



Ohio Legislative Service Commission

Russ Keller

Fiscal Note & Local Impact Statement

Bill: Am. Sub. H.B. 375 of the 130th G.A. **Date:** May 23, 2014
Status: As Passed by the House **Sponsor:** Rep. Huffman

Local Impact Statement Procedure Required: Yes

Contents: Modifies the severance tax on oil and gas, repeals a cost recovery assessment imposed on oil and gas well owners, creates an income tax credit, creates a severance tax credit, and excludes from the commercial activity tax certain oil and gas gross receipts

State Fiscal Highlights

STATE FUND	FY 2015	FY 2016	FUTURE YEARS
General Revenue Fund			
Revenues	- 0 -	Loss up to \$5.4 million	Annual revenue loss growing to up to \$19.3 million by FY 2019
Expenditures	- 0 -	- 0 -	- 0 -
Oil and Gas Well Fund (Fund 5180)			
Revenues	Loss up to \$5.8 million	Loss up to \$24.3 million	Annual loss growing up to \$56.4 million in FY 2019
Expenditures	- 0 -	- 0 -	- 0 -
Geological Mapping Fund (Fund 5110)			
Revenues	Potential gain up to \$1.6 million	Loss up to \$0.9 million	Annual loss growing up to \$3.0 million in FY 2019
Expenditures	- 0 -	- 0 -	- 0 -
Well Plugging Fund (created by the bill)			
Revenues	Gain up to \$2.6 million	Gain up to \$3 million	Gain up to \$3 million annually
Expenditures	- 0 -	- 0 -	- 0 -
Oil and Gas Severance Tax Fund (created by the bill)			
Revenues	Gain up to \$17.9 million	Gain up to \$64.2 million	Annual gain growing up to \$173.8 million in FY 2019
Expenditures	Transfers out equal to revenues	Transfers out equal to revenues	Transfers out equal to revenues
Local Government Reimbursement Fund (created by the bill)			
Revenues	- 0 -	Potential gain up to \$11.2 million	Annual potential gain growing up to \$30.4 million in FY 2019
Expenditures	- 0 -	Transfers out equal to revenues	Transfers out equal to revenues

STATE FUND	FY 2015	FY 2016	FUTURE YEARS
Ohio Shale Gas Infrastructure Development Fund (created by the bill)			
Revenues	- 0 -	Potential gain up to \$7.2 million	Annual potential gain growing up to \$19.1 million in FY 2019
Expenditures	- 0 -	Commensurate with revenues	Commensurate with revenues
Severance Tax Legacy Fund (created by the bill)			
Revenues	- 0 -	Potential gain up to \$1.3 million	Potential gain of several million dollars per year
Expenditures	- 0 -	- 0 -	\$0 until FY 2025
Income Tax Reduction Fund (Fund 4R80)			
Revenues	- 0 -	Potential gain up to \$32.0 million	Annual potential gain growing up to \$122.4 million in FY 2019
Expenditures	- 0 -	Transfers out equal to revenues	Transfers out equal to revenues

Note: The state fiscal year is July 1 through June 30. For example, FY 2014 is July 1, 2013 – June 30, 2014.

- Revenue from the new severance tax would be deposited in the Oil and Gas Severance Tax Fund established by the bill. Fund receipts will be used to partially offset revenue losses to certain non-GRF funds, with the remaining proceeds to be transferred to the new Local Government Reimbursement Fund and to the Income Tax Reduction Fund (ITRF, Fund 4R80). Revenue figures shown in the table are net of a nonrefundable credit for commercial activity tax payments.
- Revenues from the ITRF provide periodic, one-time income tax rate reductions.
- Changing the existing severance tax and repealing the cost recovery assessment reduces revenues to the Oil and Gas Well Fund (Fund 5180) and Geological Mapping Fund (Fund 5110), funds in the budget of the Department of Natural Resources (DNR). Although the bill requires DNR funds to receive transfers up to \$21 million per year, the amounts would not fully offset the foregone revenue to those two funds.
- Creating a nonrefundable personal income tax (PIT) credit beginning in tax year (TY) 2014 for severance taxes paid from oil and gas wells will likely not reduce GRF revenues until FY 2016, when tax returns for TY 2015 will be filed.
- Excluding from the tax base of the commercial activity tax (CAT) those gross receipts realized from the sale of oil or natural gas by a severer or owner that pays both the severance tax and the PIT has the potential to reduce CAT receipts beginning in FY 2015. The revenue reduction is undetermined, but is likely to be small.
- Implementing the new severance tax would require a one-time increase in Department of Taxation expenditures of at least \$2.1 million, according to a preliminary analysis by Department officials of the Introduced version of the bill. Department officials did not specify the fund that would be used.

