 6,571,790 | 879,872 | 44,515,188 | 51,966,850 |
| June | 6,232,189 | 843,942 | 40,159,444 | 47,235,575 |
| July | 6,070,671 | 820,974 | 37,087,228 | 43,978,873 |
| August | 5,780,951 | 799,294 | 29,556,148 | 36,136,393 |
| September | 3,391,530 e | 367,258 e | 8,194,550 e | 11,953,338 e |
| October | 3,743,882 e | 390,809 e | 12,288,583 e | 16,423,274 e |
| November | 3,653,575 e | 400,476 e | 169,596 e | 4,223,647 e |
| December | 3,059,834 e | 363,744 e | N/A e | 3,423,577 e |
| **2005 Total** | **63,310,570 e** | **8,221,055 e** | **334,293,781 e** | **405,825,406 e** |

e Estimated r Revised p Preliminary

# TABLE 5

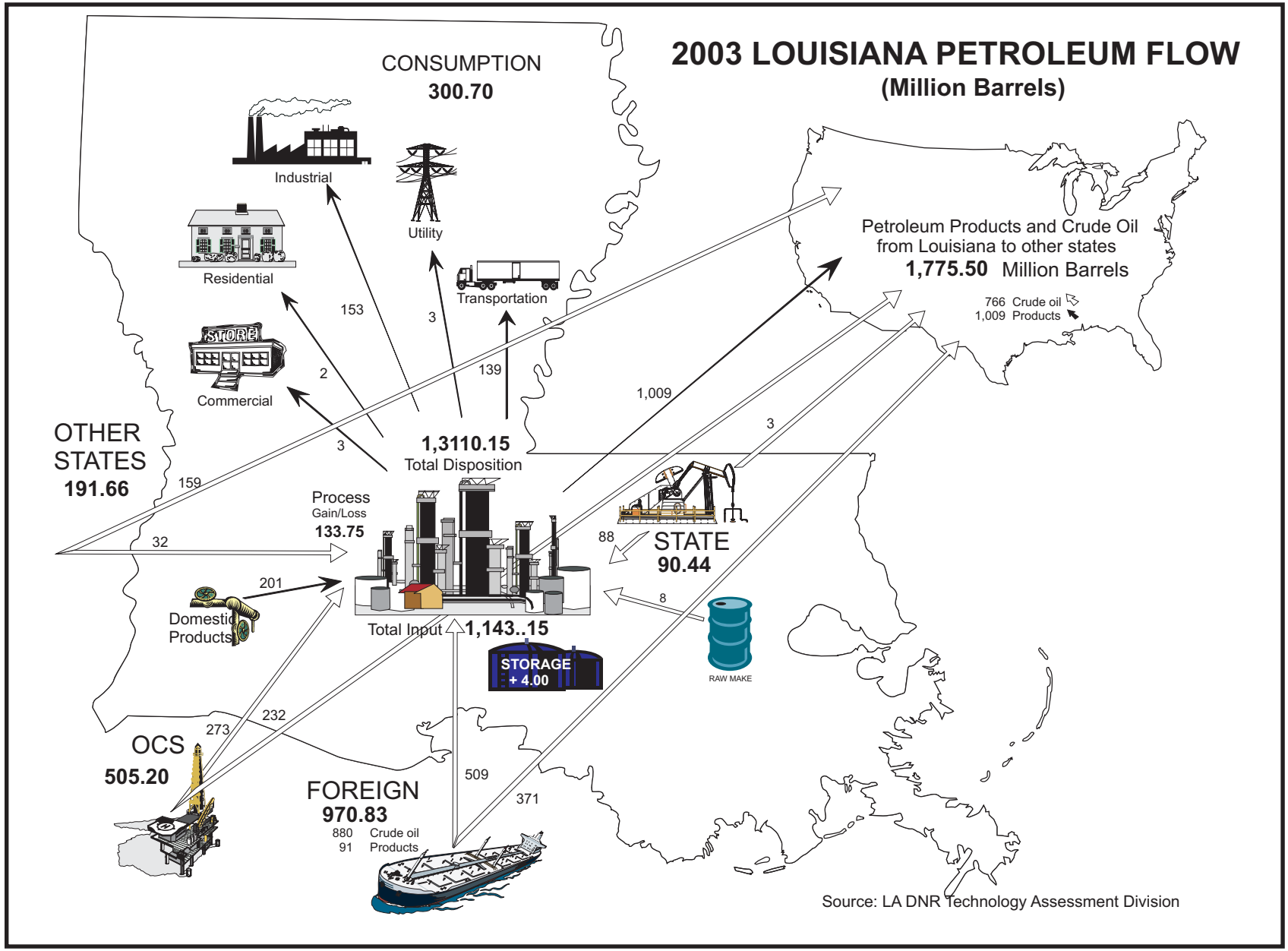
## LOUISIANA STATE OIL PRODUCTION* BY TAX RATES AS PUBLISHED IN SEVERANCE TAX REPORTS[8] (Barrels)

| DATE | FULL RATE | INCAPABLE WELLS RATE | STRIPPER WELLS RATE | TAXED VOLUME |
|---|---|---|---|---|
| 1984 | 171,425,402 | 3,099,053 | 9,830,262 | 184,354,717 |
| 1985 | 173,545,432 | 3,110,740 | 10,513,745 | 187,169,920 |
| 1986 | 180,108,437 | 3,208,451 | 10,059,344 | 193,376,232 |
| 1987 | 155,987,737 | 3,201,095 | 8,809,543 | 168,015,044 |
| 1988 | 142,605,746 | 3,288,994 | 8,242,330 | 154,150,151 |
| 1989 | 139,442,253 | 3,265,429 | 7,429,510 | 150,165,554 |
| 1990 | 131,140,448 | 3,274,774 | 7,154,125 | 141,577,610 |
| 1991 | 136,212,521 | 3,888,128 | 8,112,117 | 148,212,765 |
| 1992 | 133,399,849 | 3,665,298 | 7,718,696 | 144,783,843 |
| 1993 | 128,699,431 | 3,448,387 | 7,240,065 | 139,387,883 |
| 1994 | 118,109,958 | 3,691,802 | 6,347,047 | 128,148,807 |
| 1995 | 108,373,913 | 4,239,717 | 6,230,454 e | 118,844,084 e |
| 1996 | 103,524,192 | 3,786,147 | 6,240,956 e | 113,551,295 e |
| 1997 | 101,772,533 | 3,466,389 | 6,101,247 e | 111,340,169 e |
| 1998 | 89,083,365 | 2,878,225 | 5,892,007 e | 97,853,597 e |
| 1999 | 85,207,438 | 2,786,515 | 5,690,984 e | 93,684,937 e |
| 2000 | 88,411,207 | 2,783,268 | 5,322,515 e | 96,516,990 e |
| 2001 | 83,994,058 | 2,576,683 | 5,175,142 e | 91,745,883 e |
| 2002 | 79,038,703 | 2,571,901 | 4,681,607 e | 86,292,211 e |
| 2003 | 75,070,785 | 2,565,017 | 4,912,890 e | 82,548,691 e |
| | | | | |
| January | 991,021 | 30,843 | 404,796 | 1,426,660 |
| February | 8,981,653 | 268,069 | 397,738 | 9,647,459 |
| March | 9,302,534 | 357,565 | 396,334 | 10,056,433 |
| April | 5,462,679 | 157,485 | 393,177 | 6,013,341 |
| May | 5,832,447 | 259,581 | 411,016 | 6,503,043 |
| June | 5,678,413 | 272,992 | 412,910 | 6,364,315 |
| July | 9,470,363 | 295,326 | 416,805 | 10,182,495 |
| August | 5,191,301 | 238,283 | 407,793 | 5,837,376 |
| September | 4,549,866 | 152,422 | 380,434 | 5,082,723 |
| October | 7,061,559 | 230,627 | 441,041 | 7,733,227 |
| November | 6,985,772 | 389,554 | 457,629 | 7,832,955 |
| December | 3,626,214 | 200,105 | 319,008 | 4,145,327 |
| **2004 Total** | **73,133,821 r** | **2,852,851 r** | **4,838,681 r** | **80,825,353 r** |
| | | | | |
| January | 4,776,085 | 181,497 | 335,558 | 5,293,140 |
| February | 7,251,033 | 278,100 | 574,729 | 8,103,862 |
| March | 5,687,032 | 279,917 | 401,176 | 6,368,126 |
| April | 5,913,119 | 84,676 | 391,565 | 6,389,360 |
| May | 7,936,012 | 519,651 | 481,075 | 8,936,738 |
| June | 5,186,757 | 166,804 | 424,605 | 5,778,167 |
| July | 4,918,487 | 211,194 | 406,675 | 5,536,356 |
| August | 5,666,571 | 383,275 | 385,716 | 6,435,562 |
| September | 5,391,573 | 205,243 | 386,699 | 5,983,516 |
| October | 3,668,196 | 112,462 | 238,295 | 4,018,953 |
| November | N/A | N/A | N/A | N/A |
| December | N/A | N/A | N/A | N/A |
| **2005 Total** | **56,394,867** | **2,422,821** | **4,026,092** | **62,843,779** |

e Estimated r Revised p Preliminary

* Due to reporting time lag and well exemptions the above figures are different from actual production. See footnote in Appendix B.

## Figure 3


2003 LOUISIANA PETROLEUM FLOW
(Million Barrels)
CONSUMPTION
300.70
Industrial
Utility
Residential
Transportation
Commercial
153
3
2
139
3
1,009
3
1,3110.15
Total Disposition
OTHER STATES
191.66
159
32
Process Gain/Loss
133.75
88
STATE
90.44
201
Domestic Products
8
Total Input
1,143..15
STORAGE
+ 4.00
RAW MAKE
Petroleum Products and Crude Oil from Louisiana to other states
1,775.50 Million Barrels
766 Crude oil
1,009 Products
OCS
505.20
273
232
509
371
FOREIGN
970.83
880 Crude oil
91 Products
Source: LA DNR Technology Assessment Division

# Table 6

## UNITED STATES OCS CRUDE OIL AND CONDENSATE PRODUCTION[12]

**(Barrels)**

| YEAR | LOUISIANA | TEXAS | CALIFORNIA | TOTAL |
|---|---|---|---|---|
| 1958 | 24,769,037 | 0 | 0 | 24,769,037 |
| 1959 | 35,697,264 | 257 | 0 | 35,697,521 |
| 1960 | 49,665,891 | 98 | 0 | 49,665,989 |
| 1961 | 64,330,078 | 0 | 0 | 64,330,078 |
| 1962 | 89,733,099 | 3,483 | 0 | 89,736,582 |
| 1963 | 104,526,436 | 52,804 | 0 | 104,579,240 |
| 1964 | 122,495,173 | 4,953 | 0 | 122,500,126 |
| 1965 | 144,964,868 | 3,747 | 0 | 144,968,615 |
| 1966 | 187,831,472 | 882,598 | 0 | 188,714,070 |
| 1967 | 218,995,828 | 2,865,786 | 0 | 221,861,614 |
| 1968 | 263,825,359 | 3,110,642 | 2,059,889 | 268,995,890 |
| 1969 | 300,159,292 | 2,759,851 | 9,940,844 | 312,859,987 |
| 1970 | 333,411,492 | 2,247,048 | 24,987,628 | 360,646,168 |
| 1971 | 385,760,351 | 1,685,047 | 31,103,548 | 418,548,946 |
| 1972 | 387,590,662 | 1,733,018 | 22,562,213 | 411,885,893 |
| 1973 | 374,196,856 | 1,617,829 | 18,915,314 | 394,729,999 |
| 1974 | 342,435,496 | 1,381,825 | 16,776,744 | 360,594,065 |
| 1975 | 313,592,559 | 1,340,136 | 15,304,757 | 330,237,452 |
| 1976 | 301,887,002 | 1,054,554 | 13,978,553 | 316,920,109 |
| 1977 | 290,771,605 | 909,037 | 12,267,598 | 303,948,240 |
| 1978 | 278,071,535 | 2,107,599 | 12,085,908 | 292,265,042 |
| 1979 | 271,008,916 | 3,595,546 | 10,961,076 | 285,565,538 |
| 1980 | 256,688,082 | 10,502,007 | 10,198,886 | 277,388,975 |
| 1981 | 255,875,717 | 14,284,661 | 19,605,027 | 289,765,405 |
| 1982 | 275,513,489 | 17,263,766 | 28,434,202 | 321,211,457 |
| 1983 | 298,093,559 | 19,710,197 | 30,527,487 | 348,331,243 |
| 1984 | 318,024,622 | 21,960,086 | 30,254,306 | 370,239,014 |
| 1985 | 338,901,863 | 20,640,957 | 29,781,465 | 389,324,285 |
| 1986 | 340,152,276 | 19,835,882 | 29,227,846 | 389,216,004 |
| 1987 | 307,950,881 | 24,634,142 | 33,556,686 | 366,141,709 |
| 1988 | 261,936,530 | 26,115,776 | 32,615,118 | 320,667,424 |
| 1989 | 246,207,653 | 25,887,841 | 33,072,161 | 305,167,655 |
| 1990 | 264,670,535 | 24,970,114 r | 33,312,719 | 324,423,181 r |
| 1991 | 262,647,733 | 24,380,908 r | 29,146,090 | 323,831,064 r |
| 1992 | 288,918,208 | 23,639,788 r | 41,222,801 | 346,053,626 r |
| 1993 | 293,443,881 | 20,376,996 r | 50,078,144 | 358,655,540 r |
| 1994 | 293,077,191 | 26,819,958 r | 57,229,464 | 371,300,873 r |
| 1995 | 320,255,087 | 20,419,104 r | 71,254,440 | 416,293,300 r |
| 1996 | 349,101,048 | 25,841,553 r | 67,804,200 | 436,634,538 r |
| 1997 | 399,536,004 | 28,718,405 r | 58,279,489 | 469,873,968 r |
| 1998 | 425,865,901 | 27,837,631 r | 40,636,231 | 484,861,417 r |
| 1999 | 451,391,454 | 31,758,296 r | 42,071,101 | 537,198,889 r |
| 2000 | 477,645,662 r | 35,044,216 r | 34,373,524 | 557,370,524 r |
| 2001 | 502,115,031 r | 42,991,844 r | 34,763,192 | 592,514,727 r |
| 2002 | 508,630,349 r | 44,966,373 r | 29,783,000 | 596,606,889 r |
| 2003 | 505,203,116 r | 42,685,315 r | 30,001,000 r | 590,477,590 r |
| 2004 | 477,182,586 | 44,335,689 | 27,052,000 | 561,629,979 e |

r Revised p Preliminary

See footnote in Appendix B.

# Table 7

## UNITED STATES CRUDE OIL AND CONDENSATE PRODUCTION AND IMPORTS

**(Thousand barrels)**

| DATE | ALL OCS[12] | DOMESTIC PRODUCTION[7] | IMPORTS OTHER[7] | IMPORTS SPR[7] |
|---|---|---|---|---|
| 1984 | 370,239 | 3,249,714 | 1,181,814 | 72,102 |
| 1985 | 389,324 | 3,274,415 | 1,125,295 | 43,070 |
| 1986 | 389,216 | 3,168,200 | 1,507,450 | 17,520 |
| 1987 | 366,142 | 3,047,385 | 1,679,365 | 26,645 |
| 1988 | 320,667 | 2,979,240 | 1,850,130 | 18,666 |
| 1989 | 305,168 | 2,778,745 | 2,112,255 | 20,440 |
| 1990 | 324,423 | 2,684,575 | 2,141,455 | 9,855 |
| 1991 | 315,693 | 2,707,039 | 2,110,332 | 0 |
| 1992 | 353,726 | 2,618,125 | 2,212,344 | 3,594 |
| 1993 | 362,676 | 2,495,933 | 2,451,415 | 5,367 |
| 1994 | 369,474 | 2,418,981 | 2,560,220 | 4,485 |
| 1995 | 408,875 | 2,383,404 | 2,642,689 | 0 |
| 1996 | 438,004 | 2,368,535 | 2,738,387 | 0 |
| 1997 | 478,775 | 2,339,981 | 2,918,425 | 0 |
| 1998 | 476,655 | 2,293,763 | 3,120,791 | 0 |
| 1999 | 513,318 | 2,162,752 | 3,132,376 | 2,065 |
| 2000 | 557,989 | 2,135,062 | 3,271,257 | 3,006 |
| 2001 | 588,855 | 2,136,179 | 3,334,438 | 3,914 |
| 2002 | 596,605 | 2,123,183 | 3,296,245 | 5,767 |
| 2003 | 590,444 | 2,093,978 | 3,520,729 | 747 |
| | | | | |
| January | 49,574 | 174,964 | 288,981 | 496 |
| February | 47,236 | 161,932 | 268,483 | 2,349 |
| March | 49,564 | 174,287 | 312,266 | 2,449 |
| April | 47,676 | 167,027 | 301,847 | 3,630 |
| May | 49,663 | 173,977 | 320,053 | 2,046 |
| June | 45,358 | 162,096 | 315,152 | 1,470 |
| July | 52,863 | 167,523 | 319,365 | 3,100 |
| August | 50,781 | 163,682 | 323,870 | 3,348 |
| September | 37,361 | 152,737 | 290,062 | 1,800 |
| October | 38,976 | 158,484 | 320,175 | 3,565 |
| November | 44,556 | 161,903 | 303,244 | 2,250 |
| December | 48,005 | 168,888 | 310,560 | 2,263 |
| **2004 Total** | **561,610** | **1,987,500** | **3,674,058** | **28,766** |
| | | | | |
| January | 48,594 | 167,214 | 305,161 | 1,232 |
| February | 43,863 | 153,122 | 284,429 | 3,348 |
| March | 50,787 | 170,427 | 314,461 | 2,610 |
| April | 49,236 | 164,640 | 315,141 | 0 |
| May | 52,488 | 170,328 | 322,583 | 1,920 |
| June | 48,481 | 162,832 | 317,922 | 1,612 |
| July | 46,659 | 162,553 | 320,578 | 0 |
| August | 42,158 | 163,471 | 272,347 | 0 |
| September | 14,750 | 126,410 | 272,347 | 0 |
| October | 21,685 | 131,693 | 290,777 | 0 |
| November | 27,132 | 142,084 | 307,961 | 0 |
| December | N/A | N/A | N/A | N/A |
| **2005 Total** | **445,834** | **1,714,774** | **3,323,707** | **10,722** |

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# Table 8

## LOUISIANA STATE ROYALTY OIL, GAS AND PLANT PRODUCTS
## CALCULATED VOLUMES, Excluding OCS

| DATE | OIL (Barrels) | GAS (MCF) | PLANT LIQUIDS (Barrels) |
|---|---|---|---|
| 1984 | 8,786,732 | 86,315,477 | 944,965 |
| 1985 | 8,404,223 | 76,612,605 | 845,349 |
| 1986 | 8,859,310 | 81,463,285 | 1,751,664 |
| 1987 | 8,040,773 | 78,166,315 | 511,790 |
| 1988 | 7,544,770 | 69,991,244 | 456,976 |
| 1989 | 7,184,774 | 69,936,929 | 461,237 |
| 1990 | 6,781,765 | 66,417,089 | 348,776 |
| 1991 | 6,923,565 | 61,809,109 | 1,063,909 |
| 1992 | 6,837,552 | 57,911,258 | 1,689,942 |
| 1993 | 6,721,350 | 67,052,274 | 698,857 |
| 1994 | 6,288,843 | 54,798,617 | 600,660 |
| 1995 | 6,301,254 | 57,032,170 | 938,660 |
| 1996 | 6,489,394 | 60,326,587 | 477,640 |
| 1997 | 6,534,913 | 60,778,002 | 1,440,435 |
| 1998 | 6,604,124 | 56,691,269 | 331,767 |
| 1999 | 6,030,138 | 51,051,870 | 204,124 |
| 2000 | 5,757,909 | 53,780,835 | 355,112 |
| 2001 | 6,149,144 | 62,021,883 | 983,641 |
| 2002 | 4,693,387 | 52,820,219 | 800,697 |
| 2003 | 4,910,469 | 53,135,969 | 1,459,006 |
| | | | |
| January | 439,364 r | 4,082,708 r | 202,809 r |
| February | 352,439 r | 3,726,005 r | 209,923 r |
| March | 388,093 r | 3,704,130 r | 117,628 r |
| April | 371,064 r | 4,010,948 r | 186,781 r |
| May | 376,728 r | 3,910,291 r | 196,053 r |
| June | 363,857 r | 3,966,234 r | 199,367 r |
| July | 373,092 r | 4,101,919 r | 163,810 r |
| August | 374,719 r | 4,036,535 r | 189,301 r |
| September | 257,323 r | 3,253,089 r | 164,729 r |
| October | 294,570 r | 3,546,973 r | 182,908 r |
| November | 305,964 r | 3,540,926 r | 198,249 r |
| December | 325,234 r | 3,323,320 r | 153,232 r |
| **2004 Total** | **4,222,448** r | **45,203,078** r | **2,164,790** r |
| | | | |
| January | 351,511 | 3,597,650 | 73,779 |
| February | 322,428 | 3,105,108 | 127,663 |
| March | 327,545 | 3,506,976 | 92,923 |
| April | 402,984 | 3,363,079 | 97,309 |
| May | 374,241 | 3,501,301 | 91,413 |
| June | 354,839 | 3,336,846 | 90,564 |
| July | 316,264 | 3,267,838 | 84,616 |
| August | 305,589 | 2,883,298 | 76,650 |
| September | 77,223 | 1,267,089 | 25,747 |
| October | 95,448 p | 1,055,811 p | 5,732 p |
| November | 125,777 p | N/A | N/A |
| December | N/A | N/A | N/A |
| **2005 Total** | **3,053,848** | **28,884,996** | **766,397** |

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# Table 9
## LOUISIANA STATE NATURAL GAS PRODUCTION
## WET AFTER LEASE SEPARATION
### Excluding OCS and Casinghead Gas
### (Thousand Cubic Feet (MCF) at 15.025 psia and 60 degrees Fahrenheit)

| DATE | NORTH | SOUTH | OFFSHORE | TOTAL |
|---|---|---|---|---|
| 1984 | 326,338,092 | 1,248,036,005 | 284,926,166 | 1,859,300,263 |
| 1985 | 295,244,077 | 1,137,225,154 | 220,415,274 | 1,652,884,505 |
| 1986 | 308,388,203 | 1,106,084,855 | 212,591,069 | 1,627,064,127 |
| 1987 | 303,050,793 | 1,041,232,533 | 199,093,721 | 1,543,377,047 |
| 1988 | 322,955,920 | 1,058,079,256 | 191,498,869 | 1,572,534,045 |
| 1989 | 335,963,137 | 1,035,013,840 | 180,876,988 | 1,551,853,965 |
| 1990 | 354,696,578 | 1,040,239,002 | 160,569,034 | 1,555,504,613 |
| 1991 | 345,612,948 | 1,022,125,055 | 129,387,685 | 1,497,125,688 |
| 1992 | 343,439,890 | 994,039,578 | 123,902,708 | 1,461,382,176 |
| 1993 | 333,395,251 | 970,764,461 | 130,660,784 | 1,434,820,496 |
| 1994 | 334,564,842 | 925,335,735 | 134,106,599 | 1,394,007,176 |
| 1995 | 344,719,040 | 908,236,089 | 140,906,019 | 1,393,861,148 |
| 1996 | 392,345,447 | 933,446,378 | 166,901,010 | 1,492,692,835 |
| 1997 | 405,754,260 | 871,963,879 | 165,420,090 | 1,443,138,229 |
| 1998 | 394,713,751 | 846,071,218 | 158,947,618 | 1,399,732,587 |
| 1999 | 361,118,420 | 814,417,104 | 134,177,750 | 1,309,713,274 |
| 2000 | 357,262,312 r | 837,428,601 r | 135,287,922 r | 1,329,978,835 r |
| 2001 | 353,402,704 r | 852,125,523 r | 134,471,567 r | 1,339,999,794 r |
| 2002 | 320,766,521 r | 793,710,106 r | 120,465,188 r | 1,234,941,815 r |
| 2003 | 327,616,491 r | 810,655,199 r | 123,037,809 r | 1,261,309,499 r |
| | | | | |
| January | 25,064,135 r | 65,394,080 r | 9,634,541 r | 100,092,756 r |
| February | 23,814,526 r | 62,312,003 r | 9,166,613 r | 95,293,143 r |
| March | 25,863,222 r | 67,866,459 r | 9,968,441 r | 103,698,123 r |
| April | 25,366,439 r | 66,753,076 r | 9,789,590 r | 101,909,104 r |
| May | 26,179,996 r | 69,089,675 r | 10,116,087 r | 105,385,758 r |
| June | 25,418,444 r | 67,268,312 r | 9,833,427 r | 102,520,183 r |
| July | 26,327,604 r | 69,878,467 r | 10,198,620 r | 106,404,691 r |
| August | 26,537,119 r | 70,641,738 r | 10,293,303 r | 107,472,160 r |
| September | 23,552,206 r | 67,450,532 r | 9,147,494 r | 100,150,232 r |
| October | 23,820,883 r | 74,245,387 r | 9,264,028 r | 107,330,298 r |
| November | 23,616,788 r | 71,777,427 r | 9,196,898 r | 104,591,113 r |
| December | 23,409,391 r | 71,391,015 r | 9,128,574 r | 103,928,980 r |
| **2004 Total** | **298,970,754 r** | **824,068,170 r** | **115,737,617 r** | **1,238,776,541 r** |
| | | | | |
| January | 30,701,231 | 62,943,488 | 8,813,961 | 102,458,680 |
| February | 28,467,186 | 57,365,601 | 8,061,004 | 93,893,792 |
| March | 32,478,185 | 64,320,147 | 9,252,225 | 106,050,557 |
| April | 32,118,139 | 62,501,167 | 9,036,220 | 103,655,526 |
| May | 33,501,311 | 64,049,307 | 9,376,083 | 106,926,700 |
| June | 32,814,551 | 61,626,104 | 9,179,591 | 103,620,247 |
| July | 34,055,997 | 62,815,444 | 9,462,385 | 106,333,826 |
| August | 32,743,665 | 59,306,389 | 9,052,042 | 101,102,096 |
| September | 42,062,586 | 32,452,373 | 4,849,775 | 79,364,733 |
| October | 46,164,777 | 29,188,300 | 4,397,605 | 79,750,682 |
| November | 33,542,816 e | 24,029,936 e | 3,604,799 e | 61,177,551 e |
| December | 21,817,300 **e** | 41,697,589 **e** | 5,252,320 **e** | 68,767,210 **e** |
| **2005 Total** | **400,467,745 e** | **622,295,845 e** | **90,338,010 e** | **1,113,101,600 e** |

e Estimated r Revised p Preliminary

# Table 10

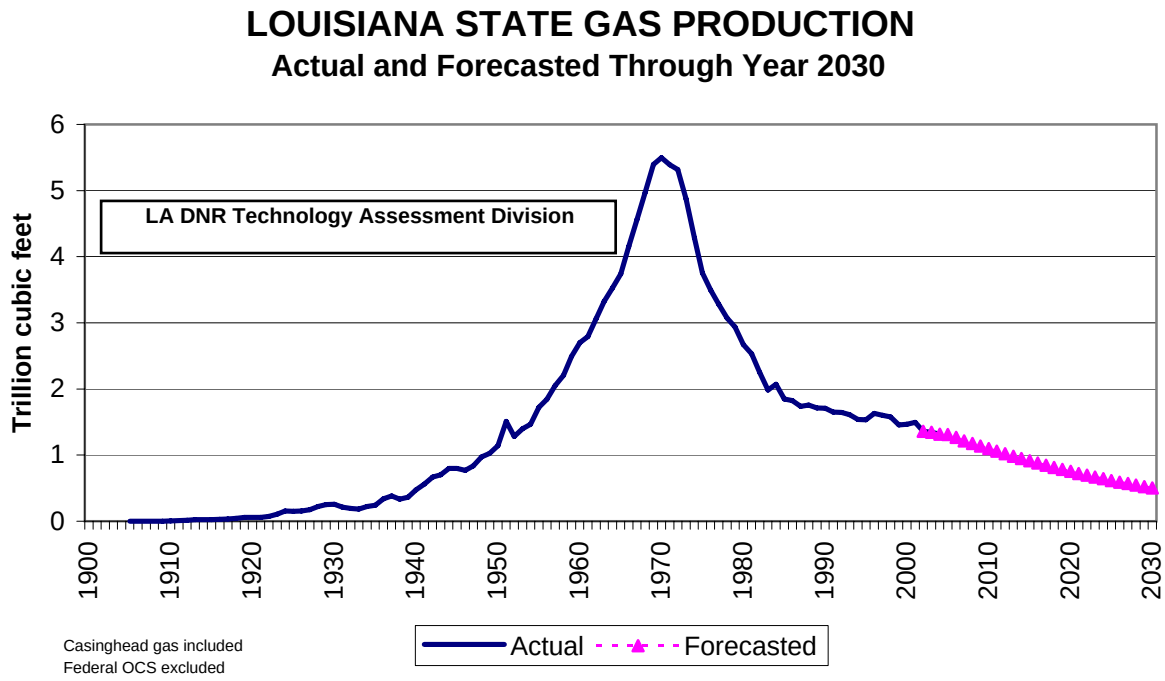
## LOUISIANA STATE CASINGHEAD GAS PRODUCTION, WET AFTER LEASE SEPARATION, Excluding OCS

**(Thousand Cubic Feet (MCF) at 15.025 psia and 60 degrees Fahrenheit)**

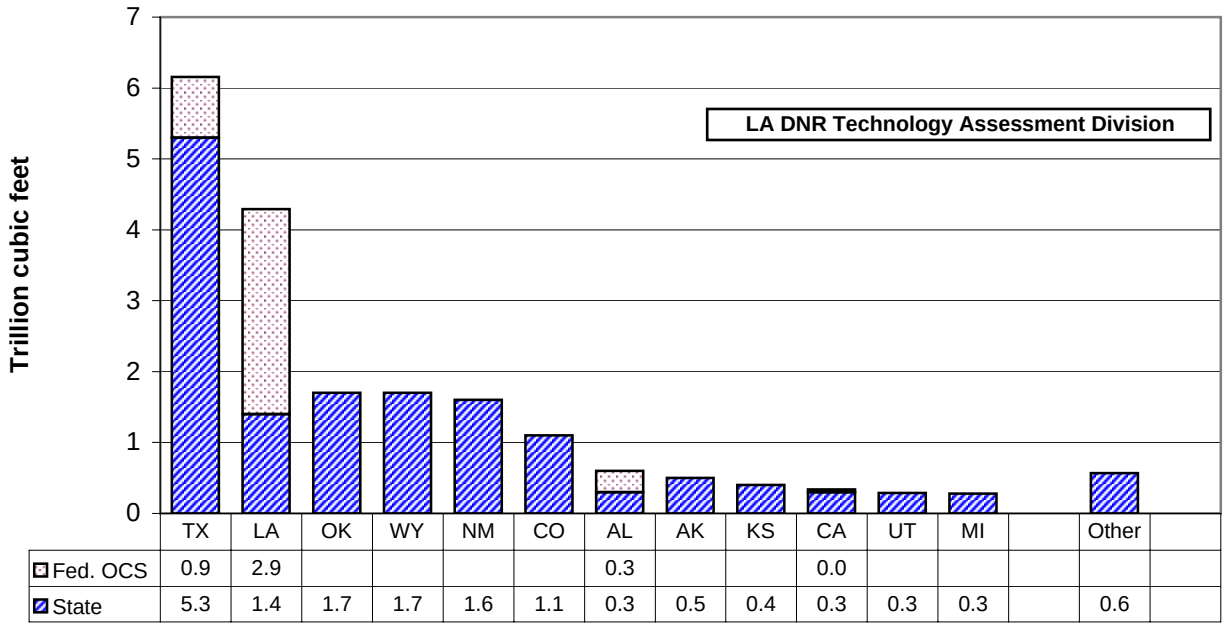
| DATE | NORTH | SOUTH | OFFSHORE | TOTAL |
|---|---|---|---|---|
| 1984 | 55,944,990 | 125,085,805 | 29,071,888 | 210,102,684 |
| 1985 | 55,759,287 | 112,357,808 | 29,648,675 | 197,765,770 |
| 1986 | 55,231,487 | 110,445,487 | 33,513,264 | 199,190,237 |
| 1987 | 53,608,927 | 111,178,438 | 29,030,143 | 193,817,508 |
| 1988 | 51,642,390 | 111,388,728 | 22,754,523 | 185,785,641 |
| 1989 | 43,226,234 | 95,636,544 | 22,432,765 | 161,295,543 |
| 1990 | 35,720,964 | 97,403,093 | 21,463,782 | 154,587,839 |
| 1991 | 36,360,803 | 94,750,220 | 20,506,337 | 151,617,360 |
| 1992 | 28,776,676 | 130,335,922 | 23,086,767 | 182,199,364 |
| 1993 | 20,416,003 | 134,059,073 | 23,177,673 | 177,652,749 |
| 1994 | 19,490,914 | 102,313,166 | 21,100,651 | 142,904,730 |
| 1995 | 18,712,027 | 100,070,988 | 23,542,867 | 142,325,882 |
| 1996 | 24,806,243 | 93,986,744 | 18,713,358 | 137,506,345 |
| 1997 | 36,266,759 | 103,835,554 | 20,423,408 | 160,525,721 |
| 1998 | 42,665,167 | 114,280,211 | 20,701,170 | 177,646,548 |
| 1999 | 33,073,036 | 96,225,193 | 15,421,052 | 144,719,281 |
| 2000 | 30,795,461 r | 89,898,681 r | 14,206,864 r | 134,901,007 r |
| 2001 | 36,179,716 r | 102,787,408 r | 16,604,376 r | 155,571,500 r |
| 2002 | 31,284,153 r | 81,034,470 r | 14,482,576 r | 126,801,199 r |
| 2003 | 31,251,783 r | 74,363,669 r | 11,808,544 r | 117,423,996 r |
| | | | | |
| January | 2,436,617 r | 5,750,183 r | 912,578 r | 9,099,377 r |
| February | 2,366,661 r | 5,587,004 r | 885,416 r | 8,839,081 r |
| March | 2,580,477 r | 6,093,807 r | 964,389 r | 9,638,673 r |
| April | 2,482,393 r | 5,864,104 r | 926,779 r | 9,273,276 r |
| May | 2,602,379 r | 6,149,507 r | 970,615 r | 9,722,501 r |
| June | 2,485,110 r | 5,874,207 r | 926,005 r | 9,285,322 r |
| July | 2,601,964 r | 6,152,436 r | 968,551 r | 9,722,951 r |
| August | 2,665,124 r | 6,303,829 r | 991,054 r | 9,960,007 r |
| September | 2,234,922 r | 5,730,751 r | 963,073 r | 8,928,746 r |
| October | 2,924,266 r | 5,746,986 r | 850,382 r | 9,521,634 r |
| November | 2,851,939 r | 5,606,145 r | 828,110 r | 9,286,194 r |
| December | 2,918,041 r | 5,737,432 r | 904,697 r | 9,560,171 r |
| **2004 Total** | **31,149,894 r** | **70,596,391 r** | **11,091,648 r** | **112,837,933 r** |
| | | | | |
| January | 2,112,663 | 6,313,091 | 812,819 | 9,238,573 |
| February | 1,897,474 | 5,916,703 | 749,067 | 8,563,244 |
| March | 2,045,712 | 6,177,022 | 807,564 | 9,030,298 |
| April | 1,975,921 | 6,045,234 | 775,941 | 8,797,096 |
| May | 2,047,814 | 6,290,073 | 805,566 | 9,143,453 |
| June | 1,919,566 | 5,920,262 | 756,481 | 8,596,310 |
| July | 1,902,045 | 5,892,663 | 750,872 | 8,545,579 |
| August | 1,805,244 | 5,615,373 | 713,915 | 8,134,532 |
| September | 1,978,857 | 2,933,156 | 372,055 | 5,284,068 |
| October | 2,474,017 e | 3,520,155 e | 445,481 e | 6,439,653 e |
| November | 2,435,112 e | 3,874,698 e | 489,209 e | 6,799,019 e |
| December | 2,526,280 e | 2,256,930 e | 340,767 e | 5,123,977 e |
| **2005 Total** | **25,120,705 e** | **60,755,360 e** | **7,819,737 e** | **93,695,802 e** |

e Estimated r Revised p Preliminary

## Figure 4




## Figure 5




| | TX | LA | OK | WY | NM | CO | AL | AK | KS | CA | UT | MI | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fed. OCS | 0.9 | 2.9 | | | | | 0.3 | | | 0.0 | | | | | |
| State | 5.3 | 1.4 | 1.7 | 1.7 | 1.6 | 1.1 | 0.3 | 0.5 | 0.4 | 0.3 | 0.3 | 0.3 | | 0.6 | |

# Table 11

## LOUISIANA STATE GAS PRODUCTION, WET AFTER LEASE SEPARATION

**Natural Gas and Casinghead Gas, Excluding OCS**

**(Thousand Cubic Feet (MCF) at 15.025 psia and 60 degrees Fahrenheit)***

| DATE | NORTH | SOUTH | OFFSHORE | TOTAL |
|---|---|---|---|---|
| 1984 | 382,283,082 | 1,373,121,810 | 313,998,055 | 2,069,402,947 |
| 1985 | 351,003,364 | 1,249,582,962 | 250,063,949 | 1,850,650,275 |
| 1986 | 363,619,690 | 1,216,530,342 | 246,104,333 | 1,826,254,364 |
| 1987 | 356,659,720 | 1,152,410,971 | 228,123,864 | 1,737,194,555 |
| 1988 | 374,598,311 | 1,169,467,984 | 214,253,392 | 1,758,319,686 |
| 1989 | 379,189,370 | 1,130,650,385 | 203,309,753 | 1,713,149,508 |
| 1990 | 390,417,542 | 1,137,642,094 | 182,032,816 | 1,710,092,452 |
| 1991 | 381,973,751 | 1,116,875,275 | 149,894,021 | 1,648,743,048 |
| 1992 | 372,216,566 | 1,124,375,499 | 146,989,475 | 1,643,581,540 |
| 1993 | 353,811,255 | 1,104,823,534 | 153,838,456 | 1,612,473,245 |
| 1994 | 354,055,756 | 1,027,648,900 | 155,207,250 | 1,536,911,906 |
| 1995 | 363,431,067 | 1,008,307,077 | 164,448,886 | 1,536,187,030 |
| 1996 | 417,151,690 | 1,027,433,122 | 185,614,368 | 1,630,199,180 |
| 1997 | 442,021,019 | 975,799,433 | 185,843,498 | 1,603,663,950 |
| 1998 | 437,378,918 | 960,351,429 | 179,648,787 | 1,577,379,135 |
| 1999 | 394,191,456 | 910,642,297 | 149,598,802 | 1,454,432,555 |
| 2000 | 388,057,774 r | 927,327,282 r | 149,707,135 r | 1,464,879,842 r |
| 2001 | 389,582,420 r | 954,912,931 r | 150,157,925 r | 1,495,571,294 r |
| 2002 | 352,050,674 r | 874,744,577 r | 134,171,613 r | 1,361,743,014 r |
| 2003 | 343,470,789 r | 871,761,000 r | 130,008,901 r | 1,345,637,103 r |
| | | | | |
| January | 27,500,752 r | 71,144,262 r | 10,052,030 r | 109,192,133 r |
| February | 26,181,187 r | 67,899,007 r | 10,932,830 r | 104,132,224 r |
| March | 28,443,700 r | 73,960,266 r | 10,716,368 r | 113,336,796 r |
| April | 27,848,832 r | 72,617,180 r | 11,086,702 r | 111,182,380 r |
| May | 28,782,375 r | 75,239,182 r | 10,759,432 r | 115,108,259 r |
| June | 27,903,554 r | 73,142,519 r | 11,167,171 r | 111,805,505 r |
| July | 28,929,568 r | 76,030,903 r | 11,284,357 r | 116,127,642 r |
| August | 29,202,243 r | 76,945,567 r | 10,110,567 r | 117,432,167 r |
| September | 25,787,128 r | 73,181,283 r | 10,114,410 r | 109,078,978 r |
| October | 26,745,149 r | 79,992,373 r | 10,025,007 r | 116,851,932 r |
| November | 26,468,728 r | 77,383,572 r | 10,033,271 r | 113,877,307 r |
| December | 26,327,433 r | 77,128,447 r | 9,626,779 r | 113,489,151 r |
| **2004 Total** | **330,120,647 r** | **894,664,562 r** | **125,908,926 r** | **1,351,614,474 r** |
| | | | | |
| January | 32,813,895 | 69,256,579 | 8,810,072 | 111,697,253 |
| February | 30,364,660 | 63,282,304 | 10,059,789 | 102,457,036 |
| March | 34,523,897 | 70,497,169 | 9,812,161 | 115,080,855 |
| April | 34,094,060 | 68,546,401 | 10,181,649 | 112,452,622 |
| May | 35,549,124 | 70,339,380 | 9,936,073 | 116,070,153 |
| June | 34,734,118 | 67,546,367 | 10,213,256 | 112,216,557 |
| July | 35,958,042 | 68,708,106 | 9,765,957 | 114,879,405 |
| August | 34,548,909 | 64,921,762 | 5,221,830 | 109,236,628 |
| September | 44,041,443 | 35,385,529 | 4,843,087 | 84,648,801 |
| October | 48,638,794 e | 32,708,454 e | 4,094,008 e | 86,190,335 e |
| November | 35,977,928 e | 27,904,634 e | 5,593,087 e | 67,976,570 e |
| December | 24,343,580 e | 43,954,519 e | 7,054,272 e | 73,891,187 e |
| **2005 Total** | **425,588,450 e** | **683,051,204 e** | **95,585,241 e** | **1,206,797,402 e** |

e Estimated r Revised p Preliminary

* See Appendix D-1 for corresponding volumes at 14.73 psia and footnote in Appendix B.

# Table 12

## LOUISIANA TOTAL GAS PRODUCTION, WET AFTER LEASE SEPARATION

**Natural Gas and Casinghead Gas**

**(Thousand Cubic Feet (MCF) at 15.025 psia and 60 degrees Fahrenheit)***

| DATE | ONSHORE | OFFSHORE | | TOTAL |
|---|---|---|---|---|
| | | State | Federal OCS[12] | |
| 1984 | 1,755,404,892 | 313,998,055 | 3,508,475,799 | 5,577,878,746 |
| 1985 | 1,600,586,326 | 250,063,949 | 3,055,687,773 | 4,906,338,048 |
| 1986 | 1,580,150,031 | 246,104,333 | 2,870,347,386 | 4,696,601,750 |
| 1987 | 1,509,070,691 | 228,123,864 | 3,117,669,167 | 4,854,863,722 |
| 1988 | 1,544,066,294 | 214,253,392 | 3,036,077,646 | 4,794,397,332 |
| 1989 | 1,509,839,755 | 203,309,753 | 2,947,545,132 | 4,660,694,640 |
| 1990 | 1,528,059,636 | 182,032,816 | 3,633,554,307 | 5,343,646,759 |
| 1991 | 1,498,849,027 | 149,894,021 | 3,225,373,562 | 4,874,116,610 |
| 1992 | 1,496,592,065 | 146,989,475 | 3,272,561,370 | 4,916,142,910 |
| 1993 | 1,458,634,789 | 153,838,456 | 3,320,312,261 | 4,932,785,506 |
| 1994 | 1,381,704,656 | 155,207,250 | 3,423,837,064 | 4,960,748,970 |
| 1995 | 1,371,738,144 | 164,448,886 | 3,564,677,663 | 5,100,864,693 |
| 1996 | 1,444,584,812 | 185,614,368 | 3,709,198,609 r | 5,410,100,330 |
| 1997 | 1,417,820,452 | 185,843,498 | 3,825,354,038 r | 5,400,353,243 |
| 1998 | 1,397,730,348 | 179,648,787 | 3,814,583,541 r | 5,347,968,497 |
| 1999 | 1,304,833,753 | 149,598,802 | 3,836,619,562 r | 5,215,724,146 |
| 2000 | 1,315,385,056 | 149,494,786 | 3,761,812,062 r | 5,153,798,359 r |
| 2001 | 1,344,495,351 r | 151,075,943 r | 3,818,657,416 r | 5,314,228,710 r |
| 2002 | 1,226,795,250 r | 134,947,764 r | 3,457,864,868 r | 4,819,607,882 r |
| 2003 | 1,215,231,789 r | 130,405,314 r | 3,276,387,510 r | 4,622,024,613 r |
| January | 98,645,014 r | 10,547,119 r | 257,728,908 r | 366,921,041 r |
| February | 94,080,194 r | 10,052,030 r | 243,735,767 r | 347,867,991 r |
| March | 102,403,966 r | 10,932,830 r | 264,323,880 r | 377,660,676 r |
| April | 100,466,012 r | 10,716,368 r | 256,113,036 r | 367,295,416 r |
| May | 104,021,557 r | 11,086,702 r | 260,546,109 r | 375,654,368 r |
| June | 101,046,073 r | 10,759,432 r | 241,904,654 r | 353,710,159 r |
| July | 104,960,471 r | 11,167,171 r | 256,111,208 r | 372,238,850 r |
| August | 106,147,810 r | 11,284,357 r | 248,596,308 r | 366,028,475 r |
| September | 98,968,411 r | 10,110,567 r | 182,090,568 r | 291,169,546 r |
| October | 106,737,522 r | 10,114,410 r | 201,880,871 r | 318,732,803 r |
| November | 103,852,300 r | 10,025,007 r | 216,127,931 r | 330,005,238 r |
| December | 103,455,880 r | 10,033,271 r | 211,393,248 r | 324,882,399 r |
| **2004 Total** | **1,224,785,209 r** | **126,829,265 r** | **2,840,552,489 r** | **4,192,166,963 r** |
| January | 102,070,474 | 9,626,779 | 219,810,469 | 331,507,722 |
| February | 93,646,964 | 8,810,072 | 204,505,684 | 306,962,720 |
| March | 105,021,066 | 10,059,789 | 230,519,694 | 345,600,549 |
| April | 102,640,461 | 9,812,161 | 223,110,932 | 335,563,554 |
| May | 105,888,504 | 10,181,649 | 235,882,992 | 351,953,145 |
| June | 102,280,484 | 9,936,073 | 221,819,037 | 334,035,594 |
| July | 104,666,149 | 10,213,256 | 203,282,096 | 318,161,501 |
| August | 99,470,671 | 9,765,957 | 185,743,125 | 294,979,753 |
| September | 79,426,971 | 5,221,830 | 69,929,884 | 154,578,685 |
| October | 81,347,248 e | 4,843,087 e | 81,327,435 e | 167,517,770 e |
| November | 63,882,562 e | 4,094,008 e | 105,137,541 e | 173,114,111 e |
| December | 68,298,099 e | 5,593,087 e | 6,848,827 e | 80,740,014 e |
| **2005 Total** | **1,108,639,654 e** | **98,157,748 e** | **1,987,917,716 e** | **3,194,715,118 e** |

e Estimated r Revised p Preliminary

* See Appendix D-2 for corresponding volumes at 14.73 psia and footnote in Appendix B.

