

NYS DEC's Regulation of Marcellus Shale Development in New York



**BUSINESS COUNCIL OF NEW YORK
2009 ANNUAL INDUSTRY-ENVIRONMENT
CONFERENCE
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DIVISION OF MINERAL RESOURCES
NYSDEC**

Today's Presentation

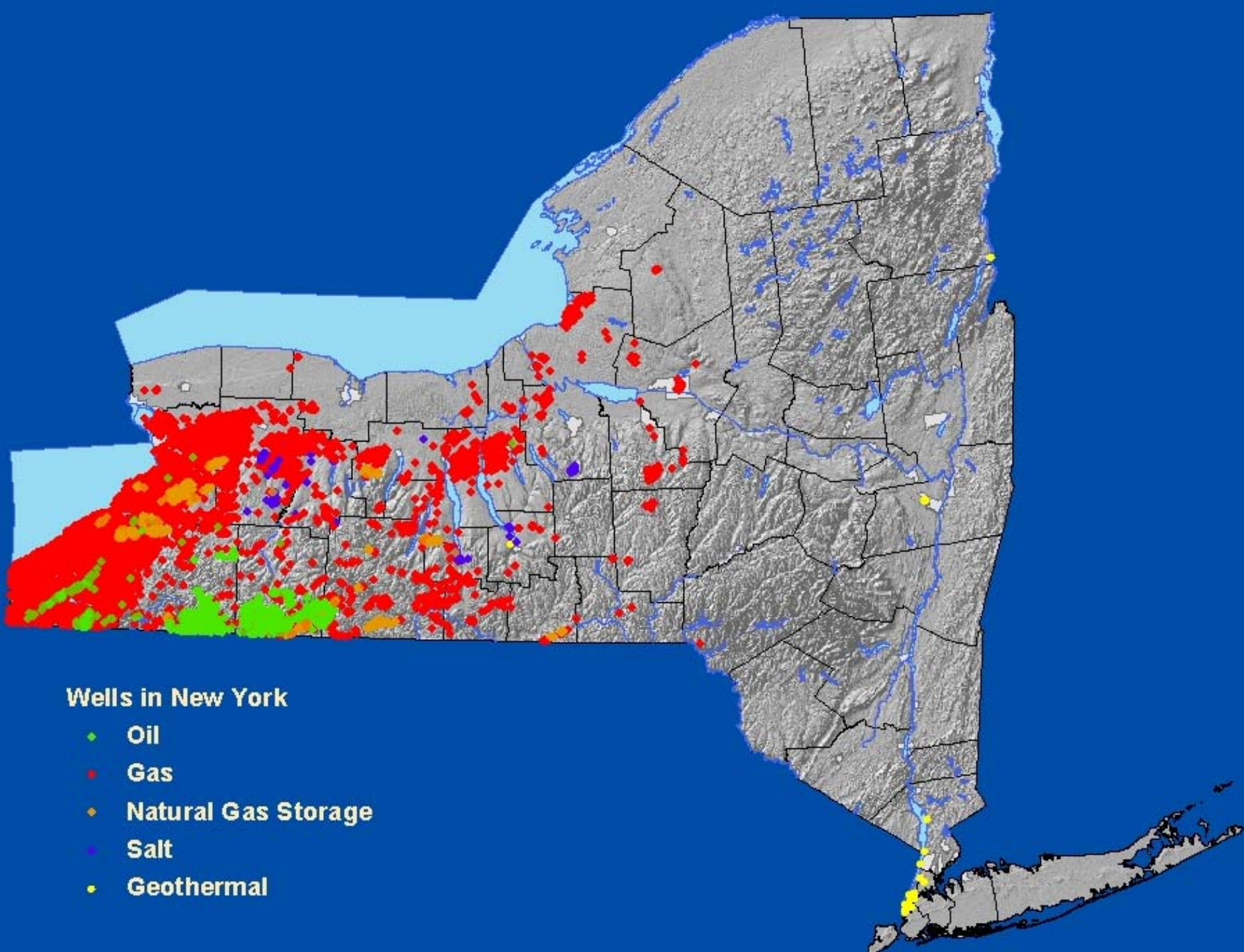


- **Oil and Gas in NY**
- **New York's regulatory framework**
- **Use of a Generic EIS to fulfill SEQRA**
- **Draft Supplemental GEIS**
- **Next Steps**

