ipaa
America's Oil & Gas Producers

Comments

Of

The

Independent Petroleum Association of America

Regarding

Section 1818 Natural Gas Shortage Study

U.S. Department of Energy

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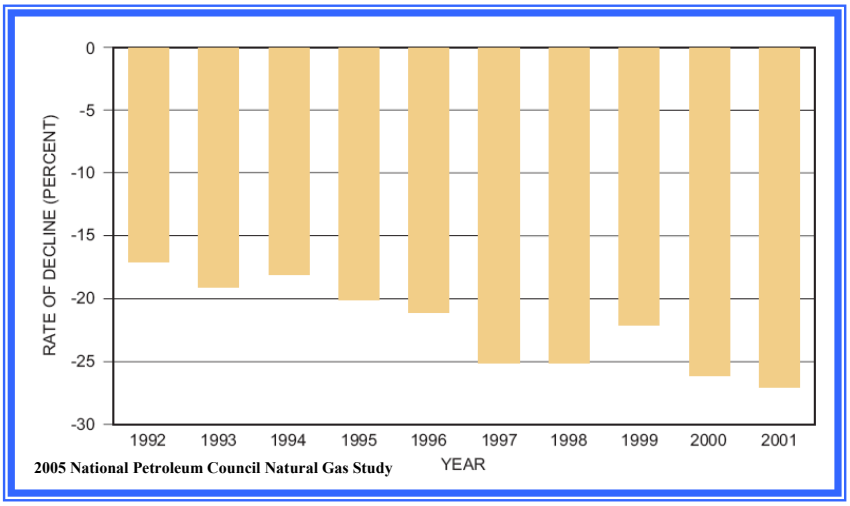
These comments are submitted on behalf of the Independent Petroleum Association of America (IPAA). Independent producers drill 90 percent of domestic oil and natural gas wells, produce 68 percent of domestic oil and produce 85-90 percent of domestic natural gas. Independents hold 90 percent of the Gulf of Mexico Outer Continental Shelf leases, including 75 percent of the deepwater leases. Consequently, they play the predominant role in developing domestic natural gas supply. These comments will principally address those issues that limit or could improve domestic natural gas development.

Factors Affecting Domestic Natural Gas Production

Ability to produce

Decline Rate Of Existing Resource Base

Underlying all assessments of challenges to improving domestic natural gas production is the need to recognize the fundamental reality that conventional natural gas wells will deplete over time. The average decline rate for domestic natural gas production has increased from 16 %/year to over 28 %/year over the past decade. To stay even with current natural gas supply, new production equal to essentially the production from the entire Gulf of Mexico must be found and brought on line each year. Before natural gas production can increase, it must first be maintained.



Access To Resource Base

Federal resources present some of the most cost effective potential sources of domestic natural gas. Because these resources are robust and have not been developed as extensively as non-federal resources, they can provide a resource base at a lower development cost than other alternatives.

Access to the federal resource base is one of the biggest challenges to developing domestic natural gas supplies both onshore and offshore. Some development opponents have suggested that access to the resource base is not an issue; they are wrong. For example, in 2003, the Department of Interior released a study on federal lands in the Intermountain West. It showed that 12 percent of natural gas resources were completely off limits. But, it also identified another 26-27 percent of the resources that were constrained by restrictions ranging from no surface occupancy to constraints on when development can occur. Collectively, close to 40 percent of the resource base is restricted. The remaining 60 percent is not restricted at the time of leasing, but it can be limited as part of the federal permitting process. And, obviously, producers must obtain a permit to develop the lease.

Some development opponents have argued that the existence of differences between the leases granted and those being developed, between the permits issued and wells being drilled suggest

that leasing and permitting activities should slow. Natural gas exploration and production is not a "just in time" business. A viable natural gas project requires numerous factors to come together – leases need to be obtained that cover the potential scope of the "play", permits need to be obtained, exploration must be done, drilling rigs must be scheduled consistent with the limitations of the lease and/or permit. Each of these takes time and each depends on the prior action. Not all leases will be developed because the exploration process may show them to be undesirable or the reserve may be found to exist only under certain portions of the total lease group. This has always been the case, but when a snapshot of conditions is used to suggest lack of effort, it can only be characterized as misleading at best. Take for example, the recent comparison between the permitting of 6,100 wells in Fiscal Year 2004 compared to spudding of 2,700 wells. One obvious issue is whether it is appropriate to compare these actions in the same fiscal year. It would be more reasonable to compare new wells to permits in the prior year, where the number would be 3,800 permits in Fiscal Year 2003. Additionally, nothing in these raw number comparisons addresses when drilling can occur either because of the leases or the permits. Many parts of the Intermountain West have habitat management constraints that create such limits and most of the permits are in those states. And, it is important to recognize that drilling rigs and drilling labor are inelastic. There must be a sense that sustainable activity is likely before the service industry expands its capacity. The oil price crisis of 1998-99 resulted in a loss of 65,000 jobs in the E&P industry and the scavenging of rigs. Redeveloping the industry workforce and equipment remains a significant challenge. The persistent leasing and permitting challenges of the past several years has not generated the sense of sustainability that is necessary to expand this industry segment.

