SEVERANCE TAX SUSPENSION FOR HORIZONTAL WELLS

PERFORMANCE AUDIT SERVICES
INFORMATIONAL REPORT
ISSUED AUGUST 19, 2015

LOUISIANA LEGISLATIVE AUDITOR
1600 NORTH THIRD STREET
POST OFFICE BOX 94397
BATON ROUGE, LOUISIANA 70804-9397

LEGISLATIVE AUDITOR
DARYL G. PURPERA, CPA, CFE

ASSISTANT LEGISLATIVE AUDITOR FOR STATE AUDIT SERVICES
NICOLE B. EDMONSON, CIA, CGAP, MPA

DIRECTOR OF PERFORMANCE AUDIT SERVICES
KAREN LEBLANC, CIA, CGAP, MSW

FOR QUESTIONS RELATED TO THIS PERFORMANCE AUDIT, CONTACT KAREN LEBLANC, PERFORMANCE AUDIT DIRECTOR, AT 225-339-3800.

Under the provisions of state law, this report is a public document. A copy of this report has been submitted to the Governor, to the Attorney General, and to other public officials as required by state law. A copy of this report is available for public inspection at the Baton Rouge office of the Louisiana Legislative Auditor.

This document is produced by the Louisiana Legislative Auditor, State of Louisiana, Post Office Box 94397, Baton Rouge, Louisiana 70804-9397 in accordance with Louisiana Revised Statute 24:513. Seven copies of this public document were produced at an approximate cost of $5.25. This material was produced in accordance with the standards for state agencies established pursuant to R.S. 43:31. This report is available on the Legislative Auditor's website at www.lla.la.gov. When contacting the office, you may refer to Agency ID No. 9726 or Report ID No. 40140062 for additional information.

In compliance with the Americans With Disabilities Act, if you need special assistance relative to this document, or any documents of the Legislative Auditor, please contact Elizabeth Coxe, Chief Administrative Officer, at 225-339-3800.

LOUISIANA LEGISLATIVE AUDITOR
DARYL G. PURPERA, CPA, CFE

August 19, 2015

The Honorable John A. Alario, Jr.,
President of the Senate
The Honorable Charles E. "Chuck" Kleckley,
Speaker of the House of Representatives

Dear Senator Alario and Representative Kleckley:

This report provides information about the severance tax suspension on horizontal wells in Louisiana, the loss of state revenue from this suspension, and how this suspension compares to those of top oil- and gas-producing states. I hope this report will benefit you in your legislative decision-making process.

Sincerely,

Daryl G. Purpera, CPA, CFE
Legislative Auditor

DGP/aa

HWSEV2015

1600 NORTH THIRD STREET • POST OFFICE BOX 94397 • BATON ROUGE, LOUISIANA 70804-9397
WWW.LLA.LA.GOV • PHONE: 225-339-3800 • FAX: 225-339-3870

Louisiana Legislative Auditor

Daryl G. Purpera, CPA, CFE

Severance Tax Suspension for Horizontal Wells

August 2015

Audit Control # 40140062

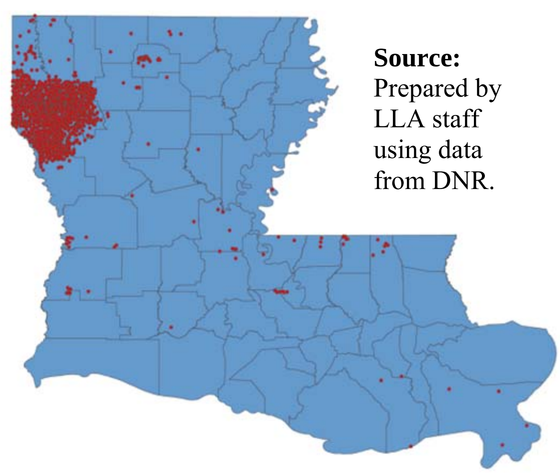
Introduction

The *Louisiana Tax Study, 2015*[1] offered the legislature several proposed changes to various taxes in Louisiana. Among those changes was the recommendation to eliminate or substantially reduce the severance tax exemption for horizontal drilling. This report provides additional information on this exemption, including its impact on the state's budget and whether or not other oil- and gas-producing states have a similar exemption.