Local Fiscal Highlights

LOCAL GOVERNMENT	FY 2014	FY 2015	FUTURE YEARS
Counties, municipalities, townships, and public libraries (LGF, PLF, Local Government Reimbursement Fund)			
Revenues	- 0 -	- 0 -	- 0 -
Expenditures	- 0 -	- 0 -	- 0 -
Severance Tax Infrastructure Funds (created by the bill), statewide total of county funds			
Revenues	- 0 -	Potential gain up to \$2.8 million	Annual potential gain growing up to \$7.5 million in FY 2019
Expenditures	- 0 -	- 0 -	- 0 -

Note: For most local governments, the fiscal year is the calendar year. The school district fiscal year is July 1 through June 30.

- Local government recipients of funding from the Local Government Fund (LGF) and the Public Library Fund (PLF) are held harmless for revenue losses to those funds by transfers from the Local Government Reimbursement Fund (created by the bill), if the latter fund receives sufficient revenue to make the transfers.
- The LGF and PLF will not incur losses as a result of personal income tax cuts enabled by the ITRF balance. The Revised Code requires that the OBM Director make transfers from the ITRF to the GRF, LGF, and PLF in a manner that offsets revenue reductions caused by the tax rate reductions to the LGF and PLF created by the ITRF tax cuts.
- The Local Government Reimbursement Fund will receive up to 17.5% of the revenues from the Oil and Gas Severance Tax Fund, and all of those amounts will be disbursed to counties and subdivisions through a variety of funds and mechanisms proposed in the bill.

Detailed Fiscal Analysis

H.B. 375 replaces the existing volume-based oil and gas severance tax on horizontal wells with a value-based tax applied to the wellhead gross receipts. It creates a distinction between horizontal wells and nonhorizontal wells to allow for differentiating severance tax structures for each type of well. A portion of revenues will be used to partially offset foregone revenue to the Department of Natural Resources (DNR), with remaining revenue to be used to fund distributions to local governments and a personal income tax (PIT) cut through the Income Tax Reduction Fund (ITRF, Fund 4R80). The bill also includes a PIT credit for royalty owners that will reduce GRF revenues, and creates the Ohio Shale Gas Regional Commission, which would administer certain local funds created by the bill.

Severance tax changes and cost recovery assessment repeal

Currently, the severer of oil or natural gas must pay 10¢ per barrel of oil and 2.5¢ per MCF¹ of natural gas. Additionally, the owner of the well from which oil or natural gas is severed must pay a cost recovery assessment equal to 10¢ per barrel of oil and 0.5¢ per MCF of natural gas (with exceptions for low volume wells). The cumulative cost of the tax and assessment is 20¢ per barrel of oil and 3.0¢ per MCF of natural gas.

The bill replaces the current severance tax rate structure on horizontal wells with a new taxation method for oil and natural gas severed from those wells. Beginning October 1, 2014, the horizontal well severer must pay a 2.50% rate on the wellhead's gross receipts from the sale of oil or natural gas. "Wellhead gross receipts" are the gross receipts from the "first sale" of "oil" or "gas" severed from the soil or water of this state; all three terms are defined in the bill.² For horizontal wells whose first day of production is on or after October 1, 2013, the first \$10 million of wellhead gross receipts is exempt from the severance tax.

Beginning October 1, 2014, nonhorizontal well severers must pay a severance tax similar to current law, but the rate applicable to gas severed from nonhorizontal wells is reduced. The bill proposes a gas tax equal to 1.5¢ per MCF; the applicable rate for oil remains equal to 10¢ per barrel.

The existing cost recovery assessment on oil and natural gas wells is repealed (for both horizontal and nonhorizontal wells).

¹ An MCF is a measure of the volume of natural gas; one MCF equals 1,000 cubic feet of natural gas.

² R.C. 5749.01(K), (L), and (N).

Disposition of revenue

H.B. 375 creates the Oil and Gas Severance Tax Fund, which receives all of the oil and gas severance tax receipts. Current law allocates 90% of oil and gas severance tax collections to DNR's Oil and Gas Well Fund (Fund 5180) and 10% to DNR's Geological Mapping Fund (Fund 5110).

The bill creates the Well Plugging Fund, which will receive transfers from the Oil and Gas Severance Tax Fund. DNR is directed to use the fund's proceeds for activities that are currently paid for by Fund 5180 receipts.