In the offshore, moratoria in the Eastern Gulf of Mexico, the Atlantic Ocean, and the Pacific Ocean prohibit access to about 80 trillion cubic feet of potential natural gas – a conservative estimate. Without access, these national resources are lost.

Offshore Limitations

Offshore, challenges are driven by the moratoria on access to key portions of the federal offshore. These moratoria – both legislative and executive branch – are unreasonable. They rely on antiquated and inaccurate assessments of the risks of developing offshore resources. Current offshore development technology ranks with the most sophisticated in the world. It allows for rapid responses to potential environmental threats. As described in the 1999 Department of Energy report, *Environmental Benefits of Advanced Oil and Gas Exploration and Production Technology*:

> In the event of a well control emergency, advanced "intelligent" subsea trees allow live wells to be shut in quickly under a variety of well conditions and operational circumstances. Moreover, current measurement-while-drilling technology enables drillers to accurately steer a deepwater relief well to regain well control if necessary.

The use of these technologies has produced a record of success over the past decades. *Our Ocean Future*, prepared for the International Year of the Ocean in 1998 reported:

> The number of significant spills from oil production in state and federal waters has been low, and the volume of oil spilled has declined fairly steadily over the years (Minerals Management Service, 1997). There has not been a spill larger than 1,000 barrels from oil and gas platforms on the outer continental shelf since 1980; in fact, natural seeps

> introduce approximately 100 times more oil into U.S. marine waters than do spills from offshore development and production activities. Increased precautions by industry, enhanced safety technologies (e.g., blowout prevention systems, shut-in valves), and strict adherence to government regulations most likely have minimized the risk of oil spills from offshore activities.

The U.S. Commission on Ocean Policy report, *An Ocean Blueprint for the 21st Century*, reiterates this assessment:

> According to MMS, 97 percent of OCS spills are one barrel or less in volume and U.S. OCS offshore facilities and pipelines accounted for only 2 percent of the volume of oil released into U.S. waters for the period 1985-2001 (Figure 24.3). The total volume and number of such spills over that period have been significantly declining due to industry safety practices and improved spill prevention technology. By comparison, the National Research Council (NRC) estimated that 690,000 barrels of oil enter North American ocean waters each year from land-based human activities, and another 1,118,000 barrels result from natural seeps emanating from the seafloor.

A review of the MMS publication, *OCS Oil Spill Facts* (September 2002), shows that no platform in the Outer Continental Shelf has generated a 1,000 barrel oil spill over the 20 year period from 1980 through 2000.

These facts can be ignored no longer. Moreover, they have been strengthened by the offshore experiences from the devastating hurricanes that struck the Gulf of Mexico in the past two years. Offshore production operations suffered from the wrath of these storms – including the ultimate loss of some production. However, because of the effective planning and technology at these operations, offshore production oil spills have been negligible.

The national need for natural gas to sustain and grow its economy and meet its environmental objectives compels a realistic consideration of its offshore resources. Coastal states have real concerns about the consequences of offshore development. Their opposition – where it occurs – is not founded on risks based on current offshore technology. Nonetheless, this opposition must be addressed.

Onshore

Onshore, challenges are largely wrapped up in the federal land management, leasing, and permitting process. At the heart of these challenges is the fundamental question of how the federal government makes its decisions. In large part, addressing this question involves the role of the National Environmental Policy Act (NEPA). NEPA has become the most significant visible factor in the federal decision-making process.

NEPA was enacted in 1969. Its principal purpose was to assure that the federal government considers the environmental impacts of its decisions. It sought to acquire information from all stakeholders that had concerns about the environmental consequences of federal decisions. More precisely, the Purposes of the Act include:

> To declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the

> health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation….

NEPA specifically requires that environmental impact statements be prepared for "…major Federal actions significantly affecting the quality of the human environment…."

