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Key Factors Influencing Natural Gas Markets-2010

April 29, 2010

ISU – An Assessment of Energy Markets

Springfield, IL

Christopher B. McGill

Managing Director, Policy Analysis

U.S. Natural Gas Markets and Infrastructure Additions

Points of Discussion

- Stability of domestic natural gas supply
- Long-term supply abundance and diversity
- Pipeline and storage infrastructure
- Liquefied natural gas
- Pipeline imports from Canada
- Natural Gas Affordability
- Environmental benefits in a carbon constrained economy

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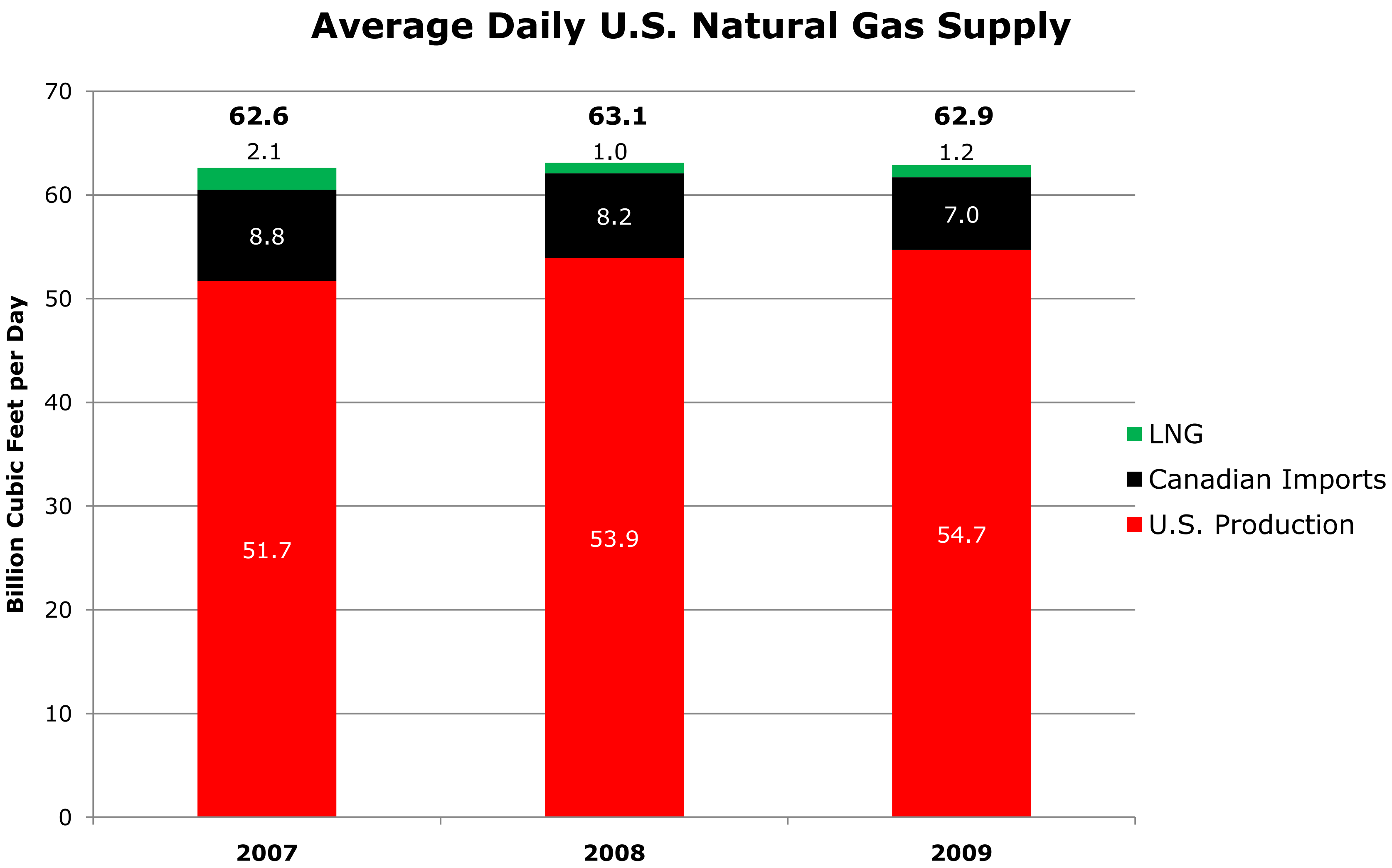
U.S. NATURAL GAS SUPPLY (2007 - 2009)



Source: Benter Energy LLC, *Energy Market Fundamentals.*

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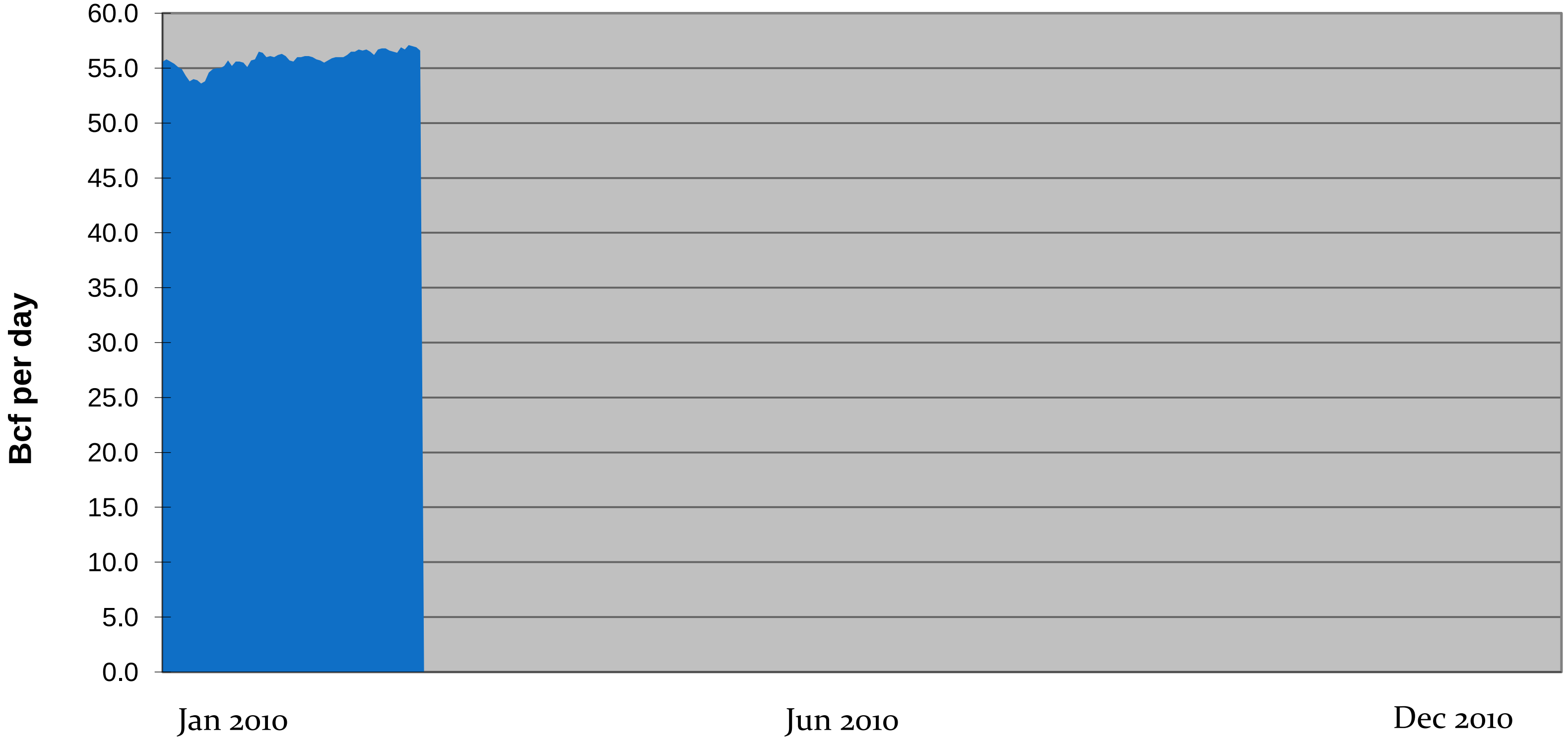
US Daily Dry Natural Gas Production
(Jan 1-March 9, 2009)



Source: Benter Energy LLC, *Energy Market Fundamentals*, March 9, 2010.

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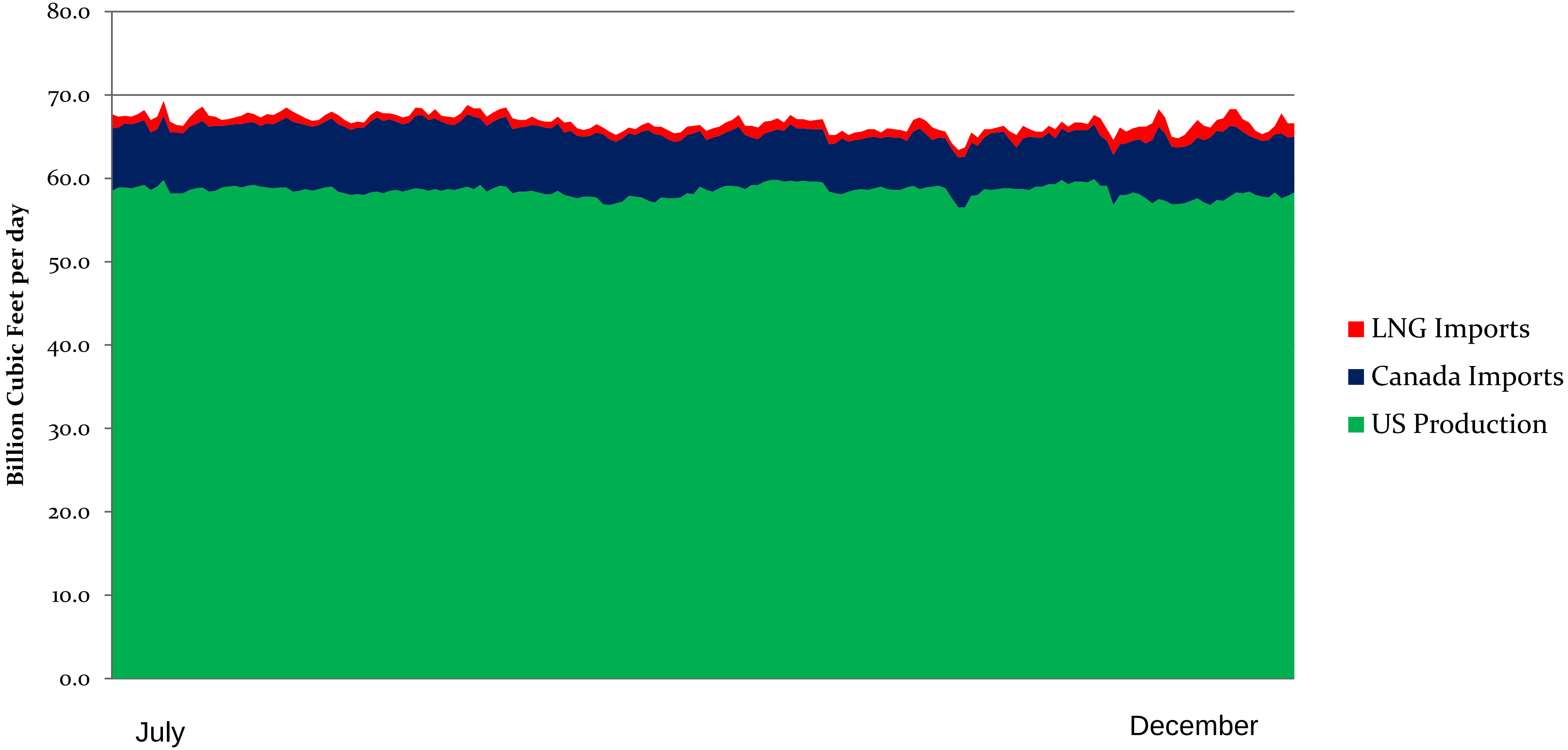
Natural Gas Supply Sources
(July 1-December 31, 2009)