# Table 13

## LOUISIANA MARKETED AND DRY GAS PRODUCTION

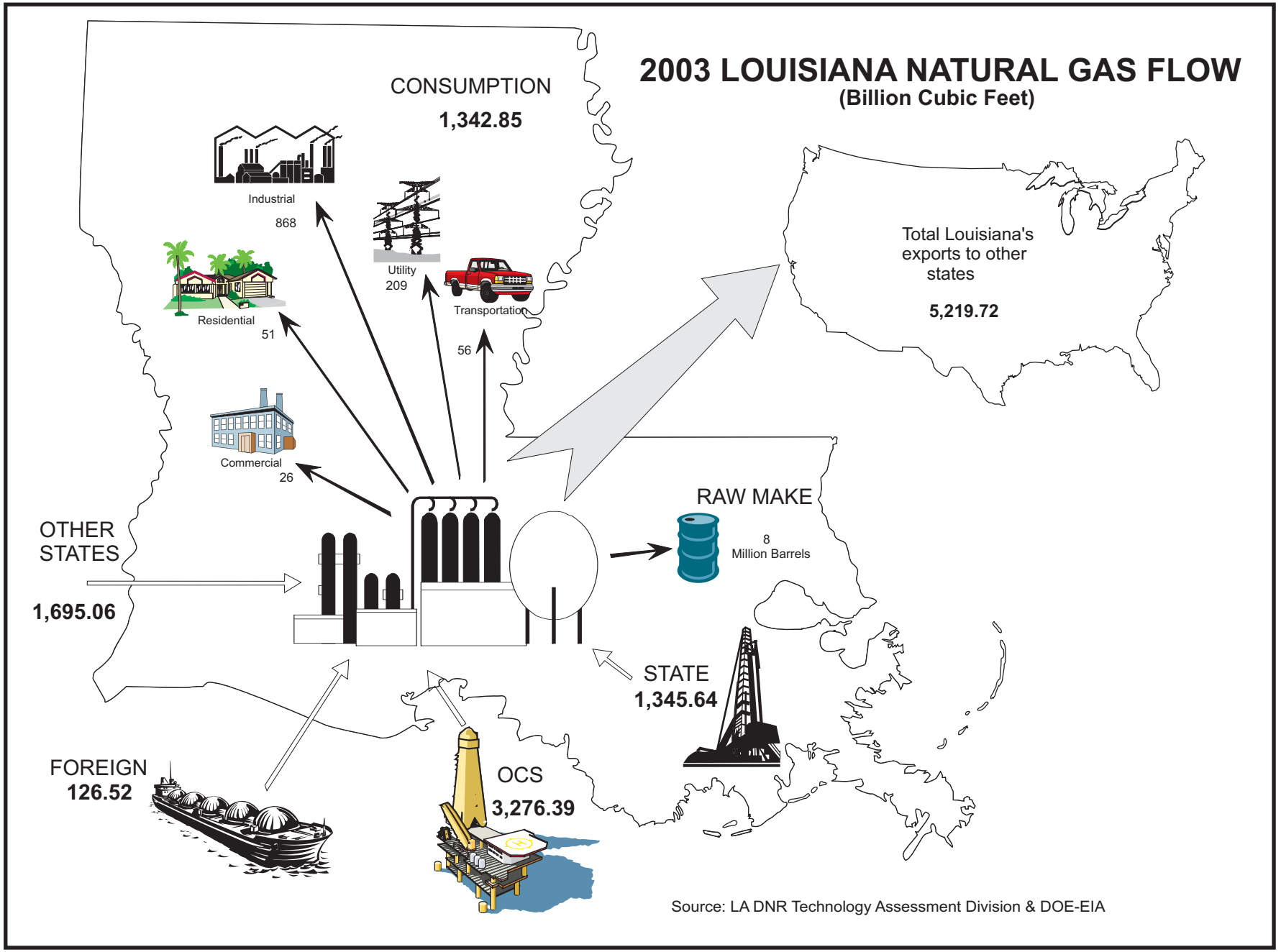
**(Billion Cubic Feet (BCF) at 15.025 psia and 60 degrees Fahrenheit)***

| | MARKETED | | | EXTRACTION | |
|---|---|---|---|---|---|
| DATE | State | OCS | Total[3] | LOSS[3] | DRY[3] |
| 1963 | 3,252 [e] | 548 [12] | 3,800 [e] | N/A | N/A |
| 1964 | 3,451 [e] | 603 [12] | 4,054 [e] | N/A | N/A |
| 1965 | 3,658 [e] | 627 [12] | 4,285 [e] | N/A | N/A |
| 1966 | 4,063 [e] | 937 [12] | 5,000 [e] | N/A | N/A |
| 1967 | 4,549 [e] | 1,055 [12] | 5,605 | 113 | 5,492 |
| 1968 | 4,918 [e] | 1,372 [12] | 6,290 | 138 | 6,153 |
| 1969 | 5,317 [e] | 1,769 [12] | 7,086 | 176 | 6,910 |
| 1970 | 5,429 [e] | 2,206 [12] | 7,635 | 189 | 7,446 |
| 1971 | 5,367 [e] | 2,556 [12] | 7,923 | 191 | 7,732 |
| 1972 | 5,020 [e] | 2,797 [12] | 7,816 | 194 | 7,622 |
| 1973 | 5,115 [e] | 2,966 [12] | 8,081 | 203 | 7,878 |
| 1974 | 4,351 [e] | 3,251 [12] | 7,601 | 191 | 7,411 |
| 1975 | 3,717 [e] | 3,234 [12] | 6,951 | 186 | 6,766 |
| 1976 | 3,472 [e] | 3,397 [12] | 6,869 | 169 | 6,700 |
| 1977 | 3,533 [e] | 3,540 [12] | 7,073 | 163 | 6,910 |
| 1978 | 3,302 [e] | 4,028 [12] | 7,330 | 158 | 7,171 |
| 1979 | 3,087 [e] | 4,036 [12] | 7,124 | 162 | 6,961 |
| 1980 | 2,908 [e] | 3,896 [12] | 6,804 | 139 | 6,664 |
| 1981 | 2,661 [e] | 3,986 [12] | 6,647 | 140 | 6,507 |
| 1982 | 2,359 [e] | 3,692 [12] | 6,050 | 126 | 5,924 |
| 1983 | 2,147 [e] | 3,080 [12] | 5,227 | 122 | 5,106 |
| 1984 | 2,237 [e] | 3,473 [12] | 5,711 | 130 | 5,581 |
| 1985 | 1,890 [e] | 3,025 [12] | 4,915 | 115 | 4,800 |
| 1986 | 1,958 [e] | 2,842 [12] | 4,799 | 113 | 4,686 |
| 1987 | 1,935 [e] | 3,086 [12] | 5,022 | 122 | 4,899 |
| 1988 | 2,073 [e] | 3,006 [12] | 5,079 | 118 | 4,961 |
| 1989 | 2,060 [e] | 2,918 [12] | 4,978 | 119 | 4,859 |
| 1990 | 1,542 [e] | 3,597 [12] | 5,139 | 117 | 5,022 |
| 1991 | 1,742 [e] | 3,193 [12] | 4,936 | 127 | 4,809 |
| 1992 | 1,617 [e] | 3,201 | 4,818 | 130 | 4,688 |
| 1993 | 1,642 [e] | 3,252 | 4,893 | 128 | 4,765 |
| 1994 | 1,658 [e] | 3,410 | 5,068 | 126 | 4,942 |
| 1995 | 1,650 [e] | 3,358 | 5,008 | 143 | 4,865 |
| 1996 | 1,596 [e] | 3,590 | 5,186 | 137 | 5,049 |
| 1997 | 1,446 [e] | 3,580 | 5,026 | 144 | 4,882 |
| 1998 | 1,492 [e] | 3,580 | 5,072 | 139 | 4,933 |
| 1999 | 1,506 [e] | 3,565 | 5,071 | 158 | 4,912 |
| 2000 | 1,426 [e] | 3,592 | 5,018 | 159 | 4,860 |
| 2001 | 1,473 [e] | 3,601 | 5,073 | 147 | 4,926 |
| 2002 | 1,335 [e] | 3,354 | 4,689 | 157 | 4,532 |
| 2003 | 1,324 [e] | 3,298 | 4,622 | 155 | 4,467 |
| 2004 | 1,358 [e] | 3,042 | 4,400 | 151 | 4,249 |

e Estimated r Revised p Preliminary

* See Appendix D-3 for corresponding volumes at 14.73 psia and footnote in Appendix B.

**Figure 6**


2003 LOUISIANA NATURAL GAS FLOW
(Billion Cubic Feet)
CONSUMPTION
1,342.85
Industrial
868
Utility
209
Transportation
56
Residential
51
Commercial
26
Total Louisiana's exports to other states
5,219.72
RAW MAKE
8
Million Barrels
OTHER STATES
1,695.06
STATE
1,345.64
FOREIGN
126.52
OCS
3,276.39
Source: LA DNR Technology Assessment Division & DOE-EIA

# Table 14

## LOUISIANA STATE GAS PRODUCTION BY TAX RATES

### AS PUBLISHED IN SEVERANCE TAX REPORTS[8]

### (MCF at 15.025psia and 60 degrees Fahrenheit)

| DATE | FULL RATE | INCAPABLE GAS WELLS RATE | OTHER RATES | TAXED VOLUME |
|---|---|---|---|---|
| 1984 | 1,830,549,223 | 66,037,859 | 20,750,463 | 1,917,337,545 |
| 1985 | 1,849,689,870 | 61,394,328 | 22,460,870 | 1,933,548,068 |
| 1986 | 1,710,600,175 | 56,471,054 | 22,020,986 | 1,789,092,195 |
| 1987 | 1,748,310,878 | 56,729,077 | 22,829,692 | 1,827,869,647 |
| 1988 | 1,577,841,418 | 56,316,278 | 20,374,445 | 1,654,532,141 |
| 1989 | 1,487,438,834 | 54,709,819 | 22,370,768 | 1,564,519,421 |
| 1990 | 1,529,057,929 | 54,419,642 | 31,800,386 | 1,615,277,957 |
| 1991 | 1,525,451,737 | 53,547,797 | 19,438,902 | 1,598,438,436 |
| 1992 | 1,492,986,396 | 52,500,178 | 35,820,609 | 1,581,307,183 |
| 1993 | 1,499,489,622 | 55,146,661 | 25,466,874 | 1,580,103,157 |
| 1994 | 1,463,723,027 | 46,017,071 | 13,839,450 | 1,523,579,548 |
| 1995 | 1,410,035,722 | 52,417,334 | 13,688,870 | 1,476,141,926 |
| 1996 | 1,334,980,887 | 53,491,942 | 13,759,192 | 1,402,232,021 |
| 1997 | 1,354,105,430 | 52,368,159 | 11,191,715 | 1,417,665,304 |
| 1998 | 1,343,182,922 | 57,663,413 | 9,951,387 | 1,410,797,722 |
| 1999 | 1,191,471,607 | 60,242,544 | 11,733,098 | 1,263,447,249 |
| 2000 | 1,151,493,116 | 57,308,865 | 10,617,631 | 1,219,419,612 |
| 2001 | 1,217,171,149 | 53,797,867 | 8,198,104 | 1,279,167,120 |
| 2002 | 1,068,512,639 | 75,724,074 | 7,748,258 | 1,151,984,971 |
| 2003 | 1,091,483,424 | 80,659,914 | 7,963,553 | 1,180,106,891 |
| | | | | |
| January | 23,727,235 | 2,622,094 | 286,534 | 26,635,863 |
| February | 119,613,921 | 9,647,791 | 584,740 | 129,846,452 |
| March | 119,681,323 | 8,551,633 | 641,307 | 128,874,263 |
| April | 76,900,773 | 517,876 | 68,694 | 77,487,343 |
| May | 117,407,100 | 8,540,169 | 570,493 | 126,517,762 |
| June | 99,896,390 | 8,011,122 | 545,356 | 108,452,868 |
| July | 119,426,527 | 9,855,054 | 587,110 | 129,868,691 |
| August | 80,116,517 | 5,276,324 | 668,418 | 86,061,259 |
| September | 66,402,063 | 5,648,595 | 309,892 | 72,360,550 |
| October | 126,933,103 | 11,692,332 | 627,435 | 139,252,870 |
| November | 122,823,666 | 7,723,130 | 475,402 | 131,022,198 |
| December | 66,698,267 | 5,355,616 | 142,075 | 72,195,958 |
| **2004 Total** | **1,139,626,885** | **83,441,736** | **5,507,456** | **1,228,576,077** |
| | | | | |
| January | 109,165,945 | 5,913,751 | 254,537 | 115,334,233 |
| February | 98,950,242 | 6,456,239 | 424,728 | 105,831,209 |
| March | 91,734,364 | 6,377,383 | 281,672 | 98,393,419 |
| April | 80,774,222 | 6,180,721 | 444,688 | 87,399,631 |
| May | 104,546,201 | 1,522,884 | -56,667 | 106,012,418 |
| June | 92,235,183 | 5,206,177 | 285,969 | 97,727,329 |
| July | 100,235,396 | 8,201,954 | 520,212 | 108,957,562 |
| August | 94,355,504 | 8,526,008 | 1,268,784 | 104,150,296 |
| September | 101,799,503 | 18,614,459 | 468,413 | 120,882,375 |
| October | 137,599,147 | 14,086,270 | 315,062 | 152,000,479 |
| November | N/A | N/A | N/A | N/A |
| December | N/A | N/A | N/A | N/A |
| **2005 Total** | **1,011,395,707** | **81,085,846** | **4,207,398** | **1,096,688,951** |

e Estimated r Revised p Preliminary

See footnote in Appendix B.

# Table 15

## UNITED STATES OCS GAS PRODUCTION[12]

**Natural Gas and Casinghead Gas**
**(MCF at 15.025 psia and 60 degrees Fahrenheit)***

| YEAR | LOUISIANA | TEXAS | CALIFORNIA | TOTAL |
|---|---|---|---|---|
| 1958 | 125,185,735 | 0 | 0 | 125,185,735 |
| 1959 | 203,089,002 | 0 | 0 | 203,089,002 |
| 1960 | 267,673,709 | 0 | 0 | 267,673,709 |
| 1961 | 312,031,003 | 0 | 0 | 312,031,003 |
| 1962 | 443,079,048 | 0 | 0 | 443,079,048 |
| 1963 | 553,272,142 | 0 | 0 | 553,272,142 |
| 1964 | 609,524,401 | 0 | 0 | 609,524,401 |
| 1965 | 632,914,005 | 0 | 0 | 632,914,005 |
| 1966 | 946,433,484 | 41,233,595 | 0 | 987,667,078 |
| 1967 | 1,065,915,553 | 97,990,476 | 0 | 1,163,906,029 |
| 1968 | 1,385,715,670 | 107,752,805 | 783,984 | 1,494,252,460 |
| 1969 | 1,786,760,423 | 124,601,568 | 4,750,708 | 1,916,112,699 |
| 1970 | 2,228,516,212 | 130,683,192 | 11,989,041 | 2,371,188,444 |
| 1971 | 2,582,297,962 | 124,857,371 | 15,363,786 | 2,722,519,119 |
| 1972 | 2,824,792,196 | 144,267,198 | 9,836,582 | 2,978,895,976 |
| 1973 | 2,995,634,220 | 145,754,588 | 7,143,485 | 3,148,532,293 |
| 1974 | 3,283,413,450 | 156,838,375 | 5,464,209 | 3,445,716,035 |
| 1975 | 3,266,745,456 | 120,166,178 | 3,874,047 | 3,390,785,681 |
| 1976 | 3,431,149,749 | 90,764,667 | 3,406,969 | 3,525,321,386 |
| 1977 | 3,575,898,616 | 85,236,246 | 3,225,368 | 3,664,360,230 |
| 1978 | 4,068,255,571 | 227,305,175 | 3,404,117 | 4,298,964,864 |
| 1979 | 4,076,873,552 | 501,546,069 | 2,810,535 | 4,581,230,155 |
| 1980 | 3,934,902,550 | 612,378,333 | 3,046,020 | 4,550,326,904 |
| 1981 | 4,025,867,929 | 715,937,640 | 12,515,654 | 4,754,321,224 |
| 1982 | 3,729,057,653 | 841,173,981 | 17,402,403 | 4,587,634,037 |
| 1983 | 3,111,576,348 | 834,112,318 | 15,709,672 | 3,961,398,338 |
| 1984 | 3,508,475,799 | 913,008,621 | 27,260,940 | 4,448,745,360 |
| 1985 | 3,055,687,773 | 818,533,627 | 48,198,926 | 3,922,420,326 |
| 1986 | 2,870,347,386 | 959,161,285 | 41,850,867 | 3,871,359,539 |
| 1987 | 3,117,669,167 | 1,180,839,487 | 40,181,438 | 4,338,690,093 |
| 1988 | 3,036,077,646 | 1,155,285,485 | 33,891,880 | 4,225,255,011 |
| 1989 | 2,947,545,132 | 1,142,237,197 | 28,013,874 | 4,117,796,204 |
| 1990 | 3,633,554,307 | 1,321,607,333 | 37,775,234 | 4,992,936,873 |
| 1991 | 3,225,373,562 | 1,161,671,524 | 39,828,917 | 4,426,874,003 |
| 1992 | 3,272,561,370 | 1,215,055,449 | 40,071,149 | 4,593,647,066 |
| 1993 | 3,320,312,261 | 1,007,755,289 | 41,255,853 | 4,444,381,437 |
| 1994 | 3,423,837,064 | 994,291,314 | 40,860,740 | 4,565,582,229 |
| 1995 | 3,564,677,663 | 890,682,224 | 35,710,325 | 4,600,143,070 |
| 1996 | 3,709,198,609 r | 953,772,416 | 37,080,328 | 4,925,771,640 |
| 1997 | 3,825,354,038 r | 946,381,458 | 39,922,549 | 4,977,314,878 |
| 1998 | 3,814,583,541 r | 850,572,237 | 25,912,242 | 4,740,449,969 |
| 1999 | 3,836,619,562 r | 798,140,396 | 36,529,861 | 4,894,344,157 |
| 2000 | 3,761,812,062 r | 869,068,079 r | 36,131,657 r | 4,879,959,028 r |
| 2001 | 3,818,657,416 r | 898,035,393 r | 39,653,837 r | 5,114,612,578 r |
| 2002 | 3,457,864,868 r | 764,785,916 r | 34,556,899 r | 4,574,381,252 r |
| 2003 | 3,276,387,510 r | 815,314,457 r | 36,718,064 r | 4,481,818,730 r |
| 2004 | 2,840,552,489 r | 840,830,689 r | 36,765,114 r | 4,086,938,205 r |

e Estimated r Revised p Preliminary

* See Appendix D-4 for corresponding volumes at 14.73 psia and footnote in Appendix B.

**Figure 7**

## LOUISIANA OIL PRODUCTION AND PRICE

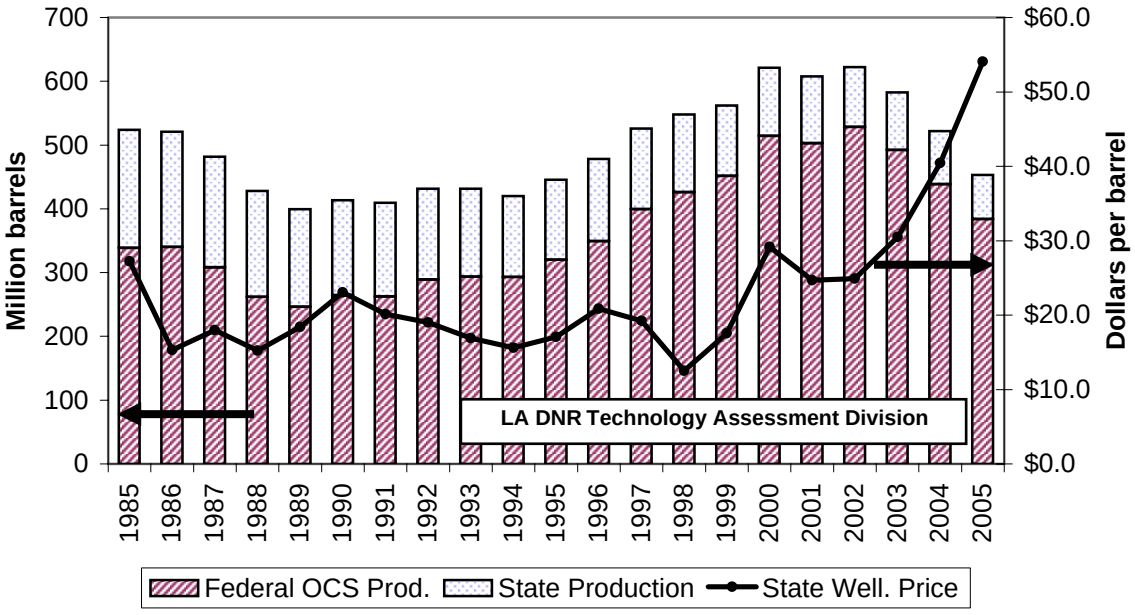
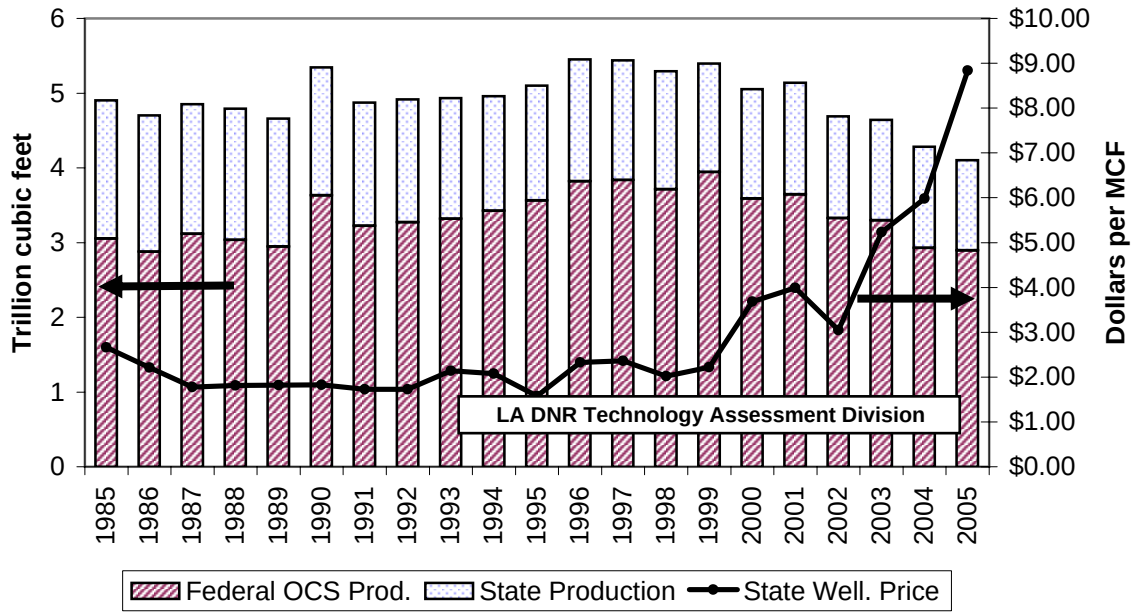



**Figure 8**

## LOUISIANA GAS PRODUCTION AND PRICE



# Table 16

## UNITED STATES NATURAL GAS AND CASINGHEAD GAS PRODUCTION[3]

**(Billion Cubic Feet (BCF) at 15.025 psia and 60 degrees Fahrenheit)***

| DATE | GROSS | WET AFTER LEASE SEPARATION | MARKETED | DRY | GROSS IMPORTS |
|---|---|---|---|---|---|
| 1984 | 19,869 | 18,051 | 17,945 | 17,124 | 827 |
| 1985 | 19,222 | 17,024 | 16,931 | 16,131 | 931 |
| 1986 | 18,755 | 16,623 | 16,528 | 15,744 | 736 |
| 1987 | 19,745 | 17,212 | 17,091 | 16,294 | 973 |
| 1988 | 20,587 | 17,706 | 17,567 | 16,767 | 1,268 |
| 1989 | 20,661 | 17,879 | 17,740 | 16,971 | 1,354 |
| 1990 | 21,100 | 18,376 | 18,229 | 17,460 | 1,502 |
| 1991 | 21,322 | 18,336 | 18,169 | 17,351 | 1,738 |
| 1992 | 21,698 | 18,509 | 18,344 | 17,490 | 2,096 |
| 1993 | 22,279 | 18,832 | 18,609 | 17,740 | 2,304 |
| 1994 | 23,118 | 19,547 | 19,323 | 18,451 | 2,572 |
| 1995 | 23,277 | 19,402 | 19,123 | 18,233 | 2,785 |
| 1996 | 23,640 | 19,690 | 19,423 | 18,484 | 2,880 |
| 1997 | 23,737 | 19,727 | 19,475 | 18,531 | 2,935 |
| 1998 | 23,635 | 19,670 | 19,569 | 18,650 | 3,090 |
| 1999 | 23,355 | 19,524 | 19,416 | 18,462 | 3,515 |
| 2000 | 23,699 | 19,890 | 19,801 | 18,805 | 3,707 r |
| 2001 | 24,020 | 20,261 | 20,166 | 19,231 | 3,899 |
| 2002 | 23,471 | 19,627 | 19,530 | 18,591 | 3,937 |
| 2003 | 23,584 r | 19,730 | 19,637 | 18,694 | 3,866 r |
| January | 2,035 r | 1,684 | 1,676 | 1,595 | 366 r |
| February | 1,892 | 1,564 | 1,557 | 1,482 | 339 |
| March | 2,035 r | 1,673 | 1,665 | 1,585 | 342 r |
| April | 1,941 r | 1,609 | 1,602 | 1,525 | 319 r |
| May | 1,985 r | 1,632 | 1,624 | 1,546 | 320 r |
| June | 1,905 r | 1,578 | 1,570 | 1,494 | 335 r |
| July | 1,956 r | 1,627 | 1,619 | 1,542 | 367 r |
| August | 1,940 r | 1,650 | 1,642 | 1,570 | 353 r |
| September | 1,846 | 1,535 | 1,527 | 1,460 | 338 |
| October | 1,953 | 1,614 | 1,606 | 1,535 | 329 |
| November | 1,936 | 1,574 | 1,567 | 1,498 | 361 |
| December | 2,009 | 1,644 | 1,637 | 1,565 | 405 |
| **2004 Total** | **23,433** | **19,384** | **19,291** | **18,396** | **4,175** |
| January | 2,009 | 1,632 | 1,624 | 1,581 | 395 |
| February | 1,834 | 1,490 | 1,482 | 1,435 | 349 |
| March | 2,020 | 1,639 | 1,631 | 1,578 | 374 |
| April | 1,925 | 1,578 | 1,570 | 1,495 | 323 |
| May | 1,965 | 1,607 | 1,599 | 1,529 | 330 |
| June | 1,891 | 1,569 | 1,561 | 1,492 | 317 |
| July | 1,909 | 1,587 | 1,579 | 1,509 | 344 |
| August | 1,929 | 1,594 | 1,586 | 1,516 | 336 |
| September | 1,712 | 1,419 | 1,412 | 1,350 | 338 |
| October | 1,679 | 1,392 | 1,384 | 1,323 | 355 |
| November | N/A | N/A | N/A | N/A | N/A |
| December | N/A | N/A | N/A | N/A | N/A |
| **2005 Total** | **18,872** | **15,506** | **15,427** | **14,808** | **3,460** |

e Estimated r Revised p Preliminary

* See Appendix D-5 for corresponding volumes at 14.73 psia and footnote in Appendix B.

# TABLE 17

## LOUISIANA AVERAGE CRUDE OIL PRICES

**(Dollars per Barrel)**

| | SOUTH LOUISIANA SWEET | | ALL GRADES AT WELLHEAD | | | |
|---|---|---|---|---|---|---|
| | Spot | Refinery | | OCS | Severance | State |
| DATE | Market[10] | Posted | State[6] | Gulf[6] | Tax[8] | Royalty |
| 1984 | 29.64 | 30.04 | 29.67 | 29.36 | 29.98 | 29.44 |
| 1985 | 28.42 | 27.86 | 27.22 | 27.33 | 27.18 | 27.40 |
| 1986 | 14.72 | 15.71 | 15.32 | 15.27 | 17.23 | 15.78 |
| 1987 | 19.38 | 18.52 | 17.97 | 17.54 | 17.55 | 17.85 |
| 1988 | 16.13 | 15.75 | 15.22 | 14.71 | 16.38 | 14.67 |
| 1989 | 19.75 | 18.97 | 18.39 | 17.83 | 17.87 | 17.92 |
| 1990 | 25.11 | 23.35 | 23.04 | 22.40 | 22.54 | 22.76 |
| 1991 | 21.70 | 20.60 | 20.15 | 19.40 | 21.13 | 19.90 |
| 1992 | 20.77 | 19.72 | 19.01 | 18.38 | 19.31 | 19.10 |
| 1993 | 18.56 | 17.27 | 16.72 | 16.17 | 17.39 | 16.84 |
| 1994 | 17.25 | 15.84 | 15.61 | 14.72 | 15.46 | 15.52 |
| 1995 | 18.60 | 17.16 | 17.06 | 16.16 | 16.98 | 17.06 |
| 1996 | 22.32 | 20.77 | 20.87 | 20.00 | 20.56 | 21.24 |
| 1997 | 20.69 | 18.90 | 19.23 | 18.63 | 19.80 | 19.22 |
| 1998 | 14.21 | 12.17 | 12.52 | 12.03 | 13.47 | 12.31 |
| 1999 | 19.00 | 16.73 | 17.55 | 16.46 | 16.09 | 17.22 |
| 2000 | 30.29 | 27.88 | 29.14 | 27.57 | 28.10 | 25.96 r |
| 2001 | 25.84 | 23.23 | 24.70 | 23.36 | 26.23 | 19.81 r |
| 2002 | 26.18 | 23.14 | 24.92 | 23.36 | 25.17 | 24.39 r |
| 2003 | 31.20 | 27.88 | 30.50 | 28.69 | 30.28 | 29.77 r |
| January | 35.09 | 30.72 | 33.29 | 31.44 | 30.16 | 28.56 r |
| February | 34.46 | 31.27 | 34.30 | 32.56 | 30.00 | 31.33 r |
| March | 36.94 | 33.26 | 36.25 | 33.01 | 32.12 | 34.34 r |
| April | 36.22 | 33.12 r | 36.27 | 34.20 | 34.06 | 35.57 r |
| May | 40.03 | 36.47 r | 39.10 | 35.02 | 35.94 | 36.77 r |
| June | 37.81 | 34.54 r | 37.03 | 35.75 | 35.36 | 35.93 r |
| July | 40.95 | 37.08 r | 39.17 | 36.43 | 37.09 | 38.07 r |
| August | 45.03 | 41.41 r | 43.38 | 39.39 | 39.51 | 41.62 r |
| September | 46.34 | 41.83 r | 44.93 | 40.81 | 41.24 | 43.76 r |
| October | 53.67 | 49.39 r | 51.77 | 45.06 | 46.06 | 50.67 r |
| November | 48.14 | 45.24 r | 48.01 r | 44.57 r | 50.25 r | 48.42 r |
| December | 42.97 | 39.82 r | 41.79 r | 42.13 r | 48.32 r | 41.92 r |
| **2004 Average** | **41.47** | **37.85 r** | **40.44 r** | **37.53 r** | **38.34 r** | **38.91 r** |
| January | 46.60 | 43.16 | 45.03 | 41.02 | 47.82 | 42.99 |
| February | 47.67 | 44.38 | 46.41 | 42.44 | 49.14 | 45.62 |
| March | 54.49 | 50.82 | 52.38 | 47.43 | 48.79 | 55.63 |
| April | 53.48 | 49.46 | 51.11 | 49.25 | 49.84 | 43.62 |
| May | 50.42 | 45.80 | 47.56 | 45.42 | 49.67 | 44.95 |
| June | 56.64 | 52.54 | 54.20 | 49.44 | 43.21 | 50.01 |
| July | 58.98 | 54.88 | 56.89 | 53.14 | 53.32 | 55.70 |
| August | 65.66 | 61.07 | 62.39 | 57.37 | 65.05 | 59.85 |
| September | 67.19 | 61.57 | 63.35 | 59.19 | 60.39 | 62.87 |
| October | 62.77 | 58.75 | 61.45 | 58.10 | 65.12 | 60.74 |
| November | 58.59 | 54.56 | N/A | N/A | N/A | 52.34 |
| December | 59.78 | 55.48 | N/A | N/A | N/A | N/A |
| **2005 Average** | **56.86** | **52.71** | **54.08** | **50.28** | **53.24** | **52.21** |

e Estimated r Revised p Preliminary

See footnote in Appendix B.

**Figure 9**

## CRUDE OIL AVERAGE PRICES

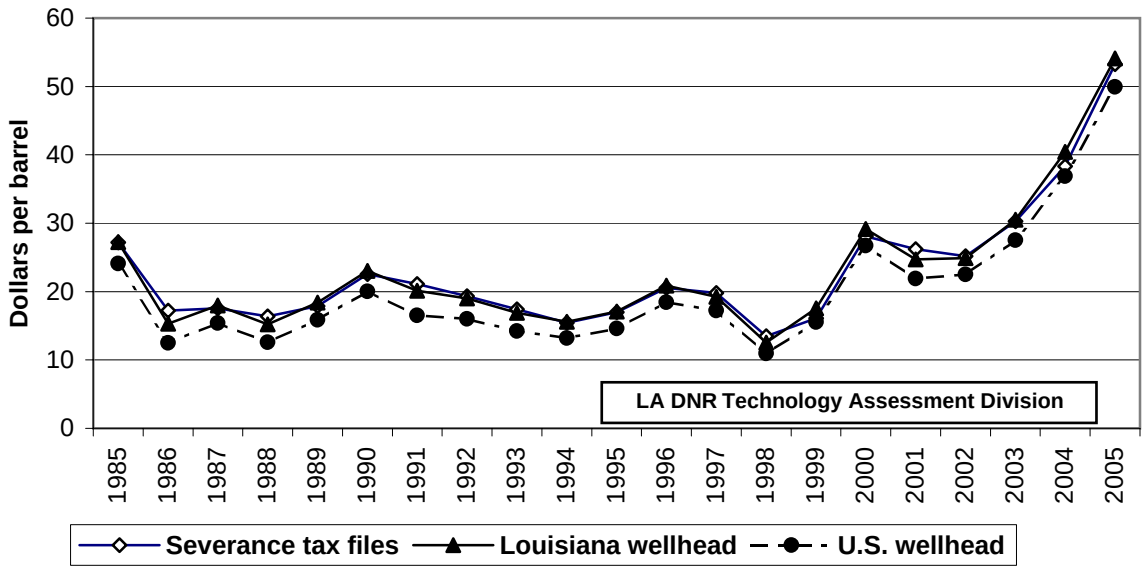
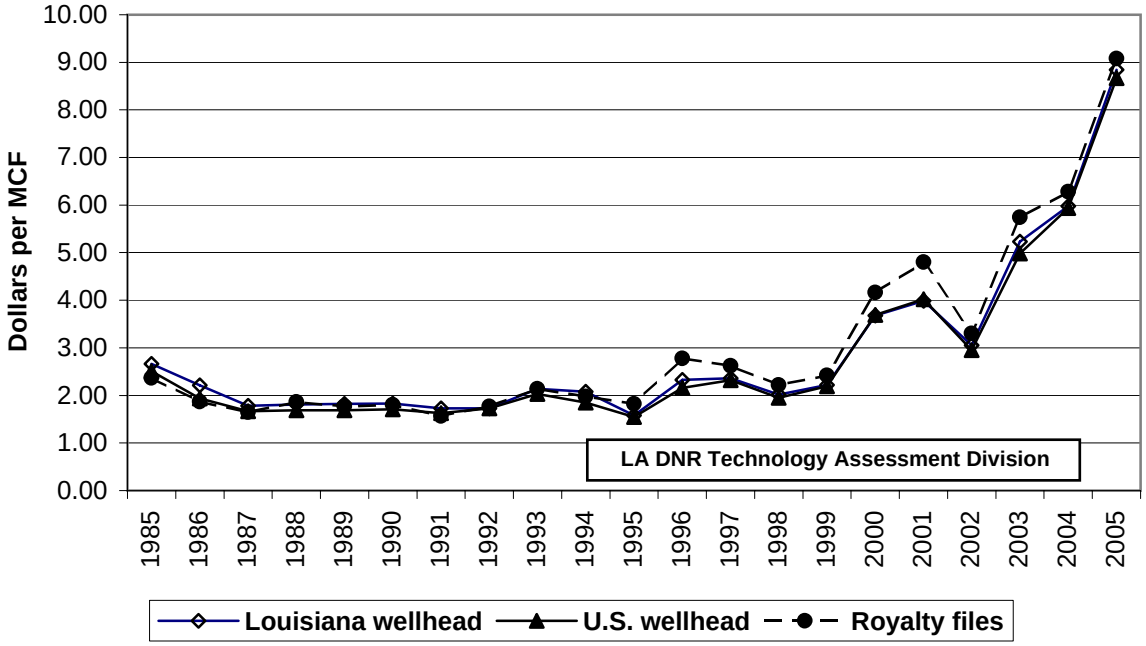



**Figure 10**

## NATURAL GAS AVERAGE PRICES



# TABLE 18

## UNITED STATES AVERAGE CRUDE OIL PRICES [2]

**(Dollars per Barrel)**

| DATE | REFINERY ACQUISITION | | DOMESTIC WELLHEAD | IMPORTS LANDED | IMPORTS FOB | IMPORTS OPEC FOB |
|---|---|---|---|---|---|---|
| | Domestic Costs | Imports Costs | | | | |
| 1985 | 26.66 | 26.99 | 24.09 | 26.67 | 25.84 | 25.67 |
| 1986 | 14.82 | 14.00 | 12.51 | 13.49 | 12.52 | 12.21 |
| 1987 | 17.76 | 18.13 | 15.40 | 17.65 | 16.69 | 16.43 |
| 1988 | 14.74 | 14.56 | 12.58 | 14.08 | 13.25 | 13.43 |
| 1989 | 17.87 | 18.08 | 15.86 | 17.68 | 16.89 | 17.06 |
| 1990 | 22.59 | 21.76 | 20.03 | 21.13 | 20.37 | 20.40 |
| 1991 | 19.35 | 18.74 | 16.53 | 18.02 | 16.91 | 17.01 |
| 1992 | 18.62 | 18.12 | 16.00 | 17.65 | 16.66 | 16.76 |
| 1993 | 16.66 | 16.17 | 14.24 | 15.75 | 14.72 | 14.72 |
| 1994 | 15.64 | 15.41 | 13.19 | 15.07 | 14.13 | 13.94 |
| 1995 | 17.32 | 17.15 | 14.62 | 16.77 | 15.69 | 15.35 |
| 1996 | 20.81 | 20.60 | 18.46 | 20.27 | 19.24 | 18.87 |
| 1997 | 19.65 | 18.55 | 17.23 | 18.14 | 16.98 | 16.33 |
| 1998 | 13.15 | 12.35 | 10.94 | 11.86 | 10.75 | 10.17 |
| 1999 | 17.64 | 17.27 | 15.53 | 17.38 | 16.48 | 16.01 |
| 2000 | 29.08 | 27.68 | 26.72 | 27.54 | 26.26 | 25.55 |
| 2001 | 24.34 | 21.99 | 21.90 | 21.77 | 20.45 | 19.56 |
| 2002 | 24.56 | 23.63 | 22.50 | 23.82 | 22.57 | 22.19 |
| 2003 | 29.78 | 27.87 | 27.54 | 27.83 | 26.06 | 25.61 |
| January | 32.01 | 30.24 | 30.35 | 30.76 | 28.16 | 27.88 |
| February | 33.19 | 30.77 | 31.21 | 31.14 | 28.50 | 28.70 |
| March | 34.53 | 32.25 | 32.86 | 32.30 | 30.02 | 30.08 |
| April | 35.25 | 32.42 | 33.23 | 32.88 | 30.98 | 31.54 |
| May | 37.23 | 35.82 | 36.07 | 35.09 | 33.81 | 34.50 |
| June | 36.57 | 33.58 | 34.53 | 34.37 | 32.20 | 32.46 |
| July | 37.90 | 35.98 | 36.54 | 36.82 | 34.92 | 35.28 |
| August | 41.54 | 39.57 | 40.10 | 39.58 | 37.33 | 37.57 |
| September | 42.77 r | 40.51 | 40.62 r | 41.09 r | 38.82 | 40.58 r |
| October | 47.22 r | 45.53 r | 46.28 r | 44.12 r | 42.23 r | 41.33 r |
| November | 44.79 r | 39.89 r | 42.81 r | 39.06 r | 36.01 r | 35.50 r |
| December | 40.74 r | 34.17 r | 38.22 r | 35.34 r | 31.67 r | 32.52 r |
| **2004 Average** | **38.65 r** | **35.89 r** | **36.90 r** | **36.05 r** | **33.72 r** | **34.00 r** |
| January | 41.82 | 37.55 | 40.18 | 38.46 | 35.65 | 37.51 |
| February | 43.80 | 39.72 | 42.06 | 40.70 | 39.07 | 41.07 |
| March | 48.87 | 45.71 | 47.39 | 45.89 | 44.25 | 45.71 |
| April | 49.64 | 45.18 | 47.23 | 45.42 | 43.91 | 45.33 |
| May | 47.81 | 43.12 | 44.00 | 44.51 | 42.88 | 44.44 |
| June | 52.13 | 49.28 | 49.87 | 49.99 | 48.55 | 51.15 |
| July | 55.78 | 52.88 | 53.31 | 53.85 | 51.87 | 53.46 |
| August | 60.57 | 58.66 | 58.79 | 58.33 | 57.10 | 59.86 |
| September | 62.84 | 58.79 | 59.60 | 58.36 | 57.93 | 60.86 |
| October | 60.78 | 55.41 | 56.96 | 54.05 | 52.37 | 53.54 |
| November | 56.71 | 51.60 | N/A | N/A | N/A | N/A |
| December | N/A | N/A | N/A | N/A | N/A | N/A |
| **2005 Average** | **52.80** | **48.90** | **49.94** | **48.96** | **47.36** | **49.29** |

e Estimated r Revised p Preliminary

See footnote in Appendix B.

# Table 19

## LOUISIANA NATURAL GAS WELLHEAD PRICES

**(Dollars/Thousand Cubic Feet)**

| DATE | MMS OCS[12] | DOE State Wells[3] | DNR State Royalty | Henry Hub Settled NYMEX | SPOT MARKET[5] Low | SPOT MARKET[5] High | SPOT MARKET[5] Average |
|---|---|---|---|---|---|---|---|
| 1985 | 2.72 | 2.66 | 2.37 | N/A | 2.13 | 3.07 | 2.61 |
| 1986 | 2.26 | 2.21 | 1.87 | N/A | 1.46 | 2.34 | 1.76 |
| 1987 | 1.82 | 1.78 | 1.65 | N/A | 1.40 | 1.82 | 1.55 |
| 1988 | 1.84 | 1.81 | 1.86 | N/A | 1.40 | 2.29 | 1.79 |
| 1989 | 1.86 | 1.82 | 1.77 | N/A | 1.40 | 2.29 | 1.76 |
| 1990 | 1.87 | 1.83 | 1.80 | N/A | 1.35 | 2.60 | 1.77 |
| 1991 | 1.77 | 1.73 | 1.57 | N/A | 1.43 | 1.56 | 1.50 |
| 1992 | 1.77 | 1.73 | 1.77 | N/A | 1.74 | 1.85 | 1.80 |
| 1993 | 2.18 | 2.14 | 2.14 | 2.19 | 2.08 | 2.21 | 2.15 |
| 1994 | 2.10 | 2.08 | 1.98 | 1.97 | 1.86 | 1.95 | 1.91 |
| 1995 | 1.61 | 1.58 | 1.82 | 1.70 | 1.62 | 1.68 | 1.65 |
| 1996 | 2.37 | 2.33 | 2.78 | 2.69 | 2.47 | 2.69 | 2.60 |
| 1997 | 2.63 | 2.36 | 2.62 | 2.69 | 2.54 | 2.67 | 2.60 |
| 1998 | 2.36 | 2.02 | 2.22 | 2.19 | 2.08 | 2.18 | 2.14 |
| 1999 | 2.18 | 2.22 | 2.42 | 2.36 | 2.25 | 2.36 | 2.31 |
| 2000 | 3.59 | 3.68 | 4.16 | 4.04 | 3.92 | 4.03 | 3.98 |
| 2001 | 4.05 | 3.99 | 4.80 | 4.44 | 4.27 | 4.47 | 4.38 |
| 2002 | 2.98 | 3.05 | 3.30 r | 3.39 | 3.29 | 3.43 | 3.37 |
| 2003 | 5.12 | 5.23 | 5.74 | 5.61 | 5.32 | 5.92 | 5.66 |
| January | N/A | N/A | 6.24 | 6.40 | 6.22 | 6.46 | 6.46 |
| February | N/A | N/A | 6.23 | 6.01 | 5.51 | 5.74 | 5.74 |
| March | N/A | N/A | 5.91 | 5.36 | 5.45 | 5.60 | 5.60 |
| April | N/A | N/A | 5.66 | 5.58 | 5.73 | 6.00 | 6.00 |
| May | N/A | N/A | 6.29 | 6.17 | 6.17 | 6.42 | 6.42 |
| June | N/A | N/A | 6.71 | 6.95 | 6.53 | 6.68 | 6.68 |
| July | N/A | N/A | 6.30 | 6.39 | 6.12 | 6.27 | 6.27 |
| August | N/A | N/A | 6.02 | 6.29 | 5.69 | 5.87 | 5.87 |
| September | N/A | N/A | 5.28 | 5.40 | 5.03 | 5.19 | 5.19 |
| October | N/A | N/A | 6.07 | 5.95 | 5.89 | 6.16 | 6.16 |
| November | N/A | N/A | 7.02 | 7.93 | 6.42 | 6.72 | 6.72 |
| December | N/A | N/A | 7.69 | 8.30 | 6.94 | 7.12 | 7.12 |
| **2004 Average** | **N/A** | **N/A** | **6.28** | **6.39** | **5.98** | **6.18** | **6.18** |
| January | N/A | N/A | 6.25 | 6.46 | 6.34 | 6.49 | 6.43 |
| February | N/A | N/A | 6.61 | 6.54 | 6.27 | 6.42 | 6.35 |
| March | N/A | N/A | 6.88 | 6.56 | 6.93 | 7.13 | 7.03 |
| April | N/A | N/A | 7.58 | 7.62 | 7.37 | 7.58 | 7.47 |
| May | N/A | N/A | 7.04 | 7.02 | 6.70 | 6.87 | 6.81 |
| June | N/A | N/A | 6.86 | 6.37 | 7.10 | 7.25 | 7.17 |
| July | N/A | N/A | 7.43 | 7.26 | 7.62 | 7.76 | 7.68 |
| August | N/A | N/A | 8.72 | 7.95 | 8.90 | 9.11 | 9.00 |
| September | N/A | N/A | 11.95 | 11.28 | 11.78 | 12.70 | 12.17 |
| October | N/A | N/A | 15.16 | 14.46 | 13.77 | 14.67 | 14.15 |
| November | N/A | N/A | 11.78 | 14.39 | 10.34 | 11.44 | 10.97 |
| December | N/A | N/A | 12.74 | 11.63 | 12.93 | 13.69 | 13.37 |
| **2005 Average** | **N/A** | **N/A** | **9.08** | **8.96** | **8.84** | **9.26** | **9.05** |

e Estimated r Revised p Preliminary

See footnote in Appendix B.

