

PENNSYLVANIA STATE



**The Dickinson
School of Law**

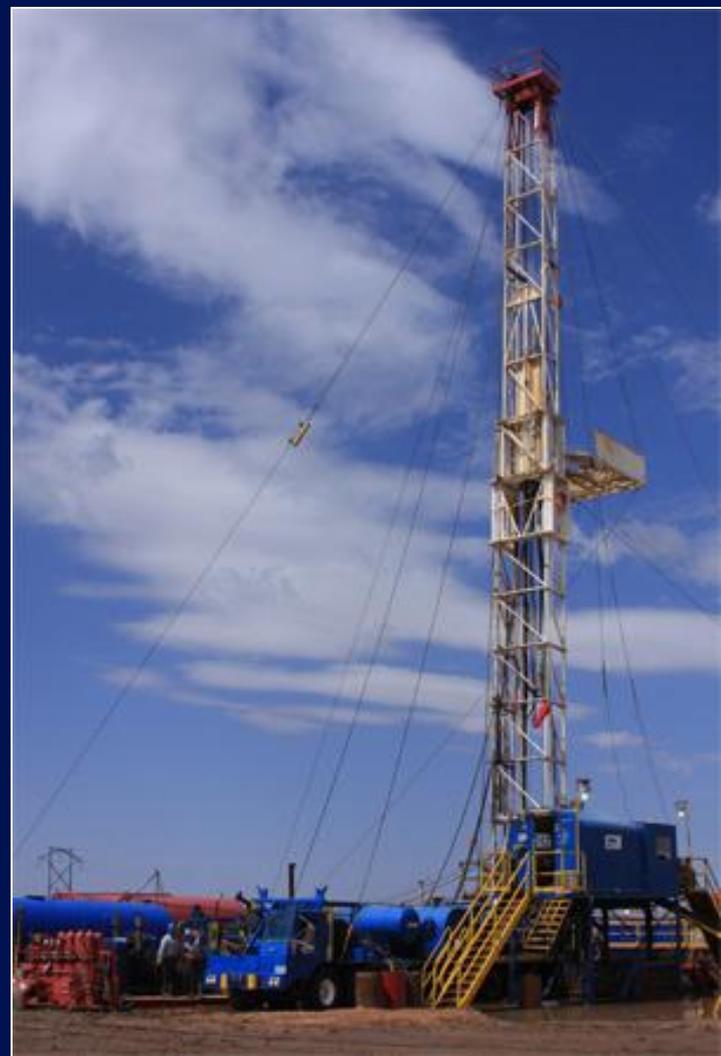
**Agricultural Law Resource and Reference Center
Professor Ross H. Pifer**

Shale Gas Leasing: Lessons from the Marcellus Shale Patch

Federal Reserve Bank of Chicago

**Farmland Leases:
Tales, Types, and Trends**

**Chicago, Illinois
November 27, 2012**





Agricultural Law Center

- **Section 2205**
 - “to serve as a resource on agricultural law and related issues for farmers and agribusinesses, attorneys, officials at all levels of government, community groups, and the public.”

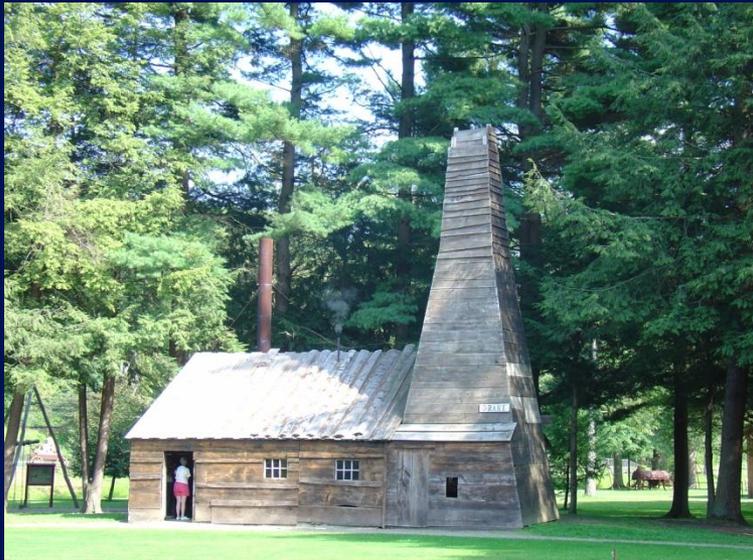


Overview of Presentation

- **Background of Shale Gas Development**
- **Drilling operations and surface impacts**
- **Lessons learned**



