America's Oil and Natural Gas Industry

Energizing America:
Facts for Addressing Energy Policy

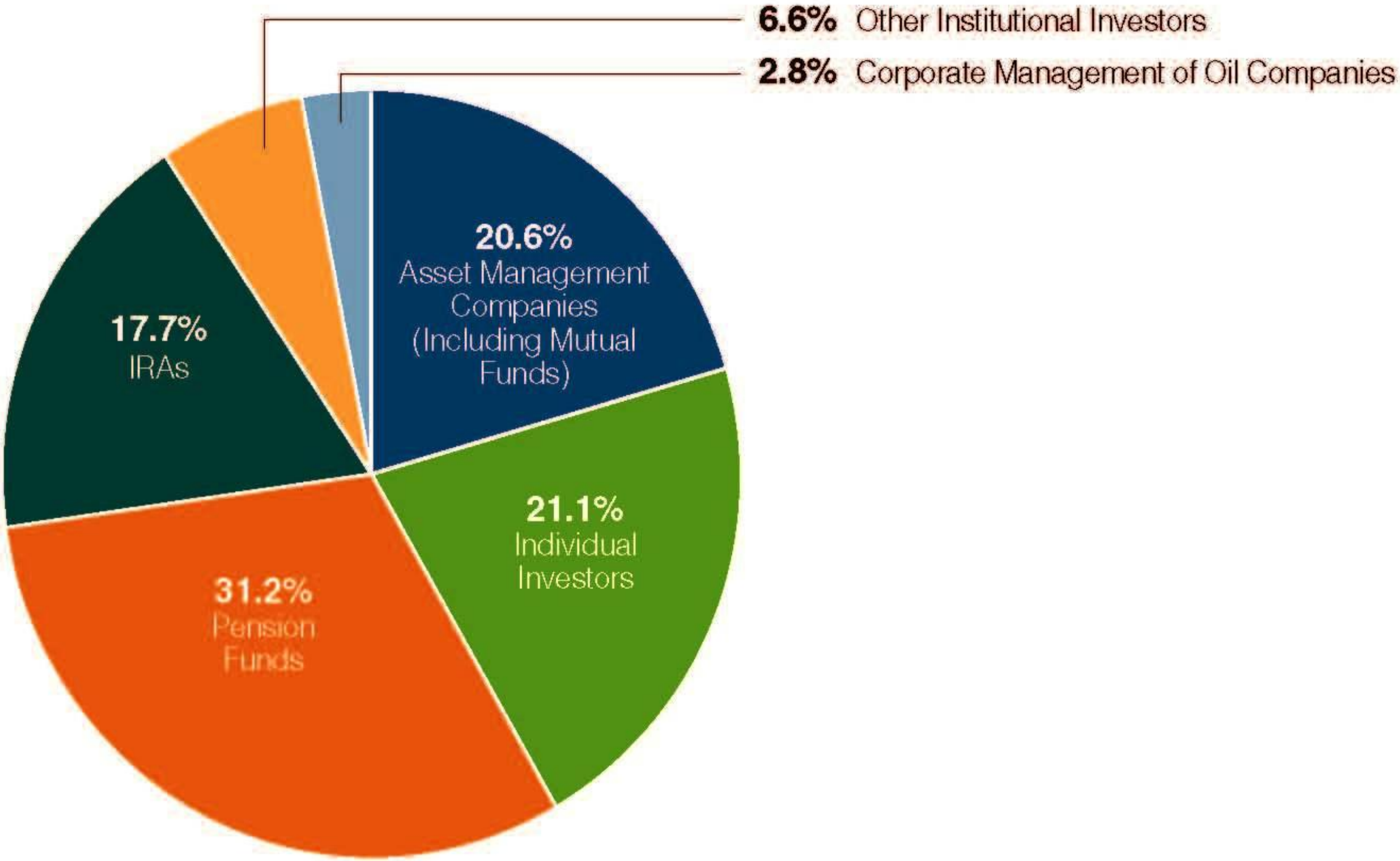
Table E-1. Total Impacts of the Oil and Natural Gas Industry's Operations and Capital Investments on the U.S. Economy, 2009

Item	Amount	Percent of U.S. Total
Operational Impact		
Employment*	7,978,636	4.6%
Labor Income ($ millions)**	$466,869	5.3%
Value Added ($ millions)	$966,324	6.8%
Capital Investment Impact		
Employment*	1,181,930	0.7%
Labor Income ($ millions)**	$66,679	0.8%
Value Added ($ millions)	$115,377	0.8%
Total Impacts		
Employment*	9,160,566	5.3%
Labor Income ($ millions)**	$533,548	6.0%
Value Added ($ millions)	$1,081,701	7.7%

Source: PwC calculations using the IMPLAN modeling system (2009 database).
Details may not add to totals due to rounding.

* Employment is defined as the number of payroll and self-employed jobs, including part-time jobs.
** Labor income is defined as wages and salaries and benefits as well as proprietors' income.

Who Owns "Big Oil?" (Holdings of Oil Stocks, 2011)

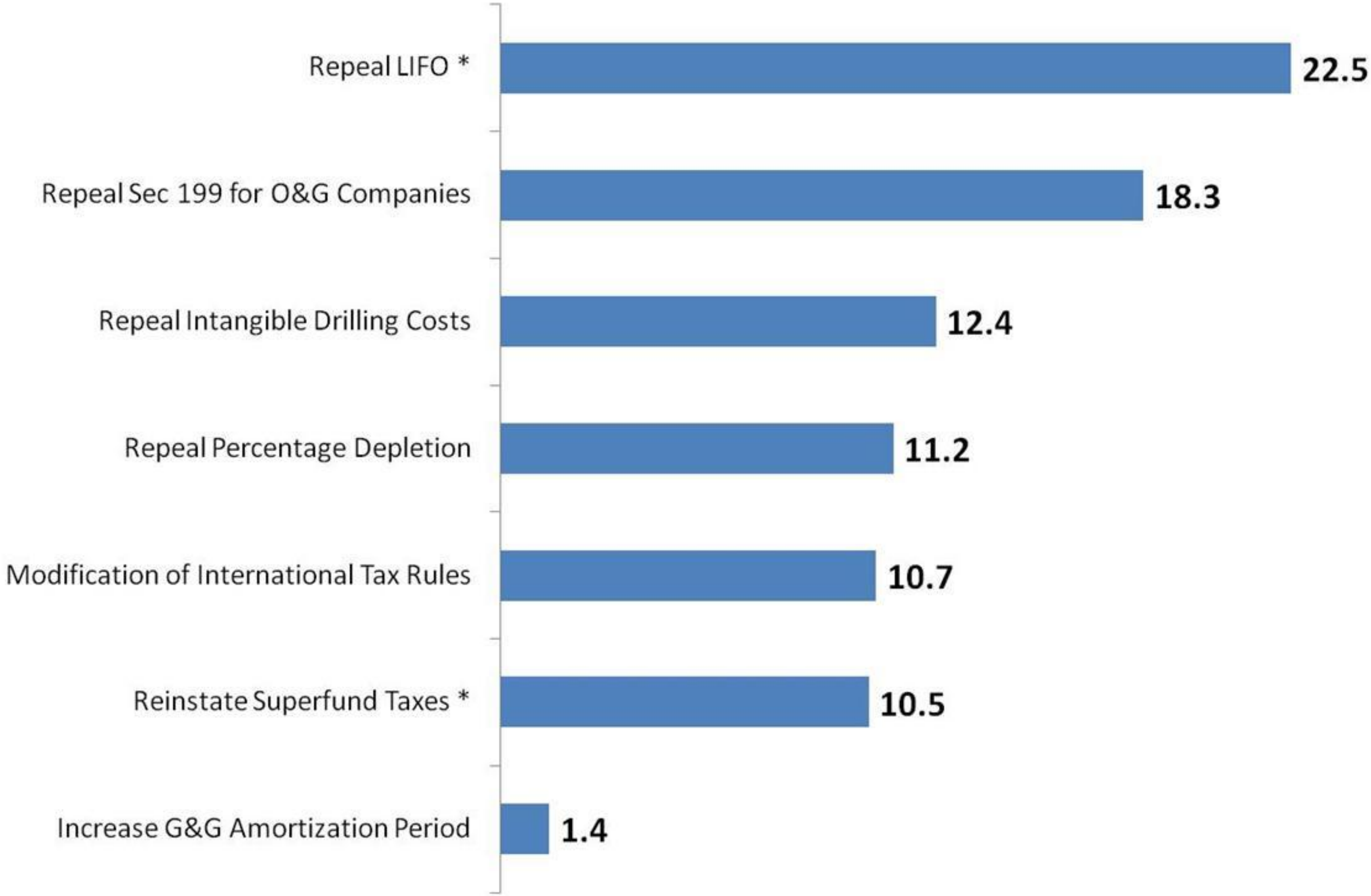


Source: *Who Owns America's Oil and Natural Gas Companies*, SONECON, October 2011.

Taxes – Access - Regulation

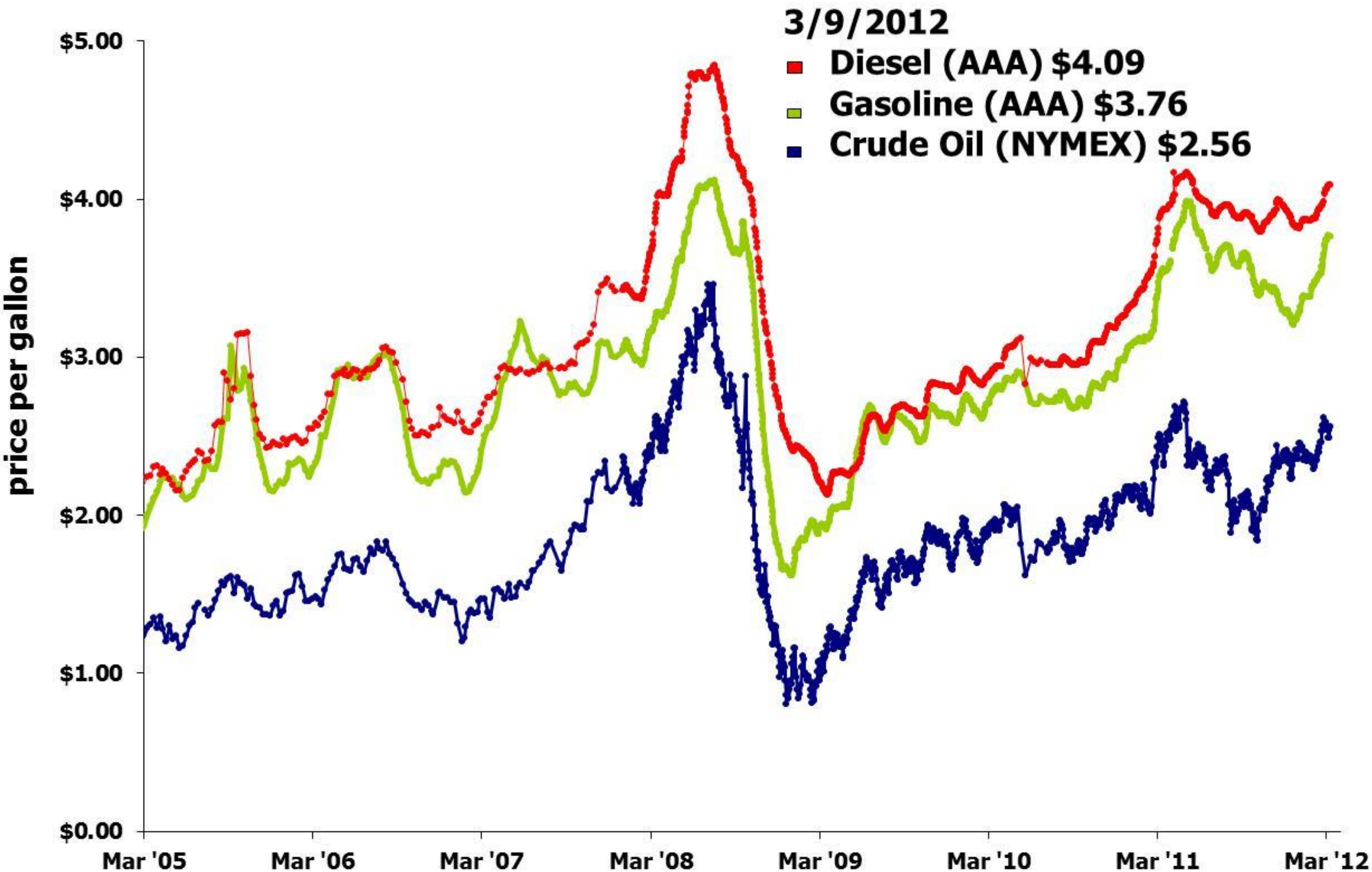
- Gas prices
- Price gouging
- Idle leases
- 98/99 leases
- Investments/Buybacks/Dividends/Debt
- Hydraulic fracturing
- Financial regulations
- SPR
- NOPEC
- Exports
- Oil sands/Keystone
- E15 Other fuels
- ULS Heating Oil

Proposed Tax Increases on the American Oil and Gas Industry in the President's FY 2012 Budget
(Billions of Dollars)

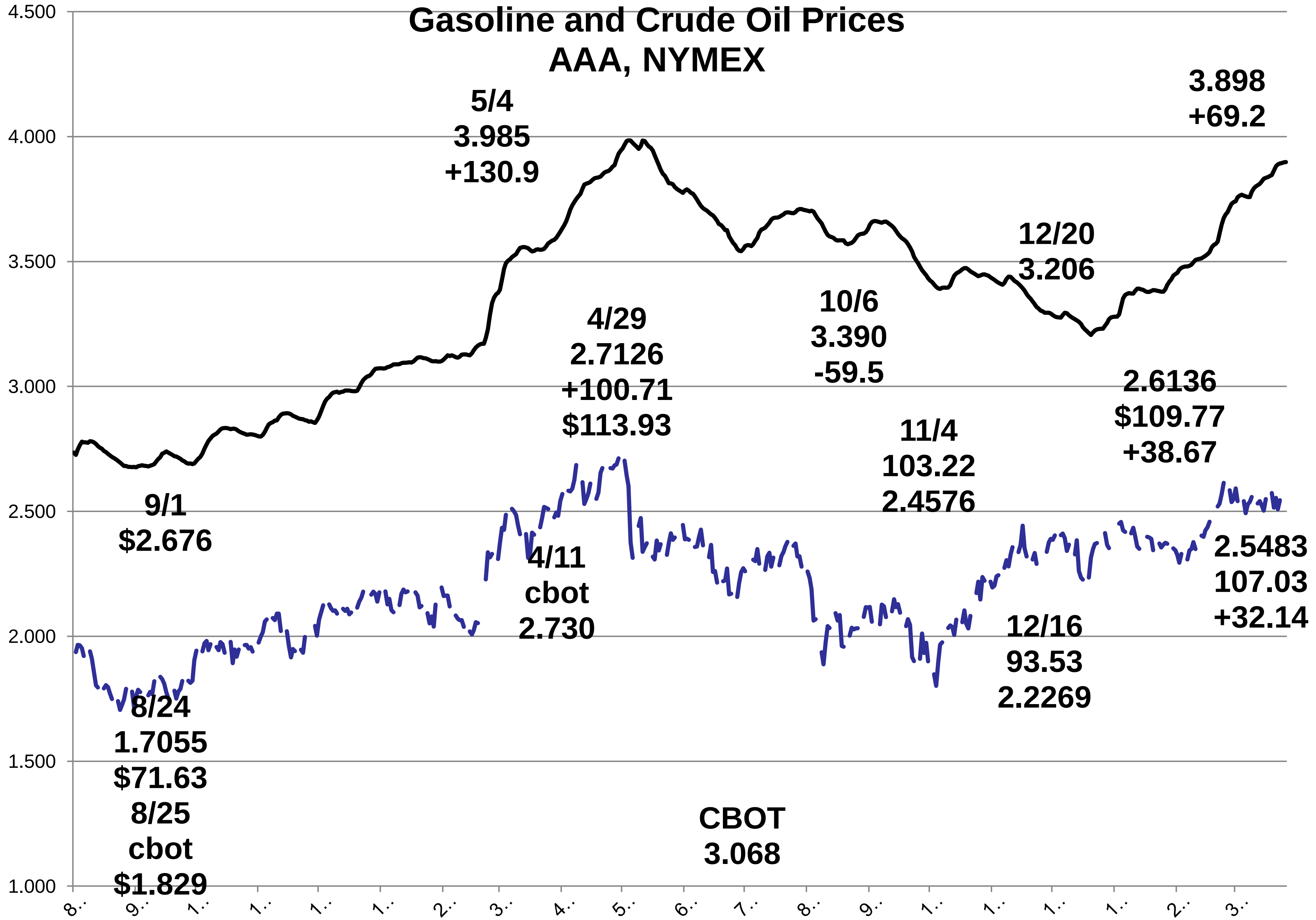


* Approximate industry share of broad industry tax increase
Source: Office of Management and Budget and API Calculations - all amounts encompass a 10 year period

