White Paper on Taxation Issues Related to Gas Drilling

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Tompkins County Council of Governments (TCCOG)
Gas Drilling Task Force
Assessment and Land Valuation Subcommittee

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Introduction

After months of study, the Tompkins County Council of Governments, Subcommittee on Assessment and Land Valuation Subcommittee concludes that current NY taxation policies and procedures are insufficient to properly measure and collect tax revenue from Marcellus or Utica shale gas production. New York should not issue permits for high volume, slick water hydrofracking in shale and other low-permeability gas reservoirs (hereafter referred to simply as "shale gas") until it is ready to capture the appropriate taxes to cover the costs to all levels of government based on sound policy and verifiable data.

NYS must develop revenue streams from gas extraction to pay for the additional costs to both State and local governments, at the time they are incurred, through a blend of permit fees, severance taxes collected by the State, and ad valorem property taxes collected by local taxing entities such as municipal governments and school districts.

Our research uncovered four conditions we feel are necessary prerequisites to considering drilling permits.

1. NY must establish a new Severance Tax that is shared with local governments. It is the most effective way of capturing tax revenue in a timely fashion.

Gas is a New York State resource that once extracted will be gone forever. A severance tax provides one-time revenue to the State for its resource. A new severance tax is necessary to off-set local and state government costs, especially, but not only, for the costs that come with the early stages of gas development. NYS must institute a tax and fee structure that provides timely revenue at both state and local levels to recover cost burdens, public investment and gas industry oversight in the short-term and in the long-term. It is common practice among gas-producing states to have both an ad valorem property tax at the local level and a severance tax at the state level. Both are necessary. And due to the time lag between permitting and ad valorem revenue to local governments, the severance tax will need to be shared with local governments to prevent the civil society from exceeding its tax cap limit in order to provide infrastructure for this industry. Further, funds must be allocated in a manner that is shared fairly to cover state, local, and regional cost increments.

2. New, accurate and verifiable methods of measuring shale gas are required as an essential condition of fair taxation.
The state must establish new, accurate, transparent, and verifiable methods of measuring and reporting shale gas production. The current method of self-reporting by the energy companies is not acceptable. Production is the critical factor in the formula for calculating ad valorem property taxes and a state severance tax, as well as for fair royalty payments to landowners and subsequent income tax payments.

3. The Unit of Production Value ("UPV") formula needs up-dating for shale gas through and open and transparent process.
Shale gas economics will result in extremely low property tax collection for NYS municipalities, if any, if the existing formula is applied. The key factor in calculating ad valorem property taxes is the "Unit of Production Value" (UPV) formula. It must be updated in order to value the real property of this new and different type of natural gas extraction. NY State's Office of Real Property Tax Services (ORPTS) must conduct a transparent open process when establishing the formula and all applicable values.

4. A minimum delay in collection of tax revenue must be addressed through permit fees and a minimum annual assessment on production.
There will be at least a three year time lag between local budget determination, initial well construction, and collection of ad valorem tax revenues, more if wells are drilled and capped. NY should update the minimum ad valorem assessment, which can be applied in cases where annual production is delayed, and consider appropriate permit fees at both local and State levels that would apply related to each aspect of operations.

Detail and Recommendations

Each of these topics is discussed in further detail, followed by our recommendations for action.

1. A New State Severance Tax.
Severance taxes are taxes on natural resources like gas or oil when they are "severed" from the earth. Severance taxes are paid by the gas company that has the permit to remove the gas. They are typically calculated by measuring the dollar value of gas or its quantity, or some combination of both factors, and then applying a tax rate. In states with long histories of extraction, such as Texas, Oklahoma, and Louisiana, tax policies are very complex, with different rates for different types of wells (exploratory, production, stripper wells, etc.), waivers, exceptions, and incentives layered in and sometimes progressive rates that increase with volume of sales.

NY is one of two gas producing states (Pennsylvania is the other) without a severance tax. It seems the ad valorem property tax policy was felt to be sufficient and fair taxation at the time it was established in 1978, and until now this policy has not been questioned. Shale gas development in the Marcellus and Utica formations offers a radically different set of known governmental costs and potential benefits that require the addition of a severance tax for these reasons.

