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Date: 9/2/2011 3:41:51 PM
Subject: Preliminary industry comments

Dear Commissioner Martens:

Attached for your review is a document prepared by the Independent Oil and Gas Association of New York (IOGANY) reflecting industry's comments and concerns about the sGEIS, the rule-making process, and the resulting economic impacts to New York. This represents a collaborative effort from various industry sources and it may provide a good working basis for our meeting next Tuesday.

Please contact me at any time to discuss.

Best regards,

Brad

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Attachments: IOGA-DEC Economic Impacts letter FINAL.pdf



September 2, 2011

Mr. Joe Martens, Commissioner
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233

Subject: Preliminary Revised Draft Supplemental Generic Environmental Impact Statement
Economic Impediments to Shale Gas Development

Dear Commissioner Martens:

The Independent Oil and Gas Association of New York (IOGA of NY) respectfully submits the following concerns regarding the Preliminary Revised Draft Supplemental Generic Environmental Impact Statement (prdSGEIS), the associated rule-making, the parallel effort to expand the general permit program relative to stormwater discharges from natural gas drilling and completion activities, and the anticipated economic impacts to shale gas development in New York. We anticipate that this document will frame the issues for discussion at our meeting on Tuesday, September 6. IOGA of NY is submitting this document in part:

- (1) To assess the wisdom of proceeding with a broad rule-making in the face of the incremental and increasing economic costs associated with the requirements identified within the prdSGEIS, and
- (2) To assist the New York State Department of Environmental Conservation (DEC) in understanding the economic impacts to the oil and gas industry so that the decision-makers in New York State will have a better understanding of why a number of these proposals will delay or preclude drilling activities in New York for many years to come.

This document is not intended to be a comprehensive list of issues in prdSGEIS and the associated regulatory processes that are of concern to IOGA of NY. Rather, it is intended only to highlight critical issues that need to be addressed now. If not revised, the Supplemental Generic Environmental Impact Statement (SGEIS) and the associated regulatory processes will make shale gas development in New York non-competitive with other states. As a result, the capital that is necessary for drilling and production will continue to flow elsewhere. In turn, the lack of investment in New York will seriously impact landowners, local communities in the form of lost property taxes, and the state through lost income and sales taxes. Of course, the state will also forego the biggest prize of all: an indigenous supply of clean-burning natural gas.

IOGA of NY has had several discussions with its member companies, as well as other interested industry representatives, and has concluded that conducting broad rule-making concurrently with the adoption of the SEGIS is not in the best interests of the state, landowners or industry. Our comments in this document, therefore, are being submitted subject to a full reservation of rights regarding the propriety of and technical justification for the rule-making process. Although we recognize that the DEC has

requested specific cost information regarding all of the mitigation proposals that are intended to be incorporated in new rule-making, the IOGA of NY SGEIS Working Group has determined that it would be futile to provide detailed cost information regarding individual mitigation proposals unless the overall competitiveness of the entire regulatory process is evaluated now and significant changes are made to keep New York competitive with other states that are actually promoting the development of this resource. As demonstrated herein, IOGA of NY estimates that the overall cost of the regulatory proposals will increase the cost for each wellbore in New York State in excess of \$1 million above the cost to drill the same wellbore in other states, which will render New York non-competitive. In requesting significant changes, IOGA of NY is not asking the DEC to compromise on environmental protection. Rather, we are asking the DEC to recognize that many of the proposals go too far and must be adjusted before the costs associated with specific measures should be evaluated. Consistent with that goal, IOGA of NY has prepared this document to alert the DEC to a number of overriding concerns with the current draft of the SGEIS and the associated rule-making process that are critical to maintaining a modicum of economic competitiveness. Accordingly, IOGA of NY provides the following concerns, comments, and recommendations:

- If DEC decides to move forward with the rule-making process, it should limit that process to only the most essential regulatory requirements.
- The original Generic Environmental Impact Statement (GEIS) has served the state and operators extremely well since its adoption in 1992. Flexibility in both the conduct and practices of oil and gas operations and DEC's monitoring and enforcement is desirable and necessary to promote current and future efficiencies and technological advancements.
- Adopting conditions and standards in rule-making will blunt and delay implementation of new technologies that are advancing with exploration and development of natural gas (e.g., water recycling and disposal).
- No other industry operating within New York, even though possibly impacting the environment to a greater extent than the oil and gas industry, will be burdened by these unjustified, excessive and inequitable rules, regulations, requirements, mitigation measures, permit conditions and access restrictions.
- DEC should take a hard look at the incremental environmental benefits versus the oil and gas industry's significant costs incurred in order to implement the mandated mitigation. We believe that many of the requirements impose unnecessary costs with no tangible benefit to the environment.
- Many of the proposals are inconsistent with the DEC's statutory mandate to promote the development of the resource and protect correlative rights and go beyond the statutory authority of the DEC (e.g., the effort to regulate private land use).

In addition to these overriding concerns, IOGA of NY has identified a number of critical issues that will make New York non-competitive and preclude large portions of the state from development. These issues, which are similarly not meant to be exhaustive, include:

- the proposed prohibitions and setbacks, which make it virtually impossible to lay out spacing units and engage in any meaningful development of the resource;
- the draft stormwater general permit requirements, which go well beyond what is required of any other industry in New York State and include many requirements that will unnecessarily increase the cost of drilling and completion substantially, ultimately deterring any investment in New York State;

- the mitigation requirements currently being proposed to address air impacts, many of which are not feasible, most of which are not demonstrated to be beneficial, and all of which fail to recognize the need for equipment to move freely among states without state-specific requirements and may be preempted under the Clean Air Act;
- the codification of best management practices, which eliminates flexibility, stifles improvement and results in many unnecessary costs;
- the passby flow methodology being proposed by the DEC is unnecessarily conservative and conflicts with their statutory obligation to balance competing water resources; and
- a number of circumstances where the regulatory proposals conflict with New York law (e.g., the effort to impose a different passby flow standard in areas regulated by interstate compact commissions that conflicts with recently enacted water withdrawal legislation in New York State).

