

Kansas Geological Survey  
Open File Report 93-8

**Proposed modifications to the severance tax  
on Kansas natural gas production:  
An analysis of fiscal impacts**

by

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March 12, 1993

## **Background**

In 1983 the Kansas legislature imposed an excise tax upon the severance and production of several minerals, including crude oil and natural gas. The law was designed to include several features which would minimize negative effects of the tax on production of crude oil and natural gas. These included specific exemptions for new pool production and marginal low producing wells. These exemptions have been modified in various details since the enactment of the original statute.

While the statute provides that the rate of such tax shall be 8% of the gross value of oil or gas production subject to the tax, specific credits against that tax were granted to oil and gas producers whose producing properties were subject to county ad valorem property taxes. These credits were in the amounts of 3.67% of the gross value of oil produced and 1% of the gross value of natural gas.

These credits were established in recognition that the ad valorem property taxes (due to the nature of the process used in determining the assessed value of a producing property) were essentially taxes on the gross value of production. The difference in the amount of credits provided for crude oil and natural gas was a reflection of market conditions in 1983 and a consequence of the geographic concentration of most of the state's natural gas production in the southwest corner of Kansas.

Market conditions and contracts for purchase of natural gas allowed much of the burden of the severance tax to be passed on to consumers, rather than being absorbed by the producer. This was not true for crude oil production and sales. The geographic concentration of most of Kansas' natural gas production in a few lightly populated counties gave those counties extremely high assessed valuations relative to county revenue needs. As a result, a high percentage of natural gas production was thought to be subject to lower effective property taxes as a percent of gross value of production.

Significant changes have occurred in these circumstances since 1983. Gas contracts no longer allow pass through of taxes. In addition, average mill levies on natural gas have increased relative to crude oil due primarily to

the recent statewide equalization of mill levies for public school finance. The major natural gas producing counties experienced the greatest increases in mill levies under this plan while most counties with significant oil production experienced decreases in mill levies.

It has also been recognized that important differences exist in procedures for assessing the value of natural gas producing properties and of oil producing properties. As a result of these differences, natural gas producing properties will generally pay a higher property tax as a percentage of the gross value of production than will an oil producing property subject to the same county mill levy.

### **1993 Legislative Session**

In the 1993 session of the Kansas Legislature, various bills have been considered which would eventually equalize the credit for ad valorem property taxes available to oil and gas producers against the severance tax. These proposals have filtered down to the form currently included in Senate Bill 203 (SB203). That bill has passed the Senate and is now being considered by the House.

As proposed in SB203, the credit allowed for natural gas producers against the severance tax would increase from 1% to 2% for fiscal year 1994. It would then increase to 3% for fiscal year 1995 and to 3.67%, the same as oil, for fiscal year 1996.

There is a two month lag between production of crude oil or natural gas and the payment of taxes on that production. As a result, receipts in the first two months of a fiscal year in which a change in tax rates takes effect would not be effected by the change. In addition, the final effect of the change would not be experienced until the first two of the following fiscal year. Therefore, the full effect of increased credits proposed in SB203 will occur in fiscal year 1997.

The Legislative Research Department provided a fiscal note for SB203 on January 23, 1993. An alternative fiscal note was developed in February by a consensus group assembled by Kansas Inc. The conclusions of this group were that Legislative Research had generally underestimated demand for Kansas natural gas.

Since then, new information regarding expected market conditions for Kansas natural gas has become available. This information differs significantly from the information used in formulating consensus group estimates. In particular, evidence suggests that both production and price of Kansas natural gas will be above previous estimates. I have therefore revised the Survey's estimate of the fiscal note associated with the proposed modifications of the effective severance tax rates on Kansas natural gas. Details are presented on pages "(KGS), p.1" through "(KGS), p.8." In addition, summary tables are presented on pages "(KGS), p.9" and "(KGS), p.10" comparing the Survey's revised estimates with the estimates prepared by Legislative Research in January and by the Kansas Inc. consensus group in February.

The information on which this revision is based has been obtained primarily from the Oil and Gas Conservation Division of the Kansas Corporation Commission. Market demand hearings scheduled for Thursday, March 17, should provide further supporting information.