Pennsylvania Oil and Gas – The Early Years



- August 27, 1859 – Drake well
- Nov. 3, 1878 – Haymaker well
- January 1883 – Natural gas pipeline constructed to Pittsburgh



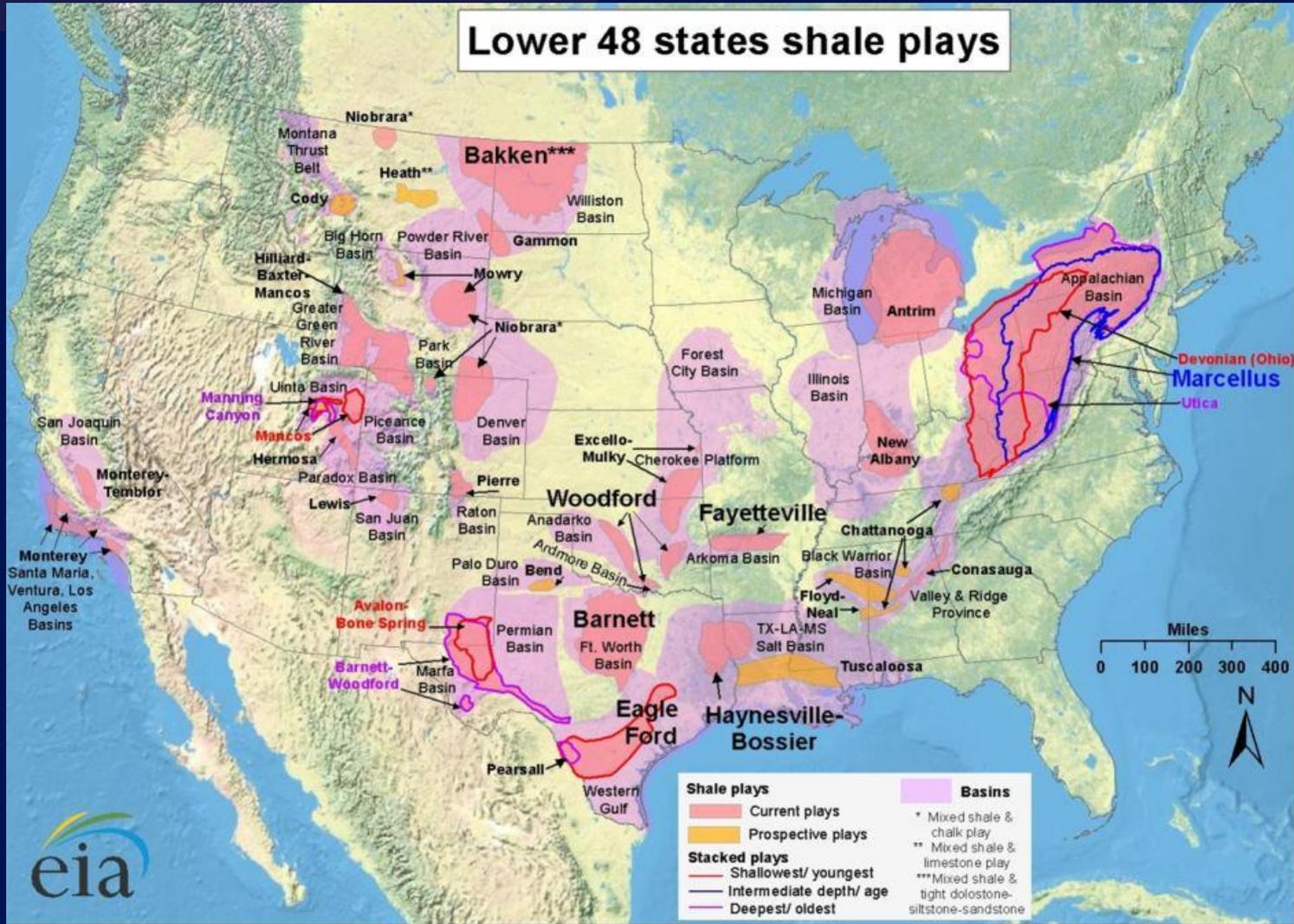
Marcellus Shale Development

- **Renz #1 (2005) – marked beginning of transformation of industry in Pennsylvania**
 - Increased activity
 - Expansion into new areas of Pennsylvania
 - Use of “new” techniques / technologies
 - Hydraulic fracturing
 - Horizontal drilling
 - Entry of international companies
 - \$\$\$\$\$\$\$\$