Source: Benter Energy LLC, *Energy Market Fundamentals*, December 31, 2009.

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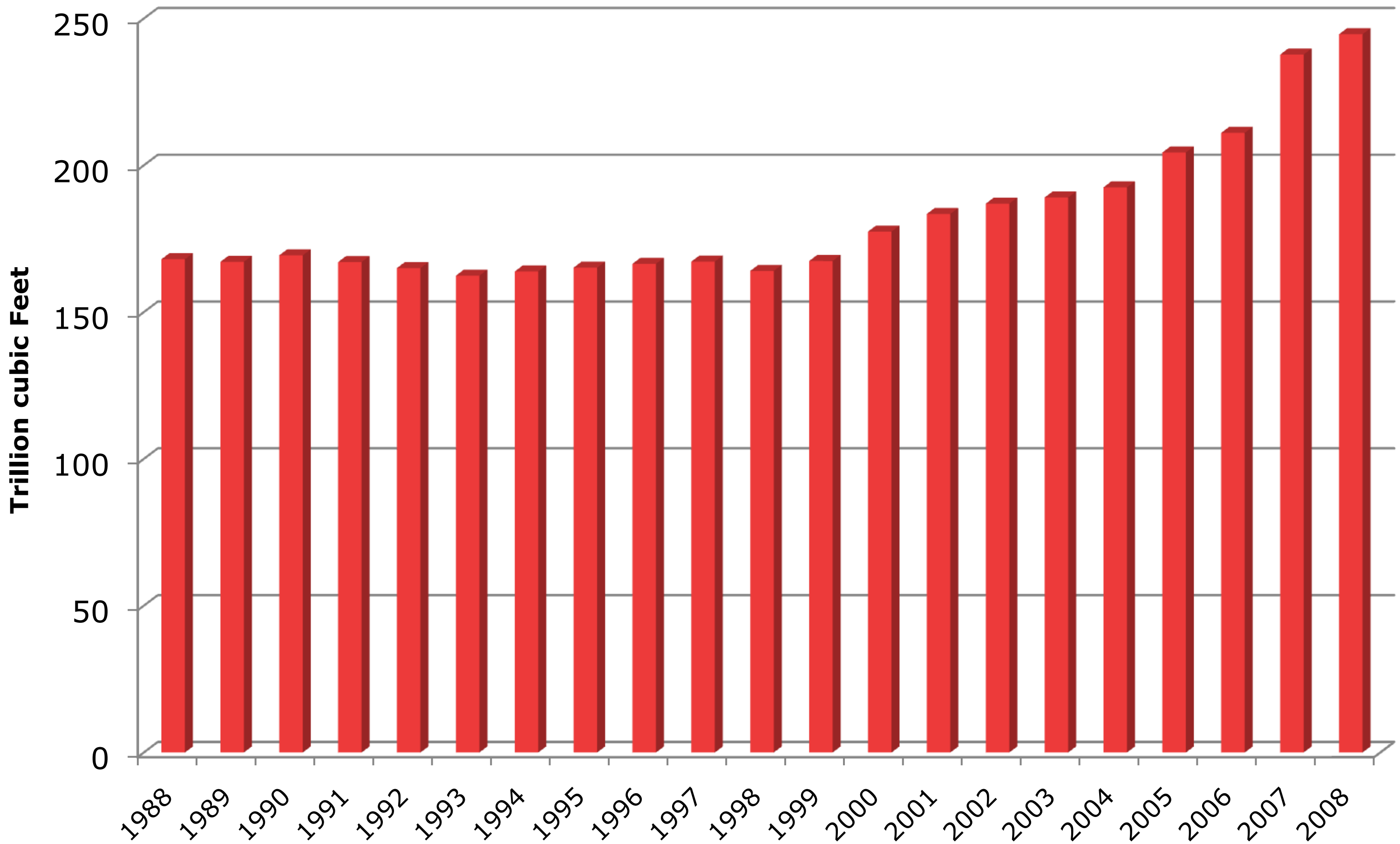
U.S. Dry Natural Gas Reserves
(1988-2008)



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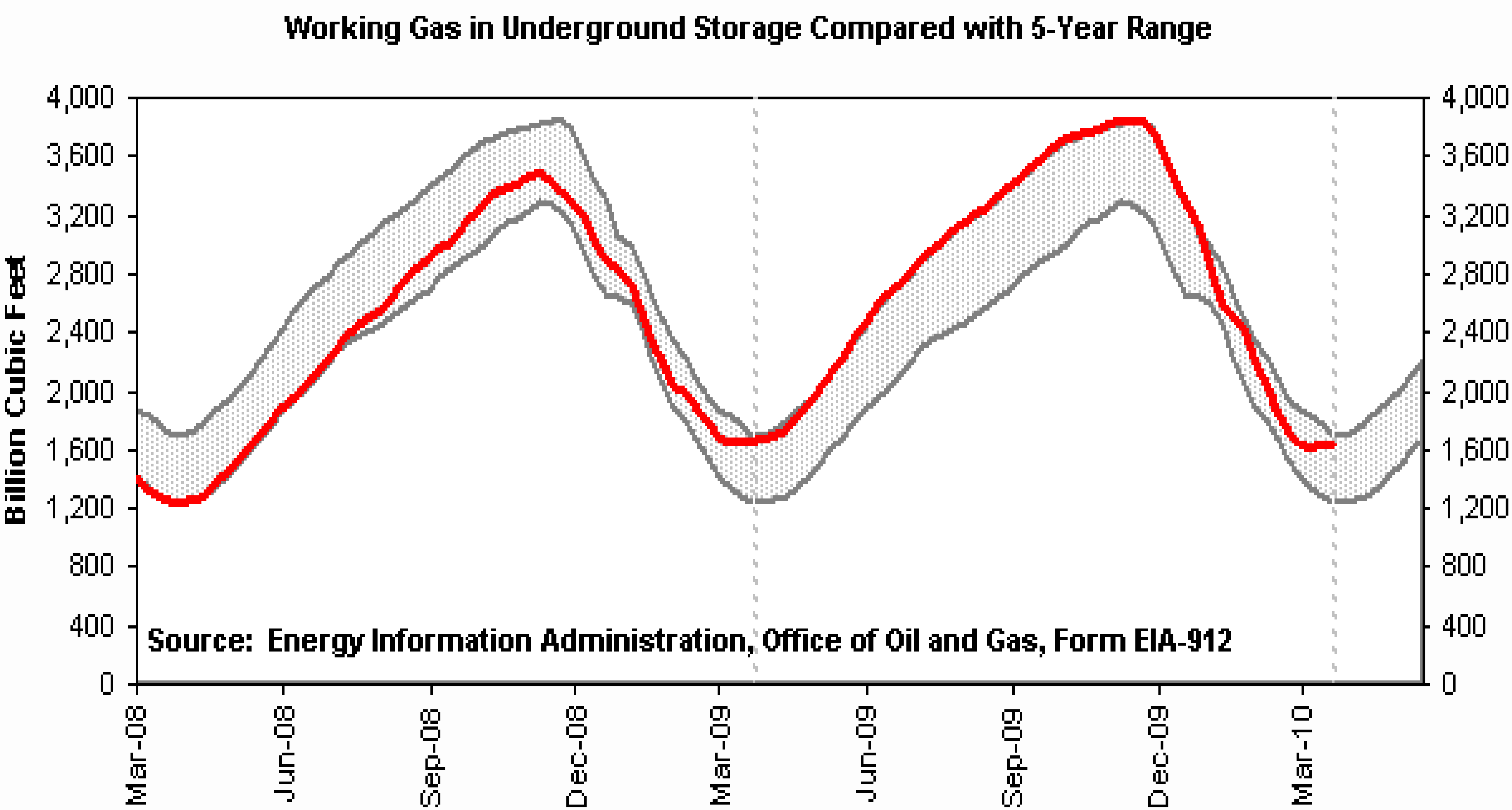
Energy Information Administration Reserves and Production of Dry Natural Gas in the United States (TCU)

Year	EIA Reserves	Dry Gas Production
1990	169	17.8
1992	165	17.8
1994	164	18.8
1996	166	18.9
1998	164	19.0
2000	177	19.2
2002	187	18.9
2004	193	18.6
2006	211	18.5
2008	245	20.4


Working Gas in Underground Storage Compared with 5-Year Range
Billion Cubic Feet
4,000
3,600
3,200
2,800
2,400
2,000
1,600
1,200
800
400
0
Source: Energy Information Administration, Office of Oil and Gas, Form EIA-912
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
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U.S. Natural Gas Infrastructure Additions Underground Storage

	Working Gas(Bcf) Estimated Peak Capacity	Working Gas(Bcf) Design Capacity
April 2008	3,789	4,136
April 2009	3,889	4,313