# Table 19A

## LOUISIANA NATURAL GAS WELLHEAD PRICES

**(Dollars/MMBTU)**

| DATE | MMS OCS[12] | DOE State Wells[3] | DNR State Royalty | Henry Hub Settled NYMEX | SPOT MARKET[5] Low | SPOT MARKET[5] High | SPOT MARKET[5] Average |
|---|---|---|---|---|---|---|---|
| 1984 | 2.60 | 2.63 | 2.46 | N/A | N/A | N/A | N/A |
| 1985 | 2.62 | 2.56 | 2.28 | N/A | 2.05 | 2.95 | 2.51 |
| 1986 | 2.17 | 2.13 | 1.80 | N/A | 1.40 | 2.25 | 1.69 |
| 1987 | 1.75 | 1.71 | 1.59 | N/A | 1.35 | 1.75 | 1.49 |
| 1988 | 1.77 | 1.74 | 1.79 | N/A | 1.35 | 2.20 | 1.73 |
| 1989 | 1.79 | 1.75 | 1.70 | N/A | 1.35 | 2.20 | 1.70 |
| 1990 | 1.80 | 1.76 | 1.73 | N/A | 1.30 | 2.50 | 1.70 |
| 1991 | 1.70 | 1.66 | 1.51 | N/A | 1.38 | 1.50 | 1.44 |
| 1992 | 1.70 | 1.66 | 1.70 | N/A | 1.68 | 1.78 | 1.73 |
| 1993 | 2.10 | 2.06 | 2.05 | N/A | 2.00 | 2.12 | 2.06 |
| 1994 | 2.02 | 2.00 | 1.91 | 1.89 | 1.79 | 1.88 | 1.84 |
| 1995 | 1.55 | 1.52 | 1.75 | 1.63 | 1.56 | 1.61 | 1.59 |
| 1996 | 2.28 | 2.24 | 2.67 | 2.59 | 2.37 | 2.58 | 2.50 |
| 1997 | 2.53 | 2.27 | 2.52 | 2.59 | 2.44 | 2.57 | 2.50 |
| 1998 | 2.27 | 1.94 | 2.13 | 2.10 | 2.00 | 2.10 | 2.05 |
| 1999 | 2.10 | 2.13 | 2.33 | 2.27 | 2.17 | 2.27 | 2.22 |
| 2000 | 3.45 | 3.54 | 4.00 | 3.88 | 3.77 | 3.88 | 3.83 |
| 2001 | 3.89 | 3.84 | 4.62 | 4.27 | 4.11 | 4.30 | 4.21 |
| 2002 | 2.87 | 2.93 | 3.17 | 3.26 | 3.16 | 3.30 | 3.24 |
| 2003 | 4.92 | 5.03 | 5.52 | 5.40 | 5.11 | 5.69 | 5.44 |
| January | N/A | N/A | 6.00 | 6.15 | 5.98 | 6.21 | 6.07 |
| February | N/A | N/A | 5.99 | 5.78 | 5.30 | 5.52 | 5.38 |
| March | N/A | N/A | 5.69 | 5.15 | 5.24 | 5.38 | 5.32 |
| April | N/A | N/A | 5.44 | 5.37 | 5.51 | 5.77 | 5.67 |
| May | N/A | N/A | 6.05 | 5.94 | 5.94 | 6.17 | 6.10 |
| June | N/A | N/A | 6.45 | 6.68 | 6.28 | 6.42 | 6.33 |
| July | N/A | N/A | 6.05 | 6.14 | 5.88 | 6.03 | 5.94 |
| August | N/A | N/A | 5.78 | 6.05 | 5.48 | 5.65 | 5.55 |
| September | N/A | N/A | 5.07 | 5.19 | 4.84 | 4.99 | 4.91 |
| October | N/A | N/A | 5.84 | 5.72 | 5.66 | 5.93 | 5.80 |
| November | N/A | N/A | 6.75 | 7.63 | 6.18 | 6.46 | 6.33 |
| December | N/A | N/A | 7.39 | 7.98 | 6.68 | 6.85 | 6.76 |
| **2004 Average** | **N/A** | **N/A** | **6.04** | **6.15** | **5.75** | **5.95** | **5.85** |
| January | N/A | N/A | 6.01 | 6.21 | 6.10 | 6.24 | 6.18 |
| February | N/A | N/A | 6.36 | 6.29 | 6.03 | 6.17 | 6.10 |
| March | N/A | N/A | 6.62 | 6.30 | 6.66 | 6.86 | 6.76 |
| April | N/A | N/A | 7.29 | 7.32 | 7.09 | 7.29 | 7.18 |
| May | N/A | N/A | 6.77 | 6.75 | 6.44 | 6.60 | 6.55 |
| June | N/A | N/A | 6.60 | 6.12 | 6.83 | 6.97 | 6.89 |
| July | N/A | N/A | 7.14 | 6.98 | 7.32 | 7.46 | 7.39 |
| August | N/A | N/A | 8.38 | 7.65 | 8.56 | 8.76 | 8.65 |
| September | N/A | N/A | 11.49 | 10.85 | 11.33 | 12.21 | 11.70 |
| October | N/A | N/A | 14.57 | 13.91 | 13.24 | 14.11 | 13.61 |
| November | N/A | N/A | 11.33 | 13.83 | 9.94 | 11.00 | 10.55 |
| December | N/A | N/A | 12.25 | 11.18 | 12.43 | 13.16 | 12.86 |
| **2005 Average** | **N/A** | **N/A** | **8.73** | **8.62** | **8.50** | **8.90** | **8.70** |

e Estimated r Revised p Preliminary

See footnote in Appendix B.

# Table 20

## LOUISIANA AVERAGE NATURAL GAS PRICES DELIVERED TO CONSUMER[3]

**(Dollars/Thousand Cubic Feet)**

| DATE | CITY GATES | RESIDENTIAL | COMMERCIAL | INDUSTRIAL | UTILITY |
|---|---|---|---|---|---|
| 1984 | 3.78 | 5.96 | 5.54 | 3.18 | 3.18 |
| 1985 | 3.55 | 5.67 | 5.28 | 3.03 | 2.86 |
| 1986 | 2.95 | 5.77 | 5.25 | 1.91 | 1.94 |
| 1987 | 2.38 | 5.56 | 4.97 | 1.80 | 1.67 |
| 1988 | 2.93 | 5.74 | 5.14 | 1.99 | 1.70 |
| 1989 | 3.01 | 5.97 | 5.19 | 1.97 | 1.78 |
| 1990 | 2.97 | 6.09 | 5.26 | 2.00 | 1.73 |
| 1991 | 2.56 | 6.24 | 4.91 | 1.74 | 1.63 |
| 1992 | 2.48 | 6.19 | 4.85 | 2.00 | 1.93 |
| 1993 | 2.75 | 6.68 | 5.41 | 2.31 | 2.49 |
| 1994 | 2.52 | 6.78 | 5.39 | 2.18 | 2.24 |
| 1995 | 2.17 | 6.59 | 5.15 | 1.82 | 1.92 |
| 1996 | 3.03 | 7.55 | 6.18 | 2.83 | 3.07 |
| 1997 | 2.94 | 7.60 | 6.12 | 2.87 | 2.88 |
| 1998 | 2.32 | 7.51 | 5.72 | 2.43 | 2.40 |
| 1999 | 2.73 | 7.55 | 5.83 | 2.51 | 2.55 |
| 2000 | 4.50 | 9.20 | 7.52 | 4.01 | 4.56 |
| 2001 | 5.11 | 9.99 | 7.85 | 5.22 | 4.56 |
| 2002 | 4.07 | 9.06 | 6.82 | 3.68 | 3.71 |
| 2003 | 5.43 | 11.69 | 8.87 | 5.59 | 6.18 |
| | | | | | |
| January | 7.07 | 9.62 | 9.31 | 6.58 | w |
| February | 6.03 | 9.36 | 9.15 | 5.96 | 6.24 |
| March | 5.77 | 9.31 | 8.79 | 5.58 | 5.99 |
| April | 5.87 | 10.59 | 8.50 | 5.79 | w |
| May | 6.39 | 12.79 | 9.27 | 6.29 | 6.89 |
| June | 6.92 | 14.15 | 9.96 | 6.86 | 6.97 |
| July | 6.32 | 14.27 | 9.98 | 6.31 | 6.55 |
| August | 6.19 | 14.83 | 10.42 r | 6.40 | 6.22 r |
| September | 5.21 | 13.61 | 9.29 | 5.57 | 5.52 |
| October | 6.18 r | 14.26 r | 8.80 r | 6.41 r | 6.73 |
| November | 7.68 | 14.06 | 10.74 | 7.89 | 7.14 |
| December | 7.85 | 12.62 | 11.12 | 8.04 | 7.55 |
| **2004 Average** | **6.46** | **12.46** | **9.61** | **6.47** | **6.58 r** |
| | | | | | |
| January | 6.77 | 11.36 | 10.42 | 7.18 | 6.75 |
| February | 6.94 | 11.40 | 10.06 | 7.19 | 6.70 |
| March | 6.84 | 11.03 | 9.91 | 6.70 | 7.23 |
| April | 7.69 | 12.51 | 10.09 | 7.69 | 7.78 |
| May | 6.86 | 13.67 | 10.06 | 7.02 | 7.15 |
| June | 6.90 | 14.45 | 9.84 | 6.77 | 7.48 |
| July | 8.08 | 15.79 | 10.41 | 7.57 | 7.98 |
| August | 8.59 | 16.66 | 11.51 | 8.31 | 9.18 |
| September | 11.20 | 18.66 | 13.51 | 11.59 | N/A |
| October | 13.86 | 20.44 | 15.09 | 14.48 | N/A |
| November | N/A | N/A | N/A | N/A | N/A |
| December | N/A | N/A | N/A | N/A | N/A |
| **2005 Average** | **8.37** | **14.60** | **11.09** | **8.45** | **7.53 e** |

e Estimated r Revised p Preliminary

See footnote in Appendix B.

# Table 20A

## LOUISIANA AVERAGE NATURAL GAS PRICES DELIVERED TO CONSUMER[3]

**(Dollars/MMBTU)**

| DATE | CITY GATES | RESIDENTIAL | COMMERCIAL | INDUSTRIAL | UTILITY |
|---|---|---|---|---|---|
| 1984 | 3.63 | 5.73 | 5.33 | 3.06 | 3.06 |
| 1985 | 3.41 | 5.45 | 5.08 | 2.91 | 2.75 |
| 1986 | 2.84 | 5.55 | 5.05 | 1.84 | 1.87 |
| 1987 | 2.29 | 5.35 | 4.78 | 1.73 | 1.61 |
| 1988 | 2.82 | 5.52 | 4.94 | 1.91 | 1.63 |
| 1989 | 2.89 | 5.74 | 4.99 | 1.89 | 1.71 |
| 1990 | 2.86 | 5.86 | 5.06 | 1.92 | 1.66 |
| 1991 | 2.46 | 6.00 | 4.72 | 1.67 | 1.57 |
| 1992 | 2.38 | 5.95 | 4.66 | 1.92 | 1.86 |
| 1993 | 2.64 | 6.42 | 5.20 | 2.22 | 2.39 |
| 1994 | 2.42 | 6.52 | 5.18 | 2.09 | 2.16 |
| 1995 | 2.09 | 6.33 | 4.95 | 1.75 | 1.84 |
| 1996 | 2.91 | 7.26 | 5.94 | 2.72 | 2.95 |
| 1997 | 2.83 | 7.30 | 5.88 | 2.76 | 2.77 |
| 1998 | 2.23 | 7.22 | 5.50 | 2.34 | 2.31 |
| 1999 | 2.63 | 7.26 | 5.60 | 2.42 | 2.45 |
| 2000 | 4.33 | 8.84 | 7.23 | 3.85 | 4.39 |
| 2001 | 4.91 | 9.60 | 7.55 | 5.02 | 4.39 |
| 2002 | 3.92 | 8.71 | 6.56 | 3.54 | 3.56 |
| 2003 | 5.22 | 11.24 | 8.53 | 5.37 | 5.94 |
| | | | | | |
| January | 6.80 | 9.25 | 8.95 | 6.33 | w |
| February | 5.80 | 9.00 | 8.80 | 5.73 | 6.00 |
| March | 5.55 | 8.95 | 8.45 | 5.37 | 5.76 |
| April | 5.64 | 10.18 | 8.17 | 5.57 | w |
| May | 6.14 | 12.30 | 8.91 | 6.05 | 6.62 |
| June | 6.65 | 13.61 | 9.58 | 6.60 | 6.70 |
| July | 6.08 | 13.72 | 9.60 | 6.07 | 6.30 |
| August | 5.95 | 14.26 | 10.02 | 6.15 | 5.98 |
| September | 5.01 | 13.09 | 8.93 | 5.36 | 5.31 |
| October | 5.94 | 13.71 | 8.46 | 6.16 | 6.47 |
| November | 7.38 | 13.52 | 10.33 | 7.59 | 6.87 |
| December | 7.55 | 12.13 | 10.69 | 7.73 | 7.26 |
| **2004 Average** | **6.21** | **11.98** | **9.24** | **6.22** | **6.33** |
| | | | | | |
| January | 6.51 | 10.92 | 10.02 | 6.90 | 6.49 |
| February | 6.67 | 10.96 | 9.67 | 6.91 | 6.44 |
| March | 6.58 | 10.61 | 9.53 | 6.44 | 6.95 |
| April | 7.39 | 12.03 | 9.70 | 7.39 | 7.48 |
| May | 6.60 | 13.14 | 9.67 | 6.75 | 6.88 |
| June | 6.63 | 13.89 | 9.46 | 6.51 | 7.19 |
| July | 7.77 | 15.18 | 10.01 | 7.28 | 7.67 |
| August | 8.26 | 16.02 | 11.07 | 7.99 | 8.83 |
| September | 10.77 | 17.94 | 12.99 | 11.14 | N/A |
| October | 13.33 | 19.65 | 14.51 | 13.92 | N/A |
| November | N/A | N/A | N/A | N/A | N/A |
| December | N/A | N/A | N/A | N/A | N/A |
| **2005 Average** | **8.05** | **14.04** | **10.66** | **8.13** | **7.24** |

e Estimated r Revised p Preliminary

See footnote in Appendix B.

# Table 21

## UNITED STATES AVERAGE NATURAL GAS PRICES

**(Dollars/Thousand Cubic Feet)**

| DATE | WELLHEAD[3] | SPOT MARKET[5] | FOREIGN IMPORTS[3] | CITY GATES[3] | DELIVERED TO RESIDENTIAL[3] |
|---|---|---|---|---|---|
| 1984 | 2.66 | N/A | 4.08 | 3.89 | 6.12 |
| 1985 | 2.51 | 2.49 | 3.19 | 3.75 | 6.12 |
| 1986 | 1.94 | 1.68 | 2.53 | 3.22 | 5.83 |
| 1987 | 1.67 | 1.48 | 2.17 | 2.87 | 5.54 |
| 1988 | 1.69 | 1.69 | 2.00 | 2.92 | 5.47 |
| 1989 | 1.69 | 1.64 | 2.04 | 3.01 | 5.64 |
| 1990 | 1.71 | 1.67 | 1.94 | 3.03 | 5.80 |
| 1991 | 1.63 | 1.45 | 1.82 | 2.90 | 6.22 |
| 1992 | 1.73 | 1.75 | 1.85 | 3.01 | 6.28 |
| 1993 | 2.03 | 2.10 | 2.03 | 3.21 | 6.67 |
| 1994 | 1.85 | 1.84 | 1.87 | 3.07 | 6.89 |
| 1995 | 1.55 | 1.56 | 1.49 | 2.78 | 6.58 |
| 1996 | 2.16 | 2.39 | 1.96 | 3.27 | 6.97 |
| 1997 | 2.32 | 2.54 | 2.15 | 3.66 | 6.94 |
| 1998 | 1.95 | 2.11 | 1.97 | 3.07 | 7.45 |
| 1999 | 2.19 | 2.28 | 2.23 | 3.10 | 7.34 |
| 2000 | 3.69 | 3.94 | 3.88 | 4.62 | 8.51 |
| 2001 | 4.02 | 4.34 | 4.36 | 5.24 | 9.91 |
| 2002 | 2.95 | 3.26 | 3.14 | 4.10 | 8.60 |
| 2003 | 4.98 | 5.48 | 5.18 | 5.84 | 10.48 |
| | | | | | |
| January | 5.53 | 6.23 | 5.97 | 6.40 | 9.60 |
| February | 5.15 | 5.40 | 5.68 | 6.34 | 9.73 |
| March | 4.97 | 5.39 | 5.14 | 6.22 | 9.84 |
| April | 5.20 | 5.75 | 5.22 | 6.33 | 10.52 |
| May | 5.63 | 6.12 | 5.64 | 6.48 | 11.60 |
| June | 5.85 | 6.40 | 6.06 | 6.92 | 13.05 |
| July | 5.60 | 6.08 | 5.75 | 6.68 | 13.41 |
| August | 5.36 | 5.73 | 5.61 | 6.50 | 13.79 |
| September | 4.86 | 5.01 | 4.96 | 6.07 | 13.29 |
| October | 5.45 | 5.72 | 5.38 | 6.31 | 11.67 |
| November | 6.07 | 6.56 | 6.98 | 7.49 | 11.44 |
| December | 6.25 | 6.92 | 6.96 | 7.51 | 11.11 |
| **2004 Average** | **5.49** | **5.94** | **5.78** | **6.60** | **11.59** |
| | | | | | |
| January | 5.52 | 6.62 | 6.02 | 7.06 | 11.02 |
| February | 5.59 | 6.30 | 6.12 | 7.13 | 10.90 |
| March | 5.98 | 7.02 | 6.50 | 7.21 | 10.96 |
| April | 6.44 | 7.45 | 6.93 | 7.83 | 11.89 |
| May | 6.02 | 6.66 | 6.58 | 7.43 | 12.72 |
| June | 6.15 | 6.89 | 6.36 | 7.20 | 13.84 |
| July | 6.69 | 7.44 | N/A | 7.62 | 14.94 |
| August | 7.68 | 8.58 | N/A | 8.16 | 15.58 |
| September | 9.50 | 12.12 | N/A | 10.26 | 16.60 |
| October | 10.97 | 12.66 | N/A | 12.18 | 16.49 |
| November | N/A | 9.84 | N/A | N/A | N/A |
| December | N/A | 12.48 | N/A | N/A | N/A |
| **2005 Average** | **7.05** | **8.67** | **6.42** | **8.21** | **13.49** |

e Estimated r Revised p Preliminary

See footnote in Appendix B.

# Table 21A

## UNITED STATES AVERAGE NATURAL GAS PRICES

**(Dollars/MMBTU)**

| DATE | WELLHEAD[3] | SPOT MARKET[5] | FOREIGN IMPORTS[3] | CITY GATES[3] | DELIVERED TO RESIDENTIAL[3] |
|---|---|---|---|---|---|
| 1984 | 2.56 | N/A | 3.92 | 3.74 | 5.88 |
| 1985 | 2.41 | 2.39 | 3.07 | 3.61 | 5.88 |
| 1986 | 1.87 | 1.62 | 2.43 | 3.10 | 5.61 |
| 1987 | 1.61 | 1.42 | 2.09 | 2.76 | 5.33 |
| 1988 | 1.63 | 1.63 | 1.92 | 2.81 | 5.26 |
| 1989 | 1.63 | 1.58 | 1.96 | 2.89 | 5.42 |
| 1990 | 1.64 | 1.61 | 1.87 | 2.91 | 5.58 |
| 1991 | 1.57 | 1.40 | 1.75 | 2.76 | 5.98 |
| 1992 | 1.67 | 1.68 | 1.78 | 2.91 | 6.04 |
| 1993 | 1.95 | 2.02 | 1.95 | 3.14 | 6.42 |
| 1994 | 1.78 | 1.77 | 1.80 | 2.95 | 6.63 |
| 1995 | 1.49 | 1.50 | 1.43 | 2.69 | 6.33 |
| 1996 | 2.08 | 2.30 | 1.88 | 3.19 | 6.70 |
| 1997 | 2.23 | 2.44 | 2.07 | 3.44 | 7.16 |
| 1998 | 1.88 | 2.03 | 1.89 | 2.94 | 7.16 |
| 1999 | 2.11 | 2.19 | 2.15 | 3.04 | 7.06 |
| 2000 | 3.54 | 3.79 | 3.73 | 4.48 | 8.18 |
| 2001 | 3.86 | 4.17 | 4.19 | 5.04 | 9.53 |
| 2002 | 2.83 | 3.14 | 3.02 | 3.94 | 8.27 |
| 2003 | 4.78 | 5.27 | 4.98 | 5.62 | 10.07 |
| January | 5.32 | 5.99 | 5.74 | 6.15 | 9.23 |
| February | 4.95 | 5.20 | 5.46 | 6.10 | 9.36 |
| March | 4.78 | 5.18 | 4.94 | 5.98 | 9.46 |
| April | 5.00 | 5.53 | 5.02 | 6.09 | 10.12 |
| May | 5.41 | 5.88 | 5.42 | 6.23 | 11.15 |
| June | 5.63 | 6.16 | 5.83 | 6.65 | 12.55 |
| July | 5.38 | 5.85 | 5.53 | 6.42 | 12.89 |
| August | 5.15 | 5.51 | 5.39 | 6.25 | 13.26 |
| September | 4.67 | 4.82 | 4.77 | 5.84 | 12.78 |
| October | 5.24 | 5.50 | 5.17 | 6.07 | 11.22 |
| November | 5.84 | 6.31 | 6.71 | 7.20 | 11.00 |
| December | 6.01 | 6.65 | 6.69 | 7.22 | 10.68 |
| **2004 Average** | **5.28** | **5.71** | **5.56** | **6.35** | **11.14** |
| January | 5.31 | 6.37 | 5.79 | 6.79 | 10.60 |
| February | 5.38 | 6.06 | 5.88 | 6.86 | 10.48 |
| March | 5.75 | 6.75 | 6.25 | 6.93 | 10.54 |
| April | 6.19 | 7.16 | 6.66 | 7.53 | 11.43 |
| May | 5.79 | 6.40 | 6.33 | 7.14 | 12.23 |
| June | 5.91 | 6.63 | 6.12 | 6.92 | 13.31 |
| July | 6.43 | 7.15 | N/A | 7.33 | 14.37 |
| August | 7.38 | 8.25 | N/A | 7.85 | 14.98 |
| September | 9.13 | 11.65 | N/A | 9.87 | 15.96 |
| October | 10.55 | 12.17 | N/A | 11.71 | 15.86 |
| November | N/A | 9.46 | N/A | N/A | N/A |
| December | N/A | 12.00 | N/A | N/A | N/A |
| **2005 Average** | **6.78** | **8.34** | **6.17** | **7.89** | **12.98** |

e Estimated r Revised p Preliminary

See footnote in Appendix B.

# Table 22

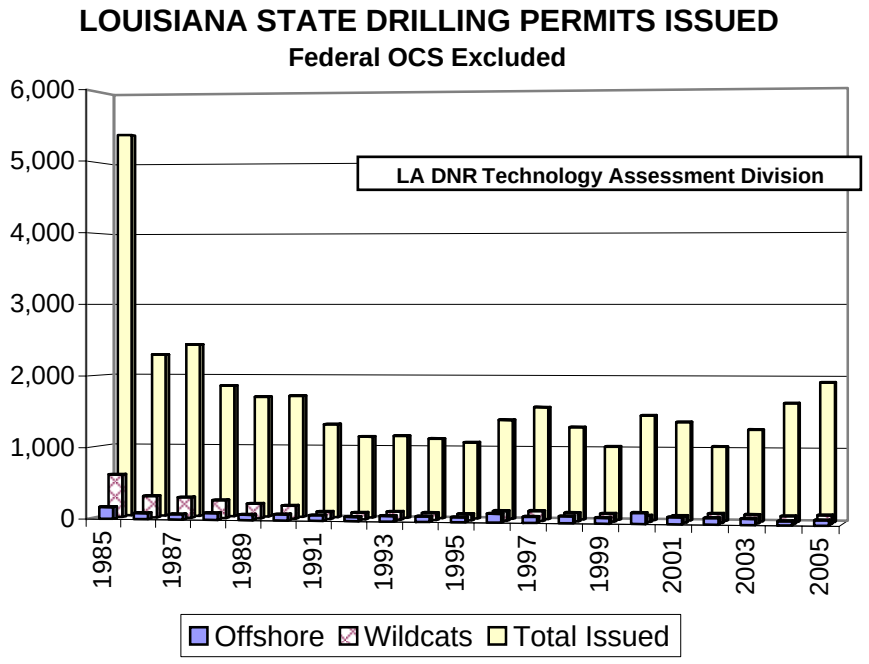
## LOUISIANA STATE OIL AND GAS DRILLING PERMITS ISSUED BY TYPE

**Excluding OCS**

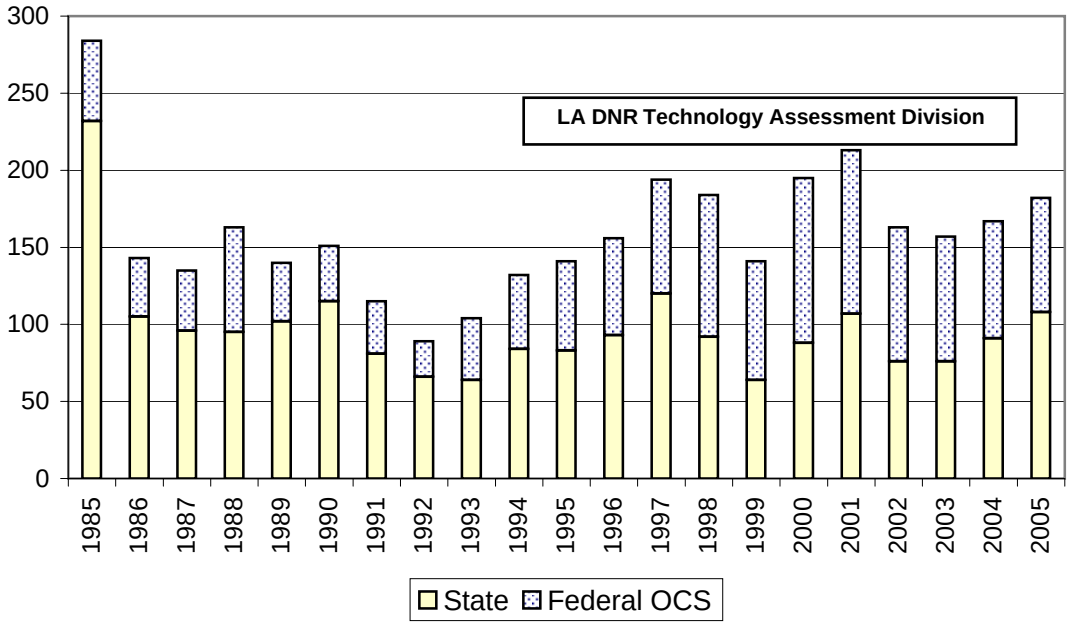
| DATE | DEVELOPMENTAL + | WILDCATS = | TOTAL = | OFFSHORE + | ONSHORE |
|---|---|---|---|---|---|
| 1984 | 6,929 | 702 | 7,631 | 231 | 7,400 |
| 1985 | 4,811 | 599 | 5,410 | 165 | 5,245 |
| 1986 | 1,984 | 298 | 2,282 | 84 | 2,198 |
| 1987 | 2,148 | 284 | 2,432 | 73 | 2,359 |
| 1988 | 1,601 | 249 | 1,850 | 94 | 1,756 |
| 1989 | 1,486 | 204 | 1,690 | 75 | 1,615 |
| 1990 | 1,526 | 181 | 1,707 | 85 | 1,622 |
| 1991 | 1,209 | 100 | 1,309 | 77 | 1,232 |
| 1992 | 1,044 | 92 | 1,136 | 59 | 1,077 |
| 1993 | 1,040 | 109 | 1,149 | 76 | 1,073 |
| 1994 | 1,015 | 98 | 1,113 | 74 | 1,039 |
| 1995 | 979 | 86 | 1,065 | 68 | 997 |
| 1996 | 1,248 | 133 | 1,381 | 121 | 1,260 |
| 1997 | 1,424 | 138 | 1,562 | 85 | 1,477 |
| 1998 | 1,171 | 115 | 1,286 | 96 | 1,190 |
| 1999 | 908 | 109 | 1,017 | 79 | 938 |
| 2000 | 1,363 | 90 | 1,453 | 151 | 1,302 |
| 2001 | 1,277 | 88 | 1,365 | 96 | 1,269 |
| 2002 | 902 | 123 | 1,025 | 90 | 935 |
| 2003 | 1,152 | 112 | 1,264 | 83 | 1,181 |
| | | | | | |
| January | 98 | 11 | 109 | 4 | 105 |
| February | 131 | 7 | 138 | 4 | 134 |
| March | 133 | 8 | 141 | 9 | 132 |
| April | 131 | 14 | 145 | 4 | 141 |
| May | 123 | 8 | 131 | 2 | 129 |
| June | 155 | 6 | 161 | 12 | 149 |
| July | 115 | 3 | 118 | 4 | 114 |
| August | 148 | 4 | 152 | 1 | 151 |
| September | 116 | 8 | 124 | 2 | 122 |
| October | 134 | 20 | 154 | 5 | 149 |
| November | 121 | 5 | 126 | 5 | 121 |
| December | 130 | 4 | 134 | 5 | 129 |
| **2004 Total** | **1,535** | **98** | **1,633** | **57** | **1,576** |
| | | | | | |
| January | 161 | 10 | 171 | 7 | 164 |
| February | 125 | 13 | 138 | 3 | 135 |
| March | 156 | 7 | 163 | 6 | 157 |
| April | 105 | 9 | 114 | 5 | 109 |
| May | 191 | 7 | 198 | 10 | 188 |
| June | 173 | 16 | 189 | 5 | 184 |
| July | 187 | 14 | 201 | 5 | 196 |
| August | 150 | 9 | 159 | 10 | 149 |
| September | 153 | 8 | 161 | 4 | 157 |
| October | 147 | 8 | 155 | 11 | 144 |
| November | 194 | 7 | 201 | 6 | 195 |
| December | 140 | 6 | 146 | 2 | 144 |
| **2005 Total** | **1,882** | **114** | **1,996** | **74** | **1,922** |

e Estimated r Revised p Preliminary

## Figure 11




## Figure 12



# Table 23

## LOUISIANA AVERAGE RIGS RUNNING

| DATE | State North[4] | State South Inland Water[4] | State South Inland Land[4] | State Offshore | Total State | Federal Offshore | Total Offshore[4] (State+OCS) | LA[4] TOTAL |
|---|---|---|---|---|---|---|---|---|
| 1984 | 30 | 51 | 96 | 78 | 256 | 54 | 132 | 310 |
| 1985 | 25 | 44 | 86 | 78 | 232 | 52 | 130 | 283 |
| 1986 | 12 | 20 | 42 | 31 | 105 | 38 | 69 | 143 |
| 1987 | 11 | 23 | 36 | 26 | 96 | 39 | 65 | 135 |
| 1988 | 14 | 27 | 35 | 20 | 95 | 68 | 88 | 163 |
| 1989 | 16 | 17 | 35 | 34 | 102 | 38 | 72 | 140 |
| 1990 | 19 | 20 | 36 | 40 | 115 | 36 | 76 | 151 |
| 1991 | 11 | 16 | 31 | 23 | 81 | 34 | 57 | 115 |
| 1992 | 9 | 13 | 27 | 16 | 66 | 23 | 39 | 88 |
| 1993 | 11 | 12 | 22 | 19 | 64 | 40 | 59 | 104 |
| 1994 | 14 | 16 | 25 | 29 | 84 | 48 | 78 | 132 |
| 1995 | 16 | 15 | 28 | 23 | 82 | 59 | 81 | 141 |
| 1996 | 19 | 19 | 31 | 25 | 93 | 63 | 88 | 156 |
| 1997 | 21 | 23 | 48 | 28 | 120 | 74 | 102 | 194 |
| 1998 | 19 | 21 | 38 | 14 | 93 | 92 | 106 | 184 |
| 1999 | 16 | 16 | 21 | 12 | 65 | 76 | 88 | 141 |
| 2000 | 24 | 16 | 37 | 11 | 87 | 107 | 118 | 195 |
| 2001 | 30 | 20 | 44 | 13 | 107 | 106 | 119 | 213 |
| 2002 | 23 | 16 | 32 | 5 | 76 | 87 | 92 | 163 |
| 2003 | 29 | 14 | 29 | 4 | 76 | 81 | 85 | 157 |
| January | 35 | 17 | 24 | 3 | 77 | 78 | 81 | 157 |
| February | 38 | 17 | 28 | 5 | 86 | 79 | 84 | 167 |
| March | 36 | 16 | 34 | 4 | 90 | 77 | 81 | 167 |
| April | 40 | 18 | 31 | 2 | 91 | 78 | 80 | 169 |
| May | 36 | 20 | 28 | 2 | 86 | 80 | 82 | 166 |
| June | 38 | 19 | 28 | 3 | 88 | 80 | 83 | 168 |
| July | 36 | 17 | 32 | 3 | 88 | 79 | 82 | 167 |
| August | 40 | 18 | 33 | 2 | 93 | 74 | 76 | 167 |
| September | 41 | 17 | 34 | 3 | 95 | 68 | 71 | 163 |
| October | 46 | 18 | 33 | 3 | 100 | 70 | 73 | 170 |
| November | 45 | 22 | 30 | 4 | 101 | 72 | 76 | 173 |
| December | 40 | 20 | 28 | 4 | 92 | 77 | 81 | 169 |
| **2004 Average** | **39** | **18** | **30** | **3** | **91** | **76** | **79** | **167** |
| January | 39 | 21 | 26 | 4 | 90 | 73 | 77 | 163 |
| February | 44 | 26 | 32 | 5 | 107 | 77 | 82 | 184 |
| March | 48 | 26 | 35 | 6 | 115 | 73 | 79 | 188 |
| April | 45 | 27 | 32 | 5 | 109 | 70 | 75 | 179 |
| May | 45 | 24 | 28 | 5 | 102 | 75 | 80 | 177 |
| June | 50 | 23 | 29 | 4 | 106 | 81 | 85 | 187 |
| July | 50 | 25 | 31 | 3 | 109 | 87 | 90 | 196 |
| August | 53 | 24 | 34 | 4 | 114 | 86 | 90 | 201 |
| September | 54 | 21 | 36 | 4 | 115 | 72 | 76 | 187 |
| October | 51 | 19 | 34 | 5 | 109 | 68 | 73 | 177 |
| November | 51 | 21 | 37 | 3 | 112 | 68 | 71 | 180 |
| December | 49 | 19 | 35 | 5 | 108 | 59 | 64 | 167 |
| **2005 Average** | **48** | **23** | **32** | **4** | **108** | **74** | **79** | **182** |

e Estimated r Revised p Preliminary

# Table 24

## LOUISIANA STATE PRODUCING CRUDE OIL WELLS

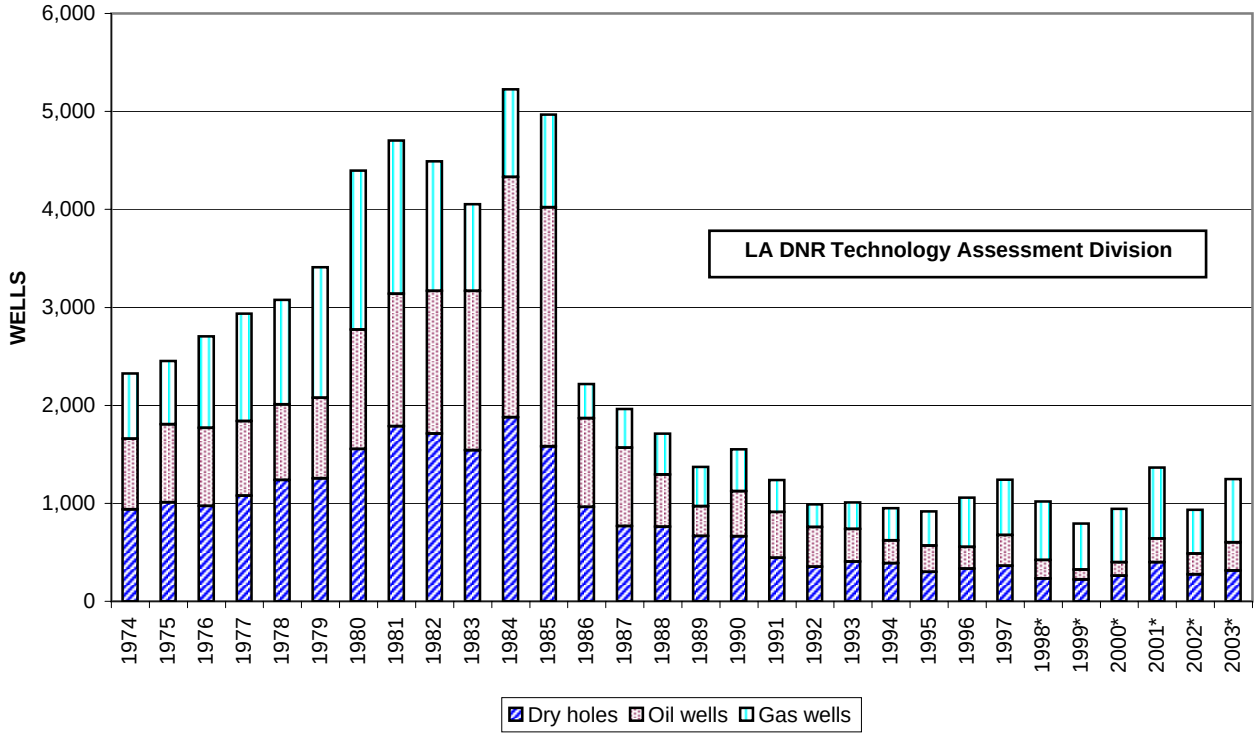
**Excluding OCS**

| DATE | NORTH | SOUTH | OFFSHORE | TOTAL |
|---|---|---|---|---|
| 1959 | 11,380 | 10,454 | N/A | 21,834 |
| 1960 | 11,501 | 11,173 | N/A | 22,674 |
| 1961 | 11,790 | 12,202 | N/A | 23,993 |
| 1962 | 12,192 | 13,344 | N/A | 25,536 |
| 1963 | 12,833 | 14,144 | N/A | 26,977 |
| 1964 | 13,901 | 13,661 | 1,265 | 28,826 |
| 1965 | 14,505 | 11,558 | 3,938 | 30,001 |
| 1966 | 14,419 | 12,165 | 4,330 | 30,915 |
| 1967 | 14,191 | 12,183 | 4,677 | 31,051 |
| 1968 | 13,856 | 11,698 | 4,767 | 30,321 |
| 1969 | 13,670 | 11,131 | 4,954 | 29,756 |
| 1970 | 13,166 | 10,363 | 1,179 | 24,707 |
| 1971 | 12,889 | 9,626 | 1,107 | 23,623 |
| 1972 | 12,475 | 8,912 | 1,048 | 22,436 |
| 1973 | 11,698 | 8,249 | 1,025 | 20,972 |
| 1974 | 11,984 | 8,262 | 985 | 21,230 |
| 1975 | 12,259 | 8,094 | 936 | 21,288 |
| 1976 | 12,393 | 7,730 | 1,073 | 21,196 |
| 1977 | 12,915 | 7,444 | 1,067 | 21,425 |
| 1978 | 13,019 | 7,219 | 1,086 | 21,324 |
| 1979 | 12,961 | 6,859 | 1,078 | 20,898 |
| 1980 | 13,981 | 6,832 | 1,073 | 21,885 |
| 1981 | 15,084 | 6,777 | 1,105 | 22,966 |
| 1982 | 15,540 | 6,608 | 1,112 | 23,259 |
| 1983 | 16,299 | 6,374 | 1,037 | 23,710 |
| 1984 | 17,544 | 6,300 | 1,038 | 24,882 |
| 1985 | 18,794 | 6,223 | 1,014 | 26,031 |
| 1986 | 19,346 | 6,061 | 1,001 | 26,408 |
| 1987 | 18,630 | 5,768 | 945 | 25,343 |
| 1988 | 17,953 | 5,698 | 964 | 24,615 |
| 1989 | 16,849 | 5,474 | 927 | 23,250 |
| 1990 | 17,369 | 5,215 | 906 | 23,490 |
| 1991 | 17,731 | 5,143 | 868 | 23,742 |
| 1992 | 17,449 | 5,155 | 842 | 23,446 |
| 1993 | 16,810 | 5,015 | 814 | 22,640 |
| 1994 | 15,904 | 4,682 | 805 | 21,392 |
| 1995 | 15,260 | 4,451 | 769 | 20,479 |
| 1996 | 15,148 | 4,295 | 719 | 20,163 |
| 1997 | 14,573 | 4,165 | 619 | 20,358 |
| 1998 | 13,975 | 3,962 | 546 | 18,484 |
| 1999 | 13,747 | 3,971 | 546 | 18,264 |
| 2000 | 14,450 [e] | 4,187 [e] | 575 [e] | 19,211 |
| 2001 | 14,368 [e] | 4,168 [e] | 703 [e] | 19,239 |
| 2002 | 14,242 [e] | 4,208 [e] | 687 [e] | 19,137 |
| 2003 | 15,062 [e] | 4,305 [e] | 640 [e] | 20,006 |
| 2004 | 14,880 [e] | 4,244 [e] | 600 [e] | 19,724 |
| 2005 | 15,170 [e] | 3,904 [e] | 600 [e] | 19,674 |

e Estimated r Revised p Preliminary

**Figure 13**

**LOUISIANA WELL COMPLETIONS BY TYPE**



# Table 25

## LOUISIANA STATE PRODUCING NATURAL GAS WELLS

**Excluding OCS**

| DATE | NORTH | SOUTH | OFFSHORE | TOTAL |
|---|---|---|---|---|
| 1959 | 3,398 | 2,306 | 0 | 5,704 |
| 1960 | 3,449 | 2,714 | 0 | 6,163 |
| 1961 | 3,611 | 2,996 | 0 | 6,607 |
| 1962 | 3,843 | 3,304 | 0 | 7,148 |
| 1963 | 4,103 | 3,545 | 0 | 7,648 |
| 1964 | 4,336 | 3,502 | 187 | 8,025 |
| 1965 | 4,477 | 3,227 | 618 | 8,321 |
| 1966 | 4,566 | 3,381 | 748 | 8,694 |
| 1967 | 4,548 | 3,448 | 882 | 8,878 |
| 1968 | 4,563 | 3,582 | 1,048 | 9,194 |
| 1969 | 4,558 | 3,451 | 1,297 | 9,306 |
| 1970 | 4,511 | 3,438 | 311 | 8,260 |
| 1971 | 4,449 | 3,389 | 327 | 8,164 |
| 1972 | 4,664 | 3,397 | 316 | 8,378 |
| 1973 | 4,927 | 3,449 | 332 | 8,707 |
| 1974 | 5,159 | 3,458 | 313 | 8,929 |
| 1975 | 5,373 | 3,331 | 308 | 9,012 |
| 1976 | 5,851 | 3,289 | 362 | 9,502 |
| 1977 | 6,343 | 3,331 | 449 | 10,123 |
| 1978 | 6,915 | 3,253 | 472 | 10,640 |
| 1979 | 7,372 | 3,214 | 514 | 11,100 |
| 1980 | 8,360 | 3,277 | 551 | 12,188 |
| 1981 | 9,479 | 3,226 | 557 | 13,262 |
| 1982 | 10,154 | 3,136 | 564 | 13,855 |
| 1983 | 10,502 | 3,065 | 549 | 14,115 |
| 1984 | 10,812 | 2,955 | 532 | 14,299 |
| 1985 | 11,026 | 2,887 | 511 | 14,424 |
| 1986 | 11,049 | 2,730 | 436 | 14,216 |
| 1987 | 10,726 | 2,635 | 413 | 13,774 |
| 1988 | 10,813 | 2,539 | 445 | 13,796 |
| 1989 | 10,861 | 2,474 | 501 | 13,836 |
| 1990 | 10,802 | 2,407 | 512 | 13,721 |
| 1991 | 10,702 | 2,261 | 496 | 13,459 |
| 1992 | 10,498 | 2,149 | 496 | 13,143 |
| 1993 | 10,506 | 2,192 | 490 | 13,189 |
| 1994 | 10,596 | 2,260 | 473 | 13,329 |
| 1995 | 10,452 | 2,200 | 335 | 12,987 |
| 1996 | 10,376 | 2,148 | 274 | 12,799 |
| 1997 | 10,446 | 2,149 | 296 | 12,891 |
| 1998 | 10,579 | 1,995 | 259 | 12,833 |
| 1999 | 10,581 | 2,010 | 262 | 12,853 |
| 2000 | 11,111 [e] | 2,134 [e] | 299 [e] | 13,545 |
| 2001 | 10,569 [e] | 2,194 [e] | 322 [e] | 13,085 |
| 2002 | 10,972 [e] | 2,132 [e] | 292 [e] | 13,397 |
| 2003 | 11,450 [e] | 2,444 [e] | 462 [e] | 14,356 |
| 2004 | 10,932 [e] | 2,338 [e] | 400 [e] | 13,670 |
| 2005 | 12,632 [e] | 3,043 [e] | 450 [e] | 16,125 |

e Estimated r Revised p Preliminary

# Table 26

## LOUISIANA STATE WELL COMPLETION BY TYPE AND BY REGION
**Excluding OCS**

| | YEAR | OFFSHORE | SOUTH | NORTH | TOTAL |
|---|---|---|---|---|---|
| | 1989 | 7 | 126 | 170 | 303 |
| | 1990 | 9 | 164 | 288 | 461 |
| | 1991 | 22 | 178 | 266 | 466 |
| C | 1992 | 19 | 163 | 222 | 404 |
| R O | 1993 | 24 | 136 | 173 | 333 |
| U I | 1994 | 13 | 103 | 117 | 233 |
| D L | 1995 | 31 | 100 | 137 | 268 |
| E | 1996 | 34 | 67 | 122 | 223 |
| | 1997 | 39 | 168 | 106 | 313 |
| | 1998 | 24 e | 100 e | 64 e | 188 |
| | 1999 | 4 e | 35 e | 60 e | 99 |
| | 2000 | 10 e | 51 e | 77 e | 138 |
| | 2001 | 11 e | 92 e | 137 e | 240 |
| | 2002 | 10 e | 86 e | 117 e | 213 |
| | 2003 | 38 e | 87 e | 163 e | 288 |
| | 1989 | 17 | 132 | 254 | 403 |
| | 1990 | 11 | 157 | 258 | 426 |
| | 1991 | 9 | 126 | 192 | 327 |
| N | 1992 | 8 | 111 | 113 | 232 |
| A | 1993 | 6 | 89 | 176 | 271 |
| T G | 1994 | 9 | 141 | 180 | 330 |
| U A | 1995 | 8 | 126 | 216 | 350 |
| R S | 1996 | 22 | 154 | 325 | 501 |
| A | 1997 | 22 | 160 | 383 | 565 |
| L | 1998 | 23 e | 170 e | 407 e | 600 |
| | 1999 | 17 e | 169 e | 287 e | 473 |
| | 2000 | 21 e | 166 e | 359 e | 546 |
| | 2001 | 20 e | 279 e | 426 e | 725 |
| | 2002 | 15 e | 215 e | 219 e | 449 |
| | 2003 | 21 e | 198 e | 427 e | 646 |
| | 1989 | 13 | 281 | 373 | 667 |
| | 1990 | 15 | 283 | 366 | 664 |
| | 1991 | 11 | 205 | 228 | 444 |
| | 1992 | 5 | 158 | 190 | 353 |
| D H | 1993 | 4 | 168 | 234 | 406 |
| R O | 1994 | 12 | 141 | 236 | 389 |
| Y L | 1995 | 8 | 138 | 155 | 301 |
| E | 1996 | 12 | 151 | 170 | 333 |
| | 1997 | 9 | 165 | 188 | 362 |
| | 1998 | 7 e | 104 e | 121 e | 232 e |
| | 1999 | 8 e | 80 e | 135 e | 223 e |
| | 2000 | 9 e | 98 e | 154 e | 261 e |
| | 2001 | 10 e | 184 e | 205 e | 399 e |
| | 2002 | 4 e | 122 e | 147 e | 273 e |
| | 2003 | 12 e | 125 e | 177 e | 314 e |

e Estimated

Note: Data beyond 2003 is not available.