Finally, we have included an analysis of shale gas economics and the lost economic opportunities, which demonstrate how New York State is already at a competitive disadvantage given market conditions and the unproven geology and the reasons why, therefore, unnecessary regulatory burdens will make New York that much more non-competitive.

The following paragraphs provide more specific comments.

Setbacks and Prohibitions

Without a scientific basis or rationale, the DEC has proposed a series of prohibitions and setbacks never before contemplated, despite New York's long-standing history of natural gas exploration and development. Some of these prohibitions and setbacks preclude any development while others preclude the siting of well pads within prohibited areas. When these prohibitions and setbacks are mapped against leasehold interests, it often becomes impossible to lay out units or site well pads in a manner that makes development in New York State economically viable. As a consequence, operators will lose hundreds of millions of dollars already invested in minerals leases, landowners will lose millions of dollars in royalties, significant tax revenue will be lost, and very few operators, if any, will be willing to invest their drilling budgets in New York State. The result will be lost economic opportunity for New York totaling billions of dollars.

New York State's Environmental Conservation Law (ECL), as it pertains to oil and gas, has long since been recognized as a "conservation statute" that is designed to promote the recovery of the resource and protect the correlative rights of landowners. Consistent with that goal, ECL § 23-0301 declares that it is in the public interest to "regulate the development, production and utilization of natural resources of oil and gas in the state in such a manner as will prevent waste; *to authorize and provide for the operation and development of oil and gas properties in such a manner that a greater ultimate recovery of oil and gas may be had, and that the correlative rights of all owners and the rights of all persons including landowners and the general public may be fully protected* [emphasis added]." These guiding principles serve as the basis for the oil and gas regulatory framework in New York State.

In furtherance of these goals and objectives, New York State has created detailed statutory schemes for spacing and compulsory integration to promote the greater recovery of the resource and protect correlative rights. The spacing and permitting provisions are generally found in ECL Article 23, Title 5. In accordance with the fundamental policy, ECL § 23-0503(2) authorizes the issuance of permits to drill wells if a proposed spacing unit "conforms to statewide spacing and is of approximately uniform shape with other spacing units within the same field or pool, and abuts other spacing units in the same pool, unless sufficient distance remained between units for another unit be developed." For the more

ubiquitous plays like the Marcellus and the Utica, this is likely to require relatively uniform rectangular-shaped abutting units in order to avoid gaps in the development of the resource.

Also paramount in the well permitting process is the need to site a well pad in a location that minimizes environmental impacts to the maximum extent practicable. This is frequently accomplished by looking for locations that avoid stream crossings, wetlands, steep slopes, endangered species, and known areas of historic significance, and by taking into account other siting considerations consistent with Best Management Practices (BMPs). The existing regulations found in 6 NYCRR Section 553.2 contain appropriate setbacks that have worked well for decades and have not led to any demonstrable problem with the 14,000 operating wells in New York State.

Against this backdrop, the DEC is proposing a series of setbacks and prohibitions. These include the following:

- Prohibitions:
 - the prohibition of well pads in the New York City and Syracuse watersheds and a buffer zone that is 4000 feet around those watersheds, and
 - certain State lands (State Forests, State Parks, etc.).
- Setbacks:
 - primary aquifers and within a 2,000-ft buffer;
 - within 2,000 feet of public water supply wells and reservoirs;
 - within 500 feet of private drinking water wells or domestic use springs, unless waived by the owner, and within 100-year floodplains.

The prdSGEIS also declares that a supplemental environmental analysis (i.e., a site-specific Environmental Impact Statement [EIS]) will be required in certain instances. These instances cover three categories: location, drilling depth and type of water-related issues. The location carve-outs require a site-specific EIS:

- within 1,000 feet of New York City's subsurface water supply infrastructure;
- principal aquifers or within 500 feet of the boundary of a principal aquifer;
- within 150 feet of a perennial or intermittent stream that is not a tributary to a public drinking water supply, storm drain, lake or pond; and
- within 500 feet of a tributary to a public drinking water supply.

Furthermore, private lands with tracts of grassland greater than 30 acres or forest greater than 150 acres may be off limits to surface occupancy and/or severely restricted insofar as their future development potential is concerned. IOGA of NY questions whether the DEC has the legislative authority to impose such restrictions on private lands. Moreover, the setbacks proposed by the DEC are to the "edge of location" (i.e., the well pad), not to the well itself. Therefore, all estimates of acreage excluded from development, particularly insofar as vertical wells are concerned, must add an additional 200 feet from the restricted area/edge of surface disturbance to the centrally located well, which increases the setbacks significantly.

As an initial matter, the proposed prohibitions directly conflict with the policy objectives of the statutory scheme in that they fail to promote the recovery of the resource or protect the correlative rights of the landowners in the prohibition areas. For this reason alone, the prohibitions should be eliminated.