Horizontal Drilling involves drilling a well from the surface, vertically down to a certain level before turning at a right angle and continuing to drill horizontally within a specified reservoir up to 3,000 feet. These wells typically use hydraulic fracturing ("fracking") to access oil and gas reserves.

Although horizontal drilling was first introduced as early as the 1930s, the popularity of these wells grew during the 1980s as natural gas and oil exploration moved away from less-productive vertical wells to gain access to unconventional sources of reserves. With increasing technology and the emergence of hydraulic fracturing, horizontal drilling has become a more popular method in oil and gas extraction, especially in geological shale formations.[2] Louisiana has two shale formations: the Haynesville Shale, located in the northwestern part of the state, and the Tuscaloosa Marine Shale, located in central Louisiana. More than 87% of Louisiana's 2,543 active horizontal wells are located in the Haynesville Shale. Exhibit 1 shows all active horizontal wells in Louisiana as of May 2015.

Exhibit 1
Active Horizontal Wells



Source: Prepared by LLA staff using data from DNR.

In Louisiana, as in most states, natural resources, including oil and natural gas, are subject to severance taxes, which are taxes levied on the production of natural resources taken from land or water bottoms within the territorial boundaries of Louisiana. Although natural resources subject to severance taxes include a variety of sources from timber to gravel, 92% of all severance taxes are from oil and gas. Louisiana currently imposes a severance tax rate of 12.5% of the value of oil produced and $0.16 per 1,000 cubic feet (MCF) of

[1] This study, conducted by Dr. James Richardson of LSU and Drs. Steven Sheffrin and James Alm of Tulane, was commissioned by the legislature and presented to the House Committee on Ways and Means and the Senate Committee on Revenue and Fiscal Affairs. See http://house.louisiana.gov/housefiscal/DOCS_TAXREV/TaxStudyInformation3102015.pdf

[2] Shale formations are fine-grained sedimentary rocks that can be rich sources of petroleum and natural gas.

gas. During fiscal years 2012 through 2014, the state received approximately $2.4 billion in severance tax revenue from oil and gas production. According to LDR, the basic severance tax rate on oil in Louisiana is relatively higher than other states. Appendix B summarizes severance tax rates in other states.

Although Louisiana levies a severance tax on most oil and gas wells, the legislature temporarily suspended horizontally-drilled oil and gas wells from this tax in 1994 to provide an incentive to drill horizontal wells. According to Louisiana Revised Statute 47:633.7(c)(iii), a horizontally-drilled well shall have its severance tax suspended for up to 24 months or until the payout of the well is achieved. In an effort to increase revenue to the state, several bills were proposed during the 2015 Regular Legislative Session related to the severance tax exemption. Appendix C provides an explanation of each of these bills. The only bill that passed was House Bill 549 (Act 120). This Act applies a tiered severance tax exemption to production occurring on or after July 1, 2015, based upon the price of oil and natural gas. The tiered system is outlined in Exhibit 2.

Exhibit 2
HB 549 Tiered Severance Tax

Price of Oil*	Price of Natural Gas**	Severance Tax Rate
≤$70	≤$4.50	Exempt from severance tax
$71 to $80	$4.51 to $5.50	20% of severance tax rate
$81 to $90	$5.51 to $6.00	40% of severance tax rate
$91 to $100	$6.01 to $6.50	60% of severance tax rate
$101 to $110	$6.51 to $7.00	80% of severance tax rate
>$110	>$7.00	Full severance tax rate

*****Price of oil is based on per barrel
******Price of natural gas is based on per million BTU
Source: Prepared by legislative auditor's staff using explanation of HB 549

However, according to the bill's fiscal note, this bill is not projected to generate any additional revenue for the next five years, as the "price thresholds in the bill make it unlikely that any tax rate will be imposed on horizontal production in the foreseeable future." According to the note, although oil and gas prices are revised annually, the current official budgeted oil and gas price projections do not approach the bill's minimum thresholds for imposing any tax until fiscal years 2019 and 2020.

