

OIL AND GAS PRICES

CRUDE OIL PRICE PROJECTION

Oil prices are determined in the international markets and are difficult to project. As the historical data shows great swings in the price of oil, there is also considerable uncertainty about future prices. The future price of oil is linked to the unpredictability of world oil supplies and world economics. Major factors affecting oil prices are: a) political stability of producing countries, b) world environmental issues, c) industrialized countries' conservation practices, d) weather related demand for petroleum products, e) production restraints by OPEC countries, f) consumer nations' economies, and g) labor force stability. If crude oil supply and demand for petroleum products are well balanced and refiners have the sufficient downstream capacity to process difficult crudes, the price of crude oil will seek a stable market condition.

Historical oil prices are provided in Appendix F. The projected FY1998/99 through FY2003/04 average Louisiana wellhead crude oil prices are as follows:

Table 1

Louisiana Crude Oil Price Projections (Dollars per barrel)

	Base Case	Percent Change	Low Case	High Case
FY1998/99	12.00	-28.19%	9.00	15.00
FY1999/00	13.00	8.33%	8.50	18.50
FY2000/01	14.25	9.61%	9.50	19.50
FY2001/02	15.40	8.07%	10.75	20.75
FY2002/03	16.30	5.85%	11.50	21.50
FY2003/04	16.50	1.23%	11.75	21.75

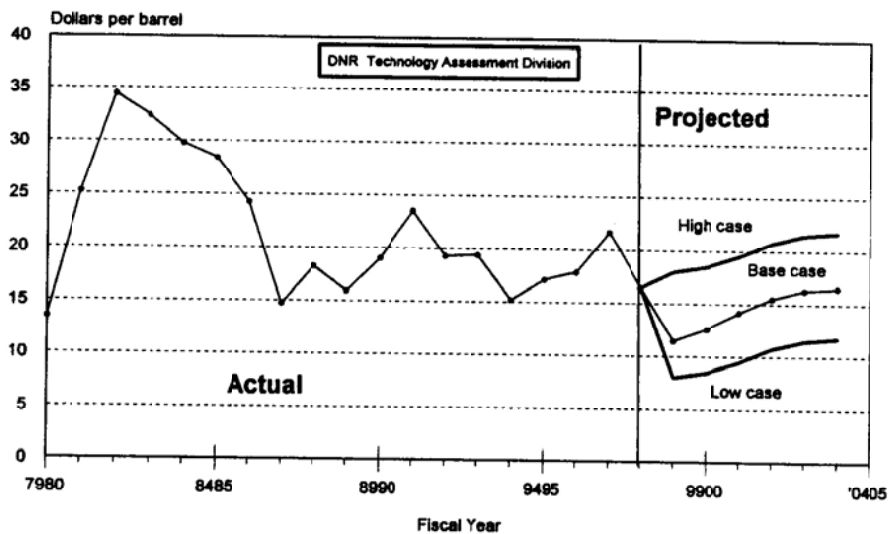
The base case assumed that: a) world oil demand will grow at an average annual rate of 1.5 percent between 1999-2004; b) OPEC will keep their daily production quotas in 1999 and will increase their daily production by about 400,000 barrels per year in the following years (The production increase includes Iraq's humanitarian crude oil sales.); c) weather demand will be normal with normal heating demand in winter and normal cooling demand in late spring and early summer; and d) production will not be disrupted in non-OPEC producing countries.

The low case assumed that: a) world oil demand will grow less than 1 percent annually between 1999-2004; b) OPEC countries will produce more than their allowed quotas, and Iraq will be producing more than the proposed UN limit of 1 million barrels per day; and c) weather will be mild.

The high case assumed that: a) world oil demand will grow at a rate higher than 1.5 percent per year between 1999-2004, despite the economic slowdown occurring in Southeast Asia; b) OPEC countries will self impose lower production rates than their quotas; and c) production will be disrupted in non-OPEC producers due to weather, accidents or workers' strikes.

Figure 2

**LOUISIANA AVERAGE CRUDE OIL WELLHEAD PRICE
ACTUAL AND PROJECTED**



OTHER PROJECTIONS

The Oil & Gas Journal's *1998-2002 Oil Industry Outlook* by Robert J. Beck stated that the U.S. wellhead price for crude oil was expected to be on a downward trend until 1997, then crude oil prices will reverse that trend. The downward pressure on crude oil prices was caused mainly by a glut in supply. Worldwide crude oil production capacity was projected to rise rapidly in 1997 and 1998. Production was expected to grow in non-OPEC producers such as Argentina and Colombia in South America, China and South East Asia in the northern Pacific Rim, and Australia in the South Pacific. OPEC producers were also expected to increase their production to protect their market share. The return of Iraq's crude oil to the market also put a strain on the system. Projected demand for crude oil well into the 21st century is very optimistic. Oil consumption is expected to grow around 2.4% annually in industrialized countries and 4.1% annually in developing countries. For the next three years, supply will increase faster than demand and this will keep crude oil prices at present levels. As supply stabilizes and consumption increases, the downward pressure on crude oil prices will ease.

Provided below are the following projections by calendar year for 1999-2004: the EIA Energy Forecast models average world crude oil price ; the Oil & Gas Journal *1998-2002 Oil Industry Outlook* average U.S. wellhead crude oil price; and the Department of Natural Resources, Technology Assessment Division average Louisiana wellhead crude oil price.

Table 2

Projected Crude Oil Prices Comparison
(Dollars per barrel)

	O&GJ	EIA	DNR-TA
1999	13.90	12.09	12.00
2000	13.60	11.26	14.00
2001	15.20	13.74	14.50
2002	16.00	16.03	16.30
2003	17.00	16.45	16.30
2004	18.00	16.55	16.50

The Gas Research Institute (GRI) is forecasting oil prices of \$14.16 per barrel in the year 2000, and \$13.86 in the year 2010. Data Resources, Inc. (DRI) is forecasting oil prices at \$12.55 per barrel in the year 2000, and \$16.94 in the year 2010. The WEFA Group (formerly the Wharton Econometric Forecasting Associates) is projecting oil prices at \$15.27 per barrel in the year 2000, and \$16.05 in the year 2010.

NATURAL GAS PRICE PROJECTION

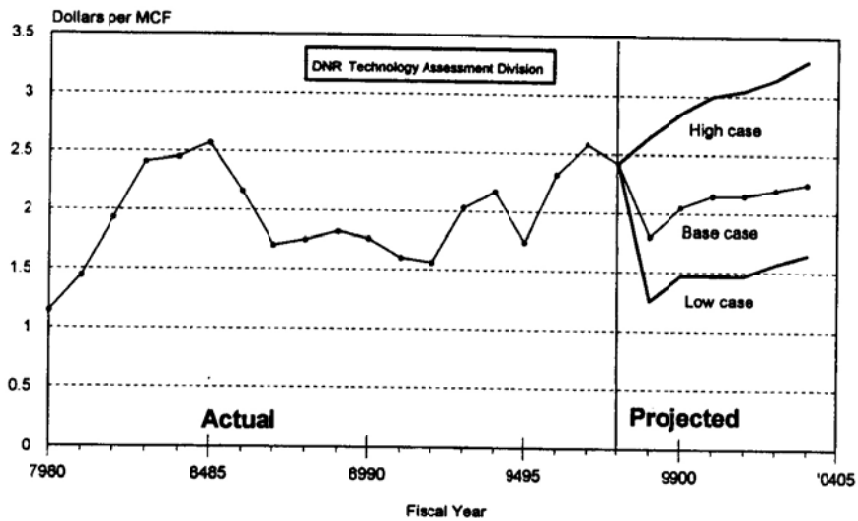
Natural gas prices act differently than crude oil prices. Oil prices are driven by the international oil market. Gas prices are driven by factors such as weather, demand for gas not satisfied by the pipeline system, availability of spot supplies, and competing fuel prices. Natural gas is less traded internationally than oil. It is harder to transport and store, and needs the proper infrastructure (pipelines, compression stations, LNG tanks, etc.). The major cost components of natural gas prices are: cost of in-field production, cost of transportation, cost of marketing, and investment rate of return. As the historical data shows, most components of natural gas prices are stable with the exception of marketing cost. Marketing cost is the only cost that oscillates widely.