Source: ***Estimates of Peak Underground Working Gas Storage Capacity in the United States-2009 Update*, Energy Information Administration, September 2009.**

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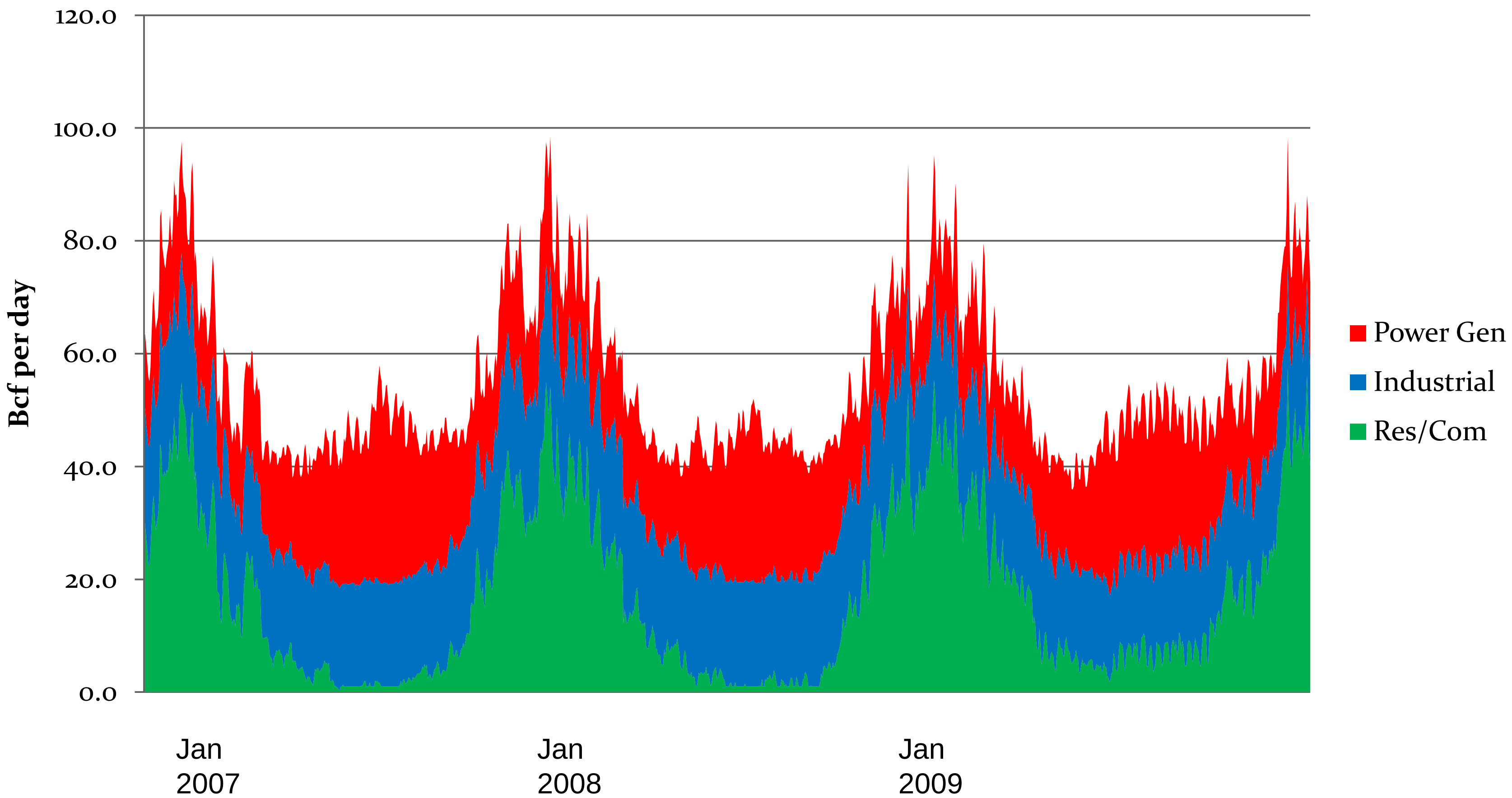
Daily U.S. Natural Gas Demand By Sector

January 1, 2007-December 31, 2009



Source: Benter Energy LLC, *Energy Market Fundamentals*.

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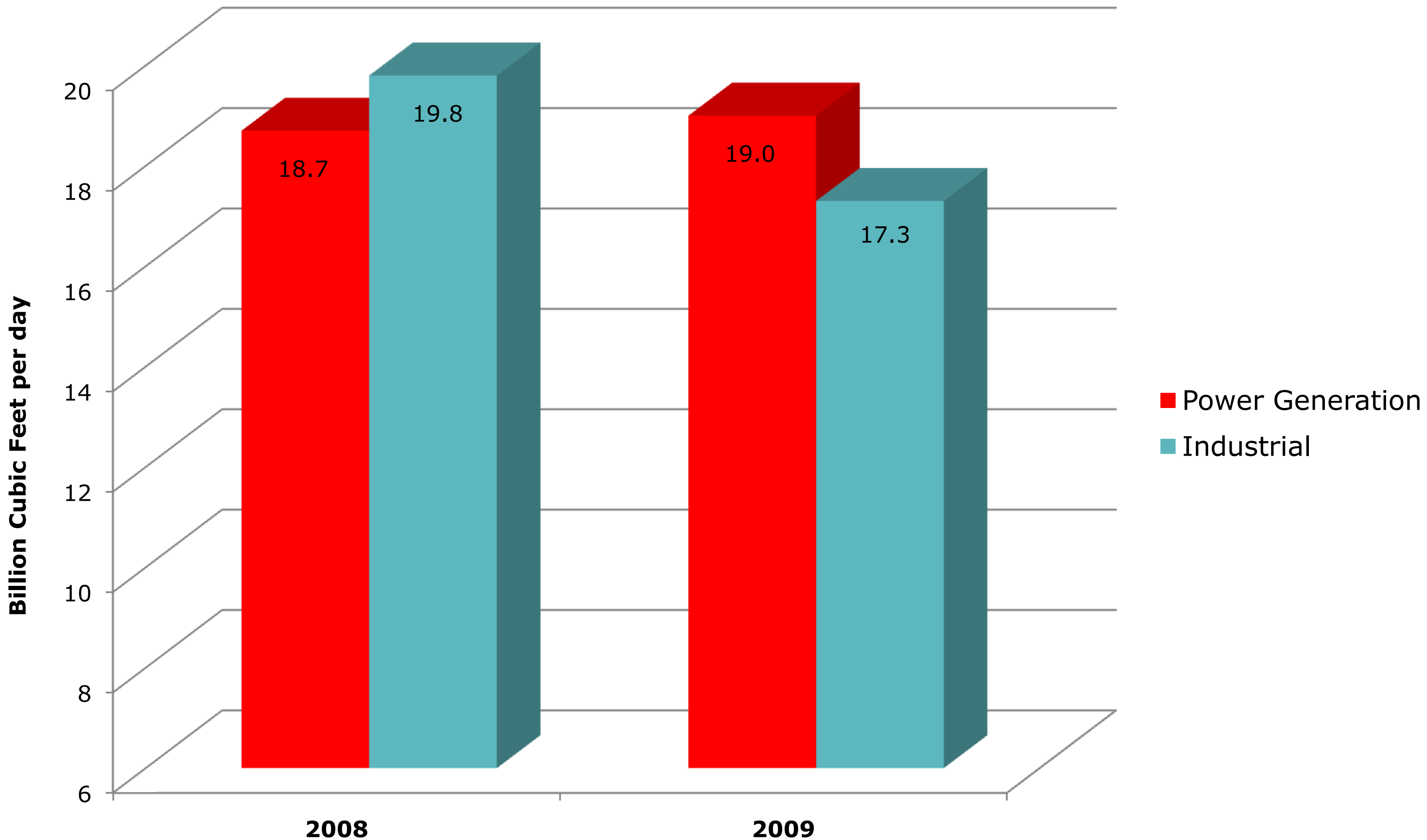
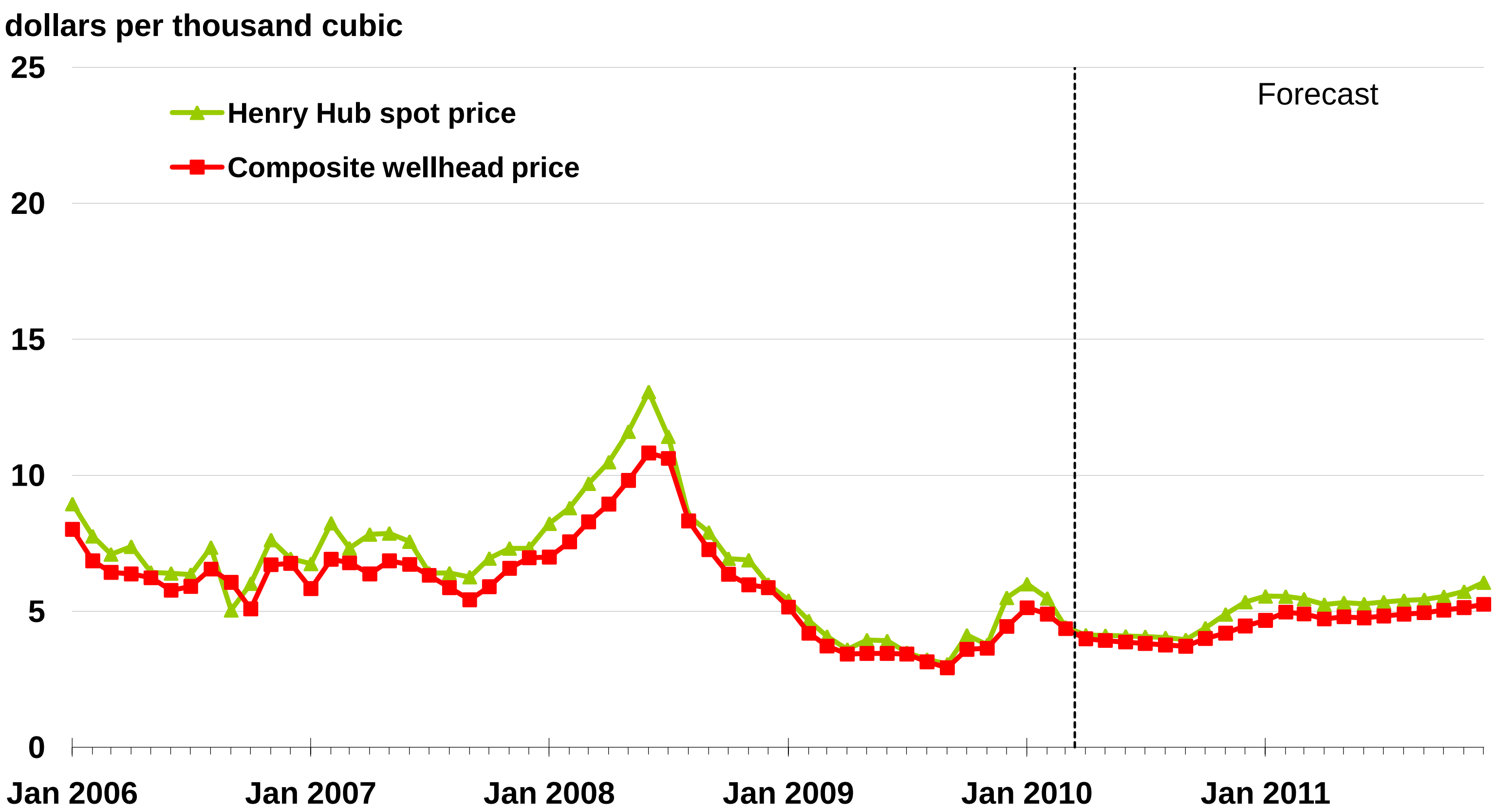
U.S. NATURAL GAS CONSUMPTION

Power Generation and Industrial Sectors



Source: Benter Energy LLC, *Energy Market Fundamentals*.