The objective of this report was to determine the amount of revenue Louisiana has lost by allowing a severance tax suspension on horizontal wells and whether or not other states allow similar suspensions. Appendix A contains our scope and methodology. The results of our review are summarized on the following pages.

Objective: To determine the amount of revenue Louisiana has lost by allowing severance tax suspensions on horizontal wells and whether or not other states allow similar suspensions.

Louisiana's severance tax suspension for horizontal wells has resulted in significant revenue loss for the state. According to the Louisiana Department of Revenue's (LDR) annual Tax Exemption Budget, Louisiana has lost more than $1.1 billion in additional revenue from the severance tax suspension for horizontal wells from fiscal years 2010 to 2014. In addition, because horizontal wells produce the most oil or gas in the first two years, Louisiana is forfeiting substantial revenue during the most productive period of a well's life. We also found that, while some states with horizontal drilling allow reduced severance tax rates, no other state currently grants a severance tax suspension for horizontal wells.

Louisiana's severance tax suspension for horizontal wells has resulted in a more than $1.1 billion in revenue loss for the state from fiscal years 2010 to 2014.

In the 1994 Regular Session, the legislature created the Severance Tax Relief Program (STRP), which allowed for the suspension of severance taxes due on production from qualifying wells for a variable time period depending on the category of well. One of the four categories that qualifies for STRP is newly-drilled or recompleted[3] horizontal wells. The purpose of the tax suspension for this category is to encourage and provide an incentive for the drilling of horizontal wells. According to state law,[4] any well drilled or recompleted horizontally from which production commences after July 31, 1994, shall have all severance tax suspended for 24 months or until payout of the well's completion costs are achieved, whichever comes first. Data from the Louisiana Department of Natural Resources (DNR) showed that the average horizontal well costs nearly $9 million to complete. According to LDR, when gas prices are high wells may reach their payout cost prior to the two years.

Since the implementation of STRP in 1994, DNR has certified 3,025[5] wells as horizontal, which qualifies them for the severance tax suspension. According to LDR, the state has lost more than $1.1 billion in revenue during fiscal years 2010-2014 by allowing a severance tax suspension for horizontal wells. To determine lost revenue, LDR calculated lost revenue on the full severance tax rate. For oil, the rate is 12.5% of its value at the time and place of severance, and for gas the rate ranged from 11.8-33.1 cents per MCF from fiscal years 2010 to 2014. At the time of publication of the Tax Exemption Budget, LDR was not able to obtain actual revenue

---

[3] Horizontal recompletions are defined as horizontal drilling in an existing well bore. Horizontal recompletion costs are limited to only those costs associated with the horizontal portion of the well bore. Extensions of existing horizontal well bores, in the same sand, are not considered horizontal recompletions.

[4] La. R.S. 47:633(7)(c)(iii)

[5] According to DNR data, there are a total of 3,192 wells that were approved for the severance tax suspension; however, some wells were approved multiple times, which created duplicates. By removing the duplicates, there were 3,025 unique wells approved.

loss for horizontal oil wells due to upgrades to its data system. Since then, LDR obtained the revenue loss for oil for fiscal year 2014, which was $25,962,354. Exhibit 3 shows the amount of revenue loss from these suspensions since fiscal year 2010.

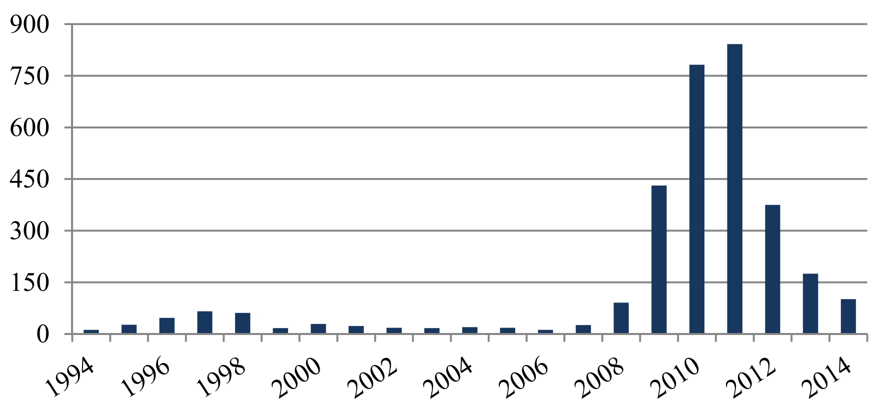
Exhibit 3
Revenue Loss from Horizontal Well Severance Tax Suspension

