

January 15, 2010

TO: Interested Parties
FROM: Josh Freed, Director, Clean Energy Initiative; Sam Hodas, Policy Advisor
RE: Natural Gas: Platform for a Clean Energy Future

Renewables, nuclear, carbon capture and storage, and electric vehicles will take us far down the road to eliminating our carbon emissions. These technologies are at various stages of development and deployment today. Rolling out these new technologies across entire sectors, however, will take time. The good news is that natural gas releases 50% less carbon pollution than coal and can reduce emissions from our electricity generation until nuclear and carbon capture and storage technologies are the primary backup power supply to renewable energy. Using this domestically available energy source¹ would reduce emissions,² provide a low cost fuel for electricity, and create thousands of new jobs.

Natural gas can also help replace some diesel in our commercial transportation fleets to lower carbon output and reduce our dependence on foreign oil. While in the past we have been told that the United States is running out of natural gas, recent technology and entrepreneurship have liberated vast quantities of natural gas resources that were unavailable even a few years ago. These new supplies will allow us to meet our energy challenges and control costs along the way. It is important to note that low natural gas prices are vital to the success of our domestic manufacturers, and increasing the use of natural gas in other areas of our economy should be done in conjunction with policies that promote further production of natural gas and preserve the competitiveness of United States manufacturers.

Third Way proposes implementing policies that will help level the playing field for natural gas in both the electricity and transportation sectors. For electricity, policies include encouraging the use of natural gas as backup power for renewable energy in conjunction with other promising technologies such as carbon capture and storage,³ establishing credits for power plant conversion, and establishing an economy-wide price on carbon. For transportation, the United States should incentivize the replacement of old diesel fleet vehicles with new natural gas vehicles.

All of these changes are premised on new discoveries of natural gas reserves in the United States and exciting opportunities for new gas production. Indeed, expanded domestic production of natural gas not only would help meet the challenge of climate change, it would help spur economic growth. But given that natural gas is critical to the manufacturing sector in the United States, the switchover of power plants to natural gas without expanded production could hurt American industry and cost jobs.

Third Way recommends that Congress take the following steps:

- **Increased Exploration and Development:** Accelerate the leasing and exploration of Outer Continental Shelf (OCS) and shale natural gas resources.
- **Carbon Pricing:** Establish an economy-wide price on carbon emissions to level the playing field for clean fuels, such as natural gas, and clean energy technologies with coal.
- **Tax Credit:** Establish a tax credit of 0.25 to 0.75 cents per kilowatt hour to help utilities defray the costs of constructing new clean energy facilities. Because the wind does not always blow and the sun doesn't always shine, building new clean energy facilities can have additional costs from ensuring there is a backup power source, such as rapid start natural gas. (Known as the renewable integration tax credit)
- **Offsets:** Provide incentives, through emissions offsets, for utilities to convert coal power plants in the United States to natural gas.
- **Rebates:** Create a Cash for Commercial Clunkers program to provide a \$65,000 rebate for the trade-in of older diesel heavy duty trucks to purchase an equivalent natural gas vehicle.

THE PROBLEM:

Current Energy Policy Creates Disincentives for Natural Gas

The United States is reliant on an aging fleet of coal power plants and oil imported from unstable or hostile countries. We have an abundant, cleaner source of fuel that could supplant much of the non-carbon capture and storage coal and oil we presently use. New technologies that can find and extract previously inaccessible natural gas deposits mean that the U.S. has an additional 2,074 trillion cubic feet of domestic fuel in thirty-three states, including Pennsylvania, Ohio, Arkansas, Michigan, and Colorado, 39% more natural gas than previously realized, it could use for power.⁴

However, in the absence of a carbon price, natural gas cannot compete with the prevailing sources of energy—coal and oil—and U.S. energy policy has not encouraged investments in natural gas. For electricity, the U.S. uses just 20% of our natural gas generation capacity.⁵ On our roads and highways, our failure to switch as many vehicles as possible from oil to natural gas leaves the United States reliant on oil from dictators and unstable countries.

This compounds the problems some regions without ready access to renewables, particularly the South and Midwest, face in reducing emissions. And once renewable energy sources are built, they will still need a backup energy source to help meet unexpected demand or when wind or sun is not available. Until more nuclear capacity is added (at least 10 years away), that choice will remain coal or natural gas.

Natural gas is at a competitive disadvantage to coal.

Currently state and regional regulations require utilities to use the least expensive energy source available to generate electricity. These processes are known as dispatch orders and auctions. With few exceptions they force utilities that have both coal and natural gas plants to use coal first to generate electricity because the absence of a price on carbon emissions artificially lowers the price of coal and gives it greater access to the grid. As a result, natural gas plants, which produce almost 50% less carbon emissions than coal, are idle or running well below capacity two-thirds of the time.⁶

Absence of a domestic carbon offset discourages construction of natural gas plants.