Gas prices increased as regulations faded out in the early 80's. With deregulation, natural gas started trading in the spot and commodity markets. Since 1985, this spot market for gas has grown in importance and today it is the major player in the determination of gas prices. In April 1990, natural gas futures contracts started trading in the New York Mercantile Exchange (NYMEX). A NYMEX gas future contract calls for delivery of 10,000 MCF of gas during a specific month, 1 to 12 months in the future. The contract delivery point of the gas is Sabine Pipe Line Co.'s Henry Hub terminal near Erath, Louisiana.

Factors that could affect prices are weather, storage levels, curtailments, market changes, new consumption and NAFTA (North America Free Trade Agreement). Gas prices are also affected by psychological factors. The expectation of soft prices often is enough to bring them about. A good dose of cold winter weather will usually erase much of the psychological element of low gas prices.

Figure 3

**LOUISIANA AVERAGE NATURAL GAS WELLHEAD PRICE
ACTUAL AND PROJECTED**



Historical gas prices are provided in Appendix F. The projected FY1998/99 through FY2003/04 average Louisiana wellhead natural gas price is as follows:

Table 3

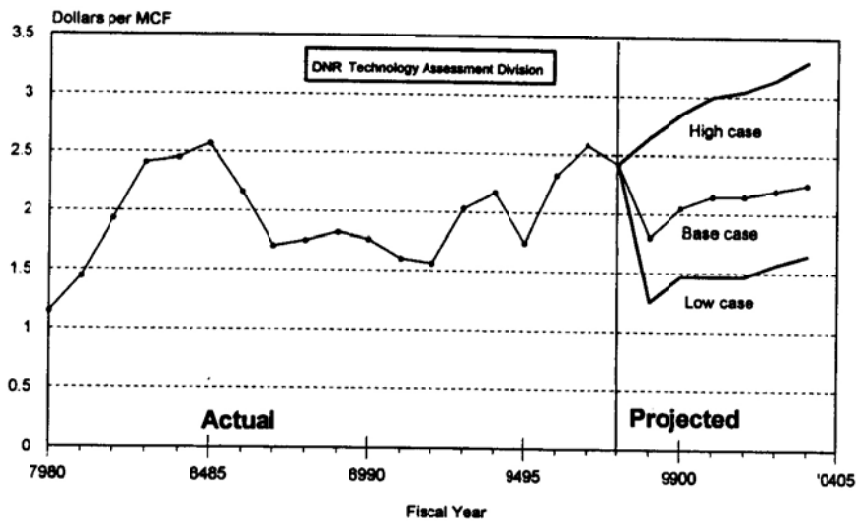
**Louisiana Natural Gas Price Projections
(Dollars per MCF)**

	Base Case	Percent Change	Low Case	High Case
FY1998/99	1.80	-22.04%	1.25	2.65
FY1999/00	2.05	13.89%	1.47	2.85
FY2000/01	2.15	-4.88%	1.47	3.00
FY2001/02	2.15	0.00%	1.47	3.05
FY2002/03	2.20	2.33%	1.57	3.15
FY2003/04	2.25	2.05%	1.65	3.30

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FY2001/02	2.15	0.00%	1.47	3.05
FY2002/03	2.20	2.33%	1.57	3.15
FY2003/04	2.25	2.05%	1.65	3.30

The base case assumed that: a) U.S. gas demand will grow at an average annual rate of 1 percent between 1999-2004; b) LNG imports will be insignificant; c) weather demand will be relatively normal, high heating demand in winter and high cooling in late spring and early summer; and d) total U.S. gas imports will be only 10-15 percent of total U.S. consumption.

The low case assumed that: a) U.S. gas demand will grow less than half of a percent between 1999-2004; b) total U.S. gas imports will be more than 15 percent of total U.S. consumption; c) inventory levels in storages will be high; and d) weather demand will be low because of mild temperatures.

The high case assumed that: a) U.S. gas demand will grow at a rate higher than 1.5 percent between 1998-2003; b) total U.S. gas imports will be less than 10 percent of total U.S. consumption; c) inventory in storage will be at low levels; and d) some production or distribution disruption will occur due to weather or accidents.

OTHER PROJECTIONS

Provided below are the following projections by calendar year for 1999-2004: the EIA Energy Forecast models average U.S. wellhead natural gas price; the Oil & Gas Journal *1998-2002 Oil Industry Outlook* average U.S. wellhead natural gas price; and the Department of Natural Resources, Technology Assessment Division average Louisiana wellhead natural gas price.

Table 4

Projected Natural Gas Prices Comparison (Dollars per MCF)

	O&GJ	EIA	DNR-TA
1999	1.95	1.83	1.85
2000	2.15	2.11	2.10
2001	2.25	2.16	2.15
2002	2.30	2.22	2.15
2003	2.40	2.28	2.20
2004	2.50	2.34	2.25

JOFREE is projecting an average gas price of \$1.90 per MMBTU for 1999. In 1999, JOFREE feels that gas prices will decline, pressured by the abundance of new gas supplies from Canada via Northern Border Pipeline and additional connections of new offshore gas to main lines from the Gulf. GRI is forecasting gas prices around \$2.36 per MCF by 2015. DRI is forecasting gas prices at \$2.52 per MCF in the year 2015. The WEFA Group (formerly the Wharton Econometric Forecasting Associates) is projecting gas prices at \$2.23 per MCF by 2015. AGA is forecasting gas prices around \$2.31 per MCF by 2015.

OIL AND GAS PRODUCTION

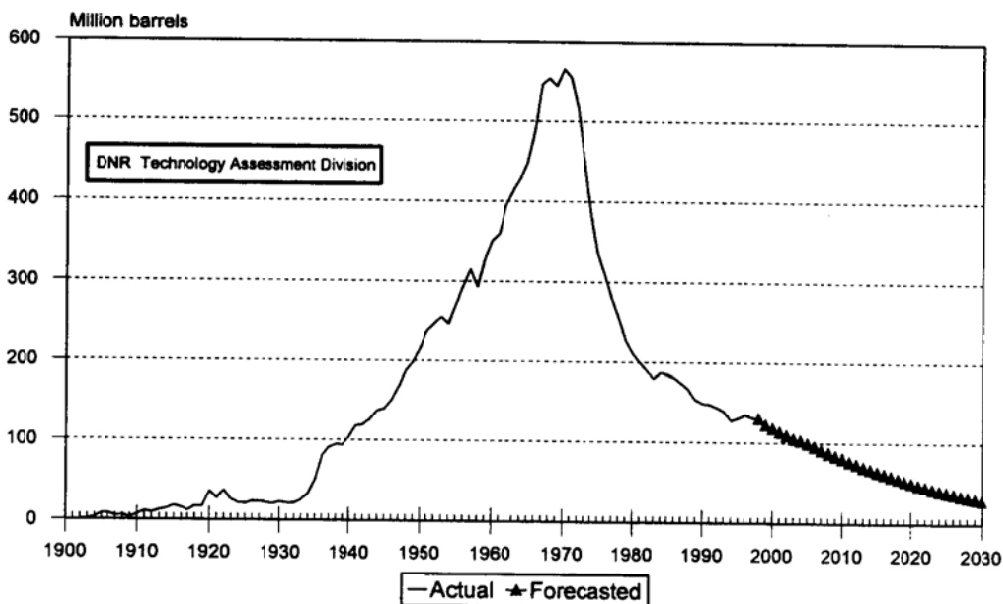
Louisiana ranks among the top four states in oil and gas production, and is second in per capita energy consumption. It has produced oil and gas for almost a century. The following section presents forecast data for oil (crude oil and condensate) and gas (casinghead gas and natural gas) production from state regulated land and water bottoms. Historical data is provided in Appendix F.