U.S. Natural Gas Prices



Source: Short-Term Energy Outlook, April 2010; Reuters News Service

U.S. Energy Information Administration

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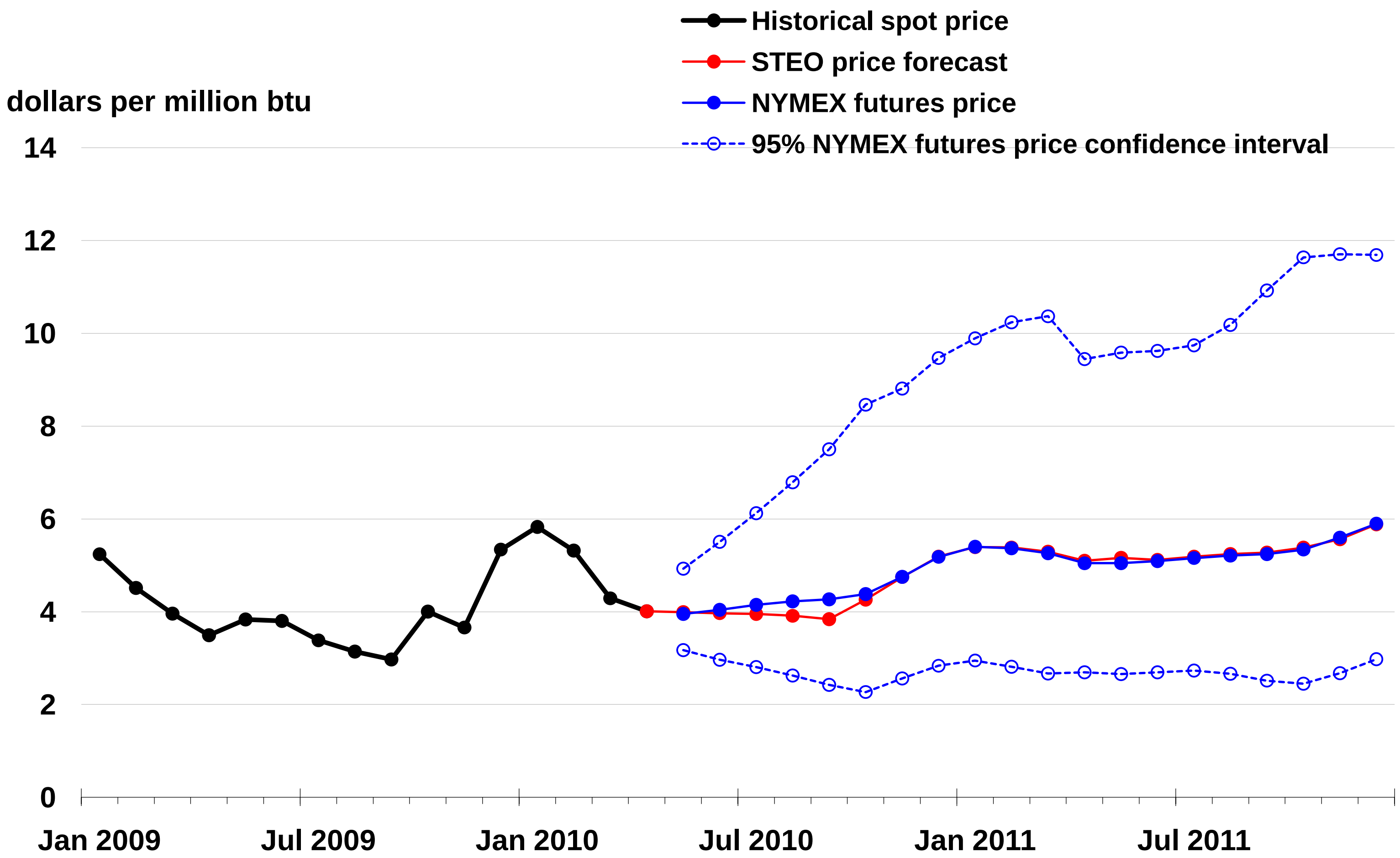
Henry Hub Natural Gas Price



Note: Confidence interval derived from options market information from 5 trading days ending April 1, 2010

Intervals not calculated for months with sparse trading in "close-to-the-money" options

Source: Short-Term Energy Outlook, April 2010; Reuters News Service; and CME Group

U.S. Energy Information Administration

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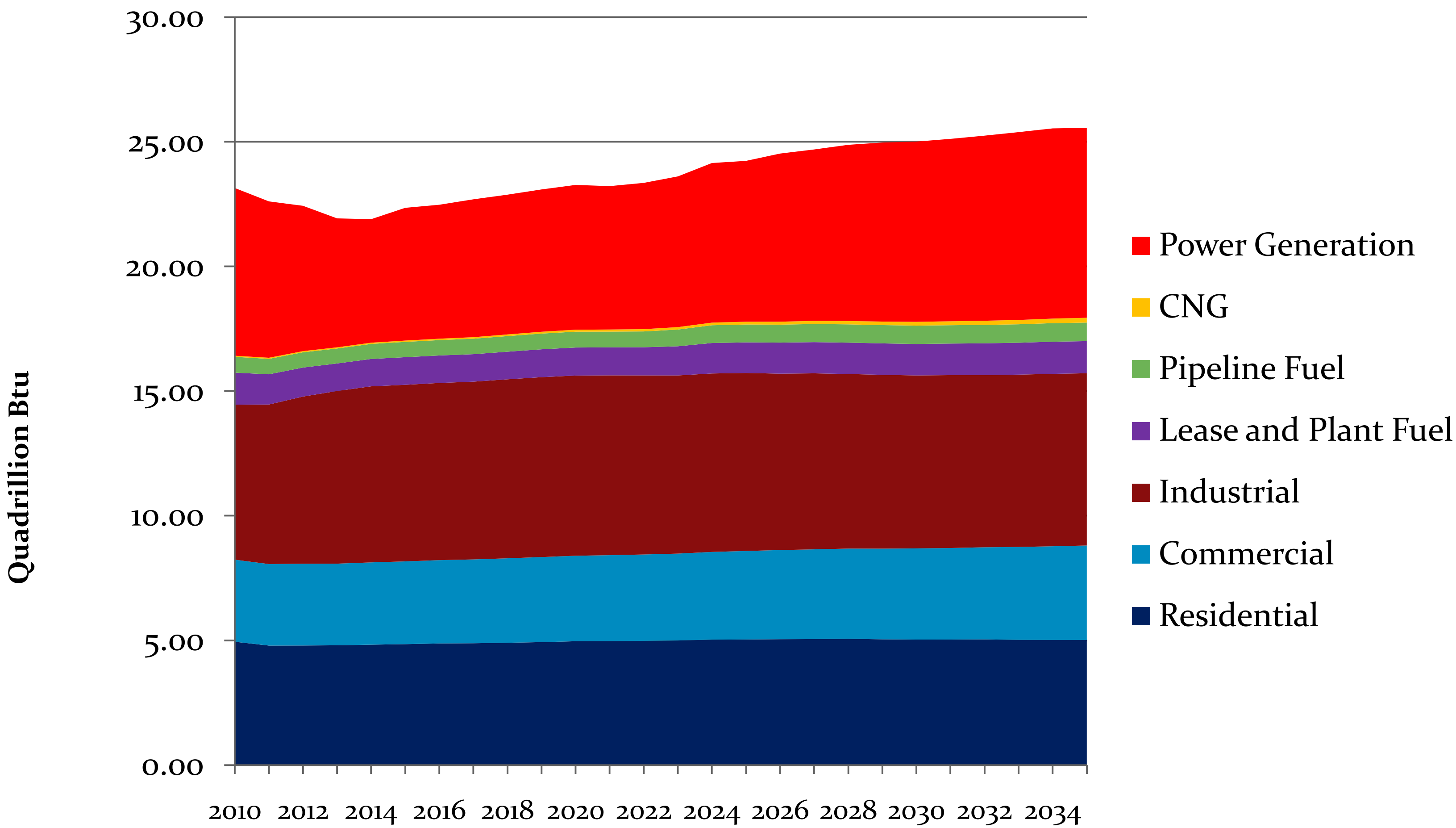
U.S. NATURAL GAS CONSUMPTION BY SECTOR

(EIA, AEO 2010-2035 REFERENCE CASE)