- Local governments need to have a revenue source associated with drilling sufficient to cover their costs and to make a fair contribution to the well-being of the community. Just as every other local business contributes fairly to their host community, so must gas companies.
- State government needs a revenue source for the same reasons. The costs incurred by state departments of DEC, Health, Transportation, Taxation, etc. will obviously be in addition to those of local governments.
- Any changes to the existing tax system should enhance revenues expected by both local and State governments. Changes that benefit the State to the detriment of local governments should be rejected.

We want to address the argument proposed by some that the ad valorem property tax is a hybrid of both property and severance tax, who maintain that a new severance tax would be redundant or unnecessary. First, the ad valorem property tax is clearly a property tax, with the assessed value determined by an income approach, no differently from many other business assessments. Second, the variables/factors in NY's ad valorem tax formula are the same factors used by other states that have both ad valorem property and severance taxes. To be equitable and on parity with other natural gas producing states such as Texas, Wyoming and Colorado, NY must have both an ad valorem property and a severance tax. And third, even if it were labeled a hybrid tax, the State still needs substantial new revenues to pay for the government and community costs of extracting shale gas. A severance tax is the logical method to collect the revenue.

According to a 2009 extensive study of severance taxes throughout the U.S., gas production is taxed at the wellhead in 29 other states as a 2008 "primary severance tax burden" (as opposed to the "effective rates" which allow deductions for expenses) that ranged from 25% in Alaska to .13% in California. Here is a sampling of state tax rates.

Alaska	25.0 %
Alabama	10 %
Montana	12.2 %
New Mexico	7.9 %
Texas	7.5 %
Oklahoma	7.1 %
Wyoming	6.1 %
West Virginia	5.8 %
Michigan	5 %
Arkansas	5 %
Louisiana	4.9 %
Colorado	4 %
North Dakota	2.5 %
Ohio	.4 %

(source: Allegheny Conference on Community Development, 2009, see also National Conference of State Legislatures, 2007.)

The severance tax rate in NY should be determined after estimates of the public costs at the state, regional and local levels are carefully considered and totaled. New costs to state and municipal

governments are just now being estimated by DEC, Department of Health, Department of Transportation, and others. The severance tax should be sufficient to cover these costs and provide additional revenue to the State and to local governments.

We recommend:

- NYS institute a tax and fee structure that provides timely revenue at both state and local levels to provide recovery of cost burdens, public investment and gas industry oversight in the short-term and in the long-term, and to ensure that the gas industry pays its fair share to the well-being of the communities impacted by this activity.

- A new NYS severance tax should be based on a cost-plus basis, with portions remitted to the counties and townships impacted. Without direct experience to document costs, NY might look at other states' rates. However, NY will likely have many new expenses other states don't have. For example, we strongly recommend new efforts such as establishing new open data bases of drilling violations and accidents (not available through the DEC now), health assessments (not yet conducted), tracking of health problems, independent studies to monitor water quality, and so on. We estimate now that NY would need a rate at the higher end of the range used by other states, perhaps 8% and possibly as high as 12% on gross value of gas production.

- NYS should establish a fee structure that will cover certain of the costs for municipalities and the state through permit fees, to ensure that some specific costs are covered by the industry regardless of the timing or level of income from production. Examples would include: road and bridge repair; added EMS, police and jail expenses; courthouse and assessment department expenses; planning, and sales tax lost by displaced businesses.

- A significant portion of tax should be specifically allocated on a county by county basis using a formula that takes into account regional economic impacts including direct costs for increased governmental services; repair or remediation of roads, infrastructure, and natural resources; protection of air, water and soil; and losses to existing industries. The State should establish a fund from severance tax receipts specifically to invest in the protection of and development of industries, particularly tourism and agriculture, that will be harmed by regional gas drilling infrastructure and activities.

