

# **Oil & Gas Permitting and Regulation in NY**

**Gregory H. Sovas - XRM, LLC**

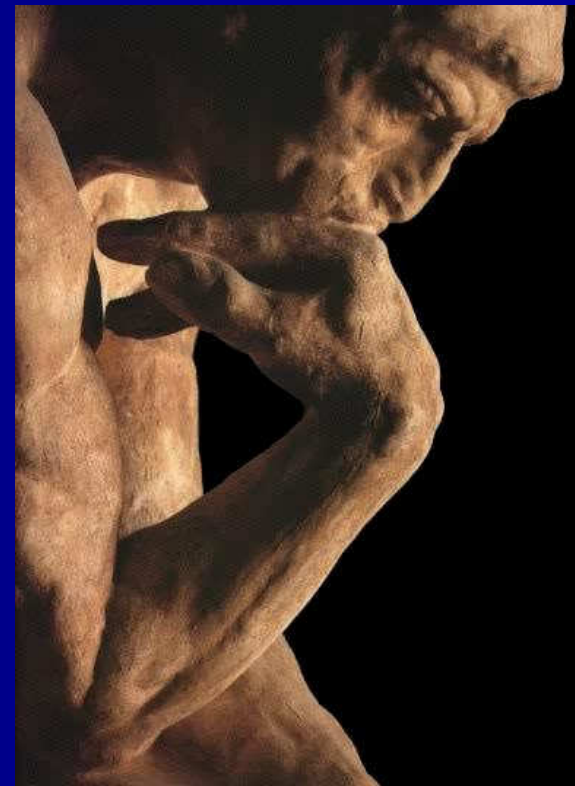
University of Buffalo, Marcellus Shale Series  
April 21, 2011