With a median age of 44 years of service, most coal plants in the United States have been fully amortized, although carbon capture and storage will allow many existing coal plants to operate cleanly well into the future. This discourages utilities from constructing rapid-start natural gas facilities to replace coal where it is most cost effective or filling the gaps in renewable energy production. In addition, the House and Senate energy bills support the U.N.'s Clean Energy Development Mechanism (CDM), which creates an offset for other countries to convert existing coal plants to natural gas,⁷ but they do not encourage domestic conversions.⁸ This puts the U.S. natural gas sector at a disadvantage in competing for investment and could leave this country reliant on aging and inefficient coal power facilities.

Reliance on oil leaves our economy vulnerable to price fluctuations.

Over the past four years, the American economy has been buffeted by wild fluctuations in oil prices. Prices roller-coasted from \$25 per barrel in 2003 to a record \$146 per barrel in 2008 before crashing to \$30 per barrel earlier this year.⁹ Prices are rising again, currently at \$80 per barrel,¹⁰ and are expected to reach \$100 in the near future.¹¹ The volatility in oil prices has shaken consumer confidence, is reducing business investments and threatens our national security by funding dictators.¹²

THE SOLUTION:

Deploy Natural Gas as a Transition Fuel for the Clean Energy Revolution

In addition to serving as a backup or local generation fuel, the U.S. should also deploy natural gas to reduce carbon emissions while clean energy sources are still being developed and deployed. Third Way proposes taking a two-pronged approach to increase our natural gas for electricity and transportation:

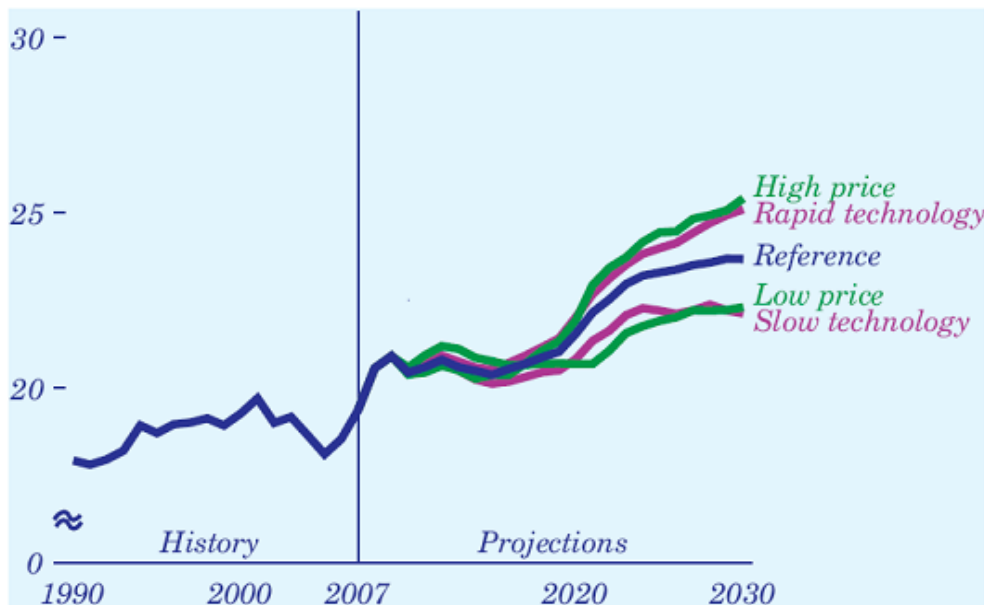
Exploration and Production

Increase in demand will make shale gas development viable and profitable. The United States is home to at least 616 trillion cubic feet of shale gas, which accounts for a third of our domestic natural gas supplies.¹³ According to projections by the

Energy Information Agency (figure 1), natural gas production under any of its scenarios will increase between 20 and 25 trillion cubic feet through 2030. If natural gas is to be further integrated in to our electricity and transportation, these new natural gas deposits must be explored to ensure that sufficient supplies are maintained to prevent prices from spiking. Unlike other industries, the manufacturing sector, which is reliant on natural gas, cannot easily switch fuels in response to high prices. We now know that the U.S. has the gas we need to keep prices stable for industry and to meet the needs of our power sector, but only if we are willing and able to substantially increase domestic production.

While shale gas faces some technical questions, it is a critical component of our future energy supply. The appropriate federal agencies should work with the private sector to develop leases to extract shale gas in an economical and environmentally sound manner.