The bill requires the OBM Director to make transfers from the Oil and Gas Severance Tax Fund prior to a June deadline beginning in calendar year (CY) 2015. By the 25th day of each June, the Director must transfer:

1. \$15 million to Fund 5180, \$3 million to the Well Plugging Fund, and \$3 million to Fund 5110.
2. 17.5% of the balance (as measured prior to the DNR transfers) in the Oil and Gas Severance Tax Fund to the Local Government Reimbursement Fund, established by the bill.
3. Any remaining money in the Fund to the ITRF.

The proposed law requires the OBM Director to make transfers³ from the Local Government Reimbursement Fund before the fiscal year ends. By the 30th day of each June, the Director must transfer:

1. Revenue foregone during the preceding calendar year to the Local Government Fund (LGF) and Public Library Fund (PLF) recipients because of the PIT credit for severance taxes paid by oil and gas royalty interest holders as well as the commercial activity tax (CAT) exclusion for certain oil and gas receipts.
2. 25% of the remaining balance (after transfers to the LGF and PLF recipients) to the Severance Tax Infrastructure Fund of each Ohio county in the proportion certified to the Director by the Tax Commissioner. The bill requires the Commissioner to certify the proportion of statewide, horizontal wellhead gross receipts attributable to each county for the preceding calendar year.
3. 63.75% of the remaining balance (after transfers to the LGF and PLF recipients) to the Ohio Shale Gas Infrastructure Development Fund.
4. 11.25% of the remaining balance (after transfers to the LGF and PLF recipients) to the Severance Tax Legacy Fund.

³ As long as the Oil and Gas Severance Tax Fund collects more than \$21 million per year, money will be available for transfer to the Local Government Reimbursement Fund.

Commercial activity tax exclusion

The bill excludes from the taxable gross receipts base of the CAT the receipts realized from the sale of oil or gas by a taxpayer that paid both the severance tax and the PIT⁴ on the basis of that oil or gas. The exclusion applies to sales occurring on or after October 1, 2014.

Current law requires that a small portion (0.85%) of CAT receipts be dedicated to the Tax Reform System Implementation Fund, and the remaining revenues are distributed to the GRF (50%), the School District Tangible Property Tax Replacement Fund (35%), and the Local Government Tangible Property Tax Replacement Fund (15%). Any balance in either replacement fund may be transferred to the GRF every year-end. Also, current law requires a GRF subsidy to the replacement funds if CAT revenues are insufficient for the required expenditures; hence the GRF would bear the CAT revenue loss regardless of whether CAT receipts meet or exceed required expenditures.

Severance tax credit for CAT paid by horizontal well severer

The bill grants a nonrefundable credit against the horizontal well severance tax, effective October 1, 2014, to a severer that pays the CAT in a calendar quarter beginning on or after October 1, 2014. The value of the credit equals the amount of CAT paid by the severer from the first sale of oil or gas severed from a horizontal well. The severer must claim the credit for the calendar quarter in which the CAT was paid.

Personal income tax credit

The bill authorizes a taxpayer directly holding a royalty interest in a well producing oil or gas to claim a nonrefundable PIT credit. Taxpayers with ownership or a pass-through entity (PTE) that has a royalty interest may also claim the credit. The value of the credit equals the amount of oil and gas severance tax paid by the well owner multiplied by the lesser of 12.5% or the proportion of oil and gas severance tax by which the taxpayer's royalty payments are reduced or for which the taxpayer is contractually required to pay the well owner.

The credit may be claimed for taxable years beginning on or after January 1, 2014. Taxpayers may not carryforward any unused amounts, and taxpayers cannot claim the PIT credit in the same year they claim the Ohio small business investor income deduction.

JobsOhio duties

The bill requires JobsOhio, the state's private nonprofit economic development entity, to determine the industries that may relocate to the state to take advantage of inexpensive energy that is available in counties with active oil and gas development,

⁴ If the taxpayer is a pass-through entity (PTE), the owners of the PTE must pay the PIT in order to qualify for the CAT exclusion.

and research and report on programs to encourage those industries to relocate to those counties. H.B. 375 also requires JobsOhio to develop programs to encourage job creation related to these industries.

Local government revenues

The bill creates multiple funds in the state treasury and requires every county treasurer to create a Severance Tax Infrastructure Fund in their respective county treasury. The Local Government Reimbursement Fund serves as a conduit for transfers to other funds benefiting local governments, and the bill defines purposes for those funds. The county budget commission must distribute Severance Tax Infrastructure Fund proceeds to subdivisions to pay for permanent improvements or for reconstructing, improving, repairing, or equipping roads or bridges.