2. Accurate and Verifiable Methods of Measuring Gas Production

Today, gas production is self-reported by the company holding the permit to drill. The gas company is responsible for reporting the out-put of gas for each well to the DEC. This policy is likely related to the fact that NY does not have a severance tax. Standard practice in most other states is for the amount of production to be measured by the state rather than by the producer, since their tax revenues depend on accurate and verifiable data. Obviously, it is in the best interest of state and local governments, and for lease-granting and compulsory integrated land owners, for the state, and not the producer, to be in charge of ascertaining the amount of production.

There is currently no third party verification of production numbers. Responsibility for verifying fairness in all other commercial transactions is handled by Weights and Measures, but as far as

we can determine, no State or local government agency in NY plays a role in measuring gas production beyond regulating the type of meter that measures the gas at the well head. NY has no regulations regarding how and where the meters are installed, nor does any state office oversee installation, verify accuracy of the individual meters, or verify accuracy of the reporting process.

Accurate production volume reports are critically important since this is the only variable, after the Office of Real Property Tax Services (ORPTS) calculates the Unit of Production Value, that determines the assessed value of the gas producing property for ad valorem property tax purposes. But neither local governments nor land owners with royalty interests have any way of being assured that the amount of gas being reported is accurate.

Another, but separate, issue of transparency relates to the economic profile (income and expenses) of Marcellus or Utica wells that is used by ORPTS to create the value of New York's formations (Unit of Production Value). Records of the economic profile include: average income, dry hole costs, capital investment, royalties, taxes, operating expenses, decline curves, etc. This information is kept by the DEC for 3 years, but is not available for public access, nor is it subject to FOIL. Therefore, it cannot be reviewed by local government or the public.

Why is this hidden information a problem for those who collect property taxes? Because self-reported information provided by the gas industry is open to loopholes and manipulation for its own advantage. Just one example is reported income. When, where and to whom the gas is sold is entirely up to the producing company, of course, as in any business. But open records might show that a company is selling its gas to one of its own subsidiaries at less than market value in order to lower its reported income and, therefore, reduce its property and other tax burdens.

We recommend:

- Some NYS agency be given the authority and full staffing, equipment, and training needed to verify meters at each well. Gas meters must be regulated, approved, and inspected during installation; checked on a routine basis; and production numbers must be read and reported by NY State rather than by the gas companies.

- Economic profiles of income and expenses provided by gas companies must be scrutinized carefully by ORPTS, and, at the very least, the process by which NY conducts this scrutiny must be explained to the public. ORPTS should publically disclose statistical summaries of the data that are used to make the UPV calculations. This annual report should include: the number of wells/firms for which costs are reported; summaries of their characteristics and representativeness (or lack thereof) in relation to the full database of spudded wells on record with the DEC; and mean, median and standard deviation data for costs and revenues reported for the individual components of cost and revenue used in the formula, not just the overall totals.

3. Ad Valorem Property Taxes

ECL Article 23-0303 states that local governments have responsibility and authority regarding assessment and taxation of gas wells. Our research has led us to believe that local governments

have neither responsibility nor authority, because two of the three factors that determine property tax are under others' control. While local governments do set property tax levies, the valuation of the gas producing property is arrived at by multiplying the Unit of Production Value (set by ORPTS) by the volume of gas produced (reported by the gas company holding the permit.) We've discussed the self-reporting of production problem above. Now we look at the Unit of Production Value formula.

What is ad valorem property tax? Natural gas producing property (referred to by ORPTS as an "economic unit"), is considered real property and therefore subject to ad valorem property taxes levied by municipalities, schools, fire districts, etc. based on a "fair market value". In New York, as in most states, the mineral interests are incorporated into taxation calculations only after they are "developed," hence their ad valorem ("according to value") quality is not taxable until those interests are extracted and sold. The taxable value is based upon the ultimate market value of the resource, minus permissible expenses and reduced by a permissible measure of risk. .

The company that holds the lease to the well pays the ad valorem property taxes, and in NY, the landowner's property bill is not affected.

The assessed value of any gas producing property is a function of the volume of gas that a particular well produces in a given year multiplied by the Unit of Production Value per 1000 cubic feet (mcf). ORPTS uses a standard formula to create the value for each geological formation, such as Trenton Black River, Medina, or Marcellus.