OIL PRODUCTION FORECAST

The annual rate of decline over the past ten year period was 2.5%, and the DNR Technology Assessment Division **long term** model is projecting a 4.4% decline per year. Year to year decline rates over this period have varied between 0.2% and 6.9%, but in FY1995/96 oil production increased 5.1% over previous year. Even though the **long term** model is accurate over long periods (10 to 30 years), these short term fluctuations illustrate why a separate **short term** model is required to forecast production over periods of 1 to 6 years.

Figure 4

LOUISIANA STATE LONG TERM CRUDE OIL PRODUCTION FORECAST



Condensate oil included, Federal OCS excluded
Source: DNR Technology Assessment Division

Factors contributing to the year to year deviations in oil production are:

- Changes in wildcat drilling and development of marginal fields within the United States
- Early capping of stripper wells by major producers
- Unstable prices of crude oil
- Changes in environmental laws, especially those concerning salt water discharge
- World crude oil supply growing faster than demand, causing an oil glut similar to the gas bubble
- The number of active rigs in the region
- Military conflicts or political instability in some producing countries (OPEC members and the former Soviet Union)
- Application of advanced technology such as 3-D and 4-D seismic
- State and local tax incentives

The short term forecasted Louisiana crude oil and condensate production for FY1998/99 through FY2003/04 is as follows:

Table 5

Louisiana Crude Oil Production Forecast

	(Barrels)			
	Base Case	Percent Change	Low Case	High Case
FY1998/99	125,242,456	-5.800%	108,559,336	146,348,236
FY1999/00	118,344,252	-5.508%	102,233,176	139,311,055
FY2000/01	113,674,647	-3.946%	97,538,463	134,311,278
FY2001/02	109,282,754	-3.864%	93,359,274	129,902,559
FY2002/03	104,983,530	-3.934%	89,356,252	125,632,098
FY2003/04	100,822,469	-3.964%	85,365,427	121,271,105

The base case assumed that: a) the price of crude oil will be as shown in the base case crude oil price forecast; and b) drilling activities will remain low (average running rigs in Louisiana onshore and offshore should be around 80 rigs, and less than 100 drilling permits issued per month).

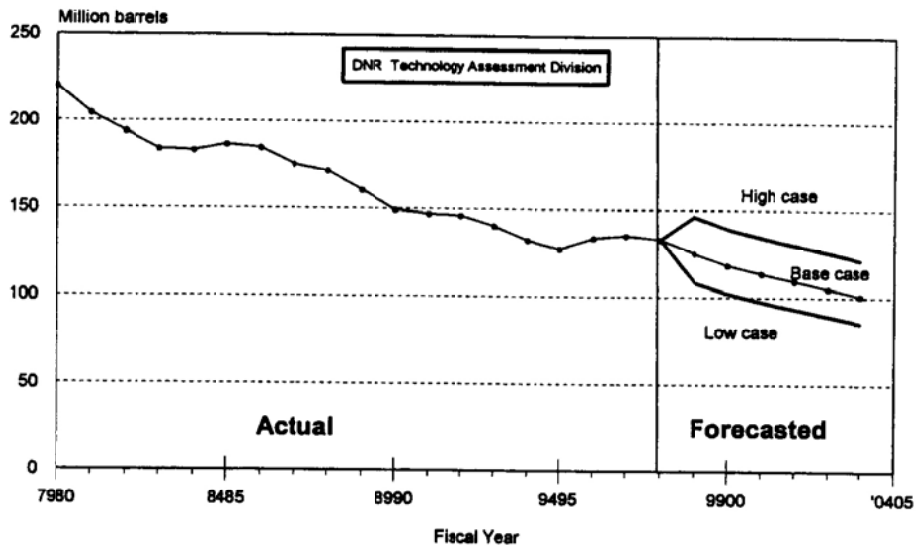
The low case assumed that: a) the price and pricing assumptions for crude oil will be as shown in the low case crude oil price forecast; and b) drilling activities will drop further than present levels.

The high case assumed that: a) the price and pricing assumptions for crude oil will be as shown in the high case crude oil price forecast; and b) drilling activities will increase from present levels.

The **short term** forecast model is predicting a 4.5% per year decline in oil production for the next six years, FY1998/99 to FY2003/04. The forecasted production rates may be low depending on factors such as crude oil prices, number of active drilling rigs, consumer demand, exploration activities, OPEC production curtailment, non-OPEC producers' production capacity improvement, and Iraq returning to the crude oil market.

Figure 5

**LOUISIANA CRUDE OIL AND CONDENSATE
ACTUAL PRODUCTION AND SHORT TERM FORECAST**



GAS PRODUCTION FORECAST

The average annual rate of decline over the last 10 years was 1.0% which is less than the DNR Technology Assessment Division **long term** model projection of 3.8% per year. Year to year production rate changes in this period were from a 4.3% decline to 2.9% increase in production. Four years out of the last ten have shown production increases. Even though the long term model is accurate over a 10 to 30 year period, these short term fluctuations illustrate why a separate **short term** model is required to forecast production over periods of one to six years.

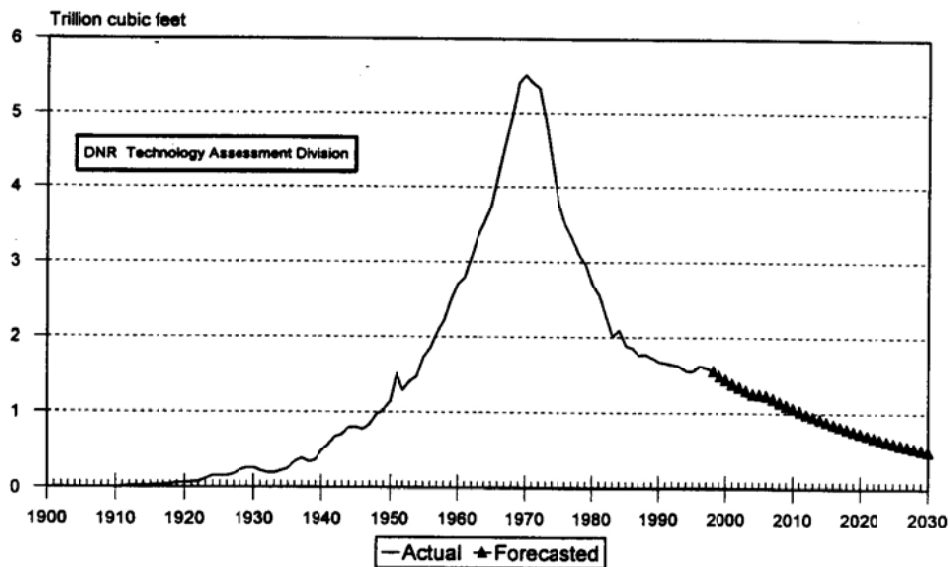
Factors contributing to the year to year deviations are:

- Effects on industrial gas demand from chemical industry activity

- Growth in use of natural gas to meet clean air requirements in electric power generation and transportation
- Government production control at state level (prorating)
- Mild or severe winter weather patterns
- Offshore drilling moratoriums in other states
- Changes in environmental laws, especially the Clean Air Act Amendments of 1990
- Production capacity higher than demand
- Price of gas relative to fuel oil and the amount of switching between these two fuels
- Peak day deliverability of the U.S. pipeline system
- Changes in federal taxation or incentives affecting oil and gas industry
- Foreign imports
- State and local tax incentives

Figure 6

LOUISIANA STATE LONG TERM NATURAL GAS PRODUCTION FORECAST



Casinghead gas included, Federal CCS excluded
 Source: DNR Technology Assessment Division

Historical gas production data is provided in Appendix F. The short term forecasted Louisiana natural gas and casinghead gas production for FY1998/99 through FY2003/04 is as follows:

Table 6

Louisiana Natural Gas Production Forecast
(MCF)

