



Low Sulfur Distillate and Residual Oil Strategy

MARAMA Workshop on
Energy & Air Quality Issues
September 23, 2008

Arthur Marin
NESCAUM

Regional Initiative for Low Sulfur Distillate/Residual Oil

- MANE-VU States have agreed to pursue low sulfur standards for distillate & residual fuel oil to reduce regional haze & particulate matter
- Strategy is among the most significant SO₂ control options available in the region
- May end up being only regional haze emission control strategy to emerge out of the RPO planning processes

Rationale & Challenges of Low Sulfur Distillate Oil Strategy

- Distillate combustion is major source of SO₂
- Fuel de-sulfurization is proven emission control strategy
- Implementation challenges are economic rather than technical
- 3 primary issues must be addressed:
 - Supply
 - Cost
 - Political viability

Goals of Presentation

- Review importance of fuel oil combustion as source of SO₂ emissions & the emission benefits of lowering fuel sulfur content
- Discuss supply issues
- Look at cost impacts of strategy
- Tee-up discussion of strategy for moving this program forward
- Focus is primarily on #2 distillate oil



Proposed Sulfur Requirements in MANE-VU Region

Geographic Region	500 ppm #2 Distillate	15 ppm #2 Distillate	0.25% (wt) #4 Oil	0.3-0.5% #6 Oil
Inner Zone (DE, NJ, NY, PA)	no later than 2012	2016	no later than 2012	no later than 2012
Outer Zone (all other states)	no later than 2014	2018 "depending on availability"	no later than 2018	no later than 2018



Largest Sources of SO₂ Emission in the MANE-VU Region

Source Category	Emissions (tpy)	% of Regional Total
EGUs	1,628,333	71%
ICI Boilers	156,333	7%
Residential/Commercial Oil Heat Burners & Furnaces	153,225	7%

Largest Sources of SO₂ Emission in the NESCAUM Region

Source Category	Emissions (tpy)	% of Regional Total
EGUs	433,754	53%
Residential/Commercial Oil Heat Burners & Furnaces	120,508	15%
ICI Boilers	58,683	7%

Estimated Emission Benefits of 500 ppm Sulfur Heating Oil

(% reduction compared to 2,500 ppm sulfur fuel)

Pollutant	500 ppm	15 ppm
SO ₂	75 %	93 %
PM	80 %	?
NO _x	10 %	?
Hg	?	?
CO ₂	1%-2%	1%-2%

Annual Emission Benefits in the MANE-VU Region of 500 ppm Sulfur Limit

2009	SO₂	NO_x	PM
Emissions 2,500 ppm fuel	176,742 tons	65,087 tons	6,541 tons
Projected Reductions 500 ppm	132,557 tons	6,509 tons	5,211 tons
Remaining Emissions	44,185 tons	58,578 tons	1,303 tons

Annual SO₂ Emission Benefits in the MANE-VU Region in 2018

2018	15 ppm #2 (from 2000+ ppm baseline)	5,000 ppm #4 & #6 (from 10,000 ppm baseline)	Total Reductions from Low Sulfur Oil Strategy
Emission Reductions	167,000 tons	19,000 tons	186,000 tons

Supply Issues

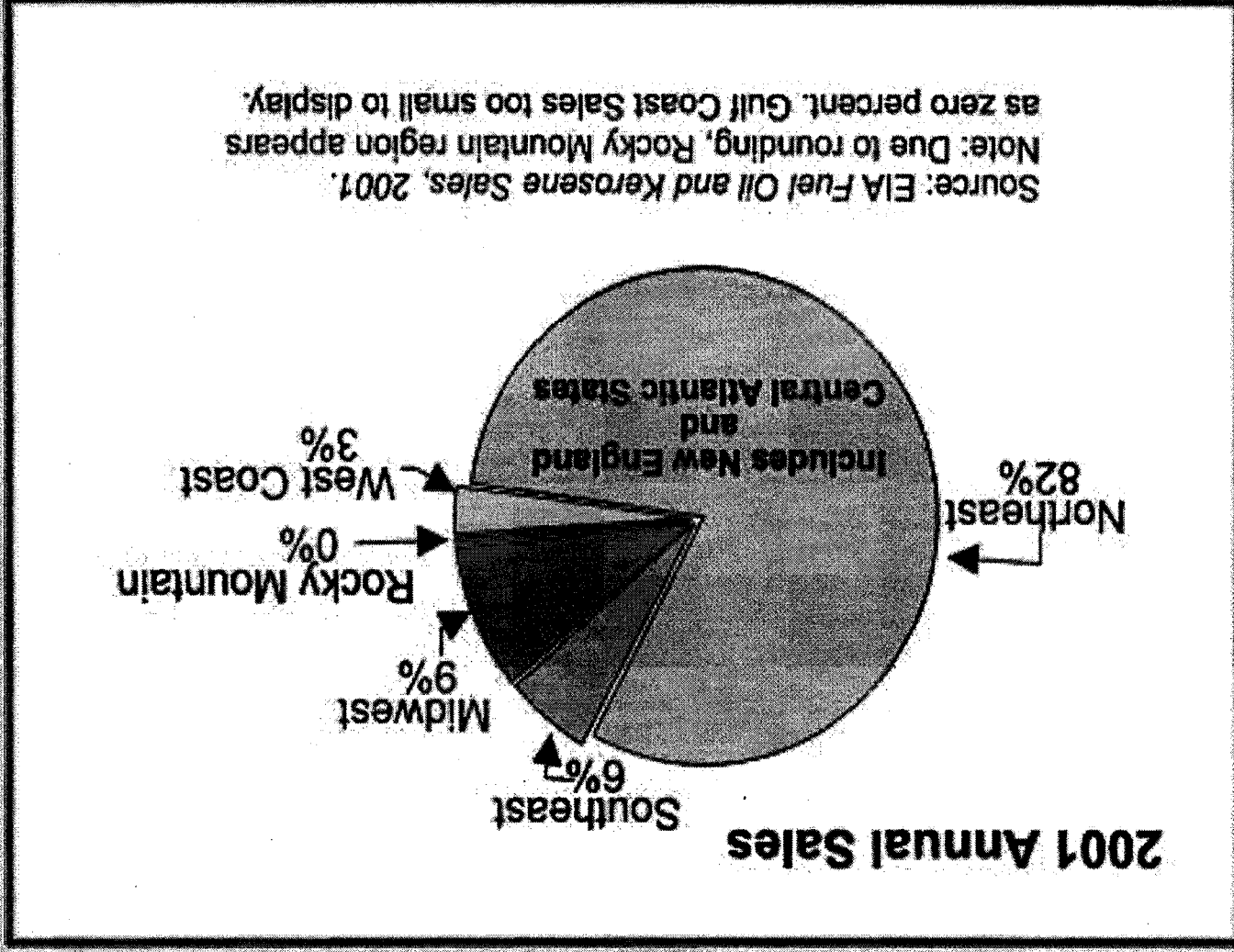
- Dramatic changes in fuel composition are occurring on global scale due to sulfur regulation
- Heating oil is seasonal product with demand tied to vagaries of weather
- Offshore markets & reserves provide a “safety valve” for Northeast market during peak demand
- Response of offshore refiners to U.S. low sulfur regulations is uncertain in near-term

Heating Oil Market in the Region

- Collectively the Northeast/Mid-Atlantic States constitute one of the world's largest markets for heating oil
- In NESCAUM states, 55% of total distillate demand is for heating oil (42% residential/13% commercial)
- This compares to 38% for highway diesel

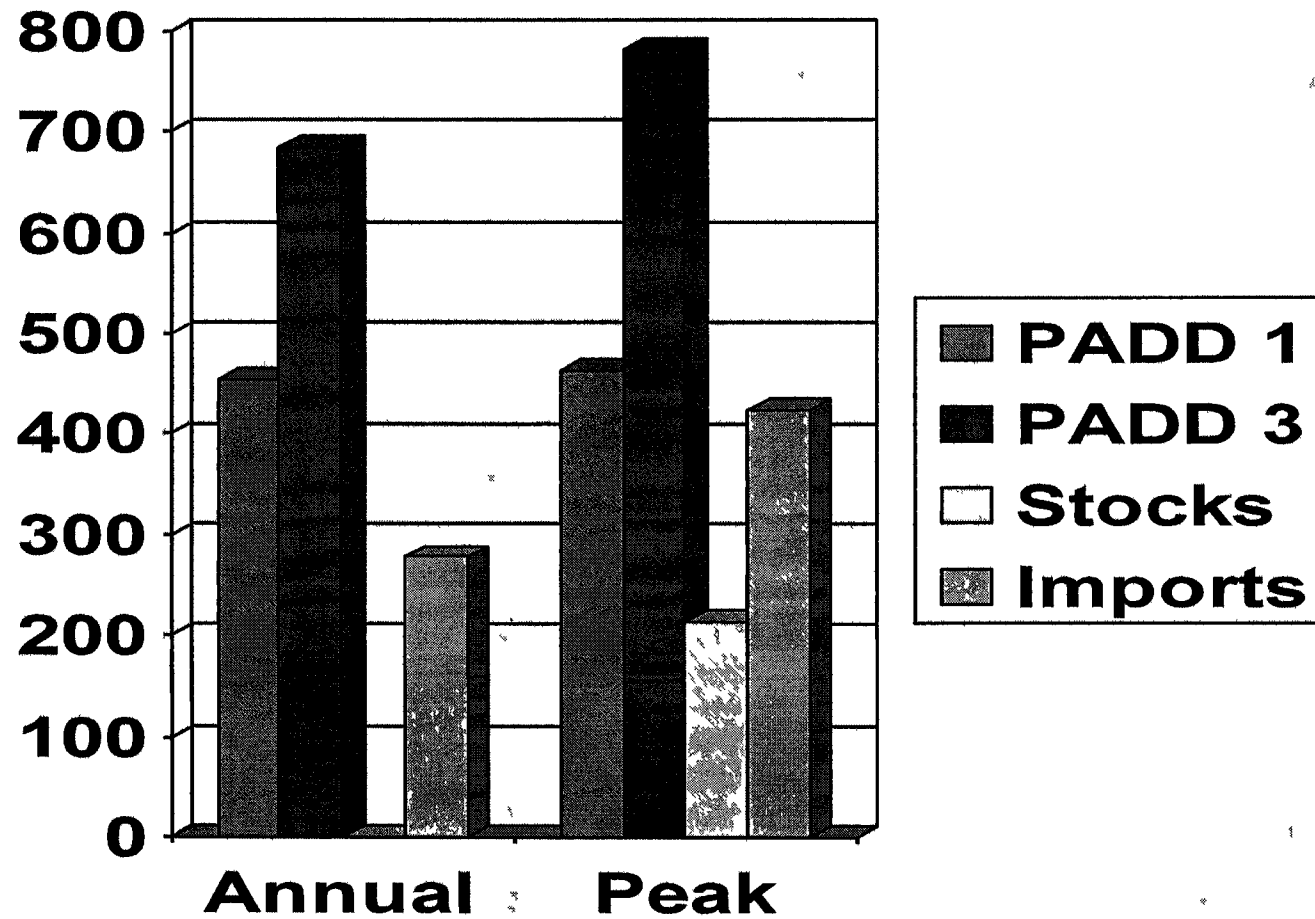


Regional Sale of Heating Oil NESCAUM



Sources of Northeast Distillate

(avg. 2001-04 in TBD)



Federal Diesel Sulfur Standards



Who	Covered Fuel	2006	2007	2008	2009	2010	2011	2012	2013	2014
	Highway Diesel		15 ppm / 20% 500 ppm			15	15	15	15	15
Large Refiner & Importer	Nonroad (NR)		500	500	500	15	15	15	15	15
Large Refiner & Importer	Loco/Marine (LM)		500	500	500	500	500	15	15	15
	NRLM w/Credits		HS	HS	HS	500	500	500	500	15
Small Refiner	NRLM		HS	HS	HS	500	500	500	500	15
Transmix & In-use	NR		HS	HS	HS	500	500	500	500	15
Transmix & In-use	LM		HS	HS	HS	500	500	500	500	500

Meeting the Supply Demands of Mane-VU Low Sulfur Regulations

- In the past refiners, wholesalers and retailers have questioned their ability to meet the supply demands of this strategy
- However, a recent study conducted for the National Oilheat Research Alliance (NORA) suggests that supplies of low and ultra-low sulfur distillate should be available to meet the demands of the M-V program in the general timeframes laid out by the states

Supply & Demand

“With the rapid changes required through 2012, the low sulfur market will be strained and undergo a transition throughout the period. Any additional shift to <15 ppm for the Northeast market will further tighten and constrain supply. In the 2010 to 2012 period, most of the market will be moving from 500 ppm to <15 ppm. Adding a requirement for additional shift from 2000 or higher to <15 ppm will be more difficult and have a far greater marginal impact on the market”

Supply & Demand

“Shifting the heating oil to 500 ppm in 2012, would be more reasonable but would still add to what will likely be a constrained market. The 500 ppm standard may provide some positive synergies with other markets shifting from 500 ppm to <15 ppm”

Supply & Demand



“By 2018, with the entire Northeast heating oil market at <15 ppm, the ultra low sulfur market will be about 94 percent of the market. Most supply sources will be marketing all or predominately ultra low sulfur distillate. The on-road and non-road diesel conversions to <15 ppm were complete more than 5 years earlier. Supplying the additional <15ppm product would not place significant strain on the market, assuming adequate notice was provided to suppliers”

Cost of Compliance



- Over a ten year period (1993-2003), the incremental cost between 2500 ppm and 500 ppm distillate averaged 1.5 cents per gallon
- Over past several years this delta has been higher, due in part to rapid changes in the oil industry as result of environmental regulations
- In the past year the gap has begun to close
- As market moves toward nearly all ULSD, the incremental cost of high, low and ultra-low product should normalize

