

BIPARTISAN POLICY CENTER AND
AMERICAN CLEAN SKIES FOUNDATION'S

TASK FORCE ON ENSURING STABLE NATURAL GAS MARKETS



Disclaimer

This report is the product of a Task Force with participants of diverse expertise and affiliations, addressing many complex and contentious topics. It is inevitable that arriving at a consensus document in these circumstances entailed compromises. Accordingly, it should not be assumed that every member is entirely satisfied with every formulation in this document, or even that all participants would agree with any given recommendation if it were taken in isolation. Rather, this group reached consensus on these recommendations as a package, which taken as a whole offers a balanced approach to the issue.

It is also important to note that this report is a product solely of participants from the BPC–ACSF convened Task Force on Ensuring Stable Natural Gas Markets. The views expressed here do not necessarily reflect those of the Bipartisan Policy Center or the American Clean Skies Foundation.

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Letter from the Co-Chairs

Over the last year, we have been privileged to co-chair an unusual and highly productive Task Force that was formed to review the conditions for creating a more certain U.S. market for using and producing natural gas.

The Task Force brought together a remarkable group of industry participants and experts, including industrial consumers, electric utilities, independent and integrated gas producers, chemical companies, public utility regulators, environmental experts, financial analysts and consumer advocates. Together, we approached our inquiry from a wide range of perspectives, but with a common interest in working to ensure that market conditions support increased investment in efficient gas production and end-use technologies.

This is an important public-interest challenge with far-reaching consequences. The United States recently became the world's largest natural gas producer. Meanwhile, in a few short years, technology advances combined with new shale gas discoveries have more than tripled estimates of the nation's economically recoverable natural gas resources. In the context of a dramatically improved supply outlook, expanding our use of this comparatively clean-burning, domestic fuel in an efficient manner is a winning proposition for consumers, for America's economy and industrial competitiveness, for the environment, and for our nation's energy security.

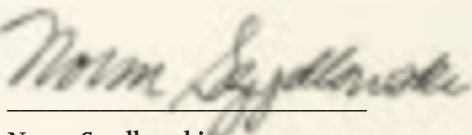


Good news, in other words, rather than concern over some pending crisis, provided the inspiration and backdrop for our deliberations. But Task Force members were also aware that the price instability that has come to be associated with natural gas markets in past years still raises investment uncertainty for gas suppliers and users alike. And so long as this is the case, some of the opportunities associated with efficient applications of gas technologies are likely to be realized more slowly than need be.

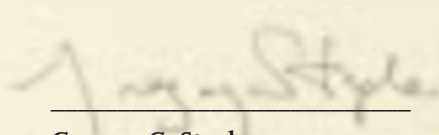
The findings and recommendations in this report reflect optimism that the robust supply horizon for natural gas presents fresh opportunities—not only to move beyond prior market concerns but to develop new tools for managing price uncertainty. Fundamental changes in the domestic supply and demand balance for natural gas, including an unprecedented level of available storage and import capacity, should allow markets to function more efficiently and fluidly in the future. This should create more favorable investment conditions and significantly dampen the potential for destructive cycles of price volatility and market instability.

At the same time, our work emphasizes the importance of actions by regulators and private market participants to ensure that these positive trends materialize as quickly and fully as possible. In particular, we urge the industry and regulators to re-evaluate the scope for using longer-term gas purchasing arrangements for managing price risk in the context of a diversified supply portfolio. The report also stresses the need for environmental protections so as to secure continued access to, and public support for, the development of shale gas reserves. Finally, though the Task Force did not address issues of aging infrastructure or pipeline integrity, we acknowledge that concerns involving the safe handling and transportation of natural gas must be fully vetted and satisfactorily resolved. Public safety is not an area for compromise.

Our recommendations are pointed at government policymakers, federal regulators, state utility commissions, producers and major consumers. We welcome feedback and look forward to working with all stakeholders to leverage the considerable potential of natural gas in building a clean energy foundation for American prosperity.