ORPTS uses the following three variables, described in their manual and illustrated by the formula in the appendix, to calculate the Unit of Production.

- Gross income of the wells in the formation
- Costs of production for wells in the formation
- Discount rate, representing risk, time value of money, depletion, and future projected production (decline curve)

We are concerned that ORPTS does not currently have the staff capacity to deal with a significant uptick in drilling activity. They have stated this publicly and privately. ORPTS must be given the resources to hire and train qualified staff before they are called upon to make these critical determinations.

How much revenue is expected from ad valorem taxes? Any estimate of tax revenue – either for ad valorem or severance tax - has to include the volume of gas, which is the hardest figure to predict. The USGS estimates for the whole Marcellus formation published this past summer are considerably lower that Penn State's figures, and are used by the US Department of Energy as the most authoritative. Estimates of recoverable US reserves were recently reduced. While industry sources predict high levels of gas production and local taxes, all estimates are suspect without actual test well data from NY.

Economics of shale gas today predict very low property tax collection. Research first reported by financial analyst Arthur Berman has now been corroborated by others and reported in the New

York Times, the Wall Street Journal, and Bloomberg, among others. His detailed analysis in the August 5, 2011 issue of The Oil Drum, states that given today's prices, actual costs of shale gas production are far greater than income from gas. His calculations are based on historical data in Barnett, Hainesville and Fayetteville shale plays.

> "Our work on the three most mature shale plays has profound implications. Facts indicate that most wells are not commercial at current gas prices and require prices at least in the range of $8.00 to $9.00/mcf to break even on full-cycle prices, and $5.00 to $6.00/mcf on point-forward prices. Our price forecasts ($4.00-4.55/mcf average through 2012) are below $8.00/mcf for the next 18 months."

With the price of gas having dropped by January 2012 to under $3 / mcf, this analysis does not seem implausible. If the production predicted by Berman continues to be correct, the Unit of Production Value for Marcellus could be zero for many years, because the factors in the UPV formula anticipate profit, not a loss, from production. For comparison, the UPV in 2010 was $12.12 for Trenton Black River or $11.32 for Medina formations. If, as Berman and others suggest, gas companies are now making their profits from selling leases rather than from gas production, there could be little or no local property tax revenue.

We recommend:

- Ensure that ORPTS or other assigned agency has the staff it needs to maintain UPV values in the public interest.
- Re-examine variables used in the UPV formula, particularly those that apply to allowable deductions from gross income, costs of production, and those used to set the discount rate.
- Conduct a transparent and open process, that allows sufficient time for input, when establishing the formula and all applicable values.

4. Expected Delays in Tax Collection

Whatever possible revenue may be in the future, timing of ad valorem property tax collection is a problem. We have learned from Pennsylvania's experience that the delayed timing of tax revenue during a rapid development (boom) period puts a great deal of stress on municipal governments and local services. Demand on services in PA, as documented by studies by Penn State Cooperative Extension and by Susan Christopherson at Cornell University, include courthouse use, road damage, emergency road services, water testing and health department services, police and courts, drug abuse services, low-income housing, and much more. We can't emphasize enough that tax revenue to cover these additional costs should be generated by the industry and those who benefit from extraction, not by the general public.

Timing of production reports is not in sync with the local tax cycle. Detailed timelines (see attached) describe each step in the cycle from gas well construction to collection of town and county taxes. The flow-chart illustrates how information is gathered and then processed, explaining why revenues to towns and counties will be delayed from 2 to 4 years from the year of production.

Delays are even longer when production is intentionally put off due to the low price of gas. In addition to the apparently unavoidable procedural delays in taxing production, Bradford County, PA provides an example of why tax revenues will be delayed, perhaps for many years, after the impact costs of drilling are felt by the locales. In Bradford County, as of April 2011, the PA DEP had issued 1700 drilling permits; however, only 240 of those permitted wells were producing gas. It appears that most of the rest are being held for production at a later time, presumably when the price of gas has risen. Drilling the wells now enables the company to keep the leases from expiring, but with the price of gas under $3 / mcf it's hard to predict when those other wells will go into production.