Oil and Gas Wells in NY



- **Oil seeps - Cuba, NY - 1627**
- **First natural gas - Fredonia, NY - 1821**
- **First oil well - Allegany County -1863**
- **Est. 75,000 wells drilled since the 1820s**
- **Approx. 13,000 wells reported in 2008**



Wells in New York

- ◆ Oil
- ◆ Gas
- ◆ Natural Gas Storage
- ◆ Salt
- ◆ Geothermal

2008 Oil and Gas Activity in New York



- **50.3 bcf gas produced**
 - 5% of NYS gas consumption
 - 729,000 homes heated
- **397,000 bbl oil produced**
- **\$488 million wellhead market value (95% gas)**
- **\$61 million landowner royalties**
- **\$14.6 million in local taxes**

Well Permits



- **935 new well permit applications received in 2008**
 - Compare to 127 in 2002
 - 742 permits issued in 2008
- **474 well permit applications so far in 2009**
- **\$913,000 in permit fees in 2008**
- **\$24.7 million in financial security held by DEC**

Regulatory Authority



- **New York State Environmental Conservation Law Article 23**
 - Oil, Gas & Solution Mining Law
- **Regulations 6NYCRR Parts 550-559**
- **State Environmental Quality Review Act**
- **Guidance and special permit conditions**
- **Other DEC jurisdictions**
 - Air Resources
 - Water
 - Solid and Hazardous Materials

Use of a GEIS to Fulfill SEQRA



- Evaluates separate actions having common impacts
- Individual EIS not needed if GEIS adequately addresses all potential impacts
- Gas well drilling in NYS was reviewed in a 1992 GEIS
- <http://www.dec.ny.gov/energy/45912.html>

1992 Findings on Gas Well Drilling



- **No significant impacts if:**
 - Consistent with Final GEIS
 - No other DEC permits needed
 - Not in a State Parkland
 - Less than 2.5 acres in Agricultural District disturbed
 - Greater than 2,000 feet from a municipal water supply well
 - Includes wells drilled in primary and principal aquifers

Marcellus Shale: What's the Big Deal?