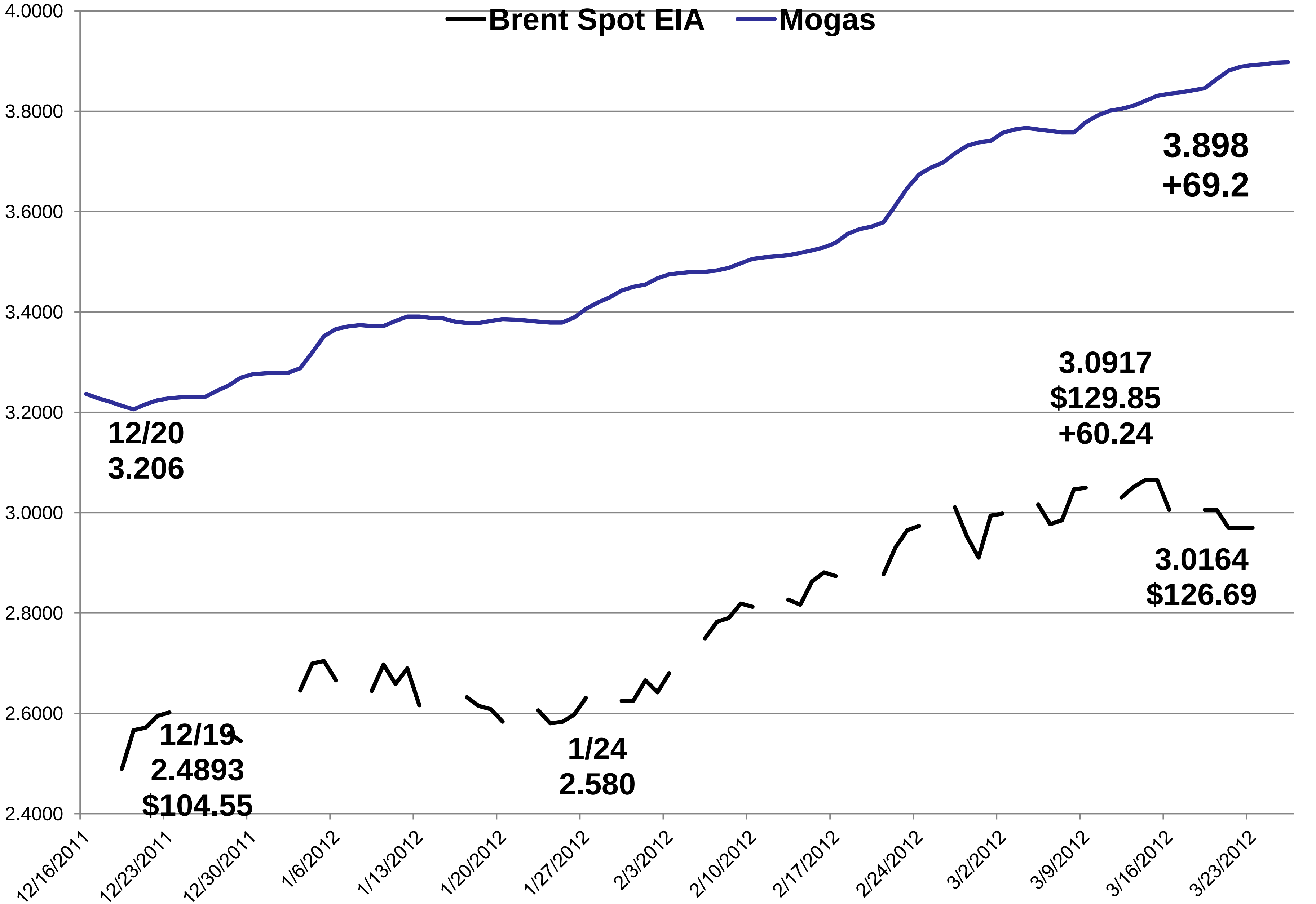
Diesel, Gasoline and Crude Prices



Source: NYMEX (WTI crude oil) and AAA (gasoline and diesel)



Gasoline and Crude Oil Prices
AAA, NYMEX
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
5/4
3.985
+130.9
3.898
+69.2
4/29
2.7126
+100.71
$113.93
12/20
3.206
10/6
3.390
-59.5
2.6136
$109.77
+38.67
11/4
103.22
2.4576
9/1
$2.676
4/11
cbot
2.730
2.5483
107.03
+32.14
12/16
93.53
2.2269
8/24
1.7055
$71.63
8/25
cbot
$1.829
CBOT
3.068



Brent Spot EIA
Mogas
4.0000
3.8000
3.6000
3.4000
3.2000
3.0000
2.8000
2.6000
2.4000
3.898
+69.2
3.0917
$129.85
+60.24
12/20
3.206
3.0164
$126.69
12/19
2.4893
$104.55
1/24
2.580
12/16/2011
12/23/2011
12/30/2011
1/6/2012
1/13/2012
1/20/2012
1/27/2012
2/3/2012
2/10/2012
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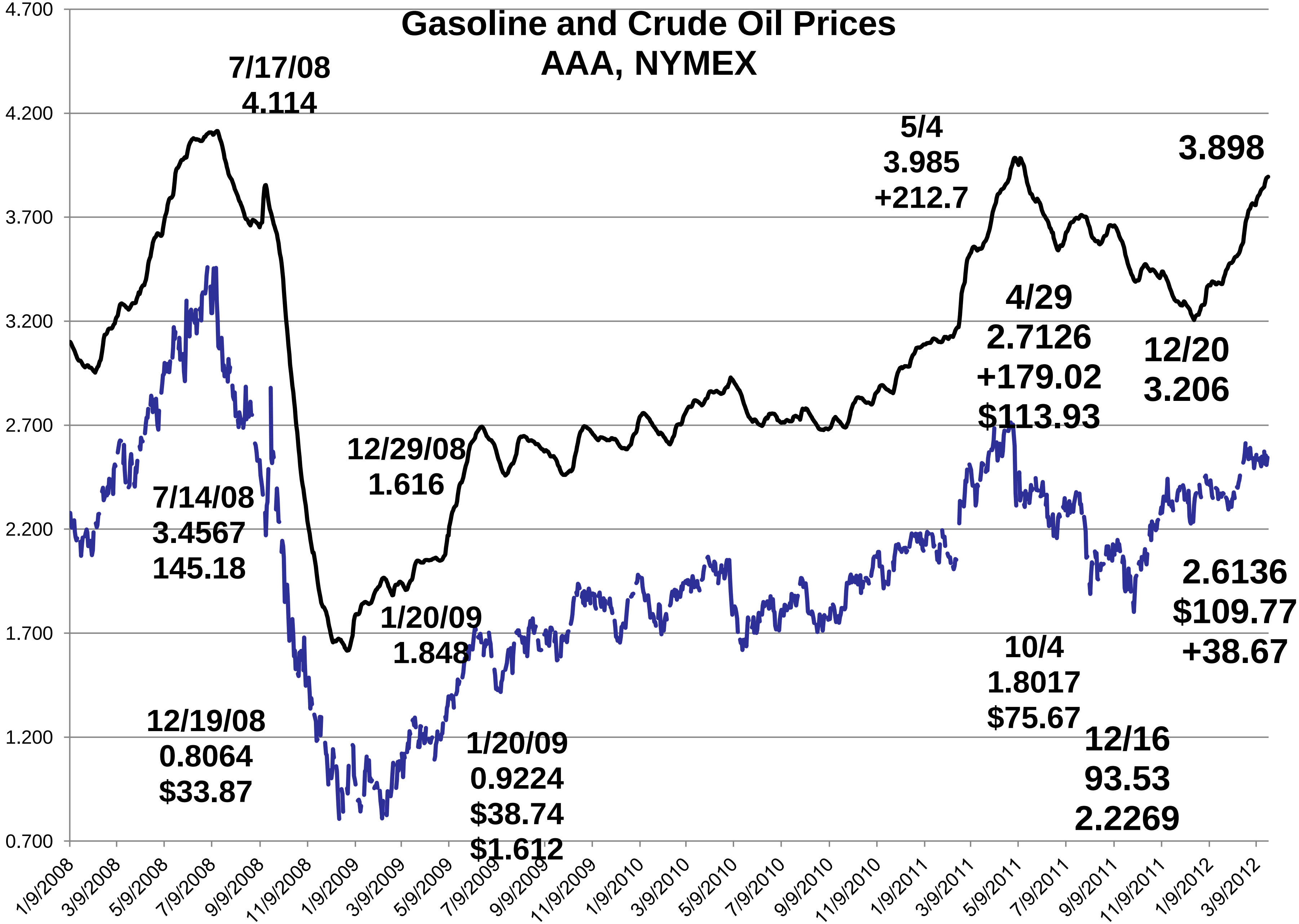
2/24/2012
3/2/2012
3/9/2012
3/16/2012
3/23/2012


Gasoline and Crude Oil Prices
AAA, NYMEX
7/17/08
4.114
5/4
3.985
+212.7
3.898
4/29
2.7126
+179.02
$113.93
12/20
3.206
12/29/08
1.616
7/14/08
3.4567
145.18
1/20/09
1.848
2.6136
$109.77
+38.67
10/4
1.8017
$75.67
12/19/08
0.8064
$33.87
1/20/09
0.9224
$38.74
$1.612
12/16
93.53
2.2269
4.700
4.200
3.700
3.200
2.700
2.200
1.700
1.200
0.700
1/9/2008
3/9/2008
5/9/2008
7/9/2008
9/9/2008
11/9/2008
1/9/2009
3/9/2009
5/9/2009
7/9/2009
9/9/2009
11/9/2009
1/9/2010
3/9/2010
5/9/2010
7/9/2010
9/9/2010
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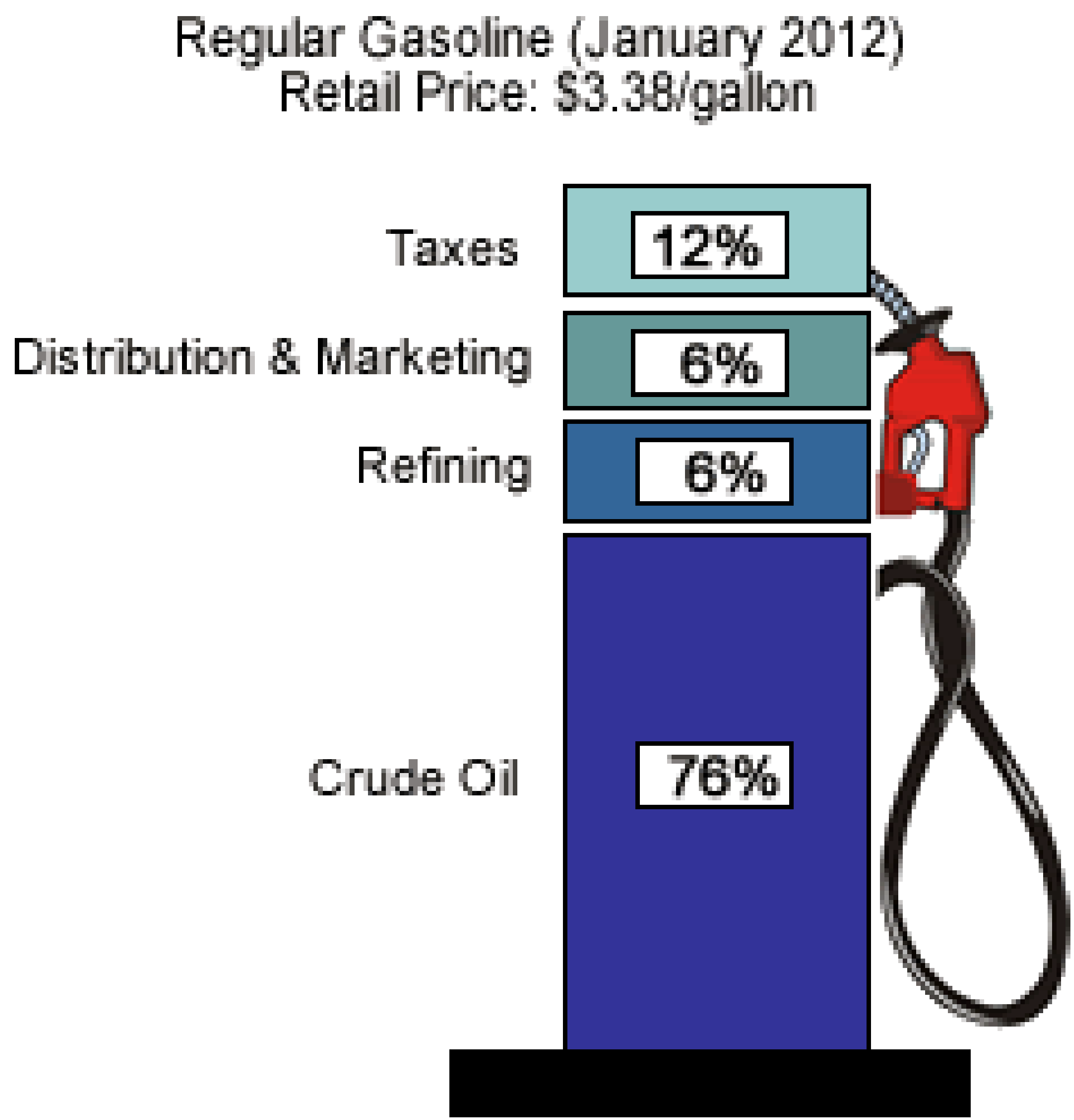
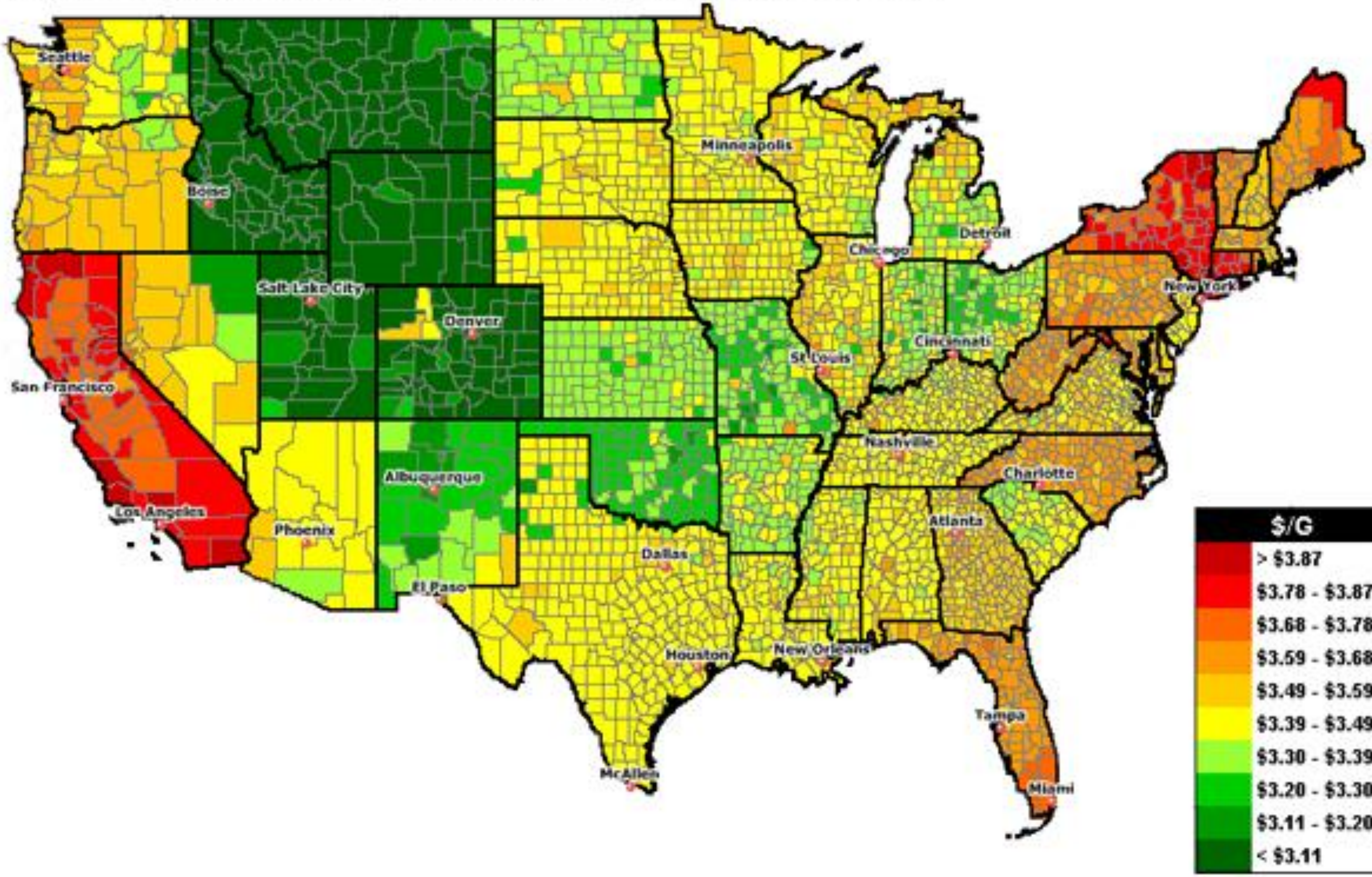
1/9/2012
3/9/2012