Fiscal Year	Oil	Gas	Total
2010	$291,000	$238,748,000	239,039,000
2011	1,241,000	234,884,000	236,125,000
2012	7,098,472	264,674,120	271,772,592
2013	7,667,963	227,564,460	235,232,423
2014	25,962,354	140,447,512	166,409,866
Total	**$42,260,789**	**$1,106,318,092**	**$1,148,578,881**

Source: Prepared by legislative auditor's staff using LDR's Tax Exemption Budget.

As mentioned previously, the purpose of this suspension was to encourage and provide an incentive for the drilling of horizontal wells. However, because horizontal drilling has become a more common method for drilling than it was when the STRP was originally implemented, the *Louisiana Tax Study, 2015* stated that this suspension may no longer be needed. From calendar years 1994 through 2007, a total of 393 horizontal wells were put into production and approved for the STRP. From 2008 through 2014, a total of 2,797[6] were put into production and approved from the STRP, an increase of more than 600%. Exhibit 4 shows the number of horizontal wells put into production since 1994.

Exhibit 4
New Horizontal Wells, by Year



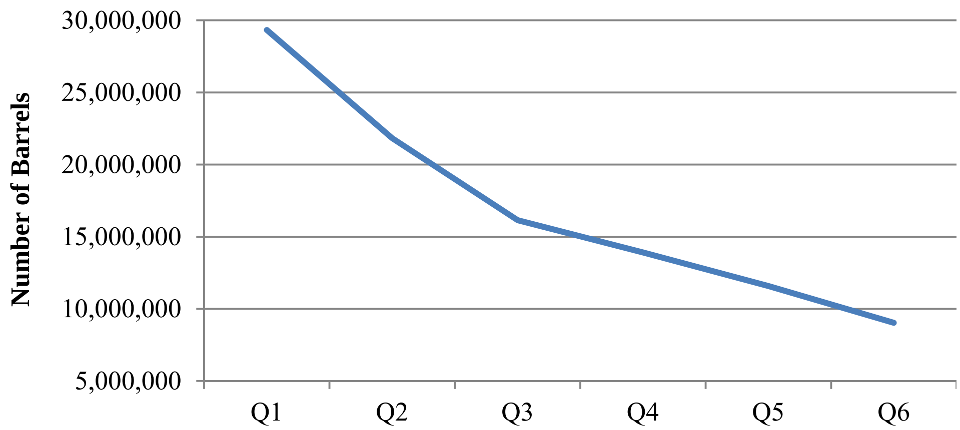
Source: Prepared by legislative auditor's staff using information from DNR.

[6] This excludes the 393 wells previously put in production.

Louisiana is forfeiting potential revenue from horizontal gas wells during the most productive period of the well's life, as production from these wells significantly declines during the suspension period.

Approximately 98% of the revenue loss from fiscal years 2010 through 2014 was from horizontal wells drilled for natural gas. Most of these wells are located in the Haynesville Shale in northwest Louisiana. According to DNR, all of the Haynesville Shale horizontal wells' best production is in the first two years. Because production dwindles significantly after the first two years, some operators may never pay severance taxes. To determine the production of horizontal wells in Louisiana, we analyzed the gas production of 50 horizontal wells that produced a minimum of six quarters with data reported by companies to LDR.[7] According to this data, the production for each well decreased by an average of 69% by the sixth quarter of production and more than 50% by the first year. Exhibit 5 shows the quarterly production of these 50 wells.