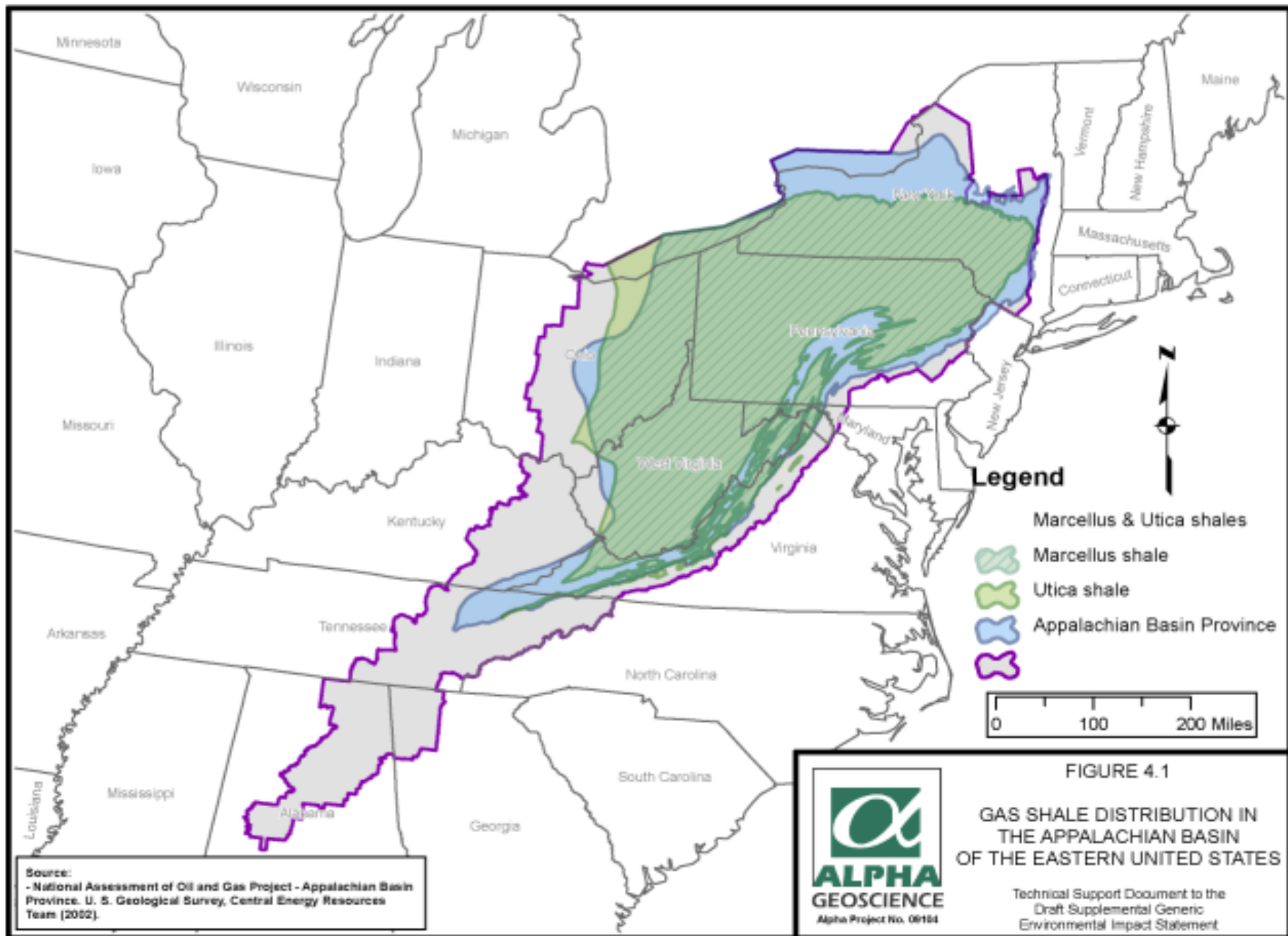


- Recoverable reserves estimated at 490 tcf
- Hess: \$3,475 per acre, 20% royalty
- Fortuna: \$5,500 per acre, 20% royalty
 - 30,000 acre parcel, mostly in PA
- Chesapeake: \$5,750* per acre, 20% royalty
 - \$3.68 million per square mile
- Penn State's "Emerging Giant" 8/5/09:
 - Ten year activity estimates:
 - ✦ Economic Impact \$13 billion value added
 - ✦ 174,000 jobs annually
 - ✦ \$12 billion present value state and local taxes




Marcellus Shale: What's the Big Deal?



- **Draft New York State Energy Plan:**
 - “Production and use of in-state energy resources – renewable resources and natural gas – can increase the reliability and security of our energy systems, reduce energy costs, and contribute to meeting climate change, public health and environmental objectives. Additionally, by focusing energy investments on in-state opportunities, New York can reduce the amount of dollars “exported” out of the State to pay for energy resources.”
 - **“Encourage development of the Marcellus Shale natural gas formation with environmental safeguards that are protective of water supplies and natural resources.”**
- **New York State Commission on State Asset Maximization:**
 - “Taking into account the significant environmental considerations, the **State should study the potential for new private investment in extracting natural gas in the Marcellus Shale on State-owned lands, in addition to development on private lands.**”



Legend

-  Marcellus Shale and Hamilton Group Outcrop
-  Marcellus Shale Fairway
-  Extent of the Marcellus Shale in New York