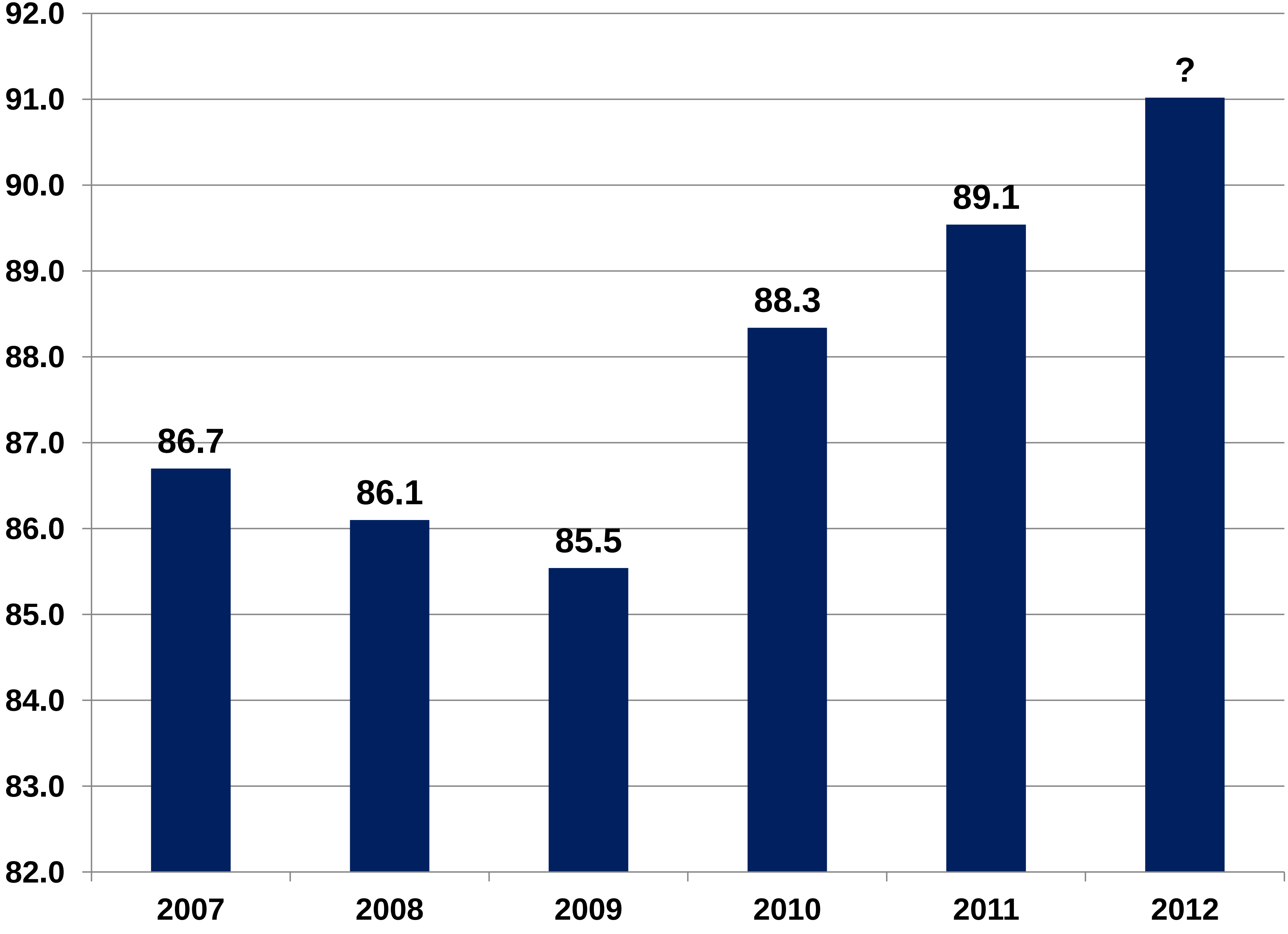

Regular Gasoline (January 2012)
Retail Price: $3.38/gallon
Taxes
12%
Distribution & Marketing
6%
Refining
6%
Crude Oil
76%

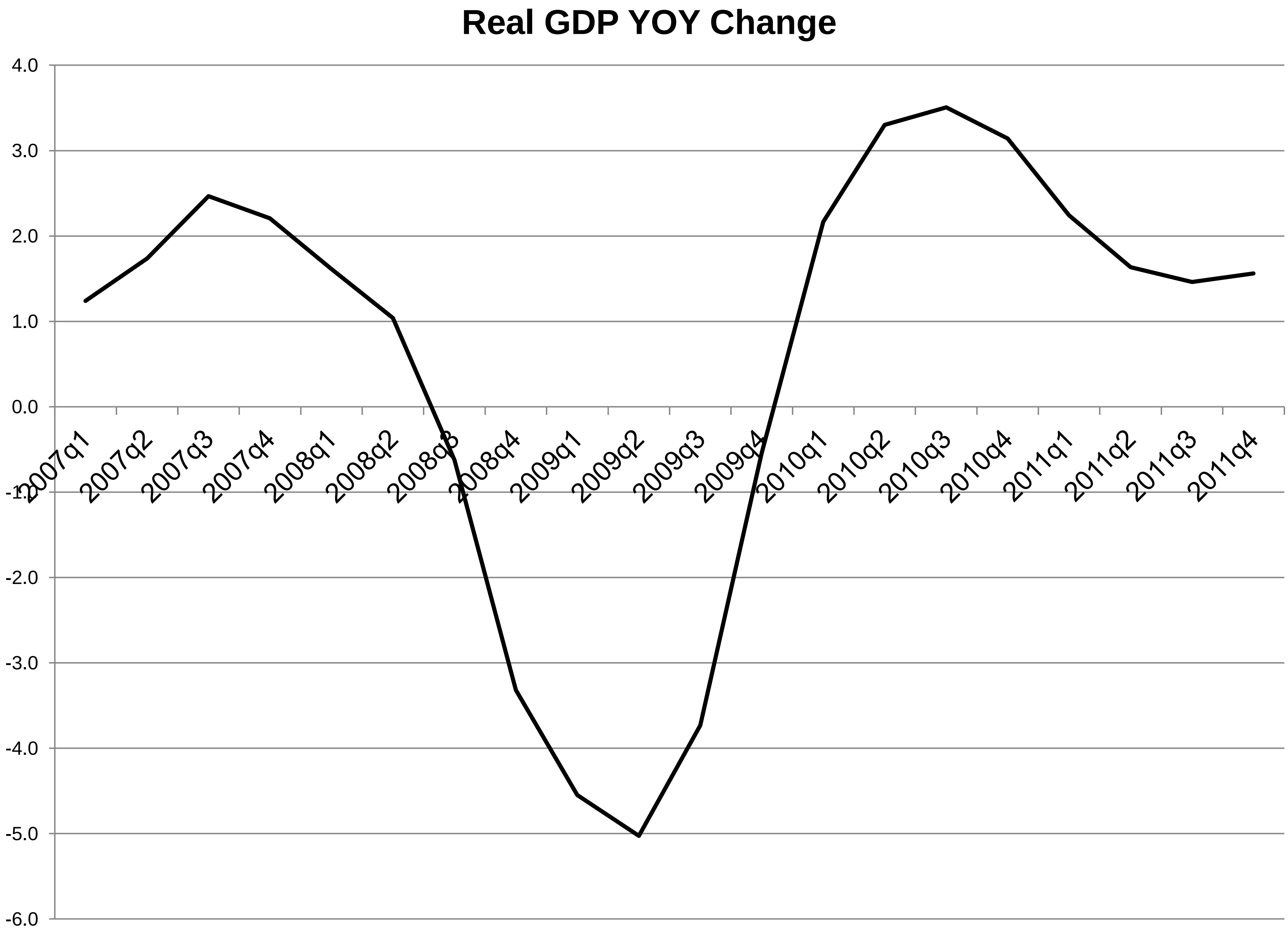
Oil prices relate to many uncertain factors

U.S. national retail gasoline price, by county, February 13, 2012

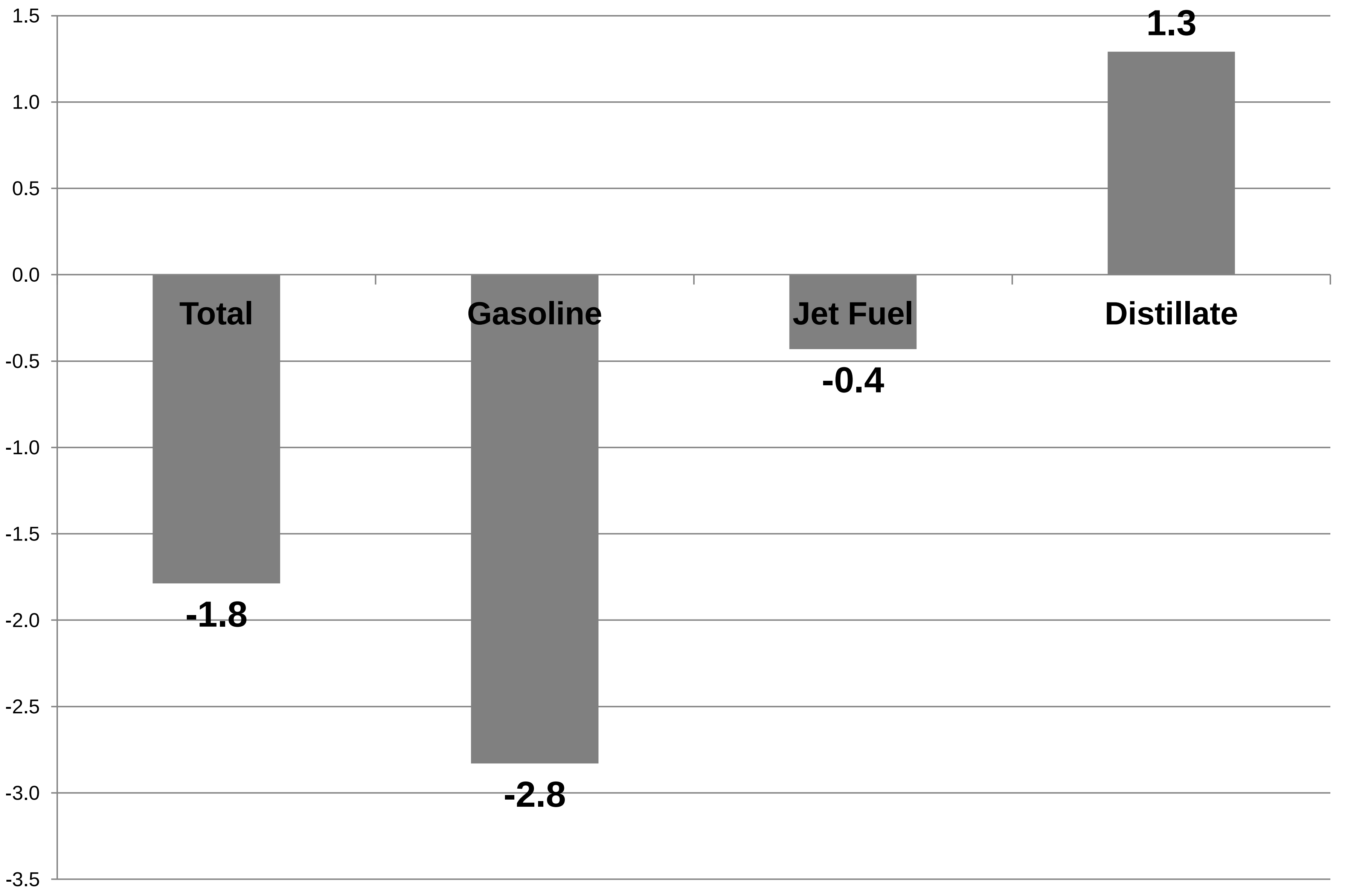


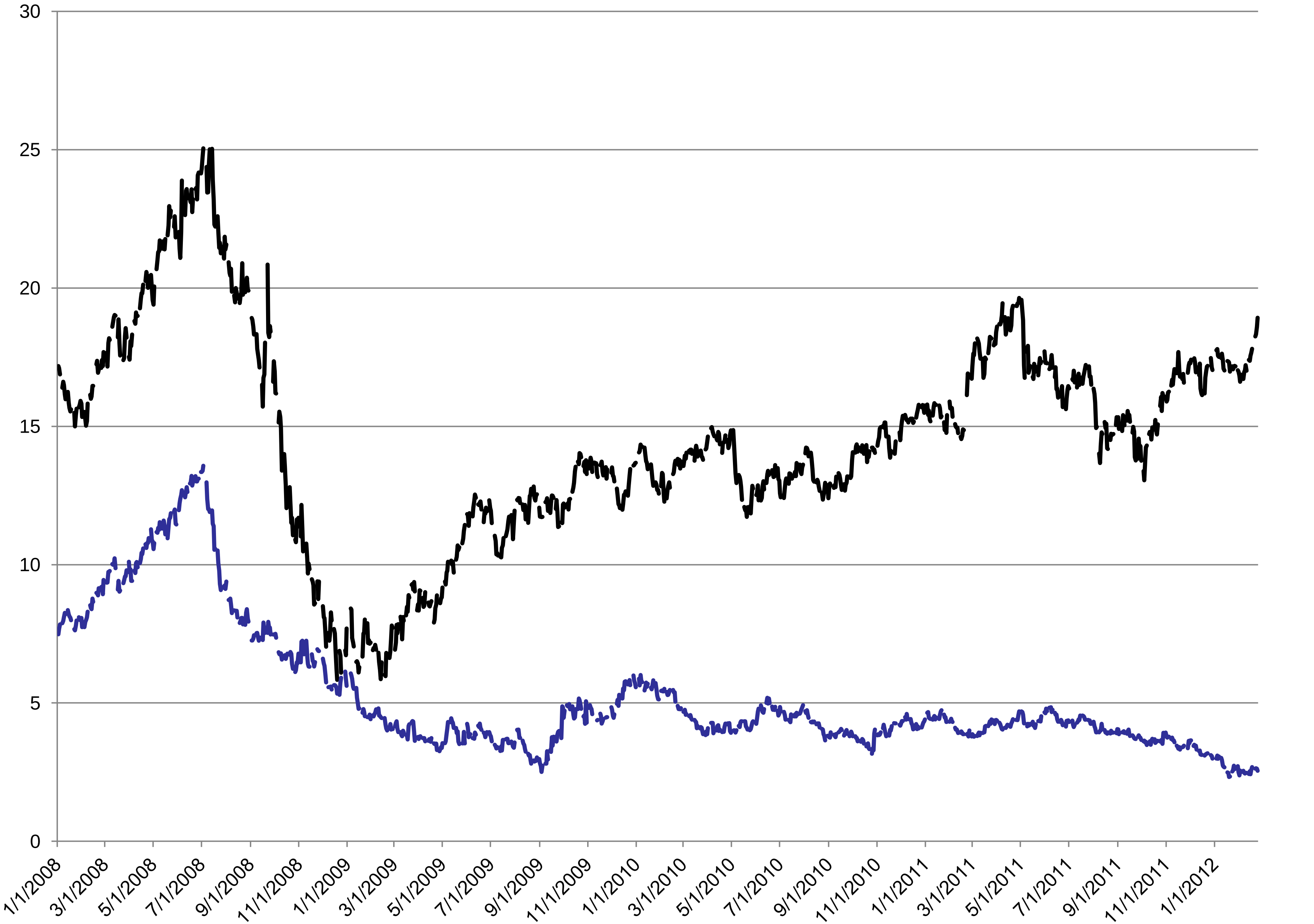
World Oil Demand - IEA




Real GDP YOY Change
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
-6.0
2007q1
2007q2
2007q3
2007q4
2008q1
2008q2
2008q3
2008q4
2009q1
2009q2
2009q3
2009q4
2010q1
2010q2
2010q3
2010q4
2011q1
2011q2
2011q3
2011q4

US Petroleum 2011 % change

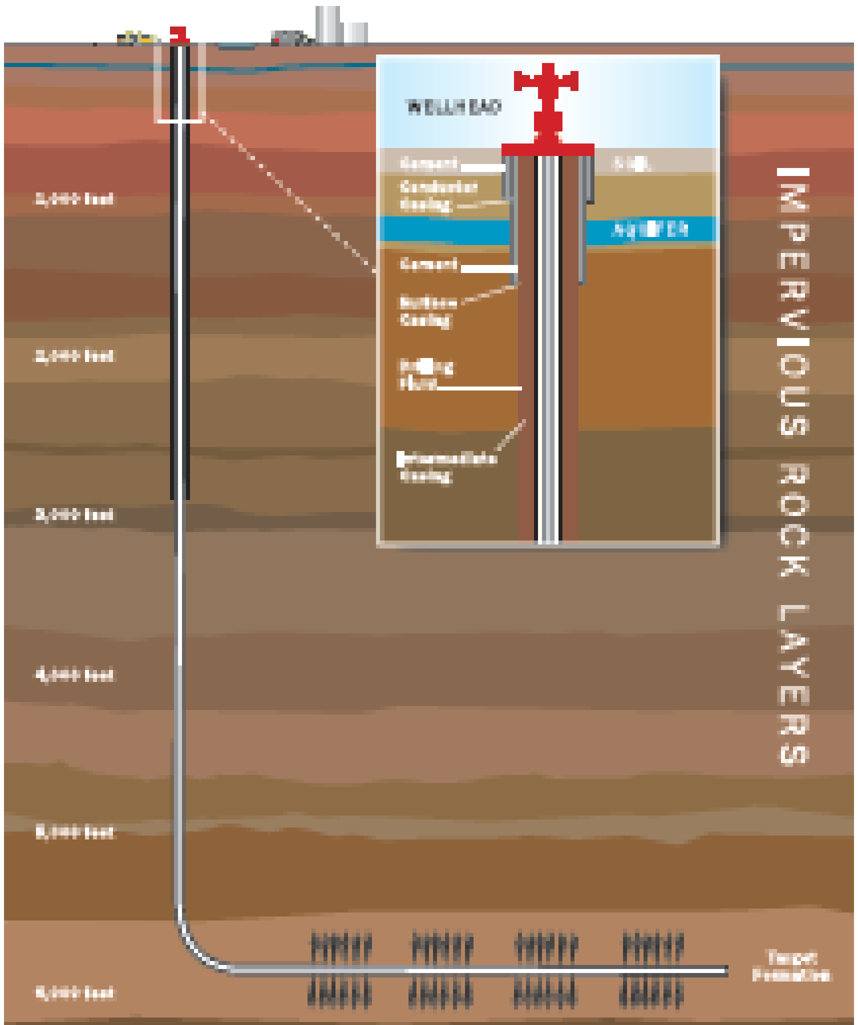




30
25
20
15
10
5
0
1/1/2008
3/1/2008
5/1/2008
7/1/2008
9/1/2008
11/1/2008
1/1/2009
3/1/2009
5/1/2009
7/1/2009
9/1/2009
11/1/2009
1/1/2010
3/1/2010
5/1/2010
7/1/2010
9/1/2010
11/1/2010
1/1/2011
3/1/2011
5/1/2011
7/1/2011
9/1/2011
11/1/2011
1/1/2012

Source: U.S. Energy Information Administration based on data from various published studies. Canada and Mexico plays from ARI.
Updated: May 9, 2011

Proper well construction provides groundwater protection.



