Fracking Bans, Taxation, and Environmental Policy

Robert D. Cheren
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Abstract

This Article investigates the tax bases of local jurisdictions that have imposed bans on horizontal slickwater fracturing, colloquially known as fracking. Local governments that draw little additional revenue from fracking are more likely to ban the practice because of environmental concerns. The correlation between the issuance of local fracking bans and the relative absence of additional local revenue from fracking indicates the importance of taxation in determining the proper balance between federal, state, and local governments in the process of making environmental policy.

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† Associate, Squire Patton Boggs (US) LLP, Cleveland, Ohio.

This theory of representative taxation presented for the first time here began as a side note in Tragic Parlor Pigs and Comedic Rascally Rabbits, 63 Case W. Res. L. Rev. 555, 573 (2012) (“The Crown’s primary interest, as residual beneficiary of all production, was to see production maximized in order to generate higher revenues.”); id. n.70 (“The Crown received income from production. If production increased, the Crown’s revenue increased. If production decreased, the Crown’s revenue decreased. It is therefore understandable that the policies of the Crown courts fell in line with the needs and desires of the Exchequer.”). The efforts of Professor Peter M. Gerhart, Professor Jonathan L. Entin, David Carper, and Mary Koch in the development of that work laid the foundation for this theory and so the Author again owes them dearly. Following the publication of Tragic Parlor Pigs, the Author developed this theory through extensive research into the history of taxation and English constitutional law carried out with the invaluable guidance, support, and good humor of Professor Erik M. Jensen. Finally, Professor Jonathan H. Adler provided the opportunity to prepare and publish this Article and offered important assistance along the way.
INTRODUCTION

In November 1922, the Village Council of Euclid, Ohio, adopted an ordinance 1 “establishing a comprehensive zoning plan.” 2 Ambler Realty challenged the ordinance on the grounds that its restrictions and controls would “confiscate and destroy a great part of [the] value” of land falling within regions zoned for limited residential purposes. 3 The United States Supreme Court held the ordinance a valid exercise of the police power of the state delegated to local jurisdictions like Euclid to keep pigs out of the parlors but permit pigs in barnyards. 4 Local jurisdictions to this day limit certain land uses to certain areas.

Further, just as in the Village of Euclid’s 1922 zoning ordinance, certain land uses are “prohibited altogether” by local jurisdictions. 5 Recently, numerous jurisdictions across the United States have made natural gas exploration and production a prohibited use as a result of environmental concerns over the practice of horizontal slickwater fracturing, colloquially known as fracking. These fracking bans cover thousands of square miles of land above gas laden shale formations. This is a whole ocean of natural gas no one can get at. 6

This is not an article on fracking technology or its environmental consequences. Rather, this Article uses the phenomena of local fracking bans to demonstrate an attribute of governmental entities relevant to the determination of the proper locus of environmental policymaking—taxation. This Article shows that local jurisdictions that draw no additional revenue from fracking are more likely to impose fracking bans and conversely local jurisdictions that draw additional revenue from fracking are less likely to do so.

1. Village of Euclid, Ohio, Zoning Ordinance 2812 (Nov. 13, 1922).
3. Id. at 384.
4. Id. at 388.
5. Id. at 381. The Euclid ordinance banned ten categories of land use: “(1) Veterinary hospital. (2) Reduction of garbage, refuse, offal, or dead animals. (3) Explosives and fireworks, manufacture or storage. (4) Cement, lime, gypsum or plaster-of-paris manufacture. (5) Chlorine, or hydrochloric, nitric or picric acid manufacture. (6) Smelting of iron, copper, tin or zinc ores. (7) Distillation of bones, fat rendering, glue manufacture from raw materials, fertilizer manufacture. (8) Stockyards, slaughtering of animals. (9) Tanneries, oil refineries. (10) Storage of volatile oil or gasoline in excess of 25000 gallons.” Village of Euclid, Ohio, Zoning Ordinance 2812. A careful reading of that comprehensive zoning plan suggests fracking would have been permitted in industrial areas.
6. There Will Be Blood (Paramount Vantage and Miramax Films 2007) (“There is a whole ocean of oil under our feet. No one can get at it except for me.”).
Why the connection between fracking bans and taxation? When a potential land use will increase revenues, a local jurisdiction exercising its zoning power must either permit the use or forfeit the additional revenue. This Article posits that governmental entities tend to maximize their revenue. Accordingly, local jurisdictions will tend to permit revenue-generating uses. But whether any potential land use generates revenue for a local jurisdiction depends on the local jurisdiction’s financial characteristics. These financial characteristics vary significantly from state to state and, to a lesser degree, from locality to locality within each state. In order to predict whether a local jurisdiction is likely or unlikely to ban fracking, one need only follow the money generated from the use of fracking and see whether any significant portion falls into the hands of the local jurisdiction.

I. Local Fracking Bans

This investigation of local fracking bans requires detailed data on their incidence. To this end, Geographic Information System maps were obtained for the political subdivisions of states covered by three overlapping shale plays, the Devonian, Marcellus, and Utica, a region laden with shale formations ripe for fracking. These shale plays reach across New York, Pennsylvania, Ohio, West Virginia, Maryland, Kentucky, and Virginia. Of the political subdivisions that govern these territories, the vast majority have not banned fracking. In all, political subdivisions covering 4,400.07 out of a total of 120,129.38 square miles have imposed a legislative fracking ban or moratorium. But these fracking bans and moratoria are almost entirely confined within New York and a small portion of Pennsylvania in and around Pittsburgh. Of the political subdivisions outside New York and this small portion of Pennsylvania, fracking bans and moratoria have touched only 21.24 square miles of the shale plays, less than half of one percent of the total area touched by legislative fracking bans in the shale plays. The concentration of 99.517% of fracking bans by area in the state of New York and the Pittsburgh metropolitan area represents a significant variance in legislative responses to fracking amongst political subdivisions in as opposed to outside these regions.

7. Figures and statistics in this Article were prepared and calculated using the ArcGIS platform. Geographic Information System shale play maps were obtained from the United State Energy Information Administration and were last updated May 9, 2011, available at http://www.eia.gov/pub/oil_gas/natural_gas/analysis_publications/maps/maps.htm. Political subdivision maps were obtained by the Case Western Reserve University Kelvin Smith Library staff. This Article is limited to the local bans imposed as of August 31, 2013.