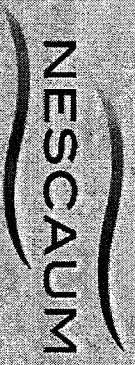
Cost of Compliance



NORA study estimates:

- 6.3 to 6.8 cents/gal incremental production cost for 500 ppm vs. 2500 ppm sulfur distillate, including capital costs
- Cost will increase to as high as 8.9 cents/gal for 15 ppm
- However, where refiners have de-sulfurization capabilities, incremental cost of producing ultra low sulfur distillate will be less than 5 cents/gal

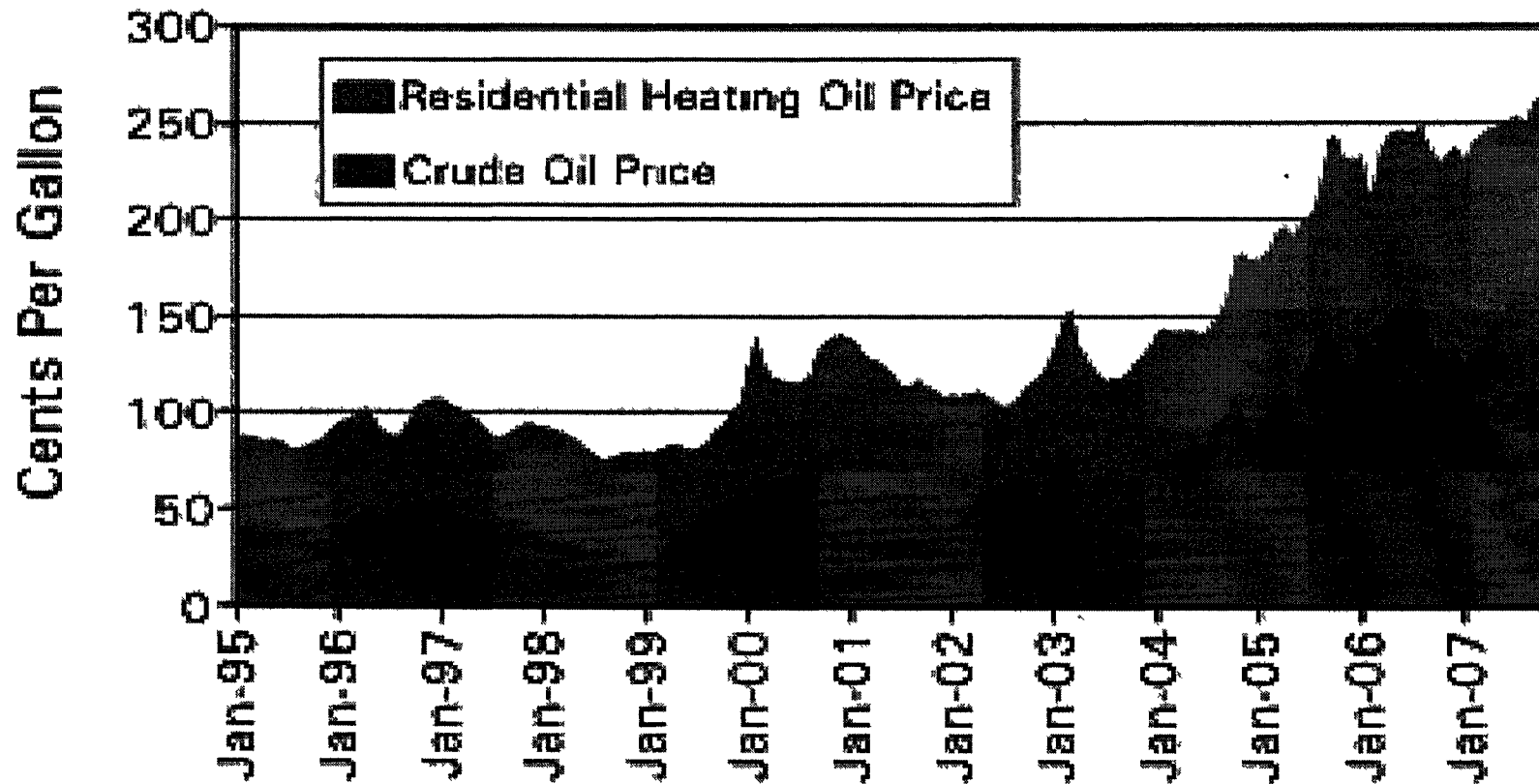
Cost vs. Price



- Forces other than production costs will also play role in determining the price differential that consumers will pay for cleaner heating oil
- Relative cost of diesel fuel compared to gasoline this past year is good example
- Similarly, heating oil prices didn't always track well with crude oil prices
- It is difficult to predict actual price impact of low sulfur regs and of course this is what consumers & politicians want to know

Historical Price

Monthly Prices



Source: EIA, Petroleum Marketing Monthly, January 1995-present

Heating Price on NY Spot Market \$/gallon



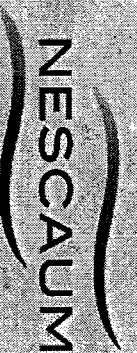
1-2-04	\$1.01
1-2-05	\$1.17
1-2-06	\$1.77
1-2-07	\$1.66
1-2-08	\$2.73
7-14-08	\$4.03

Comparative Price \$/gal on NY Spot Market



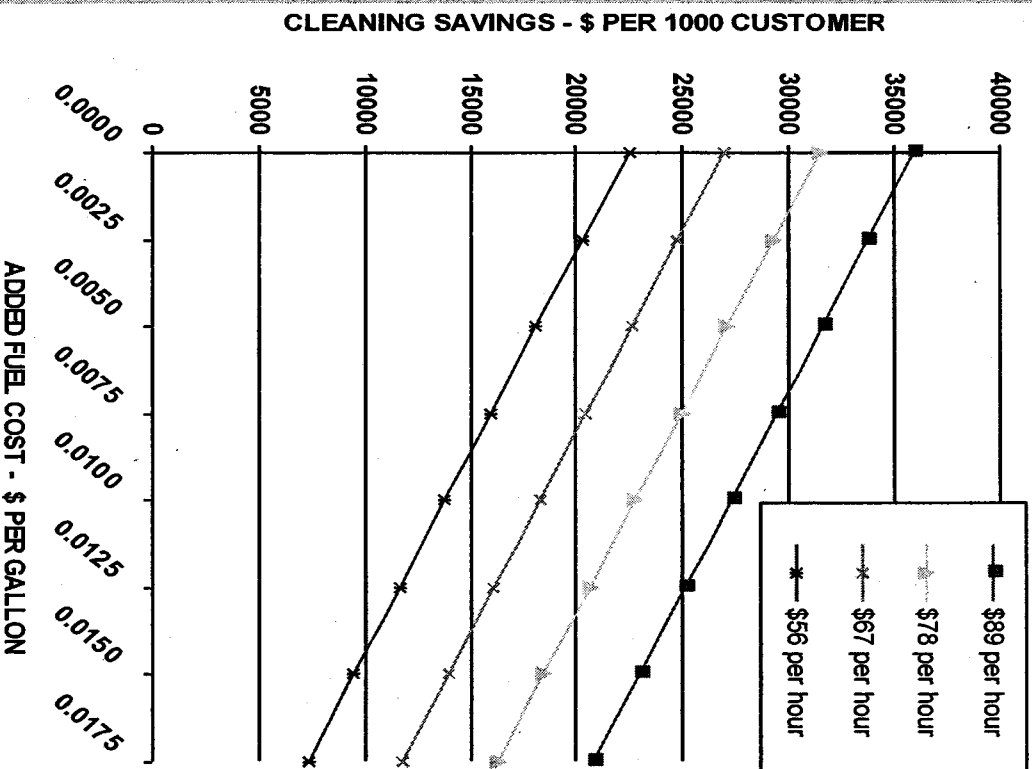
	9/10/08	9/10/07
#2 Fuel Oil	\$2.87	\$2.21
500ppm Diesel	\$2.94	\$2.27
15ppm Diesel	\$2.97	\$2.33

Consumer Benefits of Low Sulfur Heating Oil



- Sulfur reductions can save consumer money
- Low sulfur heating oil reduces rate of fouling of heating equipment & therefore reduces maintenance
- Cleaner furnaces/boilers burn less fuel
- Table shows net cost savings per 1,000 households at various cost points

For: 0.25% S (initial) and 865 Gal per Year



Politics of Adopting Low Sulfur Heating Standards

- Cost increment of cleaner fuel is tiny compared to other economic factors that have already increased price by 3x to 4x since states began to consider this strategy in 2004
- However, in light of the tremendous increase in heating oil prices over the past couple of seasons, heating costs are “prime time” political issue today
- States are concerned about their ability to get regulations through in this political climate without buy-in of industry & strong support from environmental community



Regional Initiative for Low Sulfur Distillate/Residual Oil

- States will need to clearly articulate both the environmental/public health & supply/cost impacts of this strategy
- Successful adoption and implementation of low sulfur strategy will likely hinge on states, industry, consumer groups & environmental community providing a unified message to Governors & state legislatures about the program's merit & viability

Oilheat Industry Perspective

- Oilheat dealers are generally supportive of lowering sulfur as means of “greening” their image relative to natural gas competitors
- In recent hearings in NYC, wholesalers & retailers voiced support for M-V approach & timeline
- Timing & avoiding patchwork of different requirements are key to this support
- Rapidly rising oil heat costs may temper industry support

Potential Next Steps

- Hold small meetings with:
 1. wholesalers
 2. retailers
 3. refiners
- Hold more public workshop/conference with above groups, energy officials, equipment manufacturers, consumer groups

Other Heating Oil Issues

- Biofuels
- Mercury in heating oil
- Low carbon fuel standard

Adding Biodiesel to Low Sulfur Heating Oil

- Biofuels can be blended with low sulfur diesel to further reduce emissions and extend heating oil supplies with domestic feedstocks
- Biofuels, including soy-based biodiesel, contain negligible amounts of sulfur and nitrogen and no mercury
- Biofuels can be produced locally from variety of materials

Benefits of Adding Biodiesel to Low Sulfur Heating Oil



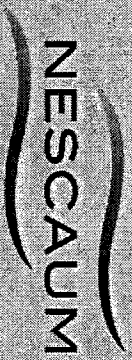
Emission Benefits of Low Sulfur Heating Oil and Biodiesel Blends
 (% reduction compared to 2,500 ppm sulfur fuel)

Pollutant	Reduction with 500 ppm Sulfur Heating Oil	Reduction with 500 ppm Sulfur Heating Oil/Biodiesel Blend (80/20)
SO₂	75%	84 %
PM	80	>80 %¹
NO_x	10	20 %
Hg	n/a	20 %²
CO₂	1-2%	17-18 %³

•1 Additional PM reductions are expected, but no known test data exists to substantiate this assumption.

•2 Value based on the assumption that biodiesel contains no mercury.

•3 Does not include lifecycle emissions



Mercury Content of Heating Oil

- AP-42 emission factor suggests fairly high mercury content in heating oil
- Neither states, nor industry have been comfortable with this factor
- Northeast states raised this with EPA, but they never followed up
- NESCAUM secured funding from NYSERDA to conduct sampling of #2 & #6 oil to quantify Hg and metal content
- Major suppliers are providing samples

Hg Emission Factors



	#2 Fuel Oil	#6 Fuel Oil
Study Report to Congress-1997	0.96 lbs./10 ⁶ Gallons	1.1 lbs./10 ⁶ Gallons
AP-42 1995 / EPCRA 2000	0.42 lbs./10 ⁶ Gallons	0.113 lbs./10 ⁶ Gallons
L&E Report 1997	0.86 lbs./10 ⁶ Gallons	0.071 lbs./10 ⁶ Gallons
EPCRA 1999	3.34 lbs./10 ⁶ Gallons	0.04 lbs./10 ⁶ Gallons
NHDES 2003	0.013 lbs./10 ⁶ Gallons	0.415 lbs./10 ⁶ Gallons
NESCAUM Preliminary Results	0.02 lbs./10 ⁶ Gallons	Not yet available