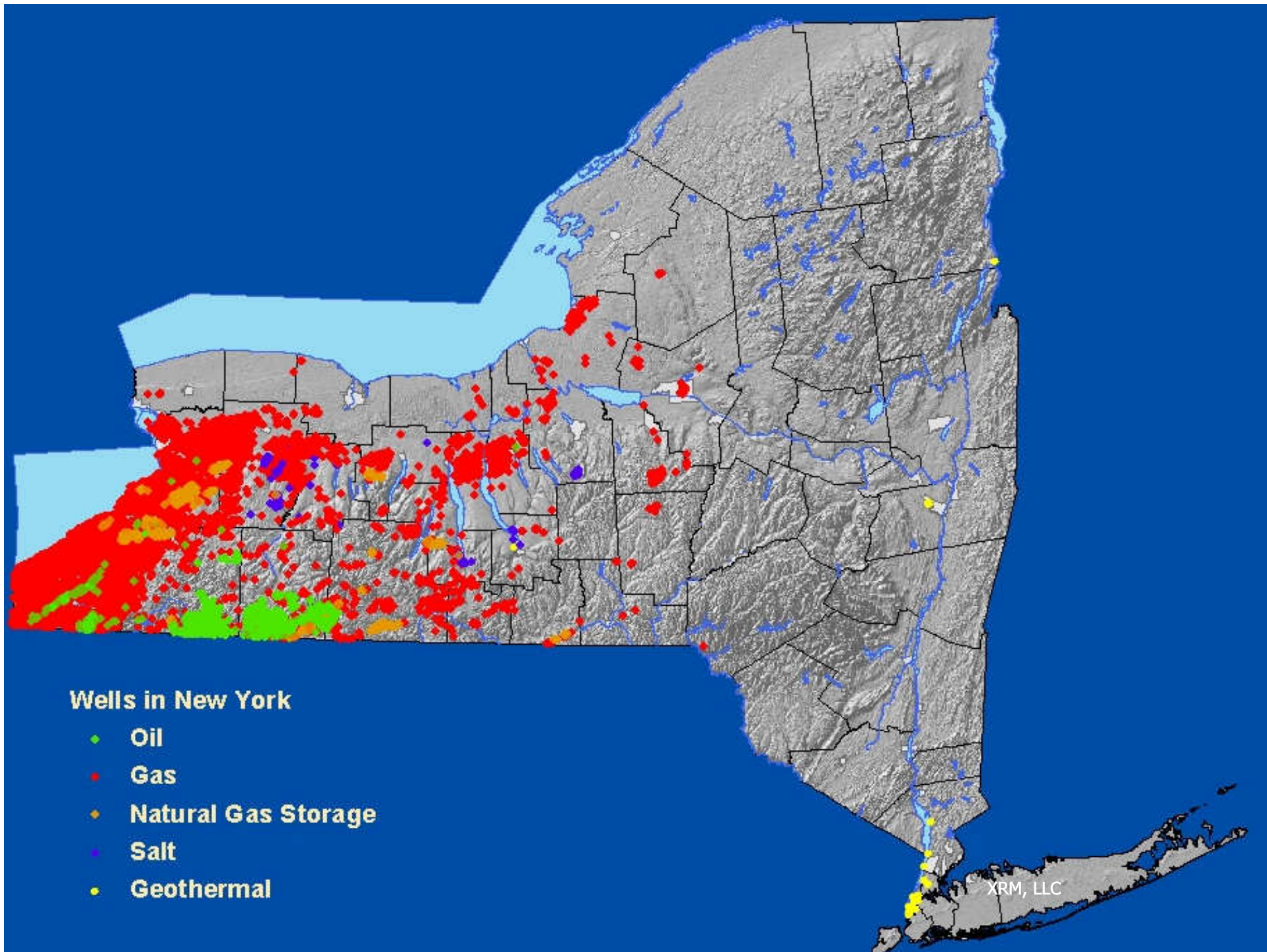
# Background

- 33 years at NYSDEC, last 22 as Division Director, Mineral Resources
- Vice President, Governmental Affairs, Spectra Environmental Group
- Principal, Director – Lake Country FracWater Specialists, LLC
- Twin Tiers Landowners Coalition

# Topics of the Day

- State's regulatory history
- Environmental concerns and mitigations
- GEIS and SGEIS process
- SGEIS highlights
- Next steps, timelines





# National Energy Policy

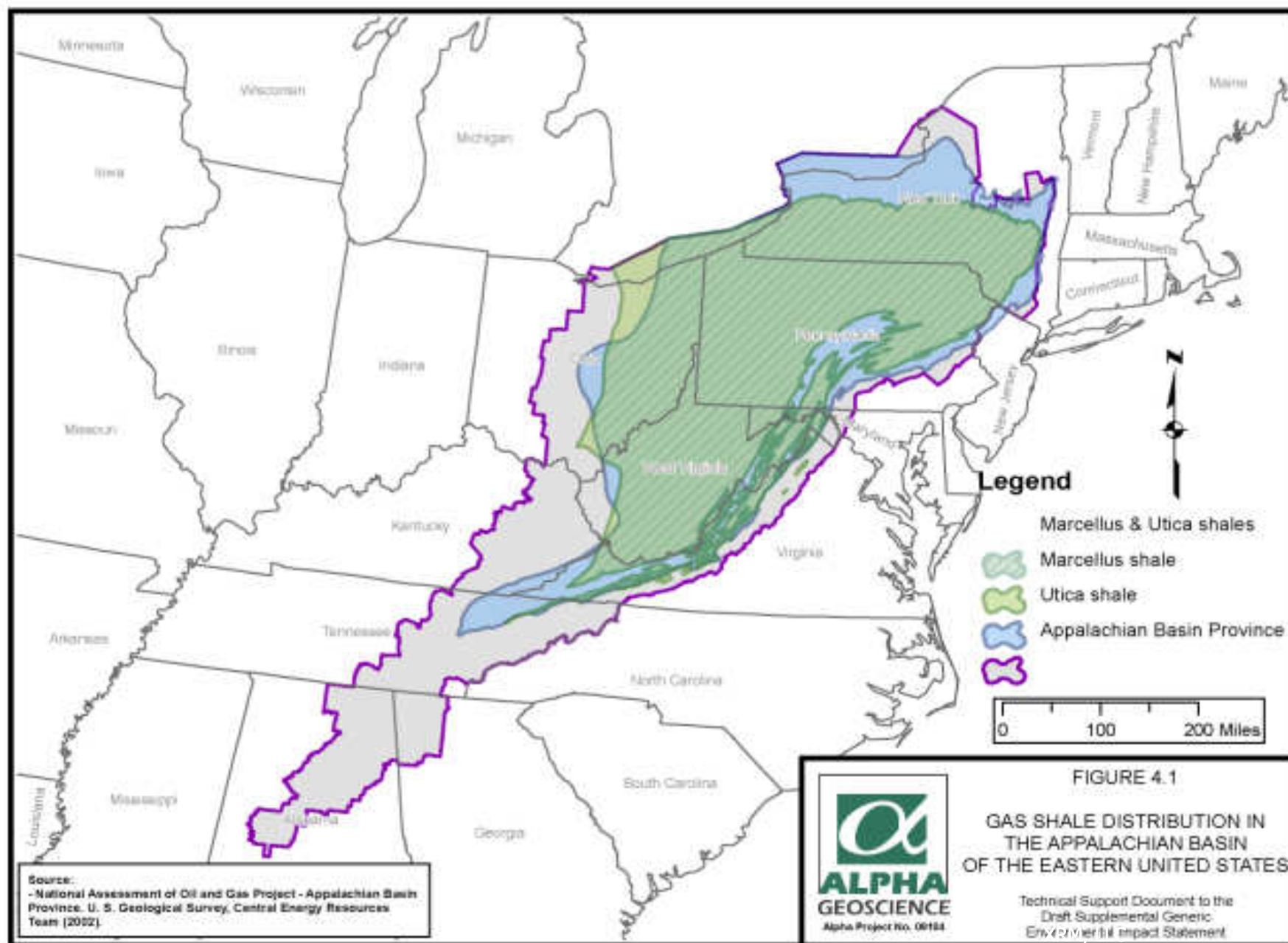
- Didn't matter who was elected
- Facing long-term serious energy problems
- Only forgotten because of collapse of oil prices
- Economy needs stable supply, price
- Candidates don't know energy