	Base Case	Percent Change	Low Case	High Case
FY1998/99	1,512,888,262	-3.99%	1,413,642,792	1,628,775,502
FY1999/00	1,458,166,208	-3.62%	1,362,218,871	1,570,153,372
FY2000/01	1,405,263,279	-3.63%	1,312,515,902	1,513,468,551
FY2001/02	1,356,254,865	-3.49%	1,266,470,793	1,460,957,740
FY2002/03	1,311,406,272	-3.31%	1,224,328,896	1,412,909,118
FY2003/04	1,266,296,428	-3.44%	1,181,961,085	1,364,561,030

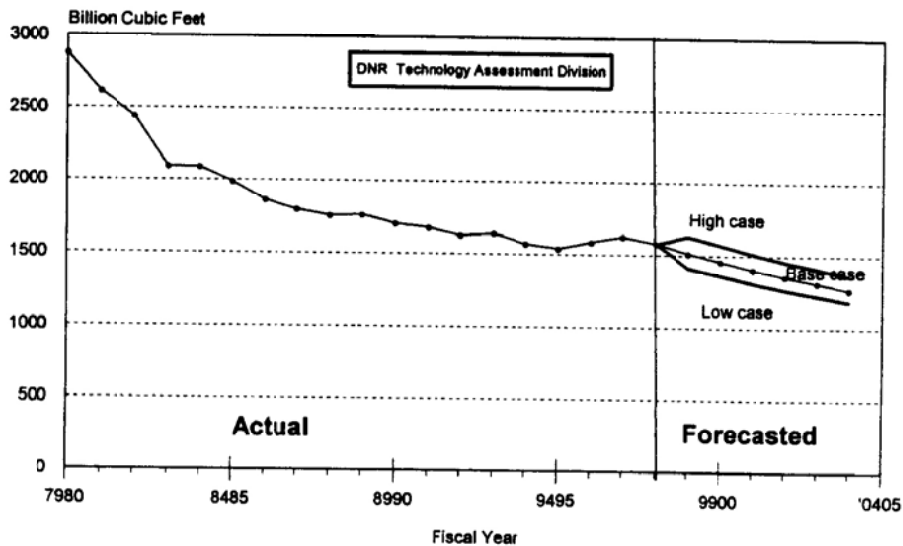
The base case assumed that: a) the price and pricing assumptions for natural gas will be as shown in the base case natural gas price forecast; and b) drilling activities will remain low (average running rigs in Louisiana onshore and offshore should be around 80 rigs, and less than 100 drilling permits issued per month).

The low case assumed that: a) the price and pricing assumptions for natural gas will be as shown in the low case natural gas price forecast; and b) drilling activities will drop further than present levels.

The high case assumed that: a) the price and pricing assumptions for natural gas will be as shown in the high case natural gas price forecast; and b) drilling activities will increase from present levels.

Figure 7

**LOUISIANA NATURAL GAS AND CASINGHEAD GAS
ACTUAL PRODUCTION AND SHORT TERM FORECAST**



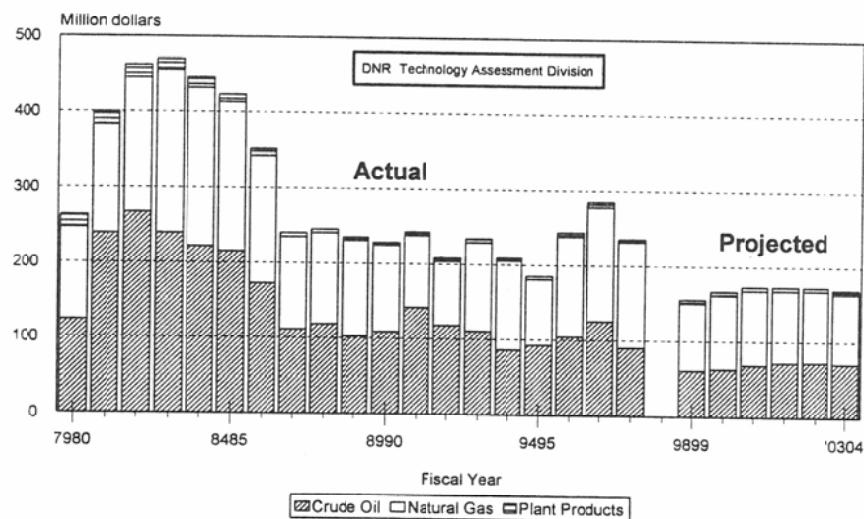
The average annual rate of decline predicted by the **long term** forecast model is 3.8% per year. The **short term** forecast model predicts a 3.6% per year decline for FY1998/99 through FY2003/04. The natural gas production forecast may be low if gas demand in the U.S. is higher than the U.S. consumption predicted by the U.S. Department of Energy, Energy Information Administration, cheaper fuel substitutes are not available for users capable of fuel switching, and more new drilling targets gas. The demand for gas may increase as the manufacturing and utilities industries switch to gas for cleaner energy and if natural gas prices remain competitive.

MINERAL ROYALTY REVENUE

Royalty is the payment, in value (cash) or in kind (a portion of the commodity), of a stated share of production from mineral deposits by the lessee to the lessor. In other words, royalty is the property owner's (lessor's) share of revenue from minerals produced on his land. Royalty may be an established minimum, a sliding-scale, or a step-scale. A step-scale royalty rate increases by steps as the average production on the lease increases. A sliding-scale royalty rate is based on average production and applies to all production from the lease. State royalties are a combination of established minimum and sliding-scale types.

Figure 8

**LOUISIANA MINERAL ROYALTY REVENUE BY SOURCE,
Excluding Federal OCS**



The previous plot, Figure 8, shows historical and estimated future fiscal year mineral royalty revenue by source. Historical data are listed in Appendix F.

The following table shows a total mineral royalty revenue estimated base case for FY1998/99 through FY2003/04, and actual mineral royalty revenue for FY1997/98. The low and high cases for oil and gas royalty revenue are shown in the following paragraphs.

Table 7

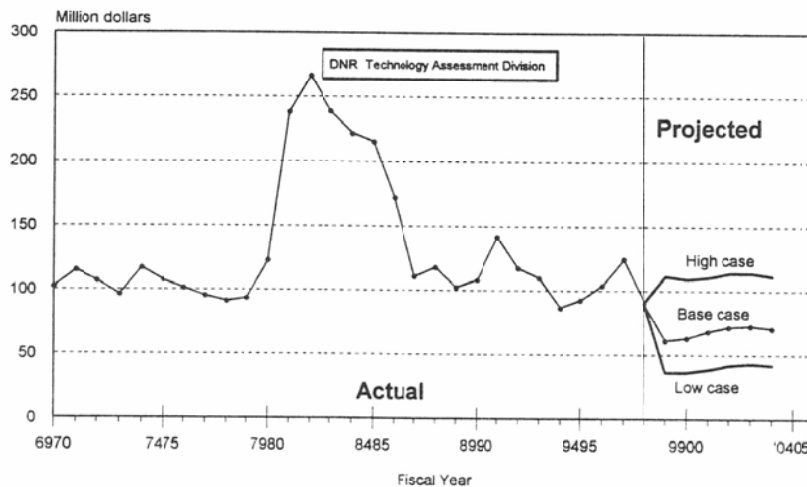
Louisiana Royalty Revenue Estimates
(Dollars)

	Crude Oil	Natural Gas	Plant Products	Total
FY1997/98	90,016,613	141,794,982	4,001,489	235,813,084
FY1998/99	63,506,068	89,485,908	4,915,714	157,907,690
FY1999/00	65,008,915	98,228,199	4,915,714	168,152,829
FY2000/01	68,442,414	99,282,213	4,915,714	172,640,342
FY2001/02	71,108,554	95,819,756	4,915,714	171,844,024
FY2002/03	72,308,804	94,805,870	4,915,714	172,030,388
FY2003/04	70,294,877	93,417,237	4,915,714	168,627,828

CRUDE OIL ROYALTY

Figure 9

LOUISIANA CRUDE OIL AND CONDENSATE ROYALTY REVENUE, Excluding Federal OCS



Historical fiscal year crude oil royalty revenue from FY79/80 through FY97/98 is listed in Appendix F. Also, the percentage changes from the previous period are listed. Crude oil royalty revenue estimates for FY1998/99 through FY2002/03 at multiple assumed oil prices are listed in Appendix G.