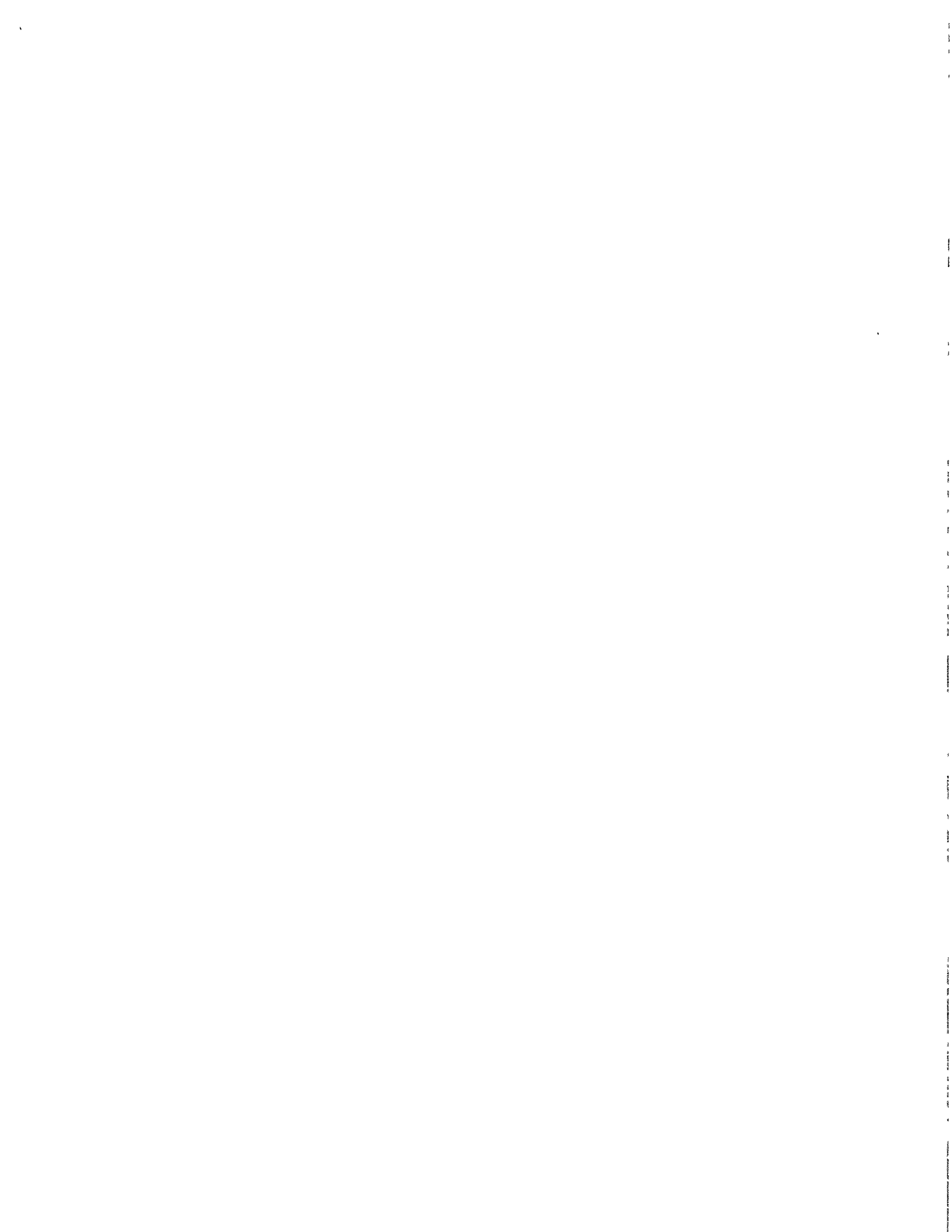
Next Steps for Hg Study

- Study will be complete in 2009
- Assuming final results remain consistent with early sampling, Northeast states and heating oil industry intend to present results to EPA
- Goal is to convince EPA to modify the AP-42 emission factor as appropriate

Low Carbon Fuel Standard



- States in the region are exploring the viability of a low carbon fuel standard as a GHG reduction strategy
- Whereas CA is expected to include only transportation fuels, Northeast is considering including space heating fuels
- One of the options that is being evaluated is fuel switching from high carbon distillate oil to potentially lower carbon (on lifecycle basis) solid and gaseous fuels (wood, natural gas & propane)



From: John Graham [jgraham@nescaum.org]
Sent: Thursday, October 01, 2009 6:07 PM
To: Shulman, Arleen
Arleen

I've attached yet another spreadsheet.

The numbers in this sheet for MV are consistent with what we reported in our modeling for reasonable progress report. We report there reductions of 40k and 140k tons of SO₂ for the S1 strategy (residual and #2 respectively). The actual totals are 184k, which is very similar to the 186 that arthur used in his presentation (slide 10). We also report 27k reduction when moving to the 15 ppm level from 500 for #2 fuels.

You will note that the attribution to the different oils is somewhat different than Arthur's slide. Not sure where those came from, but it's likely the difference is due to assumptions made about baseline S content. The attached spreadsheet has some columns that show our original assumption about fuel S content in 2018 and the final assumption that we actually used in modeling the sulfur strategies.

The spreadsheet has PA specific totals as well, broken down by fuel and reduction step.
4034 TPY reduction achieved by moving from 500 to 15 ppm in #2
3924 TPY reduction through reductions in #4 and #6
and 20795 TPY reduction when moving to 500 ppm #2 from the baseline assumption.

If you want more specific SCC based information, the spreadsheet details for PA are also included.

As far as citation—the original spreadsheet I used is called LowSfuel_NEW.xls. This is an interim product we used to prepare the emissions inventory for our final round of modeling for the 2018 S control strategies run. The data in the spreadsheet attached here is excerpted from my LowSfuel workbook.

Please let me know if this does not provide you with the information you need and I'll try to get you other details.

-John

John Graham
Senior Scientist
(Please note our new address as of 5-11-09)
NESCAUM
89 South Street, Suite 602
Boston, MA 02111

617-259-2023 (direct line)
617-259-2000 (main line)
617-742-9162 (fax)

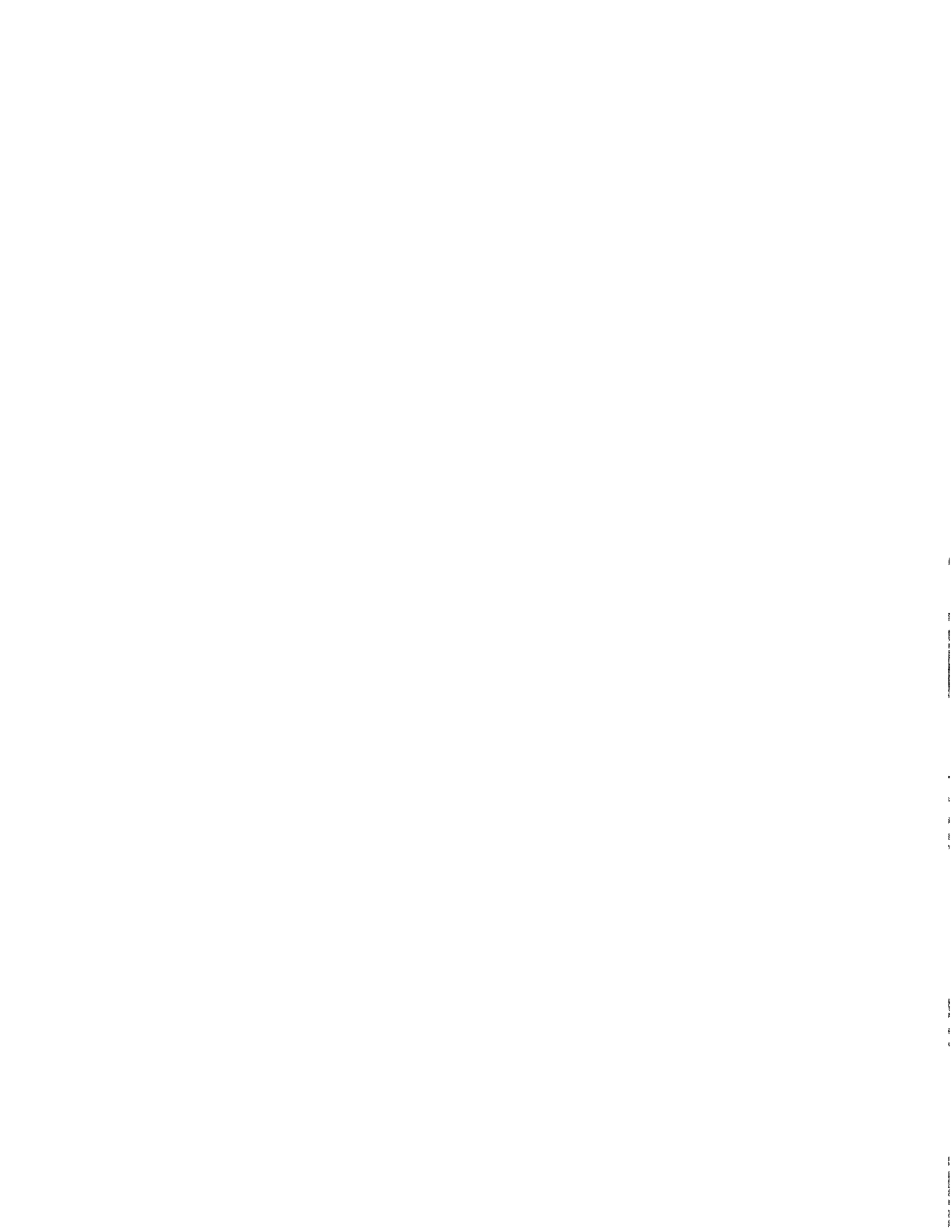
	SO2 Emission (tons/yr)			
	Untagged	Tag A	Tag B	Tag C
MANE-VU total	41,140	27,045	42,875	141,177

These MV values are consistent with the report Modeling for Reasonable Progress from Feb 2008, as reported on pages 58 and 59 of 74. We rounded the numbers to the nearest 10k for the S1 strategy and nearest 1k for S2.

S1 strategy is the sum of tags B plus C
 S2 is just Tag A

State	Untagged	Tag A	Tag B	Tag C	Total Reduction of all 3 tags
42	3,948	4,034	3,924	20,795	28,753

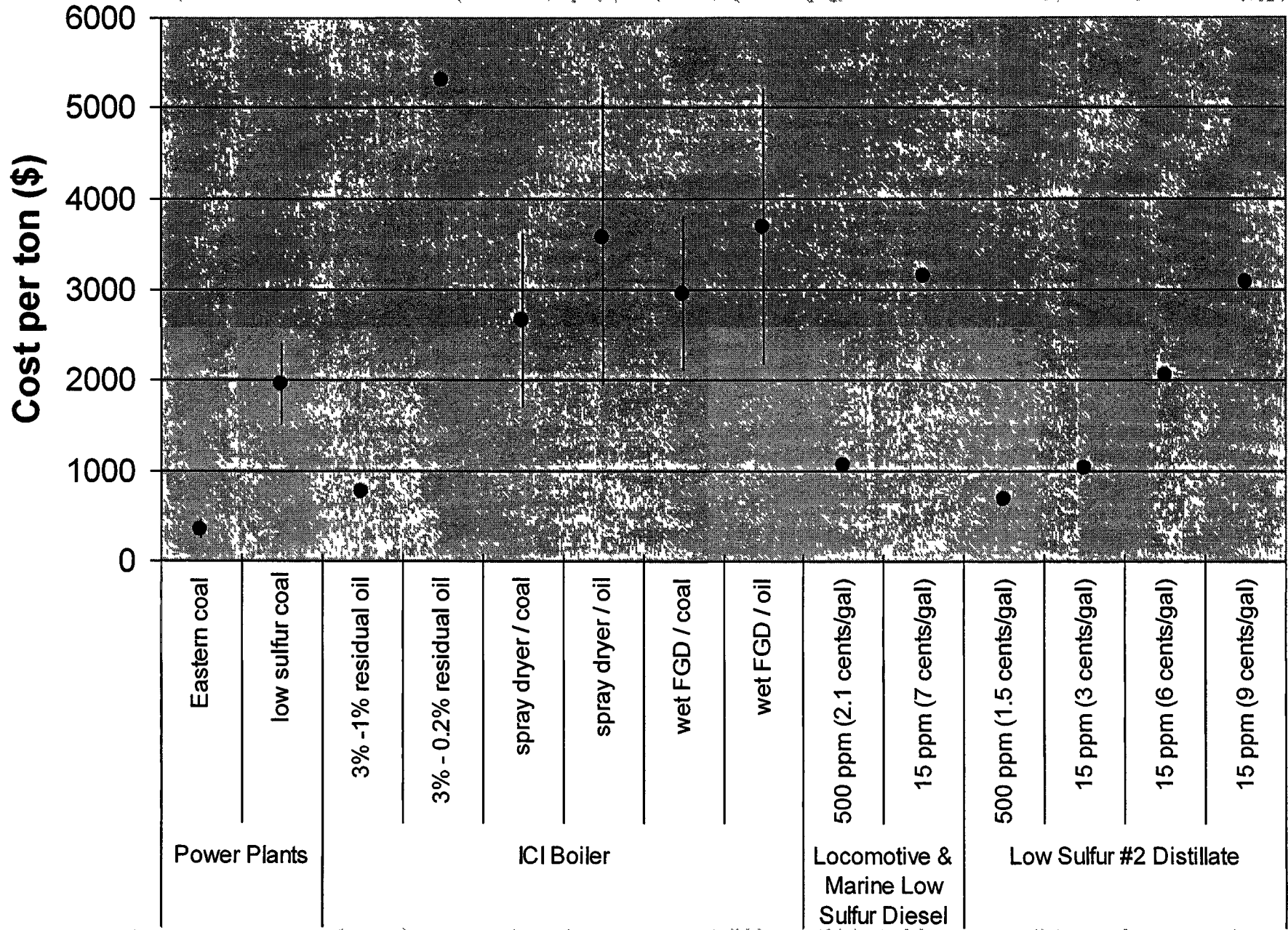
These values above are the PA specific reduction totals that were modeled. Details of specific SSC emissions are in the spreadsheet SCC Emissions