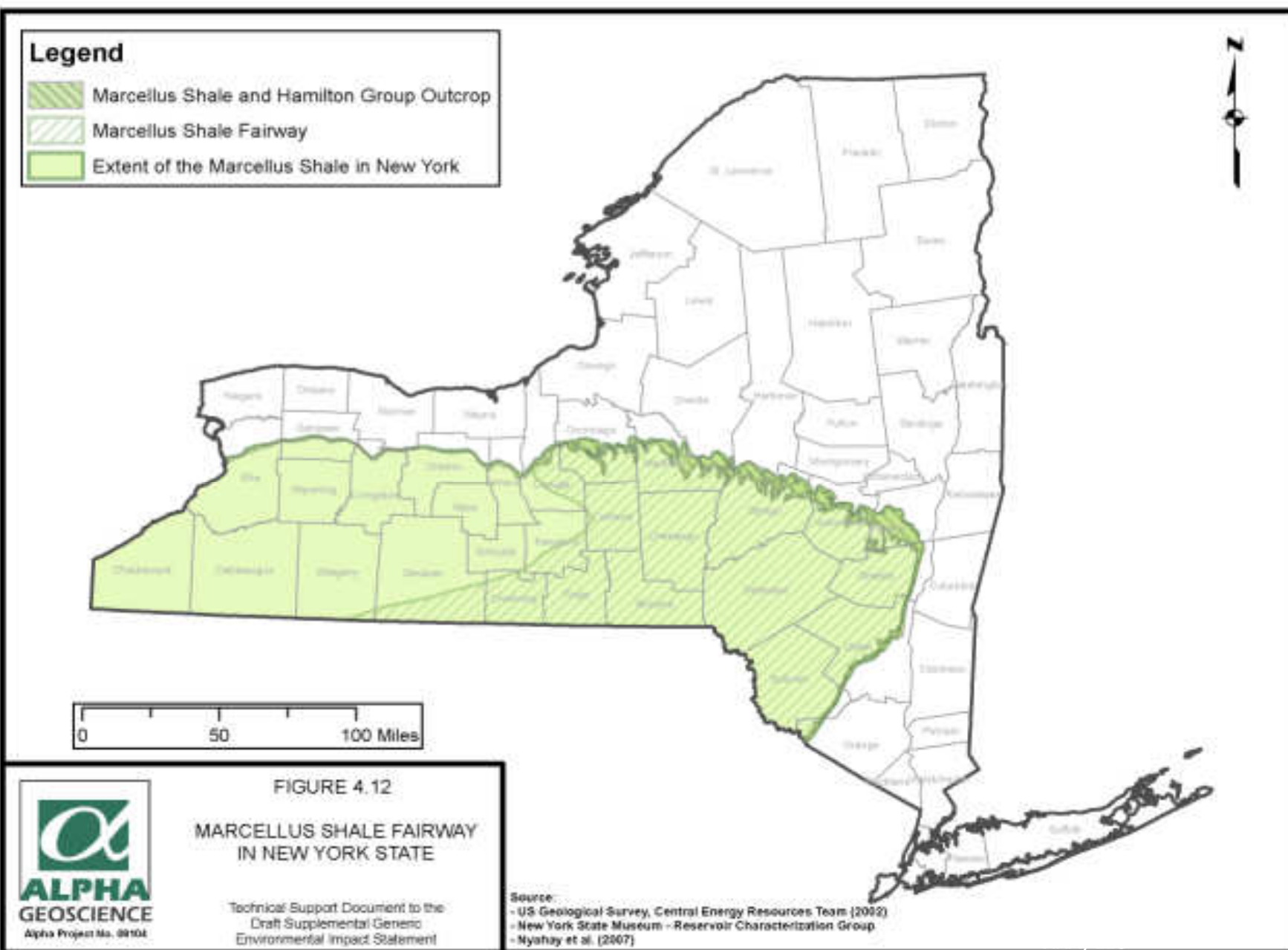


# Natural Gas - Marcellus Shale

- 500 trillion cubic feet of natural gas
- Environmentally-preferable fuel
- Technological advances to produce gas from shales now economic
- Near population centers, markets
- In depressed areas of NY, PA
- International game changer









# Marcellus Development



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# What's Different in NY?

- Different legal framework under SEQR
- Want all of our conditions in place before proceeding
- Formidable array of conflicting groups, ideas, geographic differences
- Media not informed, responsible
- DMN hampered by lack of staff

# NY's Oil and Gas Regulatory Program

- Modernized by 1981 Amendments
- Developed as a groundwater protection program, permits needed
- Spacing, protection of correlative rights
- Fees for new staff
- Supercedure of local regulation

# Founding Father of IOGA

- Organized for proposed legislation, natural gas issues in 1980
- Natural gas not just oil



# Division of Mineral Resources (1982-83)

- National recruitment of staff
- Overall regulation of the oil and gas industry, mining industry
- Pay much less than industry equivalent
- Most of the staff still there
- Highly professional, responsive