8. This Article is limited to these three shale plays, leaving out the Antrim shale play, which covers part of Ohio, and the New Albany shale play, which covers part of Kentucky.
Figure 1: Devonian, Marcellus, and Utica Fracking Bans

<table>
<thead>
<tr>
<th>Shale Plays</th>
<th>Ban</th>
<th>Legislative Ban</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area (sq. miles)</td>
<td>Percentage</td>
</tr>
<tr>
<td>Kentucky</td>
<td>7,478.89</td>
<td>6.218</td>
</tr>
<tr>
<td>Maryland</td>
<td>1,077.92</td>
<td>0.896</td>
</tr>
<tr>
<td>New York</td>
<td>26,451.75</td>
<td>21.993</td>
</tr>
<tr>
<td>Ohio</td>
<td>24,761.36</td>
<td>20.587</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>33,669.29</td>
<td>27.994</td>
</tr>
<tr>
<td>West Virginia</td>
<td>21,867.91</td>
<td>18.182</td>
</tr>
<tr>
<td>Virginia</td>
<td>4,966.86</td>
<td>4.130</td>
</tr>
<tr>
<td>Total</td>
<td>120,273.98</td>
<td>4,443.90</td>
</tr>
</tbody>
</table>

Table 1: Local Fracking Bans

The shale plays intersect 7,478.89 square miles of Kentucky political subdivisions and 4,966.86 square miles of Virginia political subdivisions. No local jurisdiction in either state has banned fracking.
Ohio’s political subdivisions that intersect the shale plays cover 24,761.36 square miles of the state.9 No legislative bans have been imposed by political subdivisions within Ohio’s shale plays. The state’s only legislative ban was imposed by Yellow Springs, a village located far outside the shale plays.10 The only legislative activities in political subdivisions in the state apart from the Village of Yellow Springs are pronouncements by the political subdivisions that fracking will not be pursued on public lands. Residents of two cities within Ohio’s shale plays voted to amend their city charters to ban fracking by wide margins—62.87% to 37.13% in Mansfield11 and 66.37% to 33.63% in Broadview Heights.12 These margins are even greater than the only other voter ban, enacted by the voters of Ferguson Township, Pennsylvania, by a margin of 52.17% to 47.83%.13 Despite this evidence of significant local opposition to fracking in Ohio, no local legislatures within Ohio’s shale plays has enacted a ban on fracking.

Figure 2: Ohio Fracking Bans

9. This is 505 of the state’s 942 cities and villages and 783 of the state’s 1,330 townships.
12. Broadview Heights, Ohio, Ordinance 115-12 (Sept. 4, 2012). These two cities cover 43.83 square miles.
The shale plays cover nearly the whole of West Virginia—intersecting political subdivisions covering 21,867.91 square miles. Only the cities of Morgantown\textsuperscript{14} and Wellsburg\textsuperscript{15} enacted legislative fracking bans, neither of which is still in force.\textsuperscript{16} These jurisdictions cover only 12 square miles of the state. Thus, fracking has only ever been legislatively restricted by political subdivision in a scant 0.055% of West Virginia’s shale plays.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{fracking_bans_map.png}
\caption{West Virginia Fracking Bans}
\end{figure}

Maryland has one fracking ban among its political subdivisions that intersect the shale plays. These political subdivisions cover 1,077.92 square miles. Only the 1.94 square mile town of Mountain

\begin{itemize}
\item \textbf{Devonian Shale Play}
\item \textbf{Marcellus Shale Play}
\item \textbf{Utica Shale Play}
\item \textbf{Locality Outside Shale Plays}
\item \textbf{Locality Inside Shale Plays}
\item \textbf{Local Legislative Fracking Ban}
\end{itemize}

\textsuperscript{14.} Morgantown, W. Va., Ordinance § 721 (2011).
\textsuperscript{15.} Wellsburg, W. Va., Ordinance § 725 (2011).
Lake Park imposed a legislative ban on fracking. Thus, only 0.18% of Maryland’s shale plays have been restricted. Yet, the majority of Maryland’s shale plays are inside two counties. Maryland’s counties differ greatly in their financial characteristics from Maryland’s cities and towns. It is therefore worthy of note that the ban covers 13.99% of Maryland’s non-county political subdivisions in the shale plays.

Figure 4: Maryland Fracking Bans

Pennsylvania’s political subdivisions that intersect the shale plays cover 33,669.29 square miles of the state. Legislatures in six boroughs and the city of Pittsburgh covering a mere 76.40 square miles of the shale plays have imposed fracking bans. This is only 0.227% of the area of Pennsylvania’s political subdivisions in the shale plays. Five of the six boroughs that have banned fracking are in the immediate vicinity of Pittsburgh, a highly localized concentration. In addition, no new local legislatures in Pennsylvania have imposed fracking bans after the passage of Pennsylvania’s Act 13, an act

18. This is 1,796 of the state’s 2,572 political subdivisions.
19. The boroughs are Forest Hills, Emsworth, Baldwin, Harveys Lake, Wilkinsburg, and West Homestead. Forest Hills, Pa., Ordinance 1017 (Oct. 19, 2011); Emsworth, Pa., Ordinances § 161 (2011); Baldwin, Pa., Code § 121 (2011); Harveys Lake, Pa., Ordinance 4 (2011); Wilkinsburg, Pa., Ordinance 2870 (July 20, 2011); West Homestead, Pa., Ordinance 659 (May, 10, 2011).
20. The other borough, Harveys Lake, covers only 7.3 square miles.
providing for additional regulation of fracking as well as the collection and distribution of a fracking impact fee, on February 14, 2012. The only fracking ban imposed in Pennsylvania after Act 13 was imposed in the Township of Ferguson—a town apparently just outside the shale plays—by the town’s voters, not its legislators.