# Table 27

## LOUISIANA STATE MINERAL BONUS, RENTAL AND ROYALTY OVERRIDE REVENUES, Excluding OCS

**(Million Dollars)**

| DATE | BONUSES | OVERRIDE ROYALTY | RENTALS | TOTAL |
|---|---|---|---|---|
| 1984 | 67.98 | 0.80 | 21.21 | 89.99 |
| 1985 | 32.08 | 0.90 | 20.86 | 53.84 |
| 1986 | 15.89 | 0.50 | 12.25 | 28.64 |
| 1987 | 26.82 | 0.39 | 6.70 | 33.90 |
| 1988 | 17.65 | 0.29 | 9.28 | 27.22 |
| 1989 | 11.59 | 0.29 | 8.34 | 20.21 |
| 1990 | 19.02 | 0.32 | 6.76 | 26.10 |
| 1991 | 9.82 | 0.32 | 8.71 | 18.85 |
| 1992 | 4.26 | 0.32 | 6.97 | 11.55 |
| 1993 | 13.29 | 0.20 | 4.20 | 17.68 |
| 1994 | 15.31 | 0.19 | 6.15 | 21.65 |
| 1995 | 31.96 | 0.69 | 9.47 | 42.12 |
| 1996 | 39.63 | -0.27 | 18.40 | 57.76 |
| 1997 | 38.27 | 0.84 | 25.00 | 64.11 |
| 1998 | 42.27 | 0.69 | 25.86 | 68.82 |
| 1999 | 14.17 | 0.45 | 20.27 | 34.89 |
| 2000 | 21.12 | 1.13 | 14.16 | 36.41 |
| 2001 | 29.70 | 1.89 | 13.75 | 45.34 |
| 2002 | 24.74 | 2.29 | 14.26 | 41.28 |
| 2003 | 19.54 | 3.36 | 12.93 | 35.83 |
| | | | | |
| January | 1.17 | 0.43 | 1.29 | 2.89 |
| February | 4.10 | 0.25 | 0.54 | 4.89 |
| March | 2.65 | 0.27 | 0.65 | 3.57 |
| April | 0.34 | 0.14 | 0.62 | 1.10 |
| May | 3.19 | 0.23 | 0.30 | 3.72 |
| June | 1.93 | 0.27 | 1.20 | 3.40 |
| July | 1.72 | 2.84 | 0.79 | 5.35 |
| August | 1.93 | -0.07 | 0.81 | 2.67 |
| September | 2.99 | 0.18 | 0.40 | 3.58 |
| October | 6.91 | 0.17 | 1.09 | 8.16 |
| November | 1.85 | 0.21 | 0.98 | 3.04 |
| December | 1.02 | 0.13 | 0.79 | 1.94 |
| **2004 Total** | **29.79** | **5.05** | **9.47** | **44.31** |
| | | | | |
| January | 1.00 | 0.06 | 0.80 | 1.86 |
| February | 5.09 | 0.15 | 1.60 | 6.85 |
| March | 3.04 | 0.19 | 1.40 | 4.62 |
| April | 2.86 | 0.14 | 0.77 | 3.76 |
| May | 4.69 | 0.24 | 2.38 | 7.32 |
| June | 2.22 | 0.13 | 0.92 | 3.27 |
| July | 4.86 | 0.15 | 1.00 | 6.01 |
| August | 1.83 | 0.18 | 1.66 | 3.67 |
| September | 4.23 | 0.26 | 0.86 | 5.35 |
| October | 0.84 | 0.18 | 1.23 | 2.25 |
| November | 1.36 | 0.20 | 0.77 | 2.33 |
| December | 3.75 | 0.15 | 0.37 | 4.27 |
| **2005 Total** | **35.78** | **2.03** | **13.75** | **51.56** |

e Estimated r Revised p Preliminary

# Table 28

## LOUISIANA STATE MINERAL ROYALTY REVENUE

**Excluding OCS**
**(Million Dollars)**

| DATE | OIL | GAS | PLANT LIQUIDS | OTHER | TOTAL |
|---|---|---|---|---|---|
| 1984 | 226.64 | 210.99 | 13.06 | 2.29 | 452.98 |
| 1985 | 201.14 | 174.45 | 9.55 | 2.62 | 387.76 |
| 1986 | 122.22 | 154.83 | 6.34 | 1.96 | 285.34 |
| 1987 | 125.72 | 120.54 | 4.90 | 1.60 | 252.76 |
| 1988 | 98.55 | 124.06 | 4.39 | 1.35 | 228.35 |
| 1989 | 112.30 | 116.18 | 3.92 | 1.42 | 233.82 |
| 1990 | 135.44 | 113.14 | 3.80 | 0.90 | 253.28 |
| 1991 | 120.49 | 91.43 | 4.51 | 0.34 | 216.76 |
| 1992 | 113.29 | 97.07 | 4.69 | 0.00 | 215.04 |
| 1993 | 99.20 | 125.01 | 4.53 | 0.00 | 228.74 |
| 1994 | 85.72 | 102.95 | 4.05 | 0.00 | 192.72 |
| 1995 | 95.82 | 146.60 | 4.60 | 0.00 | 247.02 |
| 1996 | 123.51 | 211.31 | 6.72 | 0.00 | 341.54 |
| 1997 | 112.76 | 154.62 | 5.93 | 0.00 | 273.31 |
| 1998 | 68.85 | 121.17 | 2.58 | 0.00 | 192.60 |
| 1999 | 91.52 | 115.10 | 2.05 | 0.00 | 208.66 |
| 2000 | 145.80 r | 212.71 | 3.46 | 0.00 | 361.97 r |
| 2001 | 122.16 r | 252.68 r | 6.33 r | 0.00 | 381.17 r |
| 2002 | 100.10 r | 163.47 | 8.03 | 0.00 | 271.60 r |
| 2003 | 127.61 r | 288.91 r | 9.31 r | 0.00 r | 425.83 r |
| | | | | | |
| January | 11.12 r | 24.88 r | 1.28 r | 0.00 | 37.27 r |
| February | 10.40 r | 21.44 r | 1.16 r | 0.00 | 33.00 r |
| March | 11.90 r | 21.23 r | 1.12 r | 0.00 | 34.25 r |
| April | 11.61 r | 22.03 r | 1.12 r | 0.00 | 34.75 r |
| May | 12.49 r | 24.02 r | 1.24 r | 0.00 | 37.75 r |
| June | 11.52 r | 25.80 r | 1.21 r | 0.00 | 38.53 r |
| July | 12.51 r | 25.04 r | 1.31 r | 0.00 | 38.86 r |
| August | 13.79 r | 23.49 r | 1.29 r | 0.00 | 38.57 r |
| September | 9.94 r | 16.44 r | 1.11 r | 0.00 | 27.48 r |
| October | 13.17 r | 20.71 r | 1.38 r | 0.00 | 35.26 r |
| November | 13.19 r | 24.15 r | 1.31 r | 0.00 | 38.64 r |
| December | 12.05 r | 24.90 r | 1.09 r | 0.00 | 38.04 r |
| **2004 Total** | **143.68 r** | **274.13 r** | **14.61 r** | **0.00** | **432.42 r** |
| | | | | | |
| January | 13.30 | 21.86 | 0.96 | 0.00 | 36.12 |
| February | 12.98 | 19.90 | 0.88 | 0.00 | 33.76 |
| March | 16.10 | 23.43 | 1.10 | 0.00 | 40.63 |
| April | 15.51 | 24.90 | 0.99 | 0.00 | 41.40 |
| May | 14.83 | 23.89 | 0.95 | 0.00 | 39.67 |
| June | 15.65 | 21.92 | 0.93 | 0.00 | 38.50 |
| July | 15.60 | 23.29 | 1.02 | 0.00 | 39.92 |
| August | 16.06 | 24.42 | 1.06 | 0.00 | 41.54 |
| September | 14.30 | 18.41 | 0.36 | 0.00 | 33.08 |
| October | 15.14 e | 19.76 e | 0.25 e | 0.00 | 35.15 e |
| November | 15.31 e | 14.01 e | 0.11 e | 0.00 | 29.43 e |
| December | 10.00 e | 11.00 e | 0.23 e | 0.00 | 21.24 e |
| **2005 Total** | **174.78 e** | **246.79 e** | **8.86 e** | **0.00** | **430.44** e |

e Estimated r Revised p Preliminary

# Table 29

## LOUISIANA STATE MINERAL SEVERANCE TAX REVENUE[8]

**Excluding OCS**
**(Million Dollars)**

| DATE | OIL | GAS | OTHER MINERALS | SEVERANCE TOTAL |
|---|---|---|---|---|
| 1984 | 652.39 | 130.99 | 3.62 | 787.00 |
| 1985 | 598.67 | 120.96 | 3.73 | 723.37 |
| 1986 | 389.87 | 125.14 | 3.42 | 518.42 |
| 1987 | 345.18 | 111.84 | 2.99 | 460.01 |
| 1988 | 296.45 | 106.29 | 2.65 | 405.39 |
| 1989 | 312.99 | 108.84 | 2.43 | 424.26 |
| 1990 | 373.21 | 124.61 | 2.75 | 500.58 |
| 1991 | 367.13 | 146.83 | 1.97 | 515.93 |
| 1992 | 326.07 | 126.24 | 1.63 | 453.94 |
| 1993 | 283.68 | 107.32 | 1.76 | 392.76 |
| 1994 | 229.40 | 114.58 | 2.02 | 346.00 |
| 1995 | 233.37 | 114.58 | 1.85 | 349.80 |
| 1996 | 270.36 | 98.60 | 1.88 | 370.84 |
| 1997 | 257.13 | 118.27 | 1.85 | 377.25 |
| 1998 | 148.96 | 120.98 | 1.40 | 271.34 |
| 1999 | 171.29 | 102.48 | 1.82 | 275.60 |
| 2000 | 337.51 | 104.33 | 1.50 | 443.34 |
| 2001 | 281.95 | 165.77 | 1.65 | 449.38 |
| 2002 | 235.84 | 173.51 | 1.33 | 410.67 |
| 2003 | 316.70 | 152.13 | 1.70 | 470.53 |
| | | | | |
| January | 3.82 | 3.77 | 0.03 | 7.63 |
| February | 34.39 | 19.78 | 0.23 | 54.40 |
| March | 38.36 | 20.94 | 0.15 | 59.45 |
| April | 23.74 | 13.18 | 0.15 | 37.06 |
| May | 26.97 | 20.22 | 0.11 | 47.31 |
| June | 25.97 | 17.16 | 0.15 | 43.28 |
| July | 44.77 | 20.58 | 0.19 | 65.54 |
| August | 26.77 | 16.33 | 0.20 | 43.30 |
| September | 24.45 | 14.01 | 0.13 | 38.58 |
| October | 41.83 | 30.05 | 0.19 | 72.07 |
| November | 45.67 | 26.14 | 0.12 | 71.92 |
| December | 23.02 r | 14.57 r | 0.10 r | 37.69 r |
| **2004 Total** | **359.77** r | **216.73** r | **1.73** r | **578.23** r |
| | | | | |
| January | 29.65 | 22.23 | 0.18 | 52.06 |
| February | 46.14 | 20.59 | 0.07 | 66.80 |
| March | 36.00 | 18.78 | 0.19 | 54.97 |
| April | 37.77 | 17.89 | 0.10 | 55.76 |
| May | 51.50 | 21.35 | 0.18 | 73.03 |
| June | 28.67 | 18.38 | 0.13 | 47.18 |
| July | 33.99 | 19.91 | 0.15 | 54.06 |
| August | 48.80 | 22.03 | 0.19 | 68.30 |
| September | 42.02 | 24.78 | 0.15 | 66.95 |
| October | 30.86 | 32.83 | 0.05 | 63.74 |
| November | 30.56 e | 20.00 e | 0.08 e | 50.64 e |
| December | 25.86 e | 19.87 e | 0.10 e | 45.82 e |
| **2005 Total** | **441.82** e | **258.64** e | **1.57** e | **699.30** e |

e Estimated r Revised p Preliminary

# Table 30

## STATE SECTION 8(g) REVENUE FROM LOUISIANA'S OCS[13]

**(Dollars)**

| YEAR | RENTALS | BONUSES | ROYALTIES | 8G ESCROW | SETTLE-MENT | TOTAL |
|---|---|---|---|---|---|---|
| 1988 | 153,561 | 5,528,006 | 8,708,079 | 0 | 2,520,000 | 16,909,646 |
| 1989 | 175,817 | 2,890,298 | 7,163,105 | 0 | 2,520,000 | 12,749,220 |
| 1990 | 430,198 | 5,570,375 | 6,239,368 | 0 | 2,520,000 | 14,759,941 |
| 1991 | 303,824 | 2,220,094 | 8,461,261 | 0 | 2,520,000 | 13,505,179 |
| 1992 | 258,787 | 1,189,989 | 6,405,279 | 0 | 5,880,000 | 13,734,055 |
| 1993 | 235,250 | 965,504 | 7,373,550 | 0 | 5,880,000 | 14,454,304 |
| 1994 | 1,016,932 | 1,913,682 | 11,780,932 | 0 | 5,880,000 | 20,591,546 |
| 1995 | 255,213 | 890,002 | 8,012,718 | 0 | 5,880,000 | 15,037,933 |
| 1996 | 292,445 | 4,666,400 | 12,283,395 | 0 | 5,880,000 | 23,122,240 |
| 1997 | 686,051 | 5,689,689 | 11,855,454 | 0 | 8,400,000 | 26,631,194 |
| 1998 | 412,229 | 1,744,928 | 9,621,860 | 0 | 8,400,000 | 20,179,017 |
| 1999 | 357,379 | 241,659 | 6,284,879 | 0 | 8,400,000 | 15,283,917 |
| 2000 | 321,695 | 1,268,244 | 12,690,937 | 0 | 8,400,000 | 22,680,876 |
| 2001 | 303,675 | 2,148,111 | 30,454,058 | 0 | 8,400,000 | 41,305,844 r |
| 2002 | 94,841 | N/A | 11,768,383 | 0 | 0 | 11,863,224 r |
| 2003 | 284,563 | 2,842,662 | 26,447,045 | 0 | 0 | 29,574,271 r |
| 2004 | 490,745 | 7,620,500 | 30,145,237 | 0 | 0 | 38,256,482 r |
| 2005 | 374,717 | 2,521,931 | 27,995,948 | 0 | 0 | 30,892,596 |

See footnotes on Appendix B

Royalty revenues from Federal offshore leases on the Outer Continental Shelf (OCS) are distributed to the Land and Water Conservation Fund, the Historic Preservation Fund, and the General Fund of the U.S. Treasury. Transfers are made in each fiscal year from OCS royalties, rentals and bonuses in order to maintain the Land and Water Conservation Fund's annual authorization of $900 million. Annually, $150 million is put into the Historic Preservation Fund. The balance of offshore revenue receipts is directed to the General Fund of the U.S. Treasury.

Section 8(g) of the Outer Continental Shelf Lands Act Amendments of 1978 provided that the states were to receive a "fair and equitable" division of revenues generated from the leasing of lands within 3 miles of the seaward boundary of a coastal state that contains one or more oil and gas pools or fields underlying both the OCS and lands subject to the jurisdiction of the state. The states and the federal government, however, were unable to reach agreement concerning the meaning of the term "fair and equitable". Revenues generated in the 3-mile boundary zone were subsequently placed into an escrow fund in August 1979.

Congress resolved the dispute over the meaning of "fair and equitable" in the Outer Continental Shelf Lands Act Amendments of 1985, Public Law 99-272. The law provided for the following distribution of revenues to the states under section 8(g):

Before 1986: Louisiana did not receive any shared revenue from OCS production prior to 1986.

1986: Louisiana received a payment of $68.7 million from royalties, rentals and bonuses collected in 1986 and prior years.

1998-2000: In 1987 Louisiana received an initial settlement payment of $572 million from the escrow funds. A series of annual settlement payments have been disbursed to the states over a 15-year period along with an annual disbursement of 27 percent of royalty, rental, and bonus revenues received within each affected state's 8(g) zone. The annual settlement payments are: From 1987 through 1991, Louisiana received an annual settlement payment of $2.52 million per year. From 1992 through 1996, the state received an annual settlement payment of $5.88 million per year. Beginning in 1997 until the last payment in 2001, Louisiana will receive an annual settlement payment of approximately $8.40 million per year.

2002 and After: No further settlement payments; states receive only a recurring annual disbursement of 27 percent of royalty, rental, and bonus revenues received within each affected state's 8(g) zone. Louisiana will receive an annual disbursement of 27 percent of royalty, rental, and bonus revenues received within Louisiana's affected 8(g) zone.

# TABLE 31

## LOUISIANA STATE TOTAL MINERAL REVENUE

**(Dollars)**

| YEAR | FEDERAL OCS (8g) | FEDERAL ONSHORE | STATE BOUNDARIES | TOTAL |
|---|---|---|---|---|
| 1981 | 0 | 612,000 | 1,653,883,820 | 1,654,495,820 |
| 1982 | 0 | 617,000 | 1,498,482,501 | 1,499,099,501 |
| 1983 | 0 | 637,000 | 1,328,700,057 | 1,329,337,057 |
| 1984 | 0 | 905,000 | 1,329,965,030 | 1,330,870,030 |
| 1985 | 0 | 795,000 | 1,164,969,360 | 1,165,764,360 |
| 1986 | 68,699,504 | 555,000 | 832,406,385 | 901,660,889 |
| 1987 | 588,862,212 | 517,000 | 746,675,897 | 1,336,055,109 |
| 1988 | 16,909,646 | 545,000 | 660,959,699 | 678,414,345 |
| 1989 | 12,749,220 | 452,000 | 678,301,987 | 691,503,207 |
| 1990 | 14,759,941 | 542,000 | 779,963,703 | 795,265,644 |
| 1991 | 13,505,179 | 328,000 | 751,117,246 | 764,950,425 |
| 1992 | 13,734,055 | 376,000 | 680,527,788 | 694,637,843 |
| 1993 | 14,454,304 | 782,000 | 639,182,812 | 654,412,032 |
| 1994 | 20,591,546 | 532,000 | 560,371,998 | 581,495,544 |
| 1995 | 15,037,933 | 728,000 | 638,942,698 | 605,347,517 |
| 1996 | 23,122,240 | 943,209 | 770,137,601 | 794,203,050 |
| 1997 | 26,631,194 | 817,329 | 714,672,685 | 742,121,208 |
| 1998 | 20,179,017 | 996,000 | 532,755,940 | 553,930,957 |
| 1999 | 15,283,917 | 1,276,465 | 519,144,200 | 535,704,582 |
| 2000 | 22,680,876 | 1,024,730 | 839,883,694 | 863,589,300 |
| 2001 | 41,305,844 r | 1,481,176 r | 877,286,806 | 920,073,826 r |
| 2002 | 11,863,224 r | 730,156 | 723,411,114 | 736,004,494 r |
| 2003 | 29,574,271 r | 1,182,451 | 931,633,625 r | 962,390,346 r |
| 2004 | 38,256,482 r | 1,364,964 | 1,054,768,722 r | 1,094,390,168 r |
| 2005 | 30,892,596 | 1,569,882 | 1,181,303,174 p | 1,213,765,652 p |

e Estimated r Revised p Preliminary

See footnote in Appendix B.

**Federal OCS:** See table 30.

**Federal Onshore:** Revenue distributed to the state under section 35 of the Mineral Leasing Act (MLA). MLA provides to the state 50% of mineral revenue from federal lands located within the state boundaries. Revenues came from royalties, rents and bonuses.

**State Boundaries:** Revenue from mineral production such as bonuses, override royalties, rents, royalties and severance taxes within state boundaries.

# Table 32

## REVENUE TO FEDERAL GOVERNMENT COLLECTED FROM OIL AND GAS LEASES IN THE LOUISIANA OCS [12]

**(Area beyond the state's 3-mile offshore boundary)**
**(Dollars)**

| YEAR | BONUS PAYMENTS | RENTAL PAYMENTS | MINIMUM ROYALTIES | PRODUCTION ROYALTIES | TOTAL[a] COLLECTION |
|---|---|---|---|---|---|
| 1967 | 510,079,178 | 5,500,516 | 1,888,758 | 149,096,032 | 666,564,484 |
| 1968 | 149,868,789 | 5,275,979 | 2,140,858 | 190,907,982 | 348,193,608 |
| 1969 | 110,945,535 | 5,584,162 | 1,922,340 | 226,504,238 | 344,956,275 |
| 1970 | 945,064,773 | 6,243,362 | 1,692,274 | 262,709,833 | 1,215,710,242 |
| 1971 | 96,304,523 | 5,687,848 | 1,564,845 | 324,815,819 | 428,373,035 |
| 1972 | 2,251,347,556 | 6,396,291 | 1,725,573 | 342,476,302 | 2,601,945,722 |
| 1973 | 193,031,709 | 5,272,797 | 2,005,785 | 380,509,177 | 580,819,468 |
| 1974 | 3,528,744,084 | 8,350,760 | 1,739,159 | 535,836,029 | 4,074,670,032 |
| 1975 | 325,424,688 | 8,947,571 | 1,837,253 | 593,359,397 | 929,568,909 |
| 1976 | 482,592,035 | 12,974,770 | 1,879,704 | 682,922,971 | 1,180,369,480 |
| 1977 | 813,991,004 | 7,740,185 | 1,248,616 | 899,016,863 | 1,721,996,668 |
| 1978 | 1,015,873,944 | 8,616,027 | 1,502,963 | 1,086,517,424 | 2,112,510,358 |
| 1979 | 2,521,190,635 | 7,328,999 | 1,105,865 | 1,344,995,442 | 3,874,620,941 |
| 1980 | 2,676,927,673 | 7,361,904 | 1,277,987 | 1,866,737,837 | 4,552,305,401 |
| 1981 | 3,308,009,881 | 8,205,515 | 1,211,959 | 2,825,271,285 | 6,142,698,640 |
| 1982 | 1,110,172,751 | 7,288,316 | 1,349,850 | 3,166,294,042 | 4,285,104,959 |
| 1983 | 3,796,644,766 | 13,620,158 | 2,540,294 | 2,764,348,600 | 6,577,153,818 |
| 1984 | 1,154,495,009 | 16,323,567 | 2,010,462 | 3,195,995,282 | 4,368,824,320 |
| 1985 | 830,710,260 | 33,756,447 | 2,139,530 | 2,940,519,737 | 3,807,125,974 |
| 1986 | 113,731,609 | 34,110,029 | 3,199,547 | 2,006,205,199 | 2,157,246,384 |
| 1987 | 247,344,486 | 52,115,828 | 19,239,027 | 1,803,208,740 | 2,121,908,081 |
| 1988 | 388,730,457 | 35,752,757 | 8,727,373 | 1,571,981,500 | 2,005,192,087 |
| 1989 | 386,710,637 | 48,498,402 | 26,261,190 | 1,618,163,065 | 2,079,633,294 |
| 1990 | 421,375,632 | 55,568,777 | 16,028,740 | 2,068,487,831 | 2,561,460,980 |
| 1991 | 276,234,849 | 59,126,732 | 15,444,167 | 1,857,392,914 | 2,208,198,662 |
| 1992 | 53,716,797 | 49,087,621 | 33,533,897 | 1,848,599,157 | 1,984,937,472 |
| 1993 | 61,454,861 | 29,268,366 | 119,445,091 | 2,009,644,653 | 2,219,812,971 |
| 1994 | 256,271,643 | 30,003,884 | 141,190,812 | 1,888,953,102 | 2,316,419,441 |
| 1995 | 296,254,733 | 62,526,069 | 19,803,444 | 1,764,875,791 | 2,143,460,037 |
| 1996 | 24,330,068 | 53,231,380 | 40,394,227 | 2,549,759,516 | 3,154,940,691 |
| 1997 | 1,169,790 | 55,761,920 | 65,651,370 | 2,857,126,443 | 3,789,383,151 |
| 1998 | 9,207,972 | 51,518,286 | -14,452,431 | 2,267,502,514 | 2,313,776,341 |
| 1999 | 1,169,790 | 40,463,226 | 49,219,184 | 2,228,250,265 | 2,319,102,465 |
| 2000 | 83,630,219 | 32,710,256 | 167,647,231 | 3,045,847,943 | 3,329,835,649 |
| 2001 | 160,037,859 | 30,078,009 | 177,773,259 | 5,126,344,201 | 5,494,233,328 |
| | | | **GULF OF MEXICO TOTAL** | | |
| 2001 | 632,482,979 | 188,455,045 | 3,126,962 | 6,674,371,634 | 7,498,436,619 |
| 2002 | 138,423,162 | 153,303,576 | 3,252,702 | 3,841,164,517 | 4,136,143,958 |
| 2003 | 1,147,014,322 | 245,963,859 | 4,983,819 | 4,535,938,009 | 5,933,900,009 |
| 2004 | 523,416,154 | 214,303,045 | 2,570,343 | 4,607,776,092 | 5,348,065,634 |
| 2005 | 518,426,651 | 221,784,370 | 1,897,501 | 5,313,350,455 | 6,055,458,976 |

[a] Total collection, including state 8G shares.

[b] Negative due to overpayment's refunds

See footnote in Appendix B.

# Table 33

## LOUISIANA ESTIMATED CRUDE OIL PROVED RESERVES[9] EXCLUDING LEASE CONDENSATE

**As of December 31st of Each Year**
**(Million Barrels)**

| YEAR | North | South Onshore | South Offshore | Federal OCS | Total Louisiana | TOTAL US |
|---|---|---|---|---|---|---|
| 1984 | 165 | 585 | 1,911 | b | 2,661 | 28,446 |
| 1985 | 196 | 565 | 122 | 1,759 | 2,642 | 28,416 |
| 1986 | 160 | 547 | 119 | 1,640 | 2,466 | 26,889 |
| 1987 | 175 | 505 | 127 | 1,514 | 2,321 | 27,256 |
| 1988 | 154 | 511 | 135 | 1,527 | 2,327 | 26,825 |
| 1989 | 123 | 479 | 143 | 1,691 | 2,436 | 26,501 |
| 1990 | 120 | 435 | 150 | 1,772 | 2,477 | 26,254 |
| 1991 | 127 | 408 | 144 | 1,775 | 2,454 | 24,682 |
| 1992 | 125 | 417 | 126 | 1,643 | 2,311 | 23,745 |
| 1993 | 108 | 382 | 149 | 1,880 | 2,519 | 22,957 |
| 1994 | 108 | 391 | 150 | 1,922 | 2,571 | 22,457 |
| 1995 | 108 | 387 | 142 | 2,269 | 2,906 | 22,351 |
| 1996 | 128 | 382 | 148 | 2,357 | 3,015 | 22,017 |
| 1997 | 136 | 427 | 151 | 2,587 | 3,301 | 22,546 |
| 1998 | 101 | 357 | 97 | 2,483 | 3,038 | 21,034 |
| 1999 | 108 | 384 | 108 | 2,442 | 3,042 | 21,765 |
| 2000 | 97 | 310 | 122 | 2,751 | 3,280 | 22,045 |
| 2001 | 87 | 341 | 136 | 3,877 | 4,441 | 22,446 |
| 2002 | 75 | 335 | 91 | 4,088 | 4,589 | 22,677 |
| 2003 | 66 | 314 | 72 | 4,251 | 4,703 | 21,891 |
| 2004 | 58 | 304 | 65 | 3,919 | 4,346 | 21,371 |

NOTE: 1984 Federal OCS production is included in the south offshore figure

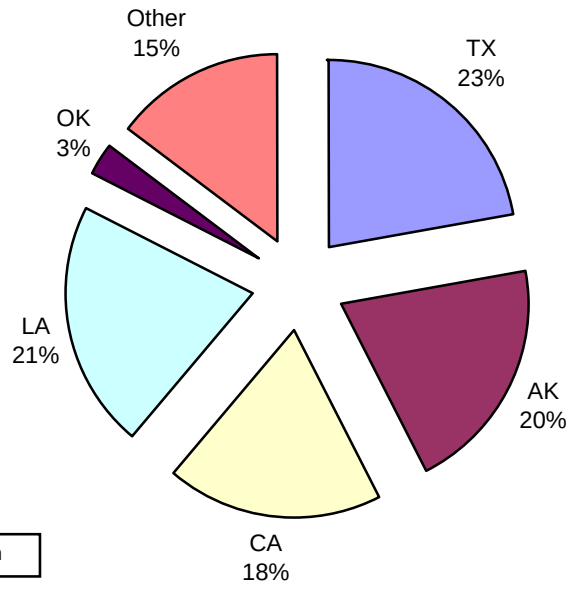
See footnotes on Appendix B  N/A  Not Available

## Figure 14

**UNITED STATES CRUDE OIL RESERVES**
**December 31, 2003**
**Excluding Lease Condensate**
(Million Barrels)

| STATE | VOLUME |
|---|---|
| Texas | 4,886 |
| Alaska | 4,446 |
| California | 4,018 |
| Louisiana | 4,703 |
| Oklahoma | 588 |
| Other | 3,250 |
| **TOTAL** | **21,891** |

**LA DNR Technology Assessment Division**



# Table 34

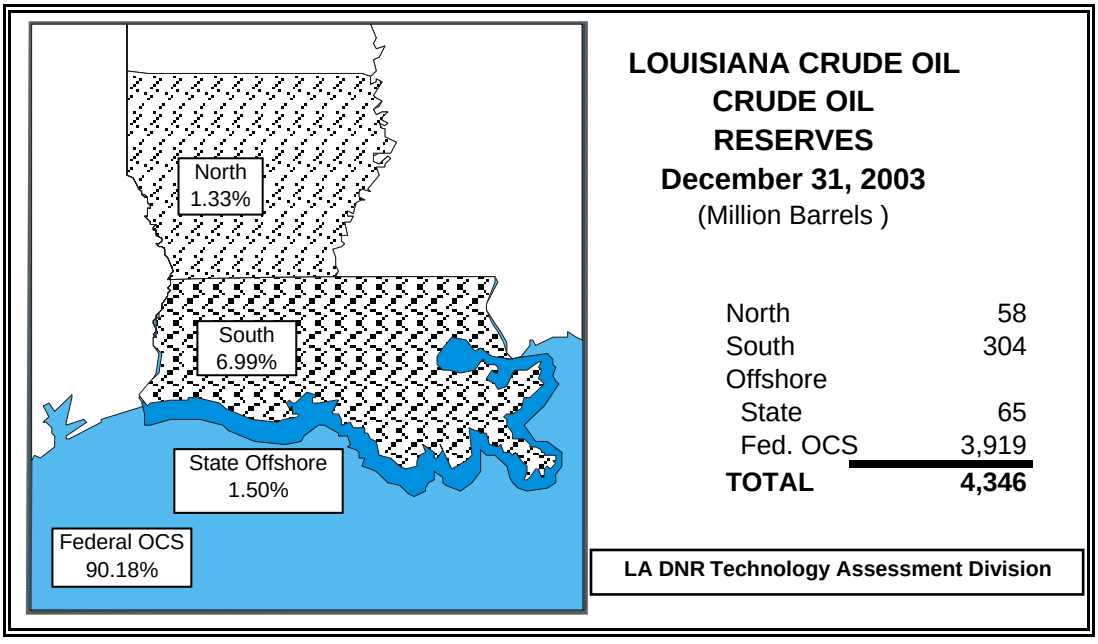
## LOUISIANA ESTIMATED LEASE CONDENSATE PROVED RESERVES[9]

**As of December 31st of Each Year**
**(Million Barrels)**

| YEAR | North | South Onshore | South Offshore | Federal OCS | Total Louisiana | TOTAL US |
|---|---|---|---|---|---|---|
| 1984 | 19 | 229 | 269 | b | 517 | 1,522 |
| 1985 | 18 | 220 | 257 | b | 495 | 1,453 |
| 1986 | 18 | 208 | 11 | 230 | 467 | 1,436 |
| 1987 | 17 | 194 | 13 | 223 | 447 | 1,402 |
| 1988 | 17 | 193 | 13 | 223 | 446 | 1,389 |
| 1989 | 20 | 196 | 12 | 278 | 506 | 1,389 |
| 1990 | 20 | 182 | 12 | 258 | 472 | 1,302 |
| 1991 | 21 | 175 | 9 | 253 | 458 | 1,244 |
| 1992 | 19 | 151 | 8 | 226 | 404 | 1,226 |
| 1993 | 19 | 133 | 9 | 235 | 396 | 1,192 |
| 1994 | 21 | 123 | 9 | 233 | 386 | 1,147 |
| 1995 | 24 | 136 | 11 | 305 | 476 | 1,197 |
| 1996 | 24 | 127 | 11 | 422 | 584 | 1,307 |
| 1997 | 30 | 134 | 12 | 433 | 609 | 1,341 |
| 1998 | 23 | 138 | 16 | 435 | 612 | 1,336 |
| 1999 | 25 | 134 | 15 | 435 | 609 | 1,295 |
| 2000 | 22 | 130 | 17 | 437 | 606 | 1,333 |
| 2001 | 27 | 141 | 19 | 325 | 512 | 1,398 |
| 2002 | 19 | 104 | 11 | 300 | 434 | 1,346 |
| 2003 | 19 | 82 | 11 | 251 | 363 | 1,215 |
| 2004 | 19 | 95 | 11 | 276 | 400 | 1,342 |

NOTE: Federal OCS is included in the south offshore figure from 1984 through 1985.
See footnotes on Appendix B

## Figure 15



# Table 35

## LOUISIANA ESTIMATED DRY NATURAL GAS PROVED RESERVES[9]

**As of December 31st of Each Year**

**(Billion Cubic Feet, at 14.73 psia and 60 degrees Fahrenheit)**

| YEAR | North | South Onshore | South Offshore | Federal OCS | Total Louisiana | TOTAL US |
|---|---|---|---|---|---|---|
| 1984 | 2,494 | 10,331 | 28,574 c | b | 41,399 c | 197,463 |
| 1985 | 2,587 | 9,808 | 1,643 | 26,113 c | 40,151 c | 193,369 |
| 1986 | 2,515 | 9,103 | 1,312 | 25,454 c | 38,384 c | 191,586 |
| 1987 | 2,306 | 8,693 | 1,431 | 23,260 c | 35,690 c | 187,211 |
| 1988 | 2,398 | 8,654 | 1,172 | 23,471 c | 35,695 c | 168,024 |
| 1989 | 2,652 | 8,645 | 1,219 | 24,187 c | 36,703 c | 167,116 |
| 1990 | 2,588 | 8,171 | 969 | 22,679 c | 34,407 c | 169,346 |
| 1991 | 2,384 | 7,504 | 1,024 | 21,611 c | 32,523 c | 167,062 |
| 1992 | 2,311 | 6,693 | 776 | 19,653 c | 29,433 c | 165,015 |
| 1993 | 2,325 | 5,932 | 917 | 19,383 c | 28,557 c | 162,415 |
| 1994 | 2,537 | 6,251 | 960 | 20,835 c | 30,583 c | 163,837 |
| 1995 | 2,788 | 5,648 | 838 | 21,392 c | 30,666 c | 165,146 |
| 1996 | 3,105 | 5,704 | 734 | 21,856 c | 31,399 c | 166,474 |
| 1997 | 3,093 | 5,855 | 725 | 21,934 c | 31,607 c | 167,223 |
| 1998 | 2,898 | 5,698 | 551 | 20,774 c | 29,921 c | 164,041 |
| 1999 | 3,079 | 5,535 | 628 | 19,598 c | 28,840 c | 167,406 |
| 2000 | 3,298 | 5,245 | 696 | 19,788 c | 29,027 c | 177,427 |
| 2001 | 3,881 | 5,185 | 745 | 19,721 c | 29,532 c | 183,460 |
| 2002 | 4,245 | 4,224 | 491 | 18,500 c | 27,460 c | 186,946 |
| 2003 | 5,074 | 3,746 | 506 | 16,728 c | 26,054 c | 189,044 |
| 2004 | 5,770 | 3,436 | 382 | 14,685 c | 24,273 c | 192,513 |

NOTE: 1984 federal OCS production is included in the south offshore figure

N/A Not Available [C] Includes Federal Offshore Alabama

## Figure 16

**UNITED STATES NATURAL GAS RESERVES**

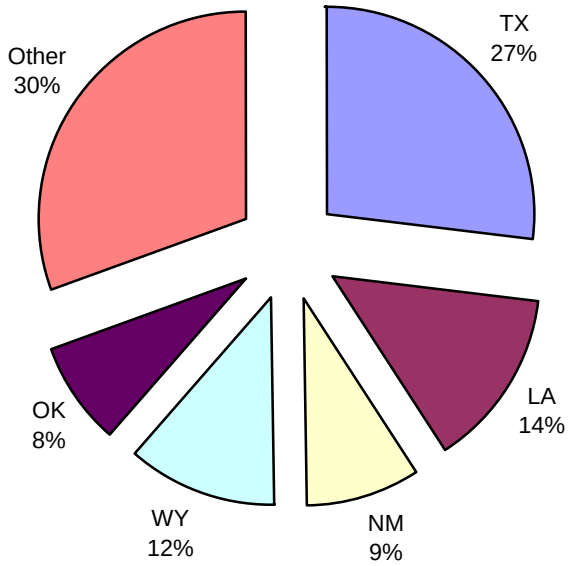
**December 31, 2003**

(Billion Cubic Feet)

| STATE | VOLUME |
|---|---|
| Texas | 51,061 |
| Louisiana | 26,053 |
| New Mexico | 17,020 |
| Wyoming | 21,744 |
| Oklahoma | 15,401 |
| Other | 57,765 |
| **TOTAL** | **189,044** |

Need Change

**LA DNR Technology Assessment Division**



# Table 36

## LOUISIANA ESTIMATED NATURAL GAS LIQUIDS PROVED RESERVES [9] EXCLUDING LEASE CONDENSATE

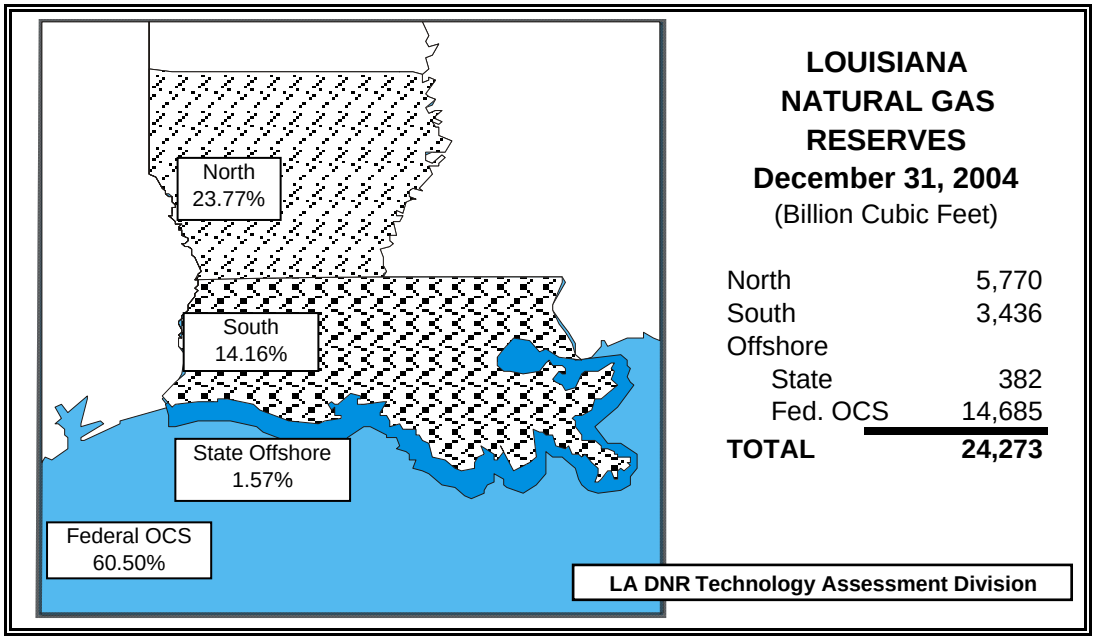
**As of December 31st of Each Year**
**(Million Barrels)**

| YEAR | North | South Onshore | South Offshore | Federal OCS | Total Louisiana | TOTAL US |
|---|---|---|---|---|---|---|
| 1984 | 55 | 298 | 462 | b | 815 | 4,599 |
| 1985 | 39 | 234 | 420 | b | 693 | 5,038 |
| 1986 | 39 | 220 | 28 | 336 | 623 | 5,293 |
| 1987 | 33 | 235 | 33 | 309 | 610 | 5,343 |
| 1988 | 39 | 228 | 27 | 289 | 583 | 5,460 |
| 1989 | 40 | 215 | 39 | 297 | 591 | 4,991 |
| 1990 | 38 | 249 | 37 | 261 | 585 | 4,982 |
| 1991 | 38 | 242 | 41 | 292 | 613 | 4,978 |
| 1992 | 41 | 229 | 47 | 246 | 563 | 4,999 |
| 1993 | 38 | 201 | 21 | 255 | 515 | 4,838 |
| 1994 | 48 | 214 | 19 | 267 | 548 | 4,876 |
| 1995 | 55 | 359 | 16 | 191 | 621 | 5,005 |
| 1996 | 61 | 284 | 36 | 199 | 580 | 5,209 |
| 1997 | 50 | 199 | 12 | 352 | 613 | 5,291 |
| 1998 | 34 | 187 | 13 | 341 | 575 | 4,852 |
| 1999 | 36 | 230 | 19 | 398 | 681 | 5,316 |
| 2000 | 39 | 207 | 21 | 315 | 582 | 7,012 |
| 2001 | 35 | 128 | 41 | 273 | 477 | 6,595 |
| 2002 | 30 | 119 | 37 | 483 | 669 | 6,648 |
| 2003 | 48 | 100 | 35 | 235 | 418 | 6,244 |
| 2004 | 55 | 59 | 25 | 340 | 478 | 6,586 |

NOTE: Federal OCS is included in the south offshore figure from 1984 through 1985.

See footnotes on Appendix B  N/A Not Available

## Figure 17



# Table 37

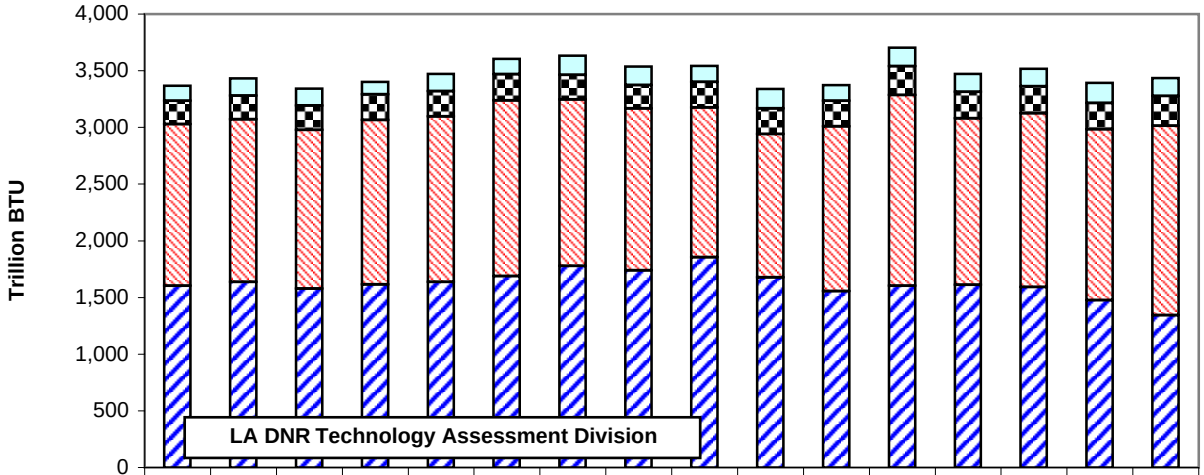
## LOUISIANA NONAGRICULTURAL EMPLOYMENT [1]

| DATE | OIL & GAS PRODUCTION | CHEMICAL INDUSTRY | PETROLEUM MANUFACTURING | ALL PIPELINE* | TOTAL EMPLOYMENT |
|---|---|---|---|---|---|
| 1983 | 77,283 | 30,272 | 13,140 | 1,282 | 1,531,480 |
| 1984 | 78,032 | 29,104 | 13,053 | 1,247 | 1,568,064 |
| 1985 | 77,781 | 28,093 | 12,458 | 1,144 | 1,550,443 |
| 1986 | 58,888 | 25,998 | 12,233 | 1,168 | 1,475,318 |
| 1987 | 52,117 | 25,345 | 12,225 | 1,051 | 1,438,793 |
| 1988 | 54,565 | 26,957 | 11,258 | 1,039 | 1,468,508 |
| 1989 | 52,509 | 27,717 | 11,321 | 1,016 | 1,492,051 |
| 1990 | 54,063 | 29,083 | 11,535 | 1,041 | 1,546,820 |
| 1991 | 54,412 | 29,412 | 12,268 | 1,073 | 1,566,779 |
| 1992 | 45,869 | 30,349 | 12,543 | 1,095 | 1,583,423 |
| 1993 | 44,422 | 30,419 | 12,728 | 1,078 | 1,613,577 |
| 1994 | 44,885 | 30,014 | 13,037 | 1,014 | 1,671,087 |
| 1995 | 44,279 | 30,168 | 11,603 | 932 | 1,721,651 |
| 1996 | 46,885 | 30,096 | 11,262 | 789 | 1,757,619 |
| 1997 | 51,559 | 29,935 | 11,038 | 792 | 1,797,225 |
| 1998 | 54,875 | 30,196 | 10,984 | 702 | 1,837,505 |
| 1999 | 44,645 | 28,898 | 11,046 | 693 | 1,846,026 |
| 2000 | 45,714 | 28,335 | 10,345 | 724 | 1,872,494 |
| 2001 | 47,009 | 27,337 | 10,643 | 2,417 | 1,868,902 |
| 2002 | 43,839 | 25,694 | 10,566 | 2,306 | 1,848,656 |
| January | 42,141 | 25,085 | 10,662 | 2,338 | 1,827,933 |
| February | 42,498 | 25,020 | 10,621 | 2,330 | 1,833,533 |
| March | 42,510 | 24,958 | 10,621 | 2,339 | 1,839,159 |
| April | 42,587 | 24,780 | 10,678 | 2,334 | 1,854,633 |
| May | 42,833 | 24,659 | 10,667 | 2,319 | 1,864,109 |
| June | 43,545 | 24,455 | 10,662 | 2,335 | 1,867,206 |
| July | 42,417 | 24,542 | 10,334 | 2,343 | 1,832,730 |
| August | 42,563 | 24,435 | 10,205 | 2,340 | 1,843,562 |
| September | 42,109 | 24,256 | 10,116 | 2,313 | 1,853,399 |
| October | 42,044 | 24,203 | 10,048 | 2,339 | 1,863,691 |
| November | 41,756 | 24,306 | 10,115 | 2,341 | 1,867,975 |
| December | 41,064 | 23,996 | 10,014 | 2,334 | 1,870,905 |
| **2003 Average** | **42,339** | **24,558** | **10,395** | **2,334** | **1,851,570** |
| January | 39,879 | 24,034 | 9,666 | 2,256 | 1,840,003 |
| February | 40,293 | 23,919 | 9,660 | 2,248 | 1,846,218 |
| March | 40,706 | 23,991 | 9,735 | 2,249 | 1,862,146 |
| April | 40,578 | 23,816 | 9,813 | 2,186 | 1,874,060 |
| May | 40,395 | 23,698 | 9,762 | 2,189 | 1,876,745 |
| June | 40,631 | 23,658 | 9,818 | 2,182 | 1,884,773 |
| July | 39,911 | 23,496 | 10,158 | 2,011 | 1,852,555 |
| August | 39,684 | 23,386 | 10,089 | 2,006 | 1,856,858 |
| September | 39,496 | 23,253 | 10,138 | 2,006 | 1,861,135 |
| October | 40,445 | 22,965 | 10,272 | 2,041 | 1,872,458 |
| November | 40,560 | 22,967 | 10,198 | 2,043 | 1,885,190 |
| December | 40,409 | 23,007 | 10,192 | 2,043 | 1,890,302 |
| **2004 Average** | **40,249** | **23,516** | **9,958** | **2,122** | **1,866,870** |

* Natural Gas Pipeline employment is included in 2001 forward but excluded in prior years.
See footnote in Appendix B.