In the decades since its enactment, NEPA requirements have grown to become substantially burdensome evaluations by federal agencies. While the Act remains unchanged, Executive Orders, regulations and court decisions have defined and dramatically expanded the scope of its efforts. Now, it has become the vehicle for multivolume Environmental Impact Statements that can be triggered at several points in the federal permitting process – the development of Resource Management Plans, the leasing process, and at times during the Application for Permits to Drill (APD). Efforts to manage these burdens have led to a variety of tools including the use of "categorical exclusions". "Categorical exclusion" means a category of actions which do not individually or cumulatively have a significant effect on the human environment and which have been found to have no such effect in procedures adopted by a Federal agency in implementation of these regulations and for which, therefore, neither an environmental assessment nor an environmental impact statement is required. Use of categorical exclusions limits the scope of NEPA requirements.

When the Energy Policy Act of 2005 was adopted, it included Section 390[1] creating a rebuttable presumption regarding the use of five specific categorical exclusions. These five applied to activities with NEPA documentation, activities where prior development had occurred and maintenance activities. The limited nature of these activities demonstrates how broadly and pervasively the scope of NEPA review has become. None of these actions constitute major activities. Yet, because they have to be singled out in legislation as available for categorical exclusions demonstrates that NEPA reviews would otherwise be required. Environmental Impact Statements could be compelled for minor maintenance activities – documents that can take years for completion. This scope does not square with the concept of limiting NEPA reviews to "major federal actions" – the legislative test for NEPA application.

Opponents of development understand that NEPA and other federal procedural requirements offer opportunities for delay. Delay in making decisions can have a critical impact on development. Producers must replace their production to account for the natural decline rate, a rate for natural gas that is now approximately 28 percent per year and increasing. Federal lands

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[1] **SEC. 390. NEPA REVIEW.**

(a) NEPA REVIEW.—Action by the Secretary of the Interior in managing the public lands, or the Secretary of Agriculture in managing National Forest System Lands, with respect to any of the activities described in subsection (b) shall be subject to a rebuttable presumption that the use of a categorical exclusion under the National Environmental Policy Act of 1969 (NEPA) would apply if the activity is conducted pursuant to the Mineral Leasing Act for the purpose of exploration or development of oil or gas.

(b) ACTIVITIES DESCRIBED.—The activities referred to in subsection (a) are the following:

(1) Individual surface disturbances of less than 5 acres so long as the total surface disturbance on the lease is not greater than 150 acres and site-specific analysis in a document prepared pursuant to NEPA has been previously completed.

(2) Drilling an oil or gas well at a location or well pad site at which drilling has occurred previously within 5 years prior to the date of spudding the well.

(3) Drilling an oil or gas well within a developed field for which an approved land use plan or any environmental document prepared pursuant to NEPA analyzed such drilling as a reasonably foreseeable activity, so long as such plan or document was approved within 5 years prior to the date of spudding the well.

(4) Placement of a pipeline in an approved right-of-way corridor, so long as the corridor was approved within 5 years prior to the date of placement of the pipeline.

(5) Maintenance of a minor activity, other than any construction or major renovation or a building or facility.

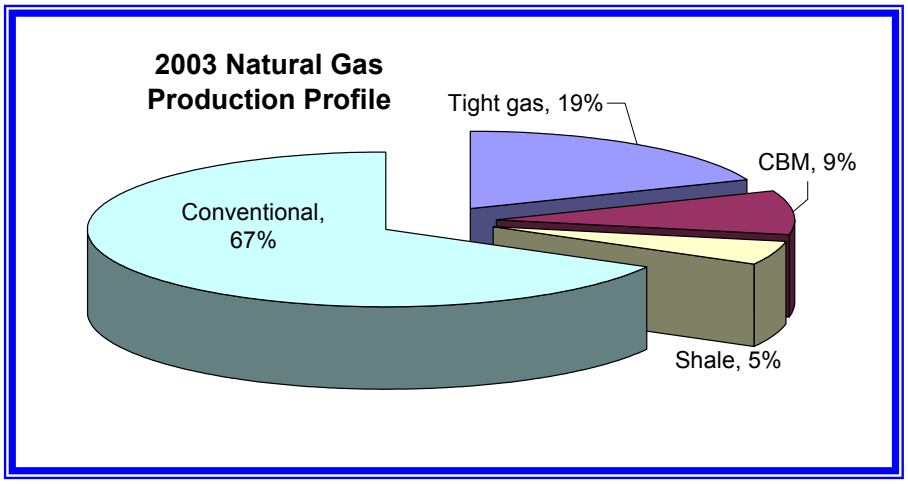
offer the most cost effective potential reserves to develop. Other basins are mature and require greater effort such as deep gas development to compete. These are more costly projects. Producers must reinvest their capital continuously and cannot allow it to stagnate because of permitting delays. Consequently, development opponents have embarked on a strategy to abuse the federal process by challenging decisions at every opportunity in both administrative adjudication procedures and the courts.