New York has numerous political subdivisions that have imposed legislative fracking bans and moratoria. New York’s political subdivisions that intersect the shale plays cover 26,451.75 square miles. Of those, fracking bans have been imposed by 42 political subdivisions covering 1,746.38 square miles and fracking moratoria have been imposed by 68 political subdivisions covering 2,563.35 square miles. Thus, 16.293% of New York’s shale plays have been restricted by legislative bans and moratoria imposed by political subdivisions. In addition, several political subdivisions that are just

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23. Note that jurisdictions that imposed both a moratoria and a ban are counted as a ban jurisdiction only.
24. For the sake of linguistic simplicity in this Article, the general term “fracking bans” includes moratoria. But of the shale plays investigated here, only local jurisdictions in New York have imposed moratoria.
outside EIA’s 2011 map of the shale plays have also imposed fracking bans and moratoria.\textsuperscript{25}

![Figure 6: New York Fracking Bans](image)

New York political subdivisions account for a whopping 97.947\% of the area in which local legislative bans have been imposed in the shale plays. The Pittsburgh metropolitan area accounts for another 1.570\% of the area, and all Pennsylvania local legislative bans precede the passage of Pennsylvania Act 13 on February 14, 2012. All other legislative ban jurisdictions combined constitute only 0.483\% of the area in which a legislative ban has been imposed in the shale plays.

II. LOCAL TAXATION OF FRACKING

Suppose governmental entities tend to maximize revenue by preferring policies that increase tax receipts. Revenue maximization would render some forms of taxation representative of certain interests in that the presence of these forms of taxation would yield governmental cultivation and protection of those interests in order to maximize revenue. Conversely, a relative absence of taxes that represent certain interests in this way would result in lesser governmental cultivation and protection of those interests. If this were true, revenue maximization behavior by local jurisdictions would

\textsuperscript{25} Nine political subdivisions just outside the shale plays covering 260.01 square miles imposed bans and 13 political subdivisions just outside the shale plays covering 365.29 square miles imposed moratoria.
play a significant but unappreciated role in the fight over fracking. There is great variation in local taxation of fracking in the shale plays. In most jurisdictions, fracking is representatively taxed through either representative property taxes or representative income taxes or both. But no New York political subdivisions within the shale plays impose representative taxes at all. And when Pennsylvania local legislatures imposed fracking bans, fracking had the potential to generate only minimal revenue until the passage of Pennsylvania Act 13 provided localities the opportunity to receive substantial revenue from fracking. Accordingly, the absence or presence of representative taxation of fracking is highly predictive of whether a local legislature will impose a ban on fracking.

Ohio has two classes of local political subdivisions that may exercise the Euclidian zoning power—townships and municipal corporations. Municipal corporations with fewer than 5,000 residents are villages, and municipal corporations with more than 5,000 residents are cities. Ohio townships, villages, and cities are authorized to levy real property taxes without voter approval at a rate of up to one percent of assessed valuation. Taxable real property includes subsurface natural gas. Accordingly, an Ohio city, village, or township permitting fracking increases local property tax revenues, and an Ohio city, village, or township banning fracking decreases local property tax revenues. Ohio cities and villages, but not Ohio townships, also may levy up to a one percent tax on income that includes income from natural gas production and income from natural gas industry jobs. Accordingly, an Ohio city or village permitting fracking also increases local income tax revenues, and an Ohio city or village that bans fracking also decreases local income tax revenues. If local legislatures maximize revenue, this revenue reality would explain the absence of local legislative fracking bans in Ohio’s shale plays despite the evident popular opposition to fracking in Ohio.

Kentucky cities, urban-county governments, and counties exercise the zoning power. Kentucky cities and urban-county governments are authorized to levy real property taxes at rates up to 0.75%, 1%, or

26. **Ohio Const.** art. XVIII, § 1.

27. **Ohio Const.** art. XII, § 2; **Ohio Const.** art XVIII § 13; **Ohio Rev. Code Ann.** § 5705.02 (LexisNexis 2013); **Ohio Rev. Code Ann.** § 5705.07 (LexisNexis 2013).


1.5% of assessed valuation depending upon population.\textsuperscript{30} Kentucky counties are authorized to levy real property taxes at rates up to 0.5% of assessed valuation.\textsuperscript{31} Taxable real property in Kentucky includes natural gas.\textsuperscript{32} Accordingly, like their Ohio counterparts, Kentucky political subdivisions deciding whether to ban fracking will see either increases or decreases on local property tax revenues. Further, a substantial portion of Kentucky political subdivisions collect taxes deceptively referred to as occupational licenses.\textsuperscript{33} Three types of taxes are collected under this heading—wage, net profit, and gross receipts taxes—and each political subdivision imposing these taxes collects one or two of these types.\textsuperscript{34} Five counties and eight cities covering 1,456.405 square miles intersecting the shale plays impose an occupational license regime that taxes both net profits and wages. This form of taxation is equivalent to a general tax on income and includes both income from natural gas production and wages from natural gas industry jobs. These jurisdictions stand in the same shoes with respect to the decision whether to permit or ban fracking as Ohio cities and villages. Five counties and eight cities covering 1,574.467 square miles intersecting the shale plays impose an occupational license regime that taxes only wages. This form of taxation does not cover production income but still reaches additional wages from natural gas jobs. Jurisdictions that impose this form of occupational license regime taxing only wages have greater motivation to permit fracking than Ohio townships but less motivation than Ohio cities and villages. The 11 counties and 46 cities intersecting the shale plays that do not impose any occupational license regime stand in the same shoes as Ohio townships because they receive no revenue either from natural gas production apart from property taxes.

Virginia cities and counties exercise the Euclidian zoning power. The Virginia political subdivisions also levy real property taxes on natural gas deposits. But Virginia has no legal limitations on local property tax rates—limiting the representative impact of these real property taxes on natural gas, as discussed in detail below regarding the state of New York. Nevertheless, Virginia political subdivisions may impose a gross receipts tax on natural gas production as a

\begin{itemize}
\item \textsuperscript{31} Ky. Const. § 157.
\item \textsuperscript{34} Id.
\end{itemize}
business license tax—and all of the political subdivisions with producing gas wells in Virginia do so.\textsuperscript{35} The power of Virginia cities and counties to tax a percentage of the gross receipts of natural gas production is entirely consistent with the utter absence of local bans on fracking in Virginia’s shale plays.