The estimated crude oil royalty revenue was calculated using the forecasted oil production from the DNR Technology Assessment Division **short term** models and oil price projections

discussed in the price chapter. The estimated fiscal year crude oil royalty revenue from FY1998/99 through FY03/04 are as follows.

Table 8

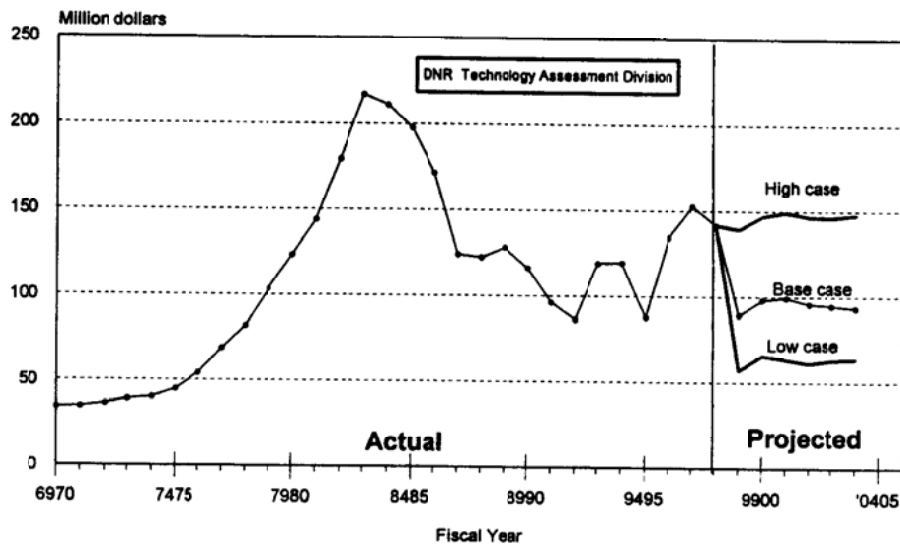
**Louisiana Crude Oil Royalty Estimates
(Dollars)**

	Base Case	Percent Change	Low Case	High Case
FY1997/98	90,016,613	-27.78%	N/A	N/A
FY1998/99	63,506,068	-29.45%	53,697,761	84,339,487
FY1999/00	65,008,915	2.37%	36,719,197	108,902,966
FY2000/01	68,442,414	5.28%	39,149,712	110,663,272
FY2001/02	71,108,554	3.90%	42,403,450	113,892,149
FY2002/03	72,308,804	1.69%	43,421,536	114,135,691
FY2003/04	70,294,877	-2.78%	42,384,033	111,454,856

We believe our estimates of production and prices are conservative. As always, changing world events might cause price or demand to rise or fall sharply and supply to remain constant or decrease. Given this possibility, prices can also move faster than expected.

Figure 10

**LOUISIANA NATURAL GAS AND CASINGHEAD GAS
ROYALTY REVENUE, Excluding Federal OCS**



NATURAL GAS ROYALTY

The gas royalty revenue estimates are highly speculative due to the probability of significant market factor influences and changes that cannot be accurately predicted. The estimated natural gas royalty revenue was calculated using the gas production volumes forecasted by the DNR Technology Assessment Division models, and gas price projections discussed in the price chapter.

Historical fiscal year natural gas royalty revenue from FY79/80 through FY97/98 is listed in Appendix F. Also, the percentage changes from the previous period are listed. Table 9 lists the estimated natural gas royalty revenue from FY98/99 through FY03/04, and the actual royalty revenue for FY1997/98. Natural gas royalty revenue estimates for FY1998/99 through FY2002/03 at multiple assumed gas prices are listed in Appendix G.

Table 9

Louisiana Natural Gas Royalty Estimates (Dollars)

	Base Case	Percent Change	Low Case	High Case
FY1997/98	141,794,982	-7.19%	N/A	N/A
FY1998/99	89,485,908	-36.89%	56,905,083	99,158,541
FY1999/00	98,228,199	9.77%	66,025,881	147,049,051
FY2000/01	99,282,213	1.07%	63,616,810	149,200,386
FY2001/02	95,819,756	-3.49%	61,385,032	146,424,174
FY2002/03	94,805,870	-1.06%	63,365,658	146,251,414
	93,417,237	-1.46%	63,891,689	147,748,702

The above royalty estimates may be low if average gas prices are higher than projected, gas production goes higher than forecasted by DNR Technology Assessment Division models, oil prices recover from the present slump, or U.S. gas demand increases faster than predicted by the American Gas Association.

NON-HYDROCARBON MINERALS ROYALTY

Royalty revenue produced from salt, sulfur and other non-hydrocarbon minerals was: \$1.9 million in 1986, \$1.6 million in 1987, \$1.3 million in 1988, \$1.4 million in 1989, \$0.9 million in 1990, and \$0.4 million in 1991. The last active non-hydrocarbon lease on state owned land or water bottom was in Jefferson Parish. It ceased operations on September 30, 1991. No royalty revenue is expected from salt, sulfur and other non-hydrocarbons in the near future.

PLANT PRODUCTS ROYALTY

The plant products (natural gas liquids) royalty revenue is dependent on oil for its value and gas production for its volume. The forces that control oil prices and gas production will also control plant products production and its royalty revenue. The Technology Assessment Division has not developed a mathematical model or empirical equation for projecting gas liquids production. Therefore, no definitive estimate of plant products royalty revenue is available. The average annual plant products royalty revenue over the past five years was \$4.9 million. We assumed that the state can at least reach this level of revenue from plant products royalty each year for the next three years.

Historical fiscal year plant products royalty revenue from FY79/80 through FY97/98 is listed in Appendix F. Also, the percentage changes from the previous period are listed.

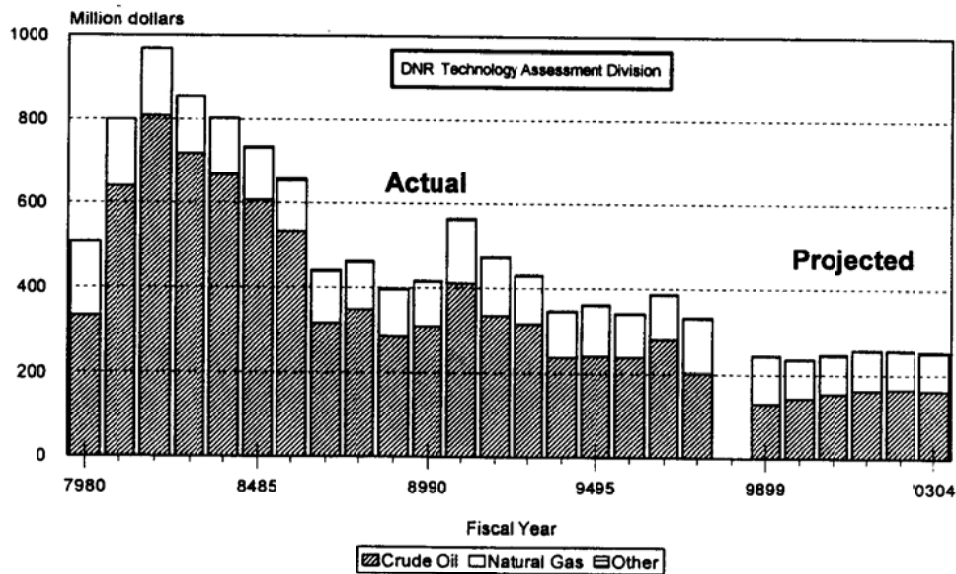
SEVERANCE TAX REVENUE

Severance tax is levied on production of natural resources taken from land or water bottoms within the territorial boundaries of the state. The state collects no severance from production in federal waters in the Gulf which start three miles from the Louisiana coast line. Natural resources are minerals, other natural deposits, rock salt and salt content in brine, and all forms of timber, including pulp woods, and turpentine and other forest products. Severance tax is paid by the owners of the natural resources at the time of severance. Only revenue from minerals such as oil, gas, natural gasoline, distillate, condensate, casinghead gas, sulphur, salt, coal, lignite, and ores is considered in this chapter.