Example of hydraulic fracturing for shale development

Typically, steel pipe known as surface casing is cemented into place at the uppermost portion of a well for the explicit purpose of protecting the groundwater. The depth of the surface casing is generally determined based on groundwater protection, among other factors. As the well is drilled deeper, additional casing is installed to isolate the formation(s) from which oil or natural gas is to be produced, which further protects groundwater from the producing formations in the well.

Casing and cementing are critical parts of the well construction that not only protect any water zones but are also important to successful oil or natural gas production from hydrocarbon bearing zones.

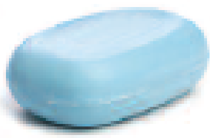
Industry well design practices protect sources of drinking water from the other geologic zones of an oil and natural gas well with multiple layers of impervious rock.[4]

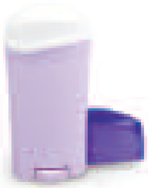
4. Industry has developed equipment specific and operating practices for [illegible] drilling and production [illegible] API 5 Series Publications: Tubular Goods; API 7 Series Publications: Drilling Equipment; API 10 Series Publications: Oil Well Cements; API 11 Series Publications: Production Equipment; API 13 Series Publications: Drilling Fluid Materials.

Typical Chemical Additives Used in Frac Water

Compound	Purpose	Common application
Acids	Helps dissolve minerals and initiate fissure in rock (pre-fracture)	Swimming pool cleaner
Sodium Chloride	Allows a delayed breakdown of the gel polymer chains	Table salt
Polyacrylamide	Minimizes the friction between fluid and pipe	Water treatment, soil conditioner
Ethylene Glycol	Prevents scale deposits in the pipe	Automotive anti-freeze, deicing agent, household cleaners
Borate Salts	Maintains fluid viscosity as temperature increases	Laundry detergent, hand soap, cosmetics
Sodium/Potassium Carbonate	Maintains effectiveness of other components, such as crosslinkers	Washing soda, detergent, soap, water softener, glass, ceramics
Glutaraldehyde	Eliminates bacteria in the water	Disinfectant, sterilization of medical and dental equipment
Guar Gum	Thickens the water to suspend the sand	Thickener in cosmetics, baked goods, ice cream, toothpaste, sauces
Citric Acid	Prevents precipitation of metal oxides	Food additive; food and beverages; lemon juice
Isopropanol	Used to increase the viscosity of the fracture fluid	Glass cleaner, antiperspirant, hair coloring







Source: DOE, GWPC: Modern Gas Shale Development in the United States: A Primer (2009).

Hydraulic Fracturing is Well Regulated

Hydraulic fracturing is **well regulated** by multiple federal, state and local authorities addressing environmental protection during natural gas operations, covering such items as well permitting, well materials and construction, **safe disposition of** used hydraulic fracturing **fluids, water testing, and chemical recordkeeping and reporting.** These rules and industry practices **effectively protect underground sources of drinking water.**

Overview of Industry Guidance/Best Practices on Hydraulic Fracturing (HF)

HF1 – *Hydraulic Fracturing Operations – Well Construction and Integrity Guidelines*, 1st Edition, October 2009, (API)

- Highlights industry practices for well construction and integrity for wells that will be hydraulically fractured.
- The guidance identifies actions to protect shallow groundwater aquifers, while also enabling economically viable development of oil and natural gas resources.

HF2 – *Water Management Associated with Hydraulic Fracturing*, 1st Edition, June 2010, (API)

- Identifies best practices used to minimize environmental and societal impacts associated with the acquisition, use, management, treatment, and disposal of water and other fluids associated with the process of hydraulic fracturing.
- Focuses primarily on issues associated with hydraulic fracturing pursued in deep shale gas development, but also describes the important distinctions related to hydraulic fracturing in other applications.

HF3 – *Practices for Mitigating Surface Impacts Associated with Hydraulic Fracturing*, 1st Edition, February 2011, (API)

- Identifies the best practices for minimizing surface environmental impacts associated with hydraulic fracturing operations.
- Focused on protecting surface water, soils, wildlife, other surface ecosystems, and nearby communities.
- Includes API's policy on chemical disclosure:
  - API supports transparency regarding the disclosure of the chemical ingredients;
  - States are the proper authority to determine reporting requirements and formatting of reporting and public disclosure;
  - Proprietary information should be protected; and
  - Hydraulic fracturing is effectively regulated by numerous federal, state and local requirements. Hydraulic fracturing should not be placed exclusively under the purview of the Safe Drinking Water Act (SDWA) or any other federal statute.

Overview of Industry Guidance/Best Practices on Hydraulic Fracturing (HF)

Std 65 Part 2 – *Isolating Potential Flow Zones During Well Construction,* 2nd Edition, December 2010, (API)

- Identifies best practices used to minimize environmental and societal impacts associated with the acquisition, use, management, treatment, and disposal of water and other fluids associated with the process of hydraulic fracturing.
- Focuses primarily on issues associated with hydraulic fracturing pursued in deep shale gas development, but also describes the important distinctions related to hydraulic fracturing in other applications.

RP 51R – *Environmental Protection for Onshore Oil and Gas Production Operations and Leases,* 1st Edition, July 2009, (API)

- Provides environmentally sound practices for domestic onshore oil and gas production operations, including fracturing. Applies to all production facilities, including produced water handling facilities. Operational coverage begins with the design and construction of access roads and well locations, and includes reclamation, abandonment, and restoration operations.
- **Annex A provides guidance for a company to consider as a "Good Neighbor."**

Agency	Issue	Status
EPA	2010 Congressionally-directed study on the Relationship Between Hydraulic Fracturing and Drinking Water.	Final Study Plan released on November 7, 2011 after industry sent a letter to Adminstrator Jackson questioning the transparency and scientific validity of the study approach. First report due to Congress by December 31, 2012.
	Oil and Natural Gas New Source Performance Standards (NSPS) and National Emisions Standards for Hazardous Air Pollutants Proposed Rule.	Comment period closed on November 30, 2011. Industry groups argue that EPA's proposed drilling air rules are too broad, suggest they may overstep Clean Air Act authority by targeting low-emitting equipment, and request that EPA postpone implementation (April 2012) due to the technical difficulty in meeting the many requirements
	2010 Effluent Limitations Guidelines (ELG) Program Plan under the CWA Includes development of pretreatment standards for produced water and flowback from shale gas operations.	API Comments were submitted on November 22, 2011 and final regulations are slated for 2014.
	Permitting Guidance for oil and gas hydraulic fracturing activites using diesel fuels.	Draft guidance was released to stakeholders in the summer of 2011. Revised proposal was sent to OMB on December 14, 2011.
	NRDC Petition for Review of EPA's 1988 Regulatory Determination for E&P Wastes.	API submitted a response letter to EPA on April 21, 2011 arguing that EPA's original 1988 findings remain valid today. The Agency has taken no formal action on the petition.
	Earthjustice Petition on Regulating Hyraulic Chemicals under TSCA Section 21.	EPA denied the petitioners TSCA Section 4 request for issuance of a test rule. On November 23, 2011 EPA announced it would grant a portion of the remainder of the petition by launching a stakeholder and public engagement process to seek input on the design and scope of TSCA reporting requirements.
DOE	In his "Blueprint for a Secure Energy Future" President Obama directed the DOE Secretary of Energy Advisory Board (SEAB) Natural Gas Subcommittee to make recommendations to improve the safety and environmental performance of natural gas hydraulic fracturing from shale gas formations.	The Subcommitee issued its first 90-day report on August 18, 2011 including recommendations on what federal agencies, state agencies, and industry should be doing to ensure safer operating practices. A second 90-day report was released on November 18, 2011 and included a scorecard on progress made to date.
DOI	BLM Is developing a rule or guidance on hydraulic fracturing with the focus on disclosure of chemicals used in the fracturing process, wellbore integrity and water use and disposal of flow back water.	Originally BLM seemed to signal that they'd release something in 2011, which now appears to be the first quarter of 2012.

Agency	Issue	Status
USDA	George Washington National Forest- included in its draft Forest Plan a ban on horizontal drilling.	The comment period closed on October 17th and a final forest plan is expected in March or April.
	Wayne National Forest- 3,000 acres of public lands in the Wayne NF were scheduled to be auctioned at a federal oil and gas lease sale in early December 2011." The sale was cancelled and instead, the USFS is conducting a Review of New Information (RONI) to review the best scientific info available with regard to surface effects of deep horizontal drilling and lateral hydraulic fracturing and determine if the 2006 Forest Plan needs to be amended or revised.	A study has not been completed.
DOD	Delaware River Basin Commission (whose federal representative is the US Army Corps of Engineers)- issued revised draft natural gas drilling regulations in November. New York State and several NGOs have filed lawsuits against the Army Corps and the DRBC to prepare an EIS before final regulations are approved and API has filed motions to intervene in those suits.	Multiple meetings to vote on final regulation have been postponed and no new meeting date has been set. Oral argument in the consolidated suites has been scheduled for April 25, 2012.
	Susquehanna River Basin Commission- issued proposed natural gas drilling regulations in June.	The comment period closed November 10 and final regulations are expected Q1 or Q2 2012. The SRBC has also filed an amicus brief in the DRBC lawsuits described above.
DOT	Pipeline and Hazardous Materials Safety Administration issued an ANPR on August 25 regarding new rules for gas pipelines, including whether new safety regulations for rural gas gathering lines would be required, which would impact development of the Marcellus Shale.	The comment period closes January 20, 2012.

Agency	Issue	Status
SEC	In August, the SEC began requesting informatin from publicly-traded natural gas companies regarding HF chemicals and efforts to minimize water use and other environmental impacts. In a related development in December, Institutional Shareholder Services, an influential proxy advisory firm, finalized a new policy supporting shareholder requests for greater disclosure related to HF.	Unkown, but the SEC may eventually require gas companies to divulge HF related risks in public filings with the Commission.
HHS	Centers for Disease Control and Prevention (CDC) is calling for a wider study of the potential public health effects of natural gas development.	No specific timeline, they are looking to see more research.

Taxes – Access - Regulation

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- Idle leases
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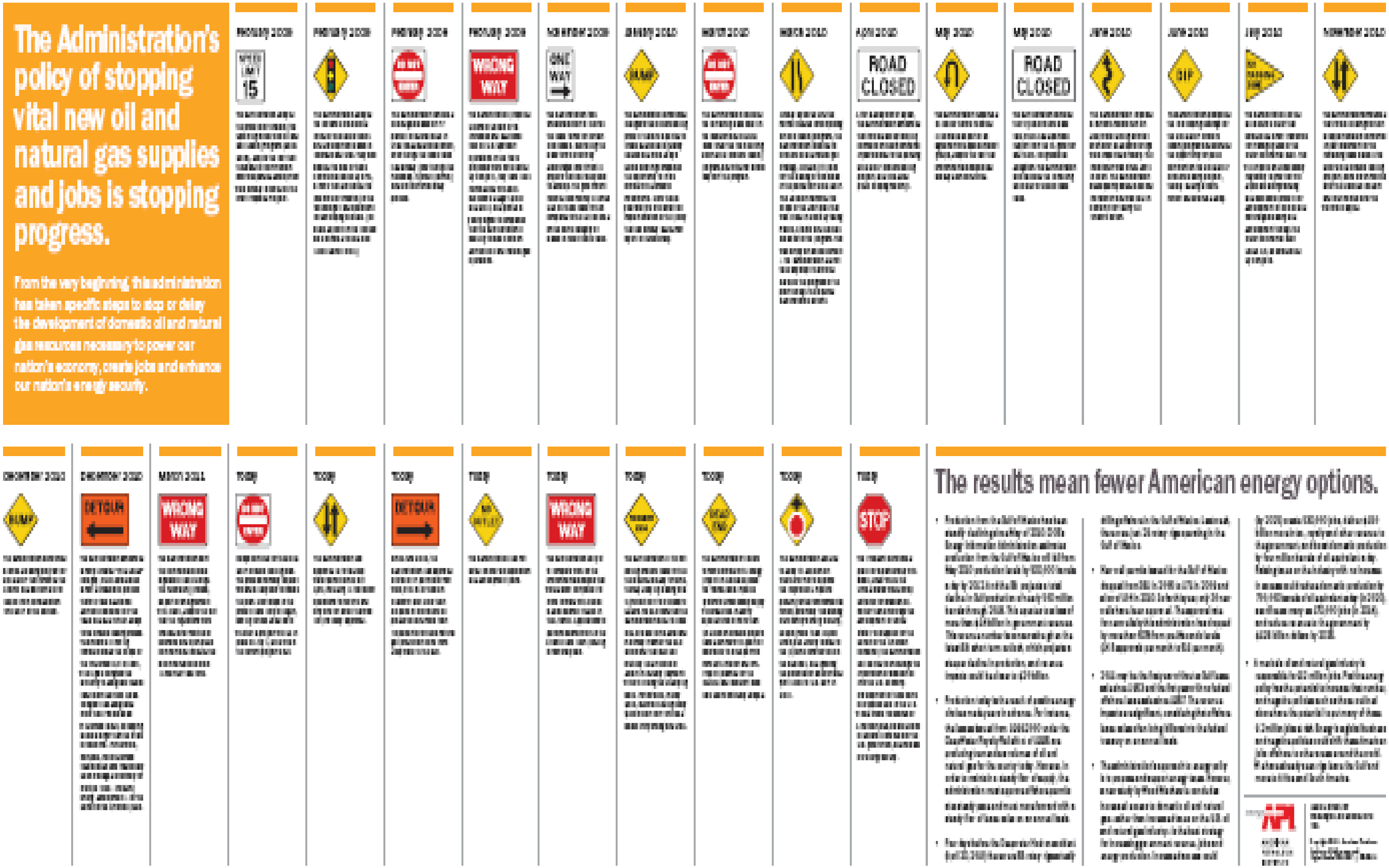
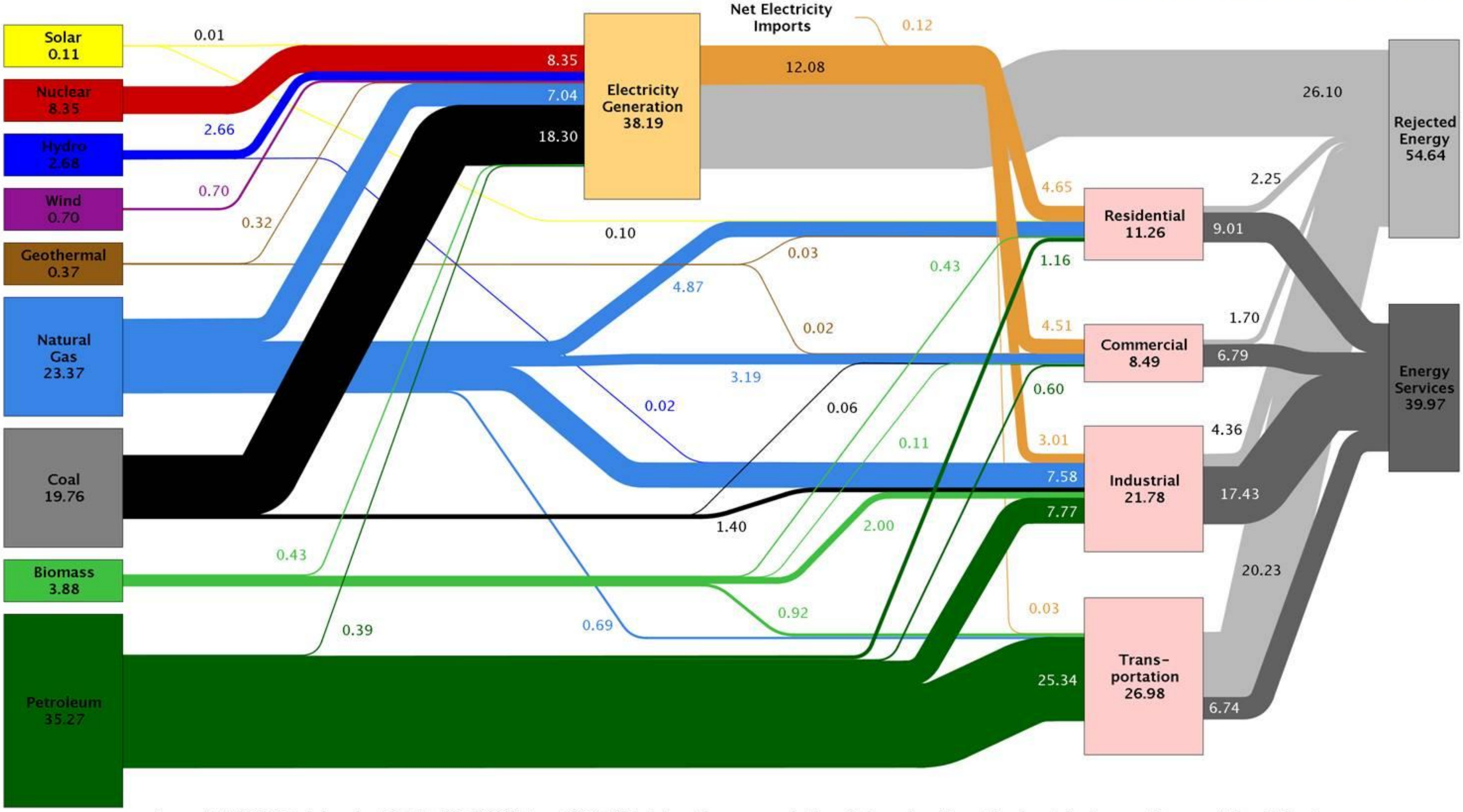
Administration actions