# DMN Regulates Drilling

- Review of casing and cementing
- Environmental site review
- 24 hour, seven days a week inspection, field presence
- Weeded out bad actors, expectations
- Fines and penalties not indicative of enforcement efforts



# Casing and Cementing Conditions – 1980's

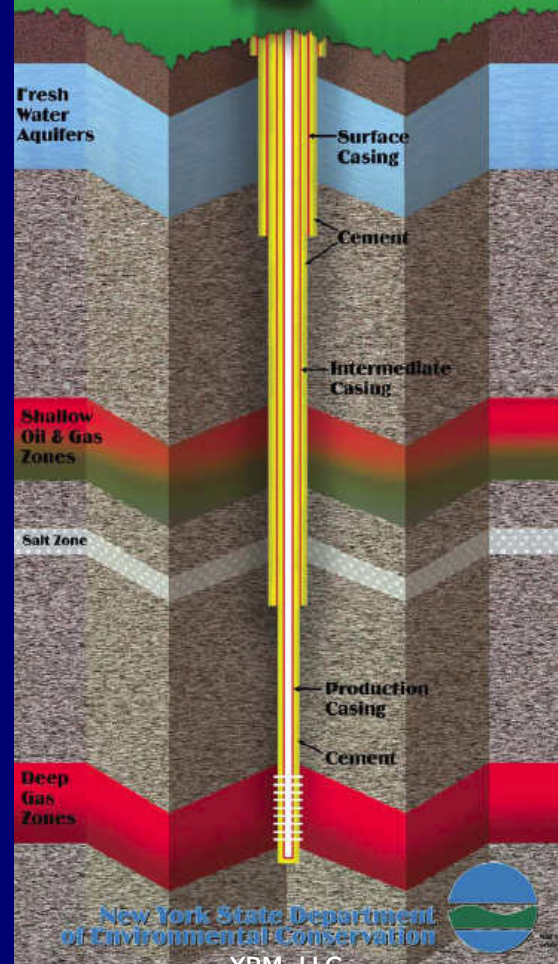
- Developed with industry input
- Redundant protection for groundwater
  - two strings of pipe, cement
- Relatively unchanged for almost 30 years
- No well has impacted groundwater in NY since at least the 1980's\*

# Groundwater Protection

## Well Casing and Cementing Program

The Division of Mineral Resources' well casing and cementing regulations provide for the protection of the State's fresh water aquifers

Regulations require that wells be constructed and operated to prevent the movement of oil, gas or water from one zone to another



New York State Department  
of Environmental Conservation

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# Aquifer Conditions

- Developed in the 1980's with industry input, hearings
- Three strings of pipe and cement for all wells drilled in primary and secondary aquifers
- DEC must witness cementing to ensure return of cement to the surface
- Jamestown lawsuit in 1984

# State Environmental Quality Review Act

- Effective in late 1970's
- Divisions needed to review regulatory programs for compliance
- DMN embarks on Generic Environmental Impact Statement (GEIS) in 1988
- Final GEIS in 1992

# Generic EIS on Oil & Gas Regulatory Program

- How to handle like actions
- Avoiding individual EIS on actions not 'significant impact' to environment
- Public review, hearings
- Establishes thresholds for review
- Public information
- Binding legal document

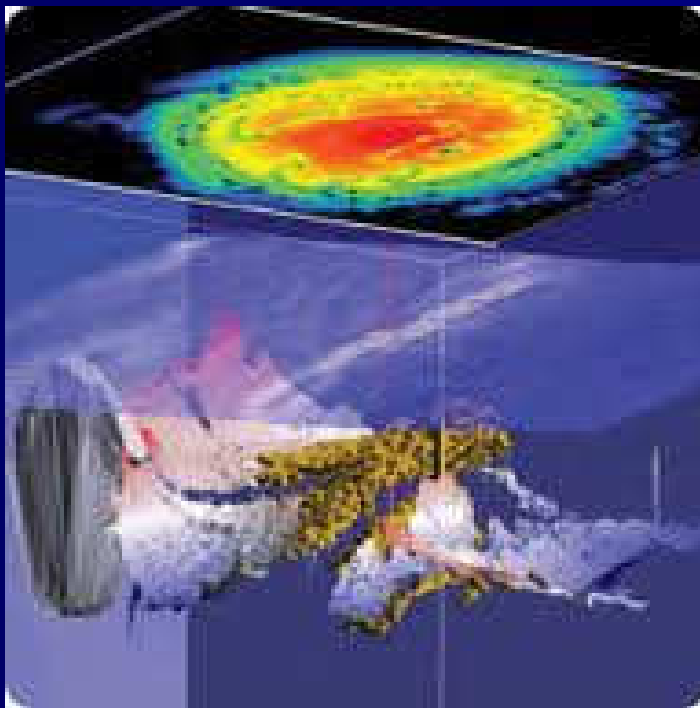
# 1992 Findings on Gas Well Drilling



- No Significant Impact:
  - Consistent with Final GEIS
  - No other DEC permits needed
  - Includes wells drilled in primary and principal aquifers
- May be Significant:
  - In a State Parkland
  - More than 2.5 acres in Agricultural District disturbed
  - Less than 2,000 feet from a municipal water supply well