Real Property Tax Law anticipated possible delays in production, and the ORPTS manual (page 8) describes a minimum assessment to be collected. However, it can only be applied once/well, is only applied for no more than 2 years, and is based on a minimum annual production equivalent to 2,400 mcf (or, 2.4 mmcf). Because Marcellus annual gas production per well is expected to be far greater than 2.4 mmcf, and because the delay in production may be much longer than 2 years, this law should be amended specifically for Marcellus, Utica and other similar formations.

Finally, we mention one more issue that the state and local governments are unprepared for: split estates. A split estate occurs when the subsurface mineral rights and the surface rights to a property are "split", i.e., bought and sold separately. While split estate real estate transactions are typical in states that have long histories of mining and mineral extraction, much of NY has little or no experience with this property structure. We are hearing anecdotal reports from real estate agents in NY and in Pennsylvania that such transactions are on the horizon, and they will add increased complexity to public real estate records and property tax collection. Our County Clerks, information technology departments, assessment offices, and others need time to prepare databases and other methods to keep accurate records and to anticipate the changes they will face.

We recommend:

- ORPTS needs to hire and train additional qualified staff and hold public hearings to solicit input regarding how the Unit of Production Value will be set, prior to the release of any permits for high-volume shale gas wells. Information about the hearings should be widely disseminated.

- The State should consider charging impact fees before many of the most burdensome costs are felt since any revenues from taxation will be delayed.

- The minimum assessment for delayed production must account for the very likely scenarios of Marcellus gas. The length of time in which the minimum assessment can be applied should be extended, perhaps to a limit of 10 years or even indefinitely, and the production equivalent should be increased from 2.4 mmcf to a reasonable average estimate; the current estimate is so low that we suggest an exponential increase to as high as 200 mmcf.

Attachments:

A. ORPTS Formula for Unit of Production Value.

B. Gas Drilling, Production and the Assessment Cycle charts, Jay Franklin, Director of Tompkins County Assessment Department, October, 2011

Sources of information:

Oil and Gas Mineral Services website, "Ad Valorem Taxes"
http://www.mineralweb.com/owners-guide/leased-and-producing/royalty-taxes/ad-valorem-taxes/

Western Royalties website: "Ad Valorem Taxes"
http://www.sell-mineral-rights.com/mineral-and-gas-royalty-taxation.htm

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"Impacts of Marcellus Shale Development on Municipal Governments in Susquehanna and Washington Counties, 2010" Penn State Cooperative Extension.

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http://www.southlakedrillingfacts.com/SouthlakeDrillingFacts.com/In_the_News/Entries/2011/2/18_Tough_Assessment_of_Shale_Gas_Extraction_Records_Reveal_Industry_May_Have_a_Shale_Gas_%E2%80%9CBubble%E2%80%9D_on_its_Hands.html