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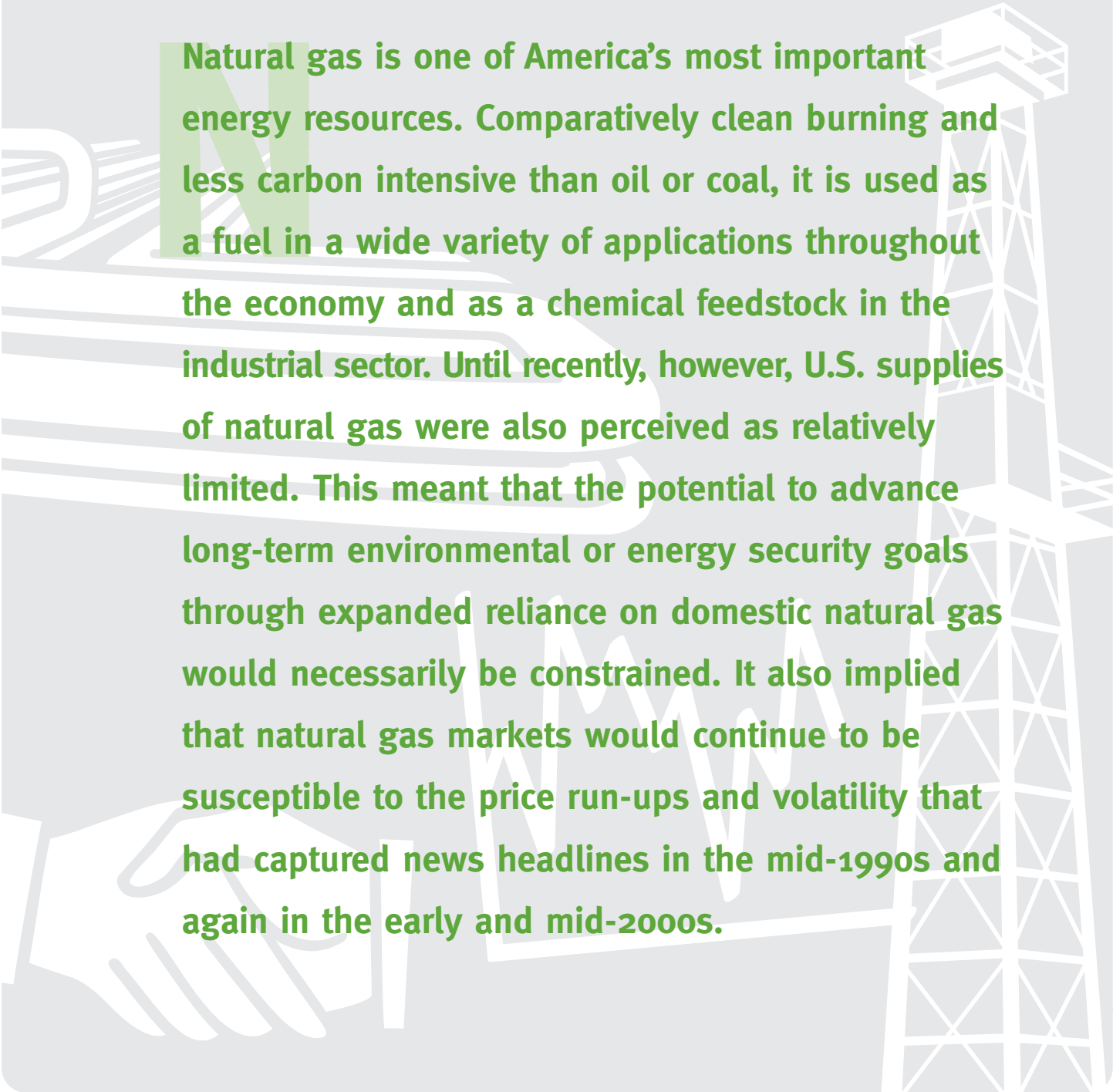
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EXECUTIVE SUMMARY



Natural gas is one of America's most important energy resources. Comparatively clean burning and less carbon intensive than oil or coal, it is used as a fuel in a wide variety of applications throughout the economy and as a chemical feedstock in the industrial sector. Until recently, however, U.S. supplies of natural gas were also perceived as relatively limited. This meant that the potential to advance long-term environmental or energy security goals through expanded reliance on domestic natural gas would necessarily be constrained. It also implied that natural gas markets would continue to be susceptible to the price run-ups and volatility that had captured news headlines in the mid-1990s and again in the early and mid-2000s.



