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# Marcellus/Utica Shale

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## Discussion Topics

- Common Industry Terms and Definitions
- Video of Horizontal Drilling Process
- Overview of Geology Differences Between Marcellus and Utica Shale
- Background Regarding Marcellus Activity in PA
- Current State of the Shale Gas Industry
- Planning Opportunities for Income Deferral or Capital Gain Tax Treatment



## Industry Terms and Definitions

- Abandoned Well
  - A well no longer in use; a dry hole that, in most states, must be properly plugged
- Bonus
  - Usually, the bonus is the money paid by the lessee for the execution of an oil and gas lease by the landowner. Another form is called an oil or royalty bonus. This may be in the form of an overriding royalty reserved to the landowner in addition to the usual one-eighth or 12.5% royalty.
- Christmas Tree
  - An assembly of valves mounted on the casing head through which a well is produced. The Christmas tree also contains valves for testing the well and for shutting it in if necessary. The “Christmas Tree” includes blow-out preventer valves.



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## Industry Terms and Definitions (cont'd)

- Completion
  - To finish a well so that it is ready to produce oil or gas. After reaching total depth (T.D.), casing is run and cemented; casing is perforated opposite the producing zone, tubing is run, and control and flow valves are installed at the wellhead. Well completions vary according to the kind of well, depth, and the formation from which the well is to produce



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## Industry Terms and Definitions (cont'd)

- Delay Rentals
  - These are amounts paid to the lessor for the privilege of deferring the commencement of a well on the lease. Oil and gas lease agreements generally provide a deadline for the lessee to begin drilling of the lease. If the drilling has not begun within this period of time, either the lease agreement will expire or the lessee must pay a stated sum of money to retain the lease an additional year without developing the property.



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## Industry Terms and Definitions (cont'd)

- Flowing Well
  - A well capable of producing oil or gas by its own energy without the aid of a mechanical pump. Normally a pump is put on the well after the pressure reduction inhibits the rate of production



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## Industry Terms and Definitions (cont'd)

- Intangible Drilling Costs (IDC)
  - Costs incurred on items that have no salvage value, but are necessary for and incident to the drilling of wells to get them ready for production. Includes the costs of drilling, cementing and perforating the casing, and logging and fracturing the formation.



## Industry Terms and Definitions (cont'd)

- Oil and Gas Leases
  - A contract between an oil operator and a landowner which gives the operator the right to drill for oil and gas on his property for a consideration. It is simply a "ticket to hunt".
- Operating Expense
  - The expenses incurred through the operation of producing properties.





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## Industry Terms and Definitions (cont'd)

- Proven Reserves
  - Oil and gas which has not been produced but has been located and is recoverable.
- Pugh Clause
  - Prevents driller from drilling a small percentage of leased land to retain lease rights on the total acreage covered by the lease
- Rework Operations
  - Any major operation performed on a well after its completion in an attempt to restore or improve its ability to produce.



# Industry Terms and Definitions (cont'd)

- Royalty

- Royalties are amounts paid to landowners for the right to develop land, including oil and gas extraction. Unless a landholder wants to develop a property himself, they may lease the land to another person for development of minerals, such as oil and natural gas. In return for those development rights, anyone operating under a lease and recovering oil and gas customarily pays the landowner a royalty, or an agreed upon share of the minerals being developed.

- Pennsylvania currently has a minimum required royalty of 12.5% or 1/8 on all natural gas and oil leases

- Shut In

- To close the valves at the wellhead so that the well stops flowing or producing; also describes a well on which the valves have been closed

- Shut In Royalty



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## Industry Terms and Definitions (cont'd)

- Turnkey Contract
  - A contract in which an operator or drilling contractor agrees to furnish all labor and materials necessary to drill a well to a certain depth or stage of completion for a specified sum of money. The operator or contractor assumes all of the responsibility and risks involved in completing the operation.



## Industry Terms and Definitions (cont'd)

- Working Interest
  - A working interest in an oil or gas property is one that is burdened with the cost of development and operation of the property, such as the responsibility to share expenses of drilling completing or operating an oil and gas property, according to working or operating mineral interest in any tract or parcel of land.
    - Concept similar to a partnership



## Industry Terms and Definitions (cont'd)

- Fracing
  - The process of pumping fluids into a productive formation at high rates of injection to hydraulically break the rock. The "fractures" which are created in the rock act as flow channels for the oil and gas to the well
    - Hot topic in Ohio and Pennsylvania for environmental reasons
    - Currently most fracing fluid is recovered and recycled in subsequent drilling projects
    - <http://marcelluscoalition.org/2009/01/drilling-process-video/>



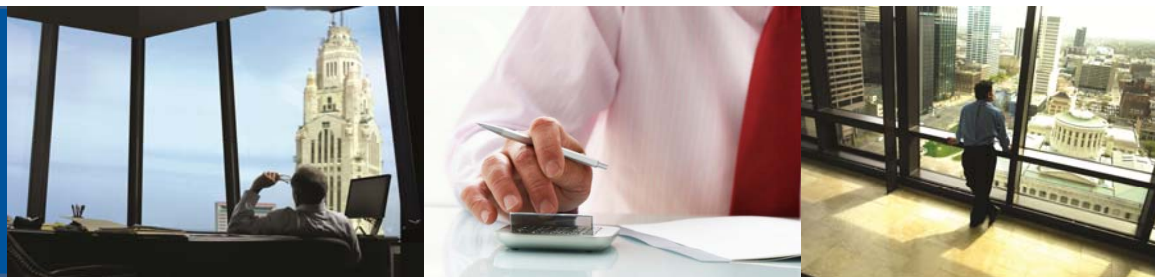
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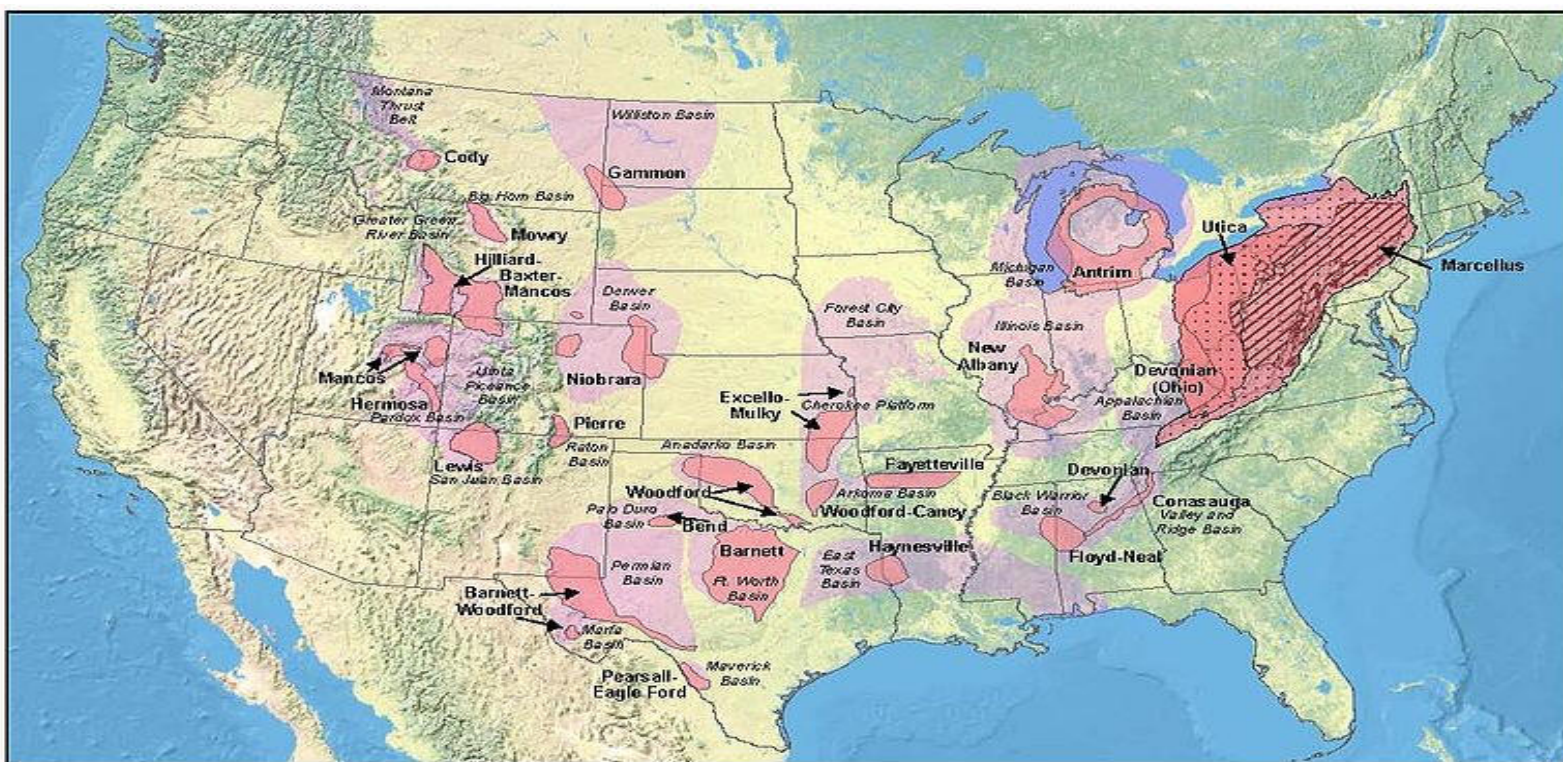