What is Shale Gas / Shale Oil?

- Natural gas or oil contained with shale formation
- Source rock for earlier resource development
- Extraction relies upon adaptation of two key technologies:
 - Hydraulic fracturing
 - Horizontal drilling





Technically Recoverable Resources

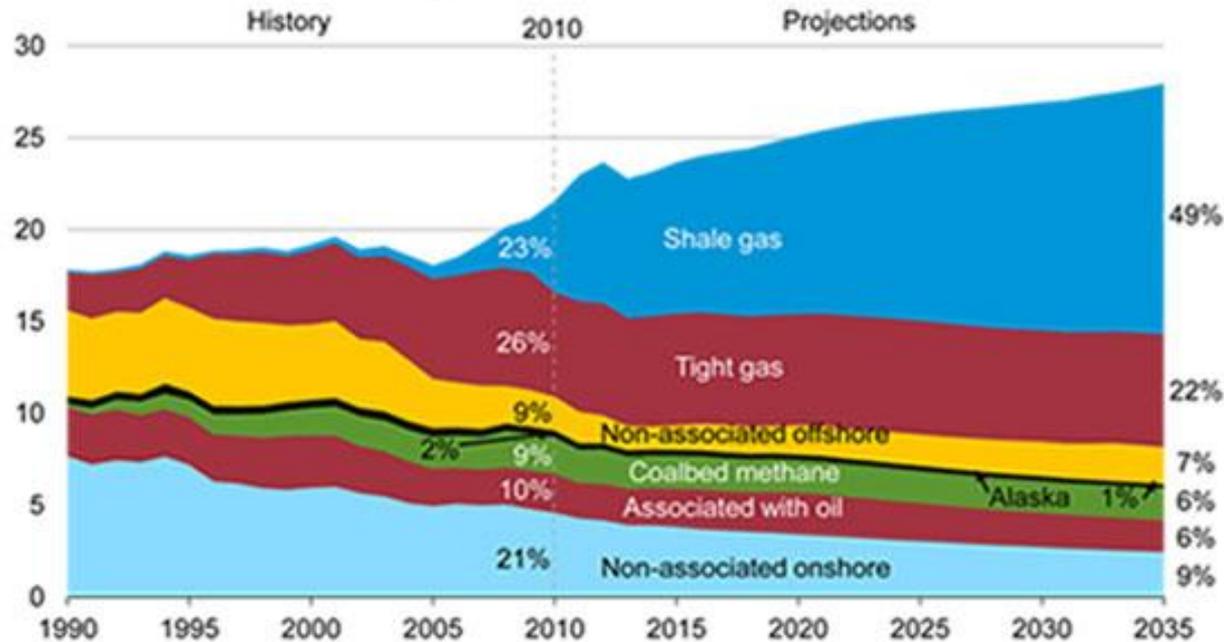
(EIA – 2010)

▪ Marcellus (PA, WV, OH, NY)	410.34 Tcf
▪ Barnett (TX)	43.38 Tcf
▪ Haynesville (LA, TX)	74.71 Tcf
▪ Fayetteville (AR)	31.96 Tcf
▪ Woodford (OK)	22.21 Tcf
▪ Eagle Ford (TX)	20.81 Tcf
▪ New Albany (IN)	10.95 Tcf
▪ Antrim (MI)	19.93 Tcf
▪ Total Lower 48	750.38 Tcf