The following plot, Figure 11, shows historical fiscal year mineral severance tax revenue year mineral severance tax revenue by source and estimates of future severance tax revenue. Further historical severance tax data is provided in Appendix F.

Figure 11

LOUISIANA MINERAL SEVERANCE TAX REVENUE BY SOURCE, Excluding Federal OCS



The total severance tax revenue estimates are dependent on oil and gas production volumes and their market values. The oil and gas production volumes and prices used to estimate the severance revenue were forecasted by the DNR Technology Assessment Division models.

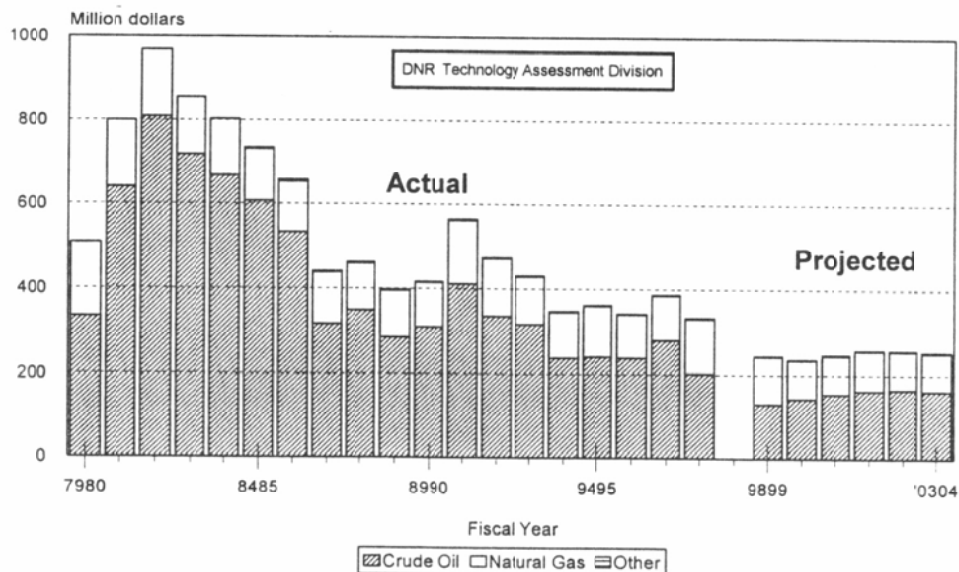
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The total severance tax revenue estimates are dependent on oil and gas production volumes and their market values. The oil and gas production volumes and prices used to estimate the severance revenue were forecasted by the DNR Technology Assessment Division models.

The following table is the estimated base case total mineral severance tax revenue for FY1998/99 through FY2003/04, and actual severance tax revenue for FY1997/98. The possible low and high for oil and gas severance tax revenue are shown in the following paragraphs.

Table 10

Louisiana Severance Tax Revenue Estimates
(Dollars)

	Crude Oil	Natural Gas	Non Hydrocarbon	Total
FY1997/98	203,551,197	128,447,106	1,672,152	333,670,455
FY1998/99	125,600,104	114,210,332	1,859,498	241,669,934
FY1999/00	147,870,400	92,658,105	1,859,498	242,388,003
FY2000/01	154,726,184	92,024,535	1,859,498	248,610,217
FY2001/02	161,133,896	94,711,856	1,859,498	257,705,250
FY2002/03	164,982,869	91,468,758	1,859,498	258,311,125
FY2003/04	161,707,455	90,417,261	1,859,498	253,984,214

CRUDE OIL SEVERANCE TAX

The severance tax on oil severed from the land or water bottoms is levied based on the value (gross receipts received from the first purchaser, less charges for trucking, barging and pipeline fees) of the products. The standard transportation allowance is \$0.25 per barrel regardless of its actual cost. The following estimated oil severance revenue was calculated using oil production volumes forecasted by the DNR Technology Assessment Division **short term** models and oil price projections discussed in the price chapter.

Table 11

Louisiana Crude Oil Severance Tax Estimates
(Dollars)

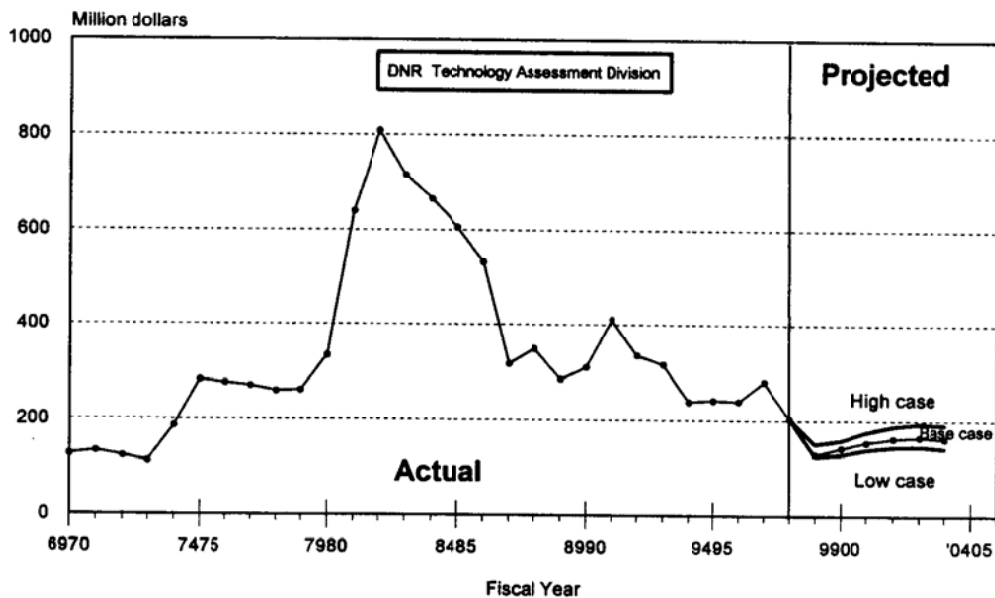
	Base Case	Percent Change	Low Case	High Case
FY1997/98	203,551,197	-27.63%	N/A	N/A
FY1998/99	125,600,104	-39.35%	118,992,524	134,600,869
FY1999/00	147,870,400	19.78%	134,264,974	166,427,837
FY2000/01	154,726,184	4.64%	139,266,567	176,462,454
FY2001/02	161,133,896	4.14%	143,154,753	185,950,200
FY2002/03	164,982,869	2.39%	145,498,131	193,170,054
FY2003/04	161,707,455	-1.99%	141,301,491	190,745,222

Table 11 lists the estimated crude oil severance tax revenue for FY1998/99 through FY2003/04, and actual severance tax revenue for FY1997/98. Figure 12 shows historical oil severance tax revenue by fiscal year. Crude oil severance tax revenue estimates for FY1998/99 through FY2002/03 at multiple assumed oil prices are listed in Appendix G.

The estimated crude oil severance tax revenue may turn out low if the price of oil increases, foreign oil imports remain at the present level, and domestic demand for oil increases. Severance tax revenue from stripper wells was excluded in the above estimates because oil prices are projected to be under \$20 per barrel for the next several years. (Act 2 of 1994 exempted stripper oil wells from severance tax when the price of oil is less than \$20 per barrel.) Historical fiscal year crude oil severance tax revenue is shown in Appendix F.