Nominations for Kansas natural gas production during the next two winters are 30 to 40 billion cubic feet higher than current levels. Nominations represent willingness and ability of the producers to deliver natural gas to their markets. This increase is a reflection of improved market access (particularly by Anadarko) and increased production capacity resulting from infill wells drilled in the Hugoton Gas Area (notably AMOCO). In addition, the deregulation of natural gas prices is eliminating much of the bias which would discourage marketing of lower priced Hugoton gas during slack demand periods. The long range outlook for U.S. natural gas demand is considered good because of the strong environmental concerns of the Clinton administration.

It is anticipated that the expected price range for Kansas natural gas to be reported by the Corporation Commission next week will be shifted up significantly from the previously estimated range. This change is reflected in the prices used in this report.

**Notes:**

1. The revised estimates of gross production, for both the February and March estimates, assume that the increased credits for ad valorem property taxes as proposed in SB203 are in effect. The revised estimates indicate gross value of production and tax revenue from a 7% effective severance tax as if production would be at the same level estimated with increased credits in effect. In reality, production level estimates should be slightly lower with the 7% effective tax, resulting in slightly lower fiscal notes than stated in this report.
2. It is assumed that the revised price estimates would not be effected by any particular tax credit or effective severance tax rate.
3. As indicated throughout the revised estimates, there is a two month lag between natural gas production and receipt of tax revenues. When the effective severance tax rate changes at the beginning of a fiscal year, the first two months receipts for that fiscal year will be from production taxed at the previous rate. Therefore, all estimates of production, price, gross value and taxable value are estimates for the twelve month period beginning two months before the beginning of the fiscal year.

**Fiscal note estimates for provisions in SB203 which would increase the credits for ad valorem property taxes against the severance tax on natural gas:**

The original budget estimates for FY94 assume the following:

Severance tax on natural gas:

Gross production:	630,000,000 mcf	
Price:	\$1.55 per mcf	
Gross value:	\$976,500,000	
Taxable value (92.5%)	\$903,263,000	
<b>Revenue (7%):</b>	\$63,228,000	<b><u>1st estimate</u></b>
State Gen. Fund (93%):	\$58,802,000	
CMPTF (7%):	\$4,426,000	

The fiscal note for FY94 would be 1% of taxable value reduced by a factor of 10/12 to account for the 2 month lag in receipts:

Taxable value:	\$903,263,000
<b>Tax loss (1%x10/12)</b>	<b>\$7,527,000</b>

This figure includes \$7,000,000 lost to State General Fund, as indicated in the January 26, 1993, fiscal note.

Staying with the original estimate, this would yield revenue as follows:

Taxable value (92.5%)	\$903,263,000	
Revenue (7%x2/12)	\$10,538,000	
Revenue (6%x10/12):	\$15,163,000	
<b>Total Revenue:</b>	\$55,701,000	<b>(-\$7,527,000 1st est.)</b>
State Gen. Fund (93%):	\$51,802,000	
CMPTF (7%):	\$3,899,000	

The revised estimates for FY94 assume the following:

Severance tax on natural gas:

Gross production:	660,000,000	mcf
Price:	\$1.70	per mcf
Gross value:	\$1,122,000,000	
Taxable val. (92.5%):	\$1,037,850,000	
<b>Revenue (7%):</b>	\$72,650,000	(+\$9,422,000 1st est.)
State Gen. Fund (93%):	\$67,565,000	
CMPTF (7%):	\$5,085,000	

The fiscal note for FY94 would be 1% of taxable value reduced by a factor of 10/12 to account for the 2 month lag in receipts:

Taxable value:	\$1,037,850,000
<b>Tax loss</b> (1%x10/12)	\$8,649,000

Based on this revised estimate, this would yield revenue as follows:

Taxable val. (92.5%):	\$1,037,850,000	
Revenue (7%x2/12)	\$12,108,000	
Revenue (6%x10/12)	\$51,892,000	
<b>Total Revenue:</b>	\$64,000,000	(+\$772,000 1st est.)
State Gen. Fund (93%):	\$59,520,000	
CMPTF (7%):	\$4,480,000	

The original budget estimates for FY95 assume the following:

Severance tax on natural gas:

