2018 Impact Fee Estimate

Pennsylvania imposes an annual impact fee on unconventional (i.e., shale) natural gas wells that were drilled or operating in the previous calendar year. This research brief uses recent data published by the Department of Environmental Protection to estimate collections for calendar year (CY) 2018, which will be remitted in April 2019.[1] This brief also translates the impact fee into an annual average effective tax rate (ETR) based on recent natural gas price and production data. The ETR quantifies the implicit tax burden imposed by the impact fee in a given year.

Proceeds from the impact fee are distributed to local governments and state agencies to provide for infrastructure, emergency services, environmental initiatives and various other programs. Local governments receive funds based on the number of wells located within their boundaries or their proximity to jurisdictions where natural gas extraction took place. Historical and estimated distributions are shown in Table 1.

The annual impact fee for an unconventional natural gas well is determined according to a bracketed schedule, based on the number of years since a well became subject to the impact fee (operating year), the type of well (horizontal or vertical) and, to a limited extent, the price of natural gas.[2] Horizontal wells in operating years four or greater that produce less than 90 Mcf (thousand cubic feet) per day are exempt. Plugged horizontal wells are exempt after remitting the fee in the first year. Vertical wells that produce less than 90 Mcf per day are exempt from the fee in any operating year.

The estimated amount of the impact fee for CY 2018 is $247.0 million, which represents a $37.4 million increase from actual collections in the prior year. The primary reasons for the increase are as follows:

- New wells offset aging wells. The impact fee is highest in a well's first operating year, and declines as the well ages. Revenue from the 779 new wells spud offset reduced collections from older wells as their fees decline or they become exempt. Net impact: +$15.1 million.

- Collections from previously disputed wells and outstanding payments. This estimate includes (1) all payments disputed in 2017 based on previously pending litigation that are assumed to be collected as a result of the recent decision by the Pennsylvania Supreme Court regarding stripper well status and (2) the collection of other outstanding payments from the previous year.[3] Net impact: +$22.3 million.

The impact fee does not directly respond to the price of natural gas or the volume of production, and it does not provide a measure of tax burden relative to sales. Therefore, this research brief computes an ETR for all wells in operation during the year. The ETR is equal to annual impact fee revenues divided by the total market value of unconventional natural gas production. The market value is equal to the product of (1) the annual average regional spot price of natural gas net of post-production costs and (2) the total production from all unconventional wells.[4]

Table 1: Impact Fee Revenues and Distributions

	2014	2015	2016	2017	2018
Total Revenues	$223,500	$187,712	$173,259	$209,557	$246,970
Counties, Municipalities and HARE Fund[1]	123,300	101,800	93,070	114,784	137,232
Marcellus Legacy Fund	82,200	67,867	62,046	76,523	91,488
Commonwealth Agencies	10,500	10,500	10,500	10,500	10,500
Conservation Districts/Commission	7,500	7,545	7,643	7,750	7,750

Note: Dollar amounts in thousands.
Source: Pennsylvania Public Utility Commission. Estimates for CY 2018 by the IFO.
[1] Housing Affordability and Rehabilitation Enhancement Fund.

Table 2: Well Count and Estimated Collections for 2018					
Operating Year	Number of Wells[1]	Number of Exempt Wells[2]	Number of Wells Subject to Fee	Fee Amount[3]	Estimated Collections
1	779	-	779	$50,700	$39,454,740
2	810	-	810	40,500	32,772,600
3	503	5	498	30,400	15,139,200
4 +	9,606	2,282	7,324	20,300	148,449,840
Subtotal	11,698	2,287	9,411		235,816,380
Disputed/Late					11,153,500
Total					**$246,969,880**

[1] Represents the number of wells that have been spud, including both horizontal and vertical wells.
[2] Includes wells exempt from the fee based on production level or plugged status.
[3] Represents the fee for horizontal wells. The fee for vertical wells is 20 percent of the amount shown.

The annual ETR fluctuates based on the movement of its three components: fee revenues, production and prices.[5] For CY 2014 through CY 2018, each component has contributed to ETR changes; however, the changes could reinforce or offset each other. Production has increased each year, which reduces the ETR, absent changes in the other components. Lower fee revenues reduce the ETR, while increases have the opposite effect. However, the price effect dominates the other two components as the biggest swings in the annual ETR are due to changes in price.

For CY 2018, the ETR estimate is 2.2 percent. (See Table 3.) The primary factor motivating the decline from CY 2017 was a 52 percent increase in market value, which was driven by growth in prices and production from CY 2017. The significant increase in market value more than offset the growth in impact fee collections, and yields a lower ETR.

Endnotes

1. Data from Pennsylvania Department of Environmental Protection's oil and gas production reports and spud well reports from 2013 to 2018 (last accessed January 17, 2019). Production data are currently available through November; December is estimated by the IFO.
2. The fee schedule is adjusted if the average price falls above or below certain thresholds. Pursuant to 58 Pa.C.S. §§ 2301 *et seq.*, the price used is the annual average of the settled prices for near-month contracts on the New York Mercantile Exchange ($3.086 for CY 2018).
3. See Snyder Brothers, Inc. v. Pennsylvania Public Utility Commission, case number 1043 CD 2015, and Pennsylvania Independent Oil and Gas Association v. Pennsylvania Public Utility Commission, case number 5579 CD 6459.
4. The price used for this calculation is a weighted average of spot prices at the Dominion South and Leidy trading hubs for the calendar year, converted to dollars per thousand cubic feet ($2.70 for 2018) using Pennsylvania-specific heat content, net of post-production costs ($0.80). Prices are from BENTEK Energy. Post-production cost estimates are based on a Range Resources investor presentation from October 3, 2016, adjusted for statewide wet and dry gas production. It should be noted that many producers hedge prices for a large share of their production (e.g., futures contracts).
5. The annual ETR represents the average rate for all wells operating in a single calendar year. A lifetime ETR, which is more appropriate for interstate comparisons, represents the average tax burden of a single well across all years of its productive life.

Table 3: Impact Fee Annual Effective Tax Rates					
Calendar Year	Impact Fee Revenues	Unconventional Production (MMcf)[1]	Price of Gas ($/Mcf)[2]	Market Value[3]	Annual ETR[4]
2014	$223,500	4,070,700	$2.38	$9,694,700	2.3%
2015	187,712	4,596,900	0.65	3,002,300	6.3
2016	173,259	5,094,100	0.75	3,843,400	4.5
2017	209,557	5,363,800	1.40	7,505,200	2.8
2018	246,970	6,000,000	1.90	11,417,700	2.2

Note: Dollar amounts in thousands. MMcf is million cubic feet.
[1] Production data through November 2018. December 2018 is estimated by the IFO.
[2] Net of post-production costs, which were estimated to be $0.80 in 2018.
[3] Does not include natural gas liquids (condensate).
[4] The 2018 ETR includes fees from the previous year. Without those fees, the ETR would be 2.1 percent.