West Virginia counties, cities, towns, and villages exercise the Euclidian zoning power.\textsuperscript{36} The West Virginia Constitution sets statewide maximum property tax rates for four classes of property and the West Virginia Code further provides maximum county and municipal tax rates on those classes of property.\textsuperscript{37} Taxable real property includes subsurface natural gas.\textsuperscript{38} And so, just as in Ohio and Kentucky, permitting fracking in West Virginia increases local property tax

\begin{scriptsize}
\begin{table}[h]
\centering
\begin{tabular}{|l|c|c|c|}
\hline
Property & Class 1 & Class 2 & Class 3 & Class 4 \\
\hline
County & N/A & 0.286\% & 0.572\% & 0.572\% \\
Municipality & N/A & 0.250\% & N/A & 0.500\% \\
\hline
\end{tabular}
\caption{West Virginia Property Tax Rates}
\end{table}
\end{scriptsize}

\textsuperscript{35} VA. Code Ann. \textsection 58.1-3712 (2013); VA. Code Ann. \textsection 58.1-3712.1 (2013); VA. Code Ann. \textsection 58.1-3713 (2013); VA. Code Ann. \textsection 58.1-3713.3 (2013); VA. Code Ann. \textsection 58.1-3713.4 (2013). Business license taxes on natural gas production are collected by Buchanan County, Dickenson County, Lee County, the city of Norton, Russell County, Scott County, Tazewell County, and Wise County. Buchanan County, Va., Code \textsection 88-29 (2013); Dickenson County, Va., Coal, Gas, and Oil Severance Tax Ordinance \textsection 1 (2012); Lee County, Va., Mineral Severance License Tax Ordinance (2012); Norton, Va., Code \textsection 11-53 (2011); Tazewell County, Va., Code of Ordinances \textsection 10-112; Wise County, Va., Amendment to and Restatement of Wise County Coal, Gas and Oil Severance License Tax Ordinance #1-2012 (effective June 13, 2013). These political subdivisions comprise 3,119.489 square miles of the 4,966.859 square miles of Virginia political subdivisions that intersect the shale plays. There is also a provision of the Virginia tax code that permits counties and cities to elect to replace real property taxes on natural gas with a gross receipts tax on natural gas at rates up to one percent, but no cities or counties have made this election. VA. Code Ann. \textsection 58.1-3286 (2013). Business license taxes on natural gas production are collected alongside rather than in lieu of real property taxes on natural gas.

\textsuperscript{36} W. VA. Code Ann. \textsection 8A-2-1 (LexisNexis 2012).

\textsuperscript{37} W. VA. Const. art. X \textsection 1; Amy Higginbotham, et al., West Virginia Property Tax Briefing Paper 5–6 (2009). Class 1 property is property used exclusively for agriculture, Class 2 property is owner-occupied residential property and farmland, Class 3 property is other real property outside a municipality, and Class 4 property is other real property inside a municipality. W. VA. Const. art. X \textsection 1; West Virginia State Auditor, Rates of Levy: State, County, School and Municipal 2013 Tax Year 1 (2013). The 2013–2014 county and municipal rate limits are:

\textsuperscript{38} See W. VA. Code Ann. \textsection 11-4-9 (LexisNexis 2013).
revenue, and banning fracking decreases local property tax revenue. West Virginia also imposes a tax on severing natural gas at a rate of 5% of gross value of which 7.5% is distributed to the county in which the natural gas is produced. Thus, each West Virginia county receives 0.375% of the value of natural gas produced within its jurisdiction. For their part, West Virginia municipalities may impose business and occupation taxes on gross receipts of natural gas producers within their jurisdiction. Thus, any West Virginia county or municipality banning fracking would forgo substantial revenue. That only two cities comprising only 0.055% of West Virginia’s shale plays have ever imposed fracking bans is consistent with local government revenue maximization in light of these local real property taxes, severance taxes, and business and occupation taxes.

Two counties, one city, and thirteen towns exercise the Euclidian zoning power in Maryland’s shale plays. Maryland counties must impose an income tax at a rate between 1% and 3.2%, and so Garrett County and Allegheny County-covering the vast majority of Maryland’s shale plays—both collect income taxes. On the other hand, Maryland’s local property taxes do not include natural gas. Indeed, the city and towns in Maryland’s shale plays that do not collect income taxes collect no representative taxes on fracking. It is therefore unsurprising that one of these fourteen political subdivisions, the town of Mountain Lake Park, banned fracking. This ban covers 13.99% of Maryland’s non-county political subdivisions in the shale plays but only 0.180% of all the state’s shale play political subdivisions.

Pennsylvania counties, cities, boroughs, towns, and townships exercise the zoning power. Each of these political subdivisions levy real property taxes, but per a 2002 decision of the Pennsylvania Supreme Court, real property valuations in the state do not include

39. W. VA. CODE ANN. § 11-13A-3a (LexisNexis 2013); W. VA. CODE ANN. § 11-13A-5a (LexisNexis 2013). Another 2.5% of this severance tax is distributed to all West Virginia counties and municipalities on the basis of population irrespective of the location of natural gas production. Id.


the value of oil and gas resources—and so these jurisdictions receive no real property taxes on account of the value of natural gas deposits.\textsuperscript{46} Pennsylvania cities, boroughs, towns, and townships are prohibited from imposing a tax on “natural resources . . . in such political subdivision[s] or on the preparation or processing thereof for use or market, or on any privilege, act or transaction related to the business of manufacturing, the production, preparation, or processing of . . . natural resources” except for “a local services tax and taxes on the occupation, per capita and earned income or net profits of natural persons engaged in the above activities.”\textsuperscript{47} Local services taxes and per capita occupation taxes on natural gas workers within a locality may be collected only by the locality of employment and may not exceed $52 per natural gas worker per year.\textsuperscript{48} The earned income and net profits taxes on natural gas production may be imposed at rates up to 1\%, but the definitions of these taxes limit them to income from natural gas worker wages and profits from the provision of natural gas personal services and they may only be imposed on residents.\textsuperscript{49} Thus, prior to February 14, 2012, Pennsylvania localities could receive from fracking only 1\% of the wages of residents employed in the production of natural gas and $52 from nonresident natural gas workers and received no property tax revenue from fracking.