Cost-Effectiveness of SO₂ Control Measures

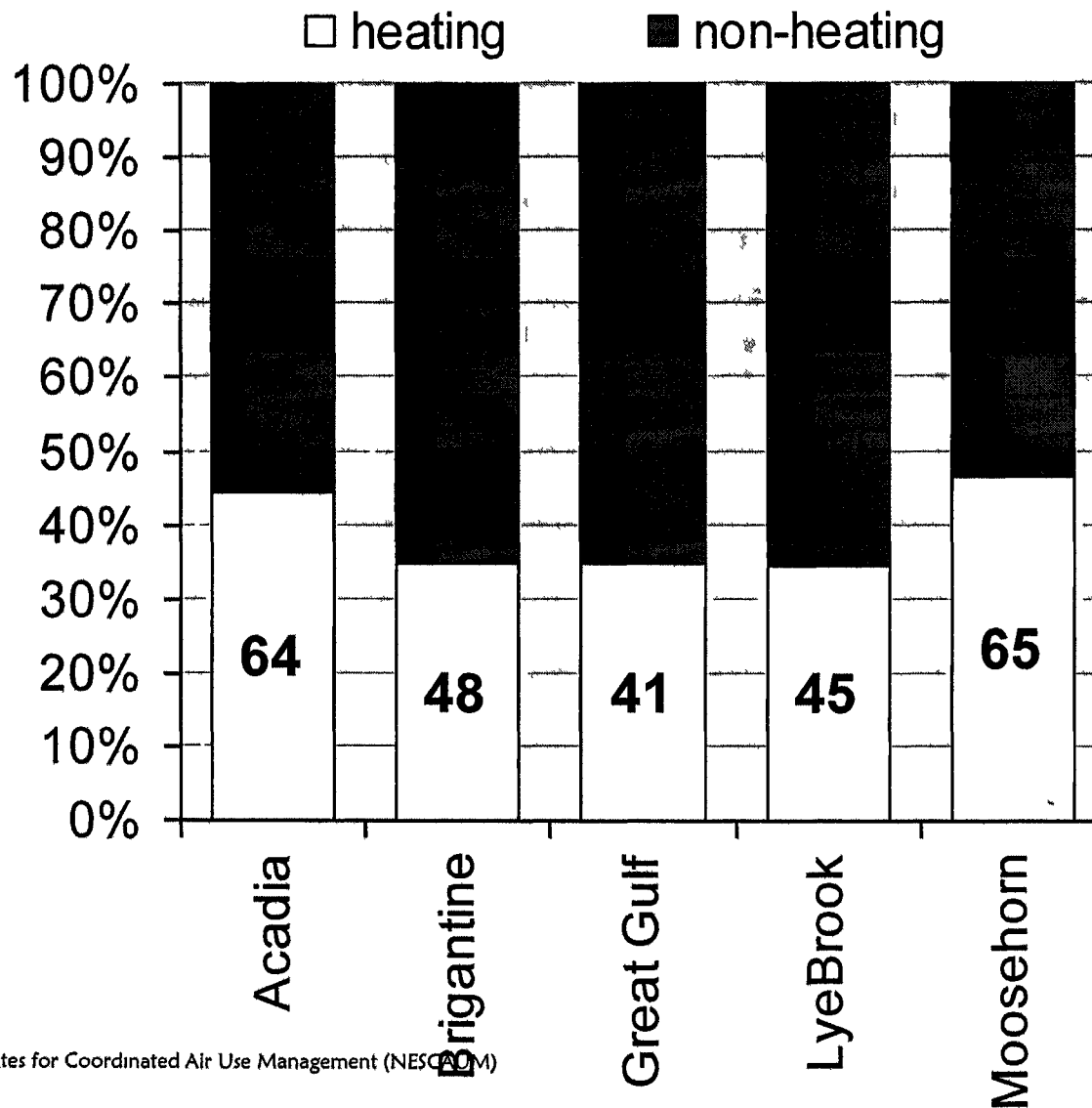
Source/Control Strategy		\$/ton SO ₂ Reduced
Power Plants	scrubbers - Eastern coal	\$250-\$450
	scrubbers - low sulfur coal	\$1,500-\$2,400
ICI Boiler	3% to 1% residual oil	\$770
	3% to 0.2% residual	\$5,300
	spray dryer / coal	\$1,700-\$3,600
	spray dryer / oil	\$1,940-\$5,200
	wet FGD / coal	\$2,100-\$3,800
	wet FGD / oil	\$2,170-\$5,200
Locomotive & Marine Low Sulfur Diesel	500 ppm (2.1 cents/gallon)	\$1058
	15 ppm (7 cents/gallon)	\$3154
Low Sulfur #2 Distillate	500 ppm (1.5 cents/gallon)	\$679
	15 ppm (3 cents/gallon)	\$1,026
	15 ppm (6 cents/gallon)	\$2,052
	15 ppm (9 cents/gallon)	\$3,078

Cost-Effectiveness of SO₂ Control Measures

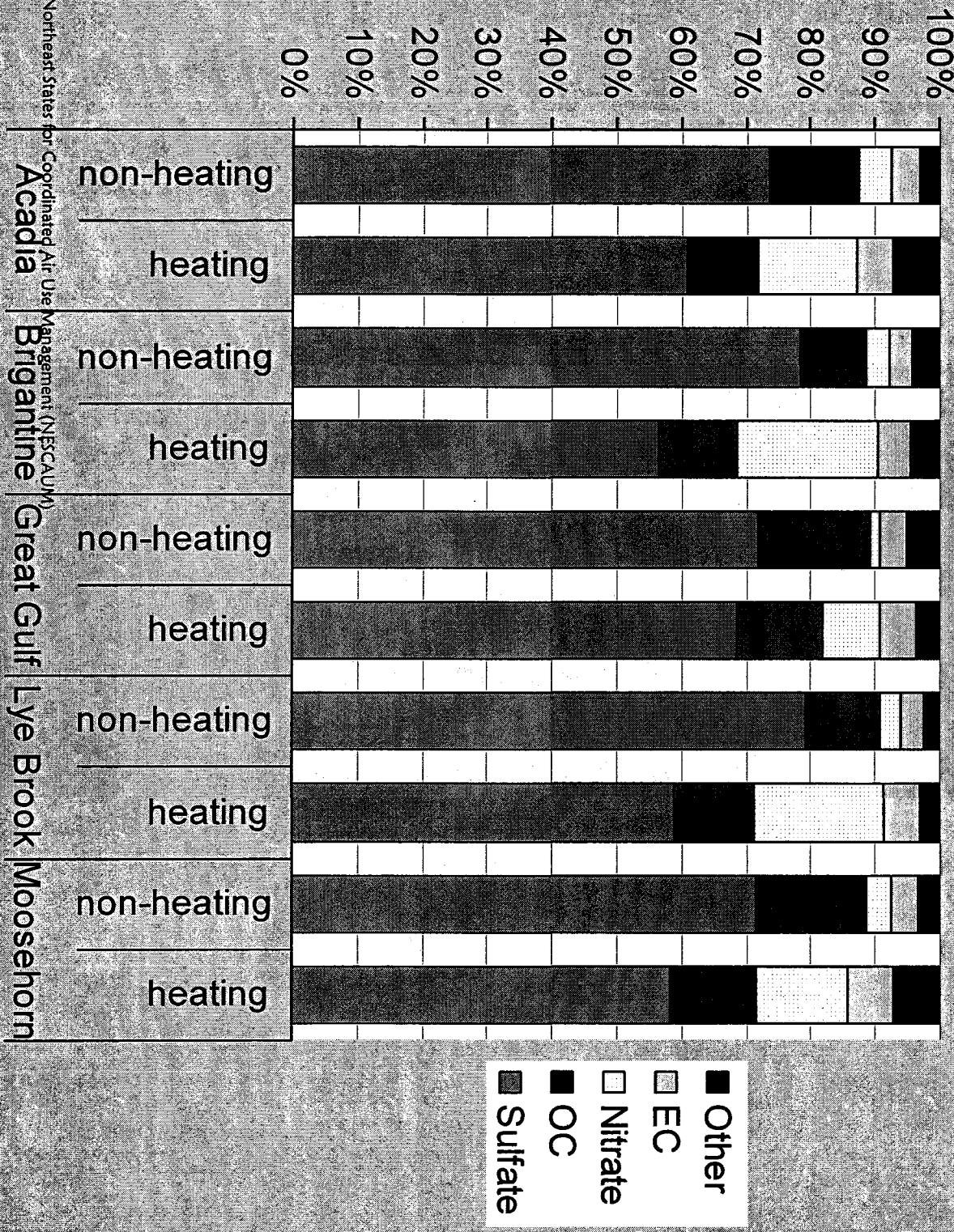


Distribution of 20% Worst Days (2000-2005)

(heating season = Oct-April)

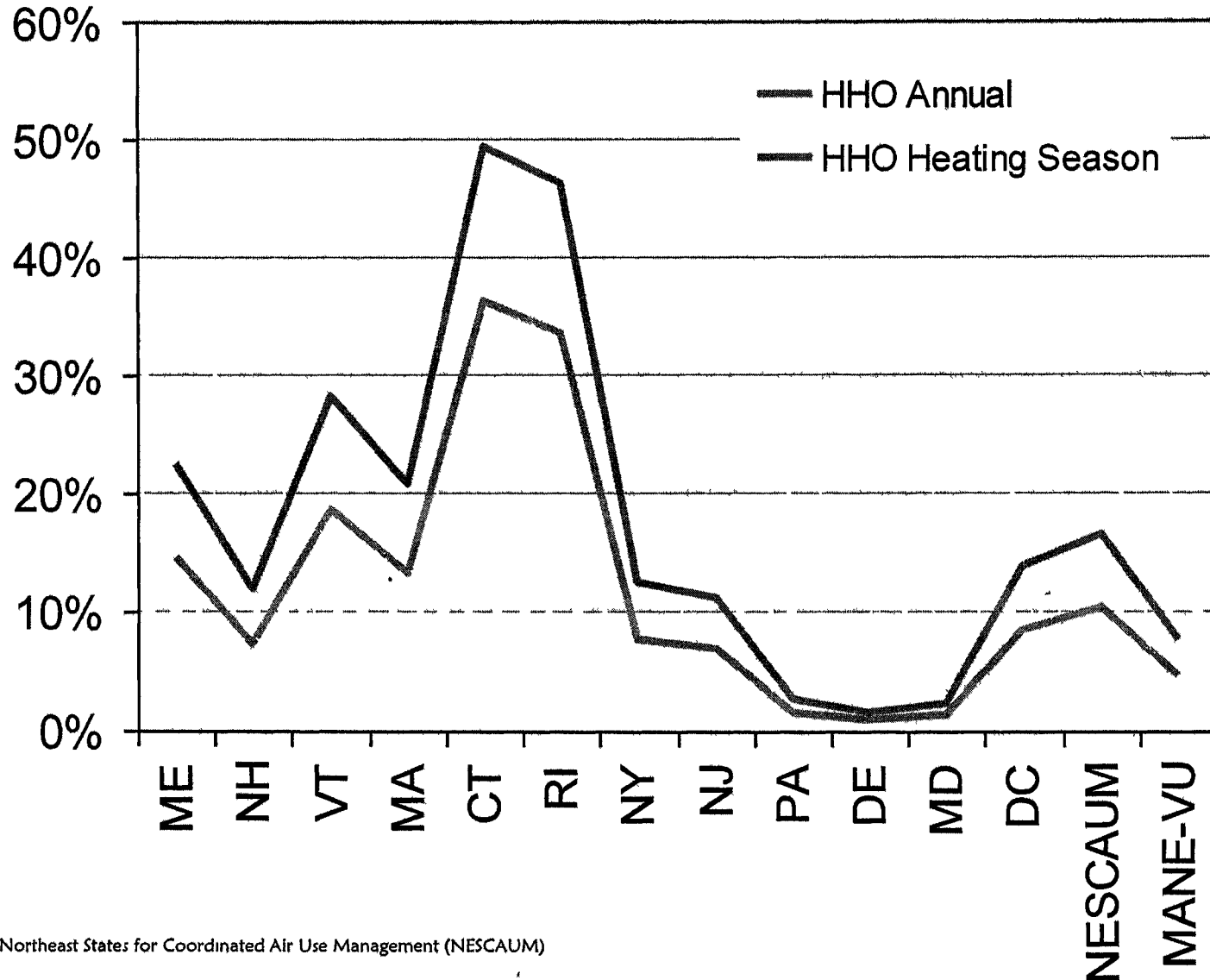


Contribution to Worst Visibility by Species



© 2005 Northeast States for Coordinated Air Use Management (NESCAUM)

Contribution of Home Heating Oil to SO₂ Emission Inventory by State



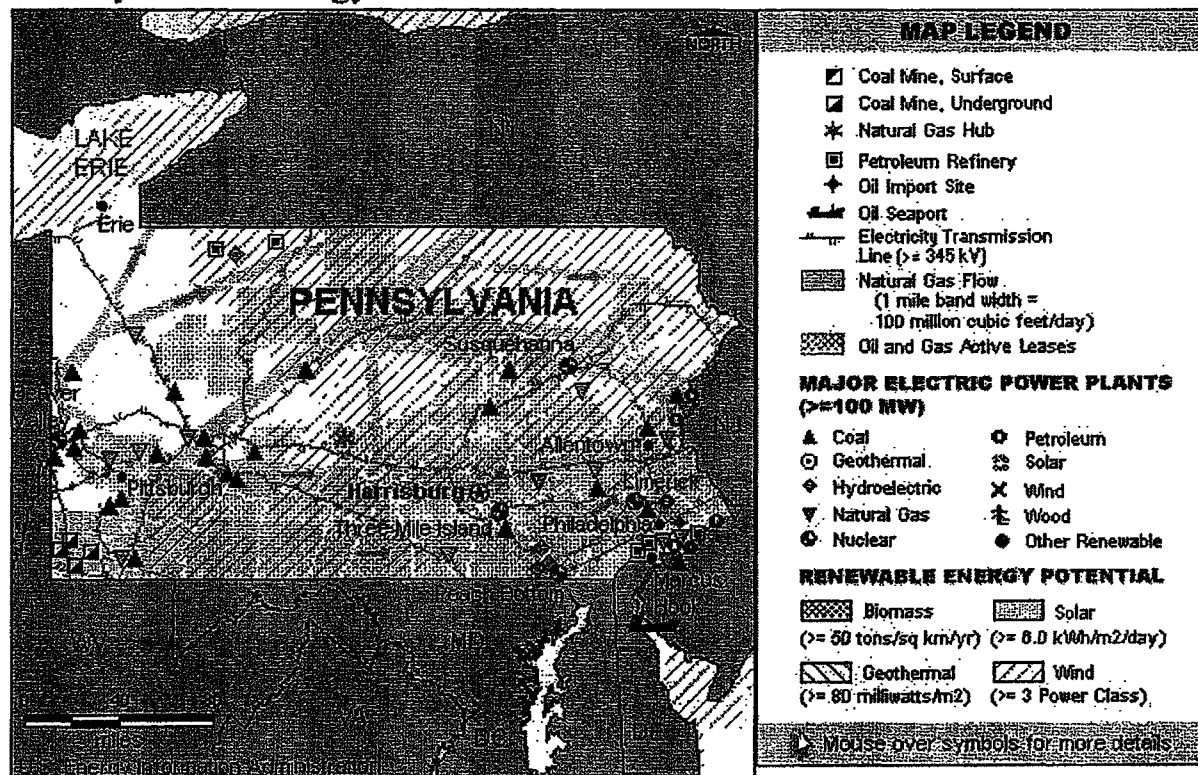
Contribution of Home Heating Oil to SO₂ Emission Inventory by State

	Annual	Heating Season
Maine	15%	23%
New Hampshire	7%	12%
Vermont	19%	28%
Massachusetts	13%	21%
Connecticut	36%	49%
Rhode Island	34%	46%
New York	8%	13%
New Jersey	7%	11%
Pennsylvania	2%	3%
Delaware	1%	2%
Maryland	1%	2%
District of Columbia	9%	14%
NESSCADUM	10%	16%
MANE-VU	5%	8%



U.S. Energy Information
Administration

Pennsylvania Energy Fact Sheet



Last updated in November 2009.