Regarding the setbacks, although some reasonable setbacks are not objectionable (e.g., the existing regulations), when multiple setbacks are established without the authority of the DEC to grant waivers for good cause shown, it becomes extremely difficult, if not impossible, for an operator to lay out units in an orderly fashion. Further complicating this issue is the trend in the industry to drill longer horizontal wells, thereby reducing the number of well pads that are required. This trend further reduces the surface footprint of the industry and corresponding impacts to the environment. Because New York law limits the size of spacing units for shale wells up to 640 acres, it will be the practice of industry to layout back-to-back units with a common well pad for both units thereby draining areas up to 1280 acres (two square miles). As such, the location of the well pad becomes a critical factor in laying out spacing units based upon mineral lease rights and other environmental considerations.

By way of example, one operator has laid out spacing units based upon back-to-back 640 acre unit spacing, its mineral leases and traditional factors to avoid sensitive environmental areas. In the Owego area of Tioga County, this operator has sufficient mineral rights to develop twelve 640 acre spacing units with back-to-back spacing units and common well pads. Unfortunately, when land constraints are overlaid with the regulatory setbacks being proposed by the DEC, only two of the units are feasible. Because the spacing law allows spacing "up to" 640 acres, this operator may be able to develop other smaller units, but it will increase the number of well pads significantly, thus increasing the cost to the operator and increasing both the surface impacts and truck traffic from multiple locations. Even then, certain areas will be inaccessible, with the consequence that millions of dollars already invested in leases will not be practical to develop. Maps will be presented to the DEC during our upcoming meeting to demonstrate the significance of this issue.

Another operator has gone through a similar exercise in Chemung County, New York. The primary aquifer provision will eliminate significant developable acreage. This operator estimates that 50% to 60% of their current leasehold in Chemung County is located in primary aquifer areas. And, this prohibition is being proposed even though the same operator has developed four Trenton Black River wells through the very same primary aquifer without any environmental contamination. It is difficult to understand the rationale behind the prohibition for Marcellus-type wells while Trenton Black River wells are allowed to proceed. The primary aquifer prohibition and the many other setbacks proposed will require abandonment of attractive and logical drill sites and cause losses to the operator and the mineral owners of tens to hundreds of millions of dollars.

Given the foregoing, industry predicts that the acreage available to develop the shale resources in New York is far less than the 80% being predicted by the DEC and may approach numbers as low as 40% to 50%, if not lower. This situation will:

- (1) leave large tracts without development of the resource in direct contrast to the ECL's statutory directives,
- (2) subject operators to lost investments in many leases,
- (3) preclude landowners from reaping billions of dollars of economic benefits from the development of shale resources in New York State,
- (4) deny significant tax revenue to local municipalities as well as the State, and
- (5) deter most, if not all, operators from giving any serious consideration to New York State.

The overall result will be a large amount of stranded acreage that will not be drilled, leaving natural gas in the ground along with landowners who will be economically impacted and who will not understand why their land will not be drilled when neighboring properties have reaped the benefits.

As an alternative, the industry recommends that many of the setbacks be eliminated or reduced to the existing setbacks, or setbacks that are consistent with those in place in other neighboring states. Industry further recommends that broad waiver provisions be included in the regulations to allow setbacks to be waived by the DEC for good cause shown.

Stormwater General Permit for High-Volume Hydraulic Fracturing

Uncontaminated stormwater discharges associated with oil and gas extraction activities are exempt from the federal National Pollutant Discharge Elimination System (NPDES) program and therefore from the NY State Pollutant Discharge Elimination System (SPDES) program, as well as under § 402(l)(2) of the Clean Water Act as clarified in § 323 of the Energy Policy Act of 2005. Despite this, the DEC has proposed a new stormwater general permit (GP) for high volume hydraulic fracturing (HVHF) in complete disregard of this exemption. To compound this, the DEC's proposal unnecessarily creates requirements unique to the natural gas industry that are far too numerous, unnecessarily prescriptive and lacking the requisite flexibility.

- To acknowledge the exemption, the HVHF GP should reflect New York's current SPDES Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activities (GP-0-06-002) by requiring the HVHF GP only for "stormwater discharges associated with industrial activity from oil and gas extraction ... which have had a discharge of a reportable quantity (RQ) of oil or a hazardous substance for which notification is required under [federal regulations]."
- Similarly, statutory NPDES permit exemption applicable to stormwater discharges associated with construction activities remains in effect, even though a federal court overturned U.S. Environmental Protection Agency (EPA) regulations implementing it. The DEC should modify the HVHF GP to mirror Pennsylvania's streamlined Erosion and Sediment Control General Permit (ESCGP-1). The Pennsylvania permit requires robust planning for environmental protection along with expedited permit review and authorization.

IOGA of NY has the following technical concerns associated with the HVHF GP:

- Transition between construction and HVHF operations – The DEC should modify the final stabilization requirements to remove the requirement that all construction activities must be completed before drilling can begin to allow for the drilling of multiple wells on a single pad.
- HVHF fluid evaluation – The requirement that operators evaluate hydraulic fracturing fluid every time they conduct well stimulation should be removed. It is unique to New York, and it assumes falsely that hydraulic fracturing (HF) additives are constantly changing, equally effective, universally available, and not subject to trade secret protections.
- Site maps – The HVHF GP should incorporate the flexible site mapping requirements in the Multi-Sector GP at Part III.C.2. together with the provisions in Sector I for Oil and Gas Extraction and Refining.
- General Best Management Practices (BMP) requirements – The proposed HVHF GP should mirror the flexibility in structural and non-structural BMP selection available in the Multi-Sector GP Part IX.B.
- Specific BMP requirements – The BMP provisions in Part X are far too numerous and unnecessarily prescriptive. They should all be replaced with flexible narrative standards for BMP selection that could be modeled after Pennsylvania's NPDES General Permit for Discharges of Stormwater Associated with Industrial Activities (PAG-03).