Facing this relative dearth of local fracking revenue, the city of Pittsburgh, four surrounding boroughs, and the borough of Harveys Lake banned fracking, covering 0.227\% of Pennsylvania’s shale plays.\textsuperscript{50} But the revenue scenario changed abruptly with the passage of Pennsylvania Act 13 on February 14, 2012.\textsuperscript{51} Act 13 imposed an “unconventional gas well fee” of tens of thousands of dollars per year on each unconventional natural gas well. Proceeds from this fee above


\textsuperscript{50} Forest Hills, Pa., Ordinance 1017 (Oct. 19, 2011); Emsworth, Pa., Ordinances § 161 (2011); Baldwin, Pa., Code § 121 (2011); Harveys Lake, Pa., Ordinance 4 (2011); Wilkinsburg, Pa., Ordinance 2870 (July 20, 2011); West Homestead, Pa., Ordinance 659 (May, 10, 2011).

a statutorily set amount—approximately $17 million in 2014—are distributed to the localities in which the wells are located on a per well basis.\textsuperscript{52} And while new local legislatures in New York continue to ban fracking, no new local legislature in Pennsylvania has enacted a fracking ban since the enactment of Act 13. Since then, Pennsylvania has resembled Ohio in that only voters, not legislatures representing voters, have imposed a fracking ban. If the provision of per well revenue by Act 13 is responsible for the cessation of legislative local bans in Pennsylvania and not increases in popular support for fracking, then it is likely that more voter bans are to come.

New York cities, towns, and villages exercise the Euclidian zoning power.\textsuperscript{53} Any city with one million or more inhabitants may impose a local income tax, but only the city of New York has sufficient inhabitants to levy this tax, and it is outside the shale plays.\textsuperscript{54} Real property assessments in New York include the value of natural gas.\textsuperscript{55} But the impact of this inclusion on the exercise of the local zoning power is eliminated by New York’s constitution and general laws that together permit each city, town, and village to adjust tax rates as necessary to raise a statutorily calculated sum each year. The constitution implicitly limits city and village property tax rates—not town property tax rates—by capping yearly revenue not raised for debt service to two percent of the five-year average of the full valuation of all taxable real estate within the taxing jurisdiction.\textsuperscript{56} Because this constitutional provision permits taxes in excess of two percent so long as the excess is allocated to debt service, the constitutional cap is practically superfluous because real property tax rates sufficiently high enough to reach the cap are politically unsustainable.\textsuperscript{57}

\textsuperscript{52} Pa. Cons. Stat. § 2314(d)(1) (2014). This residue is divided such that 36% is distributed to counties per well located in the county, 37% is distributed to municipalities per well located in the municipality, and 27% is distributed to municipalities in counties in which wells are located based upon a complex formula. 58 Pa. Cons. Stat. § 2314(d)(1)–(3) (2014).


\textsuperscript{55} New York Real Property Tax § 594 (McKinney 2014).

\textsuperscript{56} N.Y. Const. art. VIII, § 10.

\textsuperscript{57} Cities, towns, and villages generally may borrow up to 7% of the five-year average of the full valuation of all taxable real estate within the borrowing political subdivision. N.Y. Const. art. VIII § 4. New York
Further, a more stringent statutory cap on the growth of city, town, and village real property tax revenue including revenue allocated to debt service was enacted in 2011.\textsuperscript{58} The cap is not increased or decreased due to changes in assessed valuations. This means that the total value of real property as determined through assessments in New York do not really determine the amount of revenue that may be collected—the only practical import of these assessments is the determination of the relative burden of real property taxation as between different real property owners. Thus, New York cities, towns, and villages in the shale plays may effectively raise from real property taxes the full amount permitted under the statutory cap irrespective of any changes in assessed valuation due to natural gas. And so the revenue of the local jurisdictions in New York that exercise the Euclidian zoning power is effectively insulated from the decision whether to ban or permit fracking.

New York local revenues, however, are not politically insulated from the decision whether to ban or permit fracking because there are political limits in addition to legal limits on the amount of taxation that may be imposed. The political constraints likely result in some jurisdictions raising less through real property taxes than is permitted under the statutory cap because to raise the full amount would inhibit reelection of legislatures setting the amount to be raised. But this ultimate political check on raising revenue is a far weaker constraint on the exercise of the zoning power than legal checks on raising revenue through property taxes such as those in place in Ohio and Kentucky. A local legislature that maximizes both revenue and tenure sets the amount of revenue at the highest politically supportable amount. The addition of valuable real property to be taxed would increase the amount of revenue raised at the same rate. Thus, all else being equal, an addition to the tax base should increase the politically supportable amount that can be raised and a reduction of the tax base should likewise decrease the politically supportable amount that can be raised. But these marginal increases and decreases may be entirely offset by political realities where a ban is politically popular because the imposition of the ban may secure to the local legislature additional votes that are a sufficient electoral buffer to result in a net increase of the politically supportable amount.

Furthermore, any locality in New York with a politically supportable amount of revenue from real property taxes that significantly exceeds the statutory cap faces neither a legal nor a political revenue reason not to ban fracking. Any reductions in the

\textsuperscript{58} N.Y. \textsc{General Municipal Law} \textsection{3-c} (McKinney 2014).
property tax base resulting from a local fracking ban may be offset by rate increases without exceeding the politically sustainable amounts. And so local legislatures in New York that raise the full amount authorized under the statutory cap may secure additional political security by banning fracking without any sacrifice in revenue.

Thus, New York cities, towns, and villages have at best a weak political check on revenue that constrains the exercise of the Euclidian zoning power and at worst have neither a political nor a legal check. Determining whether shale play localities comfortably collect the full amount authorized under the statutory cap is outside the scope of this Article. Even if the cap were not ever imposed and all New York localities were collecting maximum politically supportable amounts, the political check that would operate is likely to be weak in the face of significant popular opposition to fracking.

