Impact Fee Update and 2019 Outlook

Introduction

Pennsylvania imposes an annual impact fee on unconventional (i.e., shale) natural gas wells that were drilled or operating in the previous calendar year.[1] 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. Distributions for the last four calendar years 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. Horizontal wells in operating years four or greater that produce less than 90 Mcf (thousand cubic feet) per day are exempt (stripper wells). 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.

This report (1) analyzes calendar year (CY) 2018 impact fee collections (remitted in April 2019) reported by the Public Utility Commission (PUC), (2) details the number of wells and fee schedule by operating year and (3) discusses two potential scenarios for CY 2019 collections. It 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.

Table 1: Impact Fee Revenue and Distributions

	2015	2016	2017	2018
Total Distributions[1]	$187,712	$173,259	$209,557	$251,831
Counties, Municipalities and HARE Fund	101,800	93,070	114,784	140,149
Marcellus Legacy Fund	67,867	62,046	76,523	93,432
Commonwealth Agencies	10,500	10,500	10,500	10,500
Conservation Districts/Commission	7,545	7,643	7,750	7,897

Notes: Dollar amounts in thousands. Fees are remitted in the following April and distributed in July.
Source: Pennsylvania Public Utility Commission.
[1] Distributions in 2018 include $5.0 million in fees attributable to 2016 and 2017 that were remitted late.

2018 Impact Fee Revenues

For CY 2018, the PUC reported impact fee revenues of $251.8 million, which is $42.3 million more than the amount collected for the prior year. **Table 2** details the well count, fee schedule and actual collections by operating year. The primary reasons for the increase in collections are as follows:

- New and Existing Wells. The collections from wells in operating year one more than offset decreased collections from older wells as their fees decline. Net impact: +$26.5 million.
- Previous Disputes. In December 2018, the Pennsylvania Supreme Court ruled in favor of the PUC in the case of *Snyder Brothers Inc. v. PUC*.[2] This decision reversed the Commonwealth Court ruling from 2017 that a gas well's production only needs to fall below 90 Mcf per day in one month of the year to be exempt from the fee. As a result, all wells that previously disputed payment of the impact fee based on the interpretation of stripper well status are required to pay those disputed fees. Net impact: +$8.9 million.
- Other/Late. Includes (1) fees paid late for prior years but included in 2018 disbursements and (2) wells that began to or stopped paying the fee in CY 2018 due to changes in exempt status. Net impact: +$6.9 million.

Table 2: Well Count and Actual Collections for 2018					
Operating	Wells Subject to Fee		Fee Amount		Collections
Year[1]	Horizontal	Vertical	Horizontal	Vertical	($ millions)
1	762	2	$50,700	$10,100	$38.7
2	810	0	40,500	8,100	32.8
3	500	1	30,400	6,100	15.2
4+	7,446	39	20,300	4,100	151.3
Subtotal	9,518	42			238.0
Disputed[2]	406	198			8.9
Late[3]	n.a.	n.a.			5.0
Total	**9,924**	**240**			**251.8**

Source: Pennsylvania Public Utility Commission.

[1] Number of years a well has been subject to the impact fee. Horizontal wells are subject to the fee for the first three years after being spud (unless they are plugged). Year 4+ includes all wells in operating years 4 through 8, which pay the same fee.

[2] Includes payments collected from previous years from wells that were disputed based on the Snyder Brothers court case regarding stripper well status.

[3] Includes fees that were paid late for 2016 and 2017 and are included in 2018 disbursements.

Effective Tax Rate

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 natural gas sales. Therefore, this report computes an annual average effective tax rate (ETR) for all wells in operation during the year.[3] 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 hub price of natural gas net of post-production costs and (2) the total production from all unconventional wells.

The ETR computation for CY 2018 uses these data:

- Annual production of 6.1 trillion cubic feet. This figure is based on statewide well production data published by the Department of Environmental Protection (DEP).