Figure 12

**LOUISIANA CRUDE OIL SEVERANCE TAX REVENUE,
Excluding Federal OCS**



NATURAL GAS SEVERANCE TAX

The severance tax on natural gas severed from the land or water bottoms is levied based on gas volumes or equivalent gas volumes of natural gasoline, casinghead gasoline, and other natural gas liquids, including but not limited to ethane, methane, butane or propane. Volume is measured at a base pressure of 15.025 pounds per square inch (psi) absolute and at the temperature base of 60 degrees Fahrenheit; provided that whenever the conditions of pressure

and temperature differ from the above bases, conversion of the volume from these conditions to the above bases shall be made following the Ideal Gas Law with correction for deviation from Boyle's Law.

Table 12 shows the estimated natural gas severance tax revenue for FY1998/99 through FY2003/04, and actual severance tax revenue for FY1997/98. Figure 13 shows historical gas severance tax revenue by fiscal year. Natural gas severance tax revenue estimates for FY1998/99 through FY2002/03 at multiple assumed gas prices are listed in Appendix G.

Table 12

Louisiana Natural Gas Severance Tax Estimates
(Dollars)

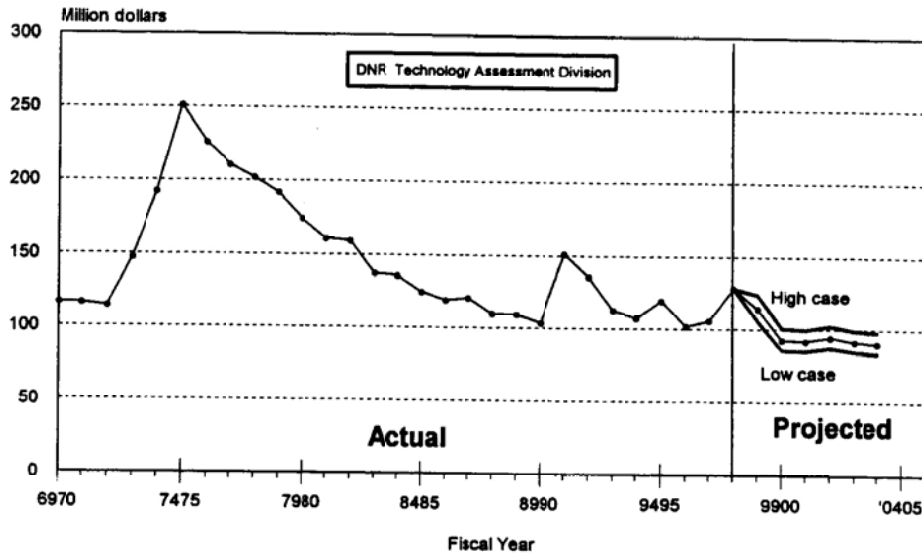
	Base Case	Percent Change	Low Case	High Case
FY1997/98	128,447,106	21.52%	N/A	N/A
FY1998/99	114,210,332	-11.08%	105,752,633	124,086,242
FY1999/00	92,658,105	-18.87%	85,786,446	99,881,059
FY2000/01	92,024,535	-0.68%	85,290,372	99,881,059
FY2001/02	94,711,856	2.92%	87,878,767	102,680,352
FY2002/03	91,468,758	-3.42%	84,841,665	99,193,713
FY2003/04	90,417,261	-1.15%	83,851,341	98,067,642

The above estimated gas severance tax revenue was calculated using gas production volumes forecasted by the DNR Technology Assessment Division **short term** models and gas price projections discussed in the price chapter. Historical fiscal year natural gas severance tax revenue is shown in Appendix F.

The estimated gas severance tax revenue may turn out to be low if the economy continues its present recovery, the annual average gas price is greater than \$2.00 per MCF, the crude oil price per barrel stays at present levels or goes higher making it uneconomical to switch to residual oil from natural gas, gas production volume deviates from the base level forecasted by the DNR Technology Assessment Division **short term** model, and gas demand increases more than predicted by the AGA.

FIGURE 13

**LOUISIANA NATURAL GAS SEVERANCE TAX REVENUE,
Excluding Federal OCS**



PLANT PRODUCTS SEVERANCE TAX

All natural gas liquids or plant products are taxed at the natural gas rate at a calculated equivalent gaseous volume. Severance tax revenue from these liquids is included with natural gas revenue figures.

NON-HYDROCARBON MINERALS SEVERANCE TAX

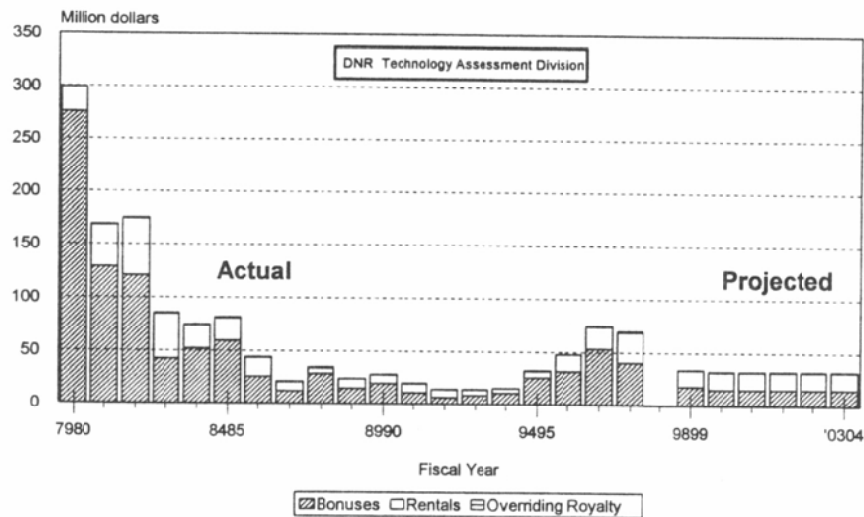
Other minerals that pay severance tax are coal, lignite, ore, salt and sulfur. The expected severance tax revenue from these minerals for FY1998/99 through FY2003/04 is around \$1.9 million per year. The \$1.9 million figure is the average annual non-hydrocarbon mineral severance tax revenue over the past five years. The non-hydrocarbon severance tax revenue historical figures is shown in Appendix F.

BONUS, RENTAL & OVERRIDING ROYALTY REVENUE

Major sources of Louisiana mineral income are royalties and severance taxes, which were discussed in the previous chapter. This chapter covers the mineral income from bonuses, rentals and overriding royalties (BR&O). The prospect of getting high bonuses or rentals is slimmer in the future than in the past, because Louisiana is an old and well developed oil and gas producing province. It is possible that Louisiana can get high bonuses for some offshore tracts, but it is not likely under the present oil and gas market conditions. The historical data on bonuses, rentals, and overriding royalties do not have a pattern. It is unlikely that it would ever be effective to try to develop mathematical models that represent their behavior.

Figure 14

LOUISIANA BONUS, RENTAL AND OVERRIDING ROYALTY REVENUE, Excluding Federal OCS



The above plot, Figure 14, shows historical and estimated future fiscal year bonus, rental and overriding royalty revenue by source. Historical data are shown in Appendix F.

BONUS REVENUE

A bonus is a cash payment by the lessee for the execution of a lease. A lease is a contract that gives a lessee the right to: (a) search for minerals, (b) develop the surface for extraction, and (c) produce minerals within the area covered by the contract. The projected bonus revenue for FY1998/99 is \$18.0 million. The lowest revenue figure of the past five calendar years was chosen as the projected revenue for FY1999/00 through FY2003/04. The expected revenue is \$15.3 million per fiscal year.

RENTAL REVENUE

A rental is money paid by the lessee to maintain the lease after the first year if it is not producing or under development. A lease is considered expired when rental is not paid on time on an unproductive lease. The projected rental revenue FY1998/99 is \$16.0 million. The annual projected rental revenue for FY1999/00 through FY2003/04 is the average revenue of the past five calendar years. The average is \$16.9.