## Figure 18

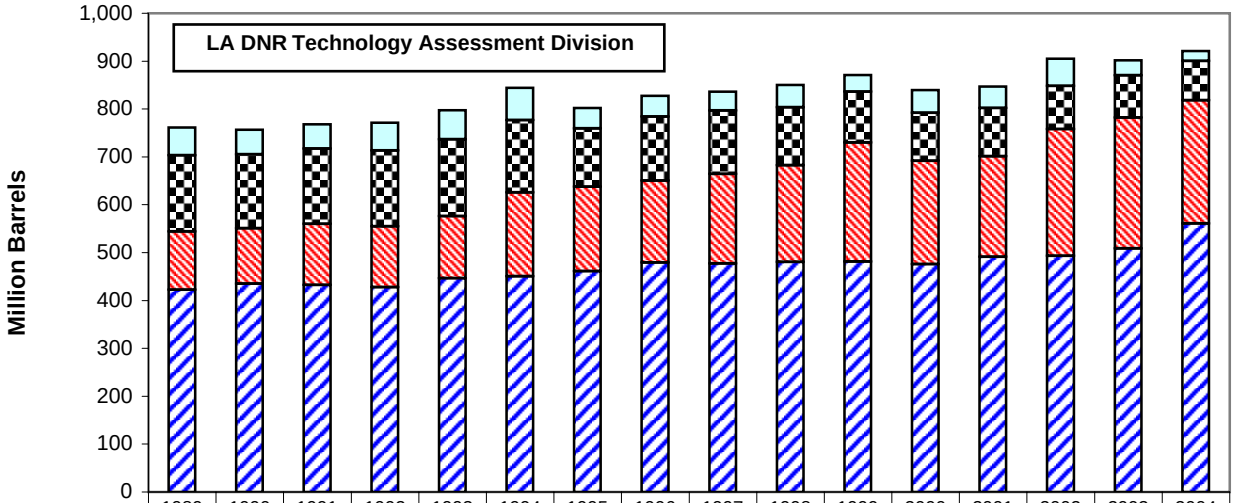
## LOUISIANA ENERGY CONSUMPTION BY SOURCE




| | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nuclear | 133 | 152 | 150 | 111 | 154 | 136 | 167 | 166 | 142 | 172 | 137 | 165 | 158 | 153 | 177 | 158 |
| Coal | 207 | 209 | 214 | 224 | 223 | 231 | 218 | 206 | 225 | 225 | 228 | 253 | 235 | 239 | 231 | 262 |
| Petroleum | 1,424 | 1,436 | 1,398 | 1,453 | 1,460 | 1,550 | 1,469 | 1,430 | 1,320 | 1,266 | 1,452 | 1,681 | 1,466 | 1,533 | 1,509 | 1,673 |
| Natural Gas | 1,605 | 1,637 | 1,579 | 1,614 | 1,637 | 1,689 | 1,778 | 1,738 | 1,855 | 1,677 | 1,556 | 1,605 | 1,613 | 1,591 | 1,476 | 1,343 |
| Total | 3,368 | 3,433 | 3,341 | 3,401 | 3,473 | 3,606 | 3,632 | 3,538 | 3,542 | 3,340 | 3,373 | 3,703 | 3,472 | 3,516 | 3,393 | 3,436 |

## Figure 19

## LOUISIANA REFINERY CRUDE OIL INPUT BY SOURCE




| | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Other States | 58 | 52 | 51 | 58 | 61 | 68 | 43 | 44 | 40 | 47 | 35 | 47 | 45 | 57 | 32 | 20 |
| Louisiana | 159 | 154 | 157 | 159 | 160 | 151 | 122 | 134 | 132 | 121 | 106 | 100 | 101 | 90 | 88 | 82 |
| Federal OCS | 121 | 115 | 128 | 127 | 130 | 176 | 176 | 171 | 187 | 201 | 249 | 216 | 210 | 265 | 273 | 257 |
| Foreign | 423 | 435 | 433 | 428 | 446 | 450 | 461 | 479 | 477 | 481 | 481 | 476 | 491 | 493 | 509 | 561 |
| Total | 761 | 757 | 768 | 771 | 797 | 844 | 802 | 828 | 836 | 850 | 871 | 839 | 847 | 905 | 902 | 921 |

# Table 38

## LOUISIANA ENERGY CONSUMPTION ESTIMATES BY SOURCE[11]

| Year | Total Energy (TBTU) | Total Natural Gas (BCF) | Total Petroleum (MBBLS) | Total Coal (MST) | Total Nuclear (Million KWH) |
|---|---|---|---|---|---|
| 1964 | 1,794.1 | 1,144 | 106,086 | N/A | 0 |
| 1965 | 1,766.8 | 1,110 | 109,158 | N/A | 0 |
| 1966 | 1,882.9 | 1,202 | 115,662 | N/A | 0 |
| 1967 | 2,124.1 | 1,394 | 122,475 | N/A | 0 |
| 1968 | 2,295.0 | 1,521 | 134,583 | N/A | 0 |
| 1969 | 2,572.3 | 1,763 | 147,947 | N/A | 0 |
| 1970 | 2,701.4 | 1,841 | 150,456 | 0 | 0 |
| 1971 | 2,809.3 | 1,884 | 162,470 | 0 | 0 |
| 1972 | 2,989.3 | 1,940 | 184,947 | 0 | 0 |
| 1973 | 3,225.9 | 2,010 | 209,641 | 0 | 0 |
| 1974 | 3,313.3 | 2,008 | 218,882 | 0 | 0 |
| 1975 | 3,028.8 | 1,789 | 210,174 | 0 | 0 |
| 1976 | 3,419.1 | 2,044 | 234,995 | 0 | 0 |
| 1977 | 3,794.6 | 2,191 | 268,572 | 79 | 0 |
| 1978 | 3,930.1 | 2,249 | 277,765 | 172 | 0 |
| 1979 | 3,805.3 r | 1,978 | 304,884 r | 118 | 0 |
| 1980 | 3,651.3 r | 1,794 | 293,743 r | 111 r | 0 |
| 1981 | 3,688.6 r | 1,782 | 295,191 r | 1,363 r | 0 |
| 1982 | 3,441.2 r | 1,556 | 287,419 r | 3,724 r | 0 |
| 1983 | 3,284.5 r | 1,413 | 275,058 r | 6,154 r | 0 |
| 1984 | 3,413.5 r | 1,594 | 248,344 r | 6,855 r | 0 |
| 1985 | 3,192.5 r | 1,386 | 240,776 r | 9,217 r | 2,457 r |
| 1986 | 3,353.4 r | 1,439 | 260,602 r | 10,459 r | 10,637 r |
| 1987 | 3,435.5 r | 1,501 | 257,313 r | 10,391 r | 12,324 r |
| 1988 | 3,473.1 r | 1,446 | 271,773 r | 12,848 r | 13,785 r |
| 1989 | 3,592.6 r | 1,538 | 266,193 r | 12,471 r | 12,391 r |
| 1990 | 3,623.8 r | 1,571 | 259,533 r | 12,547 r | 14,197 r |
| 1991 | 3,545.9 r | 1,508 | 256,789 r | 12,965 r | 13,956 r |
| 1992 | 3,636.0 r | 1,546 | 268,559 r | 13,674 r | 10,356 r |
| 1993 | 3,688.6 r | 1,578 | 273,580 r | 13,676 r | 14,398 r |
| 1994 | 3,837.3 r | 1,624 | 294,700 r | 14,100 r | 12,779 r |
| 1995 | 3,837.2 r | 1,718 | 288,998 r | 13,357 r | 15,686 r |
| 1996 | 3,848.5 r | 1,664 | 279,292 r | 12,534 r | 15,765 r |
| 1997 | 3,828.0 r | 1,659 | 258,290 r | 13,874 r | 13,511 r |
| 1998 | 3,564.0 r | 1,568 | 248,094 r | 13,891 r | 16,428 r |
| 1999 | 3,608.6 r | 1,495 | 278,926 r | 13,953 r | 13,112 r |
| 2000 | 3,965.2 r | 1,537 | 287,692 r | 15,734 r | 15,796 r |
| 2001 | 3,712.6 r | 1,219 | 288,776 r | 14,969 r | 17,336 r |
| 2002 | 3,762.1 r | 1,341 | 299,289 r | 14,632 r | 17,305 r |
| 2003 | 3,965.2 r | 1,234 r | 300,697 r | 15,592 r | 17,499 r |
| 2004 | 3,712.6 | 1,281 | 299,879 | 16,116 | 15,135 |

e Estimated r Revised p Preliminary

TBTU = Trillion BTU BCF = Billion Cubic Feet KWH = Kilowatt-hours

MBBLS = Thousand Barrels MST = Thousand Short Tons

See footnote in Appendix B.

# TABLE 39

## LOUISIANA REFINERY STATISTICS

| DATE | AVERAGE STOCK ON HAND (Barrels) | DAILY AVERAGE RUNS TO STILL (Barrels) | LICENSED REFINERIES |
|---|---|---|---|
| 1984 | 13,182,207 | 1,720,172 | 25 |
| 1985 | 13,425,129 | 1,735,402 | 24 |
| 1986 | 13,391,258 | 1,901,450 | 23 |
| 1987 | 13,967,381 | 1,947,187 | 22 |
| 1988 | 14,295,591 | 1,946,861 | 21 |
| 1989 | 14,158,306 | 2,051,304 | 23 |
| 1990 | 13,783,012 | 2,045,697 | 23 |
| 1991 | 14,197,185 | 2,071,276 | 23 |
| 1992 | 14,331,412 | 2,090,248 | 22 |
| 1993 | 14,521,046 | 2,159,422 | 20 |
| 1994 | 15,126,534 | 2,150,403 | 19 |
| 1995 | 14,325,305 | 2,109,245 | 19 |
| 1996 | 14,462,108 | 2,252,573 | 19 |
| 1997 | 14,275,221 | 2,257,275 | 19 |
| 1998 | 14,965,117 | 2,312,239 | 19 |
| 1999 | 15,467,674 | 2,414,781 | 17 |
| 2000 | 14,818,774 | 2,334,842 | 16 |
| 2001 | 15,425,670 | 2,480,357 | 17 |
| 2002 | 16,335,210 | 2,470,556 | 18 |
| 2003 | 15,246,004 | 2,469,756 | 17 |
| | | | |
| January | 16,311,637 | 2,431,570 | 17 |
| February | 15,537,500 | 2,277,424 | 17 |
| March | 15,681,520 | 2,430,027 | 17 |
| April | 15,514,621 | 2,633,762 | 17 |
| May | 15,526,859 | 2,675,389 | 18 |
| June | 15,472,551 | 2,712,368 | 18 |
| July | 14,852,243 | 2,687,457 | 18 |
| August | 15,718,701 | 2,671,284 | 18 |
| September | 15,467,093 | 2,342,359 | 18 |
| October | 17,572,444 r | 2,420,164 r | 18 |
| November | 18,614,966 r | 2,473,609 r | 18 |
| December | 14,990,550 r | 2,761,629 r | 18 |
| **2004 Total** | **15,938,390** r | **2,543,087** r | **18** |
| | | | |
| January | 15,278,705 | 2,587,904 | 18 |
| February | 16,204,919 | 2,675,514 | 18 |
| March | 14,110,811 | 2,759,961 | 18 |
| April | 16,062,964 | 2,685,319 | 18 |
| May | 18,907,234 | 2,645,097 | 18 |
| June | 17,475,610 | 2,821,557 | 18 |
| July | 17,564,152 | 2,527,613 | 18 |
| August | 15,456,574 | 2,302,323 | 18 |
| September | 15,226,279 | 1,798,991 | 17 |
| October | 16,391,508 | 1,616,290 | 17 |
| November | 15,614,966 e | 1,734,579 e | 17 |
| December | 16,320,550 e | 1,739,915 e | 17 |
| **2005 Total** | **16,217,856** e | **2,324,589** e | **18** |

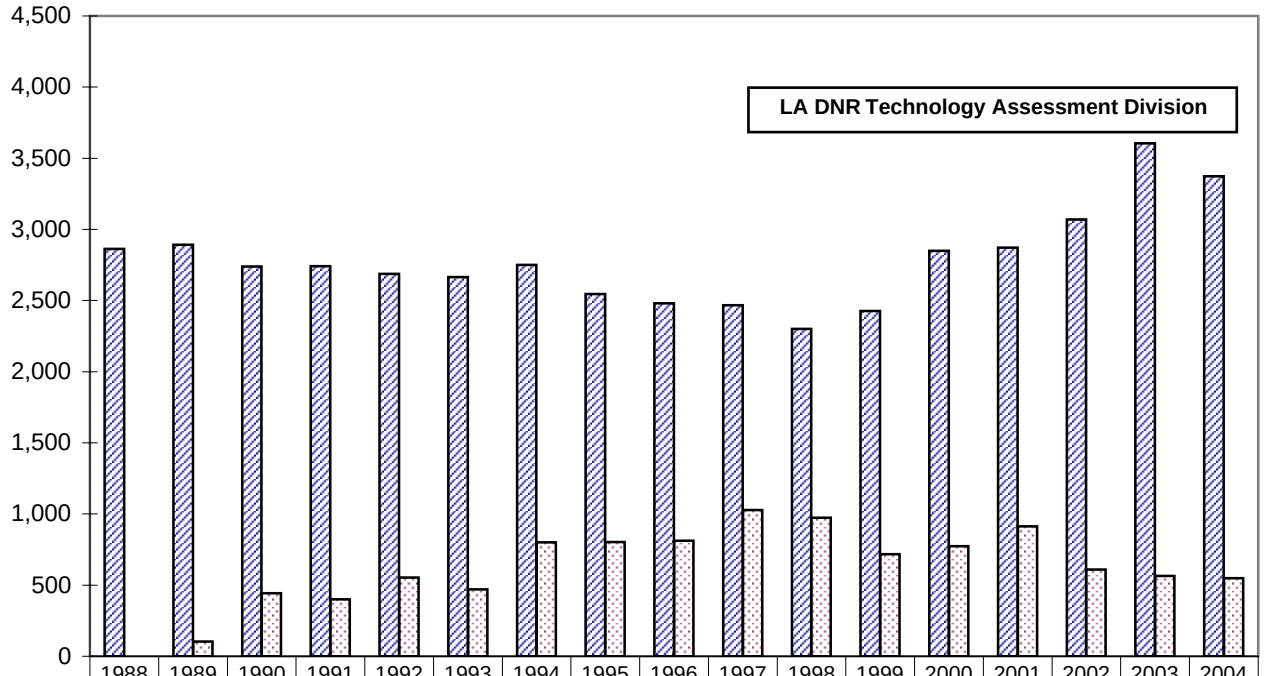
e Estimated r Revised p Preliminary

**Exxon-Mobil Refinery - Baton Rouge**

## Figure 20

## LOUISIANA LIGNITE PRODUCTION BY MINE SOURCE

(Thousand Tons Shipped)




| | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dolet Hills | 2,862 | 2,892 | 2,738 | 2,742 | 2,688 | 2,665 | 2,750 | 2,546 | 2,480 | 2,466 | 2,301 | 2,426 | 2,850 | 2,872 | 3,069 | 3,604 | 3,373 |
| Oxbow | 0 | 103 | 444 | 401 | 554 | 470 | 800 | 804 | 812 | 1,029 | 974 | 717 | 773 | 912 | 609 | 564 | 548 |
| Total | 2,862 | 2,995 | 3,182 | 3,143 | 3,242 | 3,135 | 3,550 | 3,350 | 3,292 | 3,495 | 3,275 | 3,143 | 3,622 | 3,784 | 3,678 | 4,168 | 3,921 |

# Table 40

## LOUISIANA ELECTRIC UTILITIES NET ELECTRICITY GENERATION[14] BY FUEL TYPE

**(Million KWH)**

| YEAR | COAL | LIGNITE | OIL | GAS | NUCLEAR | TOTAL |
|---|---|---|---|---|---|---|
| 1964 | 0 | 0 | 54 | 16,007 | 0 | 16,061 |
| 1965 | 0 | 0 | 26 | 17,819 | 0 | 17,845 |
| 1966 | 0 | 0 | 24 | 21,643 | 0 | 21,667 |
| 1967 | 0 | 0 | 20 | 23,132 | 0 | 23,152 |
| 1968 | 0 | 0 | 32 | 26,123 | 0 | 26,155 |
| 1969 | 0 | 0 | 26 | 32,301 | 0 | 32,327 |
| 1970 | 0 | 0 | 79 | 33,623 | 0 | 33,702 |
| 1971 | 0 | 0 | N/A | N/A | 0 | 37,118 |
| 1972 | 0 | 0 | N/A | N/A | 0 | 39,348 |
| 1973 | 0 | 0 | 14,353 | 36,351 | 0 | 40,704 |
| 1974 | 0 | 0 | 5,034 | 34,472 | 0 | 39,506 |
| 1975 | 0 | 0 | 3,257 | 35,967 | 0 | 39,224 |
| 1976 | 0 | 0 | 7,773 | 37,343 | 0 | 45,116 |
| 1977 | 0 | 0 | 13,255 | 35,196 | 0 | 48,451 |
| 1978 | 0 | 0 | 14,568 | 36,935 | 0 | 51,503 |
| 1979 | 0 | 0 | 8,259 | 38,396 | 0 | 46,655 |
| 1980 | 0 | 0 | 4,787 | 40,952 | 0 | 45,739 |
| 1981 | 1,529 | 0 | 2,634 | 39,947 | 0 | 44,110 |
| 1982 | 4,998 | 0 | 940 | 35,594 | 0 | 41,532 |
| 1983 | 8,377 | 0 | 356 | 28,311 | 0 | 37,044 |
| 1984 | 9,830 | 0 | 140 | 29,360 | 0 | 39,330 |
| 1985 | 13,968 | 0 | 100 | 27,736 | 2,457 | 44,261 |
| 1986 | 12,642 | 2,884 | 419 | 26,202 | 10,637 | 52,784 |
| 1987 | 12,176 | 2,926 | 60 | 23,823 | 12,324 | 51,309 |
| 1988 | 14,372 | 4,059 | 272 | 24,286 | 13,785 | 56,774 |
| 1989 | 14,227 | 3,854 | 298 | 21,900 | 12,391 | 52,670 |
| 1990 | 13,890 | 3,910 | 130 | 26,041 | 14,197 | 58,168 |
| 1991 | 14,786 | 4,126 | 45 | 24,245 | 13,956 | 57,158 |
| 1992 | 15,613 | 4,183 | 483 | 24,554 | 10,356 | 55,188 |
| 1993 | 15,794 | 3,572 | 1,838 | 23,751 | 14,398 | 59,353 |
| 1994 | 15,761 | 4,364 | 680 | 26,586 | 12,779 | 60,170 |
| 1995 | 14,632 | 4,321 | 49 | 30,867 | 15,686 | 65,555 |
| 1996 | 14,630 | 4,002 | 273 | 23,972 | 15,765 | 58,643 |
| 1997 | 16,453 | 4,499 | 646 | 26,010 | 13,511 | 61,120 |
| 1998 | 16,131 | 4,631 | 600 | 28,318 | 16,428 | 66,107 |
| 1999 | 16,386 | 4,780 | 397 | 30,162 | 13,112 | 64,837 |
| 2000 | 11,150 *r | 3,335 *r | 625 | 26,696 | 15,796 | 57,601 *r |
| 2001 | 8,157 * | 2,760 * | 1,722 | 20,402 | 17,336 | 50,378 * |
| 2002 | 9,177 * | 3,081 * | 68 | 25,086 | 17,305 | 54,922 * |
| 2003 | 8,075 * | 2,946 * | 1,008 r | 15,094 r | 16,126 r | 43,248 *r |
| 2004 | 8,569 * | 2,755 * | 3,694 | 15,139 | 17,080 | 47,237 * |

e Estimated r Revised p Preliminary

* Big Cajun 1 & 2 fuels are excluded

See footnotes on Appendix B

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# APPENDICES



The Sol of New Orleans II
The University of New Orleans's solar powered car

# Appendix A

## Abbreviations

| | |
|---|---|
| BCF | Billion Cubic Feet |
| BTU | British Thermal Unit |
| DNR | Louisiana Department of Natural Resources |
| DOE | United States Department of Energy |
| DOI | United States Department of the Interior |
| EIA | Energy Information Administration, DOE |
| FOB | Free on Board |
| KWH | Kilowatt-hours |
| MBBLS | Thousand Barrels |
| MCF | Thousand Cubic Feet |
| MMS | Minerals Management Service, DOI |
| MST | Thousand Short Tons |
| NGC | Natural Gas Clearinghouse |
| OCS | Outer Continental Shelf |
| OPEC | Organization of Petroleum Exporting Countries |
| RAC | Refinery Acquisition Costs |
| SLS | South Louisiana Sweet Crude Oil |
| SPR | Strategic Petroleum Reserve |
| TBTU | Trillion BTU |
| TCF | Trillion Cubic Feet |

## State Abbreviations Used in the Louisiana Energy Facts Annual

| | | | |
|---|---|---|---|
| AL | Alabama | MS | Mississippi |
| AK | Alaska | ND | North Dakota |
| CA | California | NM | New Mexico |
| CO | Colorado | OK | Oklahoma |
| IL | Illinois | TX | Texas |
| KS | Kansas | UT | Utah |
| LA | Louisiana | WY | Wyoming |
| MI | Michigan | | |

# Appendix B

## Data Sources*

1. EMPLOYMENT AND TOTAL WAGES PAID BY EMPLOYERS SUBJECT TO LOUISIANA EMPLOYMENT SECURITY LAW, Baton Rouge, LA: Louisiana Department of Labor, Office of Employment Security, Research and Statistics Unit.

2. MONTHLY ENERGY REVIEW and ANNUAL ENERGY REVIEW, Washington, D.C.: U.S. Department of Energy, Energy Information Administration.

3. NATURAL GAS MONTHLY and NATURAL GAS ANNUAL, Washington, D.C.: U.S. Department of Energy, Energy Information Administration.

4. Baker Hughes from OIL & GAS JOURNAL, Tulsa, OK: Penn Well Publishing Co.

5. October 2002 to Present, NATURAL GAS WEEK, Washington, D.C.: Energy Intelligence Group. Prior, SURVEY OF DOMESTIC SPOT MARKET PRICES, Houston, TX: Dynegy Inc. (Formerly Natural Gas Clearinghouse).

6. PETROLEUM MARKETING MONTHLY and PETROLEUM MARKETING ANNUAL, Washington, D.C.: U.S. Department of Energy, Energy Information Administration.

7. PETROLEUM SUPPLY MONTHLY and PETROLEUM SUPPLY ANNUAL, Washington, D.C.: U.S. Department of Energy, Energy Information Administration.

8. SEVERANCE TAX, Baton Rouge, LA: Louisiana Department of Revenue and Taxation, Severance Tax Section.

9. U.S. CRUDE OIL, NATURAL GAS and NATURAL GAS LIQUIDS RESERVES, Washington, D.C.: U.S. Department of Energy, Energy Information Administration.

10. THE WALL STREET JOURNAL, Gulf Coast Edition, Beaumont, TX: Dow Jones and Company.

11. STATE ENERGY DATA REPORT, Washington, D.C.: U.S. Department of Energy, Energy Information Administration.

12. FEDERAL OFFSHORE STATISTICS, Washington, D.C.: U.S. Department of the Interior, Minerals Management Service.

13. MINERAL REVENUE, Washington, D.C.: U.S. Department of the Interior, Minerals Management Service, Royalty Management Program.

14. ELECTRIC POWER MONTHLY, Washington, D.C.: U.S. Department of Energy, Energy Information Administration.

* Unless otherwise specified, data is from the Louisiana Department of Natural Resources.

# Appendix C

# Glossary

**Bonus.** A cash payment by the lessee for the execution of a lease. A lease is a contract that gives a lessee the right: (a) to search for minerals, (b) to develop the surface for extraction, and (c) to produce minerals within the area covered by the contract.

**Casinghead Gas**. All natural gas released from oil during the production of oil from underground reservoirs.

**City-Gate**. A point or measuring station at which a gas distribution company receives gas from a pipeline company or transmission system.

**Commercial Consumption**. Gas used by non-manufacturing organizations such as hotels, restaurants, retail stores, laundries, and other service enterprises. This also includes gas used by local, state, and federal agencies engaged in non-manufacturing activities.

**Condensate**. (See Lease Condensate).

**Crude Oil**. A mixture of hydrocarbons that existed in the liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities.

## CRUDE OIL PRICES

**Domestic Wellhead**. The average price at which all domestic crude oil is first purchased.

**Imports FOB**. The price actually charged at the producing country's port of loading. It is the responsibility of the buyer to arrange for transportation and insurance.

**Imports Landed**. The dollar per barrel price of crude oil at the port of discharge. It includes crude oil landed in the U.S. and U.S. company-owned refineries in the Caribbean, but excludes crude oil from countries that export only small amounts to the United States. The landed price does not include charges incurred at the port of discharge.

**Imports OPEC FOB**. The average price actually charged by OPEC at their country's port of loading. This price does not include transportation or insurance.

**OCS Gulf**. The average price at which all offshore, Outer Continental Shelf, Central Gulf region crude oil is first purchased as reported by the U.S. Department of Energy, Energy Information Administration.

**Refinery Acquisition Costs** (RAC). The average price paid by refiners in the U.S. for crude oil booked into their refineries in accordance with accounting procedures generally accepted and consistently and historically applied by the refiners.

a) **Domestic**. The average price of crude oil produced in the United States or from the Outer Continental Shelf of the U.S.

b**) Imports**. The average price of any crude oil not reported as domestic.

**Refinery Posted**. The average price from a survey of selected refiners' postings for South Louisiana Sweet (SLS) crude, which is effective at the middle and at the end of the month.

**Severance Tax**. The average wellhead price calculated from oil severance taxes paid to the Louisiana Department of Revenue and Taxation.

**Spot Market**. The spot market crude oil price is the average of daily South Louisiana Sweet (SLS) crude price futures traded in the month and usually includes transportation from the producing field to the St. James, Louisiana terminal.

**State**. The average price at which all Louisiana crude oil, excluding Louisiana OCS, is first purchased as reported in a survey by the U.S. Department of Energy, Energy Information Administration.

**State Royalty**. The average wellhead price from its royalty share of oil produced in state lands or water bottoms. The price is calculated by the ratio of received oil royalty gross revenue divided by royalty volume share reported to the Louisiana Department of Natural Resources.

**Developmental Well**. Wells drilled within the proved area of an oil or gas reservoir to the depth of a stratigraphic horizon known to be productive.

**Dry Gas**. (See Natural Gas, "Dry").

**Dry Hole**. An exploratory or developmental well found to be incapable of producing either oil or gas in sufficient quantities to justify completion as an oil or gas well.

**Electric Utility Consumption**. Gas used as fuel in electric utility plants.

**Exploratory Well**. A well drilled to find and produce oil or gas in an unproved area, to find a new reservoir in an old field, or to extend the limits of a known oil or gas reservoir.

**Exports**. Crude oil or natural gas delivered out of the Continental United States and Alaska to foreign countries.

**Extraction Loss**. The reduction in volume of natural gas resulting from the removal of natural gas liquid constituents at natural gas processing plants.

**Federal Offshore or Federal OCS**. (See Louisiana OCS)

**FOB Price** (Free on board). The price actually charged at the producing country's port of loading. The reported price includes deductions for any rebates and discounts or additions of premiums where applicable and should be the actual price paid with no adjustment for credit terms.

**Gate**. (See City-Gate)

**Gross Revenue**. Amount of money received from a purchaser, including charges for field gathering, transportation from wellhead to purchaser receiving terminal, and state production severance tax.

**Gross Withdrawals**. (See Natural Gas, Gross Withdrawals)

**Imports**. Crude oil or natural gas received in the Continental United States, Alaska, and Hawaii from foreign countries.

**Industrial Consumption**. Natural gas used by manufacturing and mining establishments for heat, power, and chemical feedstock.

**Lease Condensate**. A mixture consisting primarily of pentane and heavier hydrocarbons that is recovered as a liquid from natural gas in lease or field separation facilities, exclusive of products recovered at natural gas processing plants or facilities.

**Lease Separator**. A facility installed at the surface for the purpose of: (a) separating gases from produced crude oil and water at the temperature and pressure conditions of the separator, and/or (b) separating gases from that portion of the produced natural gas stream which liquefies at the temperature and pressure conditions of the separator.

**Louisiana OCS**. Submerged lands under federal regulatory jurisdiction that comprise the Continental Margin or Outer Continental Shelf adjacent to Louisiana and seaward of the Louisiana Offshore region.

**Louisiana Offshore**. A 3-mile strip of submerged lands under state regulatory jurisdiction located between the State coast line and the OCS region.

**Louisiana Onshore**. Region defined by the State boundary and the coast line.

**Major Pipeline Company**. A company whose combined sales for resale, and gas transported interstate or stored for a fee, exceeded 50 million thousand cubic feet in the previous year.

**Marketed Production**. (See Natural Gas, Marketed Production)

**Natural Gas**. A mixture of hydrocarbon compounds and small quantities of various non-hydrocarbons existing in the gaseous phase or in solution with crude oil in natural underground reservoirs at reservoir conditions. The principal hydrocarbons usually contained in the mixture are methane, ethane, propane, butanes and pentanes. Typical non-hydrocarbon gases that may be present in reservoir natural gas are carbon dioxide, helium, hydrogen sulfide and nitrogen. Under reservoir conditions, natural gas and the liquefiable portions occur either in a single gaseous phase in the reservoir or in solution with crude oil, and are not distinguishable at the time as separated substances.

**Natural Gas, "Dry"**. The actual or calculated volume of natural gas which remains after: (a) the liquefiable hydrocarbon portion has been removed from the gas stream, and (b) any volumes of non-hydrocarbon gases have been removed where they occur in sufficient quantity to render the gas unmarketable.

**Natural Gas, Gross Withdrawals**. Full well-stream volume, including all natural gas plant liquids and all non-hydrocarbon gases, but excluding lease condensate.

**Natural Gas Liquids**. Lease condensate plus natural gas plant liquids.

**Natural Gas, Marketed Production**. Gross withdrawals less gas used for repressurizing, quantities vented and flared, and non-hydrocarbon gases removed in treating or processing operations. It includes all quantities of gas used in field and processing operations.

**Natural Gas, OCS Gas**. OCS gas volume is as reported. Most is "dry" gas, though some is "wet" gas.

**Natural Gas Plant Liquids**. Those hydrocarbons remaining in a natural gas stream after field separation and later separated and recovered at a natural gas processing plant or cycling plant through the processes of absorption, adsorption, condensation, fractionation or other methods. Generally such liquids consist of propane and heavier hydrocarbons and are commonly referred to as condensate, natural gasoline, or liquefied petroleum gases. Where hydrocarbon components lighter than propane (e.g., ethane) are recovered as liquids, these components are included with natural gas liquids.

## NATURAL GAS PRICES

**Henry Hub Settled NYMEX** The last trading day price for the month before delivery posted in the New York Mercantile Exchange for natural gas at Henry Hub.

**Spot Market** The average price of natural gas paid at the regional spot market receipt points or zones as reported by the Energy Intelligence Group's NATURAL GAS WEEK. The data are a volume weighted average and reflect market activity information gathered during the entire month before the publication date, regardless of delivery date. The data are not an arbitrary weighting by production zone, but a true deal-by-deal volume weighting of prices gathered. Data prior to October 2002 were from Dynegy's survey of the domestic natural gas spot market receipt points or zones located in Louisiana. The new and old points or zones are as follows:

**NATURAL GAS PIPELINES AND SALES POINTS FOR PRICES**

| **Dynegy** | **Natural Gas Week** |
|---|---|
| ANR<br>Eunice, LA | ANR<br>Patterson, LA |
| COLUMBIA GULF<br>Average Louisiana onshore laterals | COLUMBIA GULF TRANSMISSION Co.<br>Average of Erath, Rayne, and Texaco Henry Plant in Louisiana |
| LOUISIANA INTRASTATES<br>Average of Faustina, LIG, Bridgeline, and Monterrey pipelines | LOUISIANA INTRASTATES<br>Average of LIG, Bridgeline, LRC, and Acadian pipelines |
| SOUTHERN NATURAL<br>South Louisiana | SONAT<br>Saint Mary Parish, LA |
| TENNESSEE GAS<br>Vinton, LA | TENNESSEE GAS<br>Average Zone 1 of 500 & 800 |
| TEXAS GAS TRANSMISSION<br>Zone 1 (North Louisiana) | TEXAS GAS TRANSMISSION<br>Zone 1 (North Louisiana) |
| GULF SOUTH PIPELINE | TRUNKLINE GAS Co. |

**OCS.** The average wellhead price calculated from sales and volumes from Louisiana OCS natural gas as reported by the U.S. Department of Interior, Minerals Management Service.

**State Royalty**. The average wellhead price calculated from revenue received and volumes reported to the Louisiana Department of Natural Resources.

**State Wells**. The average price of gas sold at Louisiana wellhead. This price includes: (a) value of natural gas plant liquids subsequently removed from the gas, (b) gathering and compression charges, and (c) State production, severance, and/or similar charges.

**Major Pipelines Purchases**.

a) **Domestic Producers**. The average price of natural gas produced in the United States or from the Outer Continental Shelf of the U.S.

b**) Foreign Imports**. The average price of any natural gas not reported as domestic.

**Wellhead**. The wellhead sales price including: (a) value of natural gas plant liquids subsequently removed from the gas, (b) gathering and compression charges, and (c) State production, severance, and/or similar charges.

**Natural Gas, Wet After Lease Separation**. The volume of natural gas, if any, remaining after: (a) removal of lease condensate in lease and/or field separation facilities, and (b) exclusion of non-hydrocarbon gases where they occur in sufficient quantities to render the gas unmarketable. Also excludes gas returned to formation in pressure maintenance and secondary recovery projects and gas returned to earth from cycling and/or gasoline plants. Natural gas liquids may be recovered from volumes of natural gas, wet after lease separation, at natural gas processing plants.

**Organization of Petroleum Exporting Countries (OPEC)**. Countries that have organized for the purpose of negotiating with oil companies on matters of oil production, prices, and future concession rights. Current members are Algeria, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela.

**Outer Continental Shelf (OCS).** All submerged lands that comprise the Continental Margin adjacent to the U.S. and seaward of the state offshore lands. Production in the OCS is under federal regulatory jurisdiction and ownership.

**Processing Plant**. A facility designed to recover natural gas liquids from a stream of natural gas which may or may not have passed through lease separators and/or field separation facilities. Another function of natural gas processing plants is to control the quality of the processed natural gas stream.

**Proved Reserves of Crude Oil**. As of December 31 of the report year, the estimated quantities of all liquids defined as crude oil which geological and engineering data demonstrate with reasonable certainty to be recoverable in future years from known reservoirs under existing economic and operating conditions. Volumes of crude oil in underground storage are not considered proved reserves.

**Proved Reserves of Lease Condensate**. The volumes of lease condensate as of December 31 of the report year expected to be recovered in future years in conjunction with the production of proved reserves of natural gas as of December 31 of the report year.

**Proved Reserves of Natural Gas**. The estimated quantities of natural gas as of December 31 of the report year which analysis of geologic and engineering data demonstrates with reasonable certainty to be recoverable in future years from known reservoirs under existing economic and operating conditions. Volumes of natural gas in underground storage are not considered proved reserves.

**Proved Reserves of Natural Gas Liquids**. The volumes of natural gas liquids (including lease condensate) as of December 31 of the report year, which analysis of geologic and engineering data demonstrates with reasonable certainty to be separable in the future from proved natural gas reserves under existing economic and operating conditions.

**Rental**. Money paid by the lessee to maintain the lease after the first year if it is not producing. A lease is considered expired when rental is not paid on time on an unproductive lease.

**Reservoir**. A porous and permeable underground formation containing an individual and separate natural accumulation of producible hydrocarbons (oil and/or gas) which is confined by impermeable rock or water barriers and is characterized by a single natural pressure system. Reservoirs are considered proved if economic producibility is supported by actual production or conclusive formation tests (drill stem or wire line), or if economic producibility is supported by core analysis and/or electric or other log interpretations. The area of a gas or oil reservoir considered proved includes: (a) that portion delineated by drilling and defined by gas-oil and/or gas-water contacts, if any; and (b) the immediately adjoining portions not yet drilled, but which can be reasonably judged as economically productive on the basis of available geological and engineering data.

**Residential Consumption**. Gas used in private dwellings, including apartments, for heating, cooking, water heating, and other household uses.

**Royalty (Including Royalty Override) Interest**. Those interests which entitle their owner(s) to a share of the mineral production from a property or to a share of the proceeds from there. These interests do not contain the rights and obligations of operating the property and normally do not bear any of the costs of exploration, development, or operation of the property.

**Royalty Override (Or Overriding Royalty)**. An interest in oil and gas produced at the surface free of any cost of production. It is royalty in addition to the usual landowner's royalty reserved to the lessor. The Layman's Guide to Oil & Gas by Brown & Miller defines overriding royalty as a percentage of all revenue earned by a well and carrying no cost obligation.

**State Offshore. (**See Louisiana Offshore**).**

**Wet After Lease Separation**. (See Natural Gas, Wet After Lease Separation).

**Wildcat Well** . (See Developmental Well).

Appendix D

# Louisiana Gas Volume at 14.73 psia

**Page**



# Appendix D-1

## LOUISIANA STATE GAS PRODUCTION, WET AFTER LEASE SEPARATION

**Natural Gas and Casinghead Gas, Excluding OCS**

**(Thousand Cubic Feet (MCF) at 14.73 psia and 60 degrees Fahrenheit)***

| DATE | NORTH | SOUTH | OFFSHORE | TOTAL |
|---|---|---|---|---|
| 1984 | 389,939,125 | 1,400,621,534 | 320,286,543 | 2,110,847,202 |
| 1985 | 358,032,963 | 1,274,608,554 | 255,072,018 | 1,887,713,536 |
| 1986 | 370,901,958 | 1,240,893,984 | 251,033,103 | 1,862,829,044 |
| 1987 | 363,802,599 | 1,175,490,485 | 232,692,536 | 1,771,985,620 |
| 1988 | 382,100,449 | 1,192,889,101 | 218,544,278 | 1,793,533,828 |
| 1989 | 386,783,455 | 1,153,294,096 | 207,381,469 | 1,747,459,020 |
| 1990 | 398,236,494 | 1,160,425,829 | 185,678,416 | 1,744,340,739 |
| 1991 | 389,623,599 | 1,139,243,110 | 152,895,972 | 1,681,762,681 |
| 1992 | 379,671,005 | 1,146,893,542 | 149,933,256 | 1,676,497,803 |
| 1993 | 360,897,088 | 1,126,950,007 | 156,919,403 | 1,644,766,497 |
| 1994 | 361,146,486 | 1,048,229,785 | 158,315,609 | 1,567,691,880 |
| 1995 | 370,709,558 | 1,028,500,599 | 167,742,330 | 1,566,952,486 |
| 1996 | 425,506,052 | 1,048,009,685 | 189,331,696 | 1,662,847,432 |
| 1997 | 450,873,442 | 995,341,920 | 189,565,415 | 1,635,780,777 |
| 1998 | 446,138,374 | 979,584,537 | 183,246,642 | 1,608,969,552 |
| 1999 | 402,085,989 | 928,879,872 | 152,594,840 | 1,483,560,702 |
| 2000 | 395,829,467 | 945,899,010 | 152,705,343 | 1,494,217,218 |
| 2001 | 397,384,648 r | 974,037,120 r | 153,165,161 r | 1,525,523,333 r |
| 2002 | 359,101,247 r | 892,263,222 r | 136,858,689 r | 1,389,014,853 r |
| 2003 | 350,349,532 r | 889,219,893 r | 132,612,609 r | 1,372,586,386 r |
| | | | | |
| January | 28,051,514 r | 72,569,079 r | 10,253,343 r | 111,378,941 r |
| February | 26,705,522 r | 69,258,831 r | 11,151,784 r | 106,217,696 r |
| March | 29,013,346 r | 75,441,480 r | 10,930,987 r | 115,606,610 r |
| April | 28,406,565 r | 74,071,495 r | 11,308,737 r | 113,409,047 r |
| May | 29,358,804 r | 76,746,009 r | 10,974,913 r | 117,413,550 r |
| June | 28,462,383 r | 74,607,355 r | 11,390,818 r | 114,044,651 r |
| July | 29,508,945 r | 77,553,586 r | 11,510,351 r | 118,453,348 r |
| August | 29,787,081 | 78,486,568 | 10,313,053 | 119,783,999 |
| September | 26,303,571 | 74,646,896 | 10,316,973 | 111,263,520 |
| October | 27,280,778 | 81,594,393 | 10,225,780 | 119,192,144 |
| November | 26,998,821 | 78,933,345 | 10,234,209 | 116,157,946 |
| December | 26,854,696 | 78,673,111 | 9,819,576 | 115,762,016 |
| **2004 Total** | **336,732,025** | **912,582,148** | **128,430,523** | **1,378,683,467** |
| | | | | |
| January | 33,471,064 | 70,643,591 | 8,986,512 | 113,934,231 |
| February | 30,972,778 | 64,549,669 | 10,261,258 | 104,508,959 |
| March | 35,215,313 | 71,909,026 | 10,008,670 | 117,385,597 |
| April | 34,776,867 | 69,919,191 | 10,385,559 | 114,704,728 |
| May | 36,261,072 | 71,748,077 | 10,135,064 | 118,394,708 |
| June | 35,429,743 | 68,899,128 | 10,417,799 | 114,463,935 |
| July | 36,678,179 | 70,084,134 | 9,961,541 | 117,180,113 |
| August | 35,240,826 | 66,221,960 | 5,326,408 | 111,424,327 |
| September | 44,923,467 | 36,094,200 | 4,940,080 | 86,344,076 |
| October | 49,612,891 | 33,363,512 | 4,175,999 | 87,916,482 |
| November | 36,698,463 e | 28,463,485 e | 5,705,101 e | 69,337,947 e |
| December | 24,831,113 e | 44,834,803 e | 7,195,550 e | 75,371,017 e |
| **2005 Total** | **434,111,776 e** | **696,730,777 e** | **97,499,541 e** | **1,230,966,121 e** |

e Estimated r Revised p Preliminary

* See Table 11 corresponding volumes at 15.025 psia and footnote in Appendix B.

# Appendix D-2

## LOUISIANA STATE GAS PRODUCTION, WET AFTER LEASE SEPARATION

**Natural Gas and Casinghead Gas**

**(Thousand Cubic Feet (MCF) at 14.73 psia and 60 degrees Fahrenheit)***

| | ONSHORE | OFFSHORE | | TOTAL |
|---|---|---|---|---|
| **DATE** | | **State** | **Federal OCS[12]** | |
| 1984 | 1,790,560,659 | 320,286,543 | 3,578,740,589 | 5,689,587,791 |
| 1985 | 1,632,641,518 | 255,072,018 | 3,116,884,507 | 5,004,598,042 |
| 1986 | 1,611,795,941 | 251,033,103 | 2,927,832,280 | 4,790,661,324 |
| 1987 | 1,539,293,084 | 232,692,536 | 3,180,107,212 | 4,952,092,832 |
| 1988 | 1,574,989,550 | 218,544,278 | 3,096,881,645 | 4,890,415,472 |
| 1989 | 1,540,077,551 | 207,381,469 | 3,006,576,077 | 4,754,035,097 |
| 1990 | 1,558,662,324 | 185,678,416 | 3,706,324,064 | 5,450,664,803 |
| 1991 | 1,528,866,709 | 152,895,972 | 3,289,968,620 | 4,971,731,301 |
| 1992 | 1,526,564,547 | 149,933,256 | 3,338,101,465 | 5,014,599,268 |
| 1993 | 1,487,847,094 | 156,919,403 | 3,386,808,671 | 5,031,575,169 |
| 1994 | 1,409,376,270 | 158,315,609 | 3,492,406,781 | 5,060,098,660 |
| 1995 | 1,399,210,157 | 167,742,330 | 3,636,068,016 | 5,203,020,503 |
| 1996 | 1,473,515,737 | 189,331,696 | 3,783,483,306 | 5,446,330,739 |
| 1997 | 1,446,215,363 | 189,565,415 | 3,901,964,998 | 5,537,745,775 |
| 1998 | 1,425,722,911 | 183,246,642 | 3,890,978,799 | 5,499,948,351 |
| 1999 | 1,330,965,862 | 152,594,840 | 3,913,456,139 | 5,397,016,841 |
| 2000 | 1,341,728,477 | 152,705,343 | 3,837,150,457 | 5,331,584,277 |
| 2001 | 1,371,421,768 | 153,165,161 r | 3,895,134,261 | 5,419,721,191 |
| 2002 | 1,251,364,470 | 136,858,689 r | 3,527,116,066 | 4,915,339,224 |
| 2003 | 1,239,569,425 | 132,612,609 r | 3,342,004,232 | 4,714,186,267 |
| | | | | |
| January | 100,620,593 | 10,253,343 r | 262,890,485 | 373,764,422 |
| February | 95,964,353 | 11,151,784 r | 248,617,101 | 355,733,237 |
| March | 104,454,826 | 10,930,987 r | 269,617,536 | 385,003,349 |
| April | 102,478,060 | 11,308,737 r | 261,242,252 | 375,029,049 |
| May | 106,104,813 | 10,974,913 r | 265,764,106 | 382,843,832 |
| June | 103,069,738 | 11,390,818 r | 246,749,316 | 361,209,871 |
| July | 107,062,531 | 11,510,351 r | 261,240,387 | 379,813,269 |
| August | 108,273,649 | 10,313,053 | 253,574,985 | 372,161,687 |
| September | 100,950,467 | 10,316,973 | 185,737,324 | 297,004,764 |
| October | 108,875,171 | 10,225,780 | 205,923,971 | 325,024,921 |
| November | 105,932,166 | 10,234,209 | 220,456,358 | 336,622,733 |
| December | 105,527,807 | 9,819,576 | 215,626,854 | 330,974,237 |
| **2004 Total** | **1,249,314,173** | **128,430,523** | **2,897,440,676** | **4,275,185,372** |
| | | | | |
| January | 104,114,655 | 8,986,512 | 224,212,648 | 337,313,815 |
| February | 95,522,447 | 10,261,258 | 208,601,351 | 314,385,056 |
| March | 107,124,339 | 10,008,670 | 235,136,348 | 352,269,357 |
| April | 104,696,058 | 10,385,559 | 227,579,209 | 342,660,825 |
| May | 108,009,149 | 10,135,064 | 240,607,058 | 358,751,271 |
| June | 104,328,872 | 10,417,799 | 226,261,441 | 341,008,112 |
| July | 106,762,314 | 9,961,541 | 207,353,258 | 117,311,861 |
| August | 101,462,786 | 5,326,408 | 189,463,032 | 117,080,127 |
| September | 81,017,667 | 4,940,080 | 71,330,381 | 98,553,583 |
| October | 82,976,402 | 4,175,999 | 82,956,192 | 112,961,788 |
| November | 65,161,948 | 5,705,101 | 107,243,147 | 110,528,300 |
| December | 69,665,916 | 7,195,550 | 6,985,990 p | 110,181,564 p |
| **2005 Total** | **1,130,842,553** | **97,499,541** | **2,027,730,054 p** | **3,256,072,148 p** |

e Estimated r Revised p Preliminary

* See Table 12 corresponding volumes at 15.025 psia and footnote in Appendix B.

**NOTE**: The 2003 Federal OCS production is estimated from the marketed production

# Appendix D-3

## LOUISIANA MARKETED AND DRY GAS PRODUCTION

**(Billion Cubic Feet (BCF) at 14.73 psia and 60 degrees Fahrenheit)***

| | MARKETED | | | EXTRACTION | |
|---|---|---|---|---|---|
| DATE | State | OCS | Total[3] | LOSS[3] | DRY[3] |
| 1963 | 3,317 e | 559 [12] | 3,876 e | N/A | N/A |
| 1964 | 3,520 e | 616 [12] | 4,136 e | N/A | N/A |
| 1965 | 3,731 e | 639 [12] | 4,370 e | N/A | N/A |
| 1966 | 4,145 e | 956 [12] | 5,101 e | N/A | N/A |
| 1967 | 4,640 e | 1,076 [12] | 5,717 e | 115 | 5,602 |
| 1968 | 5,017 e | 1,399 [12] | 6,416 e | 140 | 6,276 |
| 1969 | 5,424 | 1,804 [12] | 7,228 | 179 | 7,049 |
| 1970 | 5,538 | 2,250 [12] | 7,788 | 193 | 7,595 |
| 1971 | 5,474 | 2,608 [12] | 8,082 | 195 | 7,887 |
| 1972 | 5,120 | 2,853 [12] | 7,973 | 198 | 7,775 |
| 1973 | 5,217 | 3,025 [12] | 8,242 | 207 | 8,036 |
| 1974 | 4,438 | 3,316 [12] | 7,754 | 194 | 7,559 |
| 1975 | 3,792 | 3,299 [12] | 7,091 | 190 | 6,901 |
| 1976 | 3,542 | 3,465 [12] | 7,007 | 173 | 6,834 |
| 1977 | 3,604 | 3,611 [12] | 7,215 | 166 | 7,049 |
| 1978 | 3,368 | 4,108 [12] | 7,476 | 162 | 7,315 |
| 1979 | 3,149 | 4,117 [12] | 7,266 | 166 | 7,101 |
| 1980 | 2,966 | 3,974 [12] | 6,940 | 142 | 6,798 |
| 1981 | 2,715 | 4,065 [12] | 6,780 | 142 | 6,638 |
| 1982 | 2,406 | 3,766 [12] | 6,172 | 129 | 6,043 |
| 1983 | 2,190 | 3,142 [12] | 5,332 | 124 | 5,208 |
| 1984 | 2,282 | 3,543 [12] | 5,825 | 133 | 5,693 |
| 1985 | 1,928 | 3,086 [12] | 5,014 | 118 | 4,896 |
| 1986 | 1,997 | 2,899 [12] | 4,895 | 116 | 4,780 |
| 1987 | 1,974 | 3,148 [12] | 5,123 | 125 | 4,998 |
| 1988 | 2,114 | 3,066 [12] | 5,180 | 120 | 5,060 |
| 1989 | 2,102 | 2,977 [12] | 5,078 | 121 | 4,957 |
| 1990 | 1,573 | 3,669 [12] | 5,242 | 119 | 5,123 |
| 1991 | 1,777 | 3,257 [12] | 5,034 | 129 | 4,905 |
| 1992 | 1,649 | 3,265 [12] | 4,914 | 133 | 4,782 |
| 1993 | 1,674 | 3,317 [12] | 4,991 | 130 | 4,861 |
| 1994 | 1,691 | 3,479 [3] | 5,170 | 129 | 5,041 |
| 1995 | 1,683 | 3,425 [3] | 5,108 | 146 | 4,962 |
| 1996 | 1,628 | 3,662 [3] | 5,290 | 140 | 5,150 |
| 1997 | 1,475 | 3,652 [3] | 5,127 | 147 | 4,980 |
| 1998 | 1,522 | 3,652 [3] | 5,174 | 142 | 5,032 |
| 1999 | 1,536 [3] | 3,636 [3] | 5,172 | 162 | 5,011 |
| 2000 | 1,455 [3] | 3,664 [3] | 5,119 | 162 | 4,957 |
| 2001 | 1,502 [3] | 3,673 [3] | 5,175 | 150 | 5,025 |
| 2002 | 1,362 [3] | 3,421 [3] | 4,783 | 160 | 4,623 |
| 2003 | 1,350 [3] | 3,364 [3] | 4,714 | 158 | 4,556 |
| 2004 | 1,385 [3] | 3,103 [3] | 4,488 | 154 | 4,334 |

e Estimated r Revised p Preliminary

* See Table 13 corresponding volumes at 15.025 psia and footnote in Appendix B.