- Benchmark monitoring – The benchmarking requirements in Part X are excessive, given the purpose of stormwater outfall monitoring as stipulated in section 3.e. The DEC should replace all of the proposed benchmark monitoring requirements with the current total suspended solids (TSS), chlorides and pH requirements in the Multi-Sector GP coupled with targeted supplemental sampling and analysis, if needed. These testing requirements go well beyond what is required of any other industry in New York State, are very expensive and will send a signal to the oil and gas industry that New York State is not open for business.
- Annual Inspections in lieu of Benchmark Monitoring – Pennsylvania's PAG-03 allows oil and gas extraction industry to conduct an Annual Inspection in lieu of benchmark monitoring. The facilities are only required to inspect annually due to the medium risk associated with stormwater discharges that they pose. The DEC should incorporate a similar annual inspection option into the HVHF GP in addition to the streamlined benchmark monitoring recommended here.

Attachment A contains more detailed explanation and background information.

Air Emissions

With the prdSGEIS the DEC is seeking to establish statewide regulations and mitigation requirements that conflict with existing and/or proposed EPA air quality regulations pertaining to the same emission sources and may be preempted by the Clean Air Act. As recently as August 23, 2011, the EPA proposed new standards specific to the oil and gas sector (sector).¹ The rule proposes a cost-effective regulation based upon proven technologies that would reduce air pollution from the sector while enabling responsible growth in U.S. oil and natural gas production. For the upstream sector EPA's proposed rule includes wells that are hydraulically fractured (both new wells and workover operations), emissions from storage tanks, pneumatic device fugitive emissions, and some glycol dehydrators.² In addition, over the last seven years the EPA has passed new regulations on every type of engine used in the oil and gas industry to include diesel-fired, new and reconstructed, and non-road engines. **Attachment B** contains a detailed explanation of these new and proposed federal rules and reasons why, in almost every case, they should be relied upon to control the air emissions addressed in the prdSGEIS as opposed to the DEC mandating different controls.

The DEC's approach in establishing their air emissions controls was based upon a worst-case dispersion modeling scenario. While this may provide assurance that the air emissions are controlled in a worst-case scenario, those prescriptive controls should not be required at every location in the state, at every time of day or year, nor at every tank battery regardless of production. To do so would be unnecessary and would greatly over-control most sources. It would also mandate controls, some of which are technically infeasible, not cost-effective, and/or potentially unsafe for certain sources. EPA's rules have provided the state with all the air emission control options necessary to regulate the development of shale gas. The DEC should remove the prescriptive source-specific emissions controls specified in the prdSGEIS and instead rely on the EPA's air emissions control requirements for those same sources both in the current version of the prdSGEIS and when conducting their air emissions permit application reviews.

Water Withdrawals and Natural Flow Regime Considerations

The prdGEIS states that a primary emphasis of the DEC is protection of water resources and that water withdrawals affecting surface or groundwater have been identified as a potential impact resulting from use by the natural gas industry for HVHF. While IOGA of NY certainly agrees that protection of water resources is critical, the utilization of the natural flow regime (NFR) method to calculate passby flows, as

proposed by DEC, is misguided, unduly stringent, and contradicts the passby methods employed by the Susquehanna River Basin Commission (SRBC) and Delaware River Basin Commission (DRBC), both of which have regulatory authorities for water withdrawals in their specific jurisdictions. The SRBC and DRBC have been effectively regulating water withdrawals for decades in New York State and the DEC acts as the New York State representative on these commissions. The SRBC has the most experience with the natural gas industry and SRBC methods in particular are proven to be protective of existing aquatic communities, are designed to be conservative, and incorporate data collected specific to the location of the proposed withdrawal.

It is unreasonable that DEC would impose the NFR method for passby conditions solely for the natural gas industry, when all other withdrawals, such as golf courses, water bottling and industrial sources, would be regulated using the guidance implemented by the commissions. Withdrawals within the Susquehanna and Delaware River Basins should be regulated by the SRBC and DRBC, respectively, to avoid duplication and to ensure regulatory consistency and streamlined approvals. As a result of the water withdrawal legislation adopted into law in New York State this year, outside of the Susquehanna and Delaware basins, the DEC would have primacy regarding water withdrawals greater than 100,000 gallons per day. That legislation specifically exempts from the permitting requirements withdrawals that are permitted by the DRBC or the SRBC. This is current legislative and gubernatorial recognition of the need for the DEC to defer to the Interstate Compact Commissions regarding water withdrawals subject to their jurisdiction. The DEC, therefore, should consider using the SRBC passby flow guidance, which is environmentally protective and with which the industry is familiar.

Under the NFR methodology, all withdrawals, including those on large river systems, regardless of withdrawal quantity and rate, would require a passby. While many operators have developed storage capacity and all are utilizing recycled waters, uninterrupted withdrawals with predictable availability are important for year-round operations by the industry. Using the NFR methodology would greatly increase the number of days per year that a source point is unavailable, when compared with the SRBC passby guidance. Since source points would be unusable during much of the year under NFR, the industry will be forced to construct a greater number of sources (withdrawal points), potentially increasing the overall habitat impact, and likely reducing the opportunities to share sources among operators. Additionally, industry may need to purchase additional waters from older and larger public water supplies in New York State that may not have undergone the rigorous environmental review currently employed by SRBC. Purchasing water from public water supplies also will increase costs to the industry. The NFR methodology is overly complicated, will be difficult and costly to implement and appears to be administratively burdensome on both the industry and the regulatory agency. Metering and monitoring requirements themselves are projected to exceed an additional \$200,000 per withdrawal location, with no demonstrated environmental benefits over the passby flow guidance conditions implemented by SRBC.