Gross production:	630,000,000 mcf	
Price:	\$1.55 per mcf	
Gross value:	\$976,500,000	
Taxable value (92.5%)	\$903,263,000	
<b>Revenue (7%):</b>	<b>\$63,228,000</b>	<b><u>1st estimate</u></b>
State Gen. Fund (93%):	\$58,802,000	
CMPTF (7%):	\$4,426,000	

The fiscal note for FY95 would be 1% of taxable value reduced by a factor of 2/12 and 2% of taxable value reduced by a factor of 10/12 to account for the 2 month lag in receipts:

Taxable value:	\$903,263,000
Tax loss (1%x2/12)	\$1,505,400
Tax loss (2%x10/12)	\$15,054,400
<b>Total tax loss:</b>	<b>\$16,560,000</b>

This figure includes \$15,400,000 lost to State General Fund, as indicated in the January 26, 1993, fiscal note.

Staying with the original estimate, this would produce revenue as follows:

Taxable value (92.5%)	\$903,263,000
Revenue (6%x2/12):	\$9,033,000
Revenue (5%x10/12):	\$37,636,000
<b>Total revenue:</b>	<b>\$46,669,000</b>
State Gen. Fund (93%):	\$43,402,000
CMPTF (7%):	\$3,267,000

The revised estimates for FY95 assume the following:

Severance tax on natural gas:

Gross production:	680,000,000 mcf	
Price:	\$1.80 per mcf	
Gross value:	\$1,224,000,000	
Taxable val. (92.5%):	\$1,132,200,000	
<b>Revenue (7%):</b>	\$79,250,000	(+\$16,022,000 1st est.)
State Gen. Fund (93%):	\$73,703,000	
CMPTF (7%):	\$5,547,000	

The fiscal note for FY95 would be 1% of taxable value reduced by a factor of 2/12 and 2% of taxable value reduced by a factor of 10/12 to account for the 2 month lag in receipts:

Taxable value:	\$1,132,200,000
Tax loss (1%x2/12)	\$1,887,000
Tax loss (2%x10/12)	\$18,870,000
<b>Total tax loss:</b>	\$20,757,000

Based on this revised estimate, this would produce revenue as follows:

Taxable val. (92.5%)	\$1,132,200,000	
Revenue (6%x2/12):	\$11,322,000	
Revenue (5%x10/12)	\$47,175,000	
<b>Total Revenue:</b>	\$58,497,000	(-\$4,731,000 1st est.)
State Gen. Fund (93%):	\$54,402,000	
CMPTF (7%):	\$4,095,000	

The original budget estimates for FY96 assume the following:

Severance tax on natural gas:

Gross production:	630,000,000 mcf	
Price:	\$1.55 per mcf	
Gross value:	\$976,500,000	
Taxable value (92.5%)	\$903,263,000	
<b>Revenue (7%):</b>	<b>\$63,228,000</b>	<b><u>1st estimate</u></b>
State Gen. Fund (93%):	\$58,802,000	
CMPTF (7%):	\$4,426,000	

The fiscal note for FY96 would be 2% of taxable value reduced by a factor of 2/12 and 2.67% of taxable value reduced by a factor of 10/12 to account for the 2 month lag in receipts:

Taxable value:	\$903,263,000
Tax loss (2%x2/12)	\$3,010,900
Tax loss (2.67%x10/12)	\$20,097,600
<b>Total tax loss:</b>	<b>\$23,108,500</b>

This figure includes \$21,500,000 lost to State General Fund, as indicated in the January 26, 1993, fiscal note.

Staying with the original estimate, this would produce revenue as follows:

Taxable value (92.5%)	\$903,263,000
Revenue (5%x2/12):	\$7,527,000
Rev. (4.33%x10/12):	\$32,593,000
<b>Total revenue:</b>	<b>\$40,120,000</b>
State Gen. Fund (93%):	\$37,312,000
CMPTF (7%):	\$2,808,000

The revised estimates for FY96 assume the following:

Severance tax on natural gas:

Gross production:	690,000,000	mcf
Price:	\$1.80	per mcf
Gross value:	\$1,242,000,000	
Taxable val. (92.5%):	\$1,148,850,000	
<b>Revenue (7%):</b>	<b>\$80,420,000</b>	<b>(+\$17,192,000 1st est.)</b>
State Gen. Fund (93%):	\$74,791,000	
CMPTF (7%):	\$5,629,000	