# Shale Rock



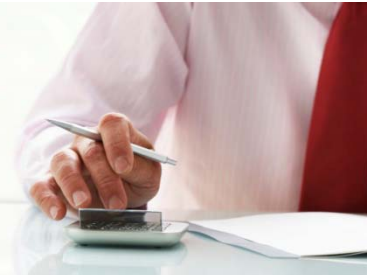


# Where are Shale Gas Plays in the United States?

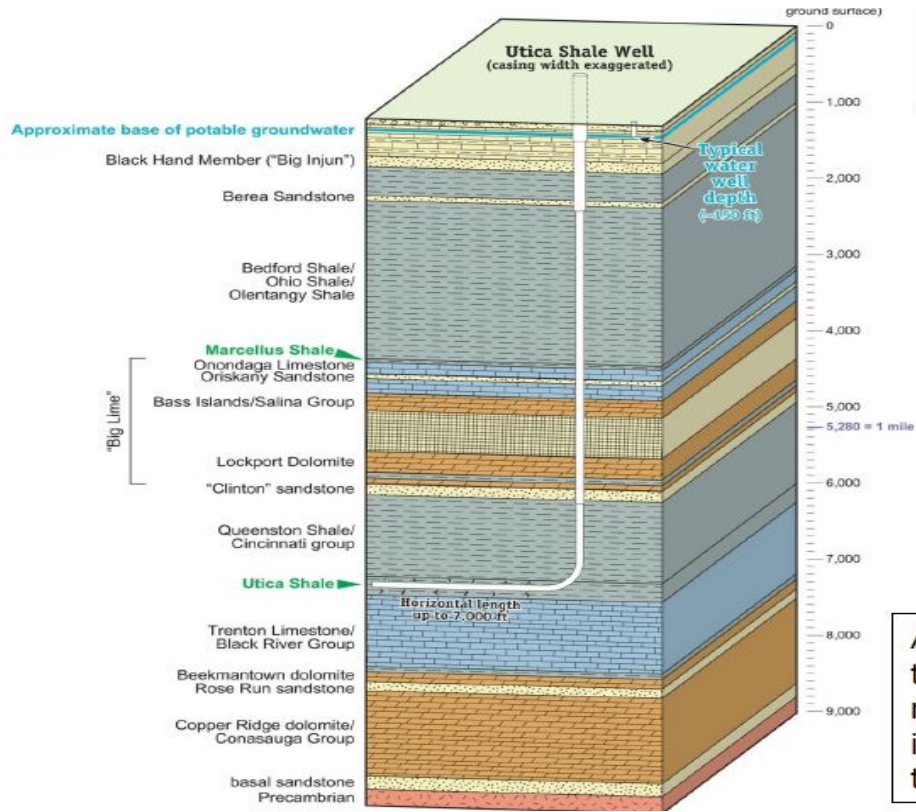


**United States Shale Gas Plays**

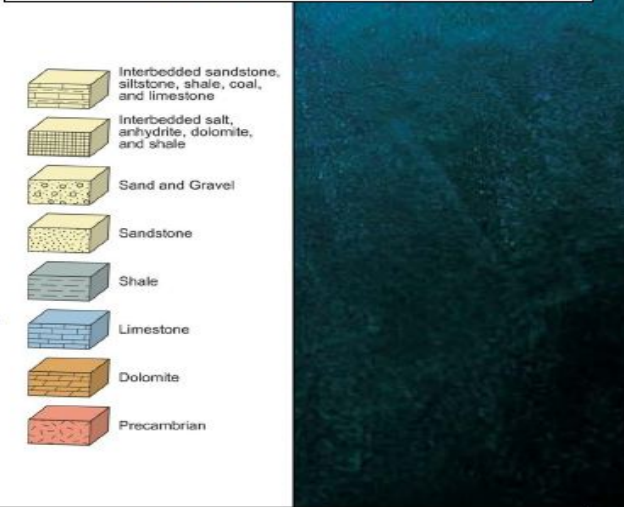




# Diagram of Geology and Frack Process



## Generalized Geology and Profile of a Utica Shale Well Prototype in East Central Ohio



At these depths, the pressure from the overlying rocks and fluids make it physically impossible to induce a fracture all the way up to the groundwater layers.