The bill creates the Ohio Shale Gas Infrastructure Development Fund and the Severance Tax Legacy Fund in the state treasury and both funds would be administered by the Public Works Commission, as directed by the Ohio Shale Gas Regional Commission. Membership in the newly proposed Commission is defined in the bill,⁵ and H.B. 375 prohibits members from receiving compensation or reimbursement for expenses. The exclusive purpose of the Ohio Shale Gas Infrastructure Development Fund is for the Commission to award grants to eligible subdivisions to pay for permanent improvements. Similarly, the Commission would award grants from the Severance Tax Legacy Fund, too. Although the bill prohibits any appropriation from this fund until FY 2025, beginning in that year, the Commission must use the money to provide funding for projects in subdivisions "to foster long-term prosperity and a positive legacy in the subdivision."

Fiscal effects

Oil and Gas Severance Tax Fund revenue and its disposition

Due to both the fundamental changes to the tax, and to the expected rapid growth to industry output, a great deal of uncertainty exists regarding the revenue from the tax. Given the uncertainty of future production levels, LSC forecasted two scenarios of potential outcomes, a "low" scenario and a "high" scenario. LSC economists have not attempted to forecast future prices of oil, natural gas, or natural gas liquids, and have simply projected forward recent prices.⁶ The assumptions for both scenarios are further detailed in the **Appendix**.

Tables 1 and 2 show revenue to the Oil and Gas Severance Tax Fund for FY 2015 to FY 2019 as well as the resulting transfers occurring before each fiscal year ends. Table 1 shows the forecast under the low scenario, and Table 2 shows the forecast under the

⁵ R.C. 190.02.

⁶ The implication of this approach is that, if prices were to decrease significantly in the coming years, actual tax revenues could fall below our low estimate. Similarly, a significant increase in prices would mean that actual tax revenues could exceed our high estimate.

high scenario. Both forecasts reflect Oil and Gas Severance Tax Fund receipts after the application of the severance tax credit for CAT payments by horizontal well severers. The credit could reduce horizontal well severance tax receipts by varying amounts; this analysis assumes the credit will reduce receipts by approximately 10%.⁷

Table 1. Severance tax revenue estimates based on low scenario (in millions)					
	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Oil and Gas Severance Tax Fund receipts	\$3.6	\$5.4	\$3.9	\$5.6	\$10.9
Transfers to three DNR Funds	(\$3.6)	(\$5.4)	(\$3.9)	(\$5.6)	(\$10.9)
Transfer to Local Government Reimbursement Fund	\$0	\$0	\$0	\$0	\$0
Transfer to the ITRF	\$0	\$0	\$0	\$0	\$0

Transfer amounts may not add to total due to rounding.

Table 2. Severance tax revenue estimates based on high scenario (in millions)					
	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Oil and Gas Severance Tax Fund receipts	\$17.9	\$64.2	\$104.3	\$143.8	\$173.8
Transfers to three DNR Funds	(\$17.9)	(\$21.0)	(\$21.0)	(\$21.0)	(\$21.0)
Transfer to Local Government Reimbursement Fund	\$0	(\$11.2)	(\$18.2)	(\$25.2)	(\$30.4)
Transfer to the ITRF	\$0	(\$32.0)	(\$65.0)	(\$97.6)	(\$122.4)

Transfer amounts may not add to total due to rounding.

Table 3. Change in revenue from severed oil and gas due to H.B. 375 changes (in millions; does not include income tax credit or CAT exemption)					
	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Low scenario					
Current law	\$16.1	\$22.3	\$27.0	\$29.7	\$31.3
H.B. 375	\$10.8*	\$5.4	\$3.9	\$5.6	\$10.9
Proposal minus current law	(\$5.3)	(\$16.9)	(\$23.1)	(\$24.1)	(\$20.4)
High scenario					
Current law	\$27.7	\$42.6	\$56.2	\$67.7	\$77.4
H.B. 375	\$29.6**	\$64.2	\$104.3	\$143.8	\$173.8
Proposal minus current law	\$1.9	\$21.6	\$48.1	\$76.1	\$96.4

*Includes \$7.1 million in receipts collected under current law prior to effective date of bill.

**Includes \$11.7 million in receipts collected under current law prior to effective date of bill.

⁷ LSC assumes that the severance tax base, "wellhead gross receipts" is between 60% and 85% (midpoint is 72.5%) of the CAT base "taxable gross receipts," and assumes between 50% and 90% (midpoint is 70%) of the CAT receipts are situated to Ohio. Divide the 0.26% CAT rate by the 2.5% severance tax rate and divide the quotient by .725 before multiplying by 0.7 for a result of 10% (the value of the severance tax credit). Account for \$1 million CAT exemption by reducing CAT taxable receipts by \$25 million per year by assuming 25 severers will have receipts large enough to qualify for the \$1 million annual exemption.