The fiscal note for FY96 would be 2% of taxable value reduced by a factor of 2/12 and 2.67% of taxable value reduced by a factor of 10/12 to account for the 2 month lag in receipts:

Taxable value:	\$1,148,850,000
Tax loss (2%x2/12)	\$3,829,000
Tax loss (2.67%x10/12)	\$25,562,000
<b>Total tax loss:</b>	<b>\$29,391,000</b>

Based on this revised estimate, this would produce revenue as follows:

Taxable val. (92.5%)	\$1,148,850,000	
Revenue (5%x2/12):	\$9,574,000	
Rev. (4.33%x10/12):	\$41,454,000	
<b>Total Revenue:</b>	<b>\$51,028,000</b>	<b>(-\$12,200,000 1st est.)</b>
State Gen. Fund (93%):	\$47,456,000	
CMPTF (7%):	\$3,572,000	

The original budget estimates for FY97 assume the following:

Severance tax on natural gas:

Gross production:	630,000,000 mcf	
Price:	\$1.55 per mcf	
Gross value:	\$976,500,000	
Taxable value (92.5%):	\$903,263,000	
<b>Revenue (7%):</b>	<b>\$63,228,000</b>	<b><u>1st estimate</u></b>
State Gen. Fund (93%):	\$58,802,000	
CMPTF (7%):	\$4,426,000	

The fiscal note for FY97 would be 2.67% of taxable value:

Taxable value:	\$903,263,000
<b>Tax loss (2.67%)</b>	<b>\$24,117,000</b>

This figure includes \$22,400,000 lost to State General Fund, as indicated in the January 26, 1993, fiscal note.

Staying with the original estimate, this would produce revenue as follows:

Taxable value (92.5%)	\$903,263,000
<b>Revenue (4.33%):</b>	<b>\$39,111,000</b>
State Gen. Fund (93%):	\$36,373,000
CMPTF (7%):	\$2,738,00

The revised estimates for FY97 assume the following:

Severance tax on natural gas:

Gross production:	690,000,000	mcf
Price:	\$1.80	per mcf
Gross value:	\$1,242,000,000	
Taxable val. (92.5%):	\$1,148,850,000	
<b>Revenue (7%):</b>	\$80,420,000	(+\$17,192,000 1st est.)
State Gen. Fund (93%):	\$74,791,000	
CMPTF (7%):	\$5,629,000	

The fiscal note for FY97 would be 2.67% of taxable value:

Taxable value:	\$1,148,850,000
<b>Tax loss (2.67%)</b>	\$30,674,000

Based on this revised estimate, this would produce revenue as follows:

Taxable val. (92.5%)	\$1,148,850,000	
<b>Revenue (4.33%):</b>	\$49,745,000	(-\$13,483,000 1st est.)
State Gen. Fund (93%):	\$46,263,000	
CMPTF (7%):	\$3,482,000	

**SUMMARY TABLES FOR COMPARISON OF ESTIMATES****Kansas natural gas production estimates (billion cubic feet)**

FY	Legislative Res. (January)	Kansas Inc. (February)	KGS (March)
'94	630	650	660
'95	630	670	680
'96	630	670	690
'97	630	670	690

**Price estimates (\$ per thousand cubic feet)**

FY	Legislative Res. (January)	Kansas Inc. (February)	KGS (March)
'94	\$1.55	\$1.60	\$1.70
'95	1.55	1.65	1.80
'96	1.55	1.65	1.80
'97	1.55	1.65	1.80

**Gross value estimates (\$ millions)**

FY	Legislative Res. (January)	Kansas Inc. (February)	KGS (March)
'94	\$976.5	\$1,040.0	\$1,122.0
'95	976.5	1,105.5	1,224.0
'96	976.5	1,105.5	1,242.0
'97	976.5	1,105.5	1,242.0

**Taxable value estimates (\$ millions)**  
(using 92.5% of gross, but actually variable)

FY	Legislative Res. (January)	Kansas Inc. (February)	KGS (March)
'94	\$903.3	\$ 962.0	\$1,037.9
'95	903.3	1,022.6	1,132.2
'96	903.3	1,022.6	1,148.9
'97	903.3	1,022.6	1,148.9