Exhibit 5
Quarterly MCF Production for Horizontal Gas Wells



Source: Prepared by legislative auditor's staff using data from LDR.

By granting the severance tax suspension to horizontal wells, Louisiana is not capitalizing on severance tax revenue that would have the most benefit during the first two years of a well's most productive life.

[7] Once a well no longer qualifies for the tax suspension, operators are not required to submit production, by well, to LDR. Due to this constraint, the audit team selected 50 wells that had the suspension for a minimum of six quarters during fiscal years 2011 and 2012.

Louisiana is the only top-producing oil and gas state with horizontal drilling that currently grants a severance tax suspension for horizontal wells.

According to the U.S. Energy Information Administration, Louisiana is one of the country's top producers of oil and gas. However, when compared to other top-producing states[8] with horizontal wells, Louisiana is the only state that currently allows a severance tax suspension for horizontal wells. Exhibit 6 compares Louisiana's provisions for horizontal well suspensions to other states.

Exhibit 6
Comparison of Other Top Producing States

State	Oil Production	Gas Production	Horizontal Well Provisions?	Suspension or Reduced Rate?	Description
Arkansas	17th	8th	No	No	N/A
Colorado	7th	6th	No	No	N/A
Kansas	10th	12th	No	No	N/A
Louisiana	9th	3rd	Yes	Suspension	Suspended tax for two years or until well payout
Montana	12th	20th	Yes	Reduced Rate	Reduced rate for 18 months
New Mexico	6th	7th	No	No	N/A
North Dakota*	2nd	14th	Yes	Reduced Rate	Exemption may be granted if price of oil drops to a certain rate
Ohio	14th	16th	No	No	N/A
Oklahoma**	5th	4th	Yes	Reduced Rate	Reduced rate for four years or until well payout
Pennsylvania***	20th	2nd	Yes	Higher Rate	Charges higher rate for horizontal fracked wells than vertical fracked wells
Texas	1st	1st	No	Reduced rate	Reduced rate for high-cost wells, which may include some horizontal wells.
West Virginia	18th	9th	No	No	Previously had exemption but repealed in fiscal year 2014
Wyoming	8th	5th	No	No	N/A

*ND - If the price/barrel is less than $35.50, then wells are exempt for two years. If the price/barrel exceeds $70, then producers are charged the full rate.
**OK - Prior to FY 2012, Oklahoma granted a severance tax exemption for four years. For example, if a horizontal well began producing on June 1, 2011, it may still be exempt until June 1, 2015. However, after FY 2015, no wells should have an exemption.
***PA - The higher rate is charged for horizontal wells located in shale formations.
N/A - not applicable, as these states do not have a provision for a suspended or reduced rate.
Source: Prepared by LLA staff using information from other states, the U.S. Energy Information Administration, and the Interstate Oil and Gas Compact Commission (IOGCC).

[8] After reviewing the U.S. Energy Information Administration's oil and gas production rankings, we selected the following states to compare severance taxes and horizontal wells: Arkansas, Colorado, Kansas, Montana, New Mexico, North Dakota, Ohio, Pennsylvania, Texas, Virginia, West Virginia, and Wyoming. Additionally, we reviewed the IOGCC's website to ensure that each state has hydraulic fracturing, which is commonly associated with horizontal drilling.

As the exhibit shows, there are currently no other states that allow a tax suspension on horizontal wells, and four other states grant rate reductions for these wells. In Montana, Texas, and Oklahoma, horizontal wells are subject to a temporary reduced rate. In North Dakota, a suspension may be granted if the price per barrel of oil is $35.50 or less; however, barrel prices have not reached this price in more than 10 years. Currently, North Dakota's horizontal wells are subject to a reduced rate, as well. Oklahoma[9] and West Virginia previously suspended horizontal well severance taxes, similar to Louisiana, but in recent years have eliminated the exemption. In addition, some states, such as Pennsylvania, did not have any exemptions or reductions that provided severance tax incentives to horizontally-drilled wells.