NEPA and the other federal processes were intended to assure that all factors were considered in making decisions; they were not created to prevent decisions.

Adequate funding to conduct the federal planning, leasing, and permitting process is essential to meet the challenge of developing domestic natural gas. While agencies like the Bureau of Land Management (BLM) and the Minerals Management Service (MMS) bear the greatest of these responsibilities, other federal agencies that must provide consultation and concurrence are similarly important. Moreover, during the past several years the BLM has faced diversion of its resources to respond to challenges to its decisions that diminish its principle functions.

Lack of funds contributes to permitting backlogs and uncertainty regarding the time in which permits will be approved. For example, during the past several years the BLM has been aggressively acting to reduce permit backlogs and provide timely action on permit applications. However, without continuing funding support the BLM will not be able to maintain the quality of this effort. Moreover, it is essential that funding translates into adequate staffing to meet the challenges of the permitting process and that it be directed to execution of the leasing and permitting process. Some progress has been made to improve the interaction between agencies and the Energy Policy Act includes provisions to enhance this interaction. Similarly, regulatory agencies need to establish time limits to complete the approvals and use a goal-oriented measurement to determine if their efforts are achieving their objectives.

Unconventional Fuels



A third of current natural gas supply is derived from unconventional sources – coal beds, shales and tight formations. Additionally, a growing segment of supply is coming from deep wells – both offshore and onshore – which can be either conventional or tight formations. These components of domestic supply must continue to grow because they represent the key growth share of domestic natural gas supply. Each, however, can face challenges to its future development from potential federal policies.

Coal bed development technology continues to improve and can provide a greater share of domestic production. However, water management issues could inhibit development if

discharge regulations compel management requirements that are technically or economically infeasible.

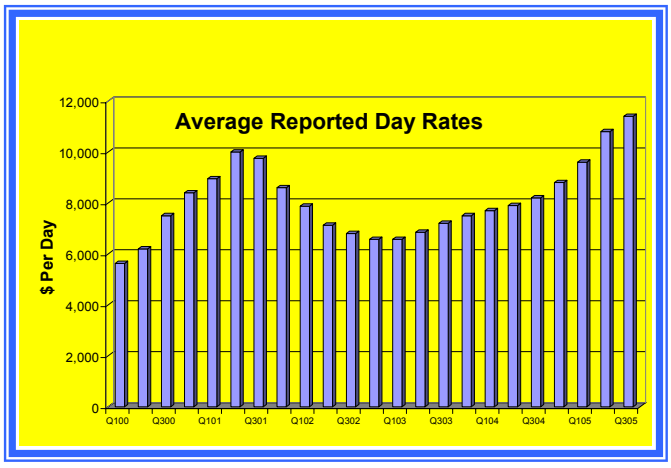
Shale development has become a rapidly growing segment of natural gas supply and offers considerable future potential. However, its development hinges on continuing improvement of technologies such as hydraulic fracturing and horizontal drilling. These developments can be inhibited or enhanced by federal policies. For example, the Energy Policy Act includes provisions that limit application of the Safe Drinking Water Act Underground Injection Control program regulations to hydraulic fracturing. This action was an important step to stabilizing the federal regulatory framework for this technology. On the other hand, federal research and development (R&D) has benefited the development of horizontal drilling technology.

Tight formation development faces similar challenges as it utilizes hydraulic fracturing and other advanced development methods to produce natural gas.

Deep formations can be conventional or tight, but most significantly, they require costly, cutting edge technologies that are economic now primarily because of high natural gas prices. Federal policies on taxes and royalties can be instrumental in directing capital to these resources by reducing some of the risk while the technologies are developed and become more cost effective. For example, actions by Congress and the Administration to create royalty incentives in the offshore encourage critical investment in deep well development.

Capital

Developing domestic natural gas will continue to be a high capital venture with a high risk of return despite improved exploration technologies. While current high commodity prices are driving investment in natural gas exploration and production, concerns about capital availability will remain an issue for independent producers.



The principal source of revenue for independent producers is production. Few independent producers have downstream revenues that supplement their upstream revenues. While commodity prices are currently high, development costs are increasing which take away from reinvestment capital. John S. Herold calculates that finding and development costs have increased from $6.22/barrel of oil equivalent in 2000 to $12.70/boe in 2004. Rig costs are increasing because rig availability is tight. A number of producers have had to invest in drilling companies to guarantee rig availability to maintain drilling programs.