III. Representation Through Taxation

The foregoing suggests the presence or absence of certain forms of taxation influences the exercise of the zoning power by local governments. Some forms of taxation evidently represent fracking interests because governments prefer policies that increase revenue and disdain policies that decrease revenue. Where fracking leads to revenue increases for local governments, legislative fracking bans are exceedingly scarce. Where fracking does not lead to revenue increases by local governments, fracking bans are far more prevalent. These data support the hypothesis that private interests may be represented through taxation as well as elections. Income taxes would represent interests that produce income. Properly limited ad valorem property taxes would represent interests that increase the value of real property. Sales taxes would represent interests that increase transactions in the marketplace. The mix of taxes collected by a government would dramatically influence its operation. Two metaphors are apt for the role representative taxation may play in this democratic republic. Elected officials have both vote-seeking leaves and revenue-seeking roots. And so the opinions of electoral majorities in the United States provide the sail whilst representative taxation offers an important anchor.

Purely electoral theoretical models of American local, state, and federal governments focus on the decision-making of individual elected officials, but the underlying tendency of governments to maximize revenue is likely an institutional phenomena. An institution tends to maximize what the institution measures. A proposal made by an individual that happens to be likely to increase the measured quantity garners support within the institution even if the proposal is not made by an individual who aims to increase the measured quantity. This institutional phenomenon may operate within governments that measure revenue so long as there are proposals capable of affecting the amount of revenue that can be collected. And for private interests
to be represented as a result, the amount of revenue that can be collected must be dependent on the advancement of private interests. Once these conditions are satisfied, a government’s actions are likely to deviate from the sum of the interests of individual legislatures pursuing political security and advancement by pleasing voters and campaign contributors. For example, banning fracking appears at the moment politically popular but in local jurisdictions that tax fracking this political popularity does not yield the desired local legislation.

At first blush, this all may seem undemocratic because the carrot of revenue must compete with the carrot of votes in guiding elected governments in determining policy. But the purpose of elections is to insure that in determining policy “the decisive voice w[ill] be that of the people.”59 And the people may speak with two voices, as voters and as taxpayers. If the private interests represented by taxes approximate the public interest, it is perfectly legitimate for the voice of the people as taxpayers to trump occasionally the voice of the people as voters.

As the discussion of New York local governments other than the cities of New York and Yonkers illustrates, not all governments in the United States are likely to be influenced by taxation because some local governments may easily collect year after year a statutorily capped amount of revenue.60 Local governments that collect no representative taxes are a valuable control group for empirical research on representative taxation. In these jurisdictions, the people speak only as voters. Further empirical research into the differences between these local governments and other similarly situated local governments that collect representative taxes will either empirically support or refute the theory that many governments in the United States can be modeled as seeking both votes and revenue. The results of this initial investigation into fracking bans makes consideration of implications of governmental revenue seeking and representative taxation for environmental policy immediately worthwhile.

IV. Implications for Environmental Policy

If taxation both influences policy and represents private interests, then the composition of government revenues should be considered in determining the proper locus of environmental policymaking.

The environmental policymaking locus determination has two distinct dimensions. Horizontally, what policymaking role should be


60. The cap on local government revenue in New York is only two years old. As outlined above, prior to the cap, there was a weak form of representation of private interests through taxation. Local governments elsewhere may have not collected representative taxes for even longer.
played by legislatures, executives, judges, and agencies? Vertically, what policymaking role should be played by the federal government, states, and localities? Along each of these dimensions there are two appropriate evaluative criteria. First, will the governmental actor select the proper balance between environmental protection and other concerns? Second, will the governmental entity act rigorously but with restraint in achieving the selected balance? And so the choice of policymaker involves two analyses for each of the twelve different potential horizontal and vertical loci, twenty-four different analyses in all. This Article provides comparative policy and taxation data on only one of the twelve loci, local legislatures. Rather than broaden the scope of this Article’s discussion of implications for environmental policy beyond the scope of the data provided, this section will analyze only local legislatures, as shown by the bolded text in Table 2. This limited discussion will hopefully demonstrate that the theory of representative taxation may offer a great deal to the evaluation of the twenty-two other environmental policymaking locus analyses as well.

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<td>Rigor and Restraint</td>
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Table 2: Policymaking Locus Inquiry Matrix

A. Local Legislative Balance Selection

Environmental protection is but one of the many competing concerns for local legislatures and the people they represent. One way to frame the resulting choice is the selection of the point at which greater environmental protection is worth less than its cost. This abstraction is overly linear and divorced from day-to-day decision-making processes. The better view is that for each decision maker there are sets of decisions in which environmental protection wins out against other concerns, and there are sets of decisions in which environmental protection loses out. Thus, there is not a point on a single line of policy with environmental protection on one side and everything else on the other; there is a complex process by which greater environmental protection is selected in some instances and less environmental protection is selected in other instances. Even in this diffuse and nonlinear decision making process, the relative size of the sets may be said to represent the selection of the balance between concerns over environmental protection and everything else.
In every locality the theoretical returns from elections on every decision implicating environmental protection concerns constitutes the potential direct electoral selection of the locally desired environmental protection balance. This is the balance that would be selected if a locality were governed as a pure democracy. There are too many local governments in the United States to say how many localities exist in which the zoning power is always and only exercised by local voters, but such a form of local government is apparently exceedingly rare.\(^{61}\) In a typical locality, day-to-day environmental policy determinations are made by elected representatives. The election of representatives by members of the community is believed to achieve more efficiently, though not perfectly, the selection of a balance that matches the theoretical balance that would be selected by direct elections. This, then, is the electoral representation of private preferences in the determination of environmental policy. Where local government revenues are invariable, the results of electoral representation alone on policymaking are most evident.

Local representative taxation through income taxes and limited ad valorem property taxes evidently shifts the balance selection away from the balance that would be selected by the process of electoral representation alone. Where these taxes are collected, the interests of fracking represented through local taxation are more often able to withstand the forces of electoral representation in the face of electoral expressions of local preferences that might otherwise be sufficient to result in a local legislative ban of the practice.

Representative taxation does not necessarily shift the selection of the balance between environmental protection and everything else away from the theoretical direct election balance. Given the power of small but motivated groups to sway generalized electoral outcomes, the pure electoral representation outcome might often be farther from the theoretical direct electoral outcome than would be the outcome of a combined system of both electoral and taxation representation.

