Crystal Card

From: Keating, Beth <BKeating@gunster.com>
Sent: Tuesday, September 17, 2013 9:47 AM
To: Filings@psc.state.fl.us
Subject: Docket No. 130167-EG
Attachments: Binder Supplemental Information for AGDF Data Responses.PDF

Attached for electronic filing, please find the additional back up documentation for Question 3B referenced in the Partial Responses of the AGDF to Commission Staff's First Set of Data Responses in the referenced docket submitted on Friday, September 13.

Beth Keating
Gunster, Yoakley & Stewart, P.A.
215 S. Monroe St., Suite 601
Tallahassee, FL 32301
bkeating@gunster.com
Direct Line: (850) 521-1706

a. Person responsible for this electronic filing:

Beth Keating
Gunster, Yoakley & Stewart, P.A.
215 S. Monroe St., Suite 601
Tallahassee, FL 32301
bkeating@gunster.com
Direct Line: (850) 521-1706

b. Docket No. 130167-EG – Petition for approval of natural gas energy conservation programs for commercial customers, by Associated Gas Distributors of Florida.

c. On behalf of: AGDF

d. There are a total of pages: 15

e. Description: Back Up Documentation for Partial Responses to Data Requests (Question 3B)

GUNSTER
FLORIDA'S LAW FIRM FOR BUSINESS
Beth Keating | Attorney
Governmental Affairs
215 S. Monroe Street, Suite 601
Tallahassee, FL 32301
P 850-521-1706 **C** 850-591-9228
gunster.com | View my bio

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GUNSTER
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Writer's Direct Dial Number: (850) 521-1706
Writer's E-Mail Address: bkeating@gunster.com

September 17, 2013

ELECTRONIC FILING - FILINGS@PSC.STATE.FL.US

Ms. Ann Cole, Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Re: Docket No. 130167- EG-- **Petition for approval of natural gas energy conservation programs for commercial customers, by Associated Gas Distributors of Florida.**

Dear Ms. Cole:

Attached for electronic filing, please find the Associated Gas Distributors of Florida's additional back up documentation for Question 3B referenced in the Partial Responses of the AGDF to Commission Staff's First Set of Data Responses in the reference docket submitted on Friday, September 13, regarding the proposed conservation programs for commercial customers.

As always, thank you for your assistance with this filing. If you have any questions whatsoever, please do not hesitate to contact me.

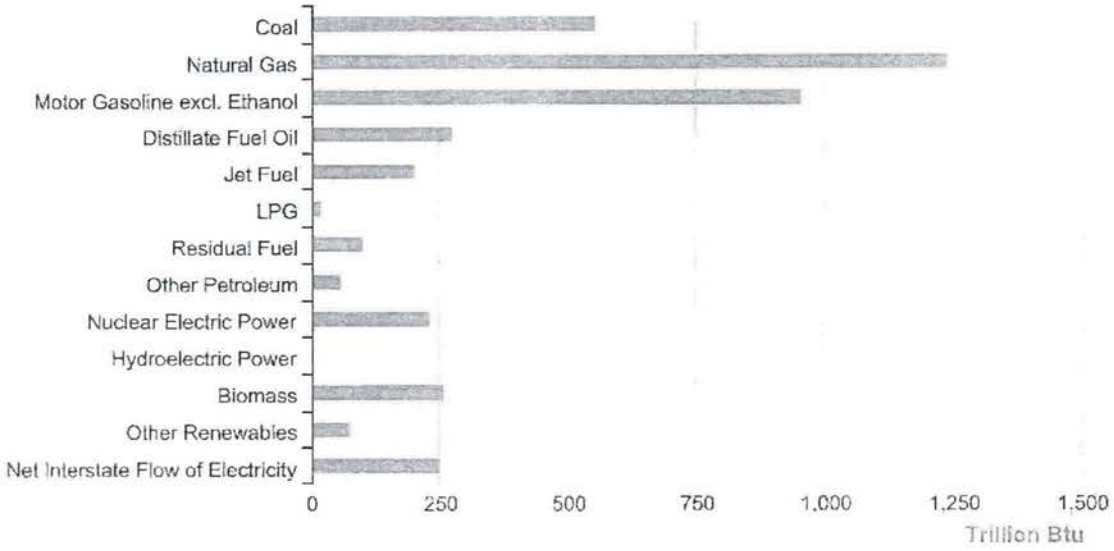
Sincerely,

Beth Keating and Lila Jaber
Gunster, Yoakley & Stewart, P.A.
215 South Monroe St., Suite 601
Tallahassee, FL 32301
(850) 521-1706