Moreover, independents are borrowing money to expand development programs. A recent John S. Herold study of the top 50 domestic producers concluded that independents are currently investing 150 percent of domestic cash flow back into domestic development.

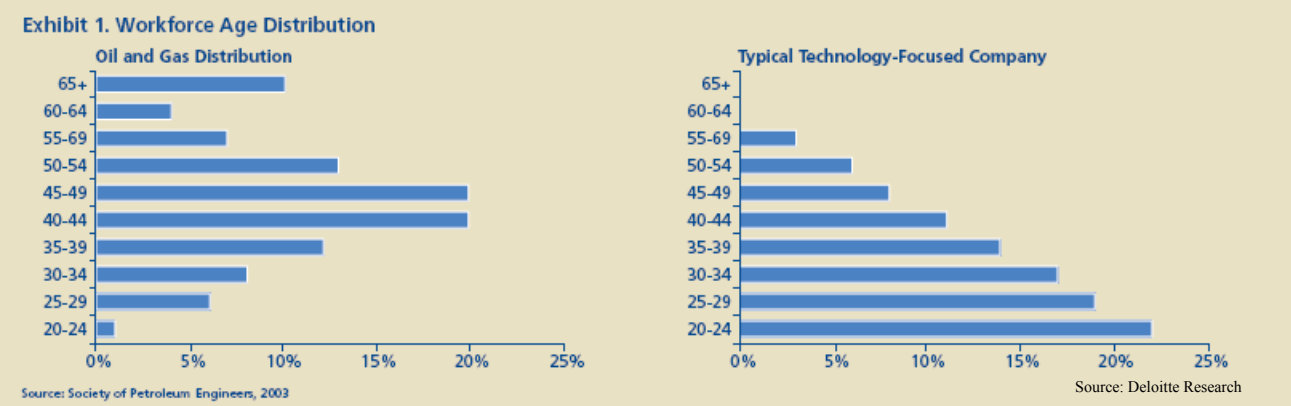
Stable federal policies on taxes and royalties can be significant in creating an atmosphere encouraging domestic natural gas development. Development of the resource base is predicated

on return on investment and it is affected by both taxes and royalty payments. Maintaining the current tax and royalty structures will assist producers in making the economic choices to invest in domestic production

Commodity markets can also influence capital decisions. Commodity markets are volatile; at high prices they can be more volatile. Most producers utilize hedging strategies to guarantee income on at least a portion of their production. Consequently, commodity markets need to be transparent but they also need to be able to respond to market conditions without undue constraints.

Workforce

The oil and natural gas exploration and production industry – like many extraction industries – is facing the critical need to deal with an aging professional and rig worker workforce. In 1982, the industry employed over 700,000 workers. By 2004, employment was about 250,000 workers. More critically, the 1998-99 oil price crisis triggered a loss of 65,000 jobs in the industry. Many of these were skilled workers with decades of experience. While the number of workers has recovered, the expertise has been lost. Now, the industry faces creating a climate to appeal to a new workforce. This is no easy task. In a competitive world, the oil industry is faced with a difficult image challenge. The work is hard; the locations are remote in many cases. The past cyclical nature of the industry raises questions of job stability – aggravated by the need to relocate as the rigs moved, sometimes as a result of federal limitations on year-round drilling. Negative characterizations of the industry damage its image. A recent comparison by Deloitte Research looks at the age distribution of professionals in the oil and natural gas industry and a typical technology focused company. Less than 15 percent of the oil and natural gas industry professional are under 35 years old compared to almost 60 percent of a typical technology focused company. Ten percent of the oil and natural gas industry professionals are over 65.



Training and educating new workers has become a compelling issue. Petroleum engineering is a diminishing curriculum – less than 400 petroleum engineers graduate each year. Petroleum geology faces similar challenges. Beyond these professional components of the workforce, developing programs for oil field workers also faces challenges. Significantly, community colleges in several oil and natural gas producing states have begun rig worker training programs.