OVERRIDING ROYALTY REVENUE

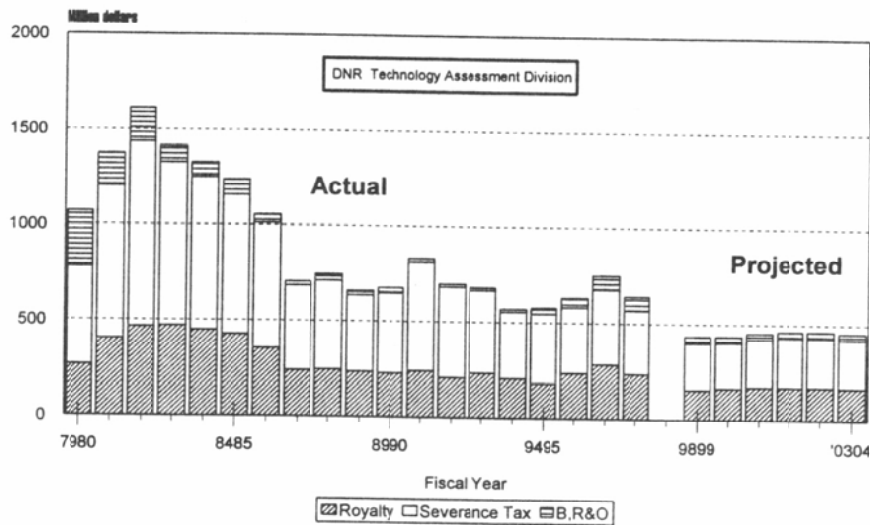
An overriding royalty or royalty override is an interest in oil and gas produced at the surface free of any cost of production. It is royalty in addition to the usual landowner's royalty reserved to the lessor. The *Layman's Guide to Oil & Gas* by Brown and Miller defines overriding royalty as a percentage of all revenue earned by a well and carrying no cost obligation. The average revenue figure of the past five calendar years was chosen as the expected revenue for FY1998/99 through FY2003/04. The expected revenue is \$0.4 million per fiscal year.

TOTAL MINERAL REVENUE

Louisiana produces crude oil, natural gas, sulfur, salt, gravel, and lignite. The state takes in revenue: 1) Directly from production of mineral resources when they are produced within the state boundaries. If the minerals are produced from lands owned by the state or from water bottoms, the state receives additional revenue. 2) Indirectly from production of mineral resources from lands owned by the federal government within state boundaries, in which case the state receives a 50% share of the royalty revenue. From the Federal OCS, Louisiana only receives revenue from the 8g section which lies between 3 miles and 6 miles from shore. These are further discussed in Appendix C.

Figure 15

LOUISIANA TOTAL FISCAL YEAR REVENUE FROM MINERAL PRODUCTION, Excluding Federal OCS



STATE BOUNDARIES

Minerals produced within the state boundaries provide direct revenues to the state in the following forms:

- Severance taxes on all minerals production.
- Bonuses before leasing the land, if on state properties.

- Rentals after leasing if it is not in production or under active development, if on state properties.
- Royalties and overrides if it is in production, if on state properties.
- A share of the mineral revenue (bonus, rental and royalty), for federal properties if the deposit is on federal public lands, lands administrated by the U.S. Army Corps of Engineers, or military lands.

The main objective of this report is to focus on oil and gas production and its effects on severance tax, royalties on state lands, and bonuses and rentals on state leases. In this report we refer to **the sum of royalties on state lands, severance taxes, and BR&O** as Total State Mineral Revenue. These revenues were discussed in previous chapters.

Total state mineral revenue will have a very hard time ever matching the FY1981/82 level because oil and gas production is declining, price increases are not proportional to production declines, most Louisiana producing fields are mature, and the cost of finding new fields is high. The expected total revenue from minerals production is \$442.24 million in FY1998/99, \$443.25 million in FY1999/00, and \$453.96 in FY2000/01. The preceding plot, Figure 15, shows fiscal year total mineral revenue by type.

State oil and gas production peaked in FY1970/71, at 577 million barrels for oil and 5.5 trillion cubic feet for gas. Mineral revenue peaked in FY1981/82 at \$1.61 billion. In FY1981/82, average oil prices were around \$35.00 per barrel and average gas prices around \$2.00 per MCF; oil production was 194 million barrels and gas production was 2.44 trillion cubic feet. Oil and gas production in FY1980/81 was less than half of FY1970/71 production. Gas production in FY1997/98 was less than a third of FY1970/71 production, and oil production in FY1997/98 was less than a quarter of FY1970/71 production. Barring some kind of breakthrough development, this decline will continue.

The \$1.61 billion state revenue from mineral resources in FY1981/82 will be very hard to ever repeat, even if the price of oil goes back to \$35.00 per barrel tomorrow. The major dollar component in mineral revenue comes from oil production as shown in Figures 8 and 11. Louisiana state oil production has dropped 30.9% in the last decade. In FY1984/85 it was around 186 million barrels. In FY1997/98 oil production dropped to 133 million barrels. Oil prices will not be above \$25.00 per barrel until 2015 according to projections by the U.S. Department of Energy.

The following table shows actual revenue from fiscal year FY1979/80 through FY1997/98, and estimated revenue from FY1998/99 through FY2003/04, and the percent changes in mineral revenue from the previous year.

Table 13

**Louisiana Total Fiscal Year Mineral Revenue,
Excluding Federal Lands & OCS
(Million Dollars)**

YEAR	TOTAL ROYALTY	TOTAL SEVERANCE	BONUS, RENTAL & OVERRIDE	TOTAL REVENUE	PERCENT CHANGE
FY1979/80	265.49	508.96	297.06	1,071.51	46.27%
FY1980/81	403.19	803.22	168.94	1,375.35	28.36%
FY1981/82	464.64	971.15	175.21	1,611.01	17.13%
FY1982/83	471.17	857.64	85.24	1,414.04	-12.23%
FY1983/84	448.72	805.47	74.29	1,328.48	-6.05%
FY1984/85	426.36	734.59	81.26	1,242.21	-6.49%
FY1985/86	354.64	656.56	44.39	1,055.59	-15.02%
FY1986/87	241.54	440.76	21.19	703.48	-33.36%
FY1987/88	246.74	462.45	34.71	743.89	5.74%
FY1988/89	236.14	397.61	24.15	657.90	-11.56%
FY1989/90	229.15	416.72	28.18	674.06	2.46%
FY1990/91	242.88	565.35	19.71	827.94	22.83%
FY1991/92	208.42	473.42	14.13	695.97	-15.94%
FY1992/93	233.79	430.90	14.02	678.71	-2.99%
FY1993/94	207.69	348.13	15.38	571.20	-15.84%
FY1994/95	183.11	363.42	32.89	579.42	1.44%
FY1995/96	238.38	343.41	47.41	629.20	8.59%
FY1996/97	285.03	388.78	74.23	748.04	18.89%
FY1997/98	235.81	333.67	70.01	639.50	-14.51%
FY1998/99*	157.91	241.67	34.43	434.00	-32.13%
FY1999/00*	168.15	242.39	32.71	443.25	2.13%
FY2000/01*	172.64	248.61	32.71	453.96	2.42%
FY2001/02*	171.84	257.71	32.71	462.26	1.83%
FY2002/03*	172.03	258.31	32.71	463.05	0.17%
FY2003/04*	168.63	253.98	32.71	455.33	-1.67%

* Estimated

Table 14

Assumptions:

Values used in the calculation of Louisiana total mineral revenue

YEAR	OIL PRICE (\$/Barrel)	GAS PRICE (\$/MCF)	SEVERANCE TAX	
			OIL FULL RATE (% of value)	GAS FULL RATE (\$/MCF)
FY1998/99	12.00	1.80	12.500%	0.093
FY1999/00	13.00	2.05	12.500%	0.078
FY2000/01	14.25	2.15	12.500%	0.079
FY2001/02	15.40	2.15	12.500%	0.083
FY2002/03	16.30	2.20	12.500%	0.083
FY2003/04	16.50	2.25	12.500%	0.085