Attorneys for the AGDF

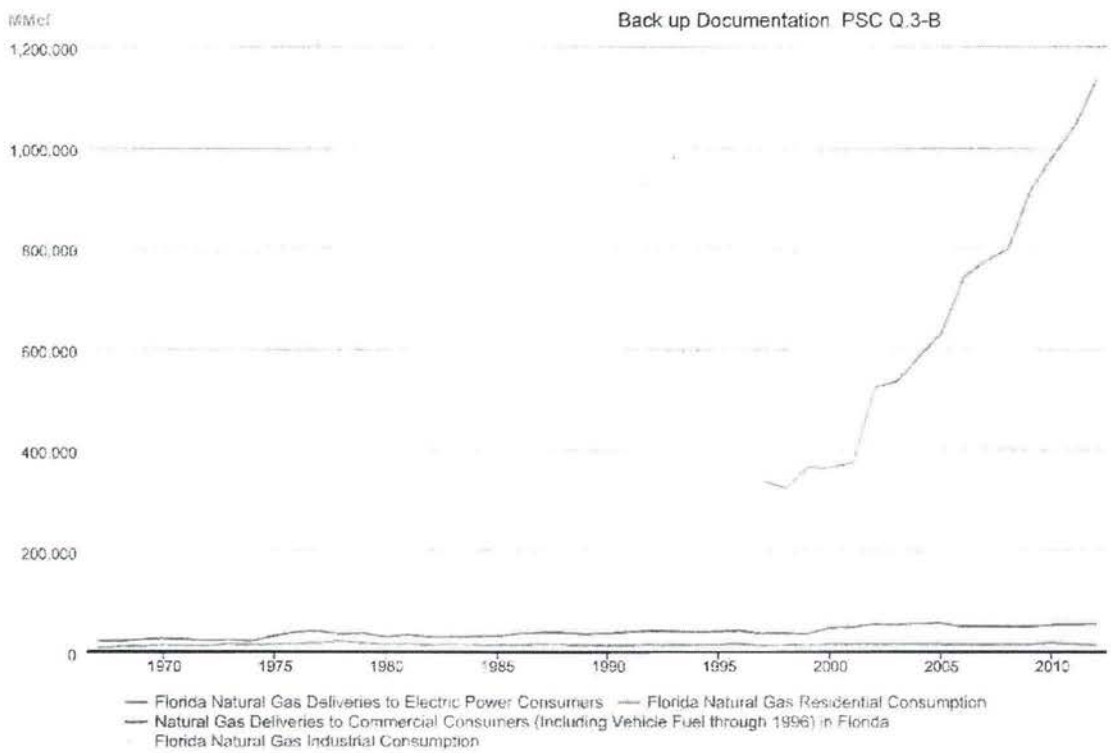
Florida Energy Consumption Estimates, 2011

Back up Documentation PSC Q.3-B



eia Source: Energy Information Administration State Energy Data System

Natural Gas Consumption by End Use



Source: U.S. Energy Information Administration

OVERVIEW | DATA | ANALYSIS & PROJECTIONS

Natural Gas Consumption by End Use

(Million Cubic Feet)

Area: Florida **Period:** Annual

Show Data By: Data Series / Area	Graph / Clear	2007	2008	2009	2010	2011	2012	View History
Total Consumption	☐	917,244	942,600	1,056,340	1,158,452	1,218,340		1997-2011
Lease and Plant Fuel	☐							1967-1996
Lease Fuel	☐	654	897	94	4,512	4,896		1989-2011
Plant Fuel	☐	671	83	0	0	0		1983-2011
Pipeline & Distribution Use	☐	10,092	9,547	10,374	22,708	13,602		1997-2011
Volumes Delivered to Consumers	☐	905,828	932,172	1,044,872	1,131,142	1,199,842	NA	1997-2012
Residential	☐	15,066	15,594	15,214	18,744	16,386	14,283	1967-2012
Commercial	☐	51,097	50,901	50,371	54,065	54,704	55,137	1967-2012
Industrial	☐	86,453	88,275	65,500	76,522	84,899	NA	1997-2012
Vehicle Fuel	☐	243	137	116	60	67	110	1990-2012
Electric Power	☐	772,968	797,266	913,672	981,750	1,043,786	1,136,824	1997-2012

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

Notes: Gas volumes delivered for use as vehicle fuel are included in the State annual totals through 2009 but not in the State monthly components. Estimates of gas volumes delivered for use as vehicle fuel are included in the State monthly totals for January 2010 forward. See Definitions, Sources, and Notes link above for more information on this table.