Pennsylvania Quick Facts

- Pennsylvania was the fourth largest coal-producing State in the Nation in 2011, and the only State producing anthracite coal, which has a higher heat value than other kinds of coal.
- Annual gross natural gas production more than doubled in Pennsylvania in 2011, exceeding 1 trillion cubic feet, due to production from the Marcellus shale.
- The first commercial U.S. nuclear power plant came online in 1957 in Shippingport; in 2011, Pennsylvania ranked second in the Nation in electricity generation from nuclear power.
- Pennsylvania generated 44 percent of its net electricity from coal and 33 percent from nuclear power in 2011.
- The State's Alternative Energy Portfolio Standards require 18 percent of electricity provided by 2021 to come from renewable energy resources, including coal mine methane and waste coal; in 2011, renewable energy accounted for 3.3 percent of Pennsylvania's net electricity generation.

Last updated in October 2009.

Data

Last Update: July 19, 2012

Next Update: August 16, 2012

Economy

Population and Employment	Pennsylvania	U.S. Rank	Period
Population	12.7 million	6	2011
Civilian Labor Force	6.5 million	6	May-12
Per Capita Personal Income	\$42,478	19	2011
Industry	Pennsylvania	U.S. Rank	Period
Gross Domestic Product by State	\$ 505.9 billion	6	2010
Land in Farms	7.8 million acres	35	2007
Market Value of Agricultural Products Sold	\$ 5.8 billion	20	2007

Prices

Petroleum	Pennsylvania	U.S. Avg.	Period
Domestic Crude Oil First Purchase	\$98.05/barrel	\$103.67/barrel	Apr-12
Natural Gas	Pennsylvania	U.S. Avg.	Period
Wellhead	NA	\$4.48/thousand cu ft	2010
City Gate	\$5.52/thousand cu ft	\$4.21/thousand cu ft	Apr-12
Residential	\$12.03/thousand cu ft	\$10.75/thousand cu ft	Apr-12
Coal	Pennsylvania	U.S. Avg.	Period
Average Sales Price	\$62.51/short ton	\$35.61/short ton	2010
Delivered to Electric Power Sector	\$ 2.43 /million Btu	\$ 2.42 /million Btu	Apr-12
Electricity	Pennsylvania	U.S. Avg.	Period
Residential	13.07 cents/kWh	11.95 cents/kWh	Apr-12
Commercial	9.41 cents/kWh	9.86 cents/kWh	Apr-12
Industrial	7.23 cents/kWh	6.44 cents/kWh	Apr-12

See more Price data for all States >

Reserves & Supply

Reserves	Pennsylvania	Share of U.S.	Period
Crude Oil	10 million barrels	0.0 %	2009
Dry Natural Gas	6,985 billion cu ft	2.6 %	2009
Natural Gas Plant Liquids	—	—	2008
Recoverable Coal at Producing Mines	558 million short tons	3.1 %	2010
Rotary Rigs & Wells	Pennsylvania	Share of U.S.	Period
Rotary Rigs in Operation	110	5.9 %	2011

Crude Oil Producing Wells	19,841	3.8 %	2009
Natural Gas Producing Wells	44,500	9.1 %	2010
Production	Pennsylvania	Share of U.S.	Period
Total Energy	3,051 trillion Btu	4.1 %	2010
Crude Oil	331 thousand barrels	0.2 %	Apr-12
Natural Gas - Marketed	572,902 million cu ft	2.6 %	2010
Coal	58,593 thousand short tons	5.4 %	2010
Capacity	Pennsylvania	Share of U.S.	Period
Crude Oil Refinery Capacity (as of Jan. 1)	773,000 barrels/calendar day	4.4 %	2011
Electric Power Industry Net Summer Capability	45,575 MW	4.4 %	2010
Net Electricity Generation	Pennsylvania	Share of U.S.	Period
Total Net Electricity Generation	15,797 thousand MWh	5.3 %	Apr-12
Petroleum-Fired	14 thousand MWh	1.4 %	Apr-12
Natural Gas-Fired	4,397 thousand MWh	4.6 %	Apr-12
Coal-Fired	5,068 thousand MWh	5.3 %	Apr-12
Nuclear	5,618 thousand MWh	10.1 %	Apr-12
Hydroelectric	167 thousand MWh	0.6 %	Apr-12
Other Renewables	424 thousand MWh	2.3 %	Apr-12
Stocks	Pennsylvania	Share of U.S.	Period
Motor Gasoline (Excludes Pipelines)	877 thousand barrels	2.5 %	Apr-12
Distillate Fuel Oil (Excludes Pipelines)	3,773 thousand barrels	3.9 %	Apr-12
Natural Gas in Underground Storage	615,948 million cu ft	8.9 %	Apr-12
Petroleum Stocks at Electric Power Producers	1,131 thousand barrels	3.2 %	Apr-12
Coal Stocks at Electric Power Producers	7,730 thousand tons	3.8 %	Apr-12
Production Facilities	Pennsylvania		
Major U.S. Coal Mines	Enlow Fork Mine/Consol Pennsylvania Coal Co. • Bailey Mine/Consol Pennsylvania Coal Co. • Cumberland Mine/Cumberland Coal Resources LP • Emerald Mine No. 1/Emerald Coal Resources LP		
Petroleum Refineries	American Refining Group Inc (Bradford) • ConocoPhillips Co (Trainer) • Sunoco Inc (Marcus Hook) • Sunoco Inc (R&M) (Philadelphia) • United Refining Co (Warren)		
Major Non-Nuclear Electricity Generating Plants	Bruce Mansfield (FirstEnergy Generation Corp) • Homer City Station (Midwest Generations EME LLC) • Keystone (RRI Energy NE Management Co) •		

Conemaugh (RRI Energy NE Management Co) • PPL Martins Creek (PPL Martins Creek LLC)

Nuclear Power Plants PPL Susquehanna (PPL Susquehanna LLC) • Limerick (Exelon Generation Co LLC) • Peach Bottom (Exelon Generation Co LLC) • Beaver Valley (FirstEnergy Nuclear Operating Company) • Three Mile Island (AmerGen Energy Co LLC)

See more Reserves and Supply data for all States >

Distribution & Marketing

Distribution Centers Pennsylvania

Oil Seaports/Oil Import Sites Philadelphia • Marcus Hook.

Natural Gas Market Centers Dominion Hub (Market Center)

Major Pipelines Pennsylvania

Crude Oil None

Petroleum Product Atlantic • Buckeye • Colonial • ExxonMobil • Laurel • Sun.

Liquefied Petroleum Gases TEPPCO

Interstate Natural Gas Pipelines Columbia Gas Transmission Corp. • Dominion Transmission Co. • Eastern Shore Natural Gas Co. • Tennessee Gas Pipeline Co. • Texas Eastern Transmission Corp. • Transcontinental Gas Pipeline Co.

Fueling Stations Pennsylvania Share of U.S. Period

Motor Gasoline 4,713 2.9 % 2008

Liquefied Petroleum Gases 63 2.6 % 2010

Compressed Natural Gas 25 3.0 % 2010

Ethanol 34 1.7 % 2010

Other Alternative Fuels 14 1.1 % 2010

See more Distribution and Marketing data for all States >

Consumption

per Capita Pennsylvania U.S. Rank Period

Total Energy 296 million Btu 33 2010

by Source Pennsylvania Share of U.S. Period

Total Energy 3,759 trillion Btu 3.8 % 2010

Total Petroleum 242.6 million barrels 3.5 % 2010

» Motor Gasoline 122.5 million barrels 3.7 % 2010

» Distillate Fuel 63.2 million barrels 4.6 % 2010

» Liquefied Petroleum Gases 15.2 million barrels 1.9 % 2010

» Jet Fuel 12.4 million barrels 2.4 % 2010

Natural Gas 859,939 million cu ft 3.6 % 2010

Coal	W	W	2010
by End-Use Sector	Pennsylvania	Share of U.S.	Period
Residential	943,875 billion Btu	4.3 %	2010
Commercial	686,954 billion Btu	3.8 %	2010
Industrial	1,134,835 billion Btu	3.7 %	2010
Transportation	993,171 billion Btu	3.6 %	2010
for Electricity Generation	Pennsylvania	Share of U.S.	Period
Petroleum	30 thousand barrels	1.8 %	Apr-12
Natural Gas	32,225 million cu ft	4.3 %	Apr-12
Coal	2,386 thousand short tons	4.6 %	Apr-12
for Home Heating (share of households)	Pennsylvania	U.S. Avg.	Period
Natural Gas	51 %	51.2 %	2000
Fuel Oil	26 %	9.0 %	2000
Electricity	17 %	30.3 %	2000
Liquefied Petroleum Gases	3 %	6.5 %	2000
Other/None	3 %	1.8 %	2000

See more Consumption data for all States >

Environment

Special Programs	Pennsylvania		
Clean Cities Coalitions	Philadelphia • Pittsburgh		
Alternative Fuels	Pennsylvania	Share of U.S.	Period
Alternative-Fueled Vehicles in Use	18,744	2.0 %	2010
Ethanol Plants (as of Feb. 13)	1	0.5 %	2012
Ethanol Plant Capacity (as of Jan. 1)	110 million gal/year	0.8 %	2011
Ethanol Consumption	12,012 thousand barrels	3.9 %	2010
Electric Power Industry Emissions	Pennsylvania	Share of U.S.	Period
Carbon Dioxide	122,829,611 metric tons	5.1 %	2010
Sulfur Dioxide	387,433 metric tons	7.2 %	2010
Nitrogen Oxide	135,887 metric tons	5.5 %	2010

See more Environment data for all States >

— = No data reported.

* = Number less than 0.5 rounded to zero.

NA = Not available.

NM = Not meaningful due to large relative standard error or excessive percentage change.

W = Withheld to avoid disclosure of individual company data.

Note: Small differences between source data and values displayed here may be due to independent rounding.

Click the icon next to a data series to see State rankings for that series.

Analysis

Resources and Consumption

Pennsylvania is rich in fossil fuels. The Appalachian Basin, which covers most of the State, holds substantial reserves of coal and minor reserves of conventional natural gas. The Basin's Marcellus shale region, an area of increased activity in recent years, is estimated to contain potentially large reserves of unconventional shale gas.

Renewable energy resources are also abundant. The Susquehanna River and several smaller river basins offer considerable hydropower resources, and the Appalachian and Allegheny mountain ranges are areas of high wind power potential, as are areas both onshore and offshore along Pennsylvania's short Lake Erie shoreline.

The industrial sector is Pennsylvania's leading energy-consuming sector, due in part to energy-intensive industries including aluminum production, chemical manufacturing, glass making, petroleum refining, forest product manufacturing, and steel production.

Petroleum

Pennsylvania is the leading petroleum-refining State in the Northeast. Although Pennsylvania is credited with drilling the first commercial oil well in 1859, the State's current production is minimal, with output derived primarily from stripper wells that produce less than 10 barrels per day. Pennsylvania's large-scale petroleum refineries are located along the Delaware River near Philadelphia and process primarily foreign crude oil shipped from overseas. These refineries supply regional Northeast markets. In addition to local Pennsylvania and New Jersey refineries, Pennsylvania receives propane via the TEPPCO pipeline from the Gulf Coast and by rail from other States and Canada. To reduce emissions of smog-forming pollutants, motorists in the heavily populated areas of southeastern Pennsylvania, including Philadelphia, are required to use reformulated motor gasoline blended with ethanol. The Pittsburgh area requires 7.8 RVP gasoline, a fuel specially blended to reduce emissions that contribute to ozone formation.

Pennsylvania, along with much of the U.S. Northeast, is vulnerable to distillate fuel oil shortages and price spikes during winter months, due to high demand for home heating. More than one-fifth of Pennsylvania households rely on fuel oil as their primary energy source for home heating. In January and February 2000, distillate fuel oil prices rose sharply when extreme winter weather increased demand unexpectedly and hindered the arrival of new supply, as frozen rivers and high winds slowed the docking and unloading of barges and tankers. In July 2000, in order to reduce the risk of future shortages, the President directed the U.S. Department of Energy to establish the Northeast Heating Oil Reserve. The Reserve gives Northeast consumers adequate supplies for about 10 days, the time required for ships to carry heating oil from the Gulf of Mexico to New York Harbor. The Reserve's storage terminals are located in Perth Amboy, New Jersey, and Groton and New Haven, Connecticut.