Effect of the bill on the Income Tax Reduction Fund

Current law (R.C. 131.44, unchanged by the bill) requires the OBM Director each year to determine the percentage found by dividing the balance in the ITRF by the revenue that the Director estimates will be received from the PIT in the current fiscal year. If that percentage exceeds 0.35%, the Director must certify the percentage to the Tax Commissioner no later than July 31. The statutory tax rates must be reduced by the percentage prescribed in that certification for taxable years beginning in the calendar year in which that certification is made to the Tax Commissioner.

The bill creates a new source of funds to the ITRF that would increase the amount of money in the fund. The increase in the balance in the ITRF would either increase the size of any income tax reductions that were implemented using the ITRF mechanism, or accelerate the implementation of a tax reduction, by putting the balance in the fund above the 0.35% trigger earlier. The differences in the balance in the ITRF attributable to the bill are shown in Table 4.

Table 4. Transfers to the Income Tax Reduction Fund (in millions)					
	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Low scenario	\$0	\$0	\$0	\$0	\$0
High scenario	\$0	\$32.0	\$65.0	\$97.6	\$122.4

Effect of the bill on the Department of Natural Resources

All revenue from the current severance tax is deposited into Fund 5110 and Fund 5180, in the budget of the Department of Natural Resources. Table 5 shows the impact on these two funds (for comparison purposes, the newly created Well Plugging Fund is treated as a supplement to Fund 5180) of the bill's provisions, based on the two LSC scenarios.

Table 5. Fund revenue estimates, Fund 5180 and Fund 5110 (in millions)					
	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Oil and Gas Well Fund (Fund 5180) and Well Plugging Fund – all receipts from severed oil and gas					
Low estimate					
Current law	\$14.9	\$20.6	\$25.0	\$27.4	\$28.9
H.B. 375	\$9.6	\$4.7	\$3.4	\$4.8	\$9.3
Change in receipts	(\$5.3)	(\$15.9)	(\$21.6)	(\$22.6)	(\$19.6)
High estimate					
Current law	\$25.5	\$39.3	\$51.9	\$62.5	\$71.4
H.B. 375	\$25.9	\$18.0	\$18.0	\$18.0	\$18.0
Change in receipts	\$0.4	(\$21.3)	(\$33.9)	(\$44.5)	(\$53.4)

Table 5. Fund revenue estimates, Fund 5180 and Fund 5110 (in millions)					
	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Geological Mapping Fund (Fund 5110) – all receipts from severed oil and gas					
Low estimate					
Current law	\$1.2	\$1.7	\$2.1	\$2.3	\$2.4
H.B. 375	\$1.2	\$0.8	\$0.6	\$0.8	\$1.6
Change in receipts	\$0	(\$0.9)	(\$1.5)	(\$1.5)	(\$0.8)
High estimate					
Current law	\$2.1	\$3.3	\$4.3	\$5.2	\$6.0
H.B. 375	\$3.7	\$3.0	\$3.0	\$3.0	\$3.0
Change in receipts	\$1.6	(\$0.3)	(\$1.3)	(\$2.2)	(\$3.0)

Revenue to the DNR funds is set to rise under current law, due to the expected increase in drilling activity. Oil and gas revenue to Fund 5180 was less than \$4.4 million in FY 2013, while revenue to Fund 5110 was less than \$288,000.

The bill also creates a reporting requirement for the spending activities of Fund 5180 and the Well Plugging Fund. The DNR Chief of Oil and Gas is required⁸ to deliver prior to June 30 of each year to the Speaker of the House of Representatives and the President of the Senate a report listing the projected amount of money to be spent from Fund 5180 or the Well Plugging Fund to plug each idle or orphaned well that the Chief estimates will begin to be plugged in the following fiscal year and the locations of such wells, and the number and location of all idle or orphaned wells plugged in the preceding fiscal year using money from Fund 5180 or the Well Plugging Fund and the amount spent from each fund to plug such wells.

Effect of the bill on the Department of Taxation

H.B. 375 increases administrative costs for the Department of Taxation. The exact cost of the bill would depend on the complexity of the enacted legislation, but the Department would incur at least \$2.1 million in technology costs to implement provisions in the bill. The Department did not specify the line items or funds that would incur these charges, but officials indicated these would be one-time technology costs. The agency was still evaluating future staffing needs at the time this Fiscal Note was written.