# Appendix D-4

## UNITED STATES OCS GAS PRODUCTION[12]

**Natural Gas and Casinghead Gas**

**(Thousand Cubic Feet (MCF) at 14.73 psia and 60 degrees Fahrenheit)***

| YEAR | LOUISIANA | TEXAS | CALIFORNIA | TOTAL |
|---|---|---|---|---|
| 1958 | 127,692,849 | 0 | 0 | 127,692,849 |
| 1959 | 207,156,297 | 0 | 0 | 207,156,297 |
| 1960 | 273,034,452 | 0 | 0 | 273,034,452 |
| 1961 | 318,280,097 | 0 | 0 | 318,280,097 |
| 1962 | 451,952,661 | 0 | 0 | 451,952,661 |
| 1963 | 564,352,609 | 0 | 0 | 564,352,609 |
| 1964 | 621,731,441 | 0 | 0 | 621,731,441 |
| 1965 | 645,589,472 | 0 | 0 | 645,589,472 |
| 1966 | 965,387,854 | 42,059,386 | 0 | 1,007,447,240 |
| 1967 | 1,087,262,810 | 99,952,947 | 0 | 1,187,215,756 |
| 1968 | 1,413,467,614 | 109,910,788 | 799,685 | 1,524,178,086 |
| 1969 | 1,822,544,152 | 127,096,983 | 4,845,851 | 1,954,486,985 |
| 1970 | 2,273,147,052 | 133,300,405 | 12,229,147 | 2,418,676,604 |
| 1971 | 2,634,014,045 | 127,357,909 | 15,671,479 | 2,777,043,433 |
| 1972 | 2,881,364,748 | 147,156,460 | 10,033,581 | 3,038,554,789 |
| 1973 | 3,055,628,252 | 148,673,638 | 7,286,549 | 3,211,588,439 |
| 1974 | 3,349,170,882 | 159,979,402 | 5,573,642 | 3,514,723,926 |
| 1975 | 3,332,169,075 | 122,572,765 | 3,951,633 | 3,458,693,473 |
| 1976 | 3,499,865,919 | 92,582,425 | 3,475,201 | 3,595,923,545 |
| 1977 | 3,647,513,694 | 86,943,285 | 3,289,963 | 3,737,746,942 |
| 1978 | 4,149,731,158 | 231,857,451 | 3,472,292 | 4,385,060,901 |
| 1979 | 4,158,521,732 | 511,590,610 | 2,866,822 | 4,672,979,164 |
| 1980 | 4,013,707,456 | 624,642,529 | 3,107,023 | 4,641,457,008 |
| 1981 | 4,106,494,612 | 730,275,835 | 12,766,307 | 4,849,536,754 |
| 1982 | 3,803,740,070 | 858,020,303 | 17,750,924 | 4,679,511,297 |
| 1983 | 3,173,892,371 | 850,817,216 | 16,024,292 | 4,040,733,879 |
| 1984 | 3,578,740,589 | 931,293,587 | 27,806,899 | 4,537,841,075 |
| 1985 | 3,116,884,507 | 834,926,527 | 49,164,213 | 4,000,975,247 |
| 1986 | 2,927,832,280 | 978,370,557 | 42,689,021 | 3,948,891,858 |
| 1987 | 3,180,107,212 | 1,204,488,343 | 40,986,158 | 4,425,581,714 |
| 1988 | 3,096,881,645 | 1,178,422,567 | 34,570,638 | 4,309,874,850 |
| 1989 | 3,006,576,077 | 1,165,112,959 | 28,574,912 | 4,200,263,949 |
| 1990 | 3,706,324,064 | 1,348,075,368 | 38,531,764 | 5,092,931,196 |
| 1991 | 3,289,968,620 | 1,184,936,500 | 40,626,577 | 4,515,531,697 |
| 1992 | 3,338,101,465 | 1,239,389,554 | 40,873,660 | 4,685,644,750 |
| 1993 | 3,386,808,671 | 1,027,937,761 | 42,082,090 | 4,533,389,755 |
| 1994 | 3,492,406,781 | 1,014,204,140 | 41,679,064 | 4,657,017,854 |
| 1995 | 3,636,068,016 | 908,520,055 | 36,425,501 | 4,692,270,850 |
| 1996 | 3,783,483,306 | 972,873,764 | 37,822,941 | 5,024,420,834 |
| 1997 | 3,901,964,998 | 965,334,787 | 40,722,084 | 5,076,996,337 |
| 1998 | 3,890,978,799 | 867,606,779 | 26,431,191 | 4,835,387,697 |
| 1999 | 3,913,456,139 | 814,124,878 | 37,261,450 | 4,992,363,948 |
| 2000 | 3,837,150,457 | 886,473,041 | 36,855,271 | 4,977,690,726 |
| 2001 | 3,895,134,261 | 916,020,487 | 40,447,991 | 5,217,043,720 |
| 2002 | 3,527,116,066 | 780,102,403 | 35,248,976 | 4,665,993,097 |
| 2003 | 3,342,004,232 | 831,642,886 | 37,453,422 | 4,571,576,810 |
| 2004 | 2,897,440,675 | 857,670,136 | 37,501,415 | 4,168,787,952 |

e Estimated r Revised p Preliminary

* See Table 15 corresponding volumes at 15.025 psia and footnote in Appendix B.

# Appendix D-5

## UNITED STATES NATURAL GAS AND CASINGHEAD GAS PRODUCTION[3]

**(Billion Cubic Feet (BCF) at 14.73 psia and 60 degrees Fahrenheit)***

| DATE | GROSS | WET AFTER LEASE SEPARATION | MARKETED | DRY | GROSS IMPORTS |
|---|---|---|---|---|---|
| 1984 | 20,267 | 18,412 | 18,304 | 17,466 | 843 |
| 1985 | 19,607 | 17,365 | 17,270 | 16,454 | 950 |
| 1986 | 19,131 | 16,956 | 16,859 | 16,059 | 750 |
| 1987 | 20,140 | 17,557 | 17,433 | 16,621 | 993 |
| 1988 | 20,999 | 18,061 | 17,918 | 17,103 | 1,294 |
| 1989 | 21,074 | 18,237 | 18,095 | 17,311 | 1,382 |
| 1990 | 21,523 | 18,744 | 18,594 | 17,810 | 1,532 |
| 1991 | 21,749 | 18,703 | 18,532 | 17,698 | 1,773 |
| 1992 | 22,132 | 18,879 | 18,712 | 17,840 | 2,138 |
| 1993 | 22,725 | 19,209 | 18,982 | 18,095 | 2,350 |
| 1994 | 23,581 | 19,938 | 19,710 | 18,821 | 2,624 |
| 1995 | 23,743 | 19,790 | 19,506 | 18,598 | 2,841 |
| 1996 | 24,114 | 20,084 | 19,812 | 18,854 | 2,937 |
| 1997 | 24,213 | 20,122 | 19,865 | 18,902 | 2,994 |
| 1998 | 24,108 | 20,064 | 19,961 | 19,024 | 3,152 |
| 1999 | 23,823 | 19,915 | 19,805 | 18,832 | 3,586 |
| 2000 | 24,174 | 20,289 | 20,198 | 19,182 | 3,782 |
| 2001 | 24,501 | 20,667 | 20,570 | 19,616 | 3,977 r |
| 2002 | 23,941 r | 20,020 r | 19,921 r | 18,964 r | 4,015 |
| 2003 | 24,056 r | 20,125 r | 20,030 r | 19,068 r | 3,944 r |
| | | | | | |
| January | 2,075 r | 1,717 r | 1,709 r | 1,627 r | 373 r |
| February | 1,930 r | 1,595 r | 1,588 r | 1,512 r | 346 r |
| March | 2,076 r | 1,706 r | 1,698 r | 1,617 r | 349 r |
| April | 1,979 r | 1,641 r | 1,634 r | 1,555 r | 325 r |
| May | 2,025 r | 1,664 r | 1,656 r | 1,577 r | 327 r |
| June | 1,943 r | 1,609 r | 1,601 r | 1,524 r | 342 r |
| July | 1,995 r | 1,660 r | 1,652 r | 1,573 r | 375 r |
| August | 1,979 | 1,683 | 1,675 | 1,601 | 360 |
| September | 1,883 | 1,565 | 1,558 | 1,489 | 345 |
| October | 1,992 | 1,646 | 1,638 | 1,566 | 336 |
| November | 1,975 | 1,606 | 1,598 | 1,528 | 369 |
| December | 2,050 | 1,677 | 1,669 | 1,596 | 413 |
| **2004 Total** | **23,902** | **19,772** | **19,677** | **18,765** | **4,259** |
| | | | | | |
| January | 2,050 | 1,665 | 1,656 | 1,613 | 403 |
| February | 1,871 | 1,519 | 1,512 | 1,464 | 356 |
| March | 2,060 | 1,672 | 1,664 | 1,610 | 381 |
| April | 1,963 | 1,609 | 1,601 | 1,525 | 329 |
| May | 2,004 | 1,639 | 1,631 | 1,559 | 336 |
| June | 1,929 | 1,600 | 1,592 | 1,522 | 323 |
| July | 1,948 | 1,619 | 1,610 | 1,539 | 351 |
| August | 1,967 | 1,626 | 1,618 | 1,546 | 343 |
| September | 1,746 | 1,448 | 1,440 | 1,377 | 345 |
| October | 1,712 | 1,419 | 1,412 | 1,350 | 362 |
| November | | | | | |
| December | | | | | |
| **2005 Total** | **19,250** | **15,817** | **15,736** | **15,105** | **3,530** |

e Estimated r Revised p Preliminary

* See Table 16 corresponding volumes at 15.025 psia and footnote in Appendix B.

Appendix E

# Louisiana Energy Topics



Calumet Refinery 1996

*Originally Published in January 2005 Louisiana Energy Facts*

# LOUISIANA ELECTRIC POWER GENERATION AND DISTRIBUTION IN LOUISIANA: UPDATE, JUNE 2004

**By**
**Bob Sprehe, Energy Economist**

The Technology Assessment Division (TAD) of the Department of Natural Resources (DNR) has updated its compilation of corporate electric power generation and distribution data in the state. This material is available in a publication which includes a listing of cogeneration facilities also**.** In subsequent reports scheduled for 2004, TAD will address in more detail issues that are arising from the stalled deregulation initiative that followed enactment of the Energy Policy Act of 1992 (EPAct92), as well as any subsequent legislation or regulation that may ensue. By the end of June 2004, new energy legislation had stalled in the Congress of the United States. The issues become more complex the longer they remain unaddressed.

It would be an understatement to say that the electric power generation sector of the economy is suffering "convulsions" from the restructuring initiative unleashed by EPAct92. Independent power producers (IPPs) and cogeneration of electric power by industrial firms, both for internal process plant use and for the sale of excess power into the market, has grown rapidly since EPAct92.

## The Importance of Electricity to the Nation…

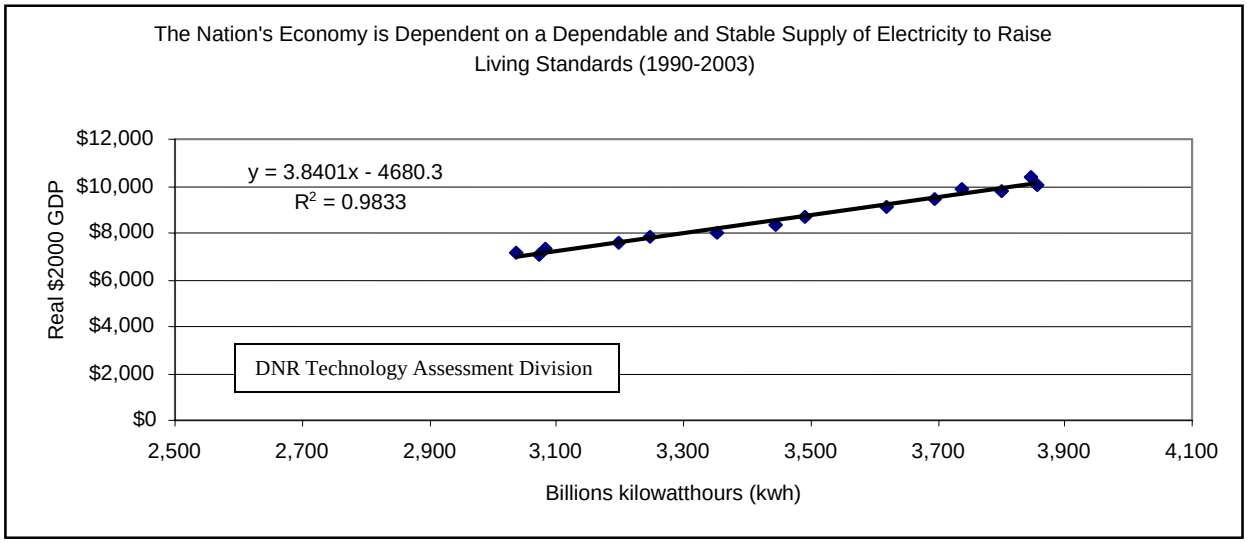



Figure 1

But now the volatility of natural gas prices, and the apparent uncertainty of domestic natural gas supply, has driven many industrial plants, particularly those utilizing natural gas in their processes, out of business here in the U.S. and toward relocation overseas where natural gas supply and labor is less costly. With so much electric power generation dependent on natural gas supply to IPPs and cogen facilities, both in Louisiana and nationally, the dependability of electric power generation becomes a legitimate public policy issue for the consuming public. Planning and financing of coal and nuclear fired power generation, to replace natural gas as a source of power generation, requires many years of preparation.

## …and to the State of Louisiana

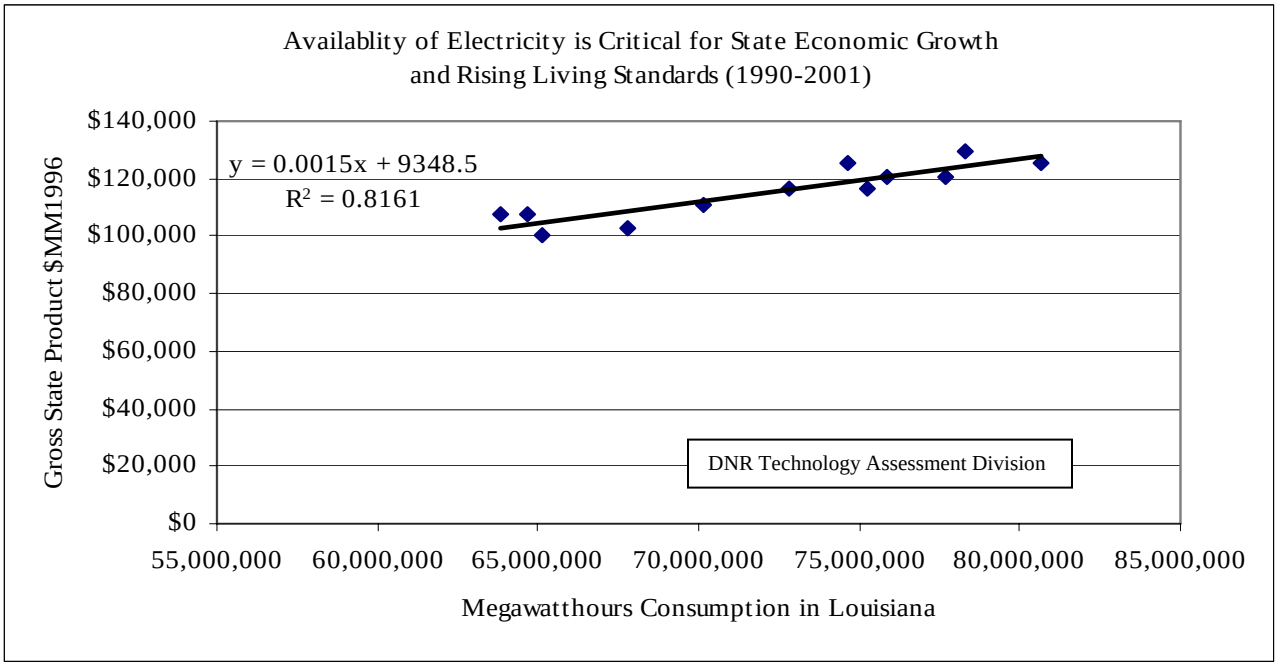



Figure 2

## Schematic of Electric Power Generation & Distribution in Louisiana

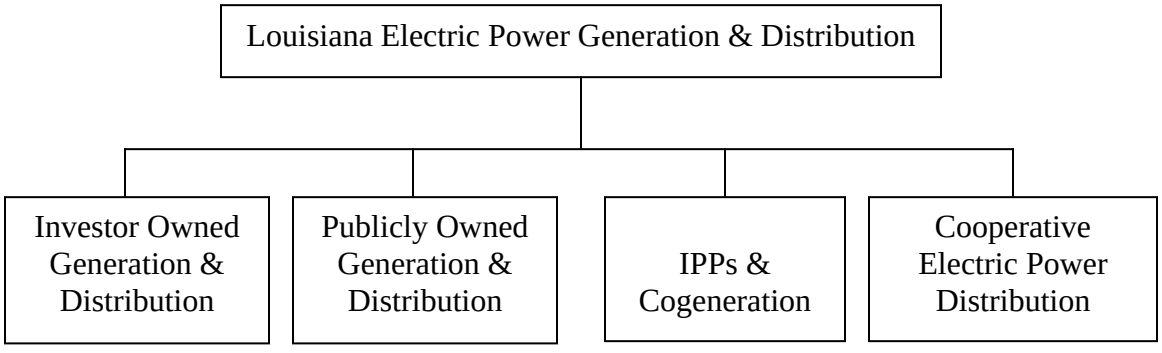



Figure 3

Investor owned utilities continue to dominate the Louisiana market place with nearly 75% of the customers, 85% of power sales, and 55% of the electric power generation facilities.

Table 1

**Summary of Market Share between Types of Distribution and Generation Organizations (2002)**

| | Distribution & Generation | | | | Distribution & Generation % | | | |
|---|---|---|---|---|---|---|---|---|
| | Number of Consumers | Revenue ($000's) | Sales (000 kwh) | Generating Capacity MW | Number of Consumers | Revenue | Sales | Generating Capacity |
| Investor-Owned | 1,598,991 | $4,000,861 | 67,844,289 | 14,134.8 | 75.75% | 84.29% | 85.60% | 55.16% |
| Cooperative | 359,391 | $477,054 | 7,233,854 | 0.0 | 17.03% | 10.05% | 9.13% | 0.00% |
| Publicly Owned | 152,386 | $268,485 | 4,182,846 | 822.0 | 7.22% | 5.66% | 5.28% | 3.21% |
| IPPs, Cogen | 0 | 0 | 0 | 10,667.6 | 0 | 0 | 0 | 41.63% |
| 2002 Totals | 2,110,768 | $4,746,400 | 79,260,989 | 25,624.4 | 100.00% | 100.00% | 100.00% | 100.00% |

Source: EIA

Table 2

**Summary of the Generating Capacity of Electricity by Fuel Sources**

| | | 1993 | 1997 | 2002 | Annual Growth Rate 1993-2002 % | 1993 | % Share 1997 | 2002 |
|---|---|---|---|---|---|---|---|---|
| | Coal | 3,343 | 3,453 | 1,723 | -7.1 | 17.00% | 16.90% | 6.70% |
| | Petroleum | 16 | 16 | 16 | 0.0 | 10.00% | 10.00% | 10.00% |
| | Natural Gas | 1,811 | 1,910 | 1,735 | -0.5 | 9.20% | 9.40% | 6.80% |
| | Dual Fired | 9,709 | 9,689 | 8,689 | -1.2 | 49.50% | 47.50% | 33.90% |
| | Nuclear | 2,006 | 2,011 | 2,071 | 0.4 | 10.20% | 9.90% | 8.10% |
| **Total Electric Utilities** | | 16,885 | 17,079 | 14,233 | -1.9 | 86.00% | 83.70% | 55.50% |
| | Coal | 8 | 8 | 1,730 | 81.8 | 0.00% | 0.00% | 6.70% |
| | Petroleum | 0 | 6 | 46 | NM | 0.00% | 0.00% | 0.20% |
| | Natural Gas | 1,652 | 2,285 | 8,724 | 20.3 | 8.40% | 11.20% | 34.00% |
| | Other Gases | 10 | 27 | 62 | 22.7 | 0.10% | 0.10% | 0.20% |
| | Dual Fired | 378 | 290 | 451 | 2.0 | 1.90% | 1.40% | 1.80% |
| | Hydroelectric | 182 | 182 | 192 | 0.6 | 0.90% | 0.90% | 0.70% |
| | Other Renewables | 487 | 517 | 170 | -11.0 | 2.50% | 2.50% | 0.70% |
| | Other | 21 | 21 | 24 | 1.6 | 0.10% | 0.10% | 0.10% |
| **Total IPPs & Combined Heat & Power** | | 2,739 | 3,337 | 11,399 | 17.2 | 14.00% | 16.30% | 44.50% |
| | Coal | 3,351 | 3,461 | 3,453 | 0.3 | 17.10% | 17.00% | 13.50% |
| | Petroleum | 16 | 22 | 62 | 16.2 | 0.10% | 0.10% | 0.20% |
| | Natural Gas | 3,463 | 4,195 | 10,458 | 13.1 | 17.60% | 20.50% | 40.80% |
| | Other Gases | 10 | 27 | 62 | 22.7 | 0.10% | 0.10% | 0.20% |
| | Dual Fired | 10,087 | 9,980 | 9,140 | -1.1 | 51.40% | 48.90% | 35.70% |
| | Nuclear | 2,006 | 2,011 | 2,071 | 0.4 | 10.20% | 9.90% | 8.10% |
| | Hydroelectric | 182 | 182 | 192 | 0.6 | 0.90% | 0.90% | 0.70% |
| | Other Renewables | 487 | 517 | 170 | -11.0 | 2.50% | 2.50% | 0.70% |
| | Other | 21 | 21 | 24 | 1.6 | 0.10% | 0.10% | 0.10% |
| **Total Electric Industry** | | 19,624 | 20,416 | 25,633 | 3.0 | 100.00% | 100.00% | 100.00% |

Source: EIA Electric Power Data Base Files

## Generation of Electric Power

In the aggregate, 50% of Louisiana's electric power generation relies on natural gas as its fuel source. Nearly 23% comes from coal fired generation; and nearly 18% from nuclear power.

Table 3
**Electric Power Generation in Louisiana, 1993-1997-2002 (MWHs)**

| | | 1993 | 1997 | 2002 | Annual Growth Rate 1993-2002 % | 1993 | % Share 1997 | 2002 |
|---|---|---|---|---|---|---|---|---|
| | Coal | 19,365,873 | 20,952,995 | 12,258,694 | -5.0 | 24.50% | 25.30% | 12.90% |
| | Petroleum | 1,837,844 | 645,547 | 68,460 | -30.6 | 2.30% | 0.80% | 0.10% |
| | Natural Gas | 23,750,752 | 26,010,452 | 25,085,994 | 0.6 | 30.10% | 31.40% | 26.40% |
| | Other Gases | 0 | 0 | 203,484 | NM | 0.00% | 0.00% | 0.20% |
| | Nuclear | 14,398,103 | 13,511,008 | 17,305,328 | 2.1 | 18.20% | 16.30% | 18.20% |
| **Total Electric Utilities** | | 59,352,572 | 61,120,002 | 54,921,960 | -0.9 | 75.20% | 73.80% | 57.80% |
| | Coal | 45,855 | 54,126 | 9,792,212 | 81.5 | 0.10% | 0.10% | 10.30% |
| | Petroleum | 1,649,723 | 1,640,597 | 1,796,076 | 0.9 | 2.10% | 2.00% | 1.90% |
| | Natural Gas | 12,604,472 | 14,566,110 | 22,814,854 | 6.8 | 16.00% | 17.60% | 24.00% |
| | Other Gases | 700,587 | 1,088,279 | 1,294,140 | 7.1 | 0.90% | 1.30% | 1.40% |
| | Hydroelectric | 1,231,946 | 1,035,961 | 891,441 | -3.5 | 1.60% | 1.30% | 0.90% |
| | Other Renewables | 2,674,066 | 3,138,770 | 2,862,791 | 0.8 | 3.40% | 3.80% | 3.00% |
| | Other | 716,315 | 177,799 | 597,490 | -2.0 | 0.90% | 0.20% | 0.60% |
| **Total IPPs & Combined Heat & Power** | | 19,622,964 | 21,701,640 | 40,049,003 | 8.2 | 24.80% | 26.20% | 42.30% |
| | | 1993 | 1997 | 2002 | % | 1993 | 1997 | 2002 |
| | Coal | 19,411,728 | 21,007,121 | 22,050,906 | 1.4 | 24.60% | 25.40% | 23.20% |
| | Petroleum | 3,487,567 | 2,286,144 | 1,864,536 | -6.7 | 4.40% | 2.80% | 2.00% |
| | Natural Gas | 36,355,224 | 40,576,562 | 47,900,848 | 3.1 | 46.00% | 49.00% | 50.40% |
| | Other Gases | 700,587 | 1,088,279 | 1,497,624 | 8.8 | 0.90% | 1.30% | 1.60% |
| | Nuclear | 14,398,103 | 13,511,008 | 17,305,328 | 2.1 | 18.20% | 16.30% | 18.20% |
| | Hydroelectric | 1,231,946 | 1,035,961 | 891,441 | -3.5 | 1.60% | 1.30% | 0.90% |
| | Other Renewables | 2,674,066 | 3,138,770 | 2,862,791 | 0.8 | 3.40% | 3.80% | 3.00% |
| | Other | 716,315 | 177,799 | 597,490 | -2.0 | 0.90% | 0.20% | 0.60% |
| **Total Electric Industry** | | 78,975,536 | 82,821,642 | 94,970,963 | 2.1 | 100.00% | 100.00% | 100.00% |

Source: EIA Electric Power Data Base Files

*Originally Published in February 2005 Louisiana Energy Facts*

# ECONOMICS OF OFFSHORE WIND POWER

by
Bob Sprehe, Energy Economist
and
Bryan Crouch, P.E

## Introduction

The December, 2004 Louisiana Energy Topic gave an overview of wind generated electricity and how it relates to Louisiana. It can be downloaded in Adobe PDF format at:

http://www.dnr.state.la.us/sec/execdiv/techasmt/newsletters/index.htm.

This month's edition focuses on the economics of offshore wind generated electricity. A simple economic analysis will be presented for a nominal 50 MW offshore wind farm after a discussion of the key inputs and assumptions. This economic analysis will present data at three different prices of electricity and three different wind classes. It will also present a breakeven price of electricity for each wind class.

The economics of land-based wind power are fairly well established, but much less so for offshore wind power as no offshore wind farms have actually been built in the U.S., although several have been built in Europe. Wind farms are more expensive to build offshore than onshore. The higher cost is mainly due to costs involved with transmitting the power back to land and because it is generally more expensive to build anything over water than land (something in which Louisiana industries are adept).

### Inputs and Assumptions

The economics of an offshore wind farm will vary greatly depending on the specifics of a particular wind farm. As such, this analysis is only meant to show a range of possible scenarios and shed some light on the information used in such an analysis. It is based on the assumptions discussed below, and even relatively small changes in these assumptions can lead to very different results.

The cost to install a utility-scale wind farm on land is in the neighborhood of $1000/kW[1]. Estimates for offshore wind farms range from $1500 to $2000/kW[2]. The middle price of $1750/ kW was chosen which puts the installation cost at $84,700,000 for a 48.4 MW wind farm. Operation and maintenance cost for an offshore wind farm should differ little from land wind farms which run about 2%[1] of the original turbine investment. These costs were set at 2% of the installation cost which is more than just the turbine cost, so this figure is somewhat over-estimated. General and administrative costs are an estimate of basic costs needed to run the company that manages the wind farm and were set at 15%. Turbine lifespan was deemed to be 25 years. Land based turbines commonly last 20 years before a major overhaul is needed. Offshore wind turbines are designed to be more rugged due to the harsh marine environment and are subject to less turbulent wind patterns due to the smooth water surface. In reality, offshore wind turbines may last 30 years or more. Finally, a corporate tax rate of 35% was chosen, and the federal 1.8 cents/kWh tax credit was also taken into account. Straight line depreciation was used here for simplicity. In reality, depreciation would be accelerated depending upon the particular company's tax situation and current tax law.

The biggest assumption that must be made is that of energy production from the wind farm. Energy production from a wind farm is completely dependent on how hard and how often the wind blows. Small changes in wind effect large changes in energy output from a wind turbine. The offshore wind regime is still something of an unknown. To a smaller degree, the selection of a particular wind turbine for a given advertised capacity will determine how much power is produced.

A wind farm consisting of 22, 2.2 MW wind turbines was chosen for a total rated capacity of 48.4 MW. The Danish Wind Industry Association website[1] was consulted to provide a power curve for such a turbine and calculate its annual power production. The annual power production was calculated for wind classes 3, 4, and 5 as defined by the National Renewable Energy Laboratory's wind resource map[3]. Each wind class has a range of values. The average value for each wind class was used. The values were 15.0 mph, 16.3 mph, and 17.4 mph for wind classes 3, 4, and 5 respectively. The energy output is summarized in **Table 1**.

**Table 1. Energy Output**

| Wind Class (mph) | Energy Output per 2.2 MW Turbine (kWh/year) | Total Energy Output (kWh/year) |
|---|---|---|
| Class 3 (15.0) | 4,925,000 | 108,350,000 |
| Class 4 (16.3) | 5,782,000 | 127,204,000 |
| Class 5 (17.4) | 6,531,000 | 143,682,000 |

Source: LA DNR Technology Assessment Division

Variables not taken into account here include: ancillary service costs, renewable energy credits, and renewable portfolio standards. Ancillary service costs are the costs associated with integrating wind power into the grid. These costs are estimated to be negligible when wind is a small fraction of the total electricity supply. Renewable portfolio standards and renewable energy credits do not directly affect the cost of wind power, but would alter the economics by placing a higher value on wind power.

## Results

The results show that electricity generation from this particular wind farm could break even at 4.2 cents/kWh in a class 5 wind resource; however, the rate of return only begins to become attractive at an electricity price of 8 cents/kWh in a class 5 wind resource. For comparison, the average price of electricity per kWh to Louisiana customers in 2002 was as follows: overall = $0.0599, residential = $0.0710 (range of $0.0271 - $0.0994), commercial = $0.0664, industrial = $0.0442. Securing capital for rates of return at these low levels would appear be a controlling factor in the viability of such a project. The results of the analysis are shown in **Tables 2 - 4** according to wind class.

**Table 2. Class 3 Wind**

| Annual Figures | Electricity Price ($/kWh) | | | |
|---|---|---|---|---|
| | **0.04** | **0.06** | **0.08** | **0.056*** |
| Revenue | $4,334,000 | $6,501,000 | $8,668,000 | $ 6,067,600 |
| Operating & maintenance expense | 1,694,000 | 1,694,000 | 1,694,000 | 1,694,000 |
| Gross profit | 2,640,000 | 4,807,000 | 6,974,000 | 4,373,600 |
| General & administrative expense | 650,100 | 975,150 | 1,300,200 | 910,140 |
| Depreciation depletion & amortization | 3,388,000 | 3,388,000 | 3,388,000 | 3,388,000 |
| Operating profit | -1,398,100 | 443,850 | 2,285,800 | 75,460 |
| Taxes | 0 | 155,348 | 800,030 | |
| Production tax credit | 1,950,300 | 1,950,300 | 1,950,300 | |
| Net taxes | 0 | 0 | 0 | |
| Net after taxes | -1,398,100 | 443,850 | 2,285,800 | |
| Cash flow | 1,989,900 | 3,831,850 | 5,673,800 | |
| Internal rate of return | -3.73% | 0.97% | 4.43% | |

**Table 3. Class 4 Wind**

| Annual Figures | Electricity Price ($/kWh) | | | |
|---|---|---|---|---|
| | **0.04** | **0.06** | **0.08** | **0.048*** |
| Revenue | $5,088,160 | $7,632,240 | $10,176,320 | $6,105,792 |
| Operating & maintenance expense | 1,694,000 | 1,694,000 | 1,694,000 | 1,694,000 |
| Gross profit | 3,394,160 | 5,938,240 | 8,482,320 | 4,411,792 |
| General & administrative expense | 763,224 | 1,144,836 | 1,526,448 | 915,869 |
| Depreciation depletion & amortization | 3,388,000 | 3,388,000 | 3,388,000 | 3,388,000 |
| Operating profit | -757,064 | 1,405,404 | 3,567,872 | 107,923 |
| Taxes | 0 | 491,891 | 1,248,755 | |
| Production tax credit | 2,289,672 | 2,289,672 | 2,289,672 | |
| Net taxes | 0 | 0 | 0 | |
| Net after taxes | -757,064 | 1,405,404 | 3,567,872 | |
| Cash flow | 2,630,936 | 4,793,404 | 6,955,872 | |
| Internal rate of return | -1.86% | 2.87% | 6.52% | |

* Break even

Source: LA DNR Technology Assessment Division

**Table 4. Class 5 Wind**

| Annual Figures | Electricity Price ($/kWh) | | | |
|---|---|---|---|---|
| | **0.04** | **0.06** | **0.08** | **0.042*** |
| Revenue | $5747,280 | $8,620,920 | $11,494,560 | $6,034,644 |
| Operating & maintenance expense | 1,694,000 | 1,694,000 | 1,694,000 | 1,694,000 |
| Gross profit | 4,053,280 | 6,926,920 | 9,800,560 | 4,340,644 |
| General & administrative expense | 862,092 | 1,293.,138 | 1,724,184 | 905,197 |
| Depreciation depletion & amortization | 3,388,000 | 3,388,000 | 3,388,000 | 3,388,000 |
| Operating profit | -196,812 | 2,245,782 | 4,688,376 | 47,447 |
| Taxes | 0 | 786,024 | 1,640,932 | |
| Production tax credit | 2,586,276 | 2,586,276 | 2,586,276 | |
| Net taxes | 0 | 0 | 0 | |
| Net after taxes | -196,812 | 2,245,782 | 4,688,376 | |
| Cash flow | 3,191,182 | 5,633,782 | 6,955,872 | |
| Internal rate of return | -0.46% | 4.37% | 8.21% | |

* Break even
Source: LA DNR Technology Assessment Division

**Conclusion**

The results of this economic analysis indicate that small changes in any of the variables could make or break a particular project. Such is the current state of wind power in general. The results also indicate that, in the absence of renewable energy credits, a minimum class 5 wind resource is required for an economically viable wind farm in Louisiana with current technology and at current utility rates for electricity. Wind turbine capacity will become less expensive as turbine efficiencies improve, and turbine prices will come down as economies of scale materialize. As these happen, wind farms may become viable in less than class 5 wind resources.

| References | Key | |
|---|---|---|
| 1. **Danish Wind Industry Association** www.windpower.org | **kW** | **kilowatt or 1,000 watts** |
| | **kWh** | **kilowatt hour** |
| 2. **National Wind Coordinating Committee** www.nationalwind.org | **MW** | **megawatt or 1 million watts** |
| 3. **National Renewable Energy Laboratory** www.nrel.gov/wind/wind_map.html | | |

*Originally Published in April 2005 Louisiana Energy Facts*

# ENERGY-EFFICIENT BUILDING DESIGN FOR THE LOUISIANA CAPITOL COMPLEX: OVERVIEW OF THE PROCESS & RESULTS

by
David Y. McGee
Engineer Supervisor

## INTRODUCTION

Louisiana recently designed and began construction on buildings to house state government offices. All of the buildings are located in downtown Baton Rouge near the new state capital building and are referred to as the Louisiana Capital Complex. The first three of these new buildings, the LaSalle Building (364,700 sq. ft.), the Claiborne Building (465,000 sq. ft.) and the Galvez Building (340,000 sq. ft.), were chosen by the Louisiana Department of Natural Resources and U.S. Department of Energy for a demonstration project for energy-efficient building techniques. The overall project goal was to construct buildings that would qualify for an Energy Star rating. Qualification required each building's actual energy use to be 30% less than that of an equivalent building constructed to minimal ASHRAE (American Society of Heating, Refrigerating, and Air-conditioning Engineers, Inc.) 90.1-1989 standards.

Advanced software tools, including PowerDOE and Building Life-Cycle Costing program (BLCC), were used to model the energy consumption and emissions output of the buildings. Modeling results indicated that a 39% savings in energy consumption could be realized, i.e., in comparison to an equivalent building built to minimal ASHRAE 90.1-1989 standards, by utilizing conventional energy-efficient building technologies. Savings of this magnitude have been realized around the country in a wide range of building types including schools, offices, and commercial facilities.

This report describes the design procedures and software tools that were used, explains how they were implemented, and discusses their predicted results. In addition, some of the actual electricity consumption figures of the three buildings are presented.

## THE DESIGN PROCESS AND PREDICTED RESULTS

The project's goal of achieving Energy Star compliance was further constrained by the following conditions:

- Identify the most effective building concepts to support the missions of the owner.
- Create environmentally sensitive strategies for better buildings that are both pragmatic and repeatable in future facilities to serve as demonstration projects.
- Achieve the desired result with a "real world" budget and schedule.

With these conditions in mind, the measures-of-merit used in deciding what technologies to employ were total life-cycle costs, site life-cycle energy use measured at the meter, oxides of sulphur ($SO_x$) and oxides of nitrogen ($NO_x$) emissions (associated with acid rain and smog production), and emissions from carbon dioxide ($CO_2$), a greenhouse gas. Including these as measures-of-merit in the design criteria helps to determine the full impact of a building on its inhabitants and surrounding community.

**Table 1** provides typical office building data reported by the Energy Information Agency in 1999 relative to size, function, and Louisiana climate. The annual energy consumption and expenditure data for typical

office building classes reported below provide a baseline for comparison for the three new state buildings. The ranges of values are averaged to provide a mean reference value.

**Table 1: Typical Office Bldg. Data for Size, Function and Louisiana Climate (1999)**
**U.S. Department of Energy, Energy Information Agency**
Electricity Consumption and Expenditure Intensities, 1999 Building Annual

| Building Class by Size, Use, Age, Climate, Occupancy, and Ownership | Annual Electricity Consumption | | | | | Electricity Expenditures | |
|---|---|---|---|---|---|---|---|
| | kwhr[1] / sq. ft. | mwhr[2] / worker | Distribution- kwhr / sq. ft. | | | $ / sq. ft. | $ / kwhr |
| | | | 25th % | Median | 75th % | Average | Cost |
| 200,001 to 500,000 sq. ft. | 14.7 | 11.3 | 5.1 | 10.0 | 20.4 | 0.95 | 0.064 |
| Office | 18.7 | 07.8 | 6.0 | 11.7 | 17.9 | 1.30 | 0.070 |
| 1990 to 1999 | 17.8 | 14.4 | 3.7 | 08.6 | 21.8 | 1.24 | 0.069 |
| >2,000 CDD[3] & <4,000 HDD[4] | 15.0 | 12.0 | 3.3 | 09.8 | 22.1 | 1.02 | 0.068 |
| 49 to 60 hrs/ week | 12.0 | 08.2 | 4.0 | 07.7 | 14.7 | 0.91 | 0.076 |
| 61 to 84 hrs / week | 13.9 | 10.7 | 6.2 | 11.6 | 23.7 | 1.06 | 0.076 |
| Federal Government | 21.0 | 12.5 | 8.3 | 18.1 | 42.8 | 1.28 | 0.061 |
| State Government | 13.9 | 13.2 | 6.4 | 12.9 | 17.9 | 0.94 | 0.068 |
| **Average / year** | **15.9** | **11.3** | **5.4** | **11.3** | **22.7** | **$1.09** | **$0.07** |

1 - Kilowatt hour 2 - Megawatt hour 3 - Cooling Degree Days 4 - Heating Degree Days

Each building was modeled by M. S. Addison and Associates of Tempe, AZ, using PowerDOE. PowerDOE and its predecessor, DOE2.1E, calculated hour-by-hour building energy consumption over an entire year (8,760 hours) using weather data for the specific location. Life-cycle cost analysis was performed using an easy-to-use spreadsheet from the National Institute of Standards and Technology's widely used BLCC program. For more information on PowerDOE and the user-friendly BLCC program visit the DOE-2 Based Building Energy Use and Cost Analysis Software website at http://www.doe2.com.

A detailed description of the building being analyzed, including hourly scheduling of occupants, lighting, equipment, thermostat settings and equipment performance characteristics is input into the program. Discount rates were those established by the U.S. Federal Energy Management Program (FEMP) for the current analysis year. Energy prices were based on local utility contracts.

Emissions factors for $NO_x$, $SO_x$, and $CO_2$, expressed as a function of the amount of electricity and natural gas used, were obtained from two sources:

1. The FEMP web site provides information on the EMISS program developed by the National Institute of Standards and Technology:
   (URL: http://www.eere.energy.gov/femp/information/download_blcc.cfm#emiss).

2. The National Resources Defense Council web site provides data on electric utility emissions by the utility company: (URL: http://www.nrdc.org/air/pollution/benchmarking/default.asp).

Baseline levels for utility costs, energy use, emissions levels and peak demand were determined by designs that were minimally compliant with AHSRAE 90.1-1989, the national standard energy code at

the time. Design team members identified a variety of alternative design concepts and technologies including: Siting and orientation; envelope materials and insulation levels; fenestration amount and interior shading/light shelf; the glazing's solar/thermal and daylighting properties; ceiling and interior finish colors; high efficiency indoor lighting; occupancy sensor lighting controls; and automatic dimming controls. Because the HVAC systems would be served by an existing central chilled water plant, HVAC system alternatives focused on heat recovery, two-speed vs. variable speed drives, chilled water pumping control, and air-side economizer types.

A challenge associated with energy efficient building design is the interaction that occurs between design alternatives. It is important to demonstrate both the separate performance of individual design alternatives and the collective performance of the group of recommended features; therefore, care must be taken regarding how the computer simulations are run. This project proceeded by modeling one design alternative at a time on top of design alternatives previously accepted. Only the designs that provided good economic and environmental performance were retained, thus "growing" the design package item-by-item. The incremental and cumulative performance of each alternative was reported.

Typical summary results from the PowerDOE simulations for the Galvez building are shown in **Table 2**. Each row of recommended measures incorporates all previous recommended measures. The 25-year life-cycle costs are reported as undiscounted dollars indicating future operations budget impacts.

**Table 2: Typical Results – Galvez Building, Louisiana State Capitol Complex, 12/20/00**

| Only RECOMMENDED measures are shown | Annual Energy, Demand, & Costs | | | | Cumulative Results (% savings) | | |
|---|---|---|---|---|---|---|---|
| | Site Electricity | Peak Demand | Savings | Annual Utility | 25 Year Life Cycle* | Annual Savings | |
| Measure Description* | mwhr | kw | % | Cost ($) | Cost ($) | $ | Δ% |
| Min 90.1 Compliance | 7,238 | 2,836 | n/a | $563,089 | 14,077,225 | n/a | Base |
| 0+Reoriented Building | 7,125 | 2,779 | -2% | $554,469 | 13,861,725 | 8,620 | -2% |
| 1a+Window Setback | 7,044 | 2,744 | -3% | $548,788 | 13,719,700 | 14,301 | -3% |
| 1b+Precast Skin | 6,872 | 2,670 | -6% | $532,177 | 13,304,425 | 30,912 | -5% |
| 1c+Light Surface Color | 6,836 | 2,648 | -7% | $529,378 | 13,234,450 | 33,711 | -6% |
| 1d+East Patio Shading | 6,826 | 2,641 | -7% | $528,663 | 13,216,575 | 34,426 | -6% |
| 1e+Increased Wall Insulation | 6,805 | 2,627 | -7% | $526,236 | 13,155,900 | 36,853 | -7% |
| 2a+Increased Roof Insulation | 6,795 | 2,620 | -8% | $525,266 | 13,131,650 | 37,823 | -7% |
| 2b+Dbl Low-e Bronze Glass | 6,566 | 2,503 | -12% | $505,914 | 12,647,850 | 57,175 | -10% |
| 3c+Reduced Lighting Density | 6,124 | 2,337 | -18% | $471,737 | 11,793,425 | 91,352 | -16% |
| 4a+Daylighting Controls | 5,355 | 2,023 | -29% | $412,231 | 10,305,775 | 150,858 | -27% |
| 4b+Occupancy Sensors | 5,108 | 1,966 | -31% | $396,539 | 9,913,475 | 166,550 | -30% |
| 4c+Heat Recovery Ventilator | 4,777 | 1,788 | -37% | $371,866 | 9,296,650 | 191,223 | -34% |
| 5a+VS Drive Pump Control | 4,704 | 1,756 | -38% | $365,942 | 9,148,550 | 197,147 | -35% |
| 5b+CO2-Controlled Vent Air | 4,689 | 1,755 | -38% | $365,309 | 9,132,725 | 197,780 | -35% |
| 5c+Central Chiller Plant | 4,617 | 1,722 | -39% | $359,356 | 8,983,900 | 203,733 | -36% |
| Electricity kwhr / sq. ft. / year | 13.6 | | | $1.056 / sf | (-5,093,325) | | |

*assumes 25 year for architectural features, for lighting equip, & for HVAC equip (includes replacement $ as needed)

Projected savings were 36% for energy, annual utility cost, and annual emissions, and 39% for peak electrical demand. These significant reductions will yield a 25-year savings of 1.9 million dollars (discounted) or 5.1 million dollars of avoided utility costs. Expected use and consumption for all three buildings is shown in **Table 3**.

**Table 3: Summary of Each Building's Projected Electricity Use**

| SIMULATION PROJECTIONS | AREA LIGHTS | MISC EQUIP | SPACE HEATING | SPACE COOLING | HEAT REJECT | PUMPS & AUX | VENT FANS | HOT WATER | TOTAL | kwhr/ sq. ft./ |
|---|---|---|---|---|---|---|---|---|---|---|
| BUILDING | Kwhr | Kwhr | Kwhr | kwhr | Kwhr | kwhr | kwhr | kwhr | kwhr | year |
| LASALLE | 622,520 | 1,586,445 | 55,720 | 569,309 | 25,612 | 206,896 | 255,543 | 57285 | 3,379,330 | **9.27** |
| CLAIBORNE | 1,027,943 | 2,169,632 | 21,479 | 826,620 | 40589 | 298,138 | 252,369 | Nat. Gas | 4,636,770 | **9.30** |
| GALVEZ | 745,029 | 1,653,000 | 30,916 | 621,947 | 30,925 | 204,103 | 347,480 | 56,895 | 3,690,295 | **9.71** |

Actual electrical consumption for the three buildings, as reported by the Office of State Buildings, is shown in **Table 4**, and graphically in **Figure 1**.