Natural Gas

Although minor, Pennsylvania's natural gas production has grown in recent years. The State's Marcellus shale region, in particular, has experienced markedly increased new development over the past few years. However, compared to Pennsylvania's total natural gas production, shale gas production remains minimal.

Pennsylvania remains dependent on several major interstate pipelines, most of which originate in the Gulf Coast region, to meet the majority of State demand. Two proposed projects could increase natural gas supply to Pennsylvania: an eastern expansion of the Rockies Express Pipeline system, which is expected to be completed in 2009 and a liquefied natural gas (LNG) terminal in Logan Township, New Jersey, just across the Delaware River from Philadelphia, that has been approved by the Federal Energy Regulatory Commission (FERC) but for which construction has not begun. Pennsylvania delivers over three-fifths of its natural gas receipts to New Jersey.

Pennsylvania's natural gas storage capacity is among the highest in the Nation, which allows the State to store the fuel during the summer when national demand is typically low, and quickly ramp up delivery during the winter months when markets across the Nation require greater volumes of natural gas to meet their home heating needs. Natural gas is used in Pennsylvania primarily for residential and industrial use, although its use for electricity generation has grown rapidly in recent years.

Coal, Electricity, and Renewables

Pennsylvania is a major coal-producing State. Northeastern Pennsylvania's coal region holds the Nation's largest remaining reserves of anthracite coal, a type of coal that burns cleanly with little soot. It is used primarily as a domestic fuel in either hand-fired stoves or automatic stoker furnaces. Although Pennsylvania supplies virtually all of the Nation's anthracite, most of the State's coal production consists of bituminous coal mined in the western part of the State, where several of the Nation's largest underground coal mines are located. Enlow Fork Mine is the largest underground coal mine in the United States.

Large volumes of coal are moved both into and out of Pennsylvania, mostly by railcar, river barge, and truck. Pennsylvania transports close to one-half of its coal production to other States throughout the East Coast and Midwest. Pennsylvania coal demand is high, and it is one of the top coal-consuming States in the Nation. Pennsylvania's coal dominates the State's power generation market, typically accounting for more than one-half of net electricity production.

Pennsylvania's electricity markets also rely substantially on nuclear power, and the State ranks second in the Nation after Illinois in nuclear generating capacity. Pennsylvania's five operating nuclear plants have supplied slightly more than one-third of State electricity generation in recent years. Nuclear power has been an important fuel for electricity generation in Pennsylvania since 1957, when the first commercial U.S. nuclear power plant came online in Shippingport. The Shippingport plant was shut down and decommissioned in 1982 after 25 years of service. Pennsylvania's nuclear power industry has experienced problems in the past. In 1979, an accident led to a partial meltdown at the Three Mile Island nuclear plant and became the most serious accident in U.S. nuclear power plant operating history, changing the U.S. nuclear industry and leading to sweeping changes at the Nuclear Regulatory Commission.

Pennsylvania is one of the top electricity-producing States in the Nation and electricity production exceeds State demand. Pennsylvania is among the largest users of municipal solid waste and landfill gas for electricity generation and produces substantial hydroelectric power. The State also produces a small amount of energy from wind. In December 2004, Pennsylvania adopted an alternative energy portfolio standard that requires electric distribution companies and generators in the State to supply 18.5 percent of Pennsylvania's electricity from alternative energy sources by 2020.

Last updated in October 2009.



U.S. Energy Information Administration

PETROLEUM & OTHER LIQUIDS

OVERVIEW | **DATA** | ANALYSIS & PROJECTIONS

GLOSSARY > FAQs >

Adjusted Sales of Distillate Fuel Oil by End Use (Thousand Gallons)

Area: Pennsylvania Period: Annual

Show Data By:		Graph	2005	2006	2007	2008	2009	2010	View History
<input checked="" type="radio"/> End Use	<input type="radio"/> Area	Clear							
Total		<input type="checkbox"/>	2,866,167	2,821,319	2,878,402	2,598,535	2,457,283	2,475,242	1984-2010
Residential		<input checked="" type="checkbox"/>	728,147	637,368	663,714	605,486	582,268	593,758	1984-2010
Commercial		<input type="checkbox"/>	224,141	215,057	196,263	200,761	183,574	164,197	1984-2010
Industrial		<input type="checkbox"/>	97,754	148,536	202,425	188,443	104,416	84,267	1984-2010
Oil Company		<input type="checkbox"/>	4,168	7,484	7,486	5,998	2,575	6,177	1984-2010
Farm		<input type="checkbox"/>	31,241	44,030	6,320	40,658	45,338	54,507	1984-2010
Electric Power		<input type="checkbox"/>	95,525	45,179	2,204	27,857	27,508	28,251	1984-2010
Railroad		<input type="checkbox"/>	90,665	104,965	114,769	113,077	98,083	123,307	1984-2010
Vessel Bunkering		<input type="checkbox"/>	21,785	23,857	4,889	21,728	17,486	13,335	1984-2010
On-Highway		<input type="checkbox"/>	1,490,749	1,514,985	1,474,806	1,329,902	1,301,882	1,316,216	1984-2010
Military		<input type="checkbox"/>	7,222	4,885	8,702	6,892	6,542	2,756	1984-2010
Off-Highway		<input type="checkbox"/>	74,769	74,972	6,824	57,742	87,612	86,471	1984-2010
All Other		<input type="checkbox"/>	--	--	0	0	0	0	1984-2010

-- = No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data.

Notes: Sales of distillate fuel oil have been adjusted at the PAD District level. Totals may not equal sum of components due to independent rounding. See Definitions, Sources, and Notes link above for more information on this table.

Release Date: 2/28/2012
Next Release Date: 2/28/2013

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✓



U.S. Energy Information Administration

PETROLEUM & OTHER LIQUIDS

OVERVIEW DATA ANALYSIS & PROJECTIONS

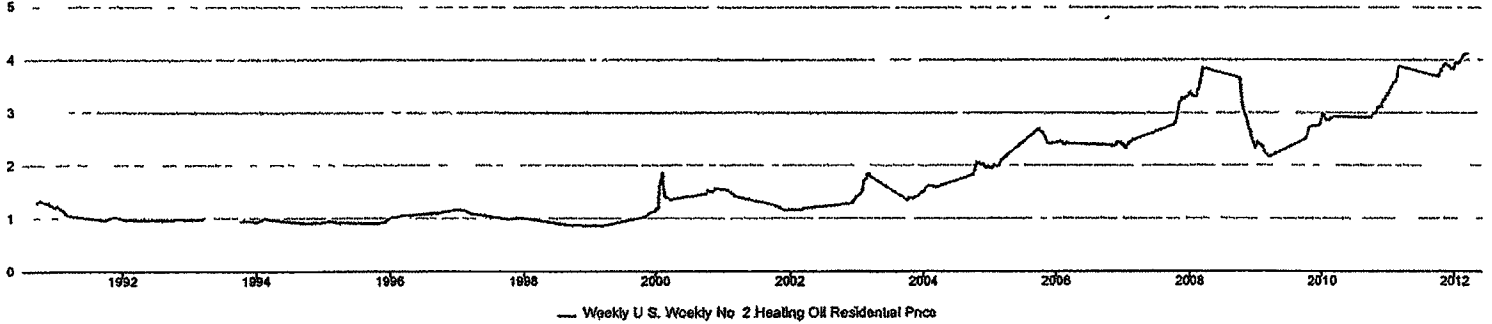
GLOSSARY FAQs

View History Weekly

Download Data (XLS File)

Weekly U.S. Weekly No. 2 Heating Oil Residential Price

Dollars per Gallon



Source: U.S. Energy Information Administration

Chart Tools
no analysis applied

Weekly U.S. Weekly No. 2 Heating Oil Residential Price (Dollars per Gallon)

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
1990-Oct	10/01	1.279			10/15	1.332				
1990-Nov	11/05	1.304			11/19	1.289				
1990-Dec	12/03	1.285			12/17	1.239				
1991-Jan	01/07	1.205			01/21	1.226				
1991-Feb	02/04	1.180			02/18	1.145				
1991-Mar	03/04	1.097			03/18	1.054				
1991-Oct	10/07	0.955			10/21	0.987				
1991-Nov	11/04	1.007			11/18	1.027				
1991-Dec	12/02	1.021			12/16	1.007				
1992-Jan	01/06	0.980			01/20	0.973				
1992-Feb	02/03	0.972			02/17	0.976				
1992-Mar	03/02	0.968			03/16	0.963				
1992-Oct	10/05	0.964			10/19	0.980				
1992-Nov	11/02	0.984			11/16	0.983				
1992-Dec	12/07	0.973			12/21	0.974				
1993-Jan	01/04	0.974			01/18	0.975				
1993-Feb	02/01	0.974			02/15	0.978				
1993-Mar	03/01	0.977			03/15	0.985				
1993-Apr	04/05	NA								
1993-Oct	10/04	0.936			10/18	0.947				
1993-Nov	11/01	0.946			11/15	0.947				
1993-Dec	12/06	0.938			12/20	0.926				
1994-Jan	01/03	0.921			01/17	0.947			01/31	0.966
1994-Feb	02/07	0.987	02/14	0.994	02/21	0.988	02/28	0.987		
1994-Mar	03/07	0.979			03/21	0.970				
1994-Oct	10/03	0.902			10/17	0.904				
1994-Nov	11/07	0.910			11/21	0.913				
1994-Dec	12/05	0.915			12/19	0.919				
1995-Jan	01/02	0.925			01/16	0.928				
1995-Feb	02/06	0.928			02/20	0.931				
1995-Mar	03/06	0.928			03/20	0.923				
1995-Oct	10/02	0.899			10/16	0.902				
1995-Nov	11/06	0.908			11/20	0.919				
1995-Dec	12/04	0.931			12/18	0.964				
1996-Jan	01/01	0.999			01/15	1.022				
1996-Feb	02/05	1.012			02/19	1.037				
1996-Mar	03/04	1.049			03/18	1.052				
1996-Oct	10/07	1.105			10/21	1.131	10/28	1.133		
1996-Nov	11/04	1.126	11/11	1.124	11/18	1.135	11/25	1.143		
1996-Dec	12/02	1.145	12/09	1.156	12/16	1.155	12/23	1.162	12/30	1.159
1997-Jan	01/06	1.159	01/13	1.163	01/20	1.160	01/27	1.156		
1997-Feb	02/03	1.154			02/17	1.140				
1997-Mar	03/03	1.114			03/17	1.093				
1997-Oct	10/06	0.983			10/20	0.987				
1997-Nov	11/03	0.992			11/17	1.001				
1997-Dec	12/01	1.005			12/15	1.001				
1998-Jan	01/05	0.998			01/19	0.989				