# Profile of Geology of the Formation

System	Ohio	N. Virginia & West Virginia	Western Maryland	Western Pennsylvania	Northwestern New York		
U. Dev.		Harrell Shale	Harrell Shale	Harrell Shale	Genesee Fm.		
Middle Devonian	Olentangy Shale	Tully Limestone	Mahantango Formation	Tully Limestone	Tully Limestone		
	?	Mahantango Formation		Millboro Shale	Moscow Shale	Hamilton Group	
	Prout Limestone				Hamilton Group		Hamilton Group
	Plum Brook Shale				Hamilton Group		Hamilton Group
	Delaware Limestone				Hamilton Group		Hamilton Group
	Marcellus Shale				Hamilton Group		Hamilton Group
Marcellus Shale	Hamilton Group	Hamilton Group					
Lower Dev.	Columbus Limestone	Huntersville Chert	Needmore Shale	Selinsgrove Limestone	Onondaga Limestone		
	Bois Blanc Limestone	Needmore Shale	Needmore Shale	Needmore Shale	Bois Blanc Fm.		

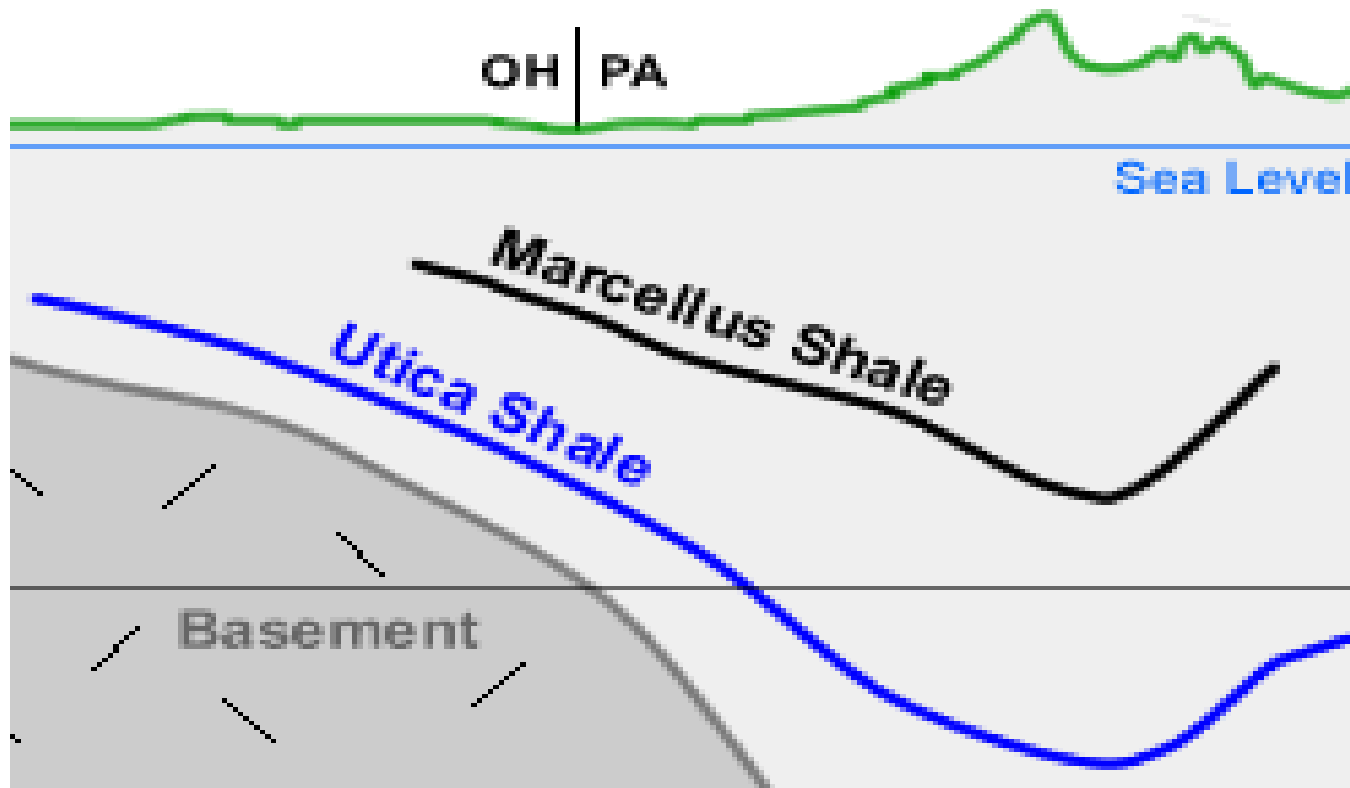


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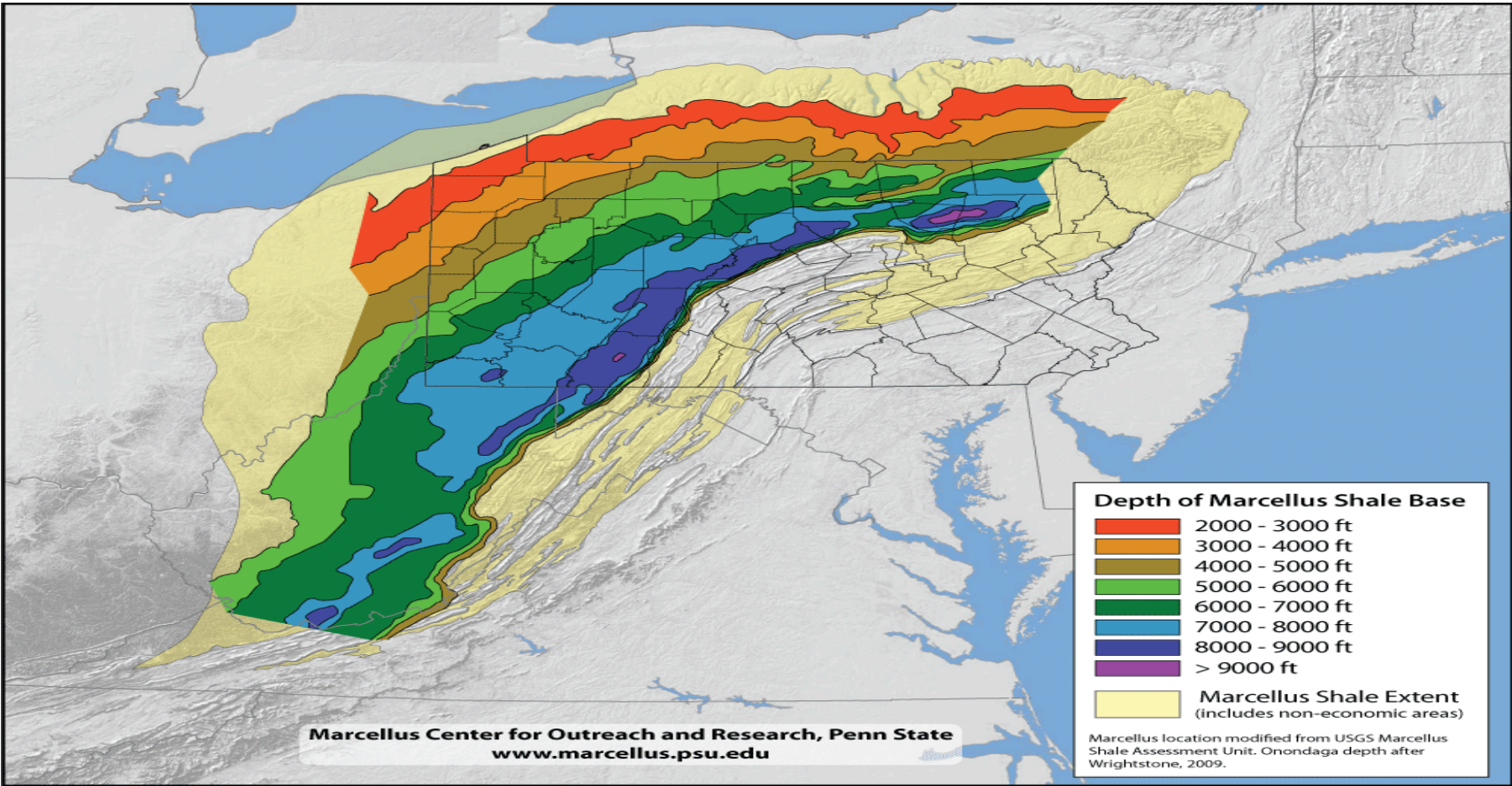