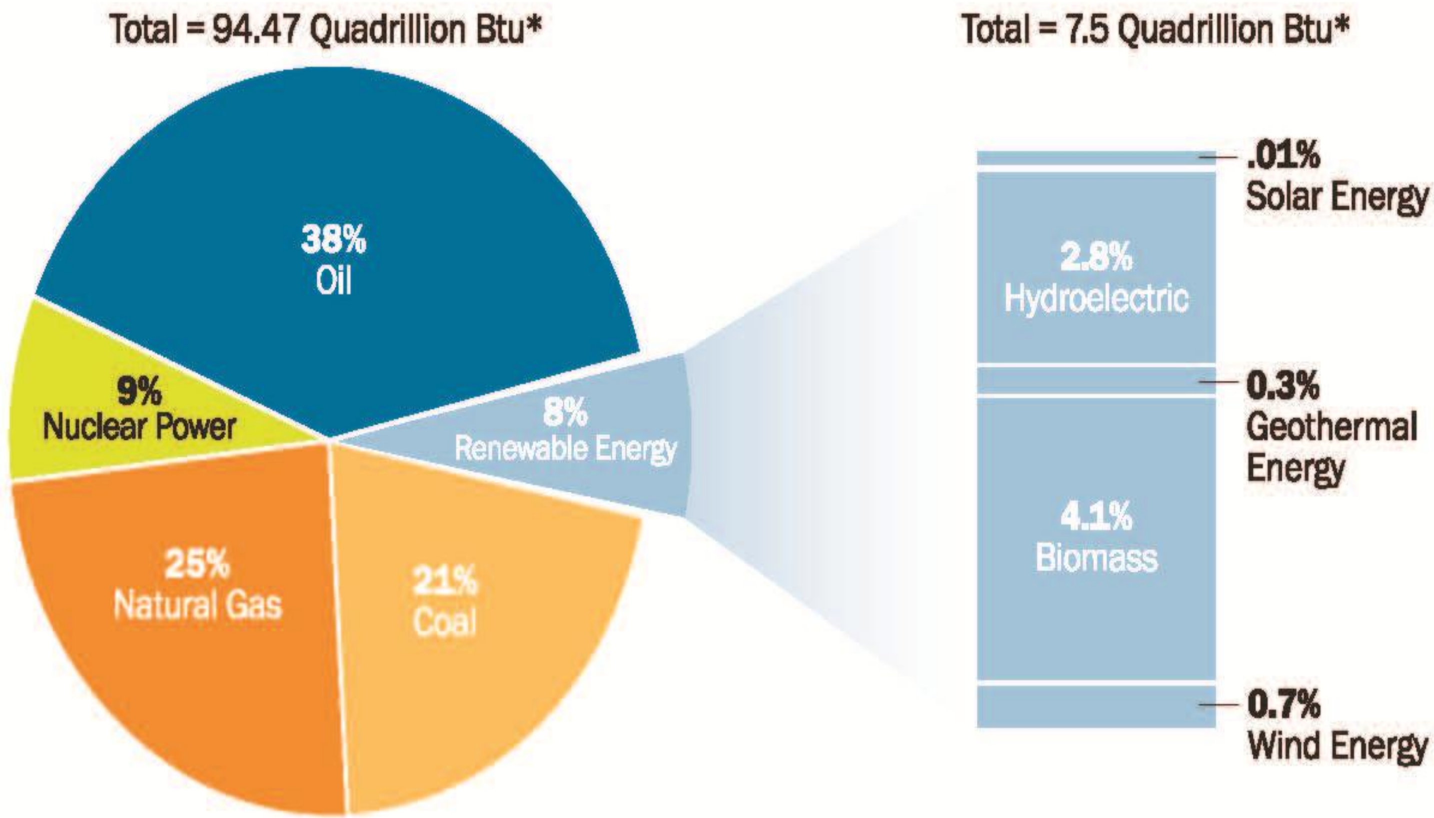


Estimated U.S. Energy Use in 2009: ~94.6 Quads

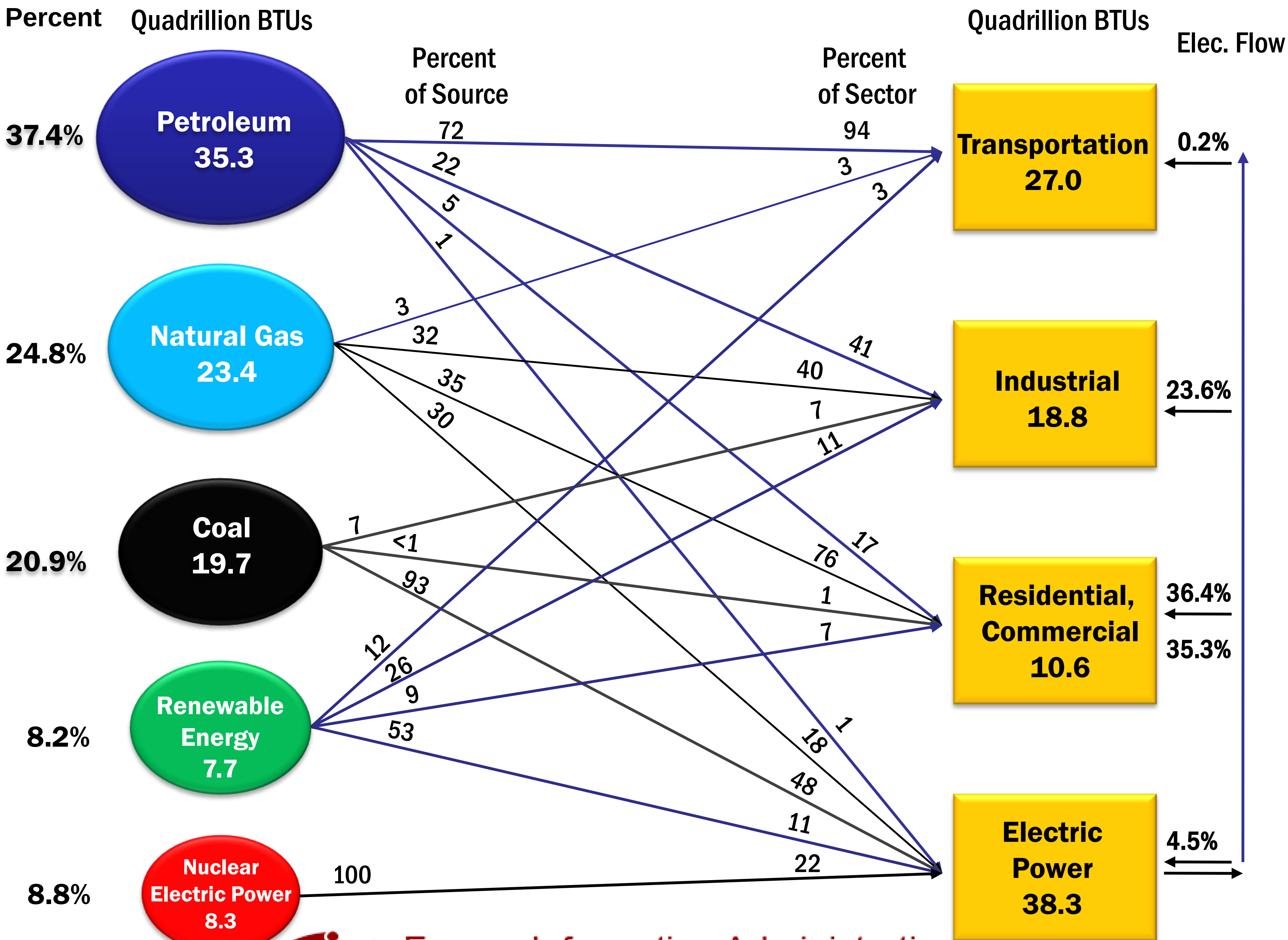


Source: LLNL 2010. Data is based on DOE/EIA-0384(2009), August 2010. If this information or a reproduction of it is used, credit must be given to the Lawrence Livermore National Laboratory and the Department of Energy, under whose auspices the work was performed. Distributed electricity represents only retail electricity sales and does not include self-generation. EIA reports flows for non-thermal resources (i.e., hydro, wind and solar) in BTU-equivalent values by assuming a typical fossil fuel plant "heat rate." The efficiency of electricity production is calculated as the total retail electricity delivered divided by the primary energy input into electricity generation. End use efficiency is estimated as 80% for the residential, commercial and industrial sectors, and as 25% for the transportation sector. Totals may not equal sum of components due to independent rounding. LLNL-MI-410527

The Role of Renewable Energy Consumption in the Nation's Energy Supply, 2009

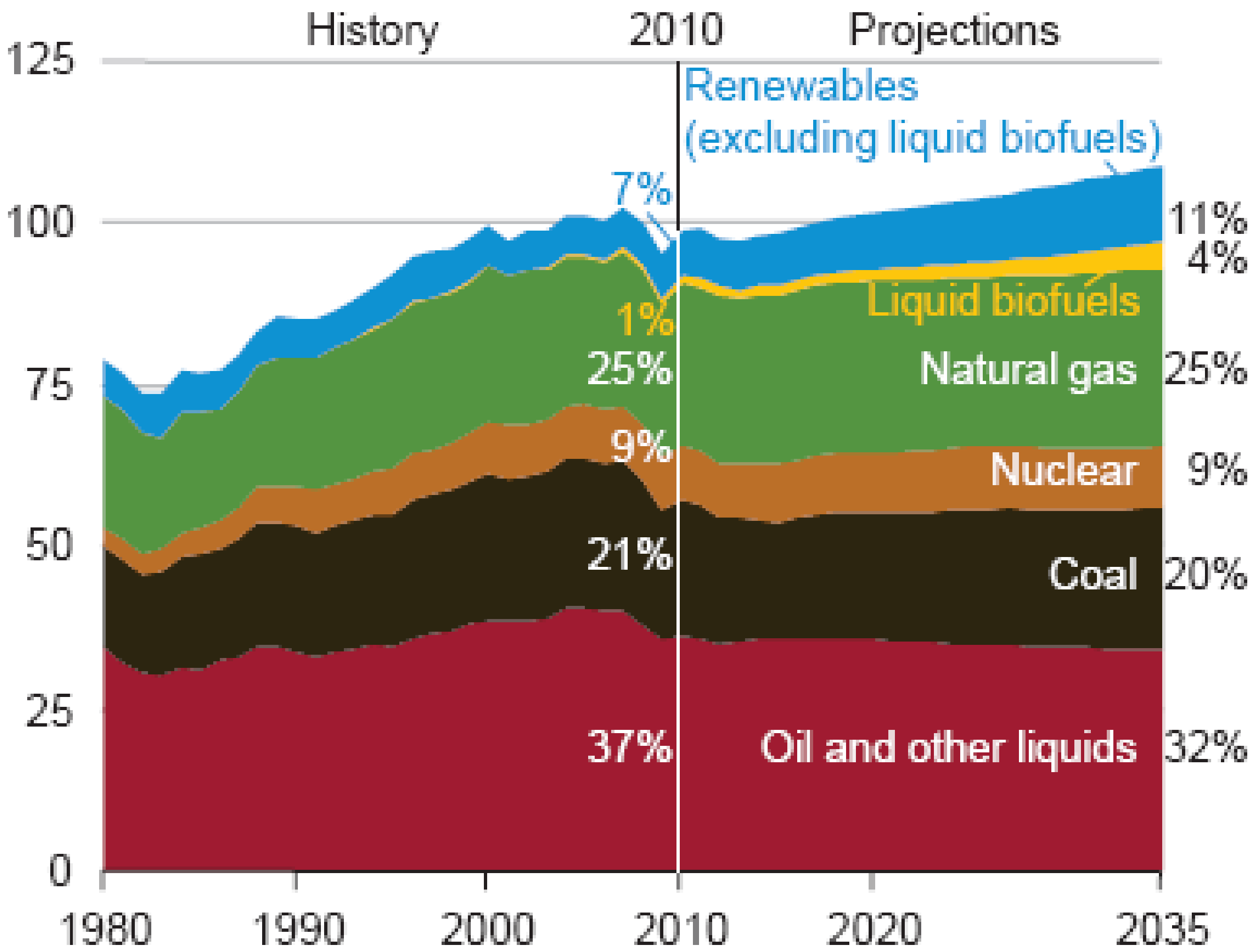


Note: Sum of components may not add exactly to 100 percent due to rounding.
*Excludes non-marketed renewable energy from residential and commercial sectors.
Source: EIA, AEO 2011 Tables A1 and A17.