# Technology Advances – Oil & Gas Industry



- Horizontal drilling
- Multi-stage hydrofracking technique
- Dense shales throughout US now economic

# Spacing of Wells

- Size in acres of unit to efficiently drain the resources (conservation, no waste)
- Cannot drain neighbor's property (protection of correlative rights)
- Drilling plan must not leave out properties between wells - stranded
- PA Law of Capture - no Marcellus spacing, no fair pooling statute

# Spindletop, Texas 1901



# NY Marcellus Spacing - Vertical and Horizontal

## 2005 & 2008 Legislation

Shale Gas (Vertical Well)	any depth	36 to 44	Wellbore within the target formation no less than 460 feet from any unit boundary
Shale Gas (Horizontal Well - written commitment to drill infill wells with all horizontal infill wells to be drilled from a common pad within three years of the first well drilled)	any depth	Up to 640	Initial horizontal wellbore or wellbores within the target formation approximately centered in the unit and no wellbore in target formation less than 330 feet from any unit boundary
Shale Gas (Horizontal Well - no written commitment to drill infill wells)	any depth	36 to 44 (plus, if applicable, the number of additional acres necessary and sufficient to ensure the horizontal wellbore within the target formation is no less than 330 feet from any unit boundary)	Wellbore within the target formation no less than 330 feet from any unit boundary

# Governor's Message – July 2008

- Signs 2008 legislation for spacing of horizontal shale wells
- Directs DEC to do a supplemental review
- SGEIS to complement 1992 GEIS for impacts not evaluated
- Correct approach to comply with SEQR

# What Has Changed?

- Scope of operations has changed:
  - Water supply for frac operations
  - Frac water recycling and disposal
  - Logistics of storing and moving water and spent fluids
  - Overall development of the resource
  - Impacts to municipalities
- Issues that are being addressed



# Marcellus Horizontal High Volume Well

- One million gallons per stage, four stages per well v. 80,000 gallons GEIS
- Horizontal leg (new technology)
- Frac fluid flowback 10-15%
- Multiple wells from same pad, longer drilling times (3 yrs) v. 6 weeks GEIS
- Increased truck traffic

# SGEIS Process

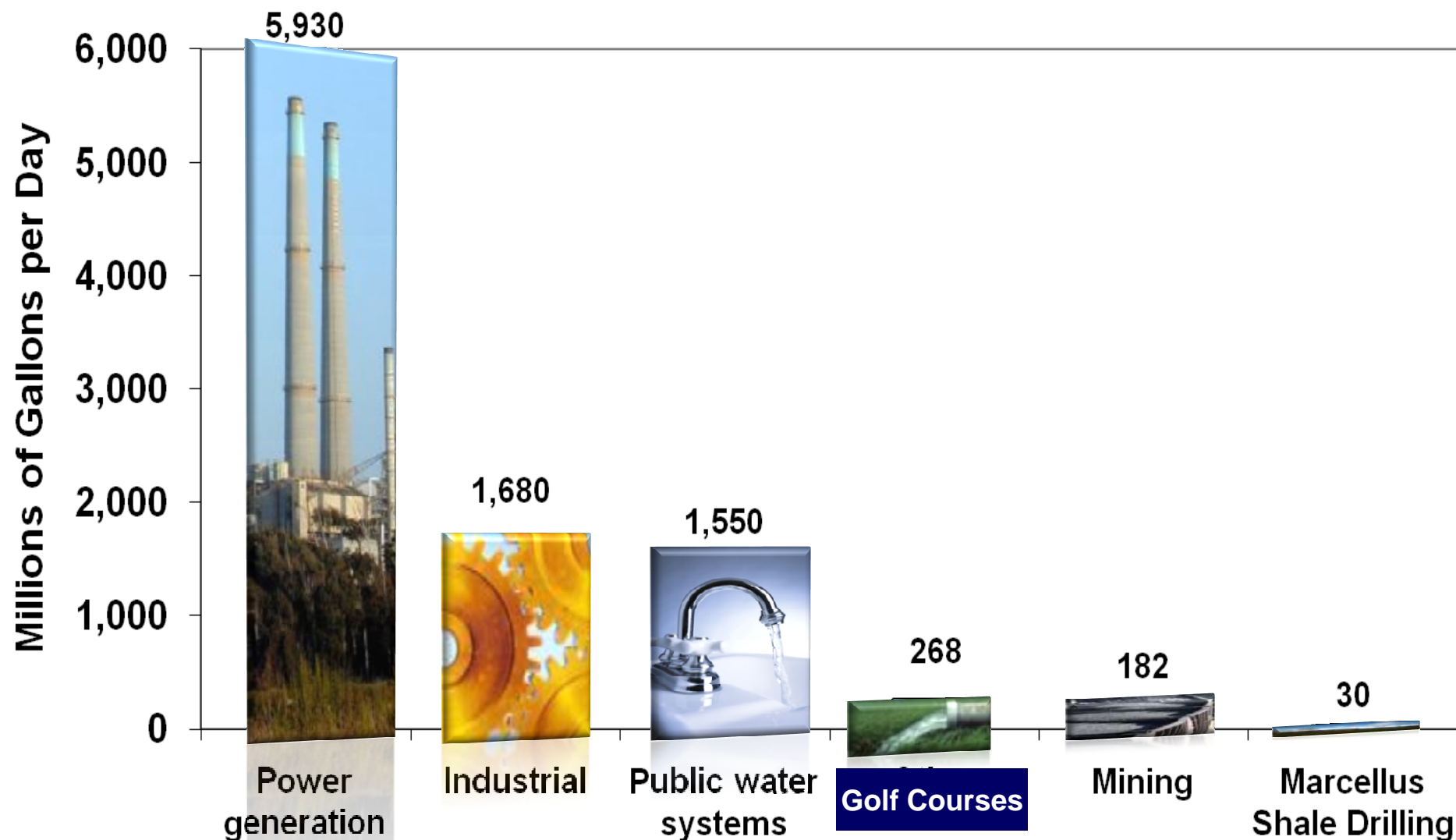
- Excellent scoping document with public hearings in late 2008
- Draft SGEIS released September 2009
- Public hearings and comment period closed December 2009
- Ultimate step is Final SGEIS Findings Statement