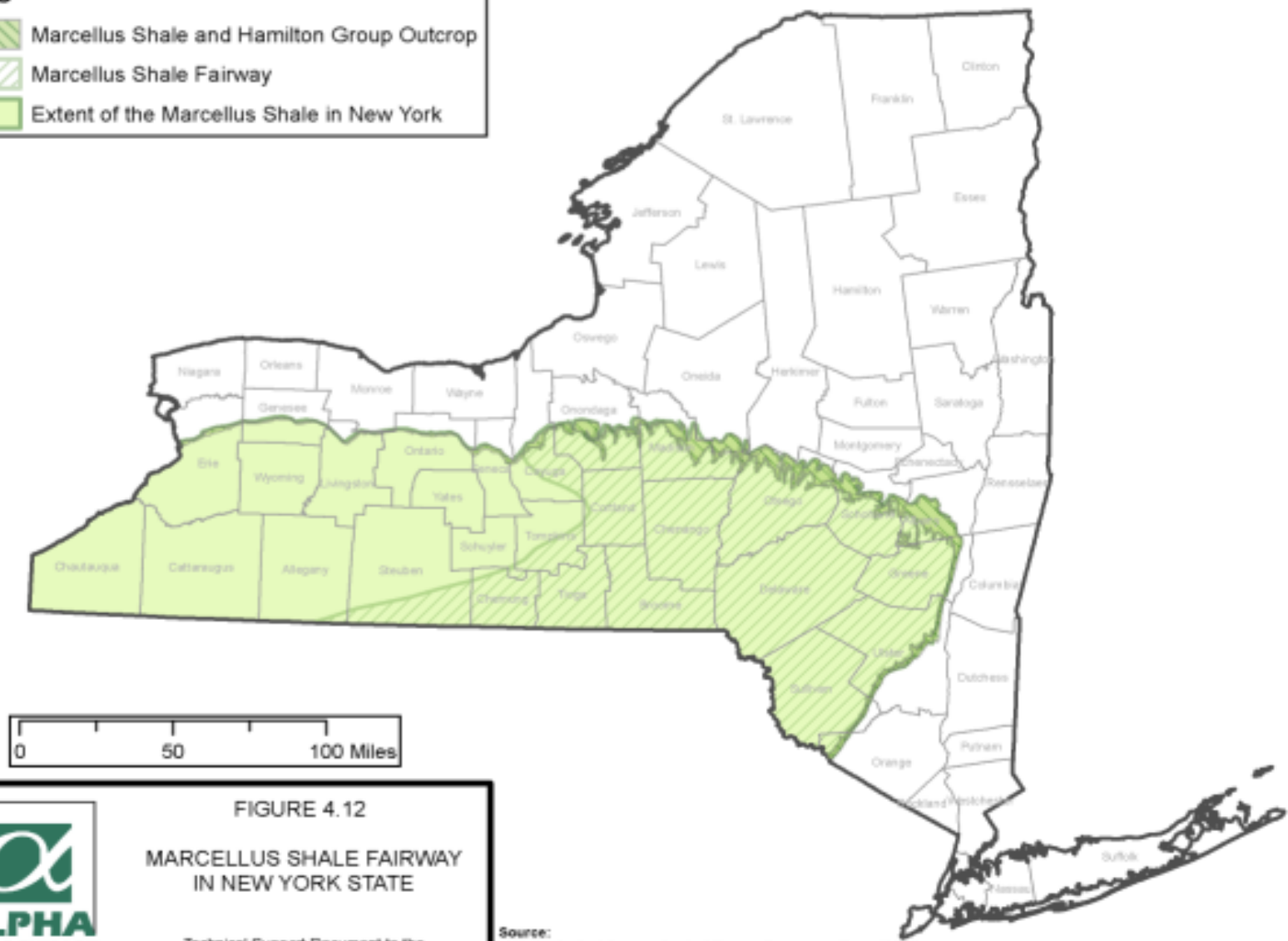


FIGURE 4.12

MARCELLUS SHALE FAIRWAY IN NEW YORK STATE



Technical Support Document to the
Draft Supplemental Generic
Environmental Impact Statement

Source:
- US Geological Survey, Central Energy Resources Team (2002)
- New York State Museum - Reservoir Characterization Group
- Nyahay et al. (2007)

Marcellus Issues



- **Consumer protection - leasing**
- **Permitting and drilling - environmental protections**
 - Horizontal drilling from multi-well pads
 - High volume hydraulic fracturing
 - Chemical additives
- **Water consumption and transportation**
- **Fluid handling, disposal, treatment**
- **Local impacts to infrastructure**

Potential impacts not addressed by GEIS



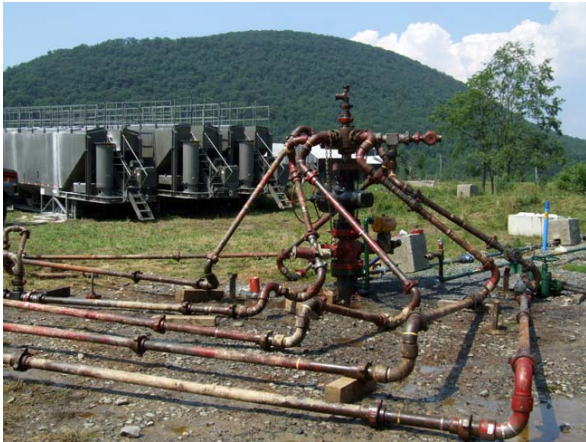
- **High-volume fluid management**
 - Water withdrawals and consumption
 - Transportation of water to the site
 - Additives
 - On-site facilities and handling
 - Flowback and ultimate disposition
- **Multiple wells at single site, longer duration of impacts**

Draft SGEIS



- Addresses separate actions with common impacts not covered in the existing GEIS
 - *The action of well permit issuance for horizontal drilling and high-volume hydraulic fracturing to develop the Marcellus Shale and other low permeability gas reservoirs*
- Builds upon existing GEIS
- Proposes SEQRA determinations for the new activity