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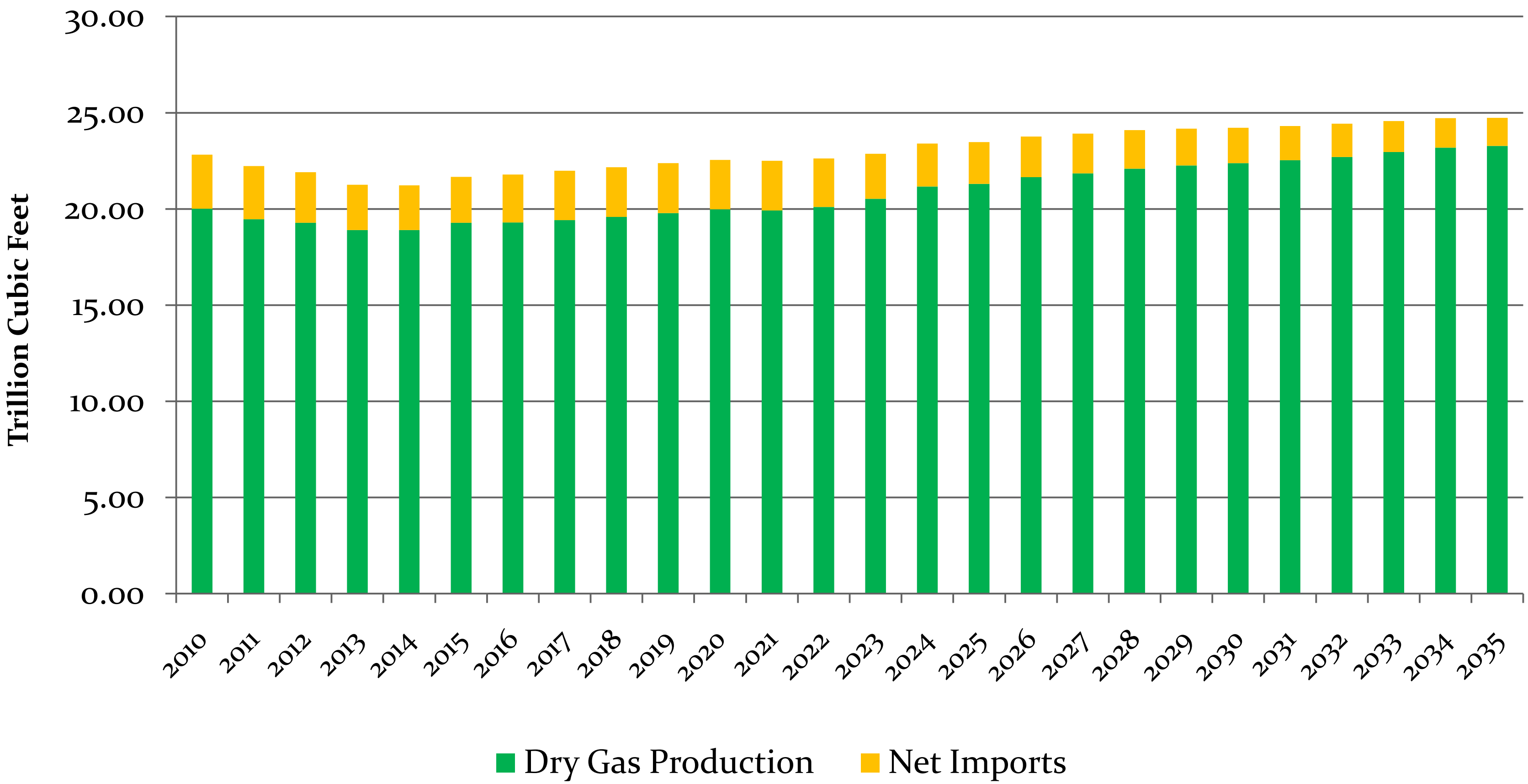
U.S. Natural Gas Supply

EIA, AEO 2010-2035 Reference Case



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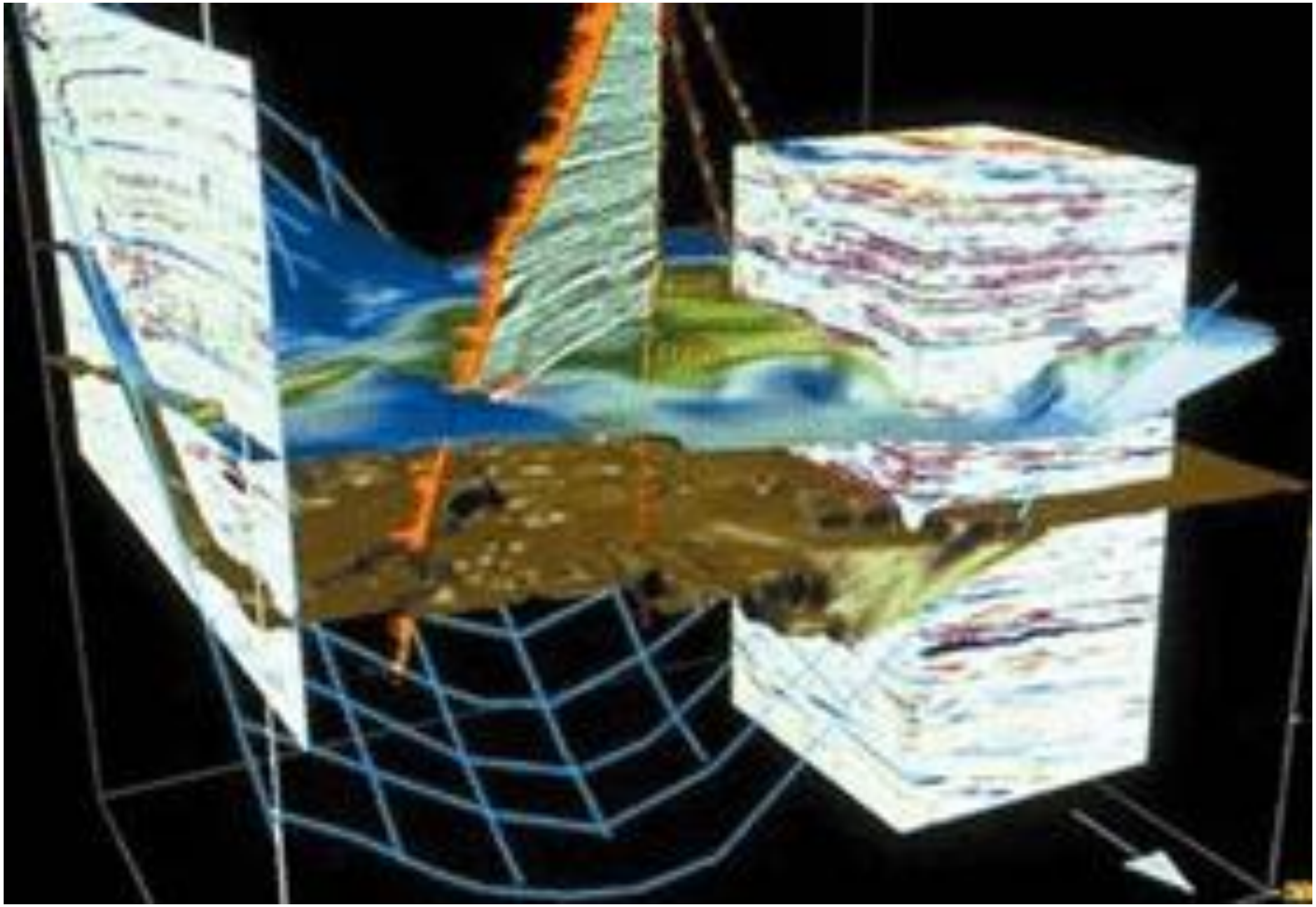
Natural Gas Resource Assessment of the Potential Gas Committee, 2008 (mean values)

Traditional Resources	1,673.4 TCU
Coalbed Gas Resources	163.0 TCU
Total U.S. Resources	**1,836.4 TCU**
Proved Reserves (EIA)	237.7 TCU
Future Gas Supply	**2,074.1 TCU**

SAY, "HELLO," TO WHERE WE ARE GOING

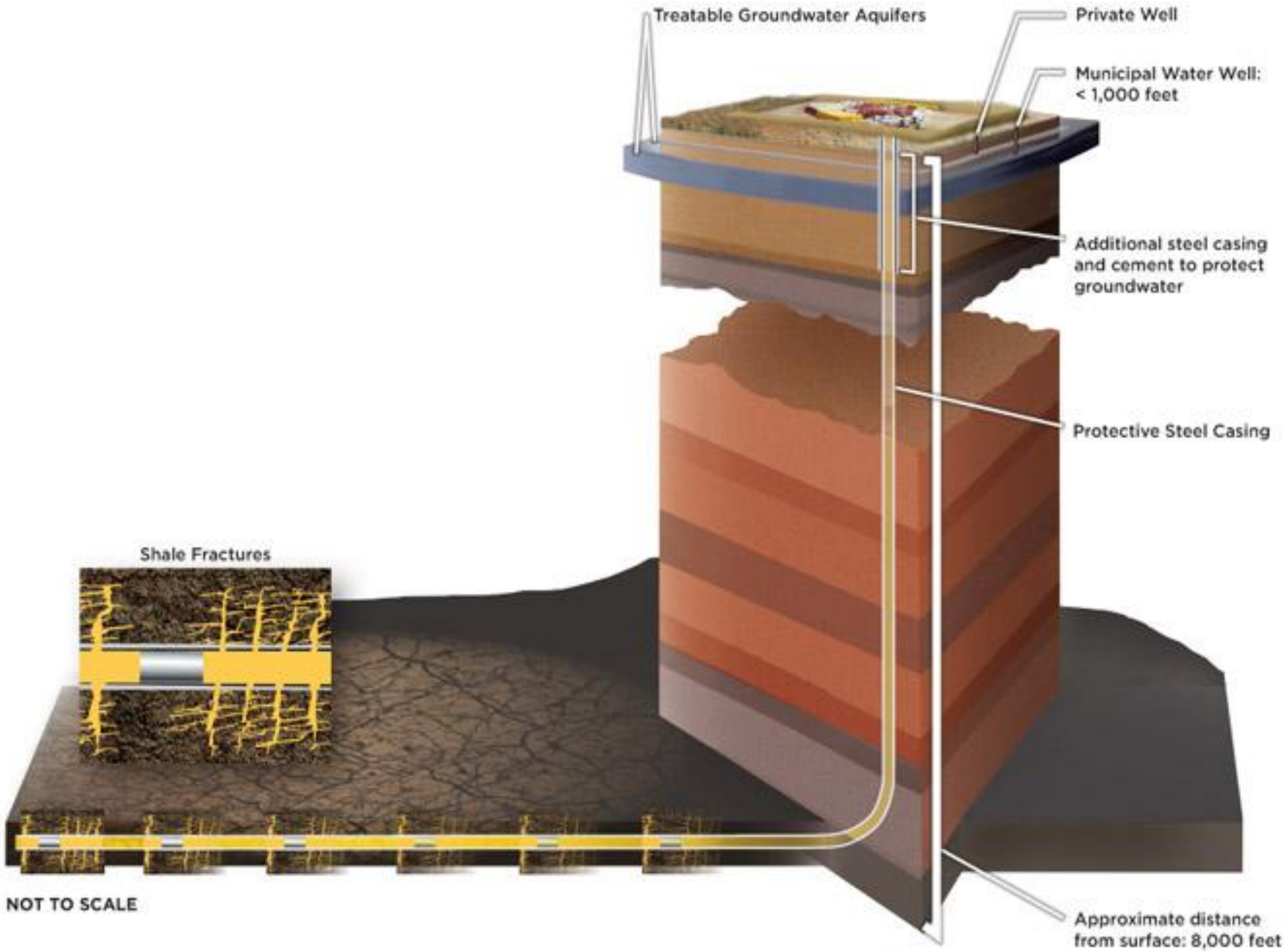


Source: Natural Gas Supply Association.