- An annual average hub price of $2.70 per Mcf, prior to the deduction of post-production costs. This price is a weighted average of spot prices at the Dominion South and Leidy trading hubs, converted to dollars per thousand cubic feet.[4]

- Post-production costs of $0.80 per Mcf. This amount reflects costs for gathering, processing and transporting gas to markets. Such costs are deducted to approximate the value of gas at the wellhead, the point at which other states levy severance taxes.[5]

The annual ETR fluctuates based on the movement of its three components: fee revenues, production and price. As shown in **Table 3**, the ETR for CY 2013 and CY 2014 decreased in each year. The main cause of that trend was the strong production growth through those years. For CY 2015, the ETR rose dramatically due to low prices, which caused a significant decline in market value. This factor had a stronger net effect on the ETR than the decline in revenues and continued production gains. The ETR for CY 2016 declined, as the moderate increase in market value was not enough to offset lower impact fee revenues. For CY 2017, the ETR declined by 1.6 percentage points to 2.8 percent. This was driven by a 95.2 percent increase in the market value, which was primarily the result of an 85.5 percent increase in the regional hub price. The increase in the market value more than offset the increase in impact fee revenues.

For CY 2018, the ETR decreased to 2.2 percent, 0.6 percentage points lower than the previous year. This decline was driven by the same scenario as CY 2017. The annual growth in the market value of unconventional natural gas production (55.3 percent) more than offset the $42.3 million increase in fee collections.

Table 3: Impact Fee Annual Effective Tax Rates					
Calendar Year	Impact Fee Revenues	Unconventional Production (MMcf)	Price of Gas (Mcf)[1]	Market Value[2]	Annual ETR
2012	$202,472	2,042,900	$1.97	$4,024,100	5.0%
2013	225,752	3,102,900	2.74	8,498,600	2.7
2014	223,500	4,070,300	2.38	9,693,900	2.3
2015	187,712	4,600,900	0.65	3,005,500	6.2
2016	173,259	5,096,100	0.75	3,844,900	4.5
2017	209,557	5,363,800	1.40	7,505,200	2.8
2018	251,831	6,123,400	1.90	11,653,300	2.2

Notes: Dollar amounts in thousands. MMcf is million cubic feet. Mcf is thousand cubic feet.

Sources: Pennsylvania Public Utility Commission, Department of Environmental Protection, Bentek Energy and the U.S. Energy Information Administration.

[1] Weighted average spot price converted to dollars per Mcf using Pennsylvania heat content, net of post-production costs.

[2] Market value at the wellhead. Does not include natural gas liquids (NGLs).

2019 Outlook

For CY 2019, two factors will have significant implications for impact fee revenues. They include:

- Statutory fee schedule. The schedule is based on the average annual price of natural gas on the New York Mercantile Exchange (NYMEX), which is based on the Henry Hub.[6] If that price reverts back to a level below $3.00 per MMBtu for CY 2019, the impact fee schedule will decrease by $5,000 per well (horizontal) compared to CY 2018 levels. For the first six months of 2019, the price has ranged from $2.64 to $3.63, averaging $2.90. Last year, the average price during the same time period was $3.25. Futures prices on the NYMEX for the remainder of the year average $2.95, for a calendar year average of $2.93, which is below the $3.00 threshold for a schedule adjustment. Bentek Energy forecasts that the Henry Hub spot price will average $2.90 for the remainder of 2019. Historically, futures prices on the NYMEX converge with the Henry Hub spot price.

- Number of new wells. DEP spud data show that 367 new horizontal wells were spud from January 1 to June 25, 2019, which is 38 fewer wells than the prior year. Wells in their first year of operation pay the impact fee at the highest level. (See Table 2.) Revenues from new wells are important to total impact fee collections because they offset the decline in fees received from existing wells as they age. For example, a well in its first operating year for 2018 paid a fee of $50,700 while a well in its second operating year paid $40,500, or $10,200 less.

Table 4 displays two potential scenarios for CY 2019 impact fee revenues. Each scenario assumes (1) a moderate decline in new wells spud, based on the new wells drilled in the first half of the year and (2) that the proportion of existing wells that either stop paying or begin to pay the fee based on exempt status will be the same as previous years.

- The Current Fee scenario assumes no change in the current fee schedule. The scenario yields a $9.6 million increase in impact fee collections over the prior year.

- The Fee Decrease scenario assumes an average NYMEX price that is less than $3.00 per MMBtu and the associated decrease in the fee schedule. The scenario yields a $37.1 million decrease in impact fee collections. Based on current and projected prices, this scenario is more likely to occur.

The two scenarios produce significantly different impact fee collections; a reduction in the fee schedule would cause a $46.6 million difference in collections. Projected impact fee collections are also affected by the number of new wells spud; however, to a lesser extent than a change in the fee schedule due to

Table 4: CY 2019 Impact Fee Revenue Scenarios		
	Current Fee	Fee Decrease
Total Revenues	**$247,530**	**$200,900**
Difference from 2018[1]	9,550	(37,080)
New and Existing Wells[2]	9,550	9,550
Lower Fee Schedule	n.a.	(46,630)

Notes: Dollar amounts in thousands. Excludes the impact of late or disputed payments.