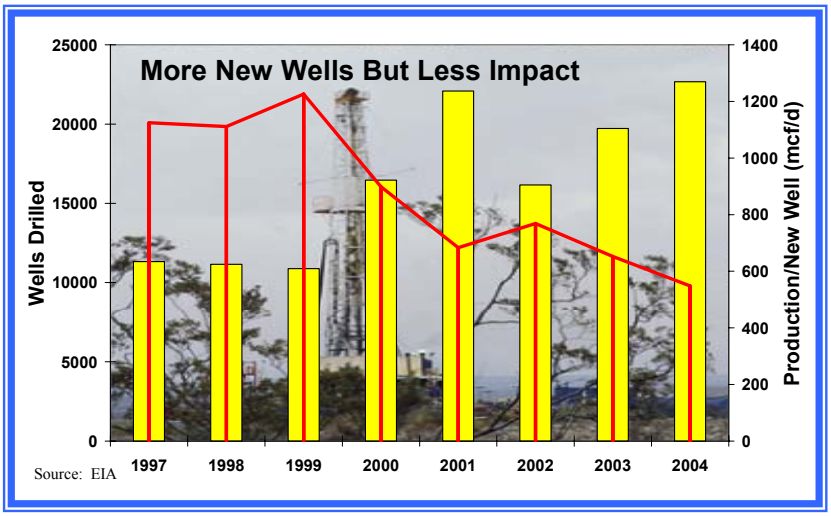
Equipment and Technology

In addition to the need to have an adequate supply of workers, the E&P industry must also have adequate equipment and improvements in development technology to meet its future challenges.

Each of these has failed to keep pace with the projections from National Petroleum Council natural gas studies addressing the domestic natural gas marketplace.

For example, the availability of appropriate rigs has failed to accelerate at the pace projected in these assessments. The 1999 NPC *Natural Gas* study concluded that 48,000 wells needed to be drilled annually by 2015; forecasted 2005 rate is well below this target at approximately 40,000 (including oil wells). Similarly, the 1999 NPC study concluded that approximately 2,300 rigs would be needed to meet this level – well above the approximately 1,225 currently developing natural gas.

Moreover, while rig activity is increasing, production from new wells continues to decline. Consequently, better technology to develop new formations must be developed. Technologies like horizontal drilling and more extensive uses of hydraulic fracturing have enhanced onshore development particularly of unconventional gas. Deepwater offshore technologies and deep gas onshore technologies must continue to develop to meet future challenges. But, recent assessments presented at the DOE public meeting regarding the Natural Gas Shortage Study indicates that technology is not keeping pace with earlier assumptions.



The primary sources of research and development of new E&P technologies for independent producers are limited. While some applied technology comes from the service industry, substantial emerging technology research and development is principally developed through Department of Energy programs. Independent producers are the beneficiaries of 85 percent of this research. The national value of this federal research has been well stated by the Interstate Oil and Gas Compact Commission in its study, "Who Will Fund America's Energy Future":

> It has become clear that independent oil and natural gas producers are far too small to take on the huge investments of research and development. And as more and more companies merge, R&D budgets often top the list of expenditures to consolidate, meaning fewer corporate dollars are spent on the research and development so critical to the future of the industry.
>
> Corresponding cuts in federal spending on R&D have created a critical situation.
>
> If the United States is to maintain its ability to produce its domestic supplies of oil and natural gas at a reasonable cost to consumers, federal expenditures on R&D must fill some of the void left by private industry.

Without this federal research, domestic oil and natural gas production will suffer from the loss of technology development and enhancements that are essential to maintain domestic production from existing resources and to find and produce new ones.

Importantly, these programs are more than just R&D. They include funding that supports efforts like the Petroleum Technology Transfer Council (PTTC) — an organization that creates the conduit to move research into the hands of producers, particularly small producers, where it becomes a production tool. Similarly, federal research is a significant element of the university research that educates the coming generations of petroleum geologists and engineers — professionals that are essential to maintain a strong domestic exploration and production industry. Successful during its initial years, the Fossil Energy R&D program has been plagued recently by inconsistent and decreasing funding. For example, DOE research efforts on coal bed methane yielded a 34 to 1 return on its investment – and the role of coal bed methane in the natural gas supply portfolio has become essential to meeting domestic demand. But now, planning a program based on annual budget requests hampers the continuity that is essential to develop long-term research strategies. Worse yet, in 2005, the Administration proposed terminating the program altogether.

Some have questioned whether the federal R&D program duplicates private research and suggest that such duplication is inappropriate. It is a valid question and it should be addressed. The linchpin to answering the question is assessing who benefits from the R&D results. Federal research produces results that are publicly available and may be used by anyone to the benefit of developing the national resource base. If private research is performed on the same basis, the federal government should avoid duplicating it. However, if private research is being conducted for the proprietary interest of the researching company, it fails the test of being publicly available and, therefore, comparable federal research would not be duplicative.

Federal Policy Actions To Improve Natural Gas Production

The federal government can and does significantly affect the development of domestic natural gas supply. Its actions can be positive or negative. IPAA believes that the federal government should consider a variety of actions over the next several years to improve the potential for domestic natural gas to be developed.