Potential Gas Committee
Determination of Future Supply of Natural Gas in the United States

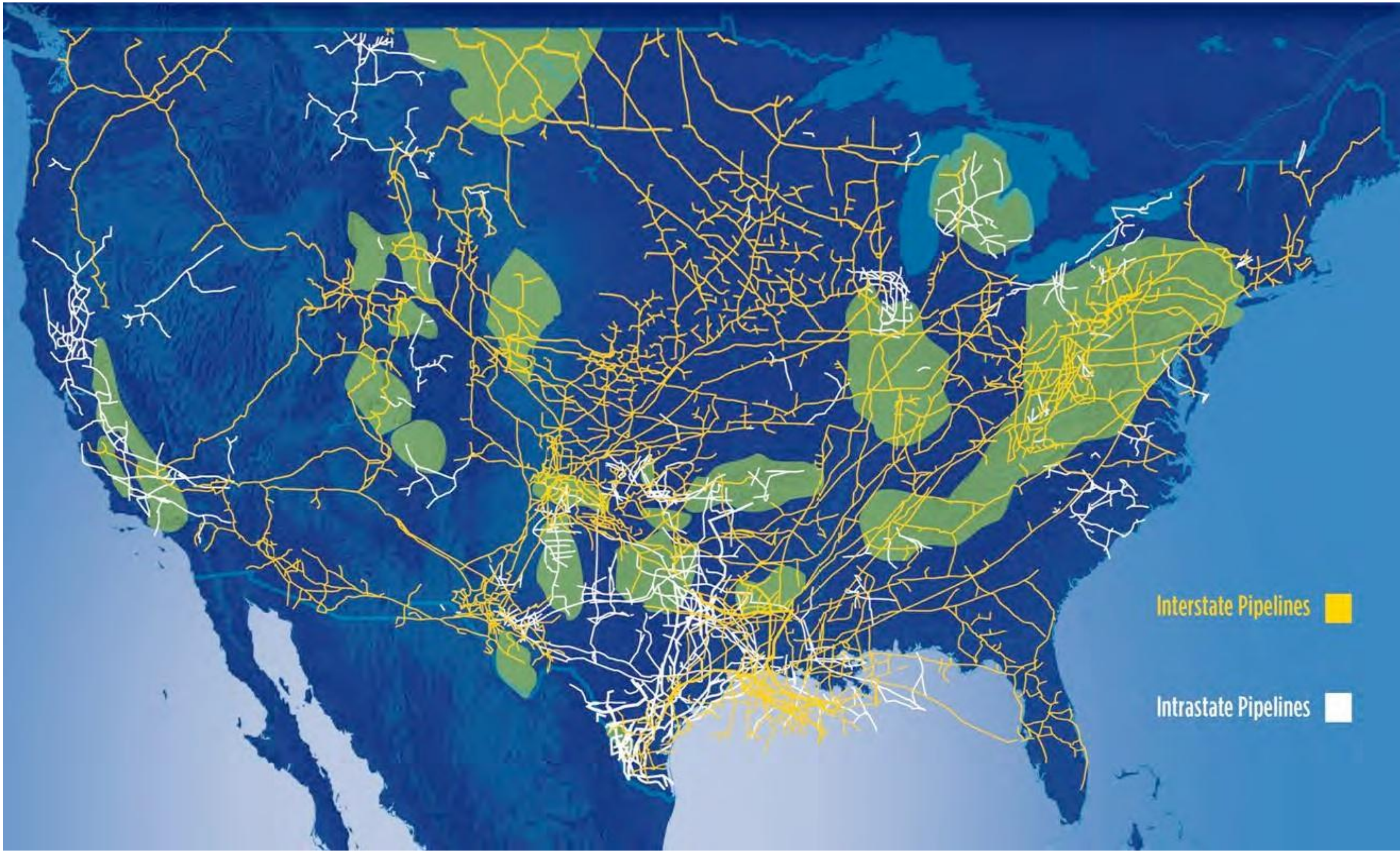
	DOE Reserves +	Traditional Resources +	Coal Gas =	**Future Supply +**	**Cumulative Production =**	**Ultimate Resource**
1990	169	855	147	**1,172**	777	**1,949**
1992	165	854	147	**1,166**	815	**1,981**
1994	164	881	147	**1,192**	853	**2,045**
1996	166	921	146	**1,234**	893	**2,127**
1998	164	896	141	**1,202**	933	**2,134**
2000	177	936	155	**1,268**	973	**2,241**
2002	187	958	169	**1,314**	1,013	**2,327**
2004	193	950	169	**1,312**	1,053	**2,364**
2006	211	1,155	166	**1,532**	1,091	**2,623**
2008	238	1,673	163	**2,074**	1,132	**3,206**

Hydraulic Fracturing



Source: Chesapeake Energy.

Shale Basins and the U.S. Pipeline Grid



Source: American Clean Skies Foundation.

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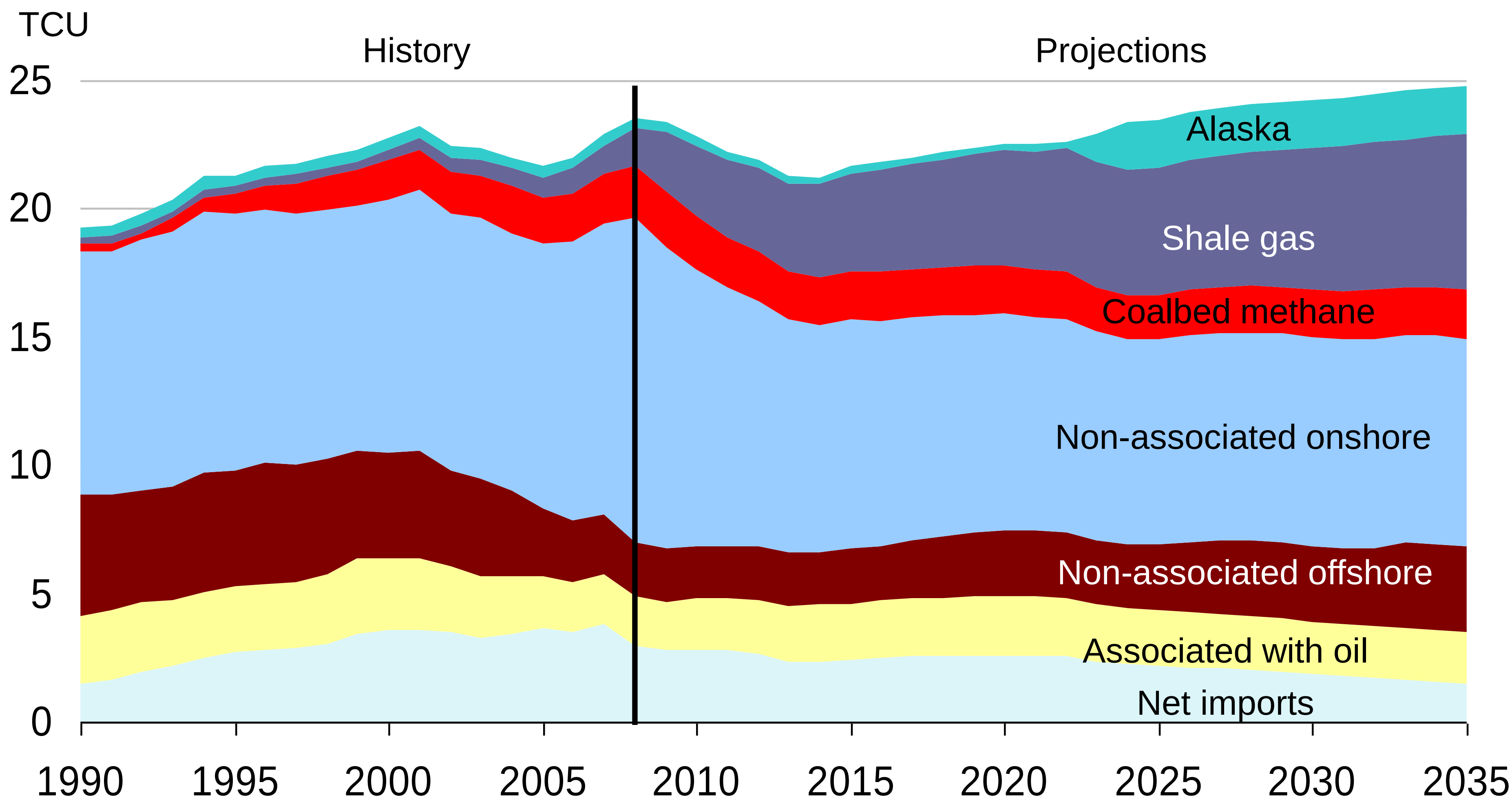
Shale gas and Alaska production offset declines in supply to meet consumption growth and lower import needs