1998-Feb	02/02	0.984			02/16	0.977								
1998-Mar	03/02	0.969			03/16	0.957								
1998-Oct	10/05	0.862			10/19	0.869								
1998-Nov	11/02	0.869			11/16	0.866								
1998-Dec	12/07	0.857			12/21	0.855								
1999-Jan	01/04	0.857			01/18	0.863								
1999-Feb	02/01	0.863			02/15	0.857								
1999-Mar	03/01	0.854			03/15	0.858								
1999-Oct	10/04	0.998			10/18	1.006								
1999-Nov	11/01	1.018			11/15	1.054								
1999-Dec	12/06	1.109			12/20	1.121								
2000-Jan	01/03	1.145			01/17	1.193	01/24	1.615	01/31	1.667				
2000-Feb	02/07	1.861	02/14	1.574	02/21	1.431	02/28	1.399						
2000-Mar	03/06	1.394	03/13	1.382	03/20	1.353								
2000-Oct	10/02	1.456	10/09	1.460	10/16	1.526	10/23	1.506	10/30	1.505				
2000-Nov	11/06	1.498	11/13	1.506	11/20	1.545	11/27	1.564						
2000-Dec	12/04	1.560	12/11	1.561	12/18	1.545	12/25	1.540						
2001-Jan	01/01	1.550	01/08	1.542	01/15	1.535	01/22	1.531	01/29	1.525				
2001-Feb	02/05	1.506	02/12	1.499	02/19	1.477	02/26	1.462						
2001-Mar	03/05	1.443	03/12	1.428	03/19	1.407								
2001-Oct	10/01	1.256	10/08	1.246	10/15	1.240	10/22	1.227	10/29	1.226				
2001-Nov	11/05	1.211	11/12	1.201	11/19	1.180	11/26	1.167						
2001-Dec	12/03	1.159	12/10	1.155	12/17	1.149	12/24	1.152	12/31	1.159				
2002-Jan	01/07	1.168	01/14	1.166	01/21	1.162	01/28	1.161						
2002-Feb	02/04	1.163	02/11	1.160	02/18	1.160	02/25	1.159						
2002-Mar	03/04	1.161	03/11	1.173	03/18	1.187								
2002-Oct	10/07	1.256	10/14	1.264	10/21	1.271	10/28	1.272						
2002-Nov	11/04	1.277	11/11	1.275	11/18	1.272	11/25	1.279						
2002-Dec	12/02	1.284	12/09	1.299	12/16	1.323	12/23	1.363	12/30	1.408				
2003-Jan	01/06	1.428	01/13	1.431	01/20	1.453	01/27	1.497						
2003-Feb	02/03	1.535	02/10	1.716	02/17	1.731	02/24	1.752						
2003-Mar	03/03	1.838	03/10	1.854	03/17	1.803								
2003-Oct	10/06	1.344	10/13	1.379	10/20	1.383	10/27	1.386						
2003-Nov	11/03	1.383	11/10	1.386	11/17	1.400	11/24	1.411						
2003-Dec	12/01	1.413	12/08	1.426	12/15	1.459	12/22	1.489	12/29	1.491				
2004-Jan	01/05	1.498	01/12	1.562	01/19	1.584	01/26	1.622						
2004-Feb	02/02	1.625	02/09	1.615	02/16	1.611	02/23	1.609						
2004-Mar	03/01	1.603	03/08	1.601	03/15	1.591								
2004-Oct	10/04	1.828	10/11	1.908	10/18	1.992	10/25	2.060						
2004-Nov	11/01	2.060	11/08	2.028	11/15	2.017	11/22	2.025	11/29	2.030				
2004-Dec	12/06	1.970	12/13	1.947	12/20	1.993	12/27	1.978						
2005-Jan	01/03	1.951	01/10	1.946	01/17	1.964	01/24	1.990	01/31	2.018				
2005-Feb	02/07	1.990	02/14	1.981	02/21	1.984	02/28	2.043						
2005-Mar	03/07	2.089	03/14	2.119										
2005-Oct	10/03	2.692	10/10	2.648	10/17	2.650	10/24	2.623	10/31	2.577				
2005-Nov	11/07	2.508	11/14	2.466	11/21	2.431	11/28	2.417						
2005-Dec	12/05	2.410	12/12	2.414	12/19	2.438	12/26	2.433						
2006-Jan	01/02	2.493	01/09	2.444	01/16	2.431	01/23	2.463	01/30	2.461				
2006-Feb	02/06	2.462	02/13	2.410	02/20	2.387	02/27	2.410						
2006-Mar	03/06	2.443	03/13	2.419										
2006-Oct	10/02	2.396	10/09	2.387	10/16	2.385	10/23	2.387	10/30	2.382				
2006-Nov	11/06	2.370	11/13	2.380	11/20	2.374	11/27	2.379						
2006-Dec	12/04	2.442	12/11	2.444	12/18	2.444	12/25	2.434						
2007-Jan	01/01	2.415	01/08	2.388	01/15	2.351	01/22	2.333	01/29	2.360				
2007-Feb	02/05	2.413	02/12	2.449	02/19	2.453	02/26	2.473						
2007-Mar	03/05	2.496	03/12	2.495										
2007-Oct	10/01	2.774	10/08	2.774	10/15	2.794	10/22	2.869	10/29	2.953				
2007-Nov	11/05	3.110	11/12	3.206	11/19	3.215	11/26	3.287						
2007-Dec	12/03	3.274	12/10	3.259	12/17	3.298	12/24	3.301	12/31	3.341				
2008-Jan	01/07	3.395	01/14	3.361	01/21	3.330	01/28	3.316						
2008-Feb	02/04	3.308	02/11	3.305	02/18	3.395	02/25	3.461						
2008-Mar	03/03	3.550	03/10	3.677	03/17	3.852								
2008-Oct	10/06	3.663	10/13	3.390	10/20	3.227	10/27	3.059						
2008-Nov	11/03	2.987	11/10	2.941	11/17	2.890	11/24	2.713						
2008-Dec	12/01	2.680	12/08	2.512	12/15	2.470	12/22	2.409	12/29	2.330				
2009-Jan	01/05	2.365	01/12	2.439	01/19	2.421	01/26	2.400						
2009-Feb	02/02	2.389	02/09	2.359	02/16	2.308	02/23	2.233						
2009-Mar	03/02	2.220	03/09	2.182	03/16	2.160								
2009-Oct	10/05	2.501	10/12	2.533	10/19	2.636	10/26	2.722						
2009-Nov	11/02	2.734	11/09	2.747	11/16	2.744	11/23	2.748	11/30	2.747				
2009-Dec	12/07	2.763	12/14	2.748	12/21	2.754	12/28	2.797						
2010-Jan	01/04	2.880	01/11	2.984	01/18	2.952	01/25	2.898						
2010-Feb	02/01	2.864	02/08	2.851	02/15	2.855	02/22	2.903						
2010-Mar	03/01	2.900	03/08	2.919	03/15	2.929								
2010-Oct	10/04	2.910	10/11	2.953	10/18	2.972	10/25	2.987						
2010-Nov	11/01	2.992	11/08	3.078	11/15	3.125	11/22	3.110	11/29	3.113				
2010-Dec	12/06	3.204	12/13	3.242	12/20	3.260	12/27	3.314						
2011-Jan	01/03	3.339	01/10	3.362	01/17	3.450	01/24	3.478	01/31	3.523				
2011-Feb	02/07	3.577	02/14	3.587	02/21	3.617	02/28	3.755						
2011-Mar	03/07	3.873	03/14	3.878										
2011-Oct	10/03	3.692	10/10	3.682	10/17	3.768	10/24	3.798	10/31	3.850				
2011-Nov	11/07	3.877	11/14	3.942	11/21	3.935	11/28	3.896						
2011-Dec	12/05	3.894	12/12	3.866	12/19	3.823	12/26	3.832						
2012-Jan	01/02	3.843	01/09	3.935	01/16	3.952	01/23	3.937	01/30	3.952				
2012-Feb	02/06	3.972	02/13	4.032	02/20	4.044	02/27	4.108						
2012-Mar	03/05	4.100	03/12	4.105	03/19	4.112								

Ave = \$3.01/gal

-- No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data.

Release Date: 7/18/2012
Next Release Date: 7/25/2012

Referring Pages:

- Residential Heating Oil Weekly Heating Oil and Propane Prices (October - March)
- U.S. Weekly Heating Oil and Propane Prices (October - March)

doc states.
excludes taxes + discounts

From: Banks, Jack
Sent: Wednesday, July 11, 2012 11:37 AM
To: Wehr, Deborah
Cc: Knerr, Gregory R
Subject: Heating Oil Usage
Attachments: BW Report - Heating Oil 10-11.xls

Deb,

As we discussed over the phone, I have attached our SAP Report for Heating Oil #2. It spans Nov 10 thru Dec 11. The usage is the GR quantity of 3,626,280 gallons. For Heating Oil #4, the only user is the Eastern Pennsylvania Psychiatric Institute, Philadelphia and their usage was 104,361 gallons for Oct 11 thru Apr 12. If you have any further questions or need additional information, let me know.

Jack Banks, Commodity Specialist
Department of General Services/Bureau of Procurement
555 Walnut Street, Forum Place, 6th Floor, Harrisburg, PA 17101
(717) 787-6586/(717) 346-3820
www.dgs.state.pa

PO Overview

Business area	Plant	Query Technical Name	YZBBP_MP01_Q500	Purchasing doc. type	JECPOI, JUBI, JZCPOI
Calendar day	PO Item #	Changed At	6/27/2010 23 28 25	Item Category	JTextI
Cal. year / month	PO Numbr	Status of Data	5/22/2012 04 25 59		
Contract ID	Product C	Current User	P00507177		
Contract Item Num	Purch. do	Last Refreshed	5/22/2012 10 46 37		
Country	Purchasir	Cal. year / month	12/2010 11/2011		
ERS	Purchasir	Business Area	10. 99		
Goods Recipient	Purchasir	Plant (Selection Options, Optional)	Empty Demarcation		
Material	Región	Vendor number	Empty Demarcation		
Material group	Requeste	Material group	Empty Demarcation		
MBE WBE VBE I	Requeste	Material (Selection Options, Optional)	FUEL OIL, HEATING, GRD 2 TRUCK TRANSPORT HEATING OIL BIO-DIESEL TRUCK TRANSPORT		
MBE WBE VBE F	Transacti	Purchasing group	Empty Demarcation		
MBE WBE VBE	Véndor				
MBE WBE VBE	Key Figur				

Business area	Plant	Material	PO Number	Product Description	PO Qty	PO Value	GR Qty	IR Qty	IR Value
11	1146	144134	4500597689	HEATING OIL, TT, LUZERNE CO	157,500 0 GAL	\$372,456 00	157,500 0 GAL	157,500 0 GAL	\$408,224 25
				Result	157,500.0 GAL	\$372,456.00	157,500.0 GAL	157,500.0 GAL	\$408,224.25
			4500615801	HEATING OIL, TT, LUZERNE CO	352,523 0 GAL	\$1,016,183 68	352,523 0 GAL	352,523 0 GAL	\$1,073,797 14
				Result	352,523.0 GAL	\$1,016,183.68	352,523.0 GAL	352,523.0 GAL	\$1,073,797.14
			4500641072	FUEL OIL, HEATING, GRD, 2, TRUCK TRANSPORT	15,001 0 GAL	\$51,003.40	15,001 0 GAL	15,001 0 GAL	\$46,917 22
				HEATING OIL, TT, LUZERNE CO	495,005 0 GAL	\$1,549,070 05	442,507 0 GAL	420,006 0 GAL	\$1,310,143 52
				Result	510,006.0 GAL	\$1,600,073.45	457,508.0 GAL	435,007.0 GAL	\$1,357,060.74
				Result	1,020,029.0 GAL	\$2,988,713.13	967,531.0 GAL	945,030.0 GAL	\$2,839,082.13
	1148	144134	4500599758	HEATING OIL, TT, MONTGOMERY CO	67,766 0 GAL	\$168,086 79	67,766 0 GAL	67,766 0 GAL	\$188,129 16
				Result	67,766.0 GAL	\$168,086.79	67,766.0 GAL	67,766.0 GAL	\$188,129.16
			4500628264	HEATING OIL, TT, MONTGOMERY CO	142,499 0 GAL	\$450,197 09	142,499 0 GAL	142,499.0 GAL	\$433,415 27
				Result	142,499.0 GAL	\$450,197.09	142,499.0 GAL	142,499.0 GAL	\$433,415.27
			4500637103	HEATING OIL, TT, MONTGOMERY CO	75,002 0 GAL	\$223,678 47	75,002 0 GAL	75,002 0 GAL	\$225,753 07
				Result	75,002.0 GAL	\$223,678.47	75,002.0 GAL	75,002.0 GAL	\$225,753.07
				Result	285,267.0 GAL	\$841,962.35	285,267.0 GAL	285,267.0 GAL	\$847,297.50
	1151	144134	4500598900	HEATING OIL, TT, CLEARFIELD CO	422,609 0 GAL	\$1,106,695 51	405,110 0 GAL	412,609 0 GAL	\$1,225,446 17
				Result	422,609.0 GAL	\$1,106,695.51	405,110.0 GAL	412,609.0 GAL	\$1,225,446.17
			4500642203	HEATING OIL, TT, CLEARFIELD CO	90,000 0 GAL	\$279,945 00	94,518 0 GAL	87,018 0 GAL	\$274,023 51
				Result	90,000.0 GAL	\$279,945.00	94,518.0 GAL	87,018.0 GAL	\$274,023.51
				Result	512,609.0 GAL	\$1,386,640.51	499,628.0 GAL	499,627.0 GAL	\$1,499,469.68
	1160	144134	4500597918	HEATING OIL, TT, LUZERNE CO	360,210.0 GAL	\$851,824 61	360,210 0 GAL	360,210 0 GAL	\$1,014,510 26
				Result	360,210.0 GAL	\$851,824.61	360,210.0 GAL	360,210.0 GAL	\$1,014,510.26
			4500615796	HEATING OIL, TT, LUZERNE CO	270,000 0 GAL	\$788,544 35	270,000 0 GAL	270,000 0 GAL	\$831,203 78
				Result	270,000.0 GAL	\$788,544.35	270,000.0 GAL	270,000.0 GAL	\$831,203.78
			4500640907	HEATING OIL, TT, LUZERNE CO	480,000 0 GAL	\$1,515,264 00	432,408 0 GAL	417,408 0 GAL	\$1,335,199 16
				Result	480,000.0 GAL	\$1,515,264.00	432,408.0 GAL	417,408.0 GAL	\$1,335,199.16
				Result	1,110,210.0 GAL	\$3,155,632.96	1,062,618.0 GAL	1,047,618.0 GAL	\$3,180,913.20
				Result	2,928,115.0 GAL	\$8,372,948.95	2,815,044.0 GAL	2,777,542.0 GAL	\$8,366,762.51
21	2103	144134	4500599090	HEATING OIL, TT, LEHIGH CO	45,008 0 GAL	\$106,169 37	45,008 0 GAL	45,008 0 GAL	\$125,982 90
				Result	45,008.0 GAL	\$106,169.37	45,008.0 GAL	45,008.0 GAL	\$125,982.90
	2105	144134	4500617012	HEATING OIL, TT, MONTOUR CO	30,000 0 GAL	\$81,594 00	30,007 0 GAL	30,007 0 GAL	\$96,499 95
				Result	30,000.0 GAL	\$81,594.00	30,007.0 GAL	30,007.0 GAL	\$96,499.95
			4500626374	HEATING OIL, TT, MONTOUR CO	15,000 0 GAL	\$44,911 50	15,000 0 GAL	15,000 0 GAL	\$44 911 50
				Result	15,000.0 GAL	\$44,911.50	15,000.0 GAL	15,000.0 GAL	\$44,911.50
			4500629413	HEATING OIL, TT, MONTOUR CO	22,500 0 GAL	\$71,082 00	22,500 0 GAL	22,500 0 GAL	\$68,437 50