Source: Well counts estimated using data from the Public Utility Commission.

[1] Difference from the base collections ($238 million, shown in Table 2) before collections related to disputes and other outstanding/late payments.

[2] Reflects change in revenues from (1) more wells subject to impact fee (new wells plus non-producing wells brought into production less new stripper wells) and (2) existing wells aging and migrating down the fee schedule.

the large number of existing wells that will continue to remit the fee. For example, if the number of new wells spud in CY 2019 deviates by +/- 10 percent from the assumed well count, impact fee revenues will change by only $3.6 million or $3.3 million under the Current Fee and Fee Decrease scenarios, respectively.

For CY 2019, the projected ETRs are 2.1 percent for the Current Fee scenario and 1.7 percent for the Fee Decrease scenario. These rates are based on (1) a regional price of $2.51 per Mcf (prior to deduction of post-production costs), (2) a projected 11.5 percent increase in production compared to the prior year and (3) the impact fee remittances projected under those scenarios.

In the long term, future impact fee collections will be affected by regional prices, pipeline capacity and energy demand. Since 2017, the gap between regional prices and the Henry Hub has diminished, largely due to an increase in pipeline capacity. For example, the Atlantic Sunrise pipeline, which connects the Commonwealth's gas to markets along the eastern seaboard, came into full service in October 2018. In previous years (2015-2017), regional prices diverged dramatically from the Henry Hub due to the combination of strong production gains, insufficient storage and pipeline capacity constraints.

Increased pipeline capacity has impacted Pennsylvania producers' ability to meet growing demand for natural gas as well. According to the U.S. Energy Information Administration (EIA), natural gas consumption in Pennsylvania and the U.S. reached the highest level on record in 2018. The year-over-year increase in consumption in Pennsylvania (16.7 percent) and the U.S. (10.4 percent) was also the highest on record. This trend was largely driven by (1) strong gains in the demand for electricity in 2018, as natural gas has become the leading source of electricity generation, both nationally and in Pennsylvania and (2) growing U.S. natural gas exports. In 2018, natural gas was used to generate 36 percent of total electricity in Pennsylvania, compared to just 15 percent in 2010. This robust growth in demand, combined with increased pipeline capacity, allowed prices to continue to recover from the low levels of previous years.

If these trends continue, then regional hub spot prices should remain fairly stable, with potential for increases in the long term. Bentek Energy projects that the regional hub spot prices will moderately decline through CY 2021 then increase in CY 2022 and beyond as additional pipeline capacity is brought on-line and demand continues to grow.

Endnotes

1. The Pennsylvania Public Utility Commission administers the impact fee and provides data on impact fee assessments and actual collections. This was cross-referenced with unconventional well production data and spud data published monthly by the Department of Environmental Protection.

2. 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 1175 CD 2015.

3. An alternative to the annual average ETR is the lifetime ETR, which is the average rate over the lifetime of a single new well. That measure is best used to quantify the prospective tax burden on new wells across states. (See the IFO's previous publication, Analysis of Revenue Proposals in the 2018-19 Executive Budget, for a discussion of the lifetime and annual ETRs.)

4. Prices are from Bentek Energy, and are converted to dollars per thousand cubic feet using Pennsylvania-specific heat content.

5. Post-production cost estimates for wet and dry wells are informed by investor presentations for several regional producers.

6. See 58 Pa.C.S. § 2302(b) for the statutory adjustments and 46 Pa.B. 632 for the current fee schedule. Pursuant to 58 Pa.C.S. § 2301, the price used is the annual average of the settled prices for near-month contracts on the New York Mercantile Exchange (NYMEX) in million British thermal units (MMBtu). This is the national benchmark price for the sale of natural gas. Other regional hubs exist in Pennsylvania, e.g., Dominion South and Leidy, which are used in Table 3 to approximate the prices received by producers. The Henry Hub spot price is the price for a one-time open market transaction for near-term delivery of a specific quantity of gas from that hub.

Data Sources

- Statewide production data and spud well counts can be found at https://www.paoilandgasreporting.state.pa.us/publicreports/Modules/Welcome/Welcome.aspx.
- Act 13 impact fee revenues and distributions can be found at http://www.puc.state.pa.us/filing_resources/issues_laws_regulations/act_13_impact_fee_.aspx.

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