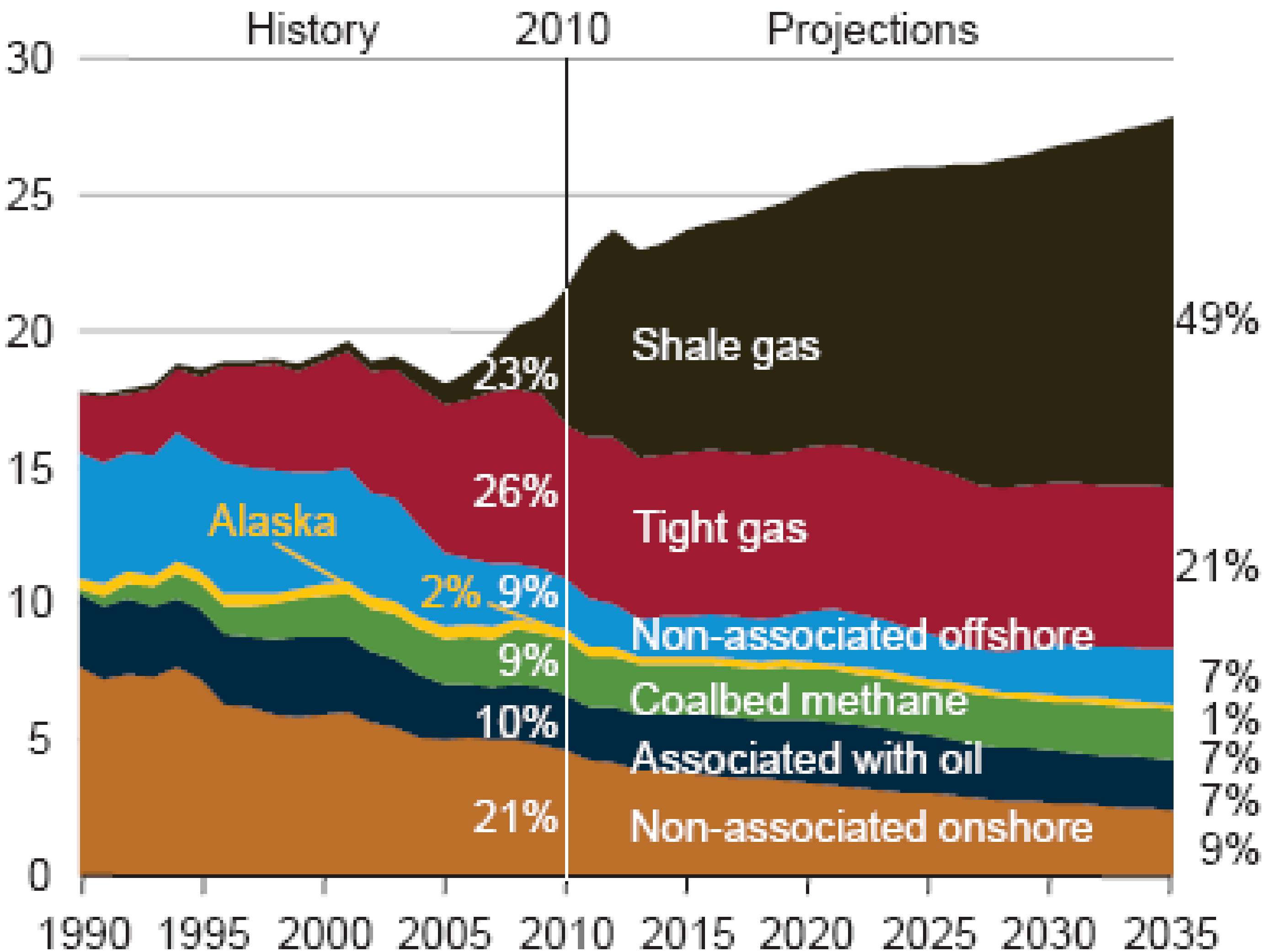
Energy Information Administration
Official Energy Statistics from the U.S. Government

Figure 8. U.S. primary energy consumption by fuel, 1980-2035 (quadrillion Btu per year)



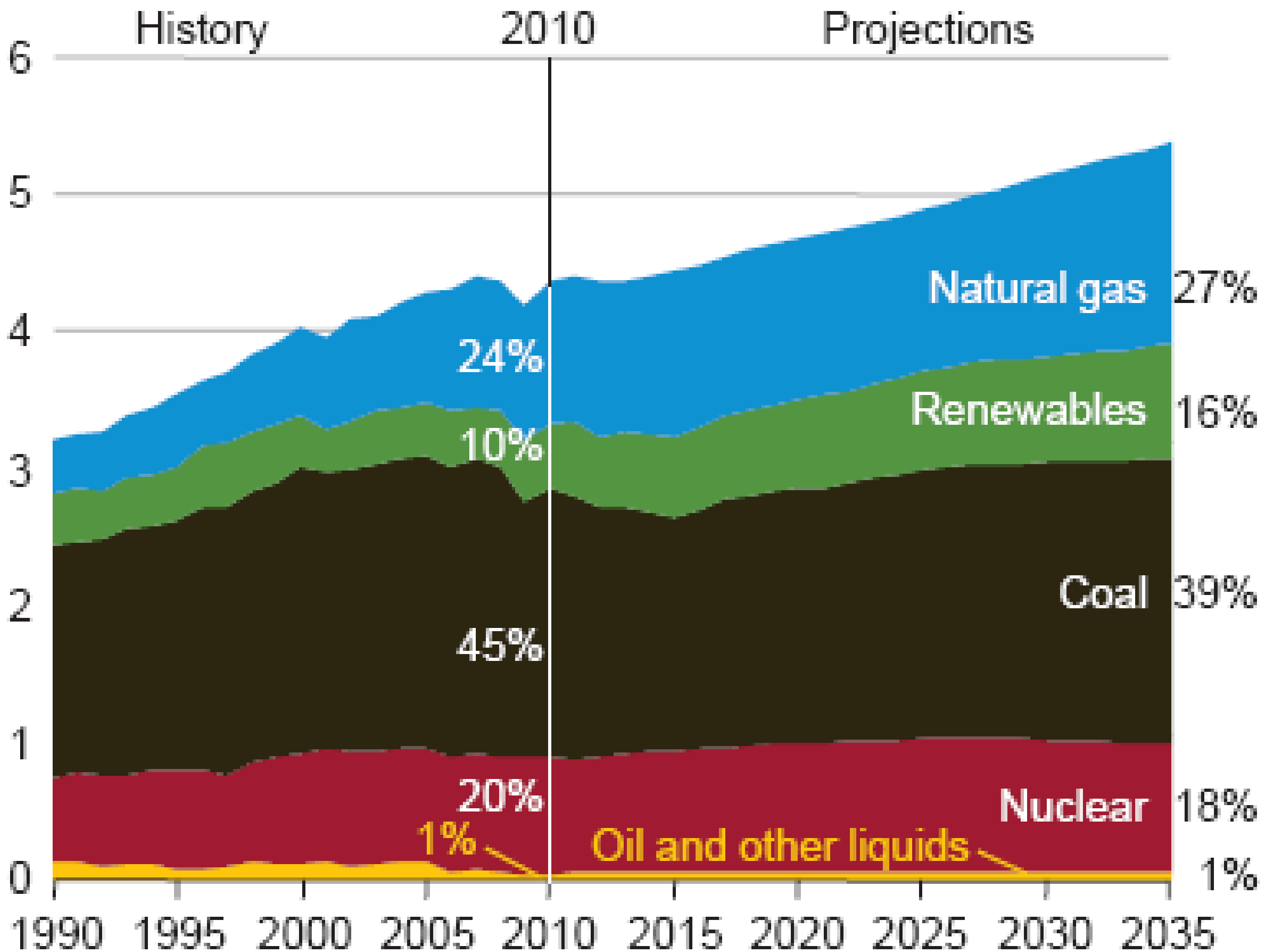
Energy Information Administration
Official Energy Statistics from the U.S. Government

Figure 2. U.S. natural gas production, 1990-2035 (trillion cubic feet)



Energy Information Administration
Official Energy Statistics from the U.S. Government

Figure 3. Electricity generation by fuel, 1990-2035 (trillion kilowatthours per year)



Energy Information Administration
Official Energy Statistics from the U.S. Government

EIA AEO 2012 Energy Outlook

	2010		2035		% Change
Consumption	**Quads**	*% Share*	**Quads**	*% Share*	
Liquid Fuels and Other Petroleum	**37.25**	**37.9%**	**38.00**	**35.2%**	**2.0%**
Oil	36.11	**36.8%**	34.05	**31.5%**	-5.7%
Ethanol, Biodiesel and Green Liquids	1.14	**1.2%**	3.95	**3.7%**	246.5%
Natural Gas	**24.71**	**25.2%**	**27.11**	**25.1%**	**9.7%**
Coal	**20.76**	**21.1%**	**21.57**	**20.0%**	**3.9%**
Nuclear Power	**8.44**	**8.6%**	**9.35**	**8.7%**	**10.8%**
Hydropower	**2.51**	**2.6%**	**3.06**	**2.8%**	**21.9%**
Biomass & Renewables	**4.22**	**4.3%**	**8.65**	**8.0%**	**105.0%**
Other*	0.29	**0.3%**	0.24	**0.2%**	**-17.2%**
Total	**98.18**	100.0%	**107.98**	100.0%	**10.0%**
Oil and Natural Gas	**60.82**	61.9%	**61.16**	56.6%	**0.6%**
Oil, Natural Gas and Coal	**81.58**	83.1%	**82.73**	76.6%	**1.4%**

America's choice

2020

increase oil & natural gas development		**raise** oil & natural gas taxes
jobs + 1,100,000 jobs		**jobs** - 48,000 jobs
government revenue + $127 billion	$	**government revenue** - $29 billion
energy production + 4 million barrels' worth of oil and natural gas per day		**energy production** - 700,000 barrels' worth of oil and natural gas per day

energy API
AMERICAN PETROLEUM INSTITUTE

America's choice

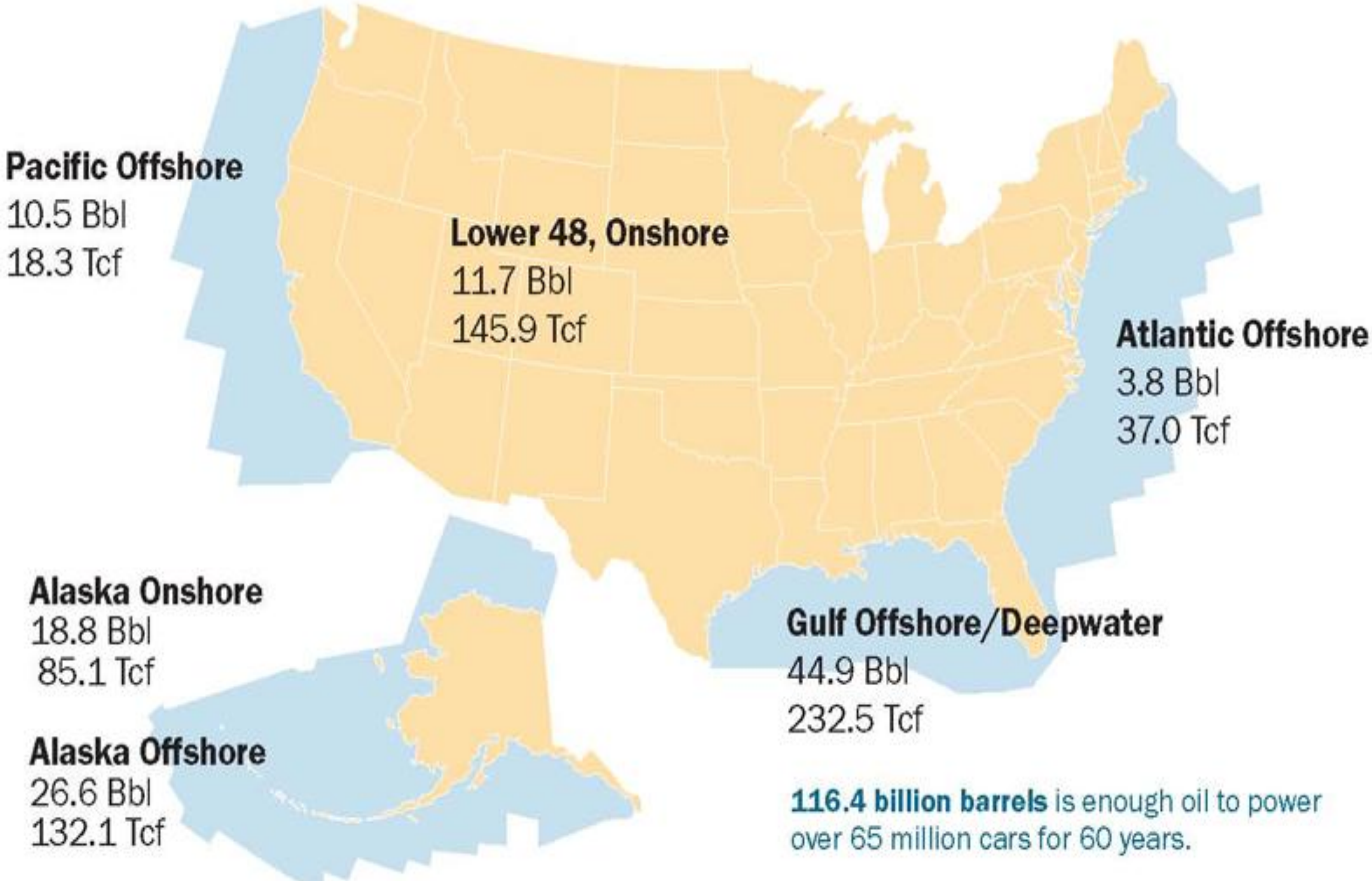
2030

increase oil & natural gas development		**raise** oil & natural gas taxes
jobs + 1,400,000 jobs		**jobs** - 22,000 jobs
government revenue + $800 billion	$	**government revenue** - $223 billion
energy production + 10 million barrels' worth of oil and natural gas per day		**energy production** - 280,000 barrels' worth of oil and natural gas per day

energy API

AMERICAN PETROLEUM INSTITUTE

U.S. Crude Oil (Bbl) and Natural Gas (Tcf) Resources
(Undiscovered Technically Recoverable Federal Resources)*

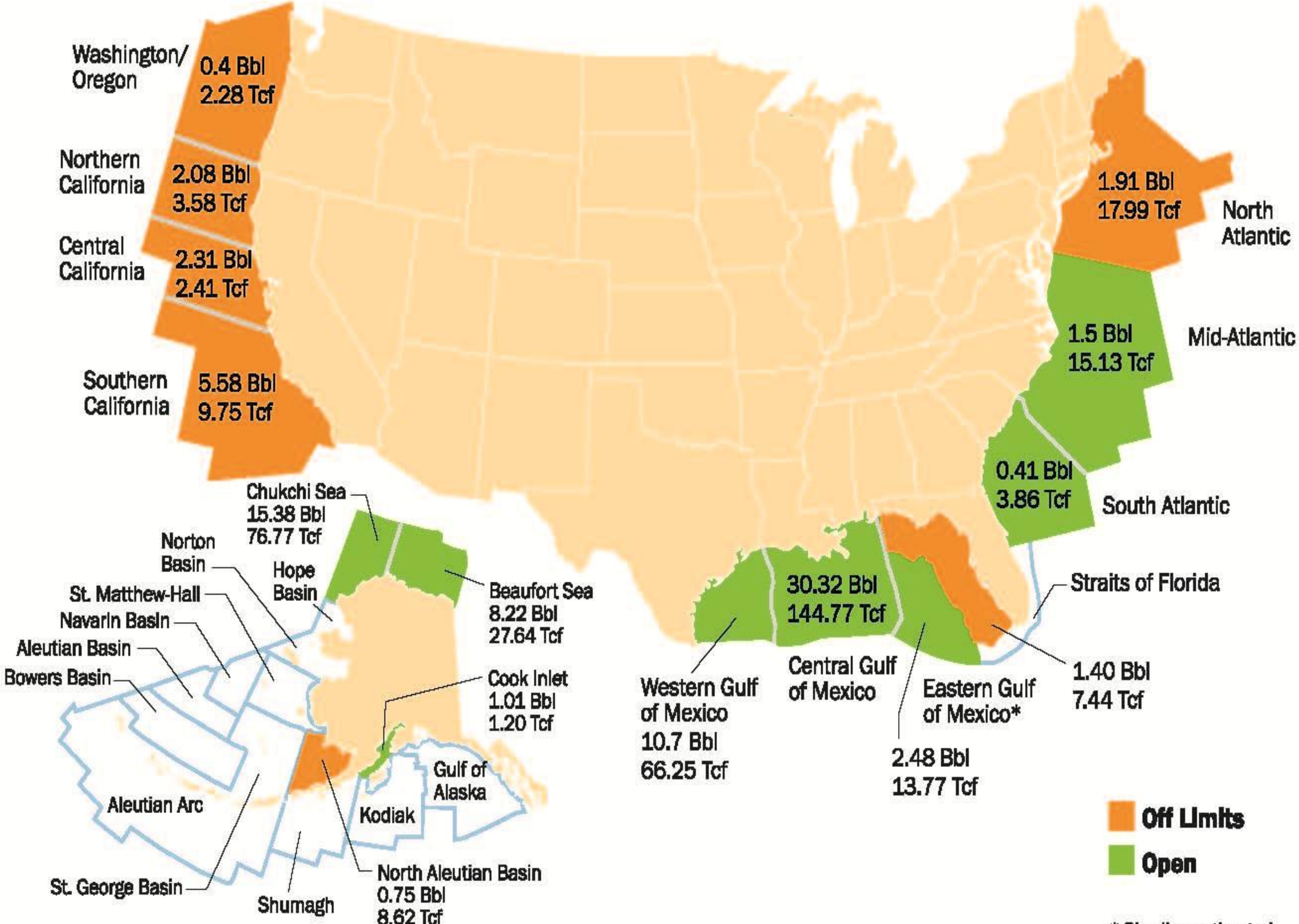


116.4 billion barrels is enough oil to power over 65 million cars for 60 years.

650.9 trillion cubic feet is enough natural gas to heat 60 million homes for 160 years.

*Figures may not add exactly to total due to rounding.
Source: MMS, BLM, and API calculations

Offshore Undiscovered Technically Recoverable Federal Oil (Bbl) and Natural Gas (Tcf) Resources



Source: Minerals Management Service and Department of the Interior.