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				Result	22,500.0 GAL	\$71,082.00	22,500.0 GAL	22,500.0 GAL	\$68,437.50
			4500632828	HEATING OIL, TT, MONTOUR CO	7,500.0 GAL	\$22,639.50	7,500.0 GAL	7,500.0 GAL	\$22,683.00
				Result	7,500.0 GAL	\$22,639.50	7,500.0 GAL	7,500.0 GAL	\$22,683.00
			4500635539	HEATING OIL, TT, MONTOUR CO	7,500.0 GAL	\$23,511.75	7,500.0 GAL	7,500.0 GAL	\$23,511.75
				Result	7,500.0 GAL	\$23,511.75	7,500.0 GAL	7,500.0 GAL	\$23,511.75
			4500637284	HEATING OIL, TT, MONTOUR CO	7,500.0 GAL	\$22,372.50	7,500.0 GAL	7,500.0 GAL	\$22,372.50
				Result	7,600.0 GAL	\$22,372.50	7,500.0 GAL	7,500.0 GAL	\$22,372.50
				Result	90,000.0 GAL	\$266,111.25	90,007.0 GAL	90,007.0 GAL	\$278,416.20
2109	296603		4500610887	BIO-HEATING OIL, B5, TT, WESTMORELAND CO	7,506.0 GAL	\$24,570.89	7,506.0 GAL	7,506.0 GAL	\$23,022.00
				Result	7,506.0 GAL	\$24,570.89	7,506.0 GAL	7,506.0 GAL	\$23,022.00
2111	144134		4500598556	HEATING OIL, TT, BERKS CO	96,750.0 GAL	\$232,835.86	96,751.0 GAL	96,751.0 GAL	\$244,025.11
				Result	96,750.0 GAL	\$232,835.86	96,751.0 GAL	96,751.0 GAL	\$244,025.11
			4500628103	HEATING OIL, TT, BERKS CO	22,500.0 GAL	\$71,097.75	22,500.0 GAL	22,500.0 GAL	\$68,951.25
				Result	22,500.0 GAL	\$71,097.75	22,500.0 GAL	22,500.0 GAL	\$68,951.25
			4500636162	HEATING OIL, TT, BERKS CO	30,000.0 GAL	\$91,158.00	30,000.0 GAL	30,000.0 GAL	\$88,453.50
				Result	30,000.0 GAL	\$91,158.00	30,000.0 GAL	30,000.0 GAL	\$88,453.50
			4500640866	HEATING OIL, TT, LEHIGH CO	22,501.0 GAL	\$70,524.89	22,501.0 GAL	22,501.0 GAL	\$70,691.37
				Result	22,501.0 GAL	\$70,524.89	22,501.0 GAL	22,501.0 GAL	\$70,691.37
				Result	171,751.0 GAL	\$465,616.50	171,752.0 GAL	171,752.0 GAL	\$472,121.23
2115	144134		4500598263	HEATING OIL, TT, BERKS CO	161,211.0 GAL	\$380,377.36	161,211.0 GAL	161,211.0 GAL	\$467,054.18
				Result	161,211.0 GAL	\$380,377.36	161,211.0 GAL	161,211.0 GAL	\$467,054.18
			4500599082	HEATING OIL, TT, BERKS CO	7,500.0 GAL	\$17,696.25	7,500.0 GAL	7,500.0 GAL	\$17,696.25
				Result	7,500.0 GAL	\$17,696.25	7,500.0 GAL	7,500.0 GAL	\$17,696.25
			4500623927	HEATING OIL, TT, BERKS CO	22,500.0 GAL	\$71,217.00	22,600.0 GAL	22,600.0 GAL	\$70,306.29
				Result	22,500.0 GAL	\$71,217.00	22,600.0 GAL	22,600.0 GAL	\$70,306.29
			4500627846	HEATING OIL, TT, BERKS CO	22,500.0 GAL	\$71,097.75	22,500.0 GAL	22,500.0 GAL	\$67,572.75
				Result	22,500.0 GAL	\$71,097.75	22,500.0 GAL	22,500.0 GAL	\$67,572.75
			4500631361	HEATING OIL, TT, BERKS CO	22,500.0 GAL	\$65,848.50	22,500.0 GAL	22,500.0 GAL	\$69,813.75
				Result	22,500.0 GAL	\$65,848.50	22,500.0 GAL	22,500.0 GAL	\$69,813.75
			4500633898	HEATING OIL, TT, BERKS CO	22,500.0 GAL	\$68,046.75	22,500.0 GAL	22,500.0 GAL	\$65,838.00
				Result	22,500.0 GAL	\$68,046.75	22,500.0 GAL	22,500.0 GAL	\$65,838.00
			4500638839	HEATING OIL, TT, BERKS CO	19,505.0 GAL	\$56,026.16	19,505.0 GAL	19,505.0 GAL	\$59,839.39
				Result	19,505.0 GAL	\$56,026.16	19,505.0 GAL	19,505.0 GAL	\$59,839.39
			4500640803	HEATING OIL, TT, BERKS CO	22,500.0 GAL	\$70,562.25	22,500.0 GAL	22,500.0 GAL	\$69,869.25
				Result	22,500.0 GAL	\$70,562.25	22,500.0 GAL	22,500.0 GAL	\$69,869.25
			4500642597	HEATING OIL, TT, BERKS CO	22,500.0 GAL	\$69,522.75	22,500.0 GAL	22,500.0 GAL	\$71,916.75
				Result	22,500.0 GAL	\$69,522.75	22,500.0 GAL	22,500.0 GAL	\$71,916.75
			4500643618	HEATING OIL, TT, BERKS CO	22,500.0 GAL	\$71,984.25	22,600.0 GAL	22,600.0 GAL	\$69,779.98
				Result	22,500.0 GAL	\$71,984.25	22,600.0 GAL	22,600.0 GAL	\$69,779.98
				Result	345,716.0 GAL	\$942,379.02	345,916.0 GAL	345,916.0 GAL	\$1,029,686.59
2120	296603		4500598761	BIO-HEATING OIL, B5, TT, PERRY CO	75,045.0 GAL	\$187,402.38	75,045.0 GAL	75,045.0 GAL	\$220,516.09
				Result	75,045.0 GAL	\$187,402.38	75,045.0 GAL	75,045.0 GAL	\$220,516.09
			4500633311	BIO-HEATING OIL, B5, TT, PERRY CO	7,500.0 GAL	\$23,161.50	7,500.0 GAL	7,500.0 GAL	\$23,514.00
				Result	7,500.0 GAL	\$23,161.50	7,500.0 GAL	7,500.0 GAL	\$23,514.00
			4500641064	BIO-HEATING OIL, B5, TT, PERRY CO	15,000.0 GAL	\$47,265.00	15,000.0 GAL	15,000.0 GAL	\$46,301.25
				Result	15,000.0 GAL	\$47,265.00	15,000.0 GAL	15,000.0 GAL	\$46,301.25
				Result	97,545.0 GAL	\$257,828.88	97,545.0 GAL	97,545.0 GAL	\$290,331.34
	Result				757,526.0 GAL	\$2,062,675.91	757,734.0 GAL	757,734.0 GAL	\$2,219,560.28
78	7828	144134	4500604070	HEATING OIL, TT, FRANKLIN CO	7,500.0 GAL	\$19,871.25	7,500.0 GAL	7,500.0 GAL	\$21,684.00
				Result	7,500.0 GAL	\$19,871.25	7,500.0 GAL	7,500.0 GAL	\$21,684.00
	7829	144134	4500599320	HEATING OIL, TT, FULTON CO	6,500.0 GAL	\$15,456.35	6,500.0 GAL	6,500.0 GAL	\$16,755.70
				Result	6,500.0 GAL	\$15,456.35	6,500.0 GAL	6,500.0 GAL	\$16,755.70
			4500611953	HEATING OIL, TT, FULTON CO	6,500.0 GAL	\$20,540.00	6,500.0 GAL	6,500.0 GAL	\$20,312.50

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			Result	6,500.0 GAL	\$20,540.00	6,500.0 GAL	6,500.0 GAL	\$20,312.50
			Result	13,000.0 GAL	\$35,996.35	13,000.0 GAL	13,000.0 GAL	\$37,068.20
7834	144134	4500605352	HEATING OIL, TT, JUNIATA CO	6,000.0 GAL	\$16,590.00	6,000.0 GAL	6,000.0 GAL	\$16,547.40
			Result	6,000.0 GAL	\$16,590.00	6,000.0 GAL	6,000.0 GAL	\$16,547.40
		4500636037	HEATING OIL, TT, JUNIATA CO	6,000.0 GAL	\$18,342.00	6,000.0 GAL	6,000.0 GAL	\$18,123.00
			Result	6,000.0 GAL	\$18,342.00	6,000.0 GAL	6,000.0 GAL	\$18,123.00
			Result	12,000.0 GAL	\$34,932.00	12,000.0 GAL	12,000.0 GAL	\$34,670.40
7840	144134	4500698866	HEATING OIL, TT, LUZERNE CO	7,002.0 GAL	\$16,558.33	7,002.0 GAL	7,002.0 GAL	\$16,558.33
			Result	7,002.0 GAL	\$16,558.33	7,002.0 GAL	7,002.0 GAL	\$16,558.33
		4500602011	HEATING OIL, TT, LUZERNE CO	7,000.0 GAL	\$17,952.90	7,000.0 GAL	7,000.0 GAL	\$18,345.60
			Result	7,000.0 GAL	\$17,952.90	7,000.0 GAL	7,000.0 GAL	\$18,345.60
		4500606171	HEATING OIL, TT, LUZERNE CO	7,000.0 GAL	\$19,504.10	7,000.0 GAL	7,000.0 GAL	\$19,504.10
			Result	7,000.0 GAL	\$19,504.10	7,000.0 GAL	7,000.0 GAL	\$19,504.10
			Result	21,002.0 GAL	\$54,015.33	21,002.0 GAL	21,002.0 GAL	\$54,408.03
	Result			53,502.0 GAL	\$144,814.93	53,502.0 GAL	53,502.0 GAL	\$147,830.63
Overall Result				3,739,143.0 GAL	\$10,580,439.79	3,626,280.0 GAL	3,588,778.0 GAL	\$10,734,153.40



State & County QuickFacts

Pennsylvania

People QuickFacts	Pennsylvania	USA
Population, 2011 estimate	12,742,886	311,591,917
Population, 2010 (April 1) estimates base	12,702,379	308,745,538
Population, percent change, April 1, 2010 to July 1, 2011	0.3%	0.9%
Population, 2010	12,702,379	308,745,538
Persons under 5 years, percent, 2011	5.7%	6.5%
Persons under 18 years, percent, 2011	21.7%	23.7%
Persons 65 years and over, percent, 2011	15.6%	13.3%
Female persons, percent, 2011	51.2%	50.8%
White persons, percent, 2011 (a)	83.8%	78.1%
Black persons, percent, 2011 (a)	11.3%	13.1%
American Indian and Alaska Native persons, percent, 2011 (a)	0.3%	1.2%
Asian persons, percent, 2011 (a)	2.9%	5.0%
Native Hawaiian and Other Pacific Islander persons, percent, 2011 (a)	0.1%	0.2%
Persons reporting two or more races, percent, 2011	1.6%	2.3%
Persons of Hispanic or Latino Origin, percent, 2011 (b)	5.9%	16.7%
White persons not Hispanic, percent, 2011	79.2%	63.4%
Living in same house 1 year & over, 2006-2010	87.4%	84.2%
Foreign born persons, percent, 2006-2010	5.6%	12.7%
Language other than English spoken at home, pct age 5+, 2006-2010	9.9%	20.1%
High school graduates, percent of persons age 25+, 2006-2010	87.4%	85.0%
Bachelor's degree or higher, pct of persons age 25+, 2006-2010	26.4%	27.9%
Veterans, 2006-2010	1,034,976	22,652,496
Mean travel time to work (minutes), workers age 16+, 2006-2010	25.5	25.2
Housing units, 2010	5,567,315	131,704,730
Homeownership rate, 2006-2010	71.0%	66.6%
Housing units in multi-unit structures, percent, 2006-2010	20.7%	25.9%
Median value of owner-occupied housing units, 2006-2010	\$159,300	\$188,400
Households, 2006-2010	4,940,581	114,235,996
Persons per household, 2006-2010	2.47	2.59
Per capita money income in past 12 months (2010 dollars) 2006-2010	\$27,049	\$27,334
Median household income 2006-2010	\$50,398	\$51,914
Persons below poverty level, percent, 2006-2010	12.4%	13.8%
Business QuickFacts	Pennsylvania	USA
Private nonfarm establishments, 2009	298,432 ¹	7,433,465
Private nonfarm employment, 2009	5,044,648 ¹	114,509,626
Private nonfarm employment, percent change 2000-2009	-0.8% ¹	0.4%
Nonemployer establishments, 2009	743,302	21,090,761
Total number of firms, 2007	981,501	27,092,908
Black-owned firms, percent, 2007	4.6%	7.1%
American Indian- and Alaska Native-owned firms, percent, 2007	0.3%	0.9%
Asian-owned firms, percent, 2007	3.2%	5.7%
Native Hawaiian and Other Pacific Islander-owned firms, percent, 2007	0.0%	0.1%
Hispanic-owned firms, percent, 2007	2.3%	8.3%
Women-owned firms, percent, 2007	27.0%	28.8%
Manufacturers shipments, 2007 (\$1000)	234,840,418	5,338,306,501
Merchant wholesaler sales, 2007 (\$1000)	142,859,202	4,174,286,516
Retail sales, 2007 (\$1000)	166,842,778	3,917,663,456
Retail sales per capita, 2007	\$13,323	\$12,990
Accommodation and food services sales, 2007 (\$1000)	19,625,449	613,795,732
Building permits, 2011	14,967	624,061
Federal spending, 2010	145,933,792 ¹	3,251,308,509 ²
Geography QuickFacts	Pennsylvania	USA

Land area in square miles, 2010	44,742.70	3,531,905.43
Persons per square mile, 2010	283.9	87.4
FIPS Code	42	

1: Includes data not distributed by county.
 2: Includes data not distributed by state.

(a) Includes persons reporting only one race.
 (b) Hispanics may be of any race, so also are included in applicable race categories.

D: Suppressed to avoid disclosure of confidential information
 F: Fewer than 100 firms
 FN: Footnote on this item for this area in place of data
 NA: Not available
 S: Suppressed; does not meet publication standards
 X: Not applicable
 Z: Value greater than zero but less than half unit of measure shown

Source U.S. Census Bureau: State and County QuickFacts. Data derived from Population Estimates, American Community Survey, Census of Population and Housing, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, Building Permits, Consolidated Federal Funds Report
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