## Comparison & Contour of Shale Formations



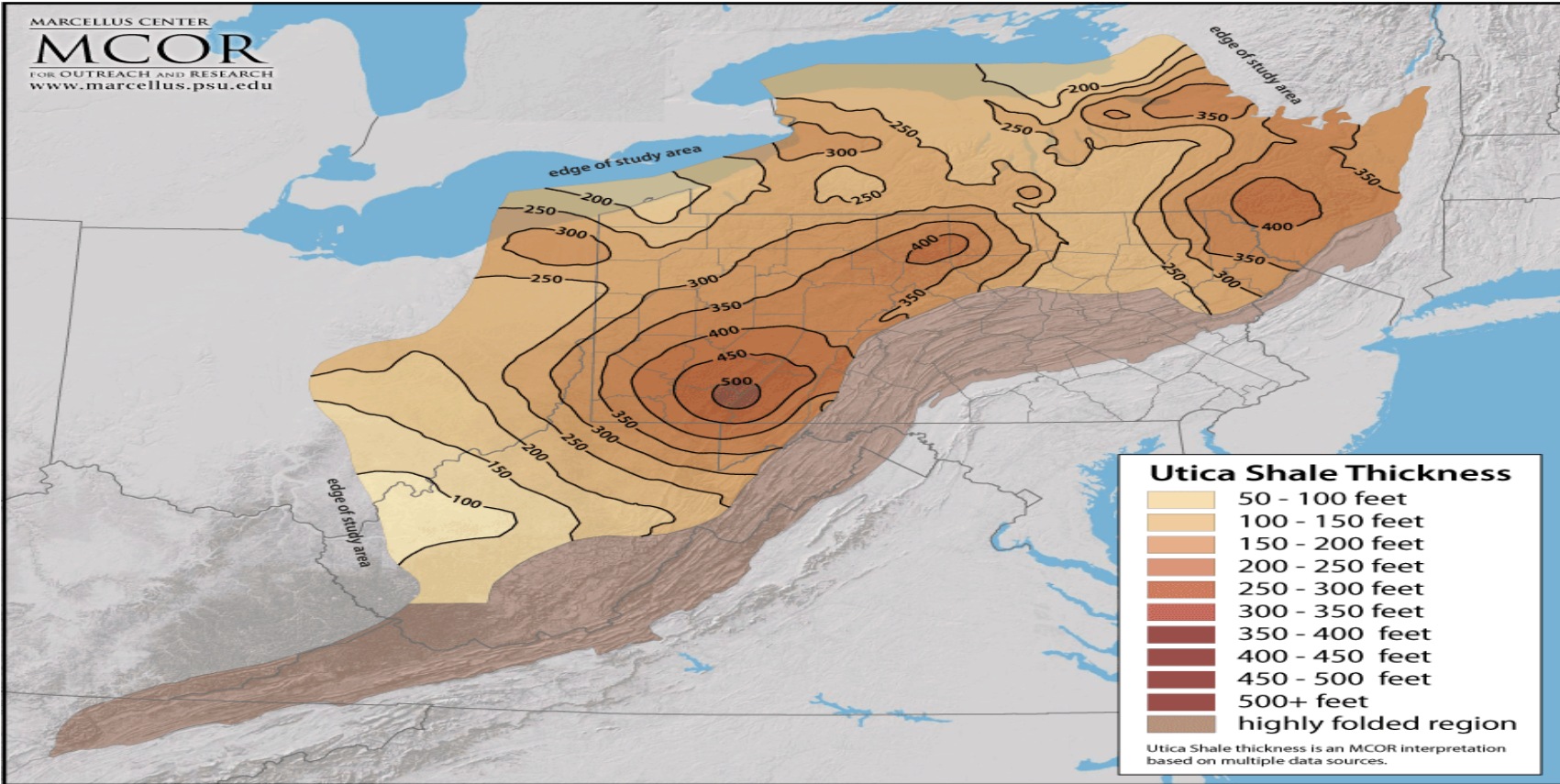


# Depth of Marcellus Shale Gas



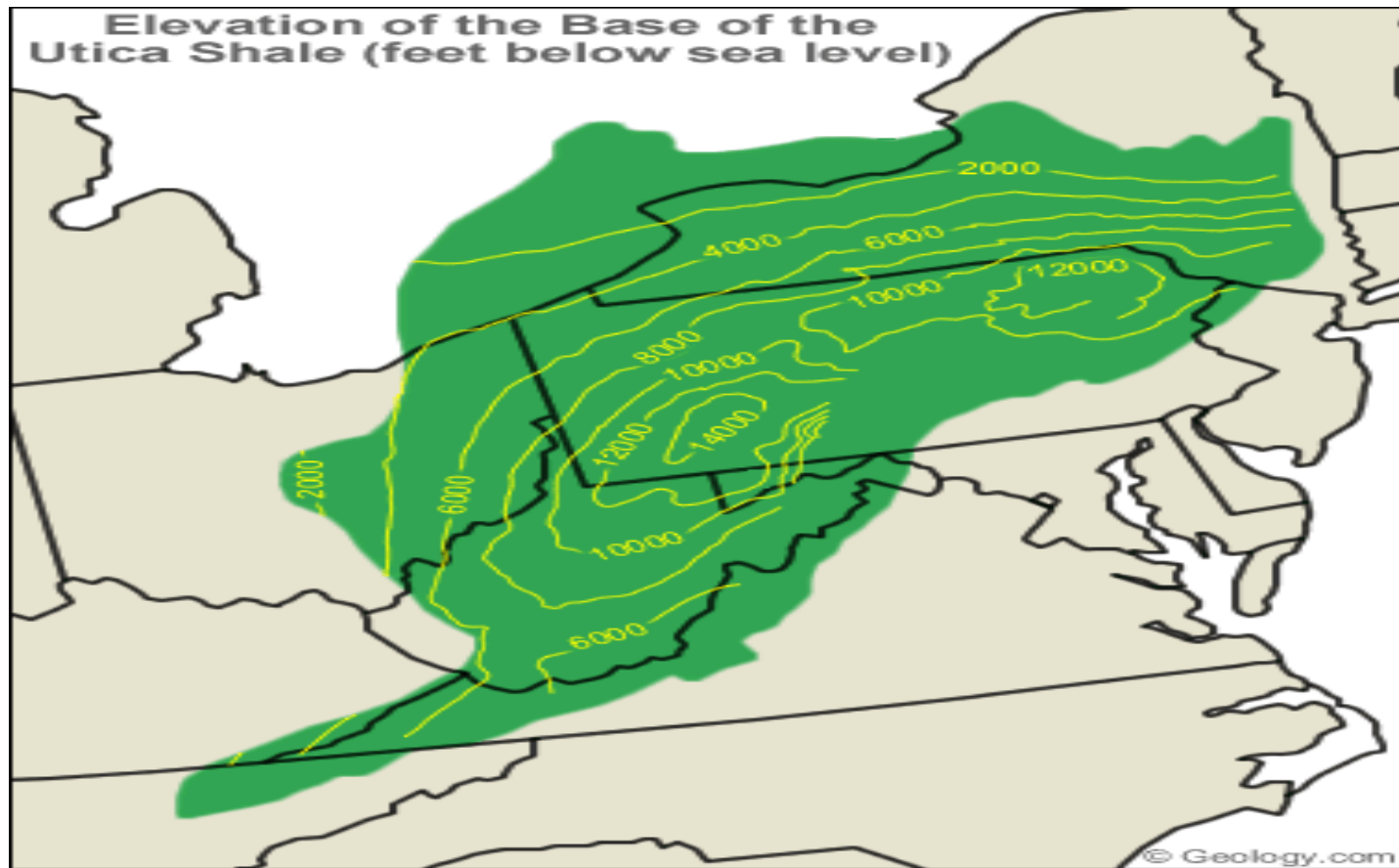


# Thickness of Utica Shale



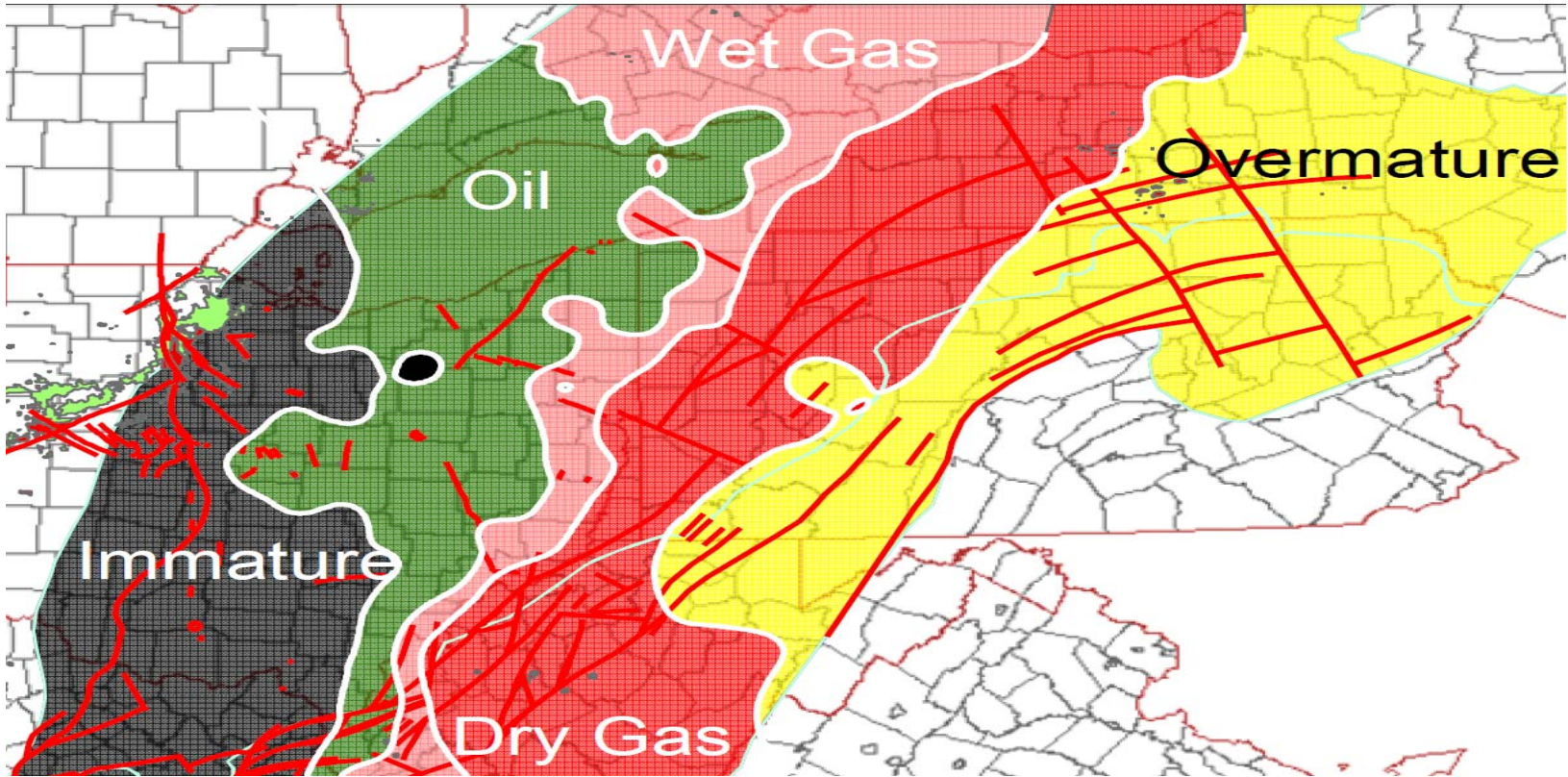