**Total tax revenue estimates at current rate of 7%** (\$ millions)

FY	Legislative Res. (January)	Kansas Inc. (February)	KGS (March)
'94	\$63.228	\$67.34	\$72.65
'95	63.228	71.58	79.25
'96	63.228	71.58	80.42
'97	63.228	71.58	80.42

**Total tax revenue estimates using SB203 rates** (\$ millions)

FY	Legislative Res. (January)	Kansas Inc. (February)	KGS (March)
'94	\$55.701	\$59.32	\$64.00
'95	46.669	52.83	58.50
'96	40.120	45.42	51.03
'97	36.373	44.28	49.75

**Fiscal note estimates** (\$ millions)

(Tax revenue at 7%, minus tax revenue using SB203 rates)

FY	Legislative Res. (January)	Kansas Inc. (February)	KGS (March)
'94	\$ 7.527	\$ 8.02	\$ 8.65
'95	16.560	17.04	20.76
'96	20.098	26.16	29.39
'97	24.117	27.30	30.67

**Estimated effect of SB203 rates, relative to initial estimates  
by Legislative Research at current rate of 7%** (\$ millions)

(Tax revenue estimates using SB203 rates, minus Legislative Research estimates at current rate of 7%)

FY	Legislative Res. (January)	Kansas Inc. (February)	KGS (March)
'94	\$ -7.525	\$ -3.91	\$ +0.77
'95	-16.560	-10.39	-4.73
'96	-20.098	-17.81	-12.20
'97	-24.117	-18.95	-13.48

April 14, 1994

**Addendum: KGS Open File Report 93-8**

by Dr. David R. Collins, KGS

At the request of Kansas, Inc., a brief review has been made of the estimates relating to natural gas production, value, and severance tax revenue in Kansas provided in KGS Open File Report 93-8. The results of that review and a subsequent unsolicited review in April, 1994, are reported here as an addendum to KGS Open File Report 93-8.

The 1993 estimates by KGS may have appeared (by comparison to estimates from other sources) overly optimistic at the time, but were considered realistic by the Kansas Geological Survey for all of the reasons given in that open file report. A current evaluation of those estimates leads to the conclusion that the 1993 estimates by KGS were extremely conservative.

Demand for natural gas has been very strong, with the result that market prices have been well above the price of \$1.70 per thousand cubic feet which I estimated for FY'94. The strong demand has had a corresponding effect on production of natural gas in Kansas. Available data for the first few months of FY'94 would suggest that the KGS estimate of 660 billion cubic feet for total FY'94 production will also be low. Recent decisions by the Kansas Corporation Commission regarding production from the Hugoton Gas Area will probably result in further upward modification of production estimates for coming years, although court challenges to those rulings are pending.

A brief evaluation of the current natural gas market, reinforces the conclusion that the estimates made in 1993 are extremely conservative. Gross value of natural gas production should exceed \$1.3 billion for FY'94. Taxable value would then be approximately \$1.2 billion with total severance tax revenue of \$84 million, \$78 million of which would go to state general funds.

Passage of the House Substitute for Senate Bill 324 (Reduction of the Severance Tax on Natural Gas) in the 1994 session of the Kansas Legislature has prompted a follow-up estimate of revenues which would

be anticipated if the tax reduction is phased in with an initial reduction to 6% in FY'95, reaching its full effect with a tax rate of 4.33% in FY'98.

While receipts are not yet complete for FY'94, it appears that the actual receipts for state general funds will be slightly less than the \$78 million mentioned above, they will still be well above the \$67 million projected in KGS Open File Report 93-8.

Actual revenue to state general funds from the severance tax on natural gas ranged from \$49.3 million to \$53 million during the three years (FY'90 - FY'92). This is the period immediately prior to the initial proposal to the 1993 Legislature of a reduction in the effective state severance tax on natural gas.

Estimates of state general fund revenues for FY'98 and beyond, with full implementation of the severance tax reduction contained in the House Substitute to Senate Bill 324, fall in a range between \$49.2 million (based on conservative production and price estimates) and \$59.9 million (based on more optimistic estimates of the industries response to the strong natural gas market). These general fund revenues are, therefore, expected to be in the same range as -- or slightly higher than -- revenues actually received during the period from FY'90 to FY'92.