And representative taxation does not necessarily result in less environmental protection than pure electoral representation. If local legislatures tax environmental benefits directly or indirectly, then the phenomena of representative taxation would theoretically increase the size of the set of decisions that select greater environmental protection over other interests.\(^{62}\)

Local taxation system variance from state to state and locality to locality ought to be considered in analyzing the local legislative

\(^{61}\) A few small localities hold town meetings in which the zoning power is exercised by direct elections.

\(^{62}\) There are few, if any, taxes imposed directly on environmental benefits in the United States. Some have even proposed environmental detriment taxes such as excise taxes on energy consumption or carbon emissions.
selection of the balance between environmental protection and everything else.

For example, the presence of local income taxes seems to dramatically impact the exercise of the zoning power. Thus, the local income tax jurisdictions in Ohio, cities and villages, stand in stark relief to those jurisdictions that collect only the limited ad valorem property tax, townships, when viewing a general zoning map.

Figure 8: Northeast Ohio Income Tax Localities Map Alongside Northeast Ohio General Zoning Map63

The visible differences in permitted residential density and permitted uses between the zoning in the Ohio cities and villages on the one hand and Ohio townships on the other could be explained as a result of differences in the preferences of voters. A model that instead points to the differences in local revenue systems offers an explanation that assumes less variance in individual preferences. If variance in local taxation system plays a role in the variance in local legislative outcomes, then prevailing views regarding the degree of variance in individual environmental preferences ought to be reexamined.

B. Local Legislative Rigor and Restraint

Once a local legislature selects a balance between environmental protection and everything else, putting that environmental policy into practice effectively and efficiently requires both rigor and restraint. Rigor ensures that the environmental policy is actually achieved. Restraint is required to ensure that other interests are not unduly sacrificed in the achievement of the environmental policy.

To some degree, electoral representation imbues rigor and restraint into the process of local legislative policy implementation. But there are significant limits. Generally, future elections offer the only means of retrospective evaluation of the work of local legislators. For the prospect of future elections to ensure rigor and restraint, not only must current local legislators be highly motivated by the prospect of future electoral failure, local legislators must also believe that the failure to act rigorously yet with restraint to effectively and efficiently achieve the policies desired by the electorate has a significant probability of impeding reelection. To the extent this is not so or is insufficient, electoral representation depends upon the ability of voters to prospectively evaluate candidates for local office. That is, voters are tasked not only with selecting candidates who will pursue the policies desired by the voters, but also candidates whose work will likely achieve those policies without undue sacrifice of other important interests. This is a tall order because the best indicator of an individual’s rigor—passion for desired policies—is too often an indicator of an absence of an individual’s restraint stemming from a myopic focus on some policies to the exclusion of other interests. Whether these limits render electoral representation as a means to ensure rigor or restraint insufficient is a matter beyond the scope of this Article, but the problem these limits create is evident. Electoral representation alone may ensure nothing more than that local legislators will either espouse the environmental policy desired by the electoral majority while working none too hard to achieve that policy, doing only as much is required to gain electoral support, or work hard to actually achieve the desired environmental policy yet do so by needlessly and unduly sacrificing other important interests.

Fortunately, representative taxation theoretically may yield rigor and restraint in local legislative environmental policy implementation. If local legislatures institutionally tend to maximize revenue and revenue depends in part on environmental quality, then greater environmental protection would tend to be achieved even without the presence of individual local legislators who passionately pursue environmental protection. And if private interests are represented through the generation of revenue, local legislation designed to achieve a desired environmental policy may tend to be shaped so as not to unnecessarily and unduly harm private interests because harming these private interests would result in the loss of revenue.

**Conclusion**

This Article has shown an evident variation in local legislative responses to fracking. While there are many possible explanations, this Article has offered the theory that in some localities the private interests associated with fracking are well-represented by the taxes they pay while in other localities they are not. The additional representation of the private interests associated with fracking would
stem from the institutional tendency of local governments to prefer policies that augment variable revenues. In some localities, fracking has the potential to increase local revenues and so would have greater institutional support while in other localities fracking does not have the potential to increase local revenues and so would have less institutional support. In this way, taxation may dramatically affect the local formulation of environmental policy. For that reason, representative taxation should be considered in determining the proper locus of environmental policymaking. This Article begins that effort by examining its role in one potential decision-making locus.

This is only a start—representative taxation may play an even greater role in our system of government. The theory of representative taxation may explain a great deal. Perhaps many Americans do not exercise the right to vote because their interests are represented sufficiently through the taxes they pay. Perhaps the United States runs a large trade deficit because the federal government is prohibited from taxing exports but may tax imports and accordingly cultivates imports more than exports. Perhaps Americans who greatly distrust government live under local and state governments that do not levy sufficiently representative taxes to yield high-quality governance. These are but a few of the contemporary puzzles to which representative taxation may provide the answer.
APPENDIX

Maryland

Mountain Lake Park Town Ban

New York

Albany City Ban

Alfred Town Moratorium

Alfred Village Moratorium

Altamont Village Ban

Andes Town Moratorium

Annsville Town Moratorium

Augusta Town Moratorium

Ava Town Moratorium

Avon Town Moratorium

Barrington Town Moratorium

68. ALTAMONT, N.Y., CODE § 355-12(B) (2012).
70. Annsville, N.Y., Ordinance 2012-01 (Feb. 9, 2012).
71. Augusta, N.Y., Ordinance 2011-01 (July 1, 2011).
74. Barrington, N.Y., A Local Law Imposing a One-Year Moratorium on Drilling for Natural Gas Within the Marcellus or Other Shales (July 13, 2011).
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75. **Beacon, N.Y., Code § 223-17.2** (2012).
76. **Benton, N.Y., Ordinance 2012-02** (Sept. 22, 2012).
80. **Brighton, N.Y., Hydraulic Fracturing and Related Activities Moratorium Local Law** (June 8, 2011).
82. **Brookfield, N.Y., Resolution No. 80** (Oct. 6, 2012).
84. **Caledonia, N.Y., Ordinance 2012-01** (June 14, 2012).
Colden Town Moratorium