Allegheny Conference on Community Development: Benchmarking Pennsylvania: A Summary of Severance Taxes on the Natural Gas Industry, Febraruy 2009.
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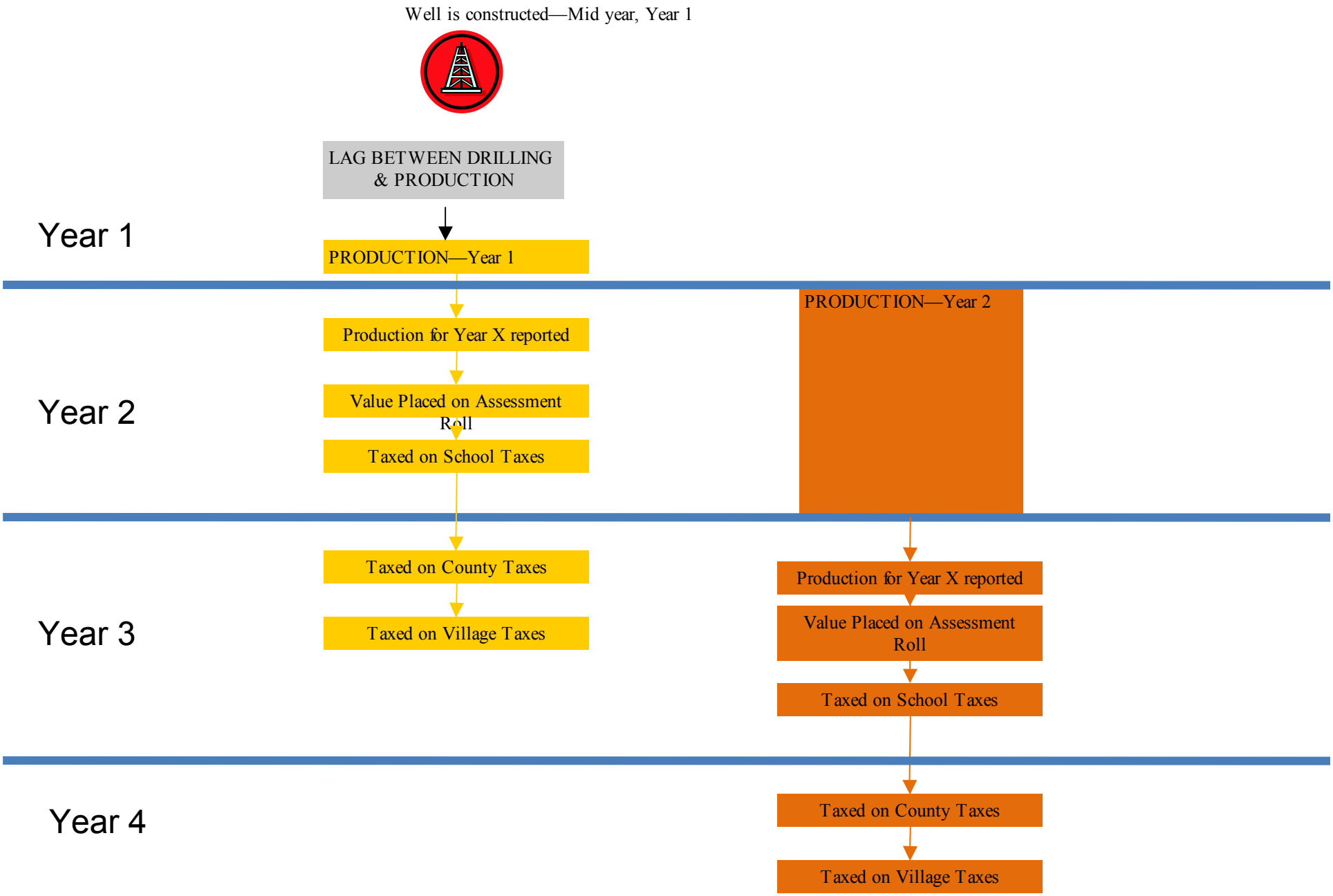
National Conference of State Legislatures: Taxing Natural Gas Production, 2007.
http://www.ncsl.org/issues-research/energy/taxing-natural-gas-production.aspx