# Water and Groundwater



- Supply – new demand
- Gas migration
- Impact of hydrofracing on groundwater
- Surface spills, containment
- Hydrofracing, recycling, reuse, disposal
- Transport issues, roads

# Comparable Water Usage in PA



Susquehanna River Basin total water demand  
According to the Gas Technology Institute

# Disposal Options

- Sewage treatment plant
- Landfill for solids
- Distillation and reverse osmosis plants
- Deep well disposal
- Any new technology



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# Reuse & Recycling

- Movement toward recycling of produced water, onsite
- Reduces transport costs
- Driven by current and future regulatory limits
- Lessens pressure on treatment plants
- Non hazardous products for disposal



# Removal of Barium and Strontium, Heavy Metals

- Treating flowback water for recycling
- More efficient reuse, prevents scaling
- Mobile processing
- Convert metals to inert product, possible BUD
- Likely new EPA pretreatment standards

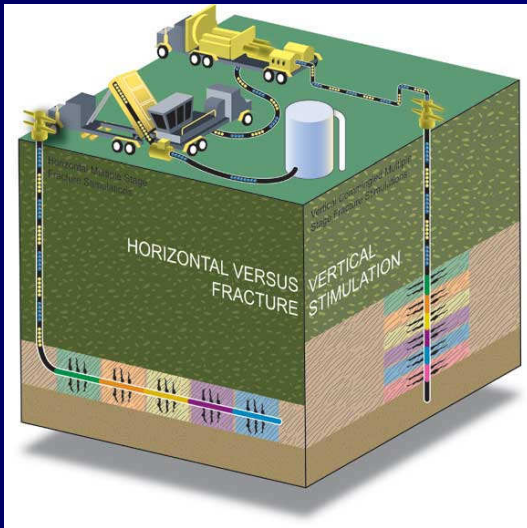


Lake Country FracWater Specialists, LLC

# Hydraulic Fracturing

- First hydraulic fracturing (granite mining) 1903
- First oil and gas frack 1948
- First commercial oil and gas frack 1949
- Medina sandstone (NYS) 1960s
- First horizontal well frack (Barnett) 1995
- All Barnett wells fracked: over 11,000!

# Hydrofracking Experience



- More than 1 million wells hydrofracked since 1940
- Governmental organizations never raised any issues
- Nothing new in shale hydrofrack except more water and chemicals



Therefore, the injected fluid does not come into contact with groundwater; it is, in fact, injected into and recovered through a wellbore that has been specifically constructed to safely convey hydrocarbons under pressure to the surface without negatively impacting fresh water aquifers. The Department has *no record of any documented instance of groundwater contamination caused by hydraulic fracturing for gas well development in New York, despite the use of this technology in thousands of wells across the state during the past 50 or more years.*

New York State Department of Environmental Conservation  
Division of Mineral Resources  
Bureau of Oil and Gas Regulation

# Summary of Marcellus Water Impacts

- Casing and cementing through fresh water not a problem
- Horizontal drilling no different than vertical
- Hydrofracing not a problem
- Water supply manageable
- Need options for recycling/reuse and wastewater disposal

# DSGEIS – What's Important?

- Chapter 4 Geology
- Chapter 5 Natural Gas Development Activities and High-Volume Hydrofracturing
- Appendix 6 PROPOSED Environmental Assessment Form
- Appendix 10 PROPOSED Supplemental Conditions

# **New Draft Environmental Assessment Form (EAF)**

- Specifics on hydrofracing, additives
- Water source details, water wells in vicinity
- Tanks for hydrofracing flowback
- Proposed fluid disposal plan
- Visual, noise mitigation plans
- Road use agreement or trucking plan