Thank You

For more information visit

www.api.org

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Table 1. Segments of the Clean Economy

Category	Segment	Jobs, 2010
Agricultural and Natural Resources Conservation	Conservation	314,983
	Organic Food and Farming	129,956
	Sustainable Forestry Products	61,054
Education and Compliance	Regulation and Compliance	141,890
	Training	266
Energy and Resource Efficiency	Public Mass Transit	350,547
	Energy-saving Building Materials	161,896
	HVAC and Building Control Systems	73,600
	Green Architecture and Construction Services	56,190
	Professional Energy Services	49,863
	Appliances	36,608
	Energy-saving Consumer Products	19,210
	Battery Technologies	16,129
	Smart Grid	15,987
	Electric Vehicle Technologies	15,711
	Lighting	14,298
	Water Efficient Products	13,066
	Fuel Cells	7,041
Greenhouse Gas Reduction, Environmental Management, and Recycling	Waste Management and Treatment	386,116
	Professional Environmental Services	141,046
	Recycling and Reuse	129,252
	Green Consumer Products	77,264
	Green Building Materials	76,577
	Nuclear Energy	74,749
	Recycled-Content Products	59,712
	Remediation	56,241
	Air and Water Purification Technologies	24,930
	Green Chemical Products	22,622
	Pollution Reduction	9,986
	Carbon Storage and Management	391
Renewable Energy	Hydropower	55,467
	Wind	24,294
	Solar Photovoltaic	24,152
	Biofuels/Biomass	20,680
	Solar Thermal	5,379
	Waste-to-Energy	3,320
	Geothermal	2,720
	Renewable Energy Services	1,981
	Wave/Ocean Power	371

Source: Brookings-Battelle Clean Economy Database

Capital Spending

WHERE FUNDS WILL GO FOR US PROJECTS

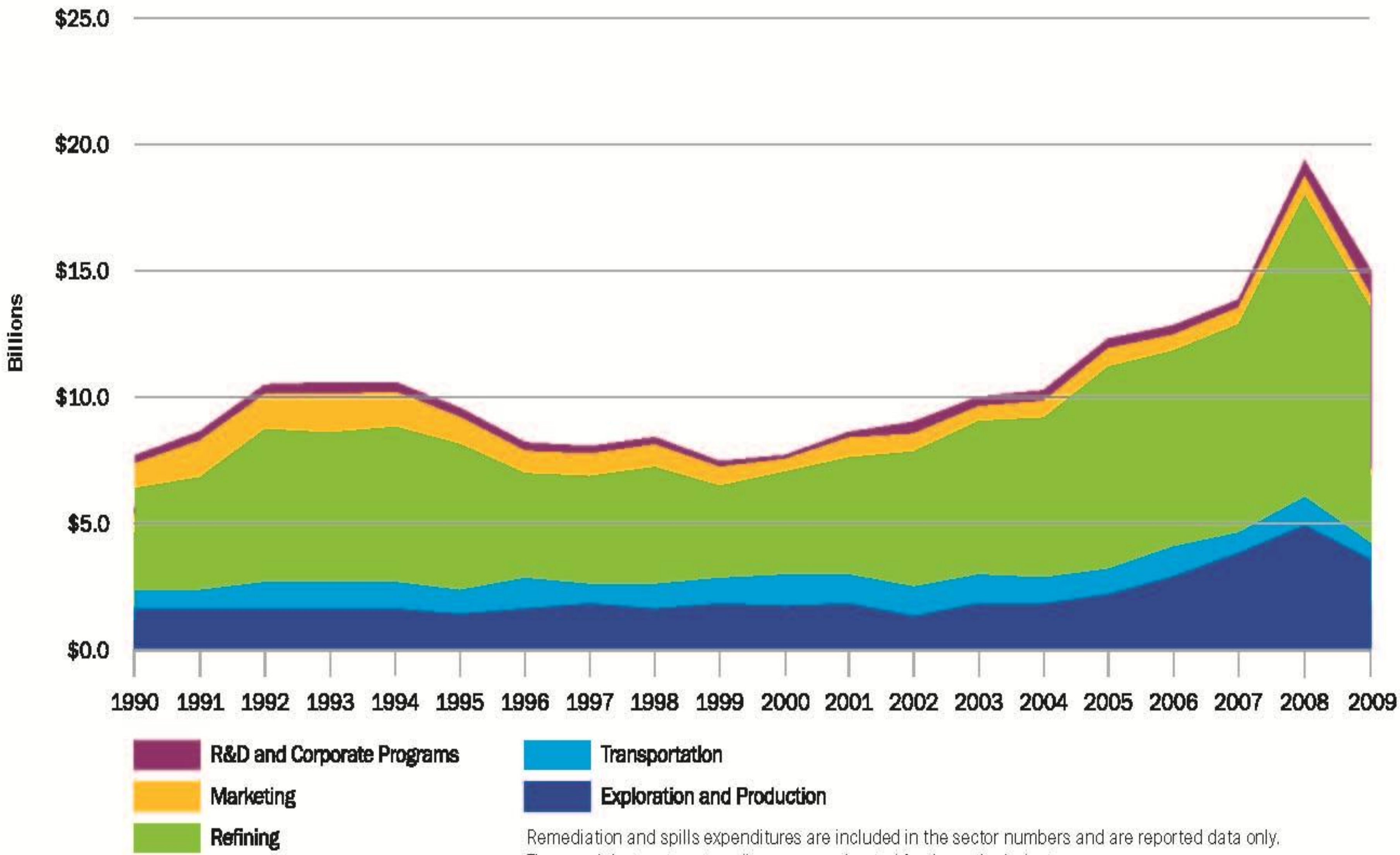
Table 1

	2011, million $	Change 2011-2010, %	2010, million $	Change 2010-2009, %	2009, million $
Exploration-production					
Drilling-exploration	217,532	6.2	204,806	17.0	175,070
Production	41,331	6.2	38,913	17.0	33,263
OCS lease bonus	0	–100.0	1,300	62.3	801
Subtotal	**258,863**	**5.7**	**245,019**	**17.2**	**209,134**
Other					
Refining	9,200	73.6	5,300	–47.7	10,140
Petrochemicals	300	0.0	300	–14.3	350
Marketing	2,900	6.2	2,730	40.0	1,950
Crude and products pipelines	1,408	–83.6	8,563	–5.9	9,104
Natural gas pipelines	5,348	74.7	3,062	–74.3	11,907
Other transportation	1,100	15.8	950	13.1	840
Mining, other energy	1,000	0.0	1,000	11.1	900
Miscellaneous	4,000	0.0	4,000	6.7	3,750
Subtotal	**25,256**	**–2.5**	**25,905**	**–33.5**	**38,941**
Total	**284,119**	**4.9**	**270,924**	**9.2**	**248,075**

Source: Oil and Gas Journal, March 7, 2011

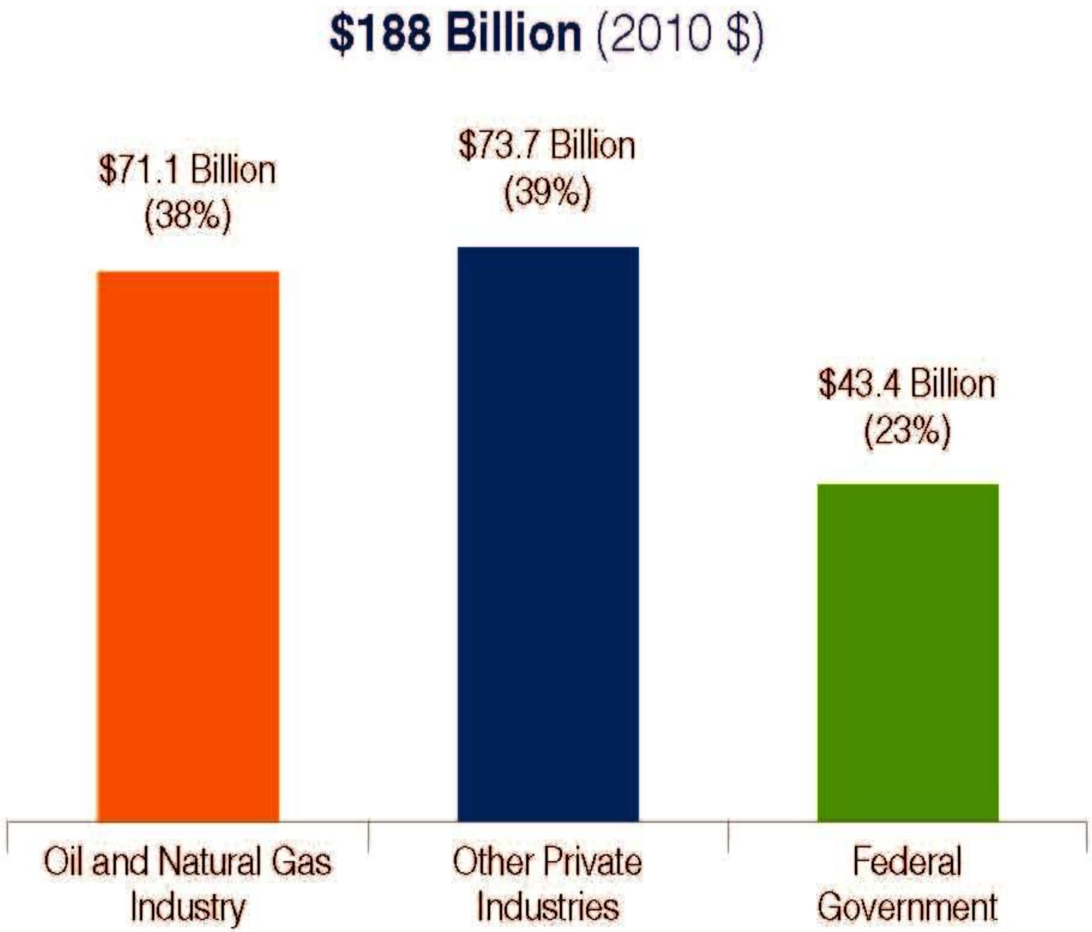
Figure 1

U.S. Environmental Expenditures Since 1990 by Sector



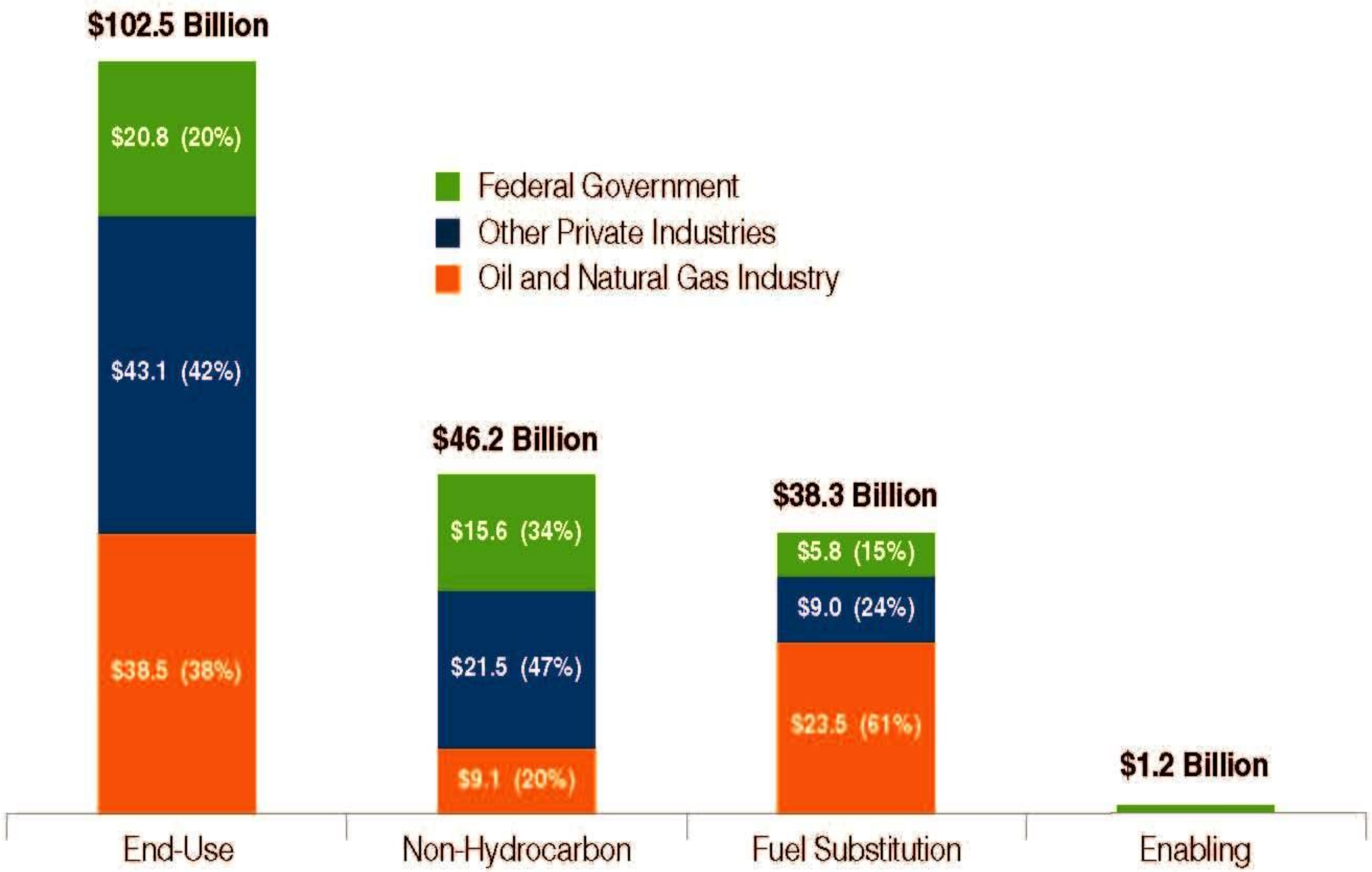
Remediation and spills expenditures are included in the sector numbers and are reported data only. The remaining sector expenditures are estimated for the entire industry.

Carbon Mitigation Investment by Investor Group (2000-2011)



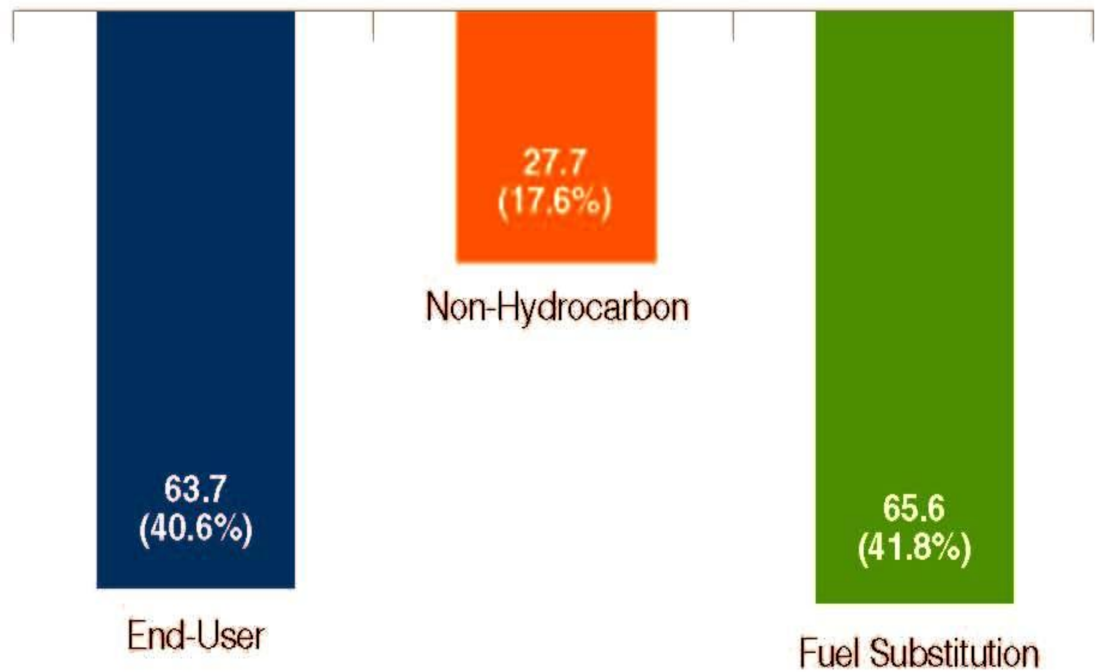
Source: T[2] & Associates, "Key Investments in Greenhouse Gas Mitigation Technologies from 2000 Through 2010 by Energy Firms, Other Industry and the Federal Government," October 2011.

Carbon Mitigation Investments by Technology and Investor Group (2000-2010)



Source: T² & Associates, October 2011.

Greenhouse Gas Emission Reductions for the Oil and Natural Gas Industry in North America, 2008-2010 (MMTCO2e)



Source: T² & Associates, October 2011.