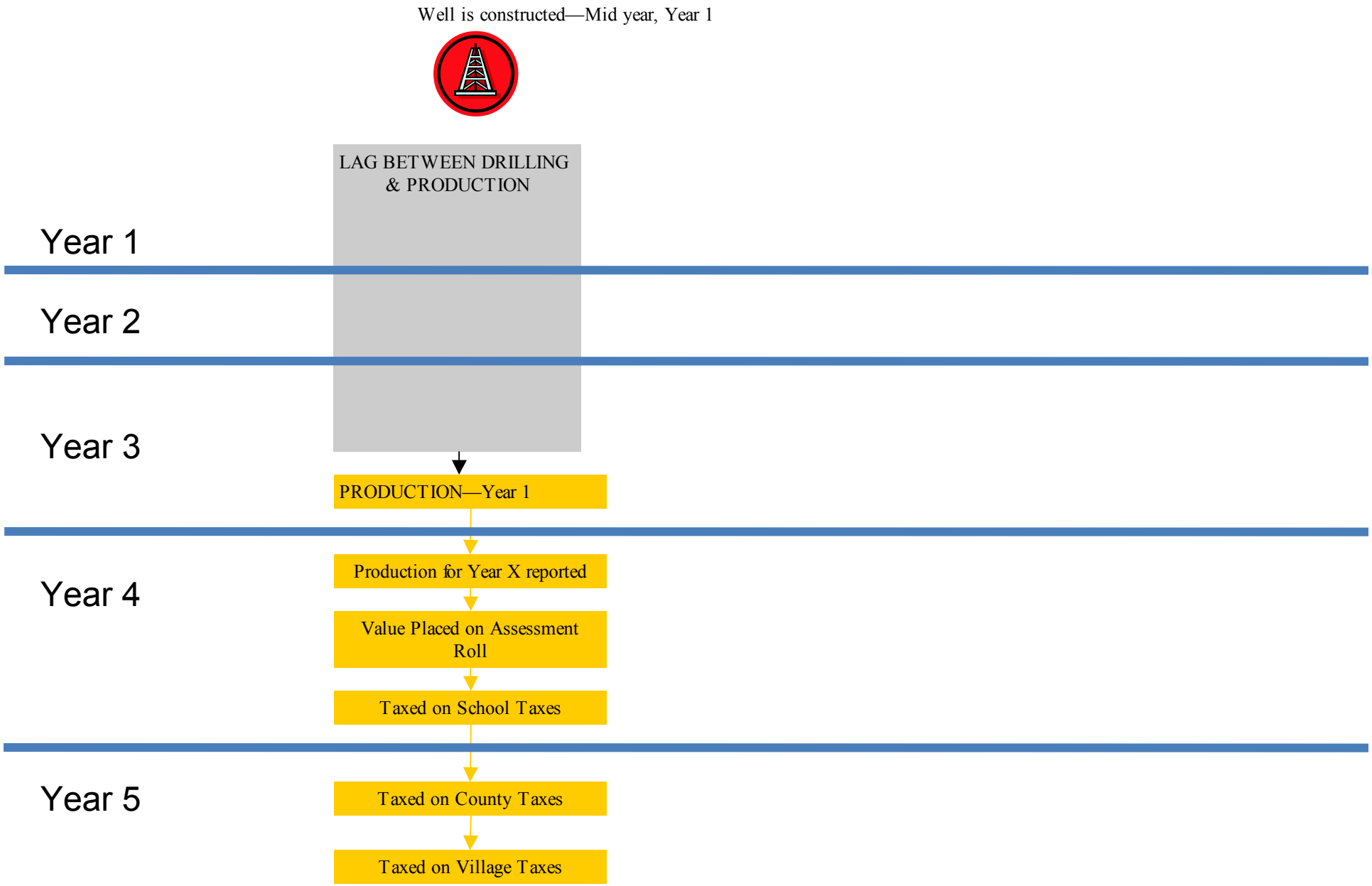
NYS Department of Taxation and Finance: Overview Manual For Valuation And Assessment of Oil and Gas Producing Property In New York State (ORPTS Manual)
http://www.tax.ny.gov/research/property/valuation/oilgas/overviewtoc.htm

NYS Department of Taxation and Finance: 2011 Unit of Production Values for Oil and Gas Production; Certificate of Final 2011 Oil and Gas Unit of Production Values:
http://www.tax.ny.gov/research/property/valuation/oilgas/prodvalues.htm

Gas Drilling, Production and the Assessment Cycle



Gas Drilling, Production and the Assessment Cycle



NY State ORPTS Formula to Determine Gas Formation UPV*

(Unit of Production Value)

PRODUCTION INCOME $
gross income minus royalties paid out to landowners

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PRODUCTION COSTS $
operating expenses, dry hole costs, depreciation, tangible investments, depletion, other royalties

Cash Flow

NET CASH FLOW

=

$ / MCF UNIT OF PROD. VALUE

=

BASE RATE %
not less than 17.5% represents risk, intangible costs, property and income taxes

+

%
Current average yearly rate from U.S. Federal Reserve

DISCOUNT RATE %
average over previous 5 years

Financial Risk

** Gas formation UPV **X** well production volume **=** assessed value of a specific gas property.*