## Depth of Utica Shale





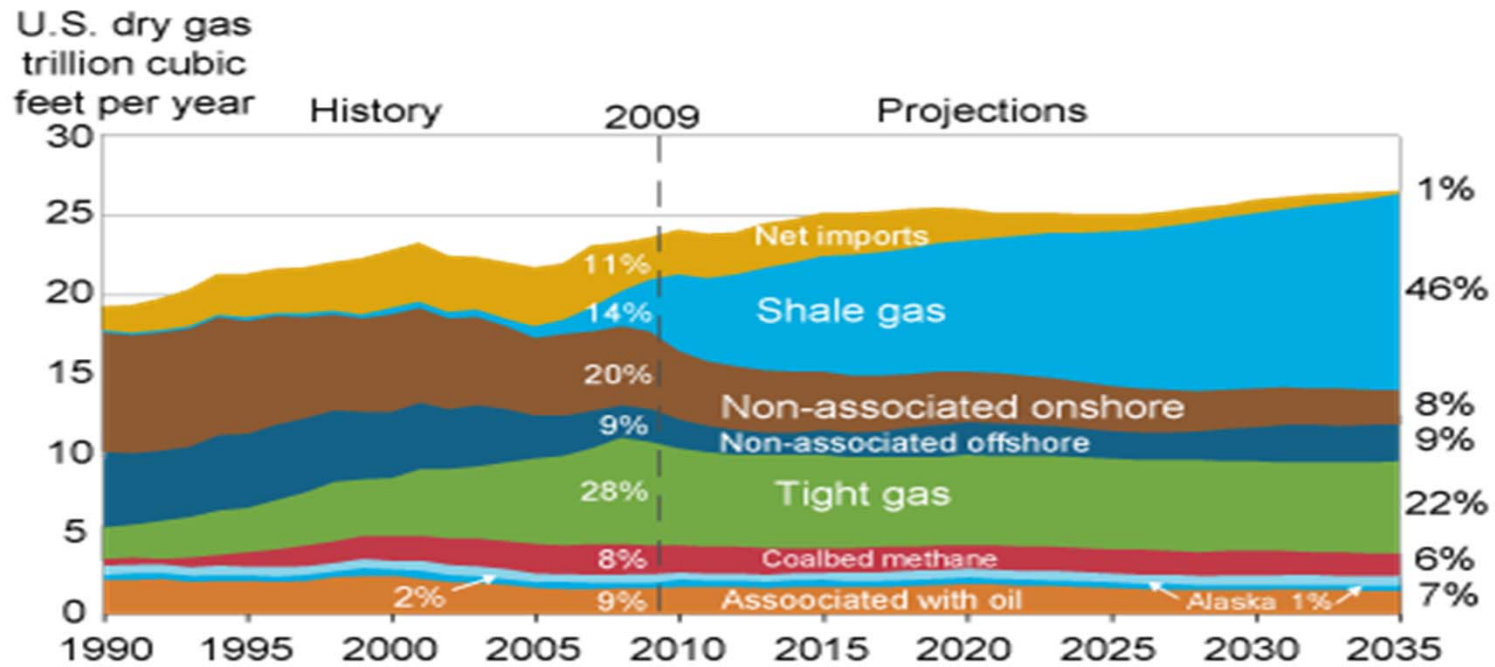
# Location of Liquid Gas and Dry Gas



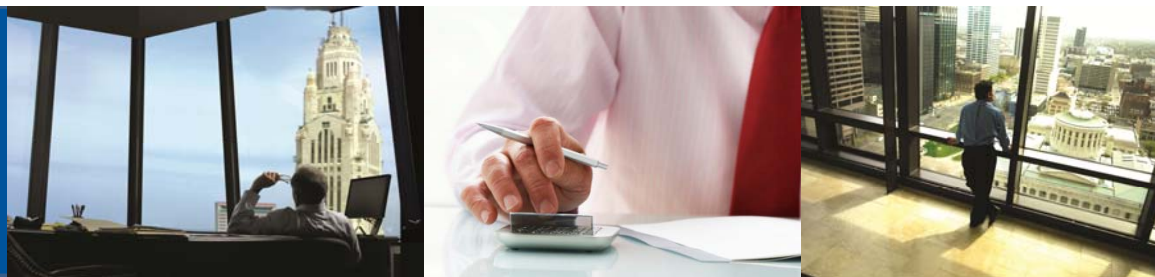


# Composition of U.S. Natural Gas Supply

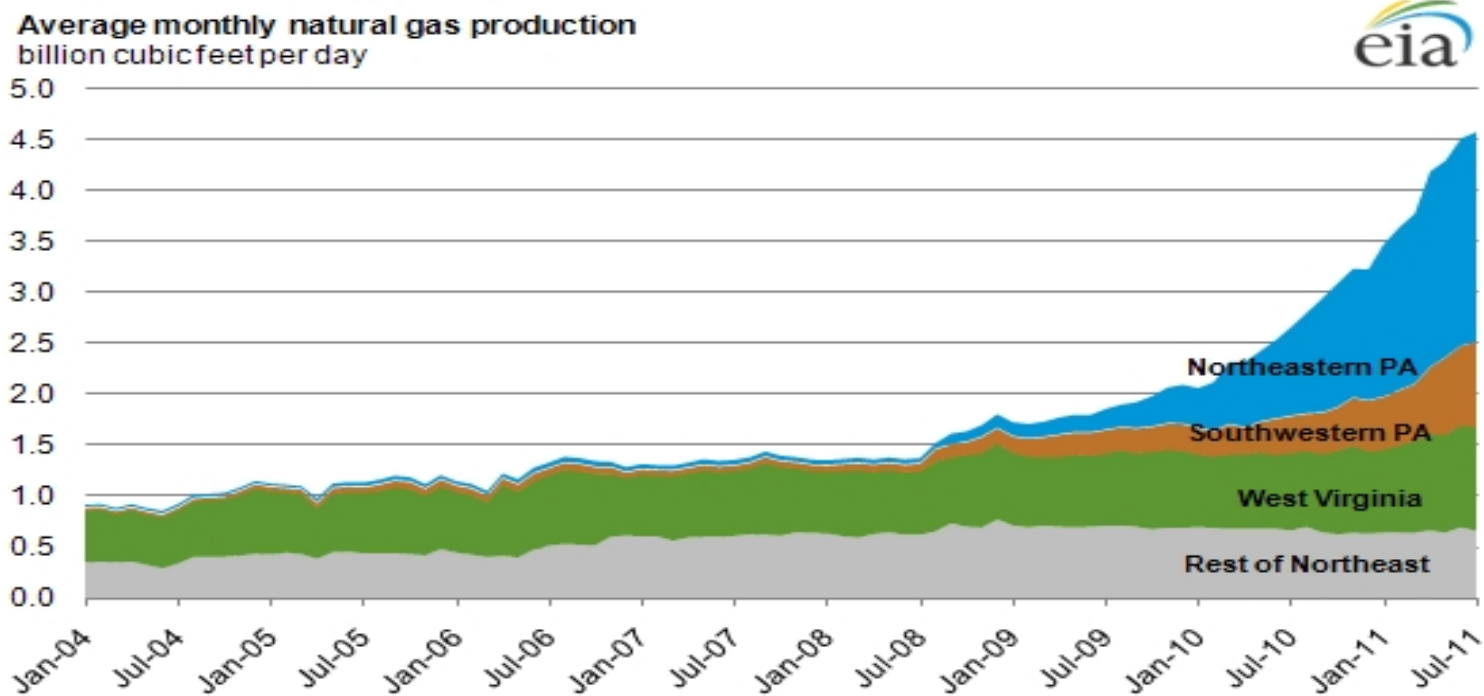
U.S. Natural Gas Supply, 1990-2035



Source: EIA, *Annual Energy Outlook 2011*