[9] Prior to FY 2012, Oklahoma granted a severance tax exemption for four years. In theory, if a horizontal well began producing on June 1, 2011, it may still be exempt until June 1, 2015. However, after FY 2015, no wells should have an exemption.

APPENDIX A: SCOPE AND METHODOLOGY

We produced this informational report under the provisions of Title 24 of the Louisiana Revised Statutes of 1950, as amended. Our review focused on Louisiana's revenue loss from severance tax suspension on horizontal wells from fiscal years 2012 through 2014 and how these suspensions compare to other states. In some cases, we extended our scope to include historical and/or current information. Our objective was:

To determine the amount of revenue Louisiana has lost by allowing a severance tax suspension on horizontal wells and whether or not other states allow similar suspensions.

To gather information to address our objective, we performed the following steps:

- Obtained information on the current and historical population of horizontal wells in Louisiana through the Department of Natural Resources' (DNR) SONRIS database.
- Obtained information on severance taxes in Louisiana through the Louisiana Department of Revenue's (LDR) Tax Exemption Budget for FY 2015.
- Obtained statistics on horizontal wells from Oil and Gas 360 and the Post Carbon Institute.
- Reviewed applicable state laws and regulations as they relate to horizontal wells and severance taxes.
- Interviewed LDR and DNR staff to gain a further understanding of horizontal wells and the severance tax suspension granted to them.
- Obtained gas production data from LDR for horizontal wells in Louisiana.
- Analyzed the production data to determine the production trend of horizontal gas wells.
- Selected several top oil- and gas-producing states from the U.S. Environmental Information Administration's Production Rankings. Also utilized the Interstate Oil and Gas Compact Commission's website to determine which states were also involved in hydraulic fracturing.
- Reviewed applicable state laws and regulations for selected states to compare theirs to Louisiana's.

APPENDIX B: STATE SEVERANCE TAX RATES - 2013

State	Oil Rate	Gas Rate
Arkansas	4% to 5%, depending on production levels	1.25%, 1.5%, and 5%, depending on well classification
Colorado	2% to 5% of gross income, based on level of gross income	
Kansas	8% of gross taxable value	
Louisiana	Full rate is 12.5% of production value	Full rate is $0.163 per MCF produced
Montana	Varies from 0.5% to 14.8%, depending on type of well and production	
New Mexico	3.75% of the taxable value	
North Dakota	5% gross value (production tax) and 6.5% (extraction tax)	$0.4 per 1,000 cubic feet; through June 30, 2013, it was $11.33 per MCF
Ohio	$.10 per barrel	$0.25 per 1,000 cubic feet
Oklahoma	1%, 4%, or 7%, based on state average price per barrel	1%, 4%, or 7%, based on state average price per MCF
Pennsylvania	None	Annual $50,000 per well fee
Texas	4.6% of market value	7.5% of market value
West Virginia	5% of gross value	
Wyoming	6% of fair market value	

Source: Prepared by legislative auditor's staff using data from the Council on State Governments.

APPENDIX C: PROPOSED BILLS DURING 2015 LEGISLATIVE SESSION

Legislation	Passed?	Description	Impact According to Fiscal Note
HB 101	No	Horizontal wells would pay 25% of full tax rate for two years or until payout of the well	No fiscal note was authored
HB 483	No	Horizontal wells would be exempt for one year or until payout of the well	No fiscal note was authored
HB 549	Yes	Severance tax rates for horizontal wells would be based on the price of oil and gas for two years or until payout of the well	Price thresholds in the bill make it unlikely that any tax rate will be imposed on horizontal production in the foreseeable future
HB 558	No	Horizontal wells would pay 50% of full tax rate for four years or until payout of the well	No fiscal note was authored
HB 631	No	Severance tax rates for horizontal wells would be based on the price of oil and gas for four years or until payout of the well	Price thresholds in the bill make it unlikely that any tax rate will be imposed on horizontal production in the foreseeable future
SCR 3	No	Horizontal well exemptions would be suspended for fiscal year 2016	No fiscal note was authored
Source: Prepared by legislative auditor staff using information from 2015 Legislative Session			