This picture of natural gas as an attractive but limited domestic resource has changed dramatically in just a few short years, along with the assumptions that go with it. Technological advances in horizontal drilling and hydraulic fracturing have unlocked a tremendous volume of additional gas resources in North American shale gas formations. These developments have altered the supply outlook for natural gas such that identified domestic resources are now thought to be sufficient—barring environmental or other impediments to tapping these reserves—to support more than 100 years of demand at present levels of consumption.

With these developments in gas supply, the market for natural gas has shifted in a profound way. Price expectations, as shown in Figure 1, have declined dramatically as the full impact of new technology for identifying and developing natural gas supplies has been recognized.

In combination with recent investments to expand capacity for storing, transporting and importing natural gas, these supply developments should allow the U.S. market to respond more smoothly to future demand fluctuations and should substantially alleviate long-standing supply adequacy concerns. Given the availability of highly efficient conversion and end-use technologies for natural gas, this is good news from multiple perspectives—whether the objective is to reduce pollutant emissions, reduce U.S. dependence on imported energy sources, or maintain a competitive industrial base.

Realizing and maximizing these benefits, however, will require that investors have confidence in the mid- to long-term stability of natural gas prices. On the demand side, residential and commercial consumers, electricity generators and large industrial users will need confidence that gas prices will be

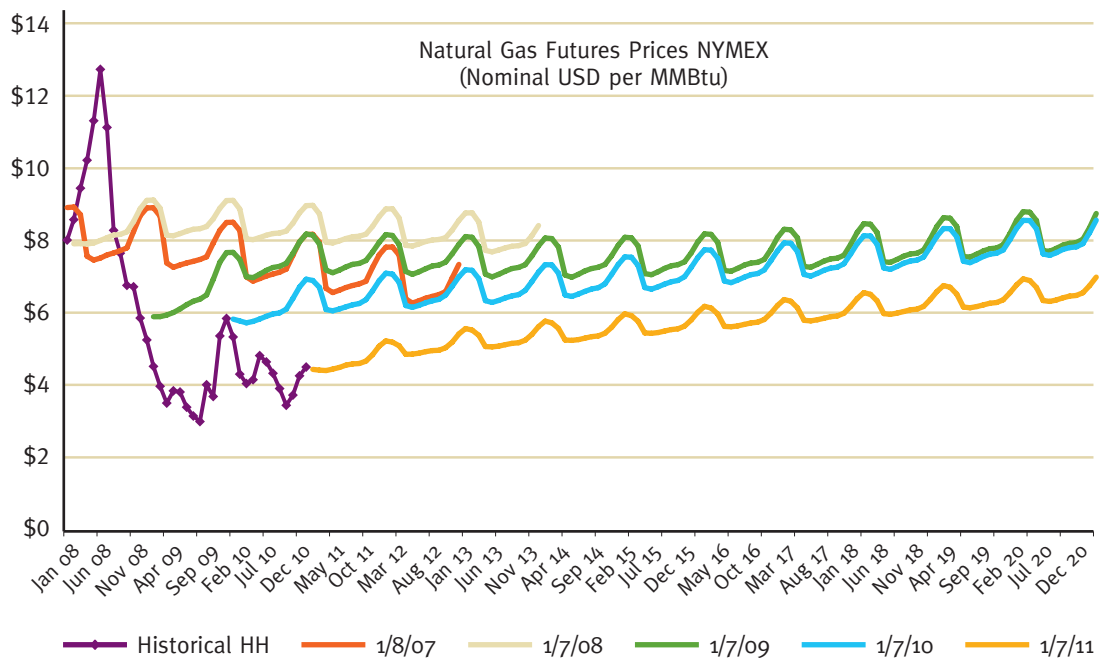


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TOGETHER WITH A VASTLY IMPROVED SUPPLY OUTLOOK, THE TASK FORCE BELIEVES THAT A SMALL NUMBER OF PRACTICAL REGULATORY AND POLICY MEASURES WOULD GO A LONG WAY TOWARD PROVIDING THE CONFIDENCE NEEDED TO SUPPORT A SIGNIFICANT EXPANSION IN THE DEPLOYMENT OF EFFICIENT NATURAL GAS TECHNOLOGIES.