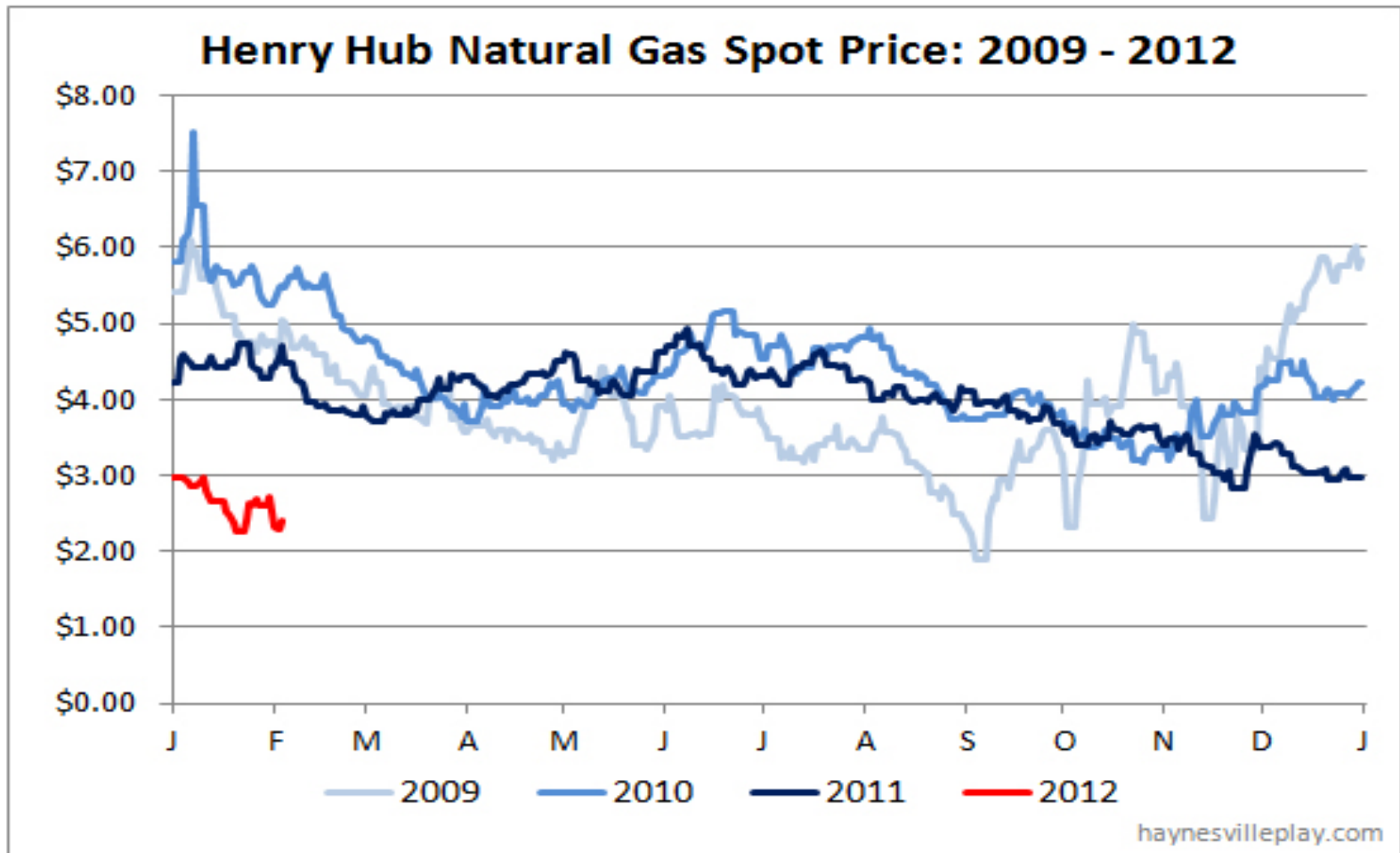
# Marcellus Shale Average Monthly Production

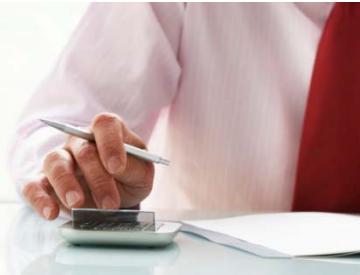




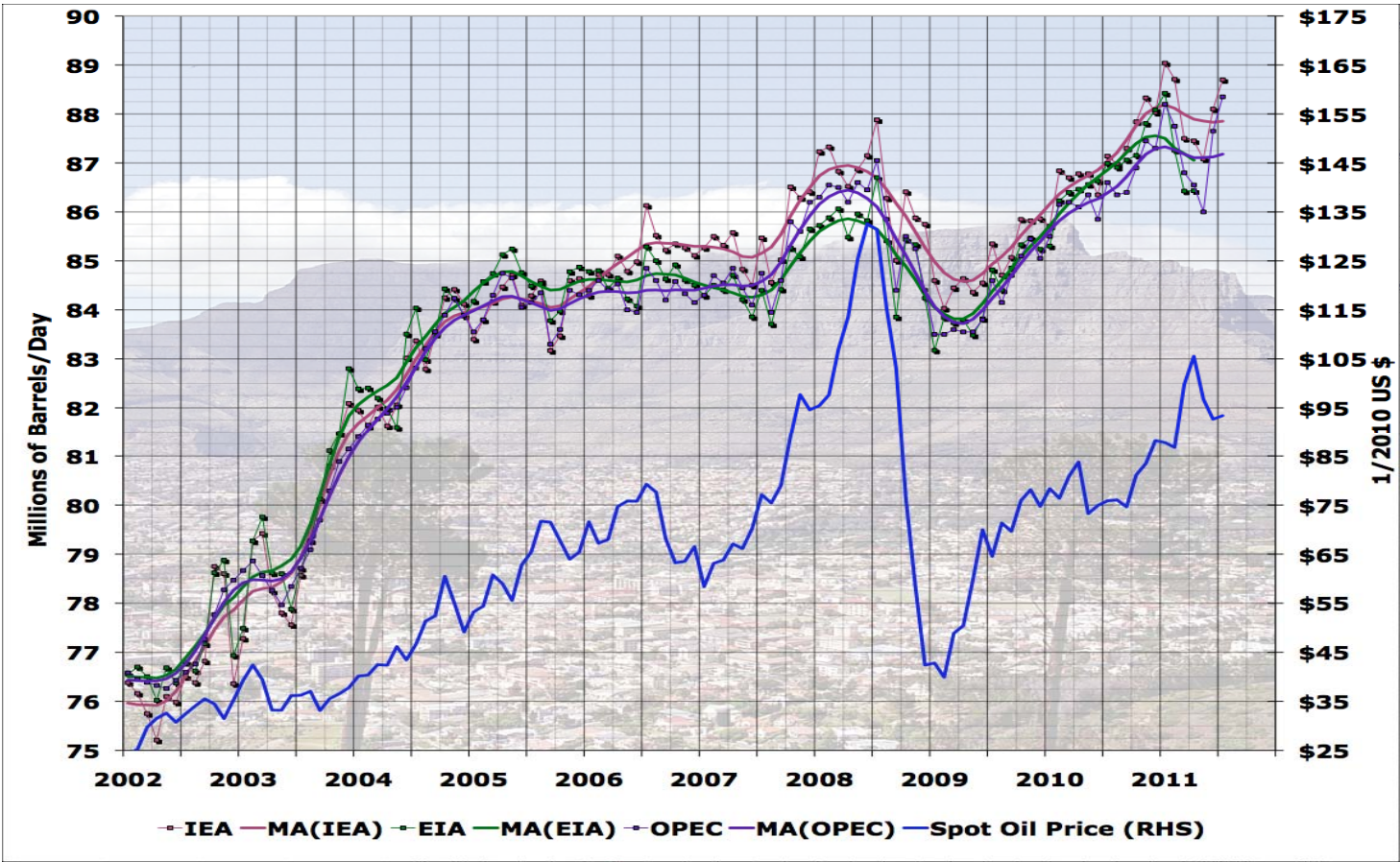


# Natural Gas Price Trends





# Current Market Trends for Oil (Wet Gas)





## Marcellus Shale Impact

- Marcellus wells have average production of 500-3000 mcf per day
- Only a few wells and the producer will go over the “independent producer” limits
- Players are typically large integrated companies that have enough capital to absorb the risk of losses