Conesus Town Moratorium

Copake Town Moratorium

Cortlandville Town Moratorium

Danby Town Ban

Danube Town Moratorium

DeWitt Town Ban

Dryden Town Ban

Eaton Town Moratorium

Elbridge Town Moratorium

Enfield Town Ban

Fabius Town Moratorium

Forestburgh Town Ban

Freeville Village Moratorium

Fulton Town Moratorium

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105. Genesco, N.Y., Interim Moratorium on All Natural Gas and Oil Activities (2012).
108. Germantown, N.Y., Moratorium on Natural Gas and/or Petroleum Exploration Activities, Natural Gas and/or Petroleum Extraction Activities, and/or Natural Gas and/or Petroleum Support Activities (2012).
110. GUILDERLAND, N.Y., ZONING LAW § 280-23 (2012).
111. HIGHLAND, N.Y., CODE § 190-27 (2012).
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Ledyard       Town     Moratorium\textsuperscript{121}
Lenox         Town     Moratorium\textsuperscript{122}
Lima          Town     Moratorium\textsuperscript{123}
Lincoln       Town     Moratorium\textsuperscript{124}
Little Falls  City     Moratorium\textsuperscript{125}
Livonia       Town     Moratorium\textsuperscript{126}
Locke         Town     Moratorium\textsuperscript{127}
Lumberland     Town     Ban\textsuperscript{128}
Manchester    Town     Moratorium\textsuperscript{129}
Manheim       Town     Moratorium\textsuperscript{130}
Marbletown    Town     Ban\textsuperscript{131}
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Marshall      Town     Moratorium\textsuperscript{133}
Middleburgh   Town     Moratorium\textsuperscript{134}

\textsuperscript{119.} LaFayette, N.Y., Town Board Resolution (Aug. 26, 2013).
\textsuperscript{120.} Lansing, N.Y., Ordinance 2013-02 (2013).
\textsuperscript{121.} Ledyard, N.Y., Ordinance 2012-01 (Mar. 12, 2012).
\textsuperscript{122.} Lenox, N.Y., Ordinance 2012-01 (2012).
\textsuperscript{123.} Lima, N.Y., Ordinance 2013-02 (July 11, 2013).
\textsuperscript{124.} Lincoln, N.Y., Ordinance 2012-01 (2012).
\textsuperscript{125.} Little Falls, N.Y., Ordinance 2012-01 (Mar. 20, 2012).
\textsuperscript{126.} Livonia, N.Y., Ordinance 2011-01 (Dec. 15, 2011).
\textsuperscript{127.} Locke, N.Y., Ordinance 2012-01 (2012).
\textsuperscript{128.} Lumberland, N.Y., Zoning Law § 10 (2012).
\textsuperscript{129.} Manchester, N.Y., Ordinance 2012-02 (Mar. 20, 2012).
\textsuperscript{130.} Manheim, N.Y., Resolution No. 23 (Nov. 22, 2011).
\textsuperscript{131.} Marbletown, N.Y., Code § 129 (2013).
\textsuperscript{132.} Marcellus, N.Y., Ordinance 2010-02 (2010).
\textsuperscript{133.} Marshall, N.Y., Ordinance 2011-01 (July 17, 2011).
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137. Milo, N.Y., Resolution No. 22-11 (May 16, 2011).
138. Minden, N.Y., Moratorium on Horizontal and Directional Gas Drilling and Hydraulic Fracturing (2012).
143. NEW PALTZ TOWN, N.Y., CODE § 54 (2012).
144. NEW PALTZ VILLAGE, N.Y., CODE § 212 (2013).
146. Newport, N.Y., Ordinance 2012-02 (July 17, 2011).
147. NIAGARA FALLS, N.Y., CODE § 929 (2012).
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152. **Oneonta, N.Y., Code § 149 (2011).**
153. **Oneonta Town, N.Y., Code § 103 (2014).**
154. Onondaga County, N.Y., Resolution No. 11 (Feb. 2, 2010).
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177. RUSH, N.Y., ZONING LAW § 120 (2013).
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St. Johnsville Town Moratorium\textsuperscript{184}

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Stafford Town Moratorium\textsuperscript{186}

Starkey Town Moratorium\textsuperscript{187}

Sullivan County Public Ban\textsuperscript{188}

Summerhill Town Ban\textsuperscript{189}

Syracuse City Ban\textsuperscript{190}

Taghkanic Town Moratorium\textsuperscript{191}

Torrey Town Moratorium\textsuperscript{192}

Trenton Town Moratorium\textsuperscript{193}

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\item [181.] Skaneateles, N.Y., Zoning Law § 148 (2012).
\item [182.] Spafford, N.Y., Ordinance 2012-02 (2012).
\item [183.] South Bristol, N.Y., Ordinance 2012-01 (Jan. 9, 2012).
\item [184.] St. Johnsville Town, N.Y., Ordinance 2012-01 (Feb. 27, 2012).
\item [186.] Stafford, N.Y., Ordinance 2012-02 (Oct. 10, 2012).
\item [187.] Starkey, N.Y., Ordinance 2012-06 (Feb. 14, 2012).
\item [188.] Sullivan, N.Y., Resolution No. 148-10 (Mar. 18, 2010).
\item [189.] Summerhill, N.Y., Ordinance 2012-01 (2012).
\item [190.] Syracuse, N.Y., Code § 27 (2011).
\item [191.] Taghkanic, N.Y., Ordinance 2013-03 (Nov. 10, 2013).
\item [192.] Torrey, N.Y., Moratorium on Directional Drilling and Hydraulic Fracturing (Dec. 28, 2011).
\item [193.] Trenton, N.Y., Ordinance 2012-01 (2012).
\item [194.] Trumansburg, N.Y., Zoning Ordinance § 901 (2012).
\end{itemize}
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204. WARWICK, N.Y., CODE § 164 (2013).
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216. Lake Erie, Ohio, Ordinance 2012-10K (July 11, 2012).
218. Hinckley Township, Ohio, Ordinance 112111-01 (Nov. 21, 2011).
221. Montville Township, Ohio, Ordinance 021412.01 (Feb. 14, 2012).
222. Sharon Township, Ohio, Ordinance 11-08-11-3 (Apr. 24, 2012).
<table>
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<tr>
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**Pennsylvania**

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**West Virginia**

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226. Plain Township, Ohio, Ordinance 11-371 (July 12, 2011).
234. Wilkinsburg, Pa., Ordinance 2870 (July 20, 2011).