# New Draft Supplemental Conditions

- Local coordination and planning
- Water well testing, ongoing monitoring
- Stormwater permit required
- Pit specifications re size, liner
- Additional requirements for cementing and hydraulic fracturing
- NORM testing of fluids, reclamation



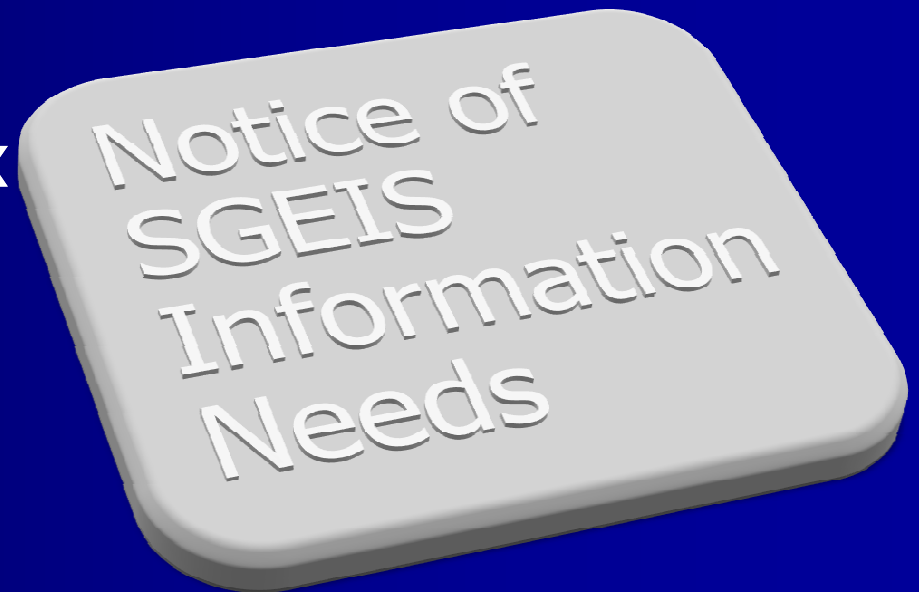
# Timeline for Completion of SGEIS (not really)

- Late summer, early fall
- End of 2010
- 'Companies will receive drilling permits by fall, drilling to begin spring, summer 2011' – Commissioner Pete Grannis



# Wait: DEC Wants More!

- Major information request to industry April 12, 2010
- Two-page letter, six pages of detailed questions
- Responses in summer 2010
- Additional research



# Governor's Hydrofracing Moratorium Veto

- Vetoes bill, issues Executive Order, December 2010
- Complete draft SGEIS on or around June 2011
- Public comment (again!) for at least 30 days
- If hearings needed, have to hold one in NYC

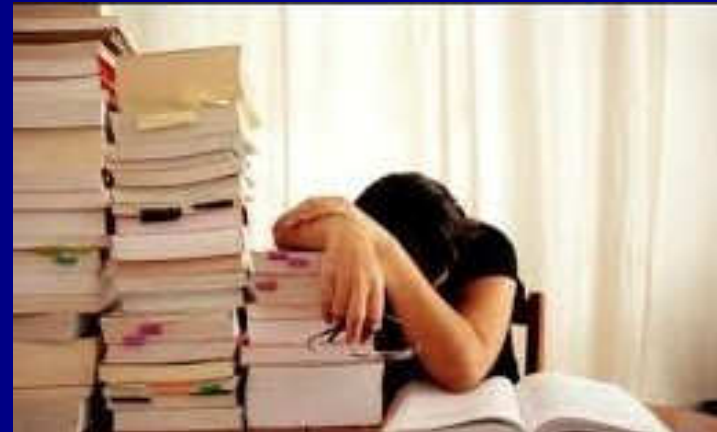


# Executive Order & SEQR Translation

- Public notice means final SGEIS in September 2011 at earliest
- Why mention NYC and public hearings if not going to happen?
- Public hearings mean 2012 for drilling at earliest
- Governor Cuomo presumably blessed Executive Order

# Next SGEIS Steps

- Comment period closed December 2009
- 13,000 comments to consider
- Additional information requested, received
- Governor's veto message sets stage



# Albany Times Union Front Page – July 2008

**WEATHER**  
High 83° Low 65°  
Some sun, some clouds and maybe a rumble or two./D2

**TIMES UNION**  
timesunion.com  
50 CENTS ■ 75 CENTS IN OUTLYING AREAS  
ALBANY, NEW YORK ■ TUESDAY, JULY 22, 2008

**MORE NEWS**

**STUDENT LOANS**  
**Governor backs low-cost aid**  
Gov. David Paterson says he supports a state commission's proposal to give hundreds of thousands of students access to low-cost loans./A3

**PAY RAISES**  
**Albany council seeks oversight**  
Common Council members back plan that would give them more power over midyear raises and reorganizations./A8

**WATER LINE**  
**Judge OKs use of eminent domain**  
Saratoga County Water Authority receives court's approval to take land needed to construct a 26-mile, \$67 million water line./D1

**LIFE • HEALTH**  
**A quick fix for baby's 'tongue-tie'**  
A relatively easy medical procedure was the answer when doctors found an anomaly that kept baby's tongue from working right./E1

**BUSINESS**  
**Farther reach for nasal spray**  
A New Jersey company's acquisition of Colson's S/Cap Industries is expected to boost production and distribution of pepper-inspired Sinus Buster nasal sprays./E1

**ValleyCats**  
**A day at The Joe**  
Michael Diaz of the Tri-City

**Toxic gas-drilling technique**  
"Hydrofracking" plan raises questions about water safety in state  
By ABRAM LUSTGARTEN  
Staff writer  
Special to the Times Union

In May, top-state environmental officials told lawmakers that plans to drill use of the richest natural gas reserves in the United States posed little danger to the air or the watershed that feeds drinking water to New York City.