Oil and gas royalty interest holder PIT credit for severance tax paid

Establishing a nonrefundable PIT credit for severance taxes paid will reduce GRF revenues beginning in FY 2015. Although the GRF revenue loss will likely be \$0 in FY 2015,⁹ the annual revenue loss could be up to tens of millions of dollars in future

⁸ Sec. 1509.071(J).

⁹ Although the PIT credit is available in TY 2014, the first severance tax payments for the period beginning October 1, 2014 would not be due until after the calendar year ends.

years. Refer to the GRF losses in Table 6 for a detailed fiscal impact. These GRF losses will be accompanied by temporary losses to the LGF and PLF; the OBM Director will transfer amounts every June from the Local Government Reimbursement Fund to hold the LGF and PLF recipients harmless for the losses incurred over the previous calendar year.

The royalty owners are prohibited from claiming the PIT credit if they also claim the PIT deduction for Ohio small business investor income, which allows taxpayers to deduct up to \$125,000 (or \$62,500 if married and filing separately) in business income per year.

CAT exclusion for receipts of taxpayers subject to PIT

The CAT exclusion will impact GRF revenues beginning in FY 2015, but the actual revenue loss, if any, is highly dependent on how many well owners paying the CAT are subject to the PIT. Unless a well owner's net business income from oil and gas sales is less than 5% of its gross receipts, the taxpayer has an economic incentive to pay the CAT rather than the PIT.

The most recent DNR statistics show that more than 80% of horizontal well owners are Limited Liability Companies (LLCs), and businesses operating in Ohio as LLCs must pay the CAT. LSC does not know the organizational structure of these LLCs, but given the expense involved in horizontal drilling, LSC assumes that C-Corporations have an ownership interest in the majority of these LLCs. Therefore, it is unlikely most owners of LLCs would file PIT returns rather than a CAT return, though it is probable some of these LLCs include individuals with minority ownership interests. The LLC could later request a refund for CAT liability paid on behalf of sales allocated to the LLC member subject to the PIT. LSC anticipates minimal CAT refunds, if any, on behalf of receipts allocated to these types of LLC members, and also minimal revenue loss from the CAT exclusion from horizontal well owners.

Vertical well owners are more likely to file PIT returns than horizontal well owners, but LSC has very little information about those owners and is unclear the extent to which those owners subject to the PIT are also currently paying the CAT. Vertical well producers are projected to have a very small share of future production. If all vertical well owners' gross receipts were both situated to Ohio and exempt from the CAT, the foregone revenue would be less than \$2 million per year. However, actual revenue loss from the CAT exemption would likely be less than that amount because (1) an unknown amount of sales of oil and gas from vertical wells are not situated to Ohio, and (2) certain owners of vertical wells that pay the CAT may not be subject to the PIT.

GRF implications

The bill represents a net revenue loss to the GRF because it lacks offsetting revenues for the PIT credit and the CAT exclusion. The ITRF transfers will only hold the GRF harmless for revenue losses caused by the ITRF.

Table 6. Potential GRF impact of PIT credit and CAT exclusion (in millions)					
	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Low Scenario					
Change in GRF receipts	\$0	(\$0.8)	(\$0.6)	(\$0.5)	(\$1.0)
High Scenario					
Change in GRF receipts	\$0	(\$5.4)	(\$10.1)	(\$15.2)	(\$19.3)

Local government funds

All PIT revenues and half of CAT receipts are deposited into the GRF, and the LGF and PLF each receive 1.66% of GRF receipts. Creating a nonrefundable PIT credit for severance taxes paid from oil and gas wells and creating a CAT exclusion for gross receipts from wells will temporarily reduce the LGF and PLF by minimal amounts, if at all, in CY 2015 and by less than \$1.0 million in future years. The Tax Commissioner will annually certify these amounts for the preceding calendar year, and the OBM Director will make offsetting transfers to LGF and PLF recipients every June to ensure that the temporary losses are not permanent.

The LGF and PLF will not incur losses as a result of personal income tax cuts enabled by the ITRF balance. The Revised Code requires that the OBM Director make transfers from the ITRF to the GRF, LGF, and PLF that offset the revenue reductions caused by the tax rate reductions created by the ITRF tax cuts.

Other local government funds will receive the remaining balance in the Local Government Reimbursement Fund once the LGF and PLF recipients are held harmless. Tables 7 and 8 estimate future revenues for these funds using the two different oil and gas production forecasts.