Figure 1. Natural Gas Futures Prices - 2008 to 2010



Note: Henry Hub (HH), Louisiana, is a major production area delivery point in the gas industry. The NYMEX Natural Gas Futures contract uses the Henry Hub price as the reference price.

Source: New York Mercantile Exchange.

sufficiently competitive and stable to make investments in new gas-using technologies cost effective. On the supply side, the natural gas industry needs confidence that market demand and prices will justify new investments in expanded production capacity. Both sides would benefit from avoiding the price variability that has characterized natural gas markets in the past, when spikes hurt consumers and created difficulties for gas-dependent industries.

The Task Force on Ensuring Stable Natural Gas Markets

The Task Force on Ensuring Stable Natural Gas Markets (hereafter “Task Force”) was jointly convened by the Bipartisan Policy Center and the American Clean Skies Foundation in March 2010 to examine historic causes of instability in natural gas markets and to explore potential remedies. The membership of the Task Force is unique in its diversity and unique in the sense that it brings together key stakeholders from

both sides of the supply–demand equation. Individual Task Force members are listed in the Preface; they represent natural gas producers, transporters and distributors, consumer groups and large industrial users, as well as independent experts, consumer advocates, state regulatory commissions and environmental groups.

Over the course of five meetings and with the help of original commissioned research on several related topics, the Task Force examined the causes of past variability in natural gas prices and considered how recent shale gas discoveries and other, infrastructure-related developments affect the likelihood that similar price shocks might recur in the foreseeable future.¹ The Task Force also developed a comprehensive set of recommendations aimed at bolstering consumer, policy maker and investor confidence in the stability of future gas markets and at improving the tools available for effective price risk management.

¹ For a list of commissioned research papers see Appendix B.

Together with a vastly improved supply outlook, the Task Force believes that a small number of practical regulatory and policy measures would go a long way toward providing the confidence needed to support a significant expansion in the deployment of efficient natural gas technologies and toward capturing the economic and environmental benefits such an expansion would provide.

Key Task Force Findings and Recommendations

1. Recent developments allowing for the economic extraction of natural gas from shale formations reduce the susceptibility of gas markets to price instability and provide an opportunity to expand the efficient use of natural gas in the United States.

2. Government policy at the federal, state and municipal level should encourage and facilitate the development of domestic natural gas resources, subject to appropriate environmental safeguards. Balanced fiscal and regulatory

policies will enable an increased supply of natural gas to be brought to market at more stable prices. Conversely, policies that discourage the development of domestic natural gas resources, that discourage demand, or that drive or mandate inelastic demand will disrupt the supply-demand balance, with adverse effects on the stability of natural gas prices and investment decisions by energy-intensive manufacturers.

3. The efficient use of natural gas has the potential to reduce harmful air emissions, improve energy security, and increase operating rates and levels of capital investment in energy-intensive industries.

4. Public and private policy makers should remove barriers to using a diverse portfolio of natural gas contracting structures and hedging options. Long-term contracts and hedging programs are valuable tools to manage natural gas price risk. Policies, including tax measures and accounting rules, that unnecessarily restrict the use or raise the costs of these risk management tools should be avoided.





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5. The National Association of Regulatory Utility Commissioners (NARUC) should consider the merits of diversified natural gas portfolios, including hedging and longer-term natural gas contracts, building on its 2005 resolution.² Specifically, NARUC should examine:

- a. Whether the current focus on shorter-term contracts, first-of-the-month pricing provisions and spot market prices supports the goal of enhancing price stability for end users,
- b. The pros and cons of long-term contracts for regulators, regulated utilities and their customers,
- c. The regulatory risk issues associated with long-term contracts and the issues of utility commission pre-approval of long-term contracts and the look-back risk for regulated entities, and
- d. State practices that limit or encourage long-term contracting.