Do No Harm

The first and perhaps most difficult challenge for the government should be to avoid deterring domestic natural gas development.

Opposition To Adverse Tax Or Royalty Policies

For example, high energy prices have triggered industry criticisms and led to efforts to punish the industry. Recently, the Senate had several votes on motions to delete provisions of the tax code that benefit domestic production or to impose "windfall profits" taxes on domestic production. These efforts need to be strenuously opposed; they are counterproductive to domestic resource development.

Similarly, bills have been introduced to terminate the royalty incentives passed in the Energy Policy Act to encourage domestic production. These provisions already have price tests that terminate them during high price periods. However, terminating them altogether would undermine the need for a stable royalty framework designed to encourage domestic investment. Royalty incentives have been a proven technique to encourage high cost, risky areas for development such as the deep water offshore and deep gas in the shallow water offshore during periods of lower prices. They have also aided in encouraging or maintaining high cost, low

return development such as heavy oil and marginal well production on federal lands. Terminating the incentives completely is a counterproductive step that will discourage development when price is not an adequate driver.

Prevention Of Adverse Regulatory Policies

A second significant area where federal government action can deter domestic natural gas development is the promulgation or interpretation of regulations that apply to oil and natural gas exploration and production. These issues will arise periodically over the next decade and a consistent practice of assessing the energy implications needs to be developed and implemented. Following are several pending examples.

Stormwater Construction Permitting

The Energy Policy Act clarified that Clean Water Act regulation of stormwater discharges during construction and operation of oil and natural gas E&P operations do not require specific permits unless the discharge is contaminated. Absent this action, the Environmental Protection Agency (EPA) had developed a regulatory program that was estimated to cost the country between 1.3 and 3.9 billion barrels of new oil production and between 15 and 45 trillion cubic feet of natural gas over the first twenty years of its implementation. EPA must now rescind these regulations that require permits during construction. However, EPA will likely develop new regulations that will define when permits are required. These regulations need to reflect the importance of domestic energy production

Spill Prevention, Control and Countermeasure (SPCC) Plans

In 2002 EPA promulgated new regulations to change the requirements for the development of SPCC Plans under the Clean Water Act. At the same time it indicated that it was reinterpreting the existing regulatory requirements. EPA is now proposing to delay implementation of the 2002 regulations through October 2007. While this extension should be approved, the underlying regulations have never been shown to be necessary improvements over the existing SPCC Plan requirements. However, as written and/or reinterpreted, they put at risk thousands of oil and natural gas production operations. EPA needs to revisit and reassess the 2002 regulatory requirements with a clear understanding of their domestic energy implications.

Air Emissions

Congress concluded that EPA should not aggregate oil and natural production operations to create hypothetical “major sources” for regulation under the Clean Air Act. This position was clearly stated for hazardous air emissions. However, over the past decade, EPA has explored various schemes to aggregate production operations for “criteria” pollutants. These efforts should be terminated and EPA should recognize that collecting numerous producing wells for the purpose of concocting a false major source is inappropriate public policy.

Gas Gathering Line Regulations

The Office of Pipeline Safety is nearing completion of safety regulations on natural gas gathering lines. These final regulations need to clearly exclude production lines and limit the gathering line requirements to significant situations.

Access To Federal Lands

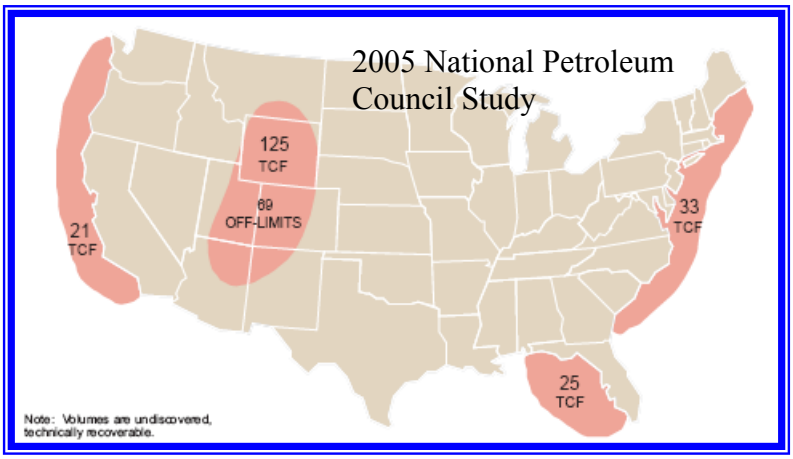
A long term commitment to the development of natural gas resources underlying federal lands both offshore and onshore is an essential component to address natural gas supply in the coming decade.