Source: *Annual Energy Outlook 2010*

Richard Newell, SAIS, December 14, 2009

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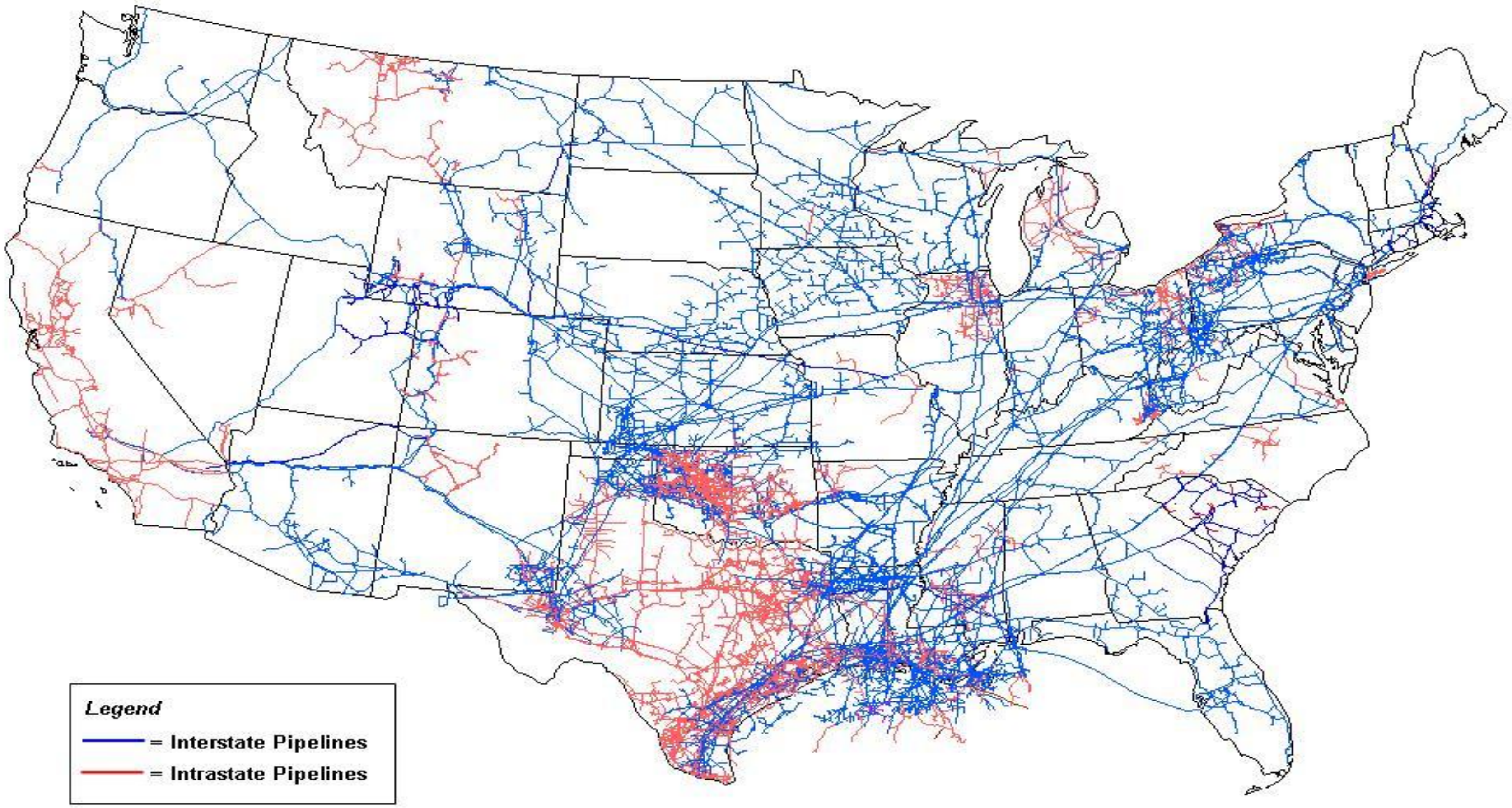
U.S. Natural Gas Pipeline Infrastructure 2009



Source: Energy Information Administration, Office of Oil & Gas, Natural Gas Division, Gas Transportation Information System

Additions to U.S. Natural Gas Pipeline Infrastructure (2007-2011)

	(Bcf/d) Added Capacity	($ Billions) Estimated Cost	Miles
2007	14.9	4.3	1,663
2008	44.6	11.4	3,893
2009 (est.)	31.9	11.9	3,643
2010 (est.)	24.6	5.8	2,070
2011 (est.)	37.4	15.7	4,528

Source: *Expansion of U.S. Natural Gas Pipeline Network: Additions in 2008 and projects through 2011*, Energy Information Administration, September 2009.

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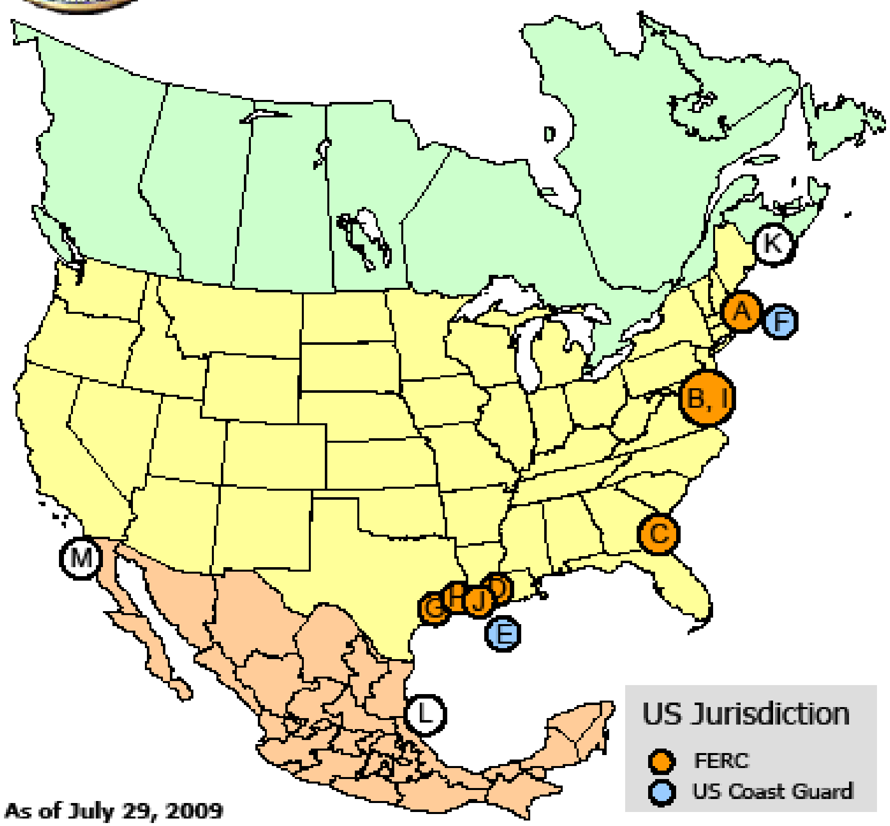
North American LNG Terminals

Existing



As of July 29, 2009

U.S.

A. Everett, MA : 1.035 Bcfd (SUEZ LNG - DOMAC)

B. Cove Point, MD : 1.0 Bcfd (Dominion - Cove Point LNG)

C. Elba Island, GA : 1.2 Bcfd (El Paso - Southern LNG)

D. Lake Charles, LA : 2.1 Bcfd (Southern Union - Trunkline LNG)

E. Gulf of Mexico: 0.5 Bcfd, (Gulf Gateway Energy Bridge - Excelerate Energy)

F. Offshore Boston: 0.8 Bcfd, (Northeast Gateway- Excelerate Energy)

G. Freeport, TX: 1.5 Bcfd, (Cheniere/Freeport LNG Dev.)

H. Sabine, LA: 2.6 Bcfd (Sabine Pass Cheniere LNG)

I. Cove Point, MD : 0.8 Bcfd (Dominion – Expansion)*

J. Hackberry, LA: 1.8 Bcfd (Cameron LNG - Sempra Energy)

Canada

K. St. Johns, NB: 1.0 Bcfd, (Canaport - Irvin Oil)

Mexico

L. Altamira, Tamaulipas: 0.7 Bcfd, (Shell/Total/Mitsui)

M. Baja California, MX: 1.0 Bcfd, (Sempra)

Note: There is an existing import terminal in Peñuelas, PR. It does not appear on this map since it can not serve or affect deliveries in the Lower 48 U.S. states.