6. As the Commodity Futures Trading Commission (CFTC) implements financial reform legislation, including specifically Title VII of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Pub. L. 111-203), the CFTC should preserve the ability of natural gas end users to cost effectively utilize the derivatives markets to manage their commercial risk exposure. In addition, the CFTC should consider the potential impact of any new rulemaking on liquidity in the natural gas derivatives market, as reduced liquidity could have an adverse affect on natural gas price stability.

7. Policy makers should recognize the important role of natural gas pipeline and storage infrastructure and existing import infrastructure in promoting stable gas prices. Policies to support the development of a fully functional and safe gas transmission and storage infrastructure both now and in the future, including streamlined regulatory approval and options for market-based rates for new storage in the United States, should be continued.

² National Association of Regulatory Utility Commissioners. Resolution on Long-Term Contracting. Adopted by the NARUC on November 16, 2005. <http://www.naruc.org/Resolutions/GAS-1Long-TermContracting.pdf>

8. Finally, regulators should be mindful of the lead time required for markets and market participants to adjust to new policies.

Background and Context for the Task Force Recommendations

The full Task Force report describes in detail the evolution of the U.S. natural gas market over the last half century and the specific causes behind more recent episodes of price variability in this market. Several points from that discussion are worth highlighting as part of this summary because they provide the context and rationale for Task Force findings and recommendations:

- Natural gas plays a uniquely important role in the U.S. economy, both because it is a major contributor to the nation's overall energy portfolio (second only to petroleum in terms of total primary energy consumption) and because it is used across multiple sectors of the economy and in a wide variety of applications.
- U.S. natural gas markets have only been open and competitive for about 17 years. Starting in the 1950s and until the early 1990s, concerns about domestic supply adequacy and a desire to direct limited gas resources to particular uses led to extensive regulation and government intervention. This approach resulted in mostly stable prices but also led to severe supply shortages and significant market distortions.
- After the deregulation of gas commodity markets in the early 1990s, a combination of declining production capacity and increasing demand led to a tightening supply/demand balance. Prices spiked sharply in 2000 and again in 2005 in the wake of hurricanes Rita and Katrina, which temporarily curtailed gas supplies from the Gulf of Mexico. Though prices fell again after both of these events, they did not return to the levels that had been typical of earlier decades; in fact, prices remained high relative to historic norms until the economic downturn of 2008 and the rapid growth in gas production from shale and other “unconventional” gas resources.
- Large gas-dependent industrial users, especially if they compete with producers from countries with access to low cost natural gas, are likely to be especially hard hit by major price run-ups in the U.S. market. Higher natural gas prices are also passed on to smaller users such as homes and businesses. Regulated gas distribution companies are required to pass on the cost of gas they purchase for consumers at cost (without price markup or markdown). In the electric power sector, companies interested in adding or replacing generation capacity must weigh uncertainty about future fuel prices in making technology and resource investments.
- Because U.S. capacity to import natural gas from overseas suppliers has historically been very limited, the market for this commodity is primarily national (rather than global, as in the case of petroleum). This has meant that prices are tightly coupled to North American supply and domestic demand. In the early 2000s, an expectation that domestic demand would soon begin to outstrip domestic production capacity led to higher prices and prompted new investments in the physical infrastructure needed to import and store natural gas. As a result, U.S. capacity for receiving liquefied natural gas (LNG) shipments (now equivalent to roughly 20 percent of annual demand) and U.S. capacity for storing gas (likewise equivalent to about 20 percent of annual demand) is greater than at any time in the past. Together with a robust pipeline network, these changes in import



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IN RECENT YEARS, A NUMBER OF STAKEHOLDERS AND OBSERVERS HAVE CALLED FOR A RETURN TO A GREATER RELIANCE ON LONG-TERM CONTRACTS BETWEEN GAS SUPPLIERS AND PURCHASERS TO HELP ADDRESS PRICE RISKS AND TO PROMOTE PRICE STABILITY.

and storage capacity by themselves would have been expected to help mitigate the market volatility and upward price pressures that emerged in the last decade.