Release Date: 7/31/2013
Next Release Date: 8/30/2013

Definitions, Sources and Explanatory Notes

Category: Natural Gas Consumption
Topic: Consumption by End Use

Definitions

Key Terms	Definition
Commercial Consumption	Gas used by nonmanufacturing establishments or agencies primarily engaged in the sale of goods or services. Included are such establishments as hotels, restaurants, wholesale and retail stores and other service enterprises; gas used by local, State and Federal agencies engaged in nonmanufacturing activities.
Distribution Use	Natural gas used as fuel in the respondent's operations.
Electric Power Consumption	Gas used as fuel in the electric power sector.
Electric Power Sector	An energy-consuming sector that consists of electricity-only and combined heat and power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public (i.e., North American Industry Classification System code 22 for plants. Combined heat and power plants that identify themselves as primarily in the commercial or industrial sectors are reported in those sectors.
Industrial Consumption	Natural gas used for heat, power, or chemical feedstock by manufacturing establishments or those engaged in mining or other mineral extraction as well as consumers in agriculture, forestry, and fisheries. Also included in industrial consumption are generators that produce electricity and/or useful thermal output primarily to support the above-mentioned industrial activities.
Lease Fuel	Natural gas used in well, field, and lease operations, such as gas used in drilling operations, heaters, dehydrators, and field compressors.
Pipeline Fuel	Gas consumed in the operation of pipelines, primarily in compressors.
Plant Fuel	Natural gas used as fuel in natural gas processing plants.
Residential Consumption	Gas used in private dwellings, including apartments, for heating, air-conditioning, cooking, water heating, and other household uses.
Vehicle Fuel Consumption	The quantity of fuel used by vehicles. Vehicle fuel consumption is computed as the vehicle miles traveled divided by the fuel efficiency reported in miles per gallon (MPG). Vehicle fuel consumption is derived from the actual vehicle fuel mileage collected and the assigned MPGs obtained from EPA certification files adjusted for on-road driving.

For definitions of related energy terms, refer to the EIA Energy [illegible]

Sources

1930-1975: Bureau of Mines, *Minerals Yearbook*, "Natural Gas" chapter. **1976-1978:** EIA, Energy Data Reports, *Natural Gas Annual*. **1979:** EIA, *Natural Gas Production and Consumption, 1979*. **1980-1989:** Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition" and Form EIA-759, "Monthly Power Plant Report". **1990:** Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition" ,Form EIA-759, "Monthly Power Plant Report" and Form EIA-64A, "Annual Report of the Origin of Natural Gas Liquids Production". **1991-1995:** Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition" ,Form EIA-759, "Monthly Power Plant Report" Form EIA-64A, "Annual Report of the Origin of Natural Gas Liquids Production" and EIA-627, "Annual Quantity and Value of Natural Gas Report." **1996-2000:** Form EIA-895, "Monthly and Annual Quantity and Value of Natural Gas Production Report" ,Form EIA-857, "Monthly Report of Natural Gas Purchases and Deliveries to Consumers"; Form EIA-910, "Monthly Natural Gas Marketer Survey." , Form EIA-759, "Monthly Power Plant Report" , EIA computations, and *Natural Gas Annual 2000*. **2001-current:** Form EIA-895, "Monthly and Annual Quantity and Value of Natural Gas Production Report" (2006 - annual only), Form EIA-857, "Monthly Report of Natural Gas Purchases and Deliveries to Consumers"; Form EIA-910, "Monthly Natural Gas Marketer Survey." , Form EIA-906, "Power Plant Report" , Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition" , Form EIA-886, "Annual Survey of Alternative Fueled Vehicle Suppliers and Users" , Form EIA-914, "Monthly Natural Gas Production Report" (2007 - current), Form EIA-923, "Power Plant Operations Report" (2007 - annual only, 2008 - monthly and annual electric), and EIA estimates.