Moreover, the NFR methodology being proposed by the DEC does not take into account its statutory obligation to balance competing water resources as required by Environmental Conservation Law Section 15-0105 and the cases interpreting the balancing obligations of the DEC regarding water consumption and use. The unnecessarily conservative NFR methodology conflicts with this statutory obligation.

All of the concerns expressed by DEC in the prdSGEIS regarding potential water withdrawal impacts, including reduced stream flow, impacts to aquatic habitats and ecosystems, impacts to wetlands, and aquifer depletion, are addressed by the river basin commissions through their extensive water withdrawal regulatory programs. In the prdSGEIS, the DEC itself recognizes that the amount of water withdrawn specifically for HVHF is projected to be low compared to overall water use in New York State, increasing fresh water demand by only 0.24%. In light of this small increase in projected water use and the existing authorities operating in New York State, this proposed duplicative effort is unwarranted. The programs

implemented by SRBC and DRBC are environmentally protective, robust, and should be utilized by DEC for regulating withdrawals by the natural gas industry.

Best Management Practices and Burdensome Costs

The prdSGEIS includes a broad spectrum of specific mitigation measures, some of which DEC refers to as BMPs, others which they simply specify as required mitigation. IOGA of NY believes that this is a misguided approach on the part of DEC. In federal regulations, as well as that of other states, a BMP is normally intended as a practical and effective approach for the mitigation of an environmental impact under a specific set of circumstances. Quite simply, a BMP is not intended to be a one-size-fits-all solution that is also static in time. As such, BMPs should be presented as options that can be selected from in order to meet a site-specific mitigation need. BMPs should not be mandated as the sole required solution, which is how DEC has often presented them; doing so makes them requirements, not options, and, therefore, not BMPs. For instance, in regard to air emissions, the prdSGEIS should not be stipulating "control measures"; instead it should establish "control thresholds" and then allow the air permitting process and proven control technologies to determine the actual control measures applicable to a given set of circumstances.

Additionally, by stipulating specific mitigation measures the prdSGEIS does not effectively provide for the future development of new technologies that may achieve similar, or even better, levels of mitigation. If the roll-out of a new technology requires a specific environmental impact statement and positive determination prior to its use there will be an additional burden on the industry in both expense and time. This review process could cost tens, or even hundreds, of thousands of dollars and take anywhere from six months to two years to work through, causing costly delays in development. Such a process is not conducive to the timely roll-out of new technologies that might improve the industry's mitigation of environmental impacts. It is quite possible that this could actually serve to significantly hinder the deployment of new technologies in New York even while those same technologies are being successfully implemented in other states. As a result, New York would be behind the curve when it comes to the implementation of improved mitigation approaches for minimizing environmental impacts.

Furthermore, IOGA of NY believes that this could have even broader implications to the long-term useful life of the SGEIS (once it is completed). Early in the SGEIS process (2009), DEC expressed a desire that the resulting document would have a lifespan of decades, not a mere handful of years. The previous GEIS was finalized in 1992, giving it an effective useful life of approximately 20 years. And in many respects the 1992 GEIS continues to apply to the oil and gas industry in New York insofar as activities not involving horizontal drilling and high-volume hydraulic fracturing are concerned. Therefore, the GEIS in fact lives on as a useful document. Considering the rapid evolutionary improvements in industry practices happening in other states, the specific requirement of individual mitigation measures to address impacts associated with horizontal drilling and HVHF which are outlined in the prdSGEIS is likely to limit the valid life of the SGEIS to a number of years that could be counted on the fingers of even a single hand. The supplemental GEIS would itself then require a supplement.

The following provide a few examples but do not encompass all areas of concern:

- The prdSGEIS requires extensive management of invasive species. Each site (well pad and roadway) must first be surveyed for invasive species and a plan must be submitted to DEC for the management of any such plants found. The approach must include the removal and proper destruction/disposal of invasive species prior to initiating construction on the site. During work, all construction equipment, etc., must be inspected and, if necessary, decontaminated whenever the equipment enters or exits the site. The costs and other constraints associated with the invasive

species plan are difficult to predict; however, it would not be unreasonable to anticipate costs associated with plan development, equipment needs and implementation to exceed \$50,000 for every well pad or similar construction task (e.g., compressor stations). IOGA of NY is not aware of other states with such strict requirements.

IOGA of NY would suggest, as an alternative, the requirement to implement BMPs relative to the handling of invasive species common to the area of operations currently utilized by other construction industries active in the area. Absent such a requirement, IOGA of NY is prompted to pose the questions: Does New York place equivalent requirements on the logging and forest products industries that potentially disturb land and vegetation even more extensively than does the oil and gas industry? Also, does New York place equivalent requirements on the logging and forest products industries regarding the restoration and re-vegetation of disturbed land?