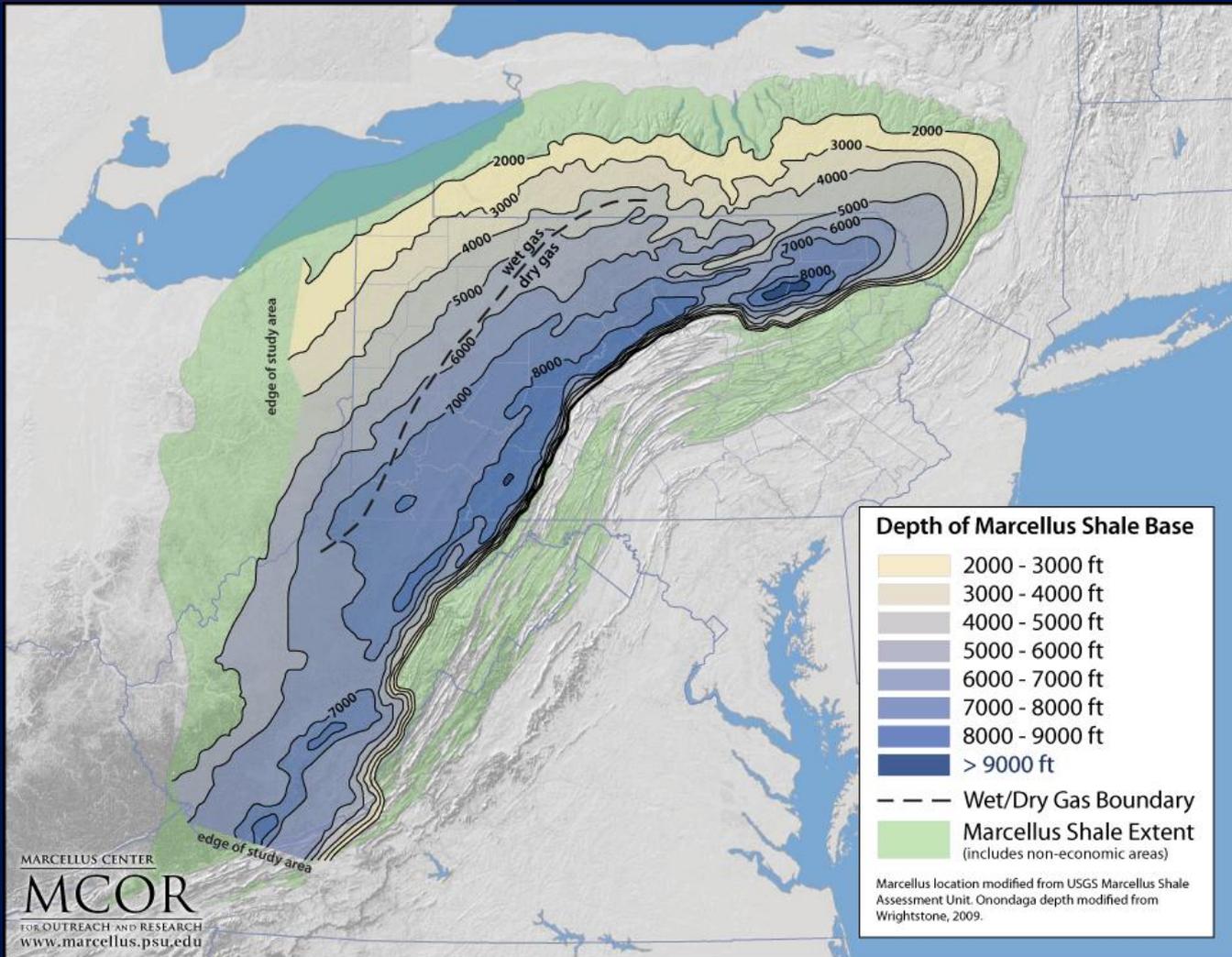


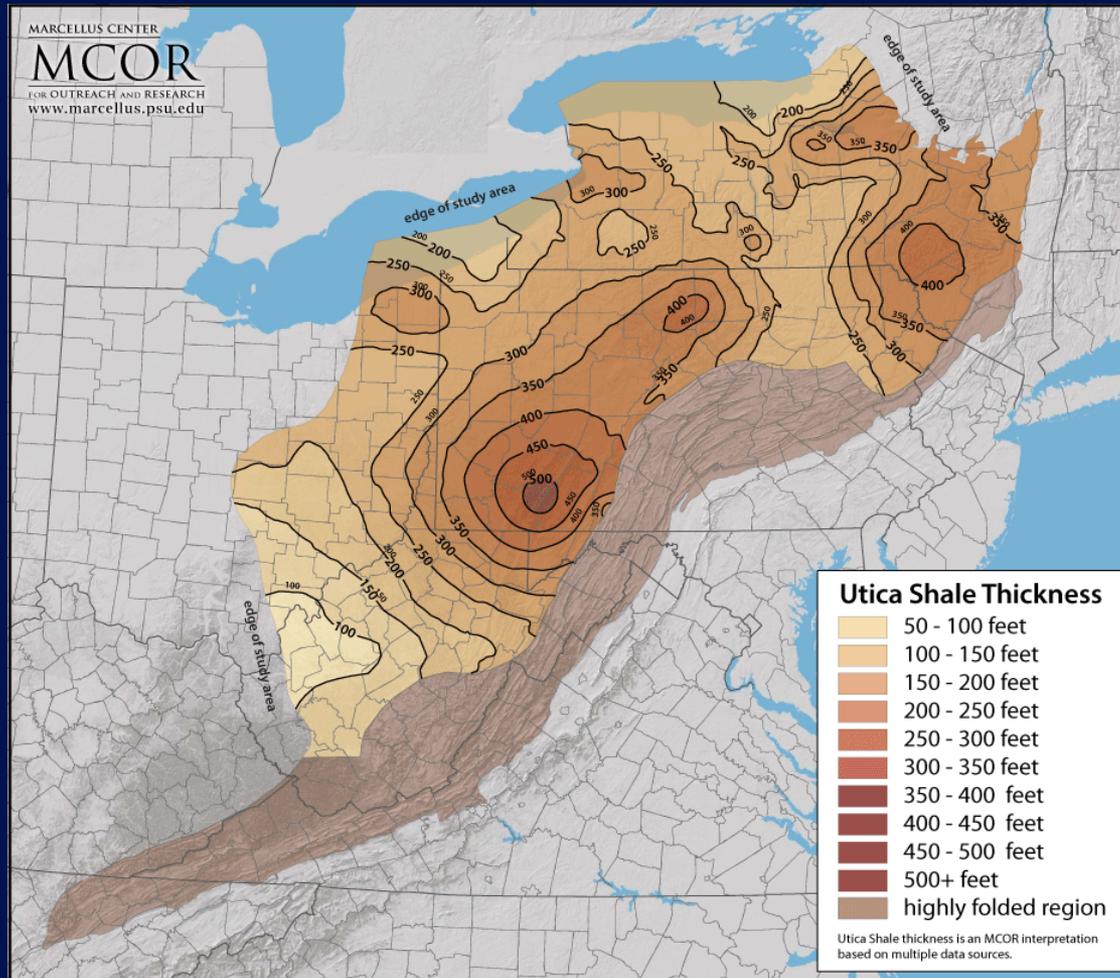
U.S. Natural Gas Production 1990-2035

trillion cubic feet per year



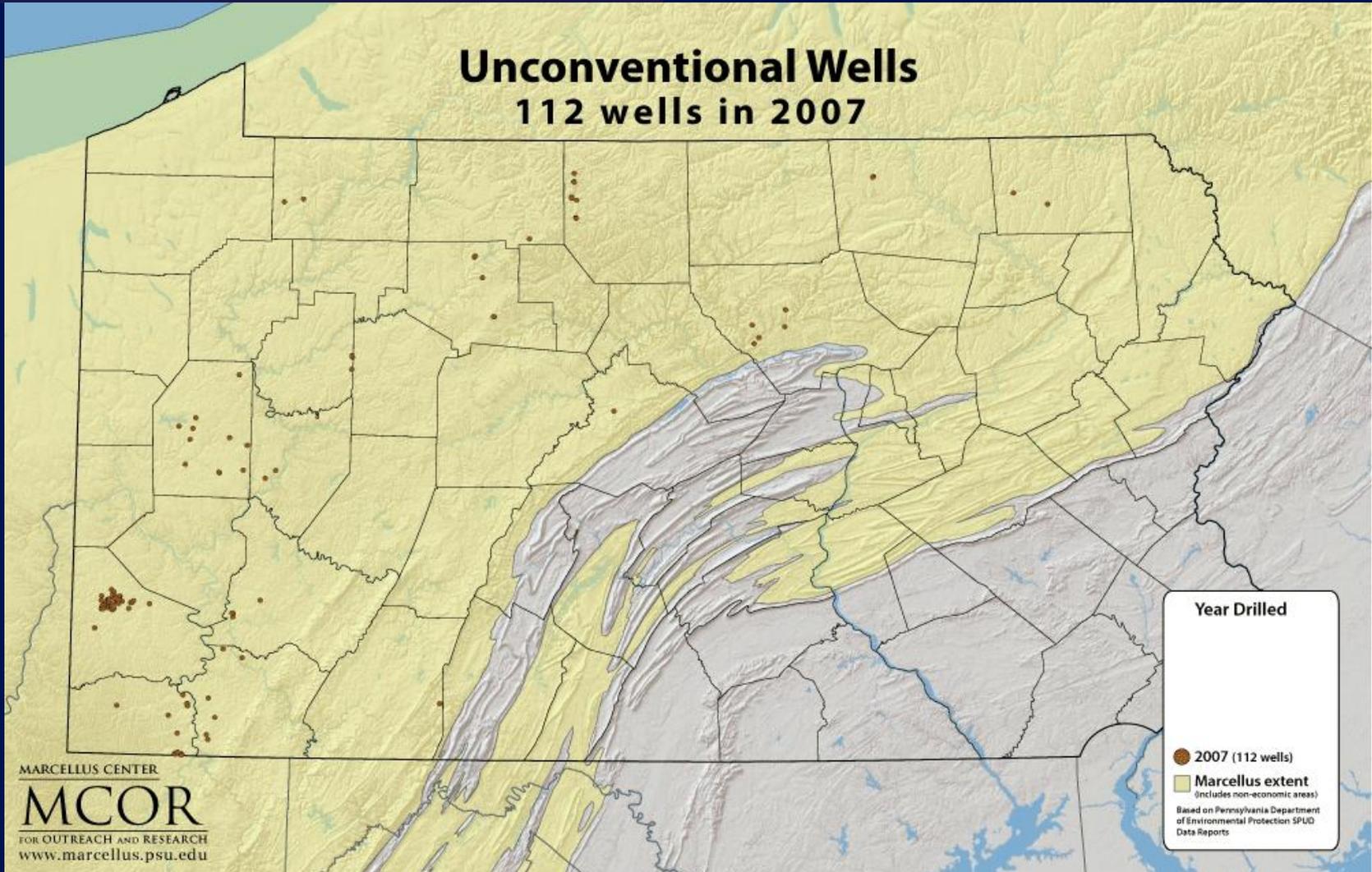
Source: U.S. Energy Information Administration, *Annual Energy Outlook 2012* (June 2012).







Unconventional Wells 112 wells in 2007





Why Marcellus Shale?

- Large size – 95,000 square miles
- Productivity
- Proximity to market
- Low break-even market price



Marcellus Shale Land Rush

- **Northeastern Pennsylvania**
 - **Prior to 2008 – leasing done by land companies / speculators / “flippers” for relatively low rates**
 - **Land companies assembled acreage blocks.**
 - **Lease rates rose from \$50 to \$4000 per acre in a matter of months.**
 - **As development began, exploration companies began to engage directly in leasing.**



Marcellus Shale Land Rush

- **Western Pennsylvania**
 - Rise in lease rates not as dramatic because much land held by production.
 - Lease rates, however, did rise as companies sought to fill in acreage blocks.



Marcellus Shale Land Rush

- **Landowners Groups**
 - They can vary dramatically in structure and function.
 - Common goal is important to “members”.
 - They can increase the negotiating leverage of landowners.



Marcellus Shale Land Rush

- Overall experience
 - Lease market is a true market.
 - Prices rise and fall.
 - Access to information is important.
 - There can be some benefits to collective action.