Figure 1. Total U.S. natural gas production in five cases, 1990-2030 (trillion cubic feet), U.S. Energy Information Agency



We also recognize that the development of shale supplies involves the use hydraulic fracturing. While there is some government oversight of fracturing, the Energy Policy Act of 2005 excluded the practice from direct regulation under the Safe Drinking Water Act,¹⁴ and some have raised the question about more government involvement being needed. While public safety must remain a top priority, regulatory and legal hurdles at the federal, state and local level, like those that have hindered new nuclear power in the United States, can impede the development of shale supplies. Congress has already empowered the EPA to fully evaluate the impacts of hydraulic fracturing, which will give lawmakers the information they need to determine how much oversight is necessary and prevent needless delays in shale gas exploration and production.

Electricity

Include the cost of carbon in energy prices.

As our nation's electric system exists now, it is designed to get the cheapest forms of power to the grid and consumers. Some have advocated changing this electricity dispatch system to include the price of carbon to allow natural gas to compete on a level playing field with coal. While we support the underlying goal of such a proposal, we believe that the way to provide low carbon energy to consumers is through the implementation of an economy wide price on carbon emissions.

Encourage the conversion of coal plants to natural gas.

Both the House and Senate energy bills allow American companies to receive a carbon offset credit if they help pay to convert international coal plants to natural gas.¹⁵ Domestic coal to natural gas ventures should receive the same offset treatment. This would provide an incentive to utilities to create domestic jobs converting coal plants to natural gas. Otherwise, these same utilities would have more incentive to purchase international offsets and continue to burn coal here at home.

Establish a credit to integrate natural gas into renewable projects.

Because energy sources like wind and solar are available only intermittently, utilities must maintain a power supply to fill the gaps when the wind does not blow and sun does not shine. Utilities often need to build integrated facilities that include both rapid-start natural gas and renewable sources, adding \$240 million¹⁶ in costs. An integration tax credit based on how much renewable energy a utility generates, ranging from 0.25 to 0.75 cents per kilowatt hour, would help utilities defray the costs of building the rapid-start natural gas facilities that can be necessary with many renewable projects.

Transportation

Natural gas is ready to begin replacing diesel fuel in our heavy vehicle fleet. Since more than 80% of commercial truck companies own six or fewer trucks, a "Cash for Clunkers" type program could provide critical assistance to convert trucks to natural gas.¹⁷ Converting the nation's 6.5 million 18-wheeler freight trucks to natural gas would save 4.2 million barrels of oil per day.¹⁸ This would not require a massive infrastructure build out. A natural gas-powered 18-wheeler would only require 20 fueling stations to travel from New York to California.¹⁹ This would eliminate almost 12% of all U.S. emissions²⁰ and would not have a significant impact on natural gas demand. The reality is that if we added 800,000 natural gas vehicles on the streets, far more than would occur under our proposal, we would still *only* increase natural gas use by 1.5%.²¹

Create a "Cash for Commercial Clunkers" program.

The "Cash for Clunkers" program helped replace over 690,000 inefficient passenger vehicles with new cars that were 9.2 miles per gallon more efficient,²² exceeding analysts' expectations. The 2005 tax credit that helped pay for the

replacement of conventional fuel vehicles with natural gas vehicle expired at the end of 2009. It should be replaced with a "Cash for Commercial Clunkers" program that pays the difference in price, up to \$65,000 per vehicle, to replace conventional with natural gas fleet vehicles.²³ This would be authorized under the Congestion Mitigation and Air Quality (CMAQ) Improvement program and would target trucks put in service before 1995. We should also extend the tax incentives to construct natural gas refueling stations, set to expire in 2010, to ensure infrastructure is in place to meet demand.