**Table 4: Monthly Electricity Consumption in kwhr**

| Month | Jul-03 | Aug-03 | Sep-03 | Oct-03 | Nov-03 | Dec-03 | Jan-04 | Feb-04 | Mar-04 | Apr-04 | May-04 | Jun-04 | Year Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Galvez** | 514,200 | 538,200 | 492,600 | 496,200 | 465,000 | 539,400 | 538,200 | 523,200 | 496,200 | 475,800 | 411,000 | 434,400 | **5,924,400** |
| **kwhr/sf** | 1.51 | 1.58 | 1.45 | 1.46 | 1.37 | 1.59 | 1.58 | 1.54 | 1.46 | 1.40 | 1.21 | 1.28 | **17.42** |
| **La Salle** | 486,868 | 639,010 | 486,016 | 509,281 | 524,445 | 650,492 | 657,806 | 615,229 | 590,775 | 539,749 | 450,337 | 460,155 | **6,610,163** |
| **kwhr/sf** | 1.33 | 1.75 | 1.33 | 1.40 | 1.44 | 1.78 | 1.80 | 1.69 | 1.62 | 1.48 | 1.23 | 1.26 | **18.12** |
| **Claiborne** | 485,016 | 480,837 | 461,423 | 498,472 | 456,722 | 503,352 | 508,014 | 494,998 | 545,396 | 507,031 | 470,739 | 489,691 | **5,901,691** |
| **kwhr/sf** | 0.97 | 0.96 | 0.93 | 1.00 | 0.92 | 1.01 | 1.02 | 0.99 | 1.09 | 1.02 | 0.94 | 0.98 | **11.83** |

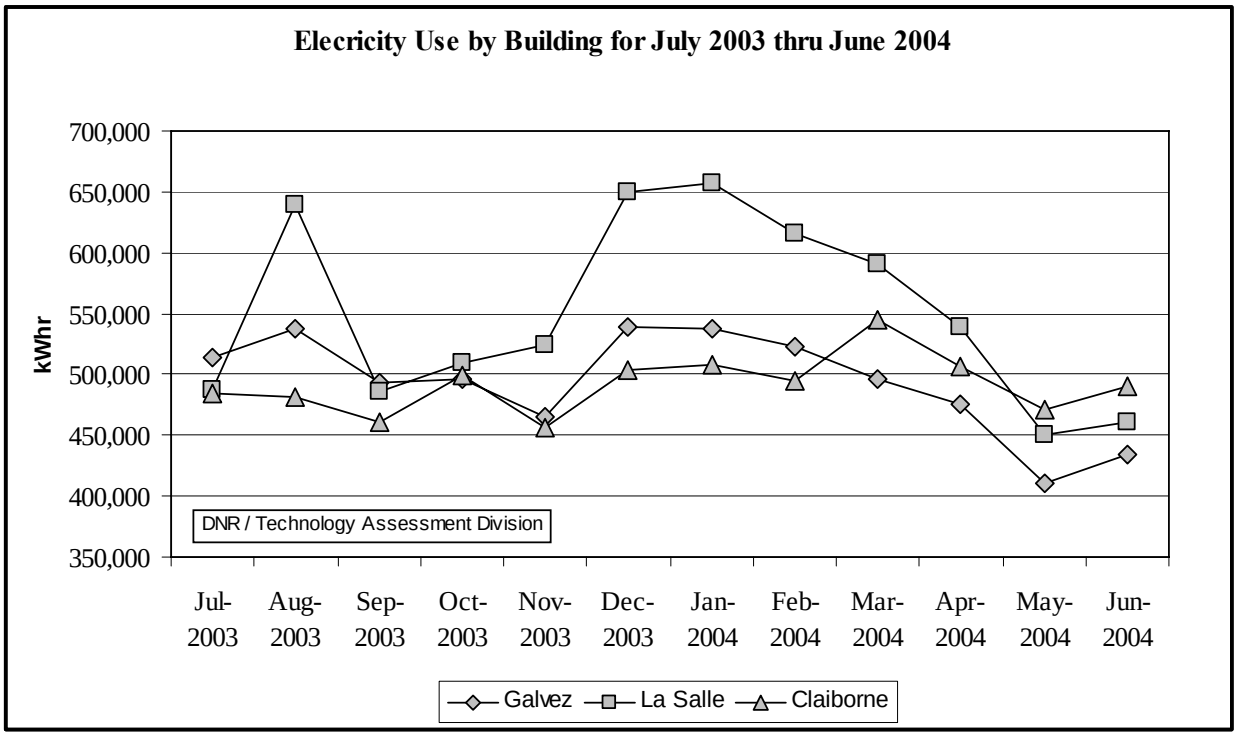
**CONCLUSION**

When design criteria include environmental measures-of-merit and total building impacts are weighed over the life of the facility, owners and design teams tend to make better choices and tend to be more motivated to identify environmentally superior solutions.

Advances in simulation and economic analysis tools make this extra effort both affordable and reliable. Future software developments will further facilitate the life-cycle environmental building design process and further reduce the cost of identifying "optimal" design solutions.

This project predicted that substantial energy savings and associated emissions reductions could be realized by making use of affordable, conventional energy efficiency building technologies. The actual results, however, have been less than what was predicted. Currently, only the Claiborne Building is performing close to expectations, but the elements needed for success are there; they just need to be tuned to work together as originally intended.

**Figure 1: Electrical use by Building for each Month from Office of State Buildings**



*Originally Published in May 2005 Louisiana Energy Facts*

# ANGELLE SPEAKS TO CONGRESS ON ENERGY TOPICS:

***Says Louisiana plays a vital role for future supplies***

State Department of Natural Resources Secretary Scott Angelle testified before members of the United States Congress April 19, 2005 on energy issues, primarily on the future of alternate energy resources in America and oil and gas exploration and production from the Outer Continental Shelf (OCS). This is the second time this year that Louisiana has been represented before members of the U.S. Energy and Natural Resources Committee where a national energy policy is expected to be formulated.

In January, Secretary Angelle was chosen by Chairman of the U.S. Senate Committee on Energy, Senator Pete Domenici of New Mexico, to provide comments to the Natural Gas Conference that discussed a broad range of proposals on the nation's future energy needs. In his appearance at that time, Secretary Angelle stressed Louisiana's role in supplying energy to the rest of the country through its intricate system of pipelines and infrastructure. Louisiana produces 34 percent of the natural gas supply and almost 30 percent of the crude oil supply for the nation.

During his April 19 address (complete testimony is provided below), Secretary Angelle expressed to committee members that the OCS is probably the single most promising area for the United States to obtain significant new energy supplies. He said, "these new supplies, whether conventional oil and gas, imported oil, imported liquefied natural gas (LNG), wind and ocean energy, or gas hydrates, need the support of coastal states to cooperate and to supply and maintain critical production and support infrastructure." He further commented that it will take the support of the federal government to those producing states to help offset infrastructure costs by sharing some of the offshore production revenues.

Angelle said the state is open to new LNG activity that does not pose environmental hazards and that Louisiana can continue to help America in these critical times. He said, "there is no free lunch and we are now in need of your help to save coastal Louisiana."

In his address Angelle also noted, "It is imperative that we, as a nation, stop reacting to energy situations imposed on us by outside forces, and instead, proactively start shaping our energy future." Joining Secretary Angelle at the hearing was Admiral James Watkins, Chairman of the U.S. Commission on Ocean Policy and Rejane Burton, Director of the Mineral Management Service of the Department of the Interior. Other distinguished panelists were Dr. Robert Thresher, Director, National Wind Technology Center, Washington, D.C., Virginia State Senator Frank W. Wagner, Charles Davidson, Chairman and CEO Noble Energy, Inc. of Houston, and Debbie Boger, Deputy Legislative Director, Sierra Club, Washington, D.C. .

# SUBMISSION TO THE U.S. SENATE
# ENERGY AND NATURAL RESOURCES COMMITTEE
# OFFSHORE ENERGY HEARING

***April 19, 2005***

Mr. Chairman, Mr. Ranking Member, and distinguished members of Senate Energy and Natural Resources Committee, I would like to thank you for your invitation to come before your Committee today. I hope that my comments will aid you in making the important decisions that you are considering in this Congress to shape the future of our nation's energy supply. It is imperative that we, as a nation, stop reacting to energy situations imposed on us by outside forces, and instead, proactively start shaping our energy future. One of the ways to do that is to develop the full potential of the nation's offshore energy resources and to assist those states that make that production possible off their coasts. This can be accomplished by sharing with those coastal producing states some of the offshore revenues generated off their coasts. This would encourage those states to pursue more development, and it would help offset infrastructure costs those states incur that are associated with that development.

**Louisiana's Role as a Producing and Consuming State**

Energy is the lifeblood of an industrialized nation and a key economic driver for the country. A reliable and affordable supply of energy is necessary for economic development, prosperity, and expansion. Although technological improvements and investments in energy efficiency have reduced this country's energy consumption per unit of Gross Domestic Product over the past 20 years, increased economic prosperity is still dependent on increased energy consumption. In the U.S., the availability of energy has generally been taken for granted, but recent blackouts in California and other parts of the country, the emergence of 50 plus dollar per barrel oil and $7 to $8 per million BTU (British Thermal Unit) natural gas, and the drive to build terminals to import foreign natural gas in the form of a cryogenic liquid, have highlighted the need for addressing energy supply.

I come to you representing a state to which energy is its middle name. The words Louisiana and energy are almost synonymous. According to the EIA (Energy Information Administration), among the 50 states, Louisiana ranks (2003):

1st in crude oil production,
2nd in natural gas production, and
2nd in total energy production from all sources.

The importance of energy to Louisiana is further highlighted in the following rankings in which Louisiana is (EIA, 2002):

2nd in petroleum refining capacity,
2nd in primary petrochemical prodction,
3rd in industrial energy consumption, 3rd in natural gas consumption,
5th in petroleum consumption,
7th in total energy consumption,
BUT ONLY 22nd in residential energy consumption.

Usually, when national energy issues are discussed, Louisiana is cast in the image of a rich producing state floating in a sea of oil and gas that is being inequitably shared with the consuming states. Often misunderstood or overlooked is the fact that about two thirds of the production from the state is in the Louisiana federal OCS (Outer Continental Shelf) territory and, hence, produces no revenue for the state, while at the same time incurs significant infrastructure support costs to the state, which I will discuss in more detail later.

Also often overlooked or not explained is the fact that, though Louisiana is the 2nd highest energy producing state in the nation, Louisiana is also 7th highest in total energy consumption. Therefore, Louisiana is more of a consuming state than 43 other states! This story is never told, nor are Louisiana's difficulties as a key consuming state given much concern at the federal energy policy level. Thus, when Louisiana, the energy producing state speaks, it is also Louisiana, the energy consuming state speaking. Louisiana is inexorably tied into the issues of all states in the nation, whether considered producing states or consuming states. However goes the energy situation in Louisiana, so goes the energy situation in the United States of America.

**Supplying the Nation: Louisiana – America's Energy Corridor**

Louisiana has a long and distinguished history of oil and gas production, providing much of America's energy supply. Currently, nearly 34% of the nation's natural gas supply and almost 30% of the nation's crude oil supply is either produced in Louisiana, produced offshore of Louisiana, or moves through the state and its coastal wetlands. Together with the infrastructure in the rest of the state, this production is connected to nearly 50% of the total refining capacity in the United States.

When it comes to developing the nation's offshore energy resources, there would not be much if it were not for Louisiana's leadership and participation. The OCS territory offshore Louisiana is the most extensively developed and matured OCS territory in the world. According to preliminary 2004 data, the Louisiana OCS presently produces approximately 91% of oil and 75% of natural gas production in the OCS. Louisiana OCS territory has produced 88.7% of the 15.5 billion barrels of crude oil and condensate and 83.2% of the 154 trillion cubic feet of natural gas ever extracted from all federal OCS territories from the beginning of time through the end of 2004.

Stepping up to the plate to help the nation obtain new supplies of energy including LNG (liquefied natural gas), Louisiana is the home of the largest throughput facility (Southern Union in Lake Charles) of the four

existing LNG import terminals in the U.S., and it is undergoing more than a doubling of capacity from 1 billion cubic feet per day to 2.5 billion cubic feet per day. While almost every state in the nation is trying to prevent the siting of any new LNG facilities, Louisiana is the site of the newest permitted LNG terminal (Shell's 1 billion cubic feet per day Gulf Landing facility offshore Louisiana) and of the largest permitted LNG import terminal in the nation (Cheniere Energy's 2.6 billion cubic feet per day facility in Sabine Parish).

The vehement opposition to LNG facilities almost everywhere but in Louisiana and Texas is causing developers to get creative. Such is the case with the offshore Energy Bridge LNG gasification terminal promoted by El Paso Energy and sold to private interests. It is simply a seabuoy attached to a pipeline header to shore. The gasification facility equipment is all located onboard specially constructed LNG tankers using an open seawater system as the heat source for regasification of the LNG. Three such tankers are on order. The first is already operational and has just made its first delivery to the U.S. Although this onboard ship system avoids much of the controversy of siting a permanent LNG terminal, it also liberates the ship from having to unload its cargo at an expensive fixed terminal, enabling it to easily deliver its cargo of LNG to any place in the world that it can merely hook up into a receiving pipeline. This lack of a physical dependence on a limited number of expensive receiving terminals is good for the supplier, but not necessarily for the purchaser, who in the future could be outbid by another purchaser virtually anywhere in the world, which might just not be a seabuoy in the U.S.

Louisiana is also the home LOOP (Louisiana Offshore Oil Port), the only deepwater offshore oil import terminal in the world.

All of this represents only the direct supply line of oil and natural gas. Additionally, Louisiana's 7$^{th}$ highest ranking among the states in energy consumption is attributable to the fact that Louisiana is consuming most of this energy as a through-processor of energy supplies for the rest of the nation, consuming colossal amounts of energy for their benefit. An example of how Louisiana is consuming energy resources for the primary benefit of other states is petroleum refining. The energy equivalent of 10% of Louisiana's entire petroleum product consumption is required just to fuel the processes that refine crude oil into gasoline, diesel fuel, jet fuel, heating oil and other products consumed out of state. The oil refining industry employs only about 10,400 workers in the state; whereas tens of millions of jobs throughout the country are dependent on the affordability and availability of the products from the continued operation of these refineries and associated petrochemical facilities in Louisiana.

Many other examples could be cited of the numerous energy intensive natural gas and oil derived chemical products Louisiana (and also Texas, Oklahoma, and California) through-processes for the rest of the U.S. Per unit of output, these industrial processes in Louisiana are characterized as capital (equipment), energy, raw material, and pollution discharge intensive, and low in labor requirements and dollar value added, essentially the opposite of the downstream industries in other states that upgrade these chemicals into ultimate end products. Much of the energy Louisiana technically consumes is really the transformation of oil and gas into primary chemical building blocks that are shipped to other states where the final products are made, whether it be plastic toys, pharmaceuticals, automobile dash boards, bumpers and upholstery, electronic components and cabinets, synthetic fibers, or thousands of other products dependent on this flow of energy and high energy content materials out of Louisiana.

Governor Blanco has asked me to convey to you today the State's desire to not only continue this production, but to seek additional ways to increase it and to continue to insure that this supply is provided to the rest of the nation and to ask for your help in doing so. You see, we in Louisiana understand just how vital these energy resources are to the nation's economy.

**OCS Infrastructure and Its Impacts and Needs**

It is important to understand that there is no free lunch. Louisiana, like other coastal producing states, sustains impacts on coastal communities and bears the costs of onshore infrastructure required to support this production activity. In Louisiana, pipelines, canals, and other infrastructure features contribute to the loss of more than 24 square miles of our coastal land each year. In fact, and Mr. Chairman, you have heard me say before that if what is happening today in coastal Louisiana were happening in our nation's capital, the Potomac River would be washing away the steps of this building today, the White House next year, and the Pentagon soon after that. In fact, during the course of this morning alone, Louisiana will lose a football field wide area from the Capitol Building to the Washington Monument.

There are many causes of this coastal erosion in Louisiana, including what may be the most significant factor: building levees and channeling the Mississippi River. Whatever the cause of its demise, the health and restoration of Louisiana's coastal wetlands are vital to protecting the offshore and onshore infrastructure that is essential for the continuation, as well as the expansion, of offshore energy production in the Gulf of Mexico.

*Obsolete Practices of the Past Cause Louisiana's Problems Today*

This raises one issue I would like to address. If offshore exploration and production causes or adds to coastal erosion and other environmental harm, why would any state want to support it? Simply stated, Louisiana's environmental damage issues pertaining to petroleum drilling and production are primarily related to two issues:

(1) Forces of nature that have nothing to do with the petroleum industry, but which threaten its existence, and
(2) Impacts from legacies of obsolete practices of the past continuing to cause problems in Louisiana's ultra-fragile mostly marsh coastline.

Louisiana's first well was drilled in 1868. The first oil well over water in the world was in Louisiana in 1910 in Caddo Lake. The first well drilled offshore Louisiana was in 1933 near Creole, Louisiana. Louisiana was the site of the first well drilled out of sight of land in 1947.

Things have changed dramatically since 1910, 1933, 1947, or even 1960, 1970, or 1980. Offshore drilling was pioneered in Louisiana, long before modern sensitivity to the environment, advanced technology and environmental regulations. Simply put, it was like the old Wild West out there. Once, hardly anybody gave a second thought to the oil companies slicing and dicing the coastline to build canals and pipelines or to discharging produced water and drilling fluids overboard; it was all considered a sign of progress.

Everything is different now. That world and those practices have nothing more in common with modern exploration and production techniques than Conestoga wagons crossing the Oregon Trail in the 1800's have in common with jet airliners flying overhead today. Offshore development and the associated onshore infrastructure construction and operation are done in an environmentally responsible way today and under the oversight of several State and federal regulatory agencies.

Once the State realized the magnitude of the coastal erosion problem, we got serious about doing something about it. In 1980, the coastal restoration permitting program was moved to the DNR (Department of Natural Resources). In 1981, $40 million of state oil and gas revenue was set aside in a legislative trust fund for coastal restoration projects. The State has a dedicated revenue stream of up to $25 million per year, depending on the level of revenue collections from oil and gas production within the state, to replenish the fund. In the past few years, that replenishment stream has been at the $25 million level. In 1989, the Office of Coastal Restoration and Management was created in DNR, and the magnitude of the program was greatly expanded.

*Extent of Louisiana Infrastructure Supporting OCS Production*

The total value of the Louisiana OCS infrastructure and the onshore infrastructure supporting it is difficult to ascertain. The estimated depreciated investment in offshore production facilities is over $85 billion, depreciated offshore pipeline infrastructure is over $10 billion, and public coastal port facilities is $2 billion, for a total of approximately $100 billion, depreciated, and not counting highways, sewer, water, fire and police protection, replacement of all of this would be several times the $100 billion depreciated figure. It also does not count the onshore coastal infrastructure of pipelines, storage facilities, pumping stations, processing facilities, etc.

This infrastructure is vulnerable if not protected by the State's barrier islands and marshes. As these erode and disappear, infrastructure is exposed to the open sea and all of its fury. As the coast recedes, near shore facilities become further offshore and subject to greater forces of nature, including subsidence, currents, and mudslides. Erosion in the coastal zone is already beginning to expose pipelines that were once buried.

*A Wake-up Call from Hurricane Ivan*

To bring home the point of infrastructure vulnerability, we need only look back to this past Summer. Hurricane Ivan was not even a direct hit on Louisiana's offshore and coastal oil and gas infrastructure, striking two states away; yet, its effects on the nation's supply of oil and gas were significant, even many months after it hit. Most of the damage occurred along pipeline routes rather than actual structural damage to the producing platforms. As of February 14, 2005, when the Minerals Management Service (MMS) released its final impact report on Ivan, 7.42% of daily oil production and 1.19% of daily gas production in the Gulf of Mexico was still shut-in. The cumulative shut-in production through February 14 was 43.8 million barrels or 7.25% of annual Gulf of Mexico OCS production and 172.3 billion cubic feet of natural gas or 3.9% of annual Gulf of Mexico OCS gas production.

As more of the protection from Louisiana's barrier islands and coastal wetlands wash away, increasingly more of this offshore production will be damaged or destroyed by even less powerful storms than Ivan, and particularly by storms whose paths more directly pass through the producing areas off of Louisiana's coast. Direct hits to the prime production area by hurricanes and tropical storms will cause incalculable damage to this production infrastructure, as well as to the onshore support infrastructure.

**How to Increase Offshore Energy Production**

*Share Offshore Revenue with the States that Allow Offshore Production*

When states like yours, Mr. Chairman, host drilling on Federal lands onshore, they receive 50% of those revenues in direct payments, and consequently have the financial resources to support that infrastructure. In Fiscal Year 2004, Wyoming and New Mexico together received about $928 million from those revenues, which is an appropriate revenue sharing procedure.

In contrast, for example in 2001, of the $7.5 BILLION in revenues produced in the federal outer continental shelf area, only a fraction of one percent came back to those states. The inequity is truly profound.

We are pleased this committee is investigating ways to increase offshore energy supply. The need to sustain the existing supply that Louisiana provides must simultaneously be addressed. The most effective answer to both issues is to share offshore revenues with the coastal producing states that make that production possible. It is critical that coastal producing states receive a fair share of revenues to build and maintain onshore infrastructure and, in Louisiana's case, to help stem our dramatic land loss, which is occurring at a rate believed to be the fastest on the planet.

Production off Louisiana's shores alone contributes an average of $5 BILLION a year to the Federal treasury, its second largest source of revenue.

Does it not make sense to encourage the coastal producing states which provide that revenue for the benefit of the rest of the nation? Does it not make sense, that when so many, like the U.S. Ocean Commission, are targeting offshore OCS revenues to pay for worthwhile preservation of natural resources, that this nation first protects those who make these resources possible?

Already, in Louisiana's coastal zone, many of the pipelines and other infrastructure that our wetlands have historically protected are now exposed to open Gulf of Mexico conditions.

I shudder to think of the environmental damage and the economic impacts to this nation, had Ivan gone a relatively few miles further west with a direct hit on the infrastructure off Louisiana's shore. According to analysts, oil prices would realistically have hit $75 dollars a barrel.

Maintaining any ongoing operation requires reinvestment to maintain, repair, and replace worn out or outdated equipment and facilities. As any farmer can tell you, you cannot just take from the land forever without putting something back into the operation. Out of the harvest of crops, the farmer has to set aside

a portion as seed to plant for the next harvest. He has to fertilize the land to replace depleted nutrients, plow and till the soil, rotate crops, control runoff and erosion, irrigate, apply pesticides and herbicides, buy and repair machinery. Likewise, to maintain, much less increase, production from off our coasts, we must reinvest in the infrastructure that makes all of the activity possible, whether it be port facilities, roads to transport equipment and supplies, erosion control, or barrier island and wetlands storm protection.

*Extend Section 29 Tax Credits to Deep and Ultra-Deep Production in States Allowing Offshore Production*

Section 29 of the IRS (Internal Revenue Service) Code granted a tax credit for the production of natural gas from unconventional resources (coal bed methane and tight sands gas). The effect of the application to coal bed methane gas production was astounding in those areas of the country that have significant deposits of this kind, which is not along the Gulf Coast. Natural gas reserves from coal bed methane rose from 6.3% of U. S. reserves at the end of 1993 to 9.9% at the end of 2003. Annual natural gas production from coal bed methane rose from 4.2% of U. S. dry gas production in 1993 to 8.2% by the end of 2003.

Deep natural gas reserves (15,000-24,999 feet sub-surface) and ultra-deep gas reserves (greater than 25,000 feet sub-surface) are the next most immediate resources for meeting the supply and deliverability needs of the U. S. market. These resources should be granted the same tax credit as was granted to coal bed methane producers. The resulting stimulus to production should be at least equal to the coal bed methane results, and would very likely far exceed it in time as capital is brought to bear on this drilling domain. The MMS has recently instituted significant deep shelf royalty incentives for the shallow federal waters of the Gulf of Mexico shelf. This does no good for the adjacent state waters and onshore areas. The Section 29 credits need to be instituted for state waters and onshore areas, at least in those states allowing federal offshore production.

*Encourage New Energy Sources and Technology*

Recent studies show that the Gulf of Mexico has a significant wind energy potential. Although wind power does not have the energy density of petroleum, it is an inexhaustible, renewable source of clean energy. Again, much to my consternation, it appears that there are many parts of the country that use a lot of energy and want it low prices, but do not want the production of any kind, anywhere near them, including wind energy. Again, Louisiana is stepping up to help encourage this clean energy source. The State of Louisiana is currently working with private sector investors who are interested in developing wind farms in state and federal waters off Louisiana's coasts. My office is submitting wind power legislation before the Louisiana Legislature in the session starting later this month, to facilitate offshore wind power development in Louisiana's State offshore waters.

Natural gas hydrates probably offer the greatest untapped energy resource the nation has. The Oil and Gas Journal recently reported that the U.S. Geological Survey estimates that methane hydrate deposits are greater than all other forms of fossil fuels combined. Large deposits of gas hydrates are believed to lie

below the offshore waters of the U.S. Unfortunately, technology to tap these resources needs to be developed. Once the technology is available, the first areas to be developed will be the areas adjacent to the existing offshore producing areas where the infrastructure is in place to get it to shore and into the nation's pipeline distribution system. The federal government needs to fund meaningful research into developing the technology to produce gas hydrates, assessing the resource base, and producing it.

**In Conclusion**

It is vital to the nation's security and prosperity that new energy sources be developed. The federal government has proven that it has the ability to steer investment, as in the case of deep water drilling in the Gulf and coal seam gas. In addition to its significance in producing 30% of oil and 23% of natural gas produced domestically, which is mostly off Louisiana, the OCS is probably the single most promising area for the
U.S. to obtain significant new energy supplies. These supplies, whether conventional oil and gas, imported oil, imported LNG, wind and ocean energy, or gas hydrates, need the support of coastal states to cooperate and to supply and maintain critical production and support infrastructure.

LNG facilities are being built where the existing U.S. pipeline infrastructure exists (essentially Louisiana and Texas) in order to get the gas from the coast into the delivery system to supply the nation. The same will be true when the technology is developed to commercialize methane hydrate production off the coasts. This Louisiana and Texas infrastructure will also be used when deep and ultra-deep shelf production comes on stream. This is another reason why offshore revenue should be shared with the coastal producing states and why the extension of Section 29 tax credits should be extended to deep gas exploration at least in the states that are allowing onshore and offshore drilling and allowing the siting of LNG facilities to make energy available to the rest of the country.

With effective policies and incentives, the federal government can steer investment into the offshore areas, and by receiving an equitable share of revenue generated offshore, the coastal producing states can be in a position to ensure that this production will be made available to the rest of the nation. As the granddaddy of all producing states, literally and figuratively, Louisiana desperately needs immediate revenue sharing financial assistance from a source not subject to annual appropriations, to continue to maintain existing, and to develop future energy supplies for the nation. Governor Blanco is submitting legislation for a State constitutional amendment to dedicate to coastal projects, any future new OCS revenue the State may receive, to show Louisiana's commitment to use money the federal government shares with the State to put into coastal restoration to rebuild and protect the OCS production infrastructure.

It would be a travesty for the Congress to enact national energy legislation without substantial OCS revenue sharing in the form of direct payments to the coastal producing states from the revenue derived from offshore production, similar to the automatic payments for drilling on federal lands onshore, and before any other dispersal of those monies.

Thank you for this opportunity to appear before you.

*Originally Published in June 2005 Louisiana Energy Facts*

# FUEL CELLS
# PAST, PRESENT AND FUTURE

Fuel cells have been receiving a lot of attention recently. President George W. Bush, in his 2003 State of the Union Address, announced a $1.2 billion hydrogen fuel incentive to assist with the technology development for hydrogen powered fuel cells for vehicles, homes and businesses. On February 10, 2004, General Motors and Dow Chemical started the first of 400 hydrogen powered fuel cells which will convert hydrogen produced at the Dow plants to electricity. The electricity will be used to help power the plants. Several automobile manufacturers have introduced fuel cell cars, including Honda (see Figure 1), General Motors, Ford and Toyota.


**FIGURE 1**
(Courtesy of Honda Motor Company)

Fuel cell powered vehicles are not new. The first fuel cell vehicle was built in 1959. The alkaline fuel cell powered tractor was built by Allis Chalmers, used to plow a field in Wisconsin and then donated to the Smithsonian (see Figure 2).

**FIGURE 2**
(Courtesy of the Smithsonian Institution)

Fuel cells have been used to power all sorts of vehicles, such as buses, airplanes, fork lifts, scooters (Figure 3), lawn mowers and submarines.

**FIGURE 3**
(Courtesy of Honda Motor Company)

Fuel cells are classified by their electrolyte and its operational characteristics. The most promising types include Polymer Electrolyte Membrane (PEM), Phosphoric Acid, Direct Methanol, Alkaline, Molten Carbonate, Solid Oxide and Regenerative (Reversible).

The polymer electrolyte membrane fuel cell (see Figure 4), with its light weight and low operating temperature of less than 200°F, is favored for vehicular applications. PEM's operate on hydrogen, oxygen (from air) and water. The pure hydrogen is typically stored at high pressure in onboard tanks. Hydrogen's low density prohibits the storage of enough fuel for comparable travel distance as gasoline powered vehicles.

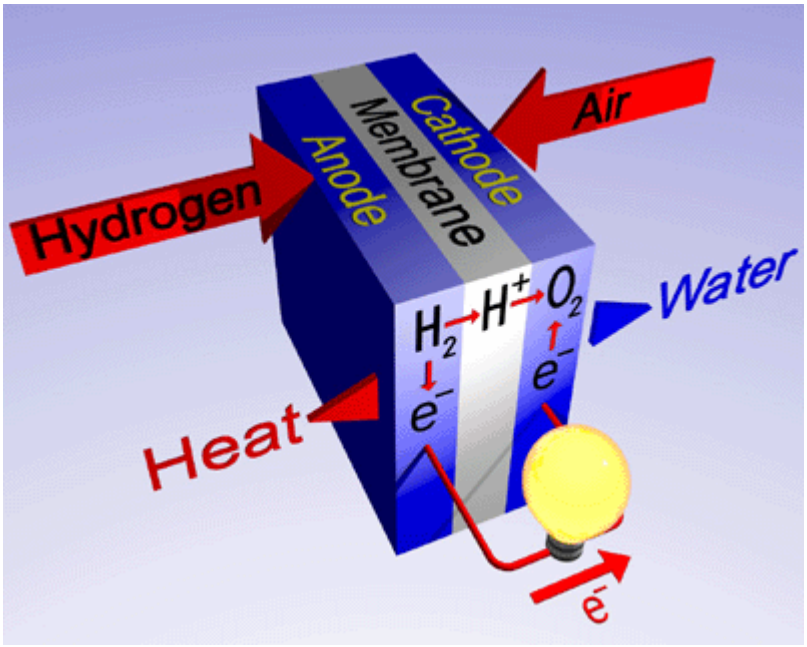



**FIGURE 4**
(Courtesy of Fuel Cell Today)

Hydrogen refueling stations will be required similar to gasoline stations that we utilize today. Other fuels can be used, but must be reformed onboard, which drives up the purchase price and maintenance costs. The reformer also releases carbon dioxide.

Alkaline fuel cells are one of the oldest technologies. The electrolyte used is a potassium hydroxide and water solution. AFC's are 60% efficient and have been used for the production of electrical power and water on Gemini and Apollo spacecraft, but their short operating time renders them less than cost effective in commercial applications. Their susceptibility to poisoning by even a small amount of carbon dioxide in the air requires purification of the hydrogen and oxygen. This problem adds to the cost of the fuel cell and shortens its operating cycle.

A newer and promising fuel cell technology is the direct methanol fuel cell (DMFC). The DMFC uses pure methanol mixed with steam. Liquid methanol has a higher energy density than hydrogen, and the existing infrastructure for transport and supply can be utilized. Research and development on DMFC's are 3 – 4 years behind other fuel cell technologies.

Over 200 phosphoric acid fuel cells (PAFC) are being used today, primarily for stationary power generation. Since phosphoric acid fuel cells are less efficient, they tend to be large, heavy and expensive. The efficiency is increased from approximately 40% to 85% when used for cogeneration.

Molten carbonate fuel cells (MCFC) have several advantages. Their efficiency can approach 85% if waste heat is used. MCFC's are not prone to poisoning from carbon monoxide or carbon dioxide, and the fuel cell can actually use these oxides as fuel. The 1200°F operating temperature reforms the fuel to hydrogen within the fuel cell. The high temperature also allows the use of non-precious metals as catalysts. All of these features help reduce the cost of this type of fuel cell. The major disadvantage is component breakdown caused by the high operating temperature and corrosive electrolyte, which reduces the life of the cell.

Another high temperature unit is the solid oxide fuel cell (SOFC) which operates at 1830°F using a hard, non-porous ceramic compound as the electrolyte. Most of the attributes of MCFC's also apply to SOFC's. Additionally, a solid oxide fuel cell can be fueled by gases made from coal, since it is the most sulfur resistant of the fuel cell types. Efficiency of this fuel cell is normally 50 – 60%, but improves to 80 – 85% with waste heat recovery.

The newest fuel cell is the reversible or unitized regenerative fuel cell (URFC). Similar to other types, the regenerative fuel cell can produce electricity from hydrogen and oxygen while generating heat and water. They can also use electricity to divide the excess water into oxygen and hydrogen, which are stored for subsequent fuel cell consumption. The electricity for this electrolysis process can even come from solar power. The URFC is lighter than a separate electrolyzer and generator making it a good choice for weight conscious projects such as fuel cell powered vehicles.

A recent project at the University of Louisiana at Lafayette provided hands-on experience with designing, procuring, installing and operation of a fuel cell. The project, which was funded by the Louisiana Department of Natural Resources and the U. S. Department of Energy, involved the utilization of a 5 kW PEM fuel cell (see Figure 5) to provide power for a small campus building. Detailed engineering analysis and economic assessments were performed on the potential integration of the fuel cell and the installed desiccant dehumidification system in a combined heat and power (CHP) mode. Although the project proved that the installation and operation of such a system is feasible, it cannot show economic savings until operating efficiency, manufacturing cost and fuel cell life are significantly improved. Another major aspect of this project was the connection of the fuel cell to the electric grid of Lafayette Utilities System.

**FIGURE 5**

Although fuel cells have been around for many years, and are receiving more attention than ever before, they are still not economically feasible in many applications. As designs improve and manufacturing matures, fuel cells could become the power source of the future.

*Originally Published in July 2005 Louisiana Energy Facts*

# SELECTED LOUISIANA ENERGY STATISTICS

Among the 50 states, Louisiana's rankings (in 2004 unless otherwise indicated) were:

**PRIMARY ENERGY PRODUCTION**
(Including Louisiana OCS)

- 1st in crude oil
- 2nd in natural gas
- 2nd in total energy

**REFINING AND PETROCHEMICALS**

- 2nd in refining capacity
- 2nd in primary petrochemical production

**PRIMARY ENERGY PRODUCTION**
(Excluding Louisiana OCS)

- 5th in natural gas
- 4th in crude oil
- 8th in total energy

**ENERGY CONSUMPTION* (2003 preliminary)**

- 3rd in industrial energy
- 3rd in per capita energy
- 3rd in natural gas
- 5th in petroleum
- 8th in total energy
- 22nd in residential energy

## PRODUCTION

State controlled (i.e., excluding OCS) natural gas production peaked at 5.6 TCF per year in 1970, declined to 1.5 TCF in 1995, and rebounded 4.5% to 1.6 TCF in 1996. The 2001 gas production was, approximately, 1.50 TCF, the 2002 production was around 1.36 TCF, the 2003 and the 2004 gas production was 1.35 TCF.

State controlled gas production is on a long term decline rate of 3.8% per year, though the current short term (2005-2009) forecast decline is around 3.4% per year.

State controlled crude oil and condensate production peaked at 566 million barrels per year in 1970, declined to 127 million barrels in 1994, recovered to 129 million barrels in 1996, and declined to 83.6 million barrels in 2004.

State controlled crude oil production is on a long term decline rate of 4.2% per year, though the current short term (2005-2009) forecast decline is around 3.9% per year. If oil stays above $50.00 per barrel, the decline will remain as predicted. If the price drops below $45.00 per barrel, the decline rate may be higher.

Louisiana OCS** (federal) territory is the most extensively developed and matured OCS territory in the US.

Louisiana OCS** territory has produced 88.8% of the 14.9 billion barrels of crude oil and condensate and 82.3% of the 150 TCF of natural gas extracted from all federal OCS territories from the beginning of time through the end of 2003.

Louisiana OCS** gas production peaked at 4.16 TCF per year in 1979, declined to 3.01 TCF in 1989, then recovered to 3.98 TCF in 1999, and fell to 3.30 TCF in 2003.

Louisiana OCS** crude oil and condensate production first peaked at 388 million barrels per year in 1972 and declined to 246 million barrels in 1989. In this decade, the production has steadily risen from 264 million barrels in 1990 to 540 million barrels in 2003 due to the development of deep water drilling.

## REVENUE

At the peak of Fiscal Year (FY) 1981/82, oil and gas revenues from severance, royalties, and bonuses amounted to $1.6 billion, or 41% of total state taxes, licenses and fees. For FY 2004/05, these revenues are estimated to be in the vicinity of $1,180 million, or about 13.1% of total estimated taxes, licenses, and fees.

At constant production, the State Treasury gains or loses about $13 million of direct revenue from oil severance taxes and royalty payments for every $1 per barrel change in oil prices. This figure rises to $17 to $22 million per dollar change when indirect revenue impacts are included (e.g., income tax, sales tax, etc.).

For every $1 per MCF changes in gas prices, at constant production, the State Treasury gains or loses $47 million in royalty payments, and would add or subtract 3.8 cents per MCF from gas full severance tax rate for the following fiscal year (there is a 7 cents floor on gas severance tax). There are no studies available on indirect revenue to state from changes on gas prices

## DRILLING ACTIVITY

Drilling permits issued on state controlled territory peaked at 7,631 permits in 1984 and declined to a low of 1,017 permits in 1999. In 2002 drilling permits issued fell to 1,025 permits, in 2003 rebounded to 1,264 permits, and in 2004 increased to 1,633 permits.

The average active rotary rig count for Louisiana, excluding OCS, reached a high of 386 rigs in 1981 and fell to 64 active rigs in 1993. In 2001 it recovered to 108 active rigs, then fell to 76 active rigs in 2003, and swung back to 91 active rigs in 2004.

The 2004 average active rotary rig count for Louisiana OCS was 76 active rigs, 5 rigs, or 6.6% lower than 2003 average, and the highest active rotary rig count was 109 rigs recorded in 2001. In 2000, the average active rig count was 108 or 42.6% higher than the 1999 average active rotary rigs.

* Ranking estimated by DNR-TA summing pertinent fuels sources from DOE-EIA natural gas, petroleum, and coal annuals

** Note: Louisiana OCS or Outer Continental Shelf is federal offshore territory adjacent to Louisiana's coast beyond the three mile limit of the state's offshore boundary.

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TCF= trillion cubic feet

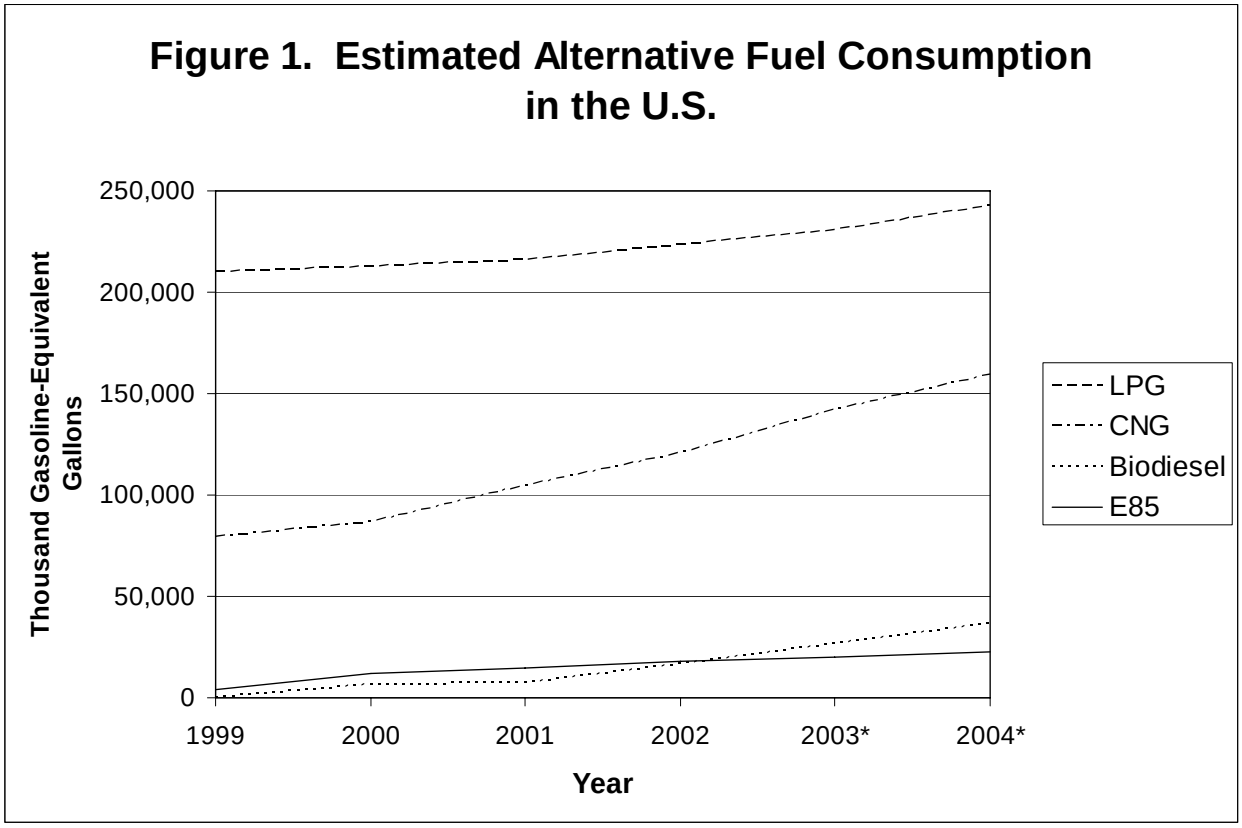
*Originally Published in August 2005 Louisiana Energy Facts*

# ALTERNATIVE MOTOR VEHICLE FUELS IN LOUISIANA JUNE 2005 UPDATE

by Bryan Crouch, P.E.

## Executive Summary

Alternative fuel usage in the U.S., as well as in Louisiana, remains a minor fraction of total motor vehicle fuel consumption. In 2004, motor vehicles in the U.S. consumed over 177 billion gasoline-equivalent gallons of fuel [1] (a gasoline-equivalent gallon, also referred to as a gallon-gasoline equivalent, or gge, is a unit that expresses different fuels on an equivalent energy per volume basis). Out of the 177 billion gge of fuel consumed, about 2.5 billion gge (less than 1.5% of the total) were alternative fuels, which includes about 2 billion gge of ethanol used to blend with gasoline to make gasohol [1]. Figure 1 shows the estimated consumption of the four most used alternative motor vehicle fuels in the U.S.




* Projected

Typical motivations to use alternative motor vehicle fuels include energy security, energy sustainability, and environmental sustainability. In addition, recent high oil prices and a post-911 awareness of the vulnerability of our oil supplies have served to increase national attention on alternative fuels. In Louisiana, these effects have been amplified by the Baton Rouge area's classification as an ozone non-attainment area by the U.S. Environmental Protection Agency (EPA); this has served to increase interest and activity related to alternative fuels. The major obstacles to wide-spread alternative fuel usage

continue to be the generally higher cost of alternative fuels and vehicles, and the lack of fueling infrastructure.

These motivations translated into goals are: to reduce crude oil imports, to find a replacement for crude oil, and to reduce emissions resulting from fuel combustion. Two of the more recent developments that are gaining momentum nationally and helping to accomplish these goals are hybrid-electric vehicles and biodiesel. Making gasoline or diesel fueled vehicles more fuel efficient also helps to reach these goals. Such is the case with hybrid-electric vehicles (HEVs). HEVs are not alternative fuel vehicles (they use gasoline or diesel), but employ advanced technology to increase miles per gallon. HEVs are rapidly increasing in sales and availability, and their use reduces both emissions and our nation's dependence on imported crude oil. Biodiesel is a newer alternative fuel that is rapidly gaining popularity due to its ease of use, emission reduction benefits, and renewable status. Biodiesel also has much potential as an additive to regular diesel to restore the lubricity that will be lost when Environmental Protection Agency regulations take effect in mid 2006 that require the sulfur content in diesel to be reduced from 500 parts per million to 15 parts per million.

Fuel cells probably have the greatest potential for replacing internal combustion engines in vehicles. Fuel cell vehicles and related technologies continue to advance, but still remain in the experimental stage. Several test fleets are in operation in the U.S. and Japan, and are providing valuable data to manufacturers. Many technological and economic barriers still exist and must be overcome before mass produced fuel cell vehicles and fueling infrastructure becomes a reality.

## HIGHLIGHTS

### Biodiesel

Biodiesel is a renewable fuel that can be made from virgin or waste vegetable oils, animal fats, and even algae, by reacting the base oil (vegetable oil, etc.) with alcohol and a catalyst. Unlike vegetable oil, biodiesel has combustion properties very similar to crude-based diesel, and is biodegradable, non-toxic, and sulfur free. Using biodiesel reduces VOC emissions by 67%; CO and particulate matter emissions by almost 50%; and $CO_2$ emissions by almost 80%. $NO_x$ is increased by approximately10%. Biodiesel can be blended with crude-based diesel in any proportion and is referred to as "BXX" with the "XX" standing for the percentage of biodiesel in the blend. Common blends are B2, B5, and B20. The term "biodiesel" refers to B100, or pure biodiesel. Only B100 qualifies as an alternative fuel under EPACT regulations, but EPACT covered fleets earn one credit per 450 gallons of B100 purchased if used in blends of 20% or higher.

Any biodiesel blend can be used in any diesel engine subject to the following cautions. Biodiesel has excellent solvent properties, and as such, can dissolve deposits left behind by regular diesel (which can clog fuel filters). Fuel filters should be changed more frequently until the biodiesel has had sufficient time to remove deposits. The second caution concerns cold weather usage. Just like regular diesel, biodiesel can gel at low temperatures. The temperature at which biodiesel becomes problematic is higher than that of regular diesel, but the same methods of intervention that are used for regular diesel (external heating and additives) can be used for biodiesel. As a general rule, B20 has a 3 to 5 degree F increase in cold flow properties over regular diesel. The higher the blend, the higher the temperature at which gelling will occur.

Biodiesel production has grown from 5 million gallons in 2000 to over 25 million gallons in 2003. No biodiesel is currently produced in Louisiana. B100 costs range from $2 to over $3 per gallon. B20 currently sells for $0.20 to $0.30 per gallon more than regular diesel.

Biodiesel is also an excellent lubricity additive for regular diesel fuel. A diesel engine relies on the inherent lubricity of diesel fuel to lubricate its fuel injection system. Diesel fuel derives most of its lubricity from the sulfur it contains. In 2006, federal ultra low sulfur diesel regulations go into effect and will reduce the amount of sulfur in diesel to below 15 parts per million and thereby reduce lubricity to unacceptable levels. A B2 blend can restore the lost lubricity.

The National Biodiesel Board is the premier trade association for the biodiesel industry. Their website (URL: http://www.biodiesel.org/) contains a wealth of information on all things related to biodiesel.

## Hybrid Electric Vehicles

HEVs use electrical and mechanical energy to propel the vehicle by combining an internal combustion engine with an electric motor(s) and batteries. The result is a vehicle that is operated and fueled like a conventional vehicle, but is much more fuel efficient, and thus, less polluting.

An HEV can be designed to operate in one of three modes, series, parallel, or a combination of the two. An HEV configured for series operation uses an internal combustion engine to run a generator which charges batteries, which powers an electric motor, which then drives the wheels. Series HEVs allow the internal combustion engine to constantly run at its most efficient speed, thereby reducing emissions, but require large, expensive batteries due to the fact that all of the power required to propel the vehicle must come from the electric motor. An HEV configured for parallel operation can use either the internal combustion engine or the electric motor, or both in varying proportions, to drive the wheels. This configuration results in more power being available for acceleration, and allows the use of smaller, less expensive batteries. Parallel HEVs also are generally able to utilize smaller internal combustion engines due to the engines proportion of motive energy being applied directly rather than first being converted to electrical energy. Finally, combination HEVs are configured such that they can operate in either series or parallel mode.

HEVs also use regenerative braking to help charge the batteries. Regenerative braking recovers some of the energy that would normally be lost while a vehicle is decelerating. It works by using the rotational kinetic energy of a vehicles drivetrain while the vehicle is decelerating to drive a generator to charge the batteries. This, in turn, requires less use of the internal combustion engine to charge the batteries, which increases overall efficiency.