With energy prices at record highs, a growing number of diffi-

**EXCLUSIVE**  
culty-to-reach deposits of oil and gas in the U.S. are becoming commercially viable. At least nine companies are pursuing drilling rights in New York, Pennsylvania and the southern Appalachian states to the Marcellus Shale, a rock layer that some geologists predict could meet the nation's natural gas needs for more than two years.

A survey of other states had found "one instance of drinking water contamination" from the kind of drilling that would happen in New York, the officials said.

Remember, the Legislature approved a bill to streamline the permitting process for the wells, which could bring the state up-wards of \$1 billion in annual revenue. Gov. David Paterson has only until Wednesday to sign the bill. The Department of Environmental Conservation says drilling permits could be approved in as little as 12 weeks.

But the bigger picture of this drilling technique, called "hydrofracking," is not pretty.

The gas in the Marcellus is held like bubbles in a brick of Swiss cheese. To extract it, a mixture of

**SCIENTISTS** fear small water sources, such as this wetland in Oxford, Chenango County, will be tapped to support drilling.

**UAlbany student detained in Iran**  
Fate of noted AIDS expert Kamran Alaei and his brother is unknown  
By MARC PARRY  
Staff writer

ALBANY — A University at Albany public health student intern naturally knows for his AIDS work has been arrested by Iranian security forces, Human Rights Watch said on Monday.

The New York-based group urged Iranian authorities to release or charge Kamran Alaei and his brother, Arash. The two physicians were detained in late June; the group said their whereabouts are unknown.

**KAMRAN ALAEI**



XRM, LLC

# NY's Circle of Pressure



# The Debate Clash

## Technical, scientific

- Oil and gas industry has answers
- Done safely everywhere
- Significant economic development, jobs
- Production of clean-burning natural gas

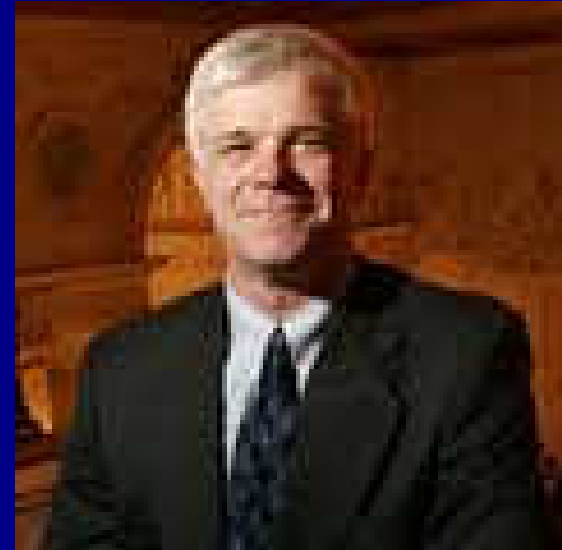
## Social, philosophical

- No drilling is good
- Know don't like it, but can't find substantive technical reason
- Hate oil and gas industry
- Exploitation of Mother Earth, natural resources
- Hydrofracing lightning rod



# Latest (March 2011) from Commissioner Martens

- Draft SGEIS out sometime this summer
- Only on 'new' information?
- Comment period length undecided
- Public hearings possible/likely



# Marcellus Land Impact Positive

- Four to five acre drilling pad, consolidated area
- Multiple wells from one location
- Horizontal wells for greater resource recovery
- Smaller footprint, landowner options
- Environmentally, farm friendly

# SGEIS Process

- Process should not overwhelm decision-making
- Needs to progress to conclusion
- Investment in NY must be allowed to proceed
- NY needs to capture benefits immediately
- Hope that gas companies come back

# Final SGEIS

- An environmental textbook
- A technical, regulatory guidance document for industry
- A public information document
- A legal regulatory framework for development to proceed
- Industry insulation from lawsuits

# Defending a Near Perfect Record - DMN

- No impact to groundwater from drilling
- No impact on aquifers from drilling
- No impact to groundwater from hydrofracing
- No lawsuit on any well drilled since 1984
- Yet Marcellus development stalled!

# Marcellus Natural Gas Development

----- May be the greatest economic development opportunity in depressed areas of the state that we will see in our generation ----- BCNY 2009

- No environmental compromises
- Produce clean-burning natural gas
- NY landowners deserve to share in the wealth, particularly in depressed areas

# Contact Information

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