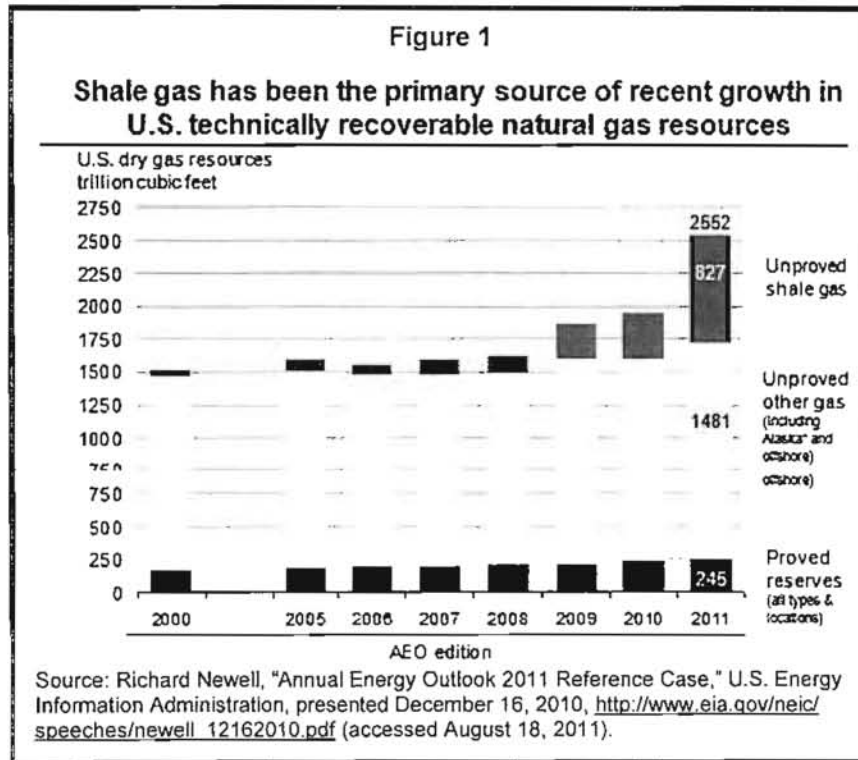
- The detailed invasive species plan is just one of many plans being required by the DEC that will choke the ability of industry to develop New York's indigenous natural gas resources in an economically viable manner. Another example is the requirement to conduct pre-disturbance biological studies and an evaluation of potential impacts on forest interior birds from a proposed project. Pre-disturbance studies by a qualified biologist would be required. These studies must include a compilation of historical information on forest interior birds and a minimum one-year field survey to determine the extent (if any) of such birds' use of the site. Similar pre-development surveys of plants and animals are required as is post-disturbance monitoring. Requiring a one-year pre-disturbance study will mean that many leases will expire without timely development. Industry simply cannot tolerate that kind of regulatory delay. In addition, these types of detailed surveys will add significant expense (\$100,000 or more) for each well pad. These types of studies, delays and expenses simply are not justified for the temporal activities associated with natural gas exploration and development. Again, this is just another example of a burdensome and costly requirement that is being selectively applied to the natural gas industry and will turn that industry away from New York State.
- Retrofitting every engine with Selective Catalytic Reduction (SCR) (not even considering particulate traps), which is difficult if not useless on variable load engines, has not been demonstrated to IOGA of NY's knowledge, and is expected to cost approximately \$140,000 in capital expenditures, plus every year another \$145,000 in operating costs in addition to manpower and reductant (chemical) costs.³ IOGA of NY would suggest guidelines to promote emissions controls such as the promotion of the use of state of the art equipment when available as well as emissions guidelines designed around the temporary nature of most of the equipment utilizing engines.
- In the development of a plan for handling hydrocarbon vapors that may be emitted from crude or condensate tanks, requiring a vapor recovery unit (VRU) for every tank battery is expected to cost upwards of \$80,000 in capital costs per tank battery (plus fuel, operations, and maintenance costs).⁴ Alternatively, a combustion device can be installed at roughly \$22,000 plus another \$1,000 each year in operating costs.⁵ The combustor typically achieves a destruction efficiency of 98% or greater, requires no electricity, is low maintenance, and is more appropriate for sites such as the dry gas development anticipated in New York where insufficient Volatile Organic Compound (VOC) emissions exist to operate the VRU.

Should operators decide to pursue development in New York their costs will no doubt be greater than in other states. One operator has estimated that the cost to drill and complete a generic Marcellus or Utica well will increase by at least \$1,000,000 per well, or more, as a result of the prdSGEIS. This is due to the requirements to obtain waivers from what is anticipated to be overly burdensome rulemaking (as DEC has indicated they are currently contemplating). Furthermore, it is not possible to quantify the additional costs

relating to the delays that must be anticipated due to permitting applications exceeding the capabilities of the DEC to process in a timely manner. In addition, these cost estimates do not take into account the lost investment in mineral leases due to the unworkable setbacks. Required use of add-ons, equipment and limiting best management practices that are not currently used or not readily available with no documented environmental improvement will cost New York billions of dollars to be invested in the state's resource development industry and put New York at a competitive disadvantage to neighboring states.