Honda, Toyota, and Ford have light-duty HEVs currently available ranging from a $20,000 small two-seater to a $50,000 mid-size sport utility vehicle. These HEVs sell at a $3,500 to $7,000 premium to comparable gasoline-only vehicles, and have fuel efficiencies ranging from 30 to 60 mpg. Several other major manufacturers will have light-duty HEVs for sale in the very near future. Heavy-duty HEVs, mainly busses and delivery vans, are available from several manufacturers. More information on HEVs, including a listing of available models, is available on the Clean Cities Program HEV webpage (URL: http://www.eere.energy.gov/cleancities/hev).

### Federal Tax Incentives

A federal tax deduction for clean-fuel vehicle property was authorized under EPACT according to the following schedule:

- Up to $50,000 for a truck or van with a gross vehicle weight rating over 26,000 pounds, or for a bus that seats at least 20 adults plus a driver.
- Up to $5,000 for a truck or van with a gross vehicle weight rating between 10,000 and 26,000 pounds.
- Up to $2,000 for any other on-road vehicle, including HEVs.

- Up to $100,000 per location for clean-fuel refueling property or recharging property.

A federal electric vehicle tax credit was also authorized under EPACT. The amount of the credit is equal to the lesser of 10% of the cost of an electric vehicle or $4000.

Both the clean-fuel vehicle property tax deduction and the electric vehicle tax credit were scheduled to be gradually phased out over the period from 2001 to 2004; however, the Working Families Tax Relief Act of 2004 extended the full amount of the incentives through 2005. The incentives will be reduced by 75% for 2006 and eliminated after that.

The American Jobs Creation Act of 2004 authorized an excise tax credit for producers and blenders of biodiesel and ethanol. The credit for ethanol is $0.51 per gallon; the credit for biodiesel is $1.00 per gallon for agri-biodiesel (biodiesel produced solely from virgin oils and animal fats) and $0.50 per gallon for any other biodiesel.

The Alternative Fuels Data Center website contains a page with up to date information on federal tax incentives (URL: http://www.eere.energy.gov/afdc/progs/search_state.cgi?afdc/US).

**Louisiana Tax Incentives**

Louisiana Revised Statute 47:38 offers a state income tax credit of 20% of the incremental cost of purchasing a factory-equipped AFV, 20% of the cost for converting a vehicle to alternative fuels, and 20% of the cost for alternative fuel refueling stations. If a taxpayer is unable or elects not to determine the incremental value of an OEM AFV, the taxpayer may claim a credit of 2% of the cost of the vehicle or $1500, whichever is less.

The Louisiana Department of Revenue has issued two recent rulings regarding what qualifies for the alternative fuel income tax credit. Ruling 02-019 concludes that hybrid-electric vehicles qualify for the tax credit, and ruling 03-004 concludes that low-speed vehicles qualify for the credit. The text of the rulings is included in Appendix B, and is also available on the Department of Revenue's website (URL: http://www.rev.state.la.us/sections/lawspolicies/pd.asp).

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# OBSERVATIONS ON PROGRESS OF ELECTRICITY DEREGULATION IN THE U.S.

**by**
**Paul R. Sprehe, Energy Economist**
**Patricia Nussbaum, Engineer**

It would be an understatement to say that the electric power generation sector of the economy is suffering "convulsions" from the restructuring initiative unleashed by the Energy Policy Act of 1992 (EPACT92). The subsequent patchwork of individual state Public Service Commission (PSC) regulatory actions adopted across the nation have left the country with:

- a stalled deregulation initiative
- a significant financial commitment to new natural gas power generation technology
- a volatile natural gas price regime
- natural gas supply uncertainty
- huge financial write downs of power generation investments on the balance sheets of both regulated and unregulated firms
- power blackouts that affect regions of states, not just community localities
- criminal behavior and market collusion among some power trading and marketing companies; bankruptcies of utilities
- criminal indictments of corporate utility executives
- the near bankruptcy of the State of California
- soaring electric power prices; some states requiring disaggregating of integrated firms
- some states allowing integrated operations
- renewed dialogue about the environmental viability of coal and nuclear power generation in the nation's future
- a significant downgrading of the credit quality of the nation's utilities in general
- a disagreement between state PSCs and the Federal Energy Regulatory Commission (FERC) over regulation of transmission of electric power
- who should regulate siting of new transmission facilities
- and on and on.

Cogeneration of electric power by industrial firms, both for internal process plant use and for the sale of excess power into the market, has grown rapidly since EPACT92. But now the volatility of natural gas prices, and the apparent uncertainty of domestic natural gas supply, has driven many plants, particularly those utilizing natural gas in their processes, out of business here in the U.S. and toward relocation overseas where natural gas supply and labor are less costly. With so much electric power generation dependent on natural gas supply to Independent Power Producers (IPPs) and cogeneration facilities, both in Louisiana and nationally, the dependability of electric power generation becomes a legitimate public policy issue for the consuming public. The planning and financing of coal and nuclear fired power generation, to replace natural gas as a source of power generation, requires many years of preparation.

Given the rate of change in the power generation sector, even this data is a work in progress. Publication of actual generation data lags by several months, and is the subject of revision as respondents complete their filing requirements.

Louisiana's investor owned and publicly owned utilities both generate and distribute electric power to the consumer. Prior to its bankruptcy filing, Cajun Generation and Transmission Co-op served its distribution cooperatives. The survivor entity to Cajun now serves as an IPP. The cooperative distribution entities remain as distribution utilities within Louisiana. As in most industrial states, cogeneration of both heat for processes and power generation for internal consumption, as well as for sale to the transmission network, has become more economic with rising natural gas prices. In 2002, nearly 42% of generating capacity in the state came from IPPs and cogeneration. Investor owned utilities continue to dominate the Louisiana market place with nearly 75% of the customers, 85% of power sales, and55% of the electric power generation facilities.

Natural gas retains its role as the dominant source of fuel for electric power generation in the state. Natural gas provides 40% of the aggregate electric generating capacity, and up to 75% when dual fuel capacity is considered. Most dual fuel capacity power generation combines the ability to interchange distillate or diesel fuel, and natural gas. Natural gas, of course, dominates the IPP and cogeneration applications.

In the aggregate, 50% of Louisiana's electric power generation relies on natural gas as its fuel source. Nearly 23% comes from coal fired generation; and nearly 18% from nuclear power.

There are 22 cities in Louisiana that own their own independent municipal power distribution systems. The Louisiana Energy and Power Authority (LEPA) was created as a political subdivision of the State of Louisiana in 1979 pursuant to Title 33 of the Louisiana Revised Statutes of 1950. LEPA is a non-profit, joint action agency working to provide its member communities with firm, stable sources of electricity at the lowest possible cost (LEPA Mission Statement). Eighteen (18) Louisiana municipalities are currently members of LEPA.

The preceding, as well as a compendium of statistics on Louisiana electric utility generation, independent power producers, and cogeneration facilities is provided in a report recently issued by the Technology Assessment Division of the Department of Natural Resources: "Louisiana Electric Generation and Distribution Utilities."

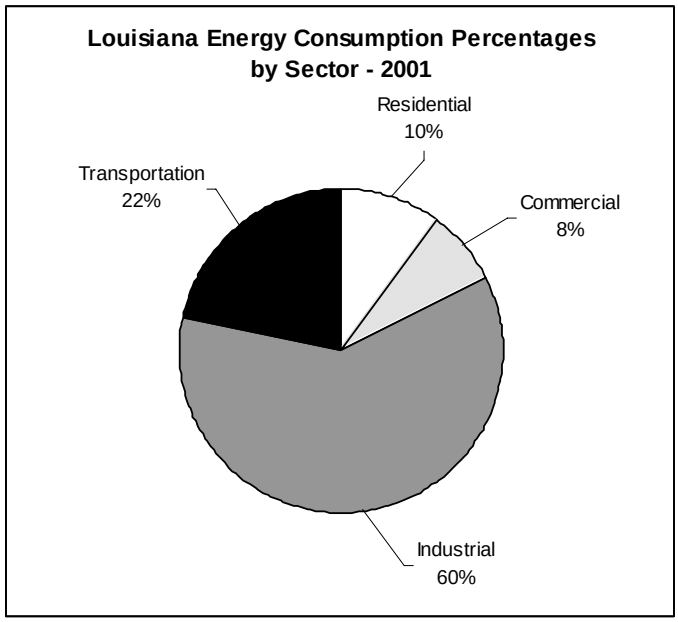
*Originally Published in October 2004 Louisiana Energy Facts*

# LOUISIANA, AN ENERGY CONSUMING STATE: AN UPDATE USING 2001 DATA

**by Brian Crouch, P.E.**

In 2001, Louisiana ranked 8th among the states in total energy consumption with 3499.5 trillion BTUs (TBTUs). Figure 1 breaks down the total energy consumption into percentages attributable to each sector.

**Figure 1**




The largest energy consumer, by far, is the industrial sector. Louisiana's abundant natural resources have historically meant low energy prices which have attracted energy intensive industries to Louisiana such as chemical, petrochemical, and refining. Louisiana ranks 2nd in the nation, behind Texas, in industrial energy consumption.

Louisiana is also a large consumer of transportation energy, much of which is attributable to the transportation of oil and gas. Louisiana ranks 11th in the nation in transportation energy usage.

Table 1 shows where Louisiana ranks among the states in various energy consumption categories and lists the top energy consuming state for each category.

**Table 1**

| Louisiana Energy Consumption Rankings Among the States | | | |
|---|---|---|---|
| Category | Rank | TBTU | #1 State (TBTU) |
| Residential | 22 | 347.8 | Texas (1569.9) |
| Commercial | 23 | 263.5 | California (1508.8) |
| Industrial | 2 | 2134.8 | Texas (6426.3) |
| Transportation | 11 | 753.4 | California (2971.0) |
| Coal | 31 | 240.0 | Indiana (1567.1) |
| Natural Gas | 3 | 1339.5 | Texas (4434.6) |
| Petroleum | 5 | 1491.4 | Texas (5521.0) |
| Electricity | 18 | 254.8 | Texas (1078.4) |
| Total | 8 | 3499.5 | Texas (12028.8) |
| Per Capita (MBTU) | 3 | 783.6 | Alaska (1164.3) |

Louisiana's high natural gas ranking reflects the large usage of natural gas as both a heat source and feed stock for several Louisiana industries.

Louisiana's high per capita energy consumption is skewed due to the large industrial and transportation energy consumption and relatively low population.

Louisiana also produces huge quantities of energy. Table 2 compares Louisiana's energy consumption to its energy production. It shows that in 2001, Louisiana consumed 976 more TBTUs of energy than it produced if Louisiana OCS oil and gas production is not included.

*Originally Published in November 2005 Louisiana Energy Facts*

# OVERVIEW OF LOUISIANA ELECTRIC GENERATION, INDEPENDENT POWER PRODUCERS AND COGENERATORS[1]

by Patricia Nussbaum, Engineer

Louisiana investor owned utilities (CLECO, SWEPCO, Entergy Gulf States, Entergy Louisiana, and Entergy New Orleans) dominate the Louisiana marketplace with nearly 75% of the customers, 85% of power sales and 55% of the electric generation capacity.

There are 22 cities in Louisiana that own their own independent municipal power distribution systems. The Louisiana Energy and Power Authority (LEPA), created in 1979, is a political subdivision of the State of Louisiana. LEPA is a non-profit, joint-action agency working to provide its member communities with firm, stable sources of electricity at the lowest possible cost. Eighteen Louisiana municipalities are currently LEPA members.

Independent power producers (IPPs) and cogenerators also provide power generation capacity. IPPs produce electricity for sale to the public. Cogenerators produce electric power, are connected to the grid and can sell power to the public. Industrial firms cogenerate power both for internal process plant use and for the sale of excess power into the market. Louisiana has total net power generation of approximately 95 million megawatthours (mwhrs). Electric Utilities generate about 55 million mwhrs, IPPs generate 17 million mwhrs and 23 million mwhrs comes from cogeneration (combined heat and power).

Fifty percent of Louisiana's electric power generation relies on natural gas as its fuel source. Twenty-three percent of power generation is coal fired, 18% comes from nuclear power and 9% comes from petroleum, hydroelectric, renewables and other.

**Table 1**
**LOUISIANA 2002 NET GENERATION BY TYPE OF PRODUCER AND ENERGY SOURCE**

| Type Of Producer | Energy Source | Generation (mwhrs) | Percent |
|---|---|---|---|
| Total Electric Generation in the State | Coal | 22,050,906 | 23% |
| | Petroleum | 1,864,536 | 2% |
| | Natural Gas | 47,900,848 | 50% |
| | Other Gases | 1,497,624 | 2% |
| | Nuclear | 17,305,328 | 18% |
| | Hydroelectric | 891,441 | 1% |
| | Other Renewables | 2,862,791 | 3% |
| | Other | 597,490 | 1% |
| **Total** | | **94,970,964** | **100%** |
| Electric Generators, Electric Utilities | Coal | 12,258,694 | 22% |
| | Petroleum | 68,460 | <1% |
| | Natural Gas | 25,085,994 | 46% |
| | Other Gases | 203,484 | <1% |
| | Nuclear | 17,305,328 | 32% |
| | Hydroelectric | 0 | 0 |
| | Other Renewables | 0 | 0 |
| | Other | 0 | 0 |
| **Total** | | **54,921,960** | **100%** |

**Table 1 (cont)**

**LOUISIANA 2002 NET GENERATION BY TYPE OF PRODUCER AND ENERGY SOURCE (cont.)**

| Type Of Producer | Energy Source | Generation (mwhrs) | Percent |
|---|---|---|---|
| Electric Generators, Independent Power Producers | Coal | 9,766,681 | 58% |
| | Petroleum | 118,581 | <1% |
| | Natural Gas | 6,105,344 | 36% |
| | Other Gases | 0 | 0 |
| | Nuclear | 0 | 0 |
| | Hydroelectric | 891,441 | 5% |
| | Other Renewables | 59,087 | <1% |
| | Other | 0 | 0 |
| **Total** | | **16,941,134** | **100%** |
| Combined Heat and Power, Indep. Power Producers | Coal | 0 | 0 |
| | Petroleum | 1,646,229 | 100% |
| | Natural Gas | 3,683 | <1% |
| | Other Gases | 0 | 0 |
| | Nuclear | 0 | 0 |
| | Hydroelectric | 0 | 0 |
| | Other Renewables | 0 | 0 |
| | Other | 0 | 0 |
| **Total** | | **1,649,912** | **100%** |
| Combined Heat and Power, Commercial Cogenerator | Coal | 0 | 0 |
| | Petroleum | 0 | 0 |
| | Natural Gas | 32,000 | 100% |
| | Other Gases | 0 | 0 |
| | Nuclear | 0 | 0 |
| | Hydroelectric | 0 | 0 |
| | Other Renewables | 0 | 0 |
| | Other | 0 | 0 |
| **Total** | | **32,000** | **100%** |
| | | | |
| Combined Heat and Power, Industrial Cogenerator | Coal | 25,531 | <1% |
| | Petroleum | 31,266 | <1% |
| | Natural Gas | 16,673,826 | 78% |
| | Other Gases | 1,294,140 | 6% |
| | Nuclear | 0 | 0 |
| | Hydroelectric | 0 | 0 |
| | Other Renewables | 2,803,704 | 13% |
| | Other | 597,490 | 3% |
| **Total** | | **21,425,957** | **100%** |

[1]Sprehe, Bob (2005). Louisana Electric Generation and Distribution Utilities.

Louisiana has approximately 2.1 million consumers of electricity. Fifteen thousand are industrial customers, 200,000 are commercial customers and the remaining customers are residential. This generates $4,746,400 (revenue in thousand dollars).

Availability of electricity is critical for Louisiana's economic growth. Recently, however, the volatility of natural gas prices has driven up the price of electricity. With so much electric power generation in Louisiana and nationally dependent on the natural gas supply, the dependability of electric power generation becomes a public policy issue.

The age of the infrastructure is also an area of concern in Louisiana. The majority of the generation

capacity of the IPPs and the cogenerators has come on line in the past 10 years, but nearly 80% of the investor owned capacity and 95% of the publicly owned capacity is over 20 years old. This update tabulates the electric utilities and cogenerationfacilities available in the state as of 2002. Data is secured from the Energy Information Administration.

**Table 2**
**EXISTING ELECTRIC GENERATING UNITS IN LOUSIANA IN 2002**

| Company/Type of Producer | Prime Mover/Installed Capacity (Megawatts) | Energy Source |
|---|---|---|
| Agrilectric Power Partners LTD/IPP | Steam Turbine/ 13.6 | Ag.Crop Byproducts |
| Air Products and Chem/Ind. Cogen. | Steam Turbine, Combustion (Gas) Turbine/ 31.2 | Natural Gas |
| Alexandria, City of/ Elec. Util. | Steam Turbine/ 175 | Natural Gas |
| BASF Corp/Ind. Cogen. | Combustion (Gas) Turbine/ 76.9 | Natural Gas |
| Bayou Cove Peaking Power LLC/ IPP | Combustion (Gas) Turbine/ 440 | Natural Gas |
| Big Cajun I Peakers/IPP | Combustion (Gas) Turbine/ 256 | Natural Gas |
| Boise Cascade Corp/Ind. Cogen. | Steam Turbine/ 61.5 | Black Liquor |
| Borden Chemicals and Plastics/Ind Cogen | Combustion (Gas) Turbine/ 103.6 | Natural Gas |
| BP America Production Co/ Ind. Cogen. | Steam Turbine/ 1.8 | Natural Gas |
| Calcasieu Power LLC/IPP | Combustion (Gas) Turbine/ 320 | Natural Gas |
| Calpine Corp/IPP | Combined Cycle Combustion, Steam Turbine, Combined Cycle/ 1220 | Natural Gas |
| Chevron Oronite Co LLC/Ind/Cogen. | Combustion (Gas) Turbine/ 25 | Natural Gas |
| CII Carbon LLC/IPP | Steam Turbine/ 46 | Petroleum Coke |
| CITGO Petroleum Corp/Ind. Cogen. | Steam Turbine/ 75 | Other Gas |
| Cleco Evangeline LLC/IPP | Combined Cycle Combustion, Combined Cycle/ 922.8 | Natural Gas |
| CLECO Power LLC/Elec. Util. | Steam Turbine, Combustion (Gas) Turbine/ 2162 | Lignite Coal, Natural Gas, Sub-bituminous Coal |
| Colonial Sugar Refinery/Ind. Cogen. | Steam Turbine/ 7.4 | Natural Gas |
| Dow Chemical Co/Ind. Cogen. | Combined Cycle Single Shaft, Combined Cycle, Combined Cycle Combustion/ 788 | Natural Gas, Waste Heat |
| Dow Chemical – St Charles/Ind. Cogen. | Combined Cycle Single Shaft, Combined Cycle, Combined Cycle Combustion/ 273.6 | Natural Gas, Waste Heat |
| DSM Copolymer/Ind. Cogen. | Steam Turbine/ 6 | Natural Gas |
| Dynegy Midstream Services/IPP Cogen. | Combustion (Gas) Turbine/ 2.5 | Natural Gas |
| Entergy Gulf States Inc./Elec. Util. | Steam Turbine, Combustion (Gas) Turbine/ 5235.2 | Natural Gas, Sub-bituminous Coal, Nuclear |
| Entergy Louisiana Inc/ Elec. Util. | Steam Turbine, Combustion (Gas) Turbine, Combined Cycle Combustion, Combined Cycle/ 6310 | Natural Gas, Nuclear |
| Entergy New Orleans Inc./Elec. Util. | Steam Turbine, Combustion (Gas) Turbine/ 1108.1 | Natural Gas, Distillate Fuel Oil |
| Exxon Mobil/ Ind. Cogen. | Combustion (Gas) Turbine/ 507.4 | Natural Gas |
| Exxon Mobil Production Co./Ind. Cogen. | Internal Combustion Engine, Steam Turbine, Combustion (Gas) Turbine/ 147 | Natural Gas |
| First National Bank – Commerce/IPP | Hydraulic Turbine/ 192 | Water |
| Formosa Plastics Corp/Ind. Cogen. | Steam Turbine, Combustion (Gas) Turbine/ 143.7 | Natural Gas |
| Gayland Container Corp/Ind. Cogen. | Steam Turbine/ 99.5 | Natural Gas |
| Georgia Gulf Corp./Ind. Cogen. | Combustion (Gas) Turbine/ 306 | Natural Gas |
| Georgia-Pacific Corp/Ind. Cogen. | Steam Turbine/ 60 | Black Liquor |

**Table 2 EXISTING ELECTRIC GENERATING UNITS IN LOUSIANA IN 2002 (cont.)**

| Company/Type of Producer | Prime Mover/Installed Capacity(Megawatts) | Energy Source |
|---|---|---|
| IMC Phosphates Co./Ind. Cogen. | Steam Turbine/ 22 mw | Other |
| International Paper Co/Ind. Cogen. | Steam Turbine/ 59.3 mw | Natural Gas |
| IPC Mansfield Mill/Ind. Cogen. | Combustion (Gas) Turbine, Steam Turbine/ 135 mw | Natural Gas, Wood/Wood Waste Solids |
| IPC – Pine/Ind. Cogen. | Steam Turbine/ 25 mw | Natural Gas |
| Jeanerette Sugar Co. Inc./Ind. Cogen. | Steam Turbine/ 2.5 mw | Agricultural Crop Byproducts |
| Kaiser Aluminum/Ind. Cogen. | Combustion (Gas) Turbine, Steam Turbine/ 117.3 mw | Natural Gas |
| Lafayette, City of/ Elec. Util. | Steam Turbine/ 379.6 mw | Natural Gas |
| Louisiana Energy & Power Authority (LEPA)/Elec. Util. | Internal Combustion Engine/ 9.4 mw | Distillate Fuel Oil |
| Louisiana Generating LLC/IPP, IPP Cogen | Steam Turbine/ 2170.2 mw | Natural Gas, Sub-bituminous Coal |
| Louisiana Tech Univ./Commercial | Steam Turbine/ 7.5 mw | Natural Gas |
| Lyondell Chemical Co/Ind. Cogen. | Steam Turbine/ 4.3 mw | Natural Gas |
| M A Patout & Sons Ltd/Ind. Cogen. | Steam Turbine/ 3 mw | Agricultural Crop Byproducts |
| Minden, City of/Elec. Util. | Steam Turbine, Internal Combustion Engine/ 35.3 mw | Natural Gas |
| Mobil Oil Corp – Chalmette/Ind. Cogen. | Other/5.7 mw | Other |
| Morgan City, City of/Elec. Util. | Steam Turbine/ 70.3 mw | Natural Gas |
| Natchitoches, City of/Elec. Util. | Internal Combustion Engine, Steam Turbine/ 53 mw | Natural Gas |
| Nelson Industrial Steam Co./IPP Cogen. | Steam Turbine/ 280.2 mw | Petroleum Coke |
| NRG South Central Generating/IPP | Combustion (Gas) Turbine/ 216 mw | Natural Gas |
| Ouachita Operating Services LLC/IPP | Combined Cycle Combustion, Combined Cycle/ 1018.5 mw | Natural Gas |
| PCS Nitrogen LP/Ind. Cogen. | Combustion (Gas) Turbine/ 26 mw | Natural Gas |
| Perryville Energy Partners/IPP | Combined Cycle Combustion, Combined Cycle/ 533.2 mw | Natural Gas, Waste Heat |
| Placid Refining Co. LLC/Ind. Cogen. | Combustion (Gas) Turbine/ 7.6 mw | Natural Gas |
| Plaquemine, City of/Elec. Util. | Steam Turbine/ 44 mw | Natural Gas |
| PPG Industries Inc/Ind. Cogen. | Combined Cycle Single Shaft, Combined Cycle, Combined Cycle Combustion/ 576 mw | Natural Gas, Waste Heat |
| Rayne, City of/Elec. Util. | Internal Combustion Engine/ 8.2 mw | Natural Gas |
| Reliant Energy Field Services/Ind. Cogen. | Internal Combustion Engine/ 1.2 mw | Natural Gas |
| Riverwood International Corp./Ind. Cogen. | Steam Turbine/ 63 mw | Natural Gas |
| Ruston, City of/Elec. Util. | Steam Turbine/ 80.9 mw | Natural Gas |
| Southwestern Electric Power Co./Elec. Util. | Steam Turbine/ 403 mw | Natural Gas |
| Stone Container Corp./Ind. Cogen. | Steam Turbine/ 74.4 mw | Natural Gas |
| Taft Cogeneration LP/Ind. Cogen. | Combined Cycle Combustion, Combined Cycle/ 835 mw | Natural Gas |
| TEMBEC/Ind. Cogen. | Combustion (Gas) Turbine, Steam Turbine/ 57.5 mw | Natural Gas, Black Liquor |
| Terrebonne Parish Consolidated Gov't/ Elec. Util. | Internal Combustion, Steam Turbine/ 99.3 mw | Natural Gas |
| The American Sugar Refining Co./Ind. Cogen. | Steam Turbine/9 mw | Natural Gas |
| TOSCO Refining Co./Ind. Cogen. | Other, Steam Turbine/ 25 mw | Other Gas |
| Vulcan Materials Co/Ind. Cogen. | Combined Cycle Combustion, Combined Cycle/ 113 mw | Natural Gas |
| Western Gas Resources Inc/Ind. Cogen. | Internal Combustion Engine/ 2.8 mw | Natural Gas |

Source: U. S. Department of Energy, Energy Information Administration 2002 Data.

*Originally Published in December 2004 Louisiana Energy Facts*

# THE QUIET BOOM!

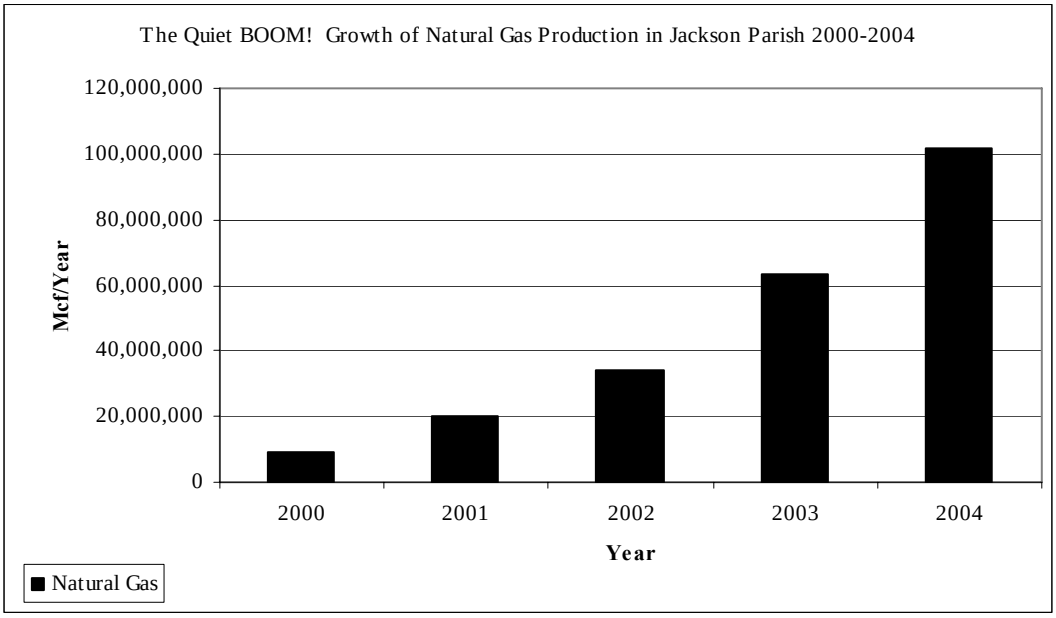
by
Bob Sprehe, Energy Economist, Technology Assessment Division
Dave Elfert, Geologist, Office of Conservation
Alan Boyd, Biologist, Weyerhaeuser Company
Eric Baka, Department of Wildlife and Fisheries

In the oil and natural gas industry, there are very few things that are quiet, especially new discoveries and subsequent drilling booms. Jackson Parish, La. is the exception.

In a very quiet manner, led by Anadarko Petroleum Corp., a revolution in deep drilling in North Louisiana (15,000 ft. +/-) has been underway since 2001. Through April 2005, Anadarko has drilled and completed 258 of these deep (15,000 ft. +/-) high pressure, high temperature Lower Cotton Valley natural gas wells. According to records available in the Office of Conservation, Anadarko invested nearly $201,600,000 in just 55 wells, an average of $3.7 million per well.

The result for the Jackson Parish Police Jury and Parish Administration and the State of Louisiana Department of Natural Resources is another successful model program of how state agencies and the private oil and gas sector can cooperate in commercial exploitation of deep energy reserves while sustaining responsible environmental practices in sensitive surface areas, including wetlands, and preserving the habitat of an endangered species, the red cockaded woodpecker. This is a regulatory economic model all political bodies should learn from and seek to emulate.

Figure 1
Jackson Parish Natural Gas Production Is Growing Exponentially



North Louisiana -- of which Jackson Parish and the Vernon Field specifically are the dominant geologic features at this time -- accounted for more than 20 percent of the nation's natural gas reserves added between 2001 and 2003, according to data published by the Energy Information Administration.

This is a very significant contribution to the nation's natural gas deliverability base at a time when political leaders are questioning the reliability of the domestic natural gas supply.

Jackson Parish Natural Gas Reserves are a significant portion of the Nation's Deliverability Base

Table 1

Jackson Parish Dry Natural Gas Proved Reserves, and Reserve Growth, Tcf[1/] - 2001-2003

| Year | U. S. | | North LA | % |
|---|---|---|---|---|
| 2003 | 189,044 | | 5,074 | 2.68% |
| | | | | |
| 2001 | 183,460 | | 3,881 | 2.12% |
| | | | | |
| Increase | 5,584 | | 1,193 | 21.36% |
| | | | | |

Source: Energy Information Administration
U. S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves, 2003 Annual Report
[1/]Tcf = Trillion cubic Feet

## Geology

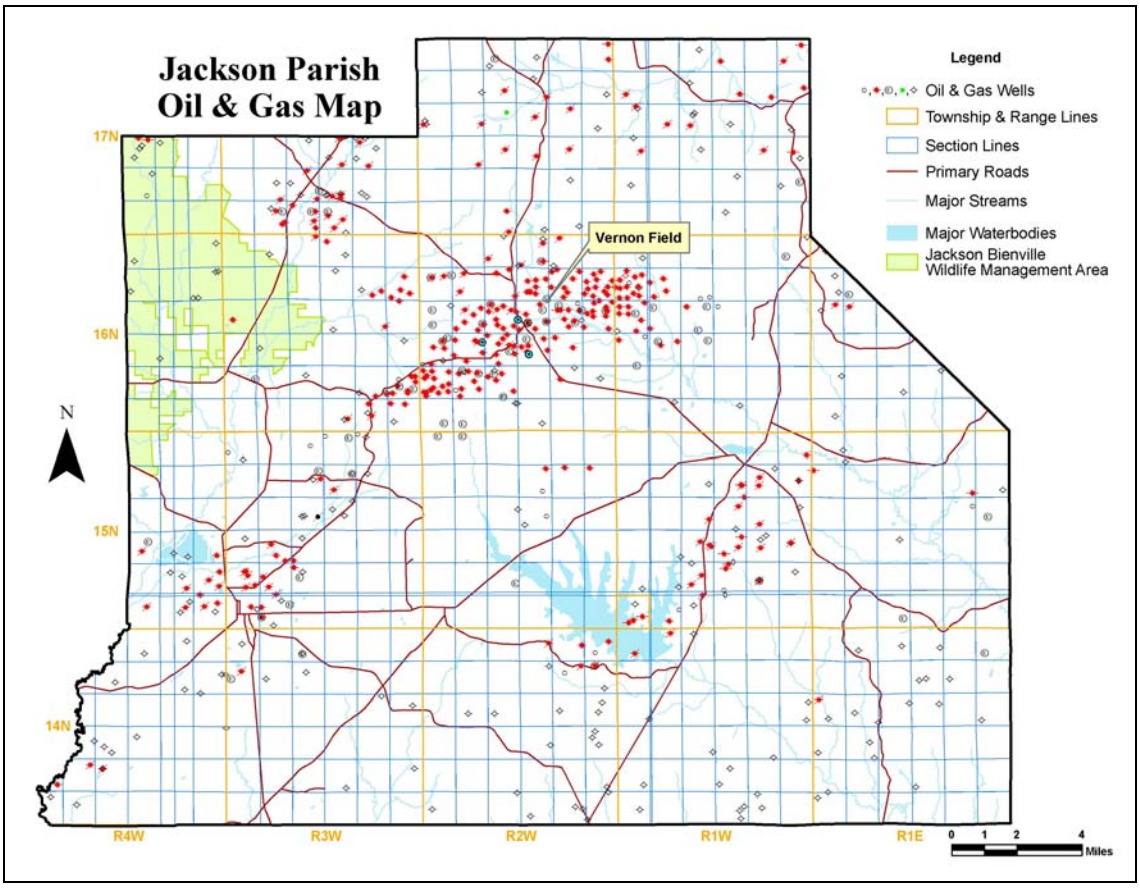
Industry has recognized the potential for natural gas exploitation in the Vernon Field area since the early 1980s. More precise seismic interpretation, combined with successful experience in large, water-based fracturing techniques in East Texas and Oklahoma, have made commercialization of these deep (15,000 feet +/- total vertical depth [TVD]) Lower Cotton Valley sands viable at this time.

The two most active and prolific areas of the Vernon Field are the northern fault block, located approximately in Township 16 North, Range 2 West, (T16N, R2W) sections 9-12, and the southern fault block, located in T16N, R2W sections 28-30. Both of these areas are structural traps in the Lower Cotton Valley. Other areas of the Vernon Field also hold potential and will be exploited in the future.

There are lesser accumulations of natural gas reserves in the Upper Cotton Valley and the Hosston formations. The geologic age of the Hosston is Lower Cretaceous, while the Cotton Valley is Jurassic in geologic age.

While 258 wells have been completed through April 2005, Anadarko has not yet defined the limits of the potential producing zones. General Manager for the Eastern Gulf Coast Operations, Bob Stancil, suggests that as many as 400 wells may be drilled. Currently, Anadarko has nine rigs drilling. [Insert 2 pages, cross section and oil and gas surface map] Sand thicknesses in the producing wells run between 1,500 and 3,000 feet. Currently this thickness allows for 40-acre well spacing. Future experience with reservoir drainage patterns may allow well spacing to drop to 20 acres

Figure 2




Oil and Gas Map of Jackson parish

## Well Construction Plans

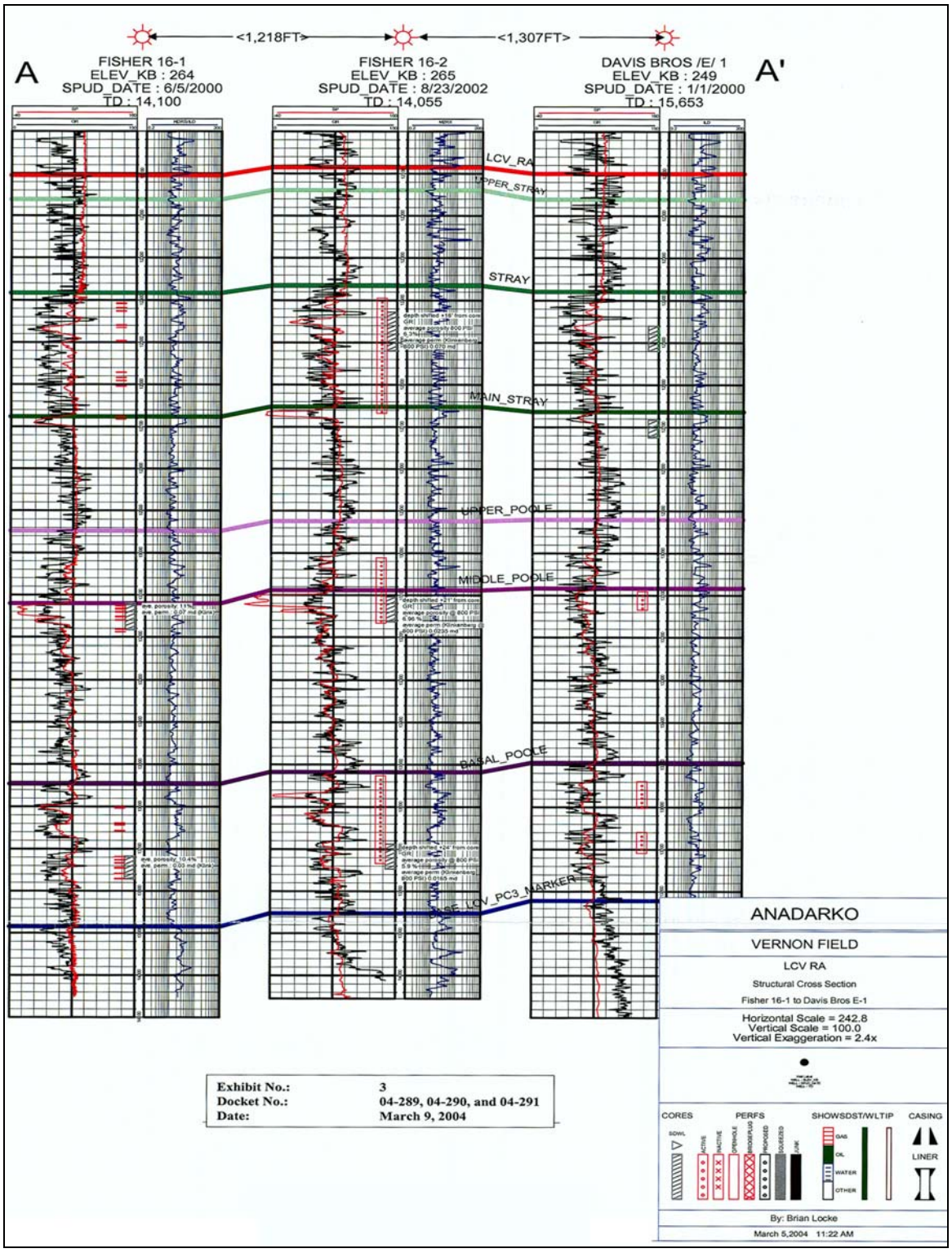
Besides conductor pipe driven to begin the drilling process, Anadarko sets three strings of casing: surface pipe to cover the fresh water bearing horizons, a protective casing string into the pressure transition zone below the Knowles lime and a production string to total depth (TD).

The Lower Cotton Valley (LCV) is geo-pressured, meaning that formation pressures exceed a normal salt water gradient. High mud weights are required to drill into the LCV pay zone.

The wells are perforated at multiple levels across the Lower Cotton Valley pay interval. Several frac jobs of fresh water and sand, followed by a flush of fresh water to push the sand propping agent back into the formation, are run through the perforated intervals, and production flow is commingled.

So far, Anadarko has not located a free water level in the Lower Cotton Valley. Initial flow rates range from three to 15 million cubic feet per day (MMcf/day). The wells, subsequently, exhibit a hyperbolic decline curve over the long life expectancy of reservoir production.

Figure 3




Cross Section of LCV from Anadarko filing with Office of Conservation

Figure 4

Drilling Rig at Work in Anadarko's Vernon Field,
Jackson Parish. Louisiana

## Wetlands, Woodpeckers, and Water

There is a long history of sustainable environmental development harmony between Louisiana's legislature, state regulatory agencies, parish governments, and oil and gas extraction industries.

Jackson Parish is a recent example of just that harmony. There are wetlands in the Vernon Field. The endangered red-cockaded woodpecker makes its habitat among the woodlands in the Vernon Field, and rig water supply is drawn from the Sparta Aquifer which is present at very shallow depths (approximately 500 ft. subsea +/-) in the Vernon Field.

Anadarko complies fully with the wetlands permit requirements and restoration. The endangered species habitat is avoided, and rig water supply wells are plugged and abandoned (P&A) as required by State law when no longer needed.

The harmony of subsurface development of scarce natural gas resources, while respectfully using and preserving valuable environmental assets, is a Louisiana model for all political bodies around the globe to emulate.

Weyerhaeuser Company, a major forest landowner within the Vernon Field, can attest to the environmentally responsible approach taken by Anadarko. When Anadarko first began operations in the Vernon Field, they were informed of Weyerhaeuser's detailed environmental expectations with respect to road, pipeline, and well site construction – especially when in proximity to streams, other wetlands, and special sites such as nesting and forage habitat for the red-cockaded woodpecker.

A systematic process of communication has resulted to ensure that all aspects of environmental concerns are addressed. Once Weyerhaeuser receives a request from Anadarko to review proposed activity, the information is distributed to the appropriate Weyerhaeuser managers, foresters, researchers, and environmental personnel for their review and recommendations. These comments are then accumulated and forwarded to Anadarko for their consideration.

Weyerhaeuser managers say Anadarko's reception of this feedback and their resulting environmental performance has been nothing less than impressive, not only meeting, but exceeding Weyerhaeuser's expectations. Much detailed and costly effort by Anadarko has gone into executing this process to meet their goals while also protecting the long-term sustainability of Weyerhaeuser's land, water, and wildlife resources.

Some specific examples demonstrating Anadarko's desire to incorporate ecologically-friendly practices include their considerations for wildlife when conducting operations within the Jackson-Bienville Wildlife Management Area. Anadarko is working with Louisiana Department of Wildlife and Fisheries (LDWF) biologists to consider planting special wildlife seed mixes along pipelines and road rights-of-way and adjusting mowing schedules to accommodate turkey nesting. Also, when possible, Anadarko is minimizing their "footprint" and avoiding environmentally sensitive areas in the WMA by drilling multiple wells on a single pad and by using directional drilling technology. These efforts are a formula that adds up to enhanced wildlife habitat and retention of biological diversity.

### Economic Payoff

With 258 wells completed as of the end of April, 2005, and an average investment of $3.7 MM/well, Anadarko has close to a $1 billion dollar investment in Jackson Parish to this point in time.

Additionally, Anadarko has built an office facility and a natural gas liquids stripping plant. Others have invested in new pipeline capacity to transport the natural gas production from the field to nearby interstate natural gas pipelines and on to the Midwest and East Coast population centers.

Even at this early stage of economic evolution, three other factors illustrate the economic impact in Jackson Parish of this harmonious coexistence of oil and gas extraction and environmental preservation: ad valorem assessments, Louisiana adjusted income tax, and sales taxes collected.

Figure 5

Ad valorem assessments on Wells have increased over $12,000,000 between 2000 and 2004.

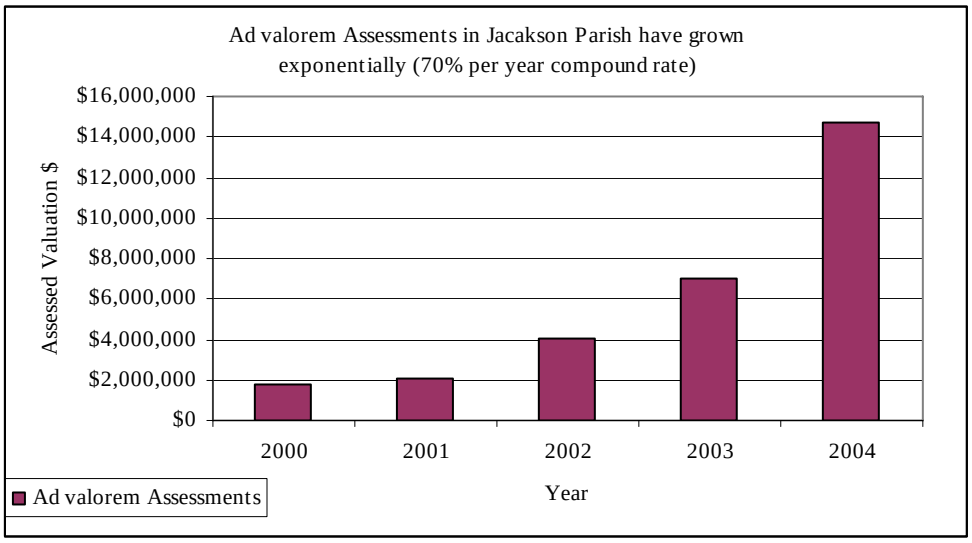



Figure 6

Louisiana Adjusted Income Tax from Jackson Parish has increased at a 5% per Year Rate

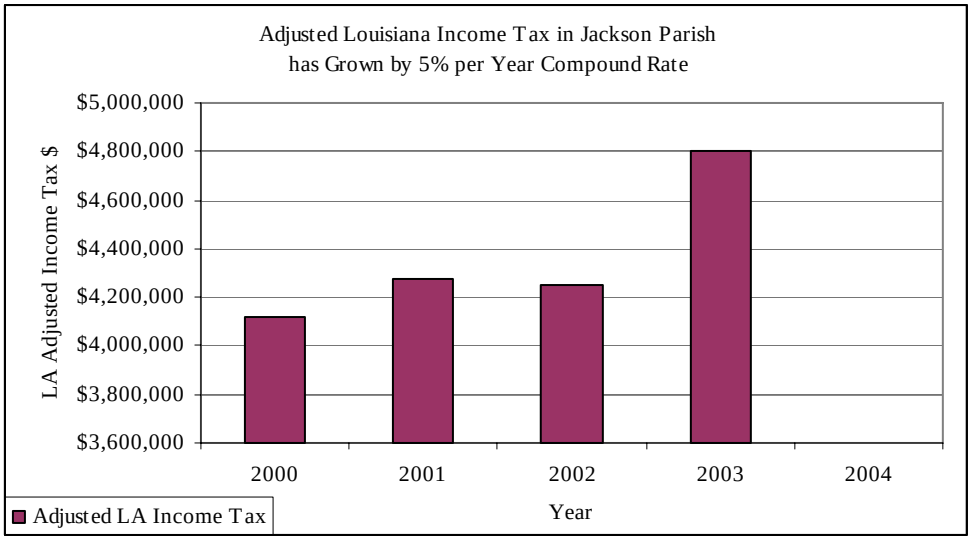
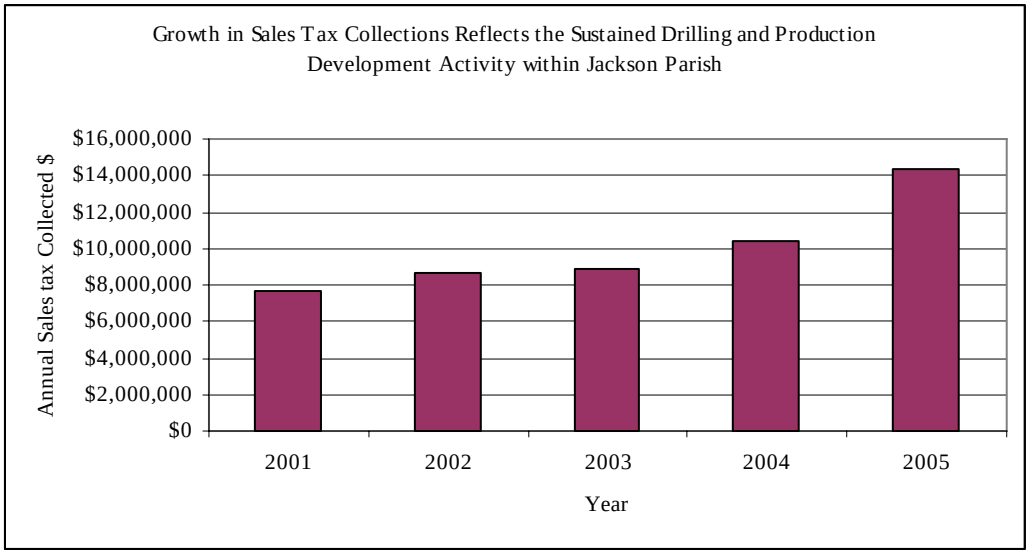


Figure 7

Sales taxes collected in Jackson Parish have increased by 75% from 2000 to 2004;




**"…Win, Win, Win, Win…"**

In the Real Estate world, value is characterized as "…location, location, location…."

With the kind of valuable cooperation and knowledge present in the state administration, legislature, regulatory agencies, the private sector, oil and gas companies and landowners, Anadarko **wins**, Jackson Parish **wins**, Louisiana's residents **win and** the landowners **win**. And, the nation's consumers **win** with increased natural gas supply and a corresponding slowing of natural gas price increases that otherwise would not have been available.