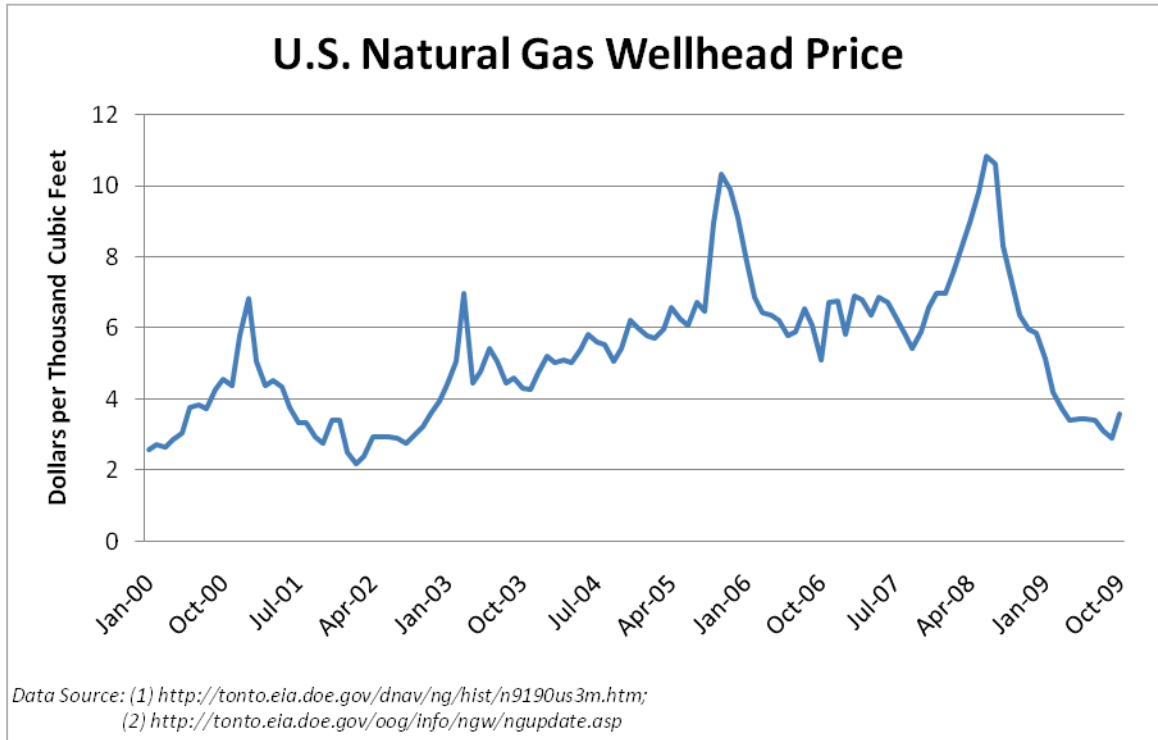
Critiques & Responses

Natural gas prices will skyrocket if we use more of it for energy, hurting American competitiveness.

Recent studies have put natural gas supplies at 2,074 trillion cubic feet, 39% more domestic natural gas than experts previously estimated and more than enough to meet even expanded U.S. demand.²⁴ Beginning in 2007, shale reserves began to be accessed at a rapidly growing pace,²⁵ demonstrating that production can be boosted to help contain costs during periods of tight supply and demand. To help ensure that adequate natural gas supplies are available at a stable and inexpensive price, domestic production should include new shale gas supplies, which are immune to hurricane disruptions, as well as conventional exploration. Because of the current economic slowdown and the anticipated increase in the domestic natural gas supply from exploitation of shale gas, the Energy Information Agency expects prices to remain stable and relatively low well into the future.²⁶

We also recognize that natural gas prices have a history of spikes, most recently in 2006 and mid-2008 (figure 2). In order to protect against future price spikes, policies to advance nuclear power and carbon capture and storage should also be aggressively pursued to ensure that the United States has a full portfolio of clean energy available to compliment natural gas and control costs. Coal especially is abundant and necessary to moderate the costs of other fuels, and with early deployment of carbon capture and storage technology coal can remain in the nation's energy portfolio.

Figure 2. Spot market prices for natural gas, 2000-2009, U.S. Energy Information Agency



Too many off-shore gas deposits are off-limits to exploration.

In 2008, Congress allowed the decades-old moratorium on offshore energy exploration to expire, opening up 319 million acres of the Outer Continental Shelf (OCS). In order to take full advantage of these natural gas supplies, the leasing and permitting process for OCS drilling should be streamlined to ensure environmentally safe exploration takes place in a timely manner.²⁷

Increased reliance on liquefied natural gas will require unsafe infrastructure.

LNG is used widely as a method to transport natural gas and is growing in demand as an alternative to traditional gasoline. To date there are challenges with transporting LNG that have made it difficult for it to be a widely used fuel. While we recognize these challenges, especially relating to safety concerns, it is time to develop real solutions. Lawmakers should examine the existing regulatory regime to address state and local safety concerns that LNG terminals raise and work with stakeholders to ensure that Federal Energy Regulatory Commission siting authority is balanced against state needs. Despite being more densely populated than the United States, Europe currently has 14 LNG terminals in operation. These terminals have operated safely since opening and new terminals are being developed for construction.²⁸

There is insufficient infrastructure to fuel a natural gas-powered heavy vehicle fleet.

The use of natural gas in our transportation is currently a question of the chicken or the egg. While the U.S. does not have a natural gas refueling infrastructure anywhere near as comprehensive as it does for conventional fuel, it is steadily growing. There are already 835 fueling stations, primarily located around population centers.²⁹ Moreover, the infrastructure to move natural gas already exists, with pipelines bringing natural gas to homes and businesses across the country. All that is required is to build out the existing infrastructure to accommodate natural gas refueling stations. Providing incentives to increase the number of natural gas heavy vehicles on the road will help break this impasse and encourage deployment of more natural gas refueling stations.

Natural gas vehicles do not have the power of diesel fueled vehicles.

Natural gas fleet vehicles are viable for most operations, including short and medium-haul trucking and municipal operations. The biggest challenge is hauling heavy loads up steep inclines due to natural gas producing less power than diesel vehicles. This, however, only eliminates a relatively small portion of the market for conversion.³⁰

Endnotes

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