Table 7. Disposition of revenue for Local Government Reimbursement Fund based on estimates from low scenario (in millions)					
	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Local Government Reimbursement Fund Receipts (same as Table 1)	\$0	\$0	\$0	\$0	\$0
Hold Harmless Transfers to LGF and PLF Recipients	\$0	\$0	\$0	\$0	\$0
Transfers to County Severance Tax Infrastructure Funds	\$0	\$0	\$0	\$0	\$0
Transfer to Ohio Shale Gas Infrastructure Development Fund	\$0	\$0	\$0	\$0	\$0
Transfer to Severance Tax Legacy Fund	\$0	\$0	\$0	\$0	\$0

Table 8. Disposition of revenue for Local Government Reimbursement Fund based on estimates from high scenario (in millions)					
	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Local Government Reimbursement Fund Receipts (same as Table 2)	\$0	\$11.2	\$18.2	\$25.2	\$30.4
Hold Harmless Transfers to LGF and PLF Recipients	\$0	\$0	(\$0.2)	(\$0.3)	(\$0.5)
Transfers to County Severance Tax Infrastructure Funds	\$0	(\$2.8)	(\$4.5)	(\$6.2)	(\$7.5)
Transfer to Ohio Shale Gas Infrastructure Development Fund	\$0	(\$7.2)	(\$11.5)	(\$15.8)	(\$19.1)
Transfer to Severance Tax Legacy Fund	\$0	(\$1.3)	(\$2.0)	(\$2.8)	(\$3.4)

Transfer amounts may not add to total due to rounding.

Appendix: Details of the Revenue Estimation

The data on production from horizontal wells are still very preliminary. DNR has produced annual production reports for calendar years (CYs) 2011 and 2012, and quarterly reports for the third and fourth quarters of CY 2013. The 2011 report included data on just nine wells, only three of which were producing for more than 100 days. The 2012 report included 85 wells, several of which produced no oil, no natural gas, or in some cases neither. The 2013 Q3 report included 285 wells, but again these included a number of wells that showed no production.

The number of new wells drilled in the future is an exercise in forecasting, and LSC economists began with estimates provided by DNR. We used the DNR estimates for each quarter of CY 2014, but because of the uncertainty involved, we chose to reduce their estimates for our low estimates, and to increase them to arrive at our high estimates, each quarter beginning with the first quarter of 2015. Complicating the estimates of new producing wells is the fact that so many wells already drilled are not producing. This could be due to having drilled a dry well, or it could be due to halting production from a potentially productive well, or due to lack of pipeline or processing facility capacity. Our high estimates of producing wells yield natural gas production figures that are under the DNR estimates of pipeline capacity constraints in CY 2014 through CY 2016, but begin to exceed them in CY 2017. LSC economists certainly agree that these capacity constraints could constrain the number of producing wells, or the output of those wells that are producing, but the degree to which the capacity is built up is yet another source of uncertainty. To the extent that our high production estimates exceed DNR estimates of capacity constraints, the natural interpretation is that we believe that capacity might be built up somewhat faster than DNR estimates. Table 9 reports our low and high estimates of the number of new producing wells each year, beginning with CY 2014, comparing the figures shown to the DNR estimates we were given.

Table 9. Estimates of number of new horizontal wells put into production					
	CY 2014	CY 2015	CY 2016	CY 2017	CY 2018
LSC low estimate	336	396	444	445	445
LSC high estimate	336	420	516	581	629
DNR estimate	336	410	480	509	509

Production of petroleum, natural gas, and natural gas liquids depends on the number of producing wells, and the average production of those wells each year. DNR officials indicate that the data currently available are too preliminary to estimate that average productivity with any reliability, in part because the companies drilling the wells are not operating all of them at full capacity. If that is the case, the data are of limited value, despite the number of wells that they show. DNR officials agree though with the impression of LSC economists that the production history so far suggests that

production declines rapidly. LSC economists assumed that the amount of gas expected to be ultimately recovered (a number abbreviated EUR in various sources) is 3.5 billion cubic feet equivalent (BCFE)¹⁰ of gas for the low estimate, and 7.0 BCFE for the high estimate. Several sources assume a figure of about 5.0 billion BCFE in producing point estimates of the average well EUR;¹¹ LSC economists' assumptions were chosen to bracket the assumptions used by others. LSC economists found data on depletion rates of existing wells for different shale formations published in 2012 by the U.S. Energy Information Administration (EIA), and the decline curve for Eagle Ford shale showed rapid depletion rates: 67.1% of the EUR was depleted in the first two years. LSC economists assumed the Eagle Ford rate of depletion for wells drilled in Ohio's Utica shale.¹² The estimates of petroleum and natural gas production under our high and low estimates are provided in Table 10.