High-Volume Hydraulic Fracturing



- **Large volume water withdrawals and potential impacts to:**
 - Stream flow
 - Public water supply
 - Fish and wildlife
- **Hydraulic fracturing:**
 - Well site facilities
 - Fracturing fluid composition
 - Fluid storage and transportation
 - Fluid reuse potential
 - Fluid treatment options

Multi-Well Drilling Sites



- Spacing law requires all wells drilled within three years.
- Potential noise, visual or air quality impacts.
- Sufficient setbacks from private buildings or dwellings.

dSGEIS Proposed Mitigation



- Chapter 5 – Description of well drilling, hydraulic fracturing and development
- Chapter 6 – Potential environmental impacts
- Chapter 7 – Mitigation measures
- EAF Addendum – Appendix 6
- Special Drilling Permit Conditions – Appendix 10

EAF Addendum



- **1992 GEIS Findings authorized program specific EAF required with every well drilling permit application**
- **EAF Addendum developed and proposed in dSGEIS**
 - Evaluate HVHF projects in context of dSGEIS
 - Identify required site-specific mitigation measures
- **Required:**
 - With application for first well on a pad
 - With application for subsequent wells on a pad if any information changes
 - Prior to high-volume re-fracturing of an existing well

EAF Addendum – Appendix 6



- **Required information (14)**
 - Water source for hydraulic fracturing
 - Hydraulic fracturing service company, fluid makeup including additives
 - Distances to water supply wells, springs, reservoirs
- **Required attachments (5)**
 - Topo map showing natural features and wellsite layout and equipment
 - Due diligence to determine public and private water supply wells
 - Fluid disposal plan
- **Required affirmations (9)**
 - Water withdrawal for hydraulic fracturing will only occur above appropriate flow threshold
 - Adherence to visual, noise, GHG and invasive species plans
- **Additional submissions prior to site disturbance (2)**
 - Road use agreement or trucking plan + documentation of efforts
 - Floodplain development permit, if required

HVHF Special Permit Conditions



- **Planning and Local Coordination (7)**
 - Contact County Emergency Management Office
 - Sample and test water wells (private and public)
- **Site Preparation (5)**
 - Stockpile topsoil
 - Multi-Sector General Permit for Stormwater
- **Site Maintenance (4)**
 - Siting and secondary containment for fuel tanks
 - Additional requirements for tanks located within bounds of a primary or principal aquifer

HVHF Special Permit Conditions



- **Drilling, Stimulation and Flowback (22)**
 - Closed loop tank system for floodplain, no reserve pit
 - All fracturing chemicals must be identified/submitted to the State for review prior to permit issuance
 - Biocides must be registered with NYS
 - Flowback fluids must be contained in steel tanks (no fracture flowback to lined pits)
 - Subsequent fracturing operations require Department approval
- **Reclamation (6)**
 - Fluid removal must be undertaken by a waste transporter with an approved Part 364 permit
 - Testing of pit solids may be required prior to disposal
 - Post-drilling reclamation requirements such as scarify well pads, replacement of topsoil, seed and mulching operations
 - DEC inspections to verify reclamation
- **General (4)**
 - NORM testing of Marcellus flowback and production fluids prior to removal
 - Tracking system in place to identify generator of fluids, transportation from site via permitted hauler and destination facility

SGEIS Timeline



- **Comment period ends November 30, 2009**
- **Public Comment Sessions:**
 - October 28 – Sullivan County CC, Loch Sheldrake, Sullivan County
 - November 10 – Stuyvesant High School, lower Manhattan
 - November 12 – Chenango Valley HS, Broome County
 - November 18 – Corning East HS, Steuben County
- **Publish Final SGEIS**
 - Comment Response Document
 - Findings Statement
- **Issue Permits to Drill**
 - 54 horizontal high volume hydraulic fracture drilling applications received to date

Send Us Your dSGEIS Comments



- The public comment period will be open until November 30, 2009.
- The Department is offering three ways in which to submit comments:
 - We have created an [on line submission system](#) which will allow you to write comments and tag them to your areas of concern. Attachments can also be included.
 - You may submit [e-mail comments](#); please include your name, e-mail or return mail address to ensure notice of the Final SGEIS when it is available.
 - Finally, written comments should be sent to: Attn: dSGEIS Comments, Bureau of Oil & Gas Regulation, NYSDEC Division of Mineral Resources, 625 Broadway, Third Floor, Albany, NY 12233-6500.
- <http://www.dec.ny.gov/energy/58440.html>