- The years between 2005 and 2010, however, saw an even more dramatic change in the domestic supply picture for natural gas as it became clear that recoverable U.S. reserves of shale gas are far more extensive and broadly distributed than previously thought. In 2003, the National Petroleum Council estimated recoverable shale gas resources at 35 trillion cubic feet (Tcf). Six years later, in 2009, another widely respected group, the Potential Gas Committee, estimated the resource base at more than 616 Tcf, based on 2008 industrywide data (Table 1).
- The technologies used to extract shale gas, including horizontal drilling and sequenced, multi-stage hydraulic fracturing, were pioneered in the 1980s. Since then, the shale gas industry has matured and the technologies involved have become more sophisticated and cost-effective. ICF International, Inc. recently estimated that almost 1,500 Tcf of shale gas can be produced at prices below \$8 per million Btu (MMBtu). By comparison, annual U.S. consumption of natural gas currently totals approximately 22 Tcf.
- Ample domestic supply will be among the most important factors promoting moderate and stable natural gas prices over the next several decades. This result, however, is predicated on the successful management of environmental concerns associated with current methods of shale gas production and on the willingness of local communities to accept this type of development, even in areas with little prior exposure to energy production activities.
- The most important environmental issues related to shale gas production include the potential for water contamination if proper procedures aren't followed; water consumption for fracturing operations, particularly in areas where water resources are already stressed; and air emissions and disruption associated with the use of heavy equipment and related infrastructure (e.g., roads, drill pads and gathering lines). If environmental and other local impacts are not properly managed and remediated, an increasing number of communities could begin to oppose shale gas production activities. To address these impacts, several states are currently revisiting existing regulations for shale gas extraction; in New York, meanwhile, the state Assembly voted in August 2010 to impose a moratorium on hydraulic fracturing until state regulatory authorities could conduct a thorough review of associated environmental risks and of the adequacy of current environmental protections and safeguards.
- Contract mechanisms to hedge future price variability are important tools for managing risk in commodities markets, including the natural gas market. In recent years, a number of stakeholders and observers have called for a return to a greater reliance on long-term contracts between gas suppliers and purchasers to help address price risks and to promote price stability. Such contracts can play a useful role as part of a diversified portfolio. However, the current fair value accounting treatment for some of these contracts (e.g., quarterly market pricing, also known as "mark-to-market") may discourage some buyers and sellers from using such contracts due to the unknown impact of future quarterly disclosures to investors on corporate balance sheets. Similarly, some public utility commission (PUC) rules (e.g., regarding when

gas purchase costs may be recovered from ratepayers) may also discourage regulated gas suppliers from using such contracts to manage the impact of price variability even though they might benefit customers.

- It is also important to recognize that few long-term contracts (even when such contracts were more common) are or have been truly “fixed price” in the sense that both parties are locked into a single specified price regardless of other market or regulatory developments. Nevertheless, various forms of long-term contracts and other options (such as direct acquisition of gas reserves or long-term pre-purchase arrangements) are available to provide an element of price stability, while also minimizing downside risks to the parties involved.
- Hedging is a strategy that is better suited to managing short-term price risks. It is generally implemented through the use of financial instruments known as derivatives. Properly applied, financial derivatives can provide an efficient mechanism for transferring risk. A concern has been raised that new restrictions on derivatives trading under the recently passed Dodd–Frank financial reform legislation could have the unintended consequence of reducing liquidity in natural gas and other commodities markets, with potentially adverse impacts on price stability in those markets.

Conclusion

Recent assessments of the North American natural gas resource base suggest that the United States is well positioned to take advantage of natural gas as a low-emitting, domestic fuel that can be used throughout the economy in a variety of efficient and cost-effective applications. Realizing this



potential could provide significant economic, environmental and energy security benefits but requires that investors have confidence in the ability to develop and deploy natural gas resources at moderate and reasonably stable prices. The Task Force believes that a set of relatively modest but well-designed and forward-looking policy initiatives could go a long way toward building that confidence. These initiatives should be combined with continued efforts to better characterize the domestic gas resource base; address environmental concerns; develop improved extraction technologies; and provide critical pipeline, import and storage capabilities.

At a time when political and economic conditions have paralyzed much of the national-level energy policy debate, the fact that a group as diverse as the Task Force could reach consensus on these measures suggests that here is at least one important area—natural gas markets—where progress is well within reach. Given how much could be at stake in ensuring stable U.S. natural gas markets over the next several decades, the opportunity is one that should not be missed.