Offshore

Lease Sale 181

Lease Sale 181 is the only area in the Eastern Gulf of Mexico available for development. The area is a natural gas prone region. When it was originally leased, the entire area was not made available. The Minerals Management Service (MMS) should open additional portions of the area for development as quickly as possible.

Address Offshore Moratoria



Domestic offshore natural gas resources that are under development moratoria offer the potential to provide significant additions to national supply. The NPC estimates that about 80 trillion cubic feet of natural gas are within these moratoria areas – and these estimates likely understate the resource base because they are based on old and outdated information. These resources can be developed in an environmentally sound manner and should be. The Administration needs to work with the Congress to allow access to this component of the resource base.

Onshore

Adequately Fund Permitting Agencies

The law requires that the federal government manage its lands and create the conditions for their development. Industry cannot act without leases and permits; the agencies need adequate funding to carry out their responsibilities. The Administration should budget adequate funds; Congress needs to provide them.

Implement Expediting Provisions Of The Energy Policy Act

The Energy Policy Act creates opportunities to improve the processing of leasing and permitting on federal land. These provisions should be fully utilized by the federal agencies to expedite energy development. But other steps can also improve the leasing and permitting processes. For example, the agencies should assure that regional and field offices are consistently applying the laws and regulations. There should not be differences between different offices of the same agency. The permitting agencies need to issue clear guidance to reflect current energy policy within the balanced use of federal lands. Similarly, these agencies need to assure that all guidance on the leasing and permitting process is current. They should eliminate outdated guidance so that there are no potential inconsistencies that confuse the regional and field offices.

As a specific example, the agencies should address year-round development. Environmental judgments and habitat management plans have created barriers to the development of natural gas during specific times of the year – typically due to migration, breeding, nesting or other similar events. Some of these may be valid considerations, but the agencies should review them for certainty and to determine whether there are mechanisms to control the potential risks.

Focusing NEPA

As described above, the application of NEPA to less and less significant federal actions as opposed to the NEPA legislative standard of "major federal action" has become a consistent pattern in federal decisions. As a consequence, not only is the burden on federal agencies to develop NEPA related documents increased, decisions on natural gas development are delayed – and delay can result in resources being abandoned.

The federal government needs to reexamine its interpretation of what constitutes a "major federal action" for each agency managing federal energy resources. Section 390 of the Energy Policy Act demonstrates how extensively the application of NEPA has expanded to the most mundane of activities. It is astonishing to believe that routine maintenance of an operation must require a categorical exclusion to avoid being subjected to a NEPA analysis.

However, at the same time, the leasing and permitting agencies should expand use of "categorical exclusions" to limit the NEPA burden for those activities that can be demonstrated to fall below pertinent thresholds for NEPA consideration.

Workforce and Technology Issues

While many aspects of improving the workforce for the domestic natural gas production industry and the development and implementation of improved technologies are essentially private sector activities, the federal government can play a significant role in creating a framework for these elements to develop.

Fund Federal E&P Research And Development

The Fossil Energy oil and natural gas technologies R&D program is directed toward the needs of independent producers who do not have the infrastructure to manage and fund such a program. It is a program that can influence the development of the technologies needed to improve domestic natural gas exploration and production. Moreover, this program can influence the workforce because it is essential to universities that develop petroleum engineers and petroleum geologists. It has been a successful program, but it needs to have consistent, stable funding to develop effective R&D projects. Funding has been inconsistent over the past several years, undermining the program. The program must be designed to track the budget request, but Congress has appropriated larger amounts thereby making the program less efficient. Worse, the Administration has proposed termination of the R&D program; fortunately, Congress rejected termination. On the other hand, the Administration has used the R&D program to highlight efforts to develop natural gas; it should continue to do so. The Administration should propose a well crafted, continuing R&D program of domestic E&P based projects.

Develop An Energy Education Program

The National Energy Policy recommended energy education programs to provide the nation with a better understanding of the energy issues it faces. The Department of Energy is initiating efforts to address energy education. Prior efforts have not been sustained; this one needs to be.

Conclusion

The challenge of supply adequate natural gas at reasonable prices will continue for at least much of the next decade. It results from past events – including federal actions – that have limited the opportunities to access the domestic resource base, that have discouraged capital from flowing into its development, that have hampered sustaining the workforce and creating technology and that have encouraged demand for clean burning fuels. Federal policies can and should change to address each of the elements, but the resolution will not be quick or painless. Nevertheless, action should begin now.