Marcellus Shale Land Rush

- **Overall experience**
 - **Initially, leasing focus was on payment terms as opposed to surface protection.**
 - **Importance of provisions to protect surface not realized until developmental activities began.**
 - **We must recognize that our knowledge will be incomplete**
 - **New technologies will be developed.**
 - **Lease market will be affected by numerous variables.**



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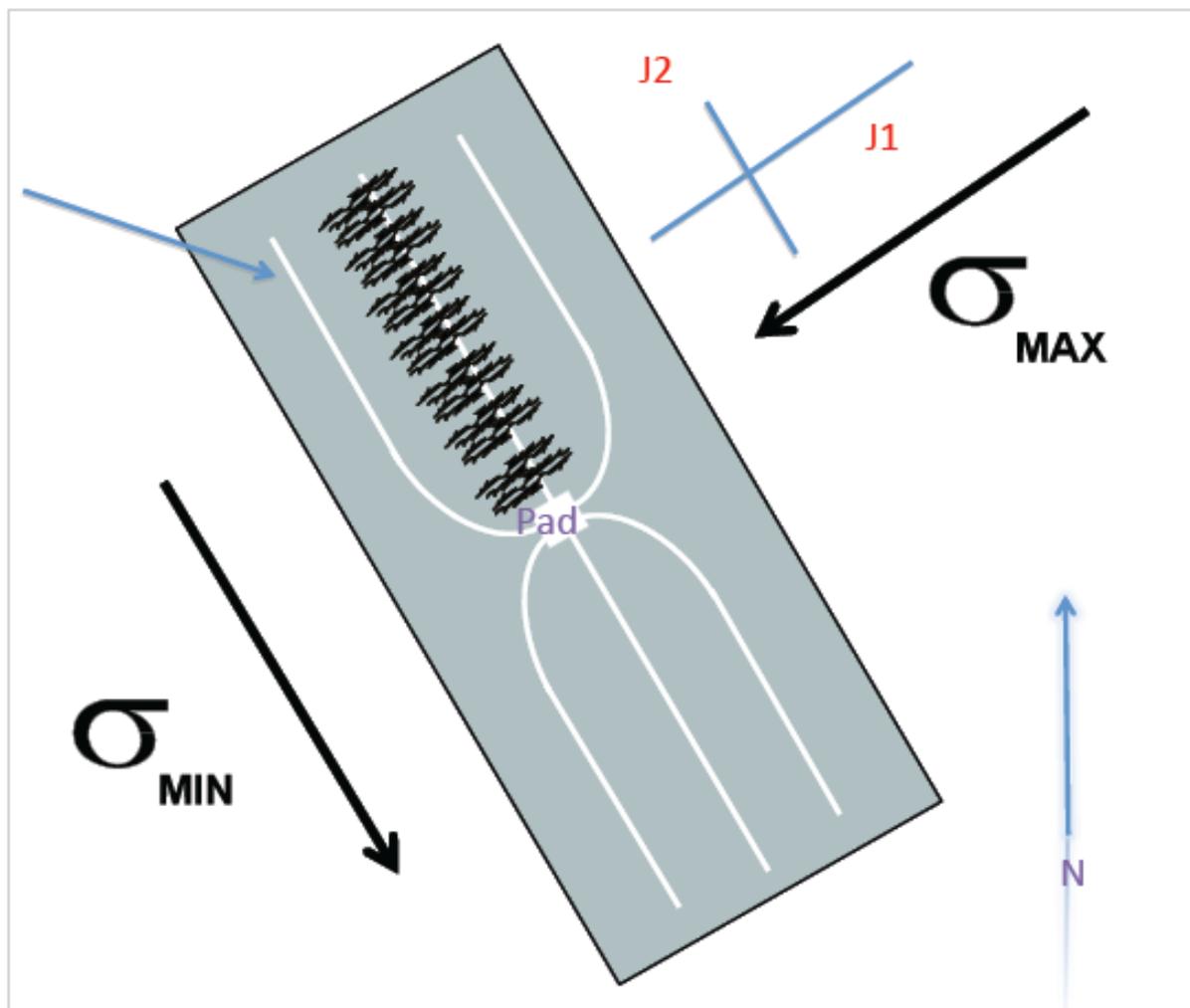
Surface Impacts Generally

- Natural gas extraction necessarily involves some disturbance of the surface estate.
- Shale wells vs. traditional wells
 - Larger well pad sites
 - Increased use of water
 - Multiple wells on single well pad
 - Fewer well pad sites
 - Use of horizontal drilling
 - Surface use not necessary on all parcels.