## Marcellus Shale Impact (cont'd)

- Marcellus Shale Impact Traditional local independent producers have benefited tremendously
  - Not through drilling but selling their leased reserves
  - Typical to sell on the “deep” Marcellus rights and retain “shallow” rights for further development
- Gain reporting issues
  - §1231 gain with long-term capital gain rates if held longer than 1 year
  - Potential for §1254 recapture at ordinary income tax rates for portion of gain allocable to previous IDC and depletion deductions
    - » Separate rights if shallow wells have been developed



## Ancillary Industries Benefiting from Drilling Activity

- Water Treatment/Disposal
- Trucking Companies (Water/Materials Hauling)
- Construction Contractors (Well Pad)
- Concrete Suppliers
- Pipe Suppliers/Manufactures
- Road Contractors
- Tool & Die Shops (Machinists)
- Skilled Labor
- Aggregate Suppliers
  - Sand
  - Limestone



## Marcellus & Utica Shale Challenges

- Large volumes of water required to complete Frack process
- Water disposal
- Cement casing must be done properly to avoid ground water contamination
- Flow back water must be properly treated/disposed to avoid site contamination
- Injection well issues in Ohio
- Skilled Labor
- Disclosure of chemicals used in Frack fluid



## Provisions Specific to Ohio Mineral Rights

- Pooling of Interests can be mandatory
- The standard royalty rate is 12.5%. There appears to be no mandatory minimum royalty rate.



## Individual Taxation

- Lease Bonus Payments
  - Seller (landowner) retains a royalty interest
  - Rights typically revert back to the landowner if drilling doesn't commence in a certain period of time outlined in the lease agreement (typically 5 years)





## Individual Tax Issues

- Lease Bonus Payments (cont'd)
  - Federal income taxation issues
    - Land rental is considered non-passive income under §469
    - Since the landowner retains an economic interest in the property the transaction may not be considered a sale for capital gain purposes
    - Proceeds from Lease Bonus payments are taxed at ordinary income tax rates



## Individual Tax Opportunities

- Lease Bonus Payments (cont'd)
  - Tax deferral opportunity
    - Must be done **prior** to transaction closing
    - Landowner can not have constructive receipt of proceeds
    - Opportunity to defer income on bonus payments through the use of insurance annuity arrangements



## Individual Tax Opportunities

- Benefits of a structured oil and gas lease bonus payment option
  - An up-front lease bonus payment can be substantial for large acreage landowners. Treated as ordinary income, these payments can elevate the lessor/landowner into a higher income tax bracket. By structuring the lessee's payments, and securing them with an annuity from a highly rated insurance company a landowner can accomplish the following:



## Individual Taxation

- Benefits of a structured oil and gas lease bonus payment option (cont'd)
  - Reduce overall tax liability by subjecting future payments to lower tax brackets
  - Earn additional pre-tax amounts from the inside annuity buildup guaranteed by the insurance company
  - Design a tailor-made payment plan to meet future needs such as:
    - Retirement
    - College education
    - Major purchases
    - Charitable giving
    - Medical expenses



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## Individual Tax Planning Opportunities

- Landowners should consider an outright sale of their oil and gas rights
  - Lease = Ordinary Income = maximum tax rate of 35%
  - Sale = Capital Gain = maximum rate of 15% on LTCG
  
- In order for the transaction to be considered a sale the owner must not retain an economic interest in the property
  - No future benefits received
  - No royalty rights retained
  
- Production payment structure can achieve best of both worlds
  - Installment sale treatment
  - Landowner/seller can receive payments similar to a royalty arrangement



## Severance Tax By State

- Ohio
  - \$.025 per thousand cubic feet (Mcf) of natural gas
  - Quarterly filing of tax returns required
- Pennsylvania
  - Currently No severance tax
- West Virginia
  - 5% of the value of the natural gas produced
  - Tax returns are filed on an annual basis



## Pennsylvania Marcellus Shale Impact Fee Update

- Pennsylvania Senate Version
  - 3% tax on the production of gas would be made retroactive to January 1, 2010
  - Per well fee of \$50,000 in the first year of production
    - \$10,000 reduction in each subsequent year
    - Beginning in eleventh year, until the twentieth year annual fee in the amount of \$10,000 per well
  - Approximately 55% of the fees would go to the communities where the Marcellus Shale wells are located
  - A portion of the fees would be used for state infrastructure projects
  - Other funds would be set aside for county conservation districts, firefighter training programs, the Fish and Boat Commission and affordable housing projects



## Pennsylvania Marcellus Shale Impact Fee Update

- Pennsylvania House Version
  - Per well fee of \$40,000 in the first year of production
    - The amount decreases by \$10,000 in the following two years until it reached the minimum fee of \$10,000
    - Tax would be assessed during each of the remaining seven years of the wells' life
  - The plan would keep 75% of the revenue raised from the impact fee to stay in the municipalities that are most affected by the Marcellus shale gas drilling activity
  - The remaining 25% of the impact fee would be used to assist a handful of state agencies.





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## Pennsylvania Marcellus Shale Impact Fee Update

- Pennsylvania Governor Corbett's Recommendation
  - Per well maximum fee of \$40,000 in the first year of production
    - The amount decreases by \$10,000 in the following until it reached the minimum fee of \$10,000
    - Tax would be assessed yearly during the first ten years of the well's life
  - This plan calls for no tax increase over what is currently in place for the gas drilling industry
  - The governor's plan calls for 75% of the revenue produced from this fee to be used for infrastructure projects in the communities that are most affected by the Marcellus shale gas drilling activity
  - The additional 25% of the revenue produced would be used to fund state agencies to conduct gas pipeline inspections, road and bridge repair, health studies, emergency response and well drilling inspections
  - The governor's plan proposes development of "Green Corridors", with natural gas vehicle fueling stations along highways, and assistance provided to schools and mass transit agencies to convert bus fleets to natural gas



# Pennsylvania Marcellus Shale Impact Fee Update

## Comparison of the Three Proposal's Highlights

	Governor's Plan	Senate Bill	House Bill
<b>Impact Fee:</b>			
Initial Amount	\$40,000	\$50,000	\$40,000
Term	10 Years	20 Years	10 Years
Minimum Fee	\$10,000	\$10,000	\$10,000
<b>Allocation of Proceeds:</b>			
Local	75%	55%	75%
State	25%	45%	25%
<b>Use of County Proceeds:</b>			
County	36%	36%	36%
Township with wells	37%	37%	37%
Township without wells	27%	27%	27%
<b>Use of State Proceeds:</b>			
Infrastructure	70%	50%	70%
Environmental	10.5%	30%	10.5%
Other	19.5%	20%	19.5%



## Circular 230 Disclosure

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# Questions?