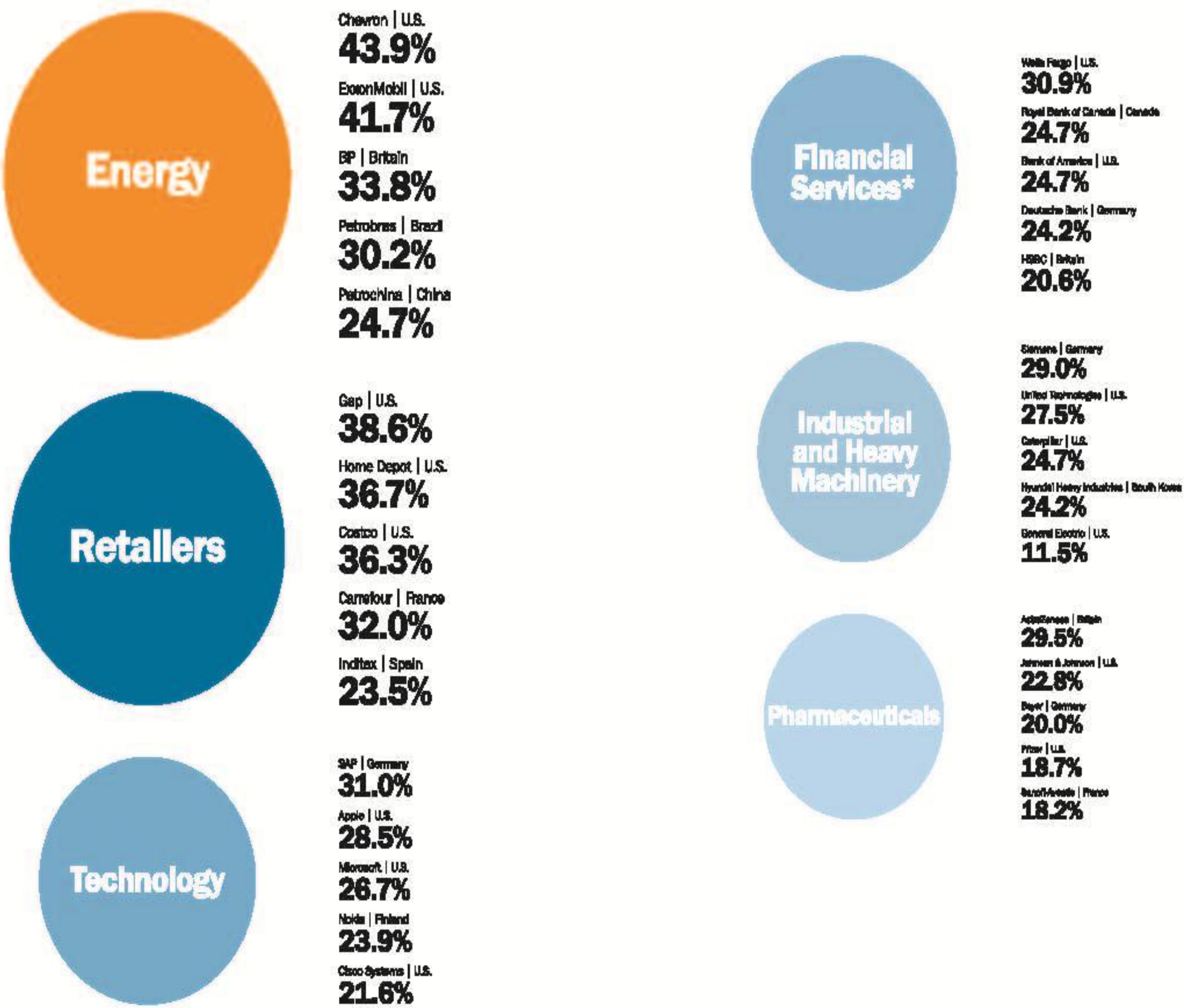
Table 6. The Direct, Indirect, and Induced Impacts of the Oil and Natural Gas Industry to the U.S. Economy, 2009

Sector Description	Employment*	Labor Income** ($ million)	Value Added ($ million)
Direct Impact of the Oil and Natural Gas Industry	**2,192,392**	**$176,305**	**$464,574**
Indirect and Induced Impact on Other Industries	**6,968,174**	**$357,243**	**$617,126**
Operational Impact	***5,786,244***	***$290,564***	***$501,749***
Agriculture	91,218	$2,580	$3,510
Mining	12,982	$913	$2,235
Utilities	27,397	$3,554	$12,091
Construction	122,132	$6,027	$7,207
Manufacturing	396,459	$27,933	$50,156
Wholesale and retail trade	883,136	$40,242	$67,406
Transportation and warehousing	249,301	$12,486	$17,256
Information	117,511	$10,495	$20,881
Finance, insurance, real estate, rental and leasing	771,363	$35,111	$139,389
Services	2,890,314	$136,279	$164,592
Other	224,431	$14,944	$17,026
Capital Investment Impact	***1,181,930***	***$66,679***	***$115,377***
Agriculture	15,524	$460	$659
Mining	3,080	$216	$541
Utilities	3,740	$483	$1,763
Construction	9,482	$454	$588
Manufacturing	196,690	$14,966	$25,355
Wholesale and retail trade	194,274	$10,099	$17,648
Transportation and warehousing	51,281	$2,587	$3,807
Information	32,896	$3,259	$6,886
Finance, insurance, real estate, rental and leasing	123,551	$5,876	$22,783
Services	538,104	$27,276	$34,497
Other	13,311	$1,004	$850
Total Economic Impact	**9,160,566**	**$533,548**	**$1,081,701**

Source: PwC calculations using the IMPLAN modeling system (2009 database).
Details may not add to totals due to rounding.

* Employment is defined as the number of payroll and self-employed jobs, including part-time jobs.
** Labor income is defined as wages and salaries and benefits as well as proprietors' income.

Effective Tax Rates Among Industries (Averaged over 2005-2009)



*Some U.S. financial companies received temporary tax allowances after the financial crisis, resulting in unusually low rates for 2006 and 2009.
Source: Bloomberg company reports, *Bloomberg Businessweek* (January 24-30, 2011).

Table 5a. Direct Impact of the Oil and Natural Gas Industry by State, 2009
(*Sorted Alphabetically*)

State	Direct Employment*		Direct Labor Income**		Direct Value Added	
	Amount	Percent of U.S. Total	($ Million)	Percent of U.S. Total	($ Million)	Percent of U.S. Total
Alabama	31,014	1.4%	$1,563	0.9%	$3,488	0.8%
Alaska	18,741	0.9%	$2,253	1.3%	$4,230	0.9%
Arizona	25,208	1.1%	$1,149	0.7%	$2,390	0.5%
Arkansas	29,532	1.3%	$1,415	0.8%	$3,124	0.7%
California	163,729	7.5%	$18,891	10.7%	$58,818	12.7%
Colorado	54,240	2.5%	$4,675	2.7%	$10,456	2.3%
Connecticut	15,334	0.7%	$1,074	0.6%	$2,727	0.6%
Delaware	5,904	0.3%	$488	0.3%	$2,217	0.5%
District of Columbia	958	0.0%	$68	0.0%	$231	0.0%
Florida	60,394	2.8%	$2,202	1.2%	$4,653	1.0%
Georgia	38,100	1.7%	$1,630	0.9%	$3,552	0.8%
Hawaii	4,920	0.2%	$324	0.2%	$1,238	0.3%
Idaho	8,048	0.4%	$294	0.2%	$733	0.2%
Illinois	57,723	2.6%	$4,732	2.7%	$14,002	3.0%
Indiana	36,630	1.7%	$1,891	1.1%	$6,050	1.3%
Iowa	22,571	1.0%	$695	0.4%	$1,456	0.3%
Kansas	42,614	1.9%	$2,614	1.5%	$8,578	1.8%
Kentucky	31,788	1.4%	$1,325	0.8%	$2,975	0.6%
Louisiana	116,923	5.3%	$9,660	5.5%	$23,769	5.1%
Maine	12,165	0.6%	$408	0.2%	$922	0.2%
Maryland	17,325	0.8%	$751	0.4%	$1,660	0.4%
Massachusetts	24,689	1.1%	$1,661	0.9%	$4,458	1.0%
Michigan	45,093	2.1%	$2,635	1.5%	$6,922	1.5%
Minnesota	33,349	1.5%	$1,397	0.8%	$3,690	0.8%
Mississippi	33,291	1.5%	$1,769	1.0%	$4,742	1.0%
Missouri	37,089	1.7%	$1,548	0.9%	$3,566	0.8%

Montana	13,086	0.6%	$798	0.5%	$2,268	0.5%
Nebraska	14,476	0.7%	$992	0.6%	$2,667	0.6%
Nevada	12,397	0.6%	$574	0.3%	$1,445	0.3%
New Hampshire	8,502	0.4%	$390	0.2%	$898	0.2%
New Jersey	31,528	1.4%	$2,217	1.3%	$7,036	1.5%
New Mexico	32,408	1.5%	$1,924	1.1%	$4,189	0.9%
New York	56,715	2.6%	$4,106	2.3%	$10,919	2.4%
North Carolina	41,636	1.9%	$1,657	0.9%	$3,388	0.7%
North Dakota	14,846	0.7%	$944	0.5%	$2,373	0.5%
Ohio	67,787	3.1%	$3,543	2.0%	$9,580	2.1%
Oklahoma	111,461	5.1%	$10,562	6.0%	$29,159	6.3%
Oregon	14,969	0.7%	$659	0.4%	$1,611	0.3%
Pennsylvania	77,526	3.5%	$4,417	2.5%	$10,905	2.3%
Rhode Island	4,008	0.2%	$198	0.1%	$541	0.1%
South Carolina	22,180	1.0%	$718	0.4%	$1,320	0.3%
South Dakota	8,499	0.4%	$304	0.2%	$640	0.1%
Tennessee	32,628	1.5%	$1,317	0.7%	$2,769	0.6%
Texas	474,393	21.6%	$64,294	36.5%	$169,660	36.5%
Utah	20,444	0.9%	$1,382	0.8%	$3,859	0.8%
Vermont	5,987	0.3%	$202	0.1%	$434	0.1%
Virginia	45,678	2.1%	$1,785	1.0%	$3,828	0.8%
Washington	25,007	1.1%	$1,466	0.8%	$4,397	0.9%
West Virginia	29,068	1.3%	$1,526	0.9%	$3,414	0.7%
Wisconsin	30,103	1.4%	$1,001	0.6%	$1,952	0.4%
Wyoming	29,687	1.4%	$2,217	1.3%	$4,677	1.0%
U.S. Total	**2,192,392**	**100%**	**$176,305**	**100%**	**$464,574**	**100%**

Source: PwC calculations using the IMPLAN modeling system (2009 database).

Details may not add to totals due to rounding.

* Employment is defined as the number of payroll and self-employed jobs, including part-time jobs.

** Labor income is defined as wages and salaries and benefits as well as proprietors' income.

Table 3a. Total Operational Impact of the Oil and Natural Gas Industry by State in 2009 (*Sorted Alphabetically*)

State	Employment*		Labor Income**		Value Added	
	Amount	Percent of State Total	($ Million)	Percent of State Total	($ Million)	Percent of State Total
Alabama	87,781	3.5%	$4,010	3.7%	$7,690	4.6%
Alaska	46,310	10.3%	$3,559	14.1%	$6,671	16.9%
Arizona	85,949	2.7%	$4,074	2.7%	$7,672	3.0%
Arkansas	76,532	5.0%	$3,404	5.4%	$6,457	6.6%
California	908,801	4.6%	$62,321	5.4%	$131,589	7.0%
Colorado	161,266	5.2%	$10,235	6.3%	$20,467	7.8%
Connecticut	55,405	2.6%	$3,817	2.8%	$7,349	3.3%
Delaware	34,213	6.5%	$2,046	7.3%	$4,810	10.5%
District of Columbia	9,973	1.2%	$926	1.2%	$1,513	1.4%
Florida	230,561	2.4%	$10,086	2.3%	$18,590	2.6%
Georgia	130,176	2.5%	$6,251	2.5%	$11,594	2.8%
Hawaii	22,807	2.7%	$1,154	2.8%	$2,663	4.2%
Idaho	23,218	2.6%	$901	2.6%	$1,731	3.3%
Illinois	268,970	3.7%	$16,816	4.2%	$34,400	5.4%
Indiana	132,528	3.8%	$6,220	4.0%	$13,527	5.4%
Iowa	58,801	3.0%	$2,278	2.8%	$4,192	3.2%
Kansas	116,070	6.5%	$5,781	7.2%	$14,117	10.8%
Kentucky	86,210	3.7%	$3,673	3.7%	$7,060	4.4%
Louisiana	375,245	15.1%	$20,818	18.0%	$43,010	22.8%
Maine	28,504	3.5%	$1,094	3.3%	$2,061	4.1%
Maryland	67,730	2.0%	$3,585	1.9%	$6,331	2.2%
Massachusetts	102,332	2.5%	$6,800	2.7%	$12,700	3.3%
Michigan	162,380	3.2%	$8,364	3.5%	$16,819	4.4%
Minnesota	117,319	3.5%	$5,802	3.5%	$11,094	4.1%
Mississippi	91,201	6.1%	$4,014	6.8%	$8,576	9.4%
Missouri	111,290	3.2%	$5,094	3.2%	$9,523	3.8%

Montana	40,276	6.4%	$1,771	7.7%	$4,050	10.7%
Nebraska	45,338	3.7%	$2,340	4.4%	$4,897	5.8%
Nevada	43,527	2.9%	$2,089	2.9%	$4,204	3.5%
New Hampshire	24,322	3.0%	$1,194	3.0%	$2,245	3.6%
New Jersey	147,045	3.0%	$9,782	3.3%	$19,604	4.1%
New Mexico	79,389	7.5%	$3,856	8.2%	$7,461	10.6%
New York	245,948	2.3%	$17,374	2.5%	$32,898	3.0%
North Carolina	135,165	2.6%	$6,065	2.6%	$10,963	2.9%
North Dakota	36,995	7.5%	$1,835	8.8%	$3,868	11.8%
Ohio	230,858	3.6%	$11,374	3.9%	$22,709	4.9%
Oklahoma	299,093	14.1%	$17,856	19.3%	$42,321	27.1%
Oregon	55,600	2.5%	$2,538	2.6%	$4,775	3.1%
Pennsylvania	275,563	3.9%	$14,958	4.2%	$28,440	5.1%
Rhode Island	14,538	2.5%	$752	2.5%	$1,444	3.2%
South Carolina	63,192	2.6%	$2,438	2.4%	$4,334	2.7%
South Dakota	18,318	3.3%	$709	3.2%	$1,317	3.9%
Tennessee	102,083	2.9%	$4,588	2.9%	$8,370	3.3%
Texas	1,982,140	14.3%	$134,866	18.9%	$297,510	24.3%
Utah	78,425	4.9%	$3,811	5.6%	$7,986	7.4%
Vermont	13,591	3.3%	$512	3.0%	$960	3.7%
Virginia	128,030	2.7%	$6,507	2.4%	$11,601	2.8%
Washington	109,195	2.8%	$6,129	2.9%	$12,250	3.7%
West Virginia	63,306	7.1%	$2,920	7.4%	$5,887	9.5%
Wisconsin	94,060	2.8%	$4,029	2.6%	$7,007	2.9%
Wyoming	61,065	15.8%	$3,452	19.9%	$7,018	24.3%
U.S. Total	**7,978,636**	**4.6%**	**$466,869**	**5.3%**	**$966,324**	**6.8%**

Source: PwC calculations using the IMPLAN modeling system (2009 database).

Details may not add to totals due to rounding.

* Employment is defined as the number of payroll and self-employed jobs, including part-time jobs.

** Labor income is defined as wages and salaries and benefits as well as proprietors' income.

Appendix 1
Characteristics of Local and State Public Pension Fund Systems by State, 2004[21].

States	Number of Plans	Number of Participants	Average Number of Participants Per Plan
Alabama	12	255,573	21,298
Alaska	5	68,115	13,623
Arizona	7	381,682	54,526
Arkansas	38	138,658	3,649
California	59	2,115,457	35,855
Colorado	65	323,414	4,976
Connecticut	63	148,195	2,352
Delaware	6	42,049	7,008
District of Columbia	6	12,513	2,086
Florida	157	763,472	4,863
Georgia	31	538,677	17,377
Hawaii	1	67,074	67,074
Idaho	4	71,564	17,891
Illinois	371	938,508	2,530
Indiana	76	270,619	3,561
Iowa	12	269,188	22,432
Kansas	8	192,602	24,075
Kentucky	21	293,476	13,975
Louisiana	35	260,817	7,452
Maine	1	48,514	48,514
Maryland	13	276,651	21,281
Massachusetts	99	377,915	3,817
Michigan	141	485,046	3,440
Minnesota	146	499,580	3,422
Mississippi	4	272,219	68,055
Missouri	63	324,179	5,146

Montana	9	73,568	8,174
Nebraska	14	74,782	5,342
Nevada	2	85,311	42,656
New Hampshire	3	59,071	19,690
New Jersey	10	515,224	51,522
New Mexico	5	155,094	31,019
New York	15	1,265,263	84,351
North Carolina	10	534,613	53,461
North Dakota	12	34,700	2,892
Ohio	6	1,214,227	202,371
Oklahoma	12	161,093	13,424
Oregon	4	211,055	52,764
Pennsylvania	927	560,538	605
Rhode Island	11	45,161	4,106
South Carolina	6	361,017	60,170
South Dakota	4	49,575	12,394
Tennessee	14	256,417	18,316
Texas	49	1,396,125	28,492
Utah	6	120,471	20,079
Vermont	5	32,877	6,575
Virginia	14	471,499	33,679
Washington	27	253,177	9,377
West Virginia	41	71,994	1,756
Wisconsin	3	409,595	136,532
Wyoming	6	42,302	7,050