Marcellus Well Layout from Single Pad

Horizontal
"laterals" 2000
to 7000 ft long

Pattern can
"drain" natural
gas from up to
640 Acres (1
sq. mile)





Surface Estate

- **Energy company will seek broad use of surface estate.**
 - **Lesser restrictions reduce marketability**
- **Landowner may want to limit energy company's use of surface estate.**



Surface Estate Limitations

- **Landowner may limit use of surface estate by:**
 - **Requiring that landowner approve well sites and access roads**
 - **Specifying the conditions under which the land will be reclaimed**
 - **Specify how waste products will be handled**
 - **Defining the permitted activities and structures**
 - **Requiring the installation of fencing or gates**



Surface Estate Limitations

- Landowner must protect current and future uses of the property.
 - i.e. – Is this agricultural land? A hunting camp?
Future building lot?
- Exploration companies often will agree to reasonable restrictions.



No Surface Rights Lease

- Landowner may be able to negotiate lease agreement that does not permit use of surface estate.
- Landowner may or may not receive lower payment terms in exchange for a no surface rights lease.



Surface Operations

- Seismic activity
- Pad preparation
- Drilling operation
- Water storage – fresh and waste
- Hydraulic fracturing
- Compression / preparation for market



Overview of Presentation

- Marcellus Shale background
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Leasing Lessons Learned

- Appropriate duration of a primary term
- Renewal clauses
- Held by production status
- Importance of pooling clause
- Extent of gas that is subject to lease grant
- Grant of pipeline rights of way
- Grant of storage rights
- Importance of legal counsel



Length of the Lease Agreement

- **Primary term**
 - Primary term is the number of years defined in lease agreement.
 - Lease agreement ends if production activities do not begin by expiration of primary term.
 - If production activities begin, lease agreement is converted to secondary term.
 - Is it beneficial for landowner to have short primary term?



Extension of the Primary Term

- **Renewal at option of lessee**
 - Terms of current lease agreement will continue.
- **Right of first refusal**
 - Lessee has opportunity to match contract offers from other companies.



“Held By Production”

- When a well is commenced during the primary term, the leasehold is said to be “held by production.”
- So long as a leasehold is held by production, the energy company holds all rights granted through the lease agreement.
 - Thus, the landowner will be limited or prevented from acquiring additional lease bonus payments.



Pooling / Unitization

- Royalties are paid on a proportional basis within drilling unit.
- Example:
 - If drilling unit is 640 acres;
 - and landowner owns 64 acres within drilling unit;
 - and landowner's lease agreement provides for a royalty rate of 15%;
 - Then landowner will receive royalty of 1.5% of gas extracted.
- In Pennsylvania, the composition of a drilling unit is determined by the energy company pursuant to lease agreement.



Pooling / Unitization

- Where only a portion of a leasehold is included in a drilling unit, generally all of the leasehold will be held by production.
- A **Pugh Clause** in the lease agreement can provide for the release of portions of the leasehold that are not included within a drilling unit.
 - Pugh Clause can release land vertically or horizontally.



“Conventional Leases”

- Is shale gas included in a longstanding lease for “mineral” development?
 - What language is in the lease agreement?



Pipeline Rights of Way

- Landowner should avoid granting pipeline rights in lease agreement.
- Pipeline rights should be separately negotiated for additional compensation.
- Pipeline agreement should clearly indicate location of right of way.



Storage Rights

- Landowner should avoid granting storage rights in lease agreement.
- The grant of storage rights can effectively extend the lease term.
- The grant of storage rights should be separately negotiated for additional compensation.



Importance of Legal Counsel

- All leases should be reviewed by an attorney.
- An addendum can protect landowner's legal interests.
- The “stakes” are the same whether landowner receives \$5 per acre or \$5000 per acre.
- The contents of a “good” lease evolve over time.



Web-based Resources

- Marcellus Shale Resource Area
 - www.law.psu.edu/marcellus
- Marcellus Shale Blog
 - www.pennstatelawmarcellusblog.com



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Other Resources:

www.law.psu.edu/marcellus

www.pennstatelawmarcellusblog.com