Shale Gas Economics

According to the Energy Information Administration (EIA), the majority of recent increases in natural gas production and potential are resulting from the emerging shale gas plays (see **Figures 1 and 2**).⁶

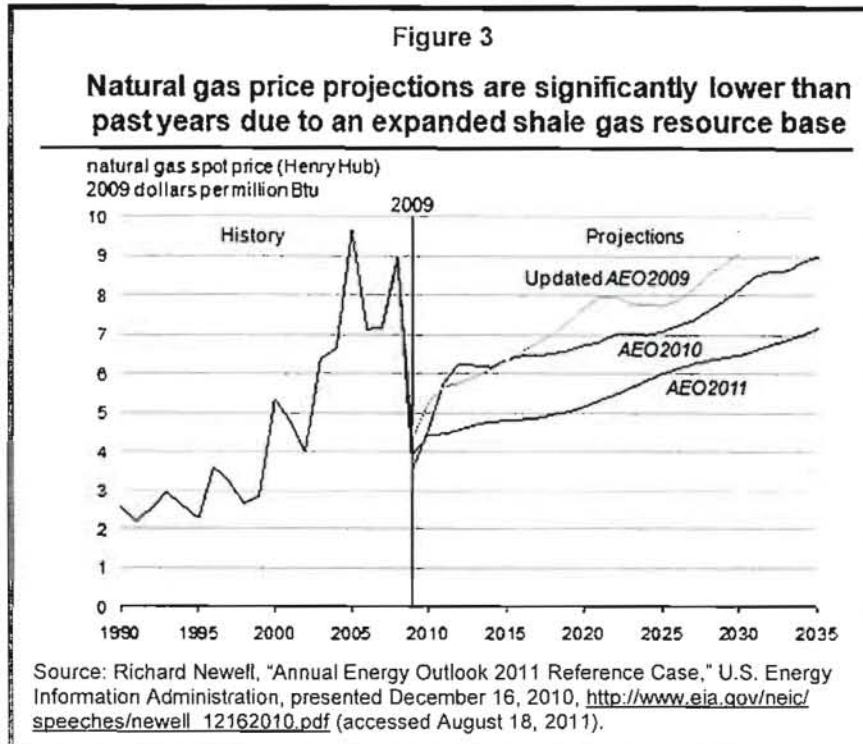
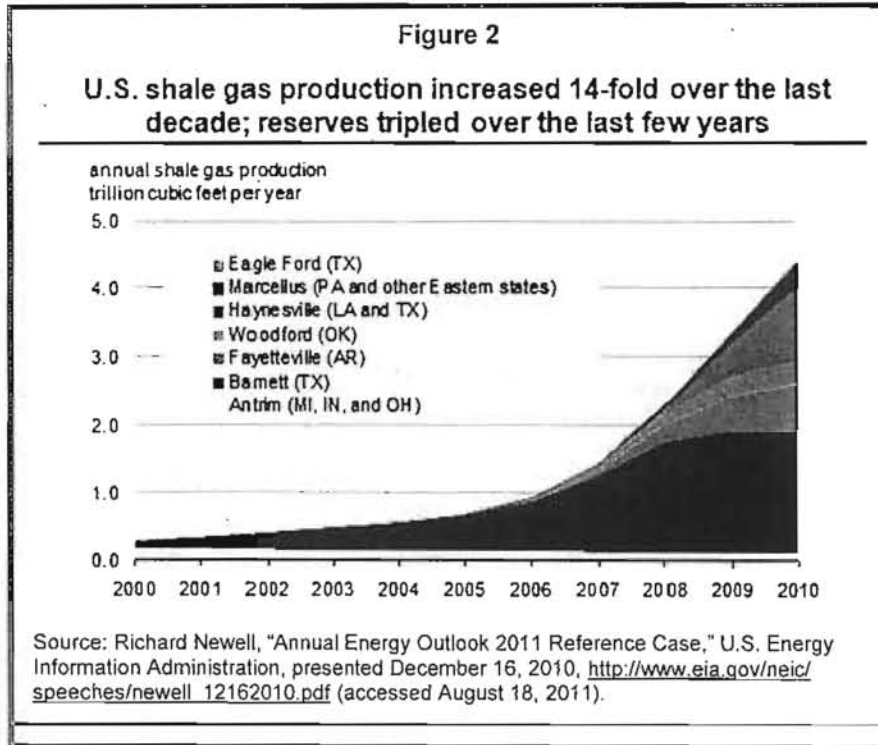


Currently (July 2011), the Henry Hub average spot price for natural gas is \$4.42 per million British thermal units (MMBtu). The average spot price in 2012 is expected to be roughly similar. For the last several years the market prices have been low and are continuing to track at low levels because of high rates of production.⁷ EIA's current outlook for natural gas prices does not rise above \$5.00/MMBtu until approximately 2020 (see AEO 2011 curve on **Figure 3**). Furthermore, for the past three years EIA's long-term projections have predicted lower and lower prices with each year's revisions (see AEO 2009, AEO 2010, and AEO 2011 curves on **Figure 3**).⁸

Based on the above trends indicating increasing natural gas production sourced primarily from shale gas and on the forecast low spot price looking to the future, it should be abundantly clear that the prospects for meaningfully higher gas prices are remote. In order for the profitability of shale gas plays to make a significant leap forward, commodity prices must increase. But there is no such increase predicted.

Figure 2 also demonstrates that there is significant unconventional gas drilling activity in a variety of plays under different state regulatory regimes. As noted above, there is likely to be a significantly higher

cost for operating in New York versus other shale gas states. Therefore, one must anticipate that New York's imposition of additional costs resulting from more demanding mitigation and compliance requirements can only serve to weigh heavily on the profitability of shale gas prospects.



There can be little doubt that, in an effort to maintain profitability in the face of a challenging economic environment, operators must take into consideration where (geographically) their exploration budgets are best allocated. An additional consideration must be that some shale plays such as the Bakken (oil) in Montana and North Dakota, the Eagle Ford Shale (condensate) in Texas, and the Utica Shale (oil) in Ohio, are rich in liquid hydrocarbons. Liquid hydrocarbons serve to significantly improve the drilling economics for these plays in comparison to a dry gas play, such as is expected for the Marcellus in New York. It is interesting to note that, in spite of the shale gas boom, for the first time in 18 years there are more drilling rigs drilling oil wells than there are drilling natural gas wells.⁹ And many of these wells are using the same technologies as shale gas wells: horizontal drilling and HVHF.