Office of Energy Projects

American Gas Association

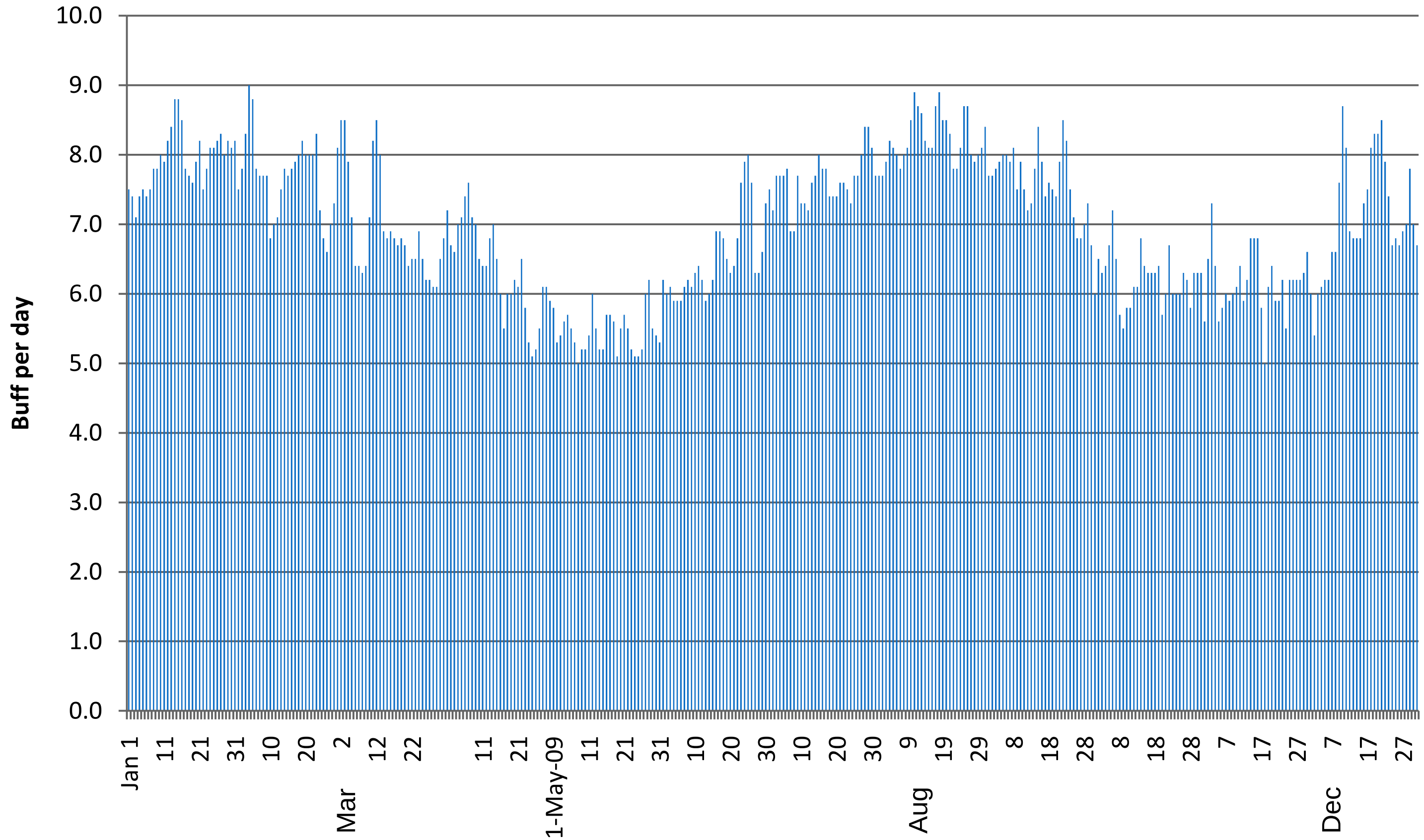
U.S. LNG IMPORT CAPACITY 2009

Everett, MA	1.035 Bcfd
Cove Point, MD	1.800 Bcfd
Elba Island, GA	1.200 Bcfd
Lake Charles, LA	2.100 Bcfd
Gulf Gateway, LA	0.500 Bcfd
Northeast Gateway, MA	0.800 Bcfd
Freeport, TX	1.500 Bcfd
Sabine, LA	2.600 Bcfd
Hackberry, LA	1.800 Bcfd
Total	*13.335 Bcfd*

Source: Federal Energy Regulatory Commission

Net U.S. Natural Gas Imports from Canada

January 1- December 31, 2009



Source: *Benter Energy LLC, December 31, 2009.*

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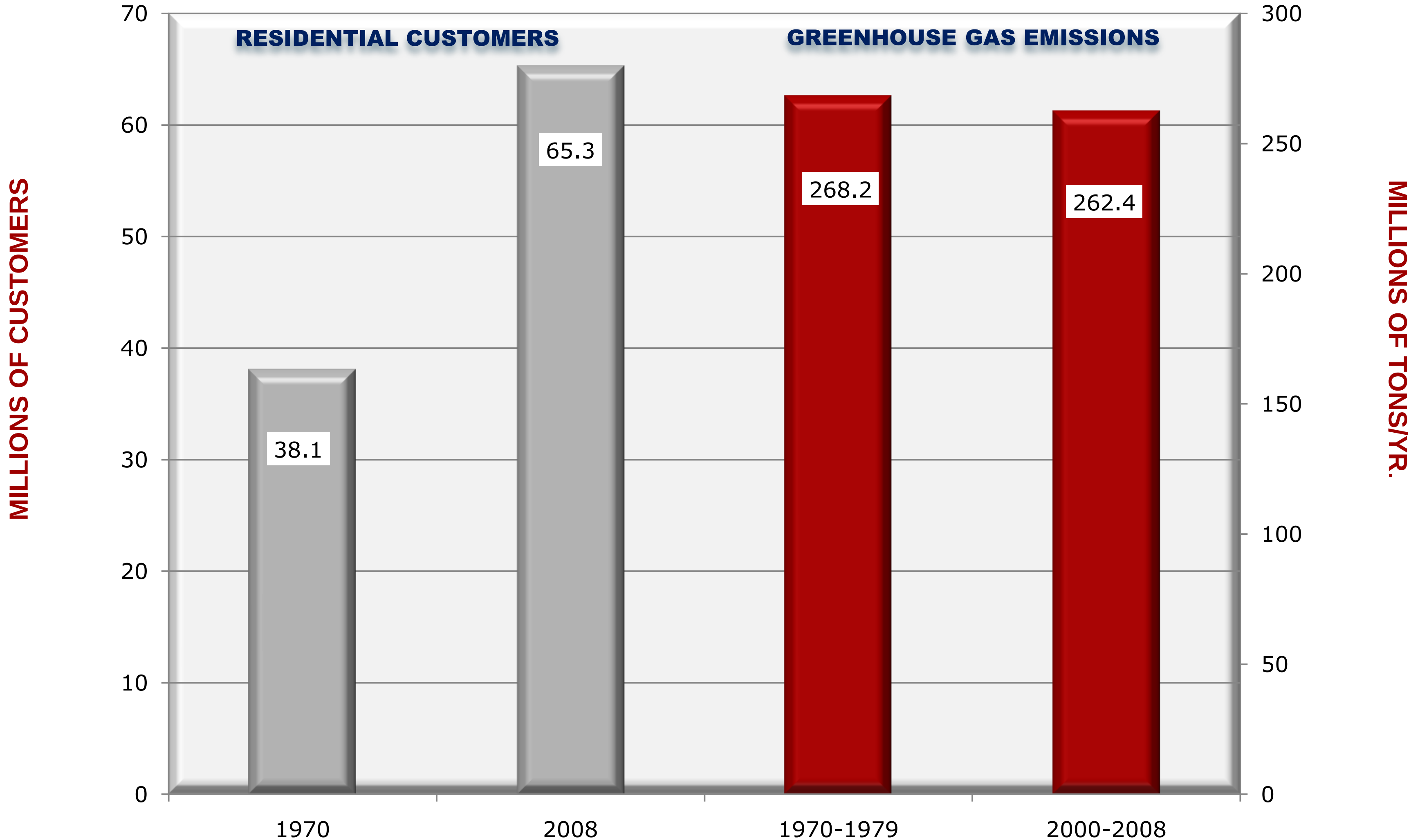
Key Themes

- **Transformative Forces**
  - Shift in Natural Gas Supply Picture
  - Climate Change

- **'Common Sense' Policy Approach**

Residential Natural Gas Customers Are Growing, But Their Greenhouse Gas Emissions Have Declined



Source: *U.S. Environmental Protection Agency, U.S. Energy Information Administration* and *American Gas Association*.

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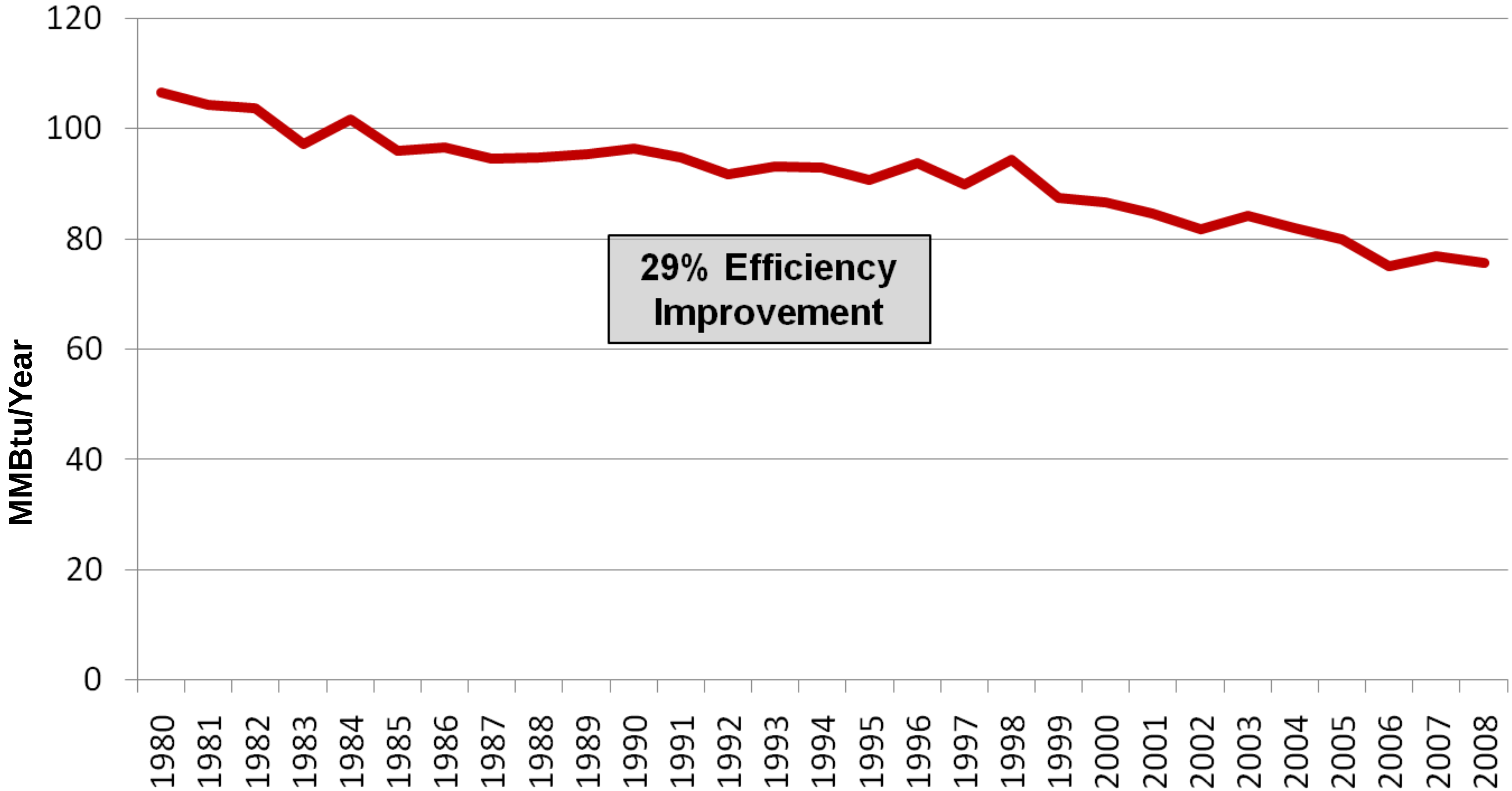
CONSUMPTION PER RESIDENTIAL NATURAL GAS CUSTOMER



Source: *U.S. Energy Information Administration* and *American Gas Association*.

NOTE: Data is "weather normalized" or adjusted to reduce the impact of abnormally warm or cold weather.

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Energy and Climate Change in Washington, DC

- Cap and Trade
  - House Bill – Waxman-Markey
  - Senate Bill – Kerry-Boxer
  - Senate Bill – Kerry- Graham- Lieberman

- Senate Energy Bill
  - Renewable Energy Standards
  - Efficiency Measures
  - Limited Production Enhancements

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Thank You!

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