Table 10. Estimates of horizontal well production					
	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Low estimate					
MCF of natural gas	352,961,213	522,522,188	650,397,480	723,116,390	765,986,868
Barrels of petroleum	12,534,558	18,117,726	22,395,733	24,831,966	26,272,883
High estimate					
MCF of natural gas	665,909,920	1,072,269,234	1,443,208,085	1,754,626,964	2,016,557,519
Barrels of petroleum	23,243,350	36,929,521	49,524,920	60,129,228	69,066,162

These production estimates yield the quantities that enter into the revenue estimates from the new severance tax. The tax revenue depends on other factors, including the prices at which petroleum, natural gas, and natural gas liquids (NGLs) can be sold. These prices are extremely difficult to forecast; moreover, different producers may adopt different strategies regarding hedging the prices received for their product (i.e., different choices about selling product on the spot market versus selling on futures markets or using swaps). There may be no better forecast than recent market prices. This departs from the methodology used in estimating the quantities produced, in that we do not attempt to model the uncertainty associated with prices (nevertheless, the EIA 2014 Annual Energy Outlook does not forecast volatility over the next eight

¹⁰ BCFE equals one billion cubic feet of natural gas.

¹¹ Some Utica shale sources have reported higher figures. Sources that used about 5.0 billion include an economic impact study dated September 2011 commissioned by the Ohio Oil and Gas Energy Education Program entitled "Ohio's Natural Gas and Crude Oil Exploration and Production Industry and the Emerging Utica Gas Formation," and U.S. Energy Information Administration estimates for the Eagle Ford shale formation contained in the July 2011 "Review of Emerging Resource: U.S. Shale Gas and Shale Oil Plays." Other sources are available upon request.

¹² Table 12, at the end of this Fiscal Note, provides our assumption on expected gas recovery from an average well.

years). Hopefully, though, readers already have a healthy appreciation for the uncertainties associated with such price forecasts. Clearly, as noted above, if prices should drop over time, the tax revenue could then fall below our low estimate, and if prices rise over time, revenue could exceed our high estimate. Table 11 lays out our key price assumptions. As seen in Table 11, the price of oil assumed was \$81 per barrel, which is based on discounting the price of West Texas Intermediate (WTI) crude oil by 10%. Similarly, the price of natural gas assumed was \$3.65 per MCF, which is based on discounting the Henry Hub price by \$0.10 per MCF.

Table 11. Price and related assumptions	
Oil barrel price, 10% discount to WTI:	\$81.00
MCF price, \$0.10 discount to Henry Hub:	\$3.65
Condensate barrel price, 15% discount to WTI:	\$76.50
NGL price per gallon with ethane:	\$0.86
NGL price per gallon without ethane:	\$1.63
Lower estimate of EUR of the average well over 20 years:	2 BCF of natural gas, 68,866 barrels of oil and associated condensate liquids
Higher estimate of EUR of the average well over 20 years:	4 BCF of natural gas, 137,731 barrels of oil and associated condensate liquids
Average British Thermal Units (BTUs) of natural gas:	1,250 BTUs per cubic foot
Gallons of NGLs separated from each MCF:	2.0 in FY 2015-FY 2016 during ethane rejection period; 5.0 in FY 2017-FY 2019 during ethane recovery period
Percentage of potential NGLs recovered:	90%
Nonassociated condensate recovered from each MCF:	0.00212 barrels
Remaining volume of MCF after removing NGLs:	0.84 MCF in FY 2015-FY 2016 during ethane rejection period; 0.75 MCF in FY 2017-FY 2019 during ethane recovery period
Post-production expenditures per MCF:	\$1.56 of which \$0.81 is presumed to be the marginal cost of fractionation and NGL processing
Post-production expenditures per barrel of oil & associated condensate liquids:	\$11.00

Table 12. Average production profile for shale gas wells		
Year of Operation	Percent of Total EUR, Annual	Percent of Total EUR, Cumulative
1	49.1	49.1
2	18.0	67.1
3	9.3	76.4
4	5.7	82.1
5	3.8	85.9
6	2.8	88.7
7	2.1	90.8
8	1.6	92.4
9	1.3	93.7
10	1.1	94.8

Table 12. Average production profile for shale gas wells		
Year of Operation	Percent of Total EUR, Annual	Percent of Total EUR, Cumulative
11	0.9	95.7
12	0.8	96.5
13	0.7	97.2
14	0.6	97.8
15	0.5	98.3
16	0.4	98.7
17	0.4	99.1
18	0.4	99.5
19	0.3	99.8
20	0.2	100.0

Source: EIA 2012 Annual Energy Outlook – Figure 54, Eagle Ford Shale Play

HB0375HP.docx / lb