Compounding these economic realities is the fact that the productivity of the shale resources in New York remains unproven. There are many factors that can affect future development of the shale resources in New York, not the least of which are depth, thickness, organic content, and thermal maturity of the formation. In fact, many operators anticipate that the intersection of these critical geologic factors will be less favorable in New York than they are in neighboring Pennsylvania based upon core data and other geologic indicators.

As noted above, the cost to drill and complete a typical Marcellus or Utica well will increase by at least \$1,000,000 per wellbore as a result of the prdSGEIS. Therefore, one must anticipate that there is now, and will be for some time, very stiff competition among exploration plays for equipment, qualified personnel and drilling budgets.

Without the opportunity for economically viable development there is a plethora of lost opportunity:

- To operators:
 - Leases lost at great cost to operators because wells could not be drilled in time to satisfy lease requirements because of delays in finalizing the SGEIS.
 - Leases lost at great cost to operators because of setbacks and prohibitions on drilling.
 - Leases that may no longer be developed because not enough contiguous acreage can be assembled to provide the necessary reserves for economically viable prospects.
- To mineral rights owners:
 - With no production from their mineral rights, owners are denied their royalties.
- To business owners:
 - Hotels, restaurants, etc., are unable to participate in the economic gains of increased business. Some of the development areas are already economically challenged and in desperate need of these revenues.
 - Companies providing direct services to the gas industry are reluctant to establish offices in New York to support an industry with uncertain local future, particularly when one considers that such business opportunities are much more attractive in neighboring states where drilling and production are already occurring in more favorable economic climates.
- To the local and state governments:
 - New York has already lost major economic opportunities as operators and service companies have already established permanent offices/facilities in the Northern Tier of Pennsylvania.

- Lease bonus and royalty payments for mineral rights on lands that will not be developed as a result of prohibitions and the corresponding loss of income tax revenue to the state.
- Tax revenues that result from the robust *ad valorem* tax system applicable to oil and gas development in New York State that will be lost at a time when it is most needed.
- Tax revenues from all associated businesses that will not be realized without development.
- To the citizens of New York:
 - The benefits of tax revenues from development reinvested in state and community infrastructure and services.
 - The benefits of participating in the potential economic growth that would come with gas development.

These are but a few of the examples of opportunities that have been and/or will be lost without an opportunity for timely and economically viable development of shale gas resources.

Summary

In summary, industry recognizes that there are numerous challenges to crafting a well informed regulatory framework for hydrocarbon development with the proven technologies of horizontal drilling and hydraulic fracturing that is simultaneously protective of the environment and the rights of the citizens and still encourages the investment of capital and creation of jobs and wealth. The prdSGEIS and the parallel rule-making process will not facilitate industry investment in New York's hydrocarbon resources. The already long and drawn-out process of developing the SGEIS and the anticipated highly restrictive regulatory framework for New York exploration has already destroyed real economic value for mineral owners, towns, the state as well as the investors and operators who have thus far had the courage to invest in New York.

Also the economic uncertainty of commodity prices compounded by the costs of SGEIS-imposed mitigation requirements weighs heavily on sensitive drilling economics. These uncertainties are further complicated by the fact that there has a yet to be a single horizontal well drilled and stimulated using HVHF in New York; consequently, there is still no in-state local benchmark with which to better predict production.

The limitations imposed by the prdSGEIS and, we expect, the regulations likely to emerge from the rule making process will make the exploration and development of unconventional natural gas in New York non-economic and unattractive. IOGA of NY anticipates that there will be every incentive for industry to spend their exploration and production budgets in states with more pragmatic regulations. Furthermore, shale plays that are rich in liquid hydrocarbons, such as the nearby Utica Shale in Ohio, will sport more favorable economics. As noted herein, the prdSGEIS proposes to impose mitigation solutions with, in some cases, limited environmental benefit and little or no flexibility in how operators may implement them. New York's regulations and requirements, if finalized, will be viewed by industry as too challenging and restrictive to allow for cost-competitive development in the current and forecast natural gas market. Thus, New York is rapidly moving towards, and showing all signs of becoming, non-competitive with other states in its ability to attract industry's development dollars.

In the final analysis, the regulatory proposals being put forth by the DEC relative to shale gas development in New York State do not send the signal that New York State is "open for business." Not only does this conflict with statutory mandate of the DEC to promote the development of the resource and

protect the correlative rights of landowners, it is in direct conflict with recent efforts to promote that New York State is "open for business." Taken in total, these proposals do not provide necessary assurances to our members that they can be successful in exploration and development in New York. If the State fails with the biggest economic opportunity available to it through the development of its clean-burning, indigenous natural gas resources, New York policymakers must understand the message that this will send to all industries.

Sincerely,
Independent Oil and Gas Association of New York,

A handwritten signature in black ink, appearing to read "Brad Gill". The signature is stylized with a large, bold initial "B" and a cursive "Gill".

Brad Gill
Executive Director.

xc: Andrew M. Cuomo, Governor
Marc Gerstman, Executive Deputy Commissioner
Eugene Leff, Deputy Commissioner, Remediation and Materials Management
Steven Russo, Esq., General Counsel
Bradley J. Field, Director, Division of Mineral Resources
Jennifer Maglienti, Esq.
Thomas S. West, Esq., The West Firm, PLLC
James J. Carr, Hinman Straub PC
J. Daniel Arthur, PE, SPEC, ALL Consulting