- Background on "Natural Gas Monthly" data
- Background on "Natural Gas Annual" data
- Natural Gas Survey Forms and Instructions

Explanatory Notes

- Annual consumption volumes are available through the Natural Gas Navigator for the Total United States for 1949 forward. The volumes for 1949 forward represent the current sectoral concepts introduced in 2001 and used throughout the Energy Information Administration. A comprehensive description of the concepts and changes they imply may be found in the 2001 Annual Energy Review, Appendix H, Estimating and Presenting Power Sector Fuel Use in EIA Publications and Analysis.
- Discussion of new definitions of industrial and electric power consumption from Natural Gas Monthly (April 2003)
- Lease fuel quantities were estimated by assuming that the proportions of onsystem production used as lease fuel by respondents to the Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition," were the same as the proportions of gross withdrawals as reported on Form EIA-895, "Annual Quantity and Value of Natural Gas Production Report," used as lease by all operators.
- Monthly lease and plant fuel use is estimated from monthly marketed production by assuming that the preceding annual percentage remains constant for the next twelve months.
- Monthly pipeline fuel use is estimated from monthly total consumption (excluding pipeline fuel) by assuming that the preceding annual percentage remains constant for the next twelve months.
- Beginning in 1996, consumption of natural gas for agricultural use was classified as industrial use. In 1995 and earlier years, agricultural use was classified as commercial use.
- Vehicle fuel in the monthly view is included in the annual total of deliveries to all consumers, but not in the State level monthly volumes.
- Electric Utility includes all steam electric utility generating plants with a combined capacity of 50 megawatts or greater.
- Beginning with 1965 data, all volumes are shown on a pressure base of 14.73 psia at 60 degrees Fahrenheit. For prior years, the pressure base is 14.65 psia at 60 degrees Fahrenheit.
- From 1967 through 1979, data for the District of Columbia are included with data for Maryland.
- From 1967 through 1979, data for New Hampshire and Vermont are included with data for Maine.
- Beginning with data for August 2010, residential and commercial consumption is calculated using a methodology that more closely aligns these volumes with the calendar month. See Natural Gas Monthly, Appendix C, Estimation Procedures, for more details.
- In December 2011, monthly and annual volumes of industrial gas in Maine were revised upward back to 2002 to correct a misclassification of gas reported on the Form EIA-176.
- Standard Error for Natural Gas Deliveries and Price to Consumers by State.
- Statistical Considerations (Sample Design, Estimation Procedures, Final Revisions, Reliability of Monthly Data).
- Beginning in 2000, Pipeline and Distribution Use volumes now include Line Loop, defined as [illegible]

Household Energy Use in Florida

A closer look at residential energy consumption

All data from EIA's 2009 Residential Energy Consumption Survey
www.eia.gov/consumption/residential/

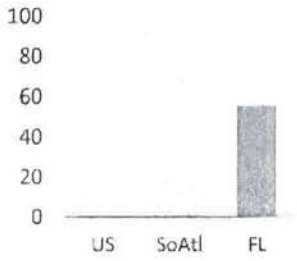
Back up Documentation PSC Q 3-B

- Electricity accounts for 90% of the energy consumed by Florida households, and annual electricity expenditures are 40% more than the U.S. average. Florida is second only to Texas in total retail sales of electricity to the residential sector.
- Because Florida residents use space heating equipment much less than those in other states, site energy consumption for Florida homes (56 million Btu per household) is among the lowest in the country.
- Florida homes are typically newer and smaller than homes in other states.

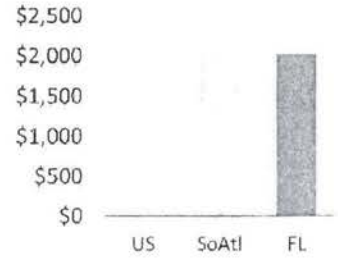
DIVISION: South Atlantic (SoAtl)
STATES INCLUDED: Delaware, DC, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia

ALL ENERGY *average per household (excl. transportation)*

Site Consumption
million Btu

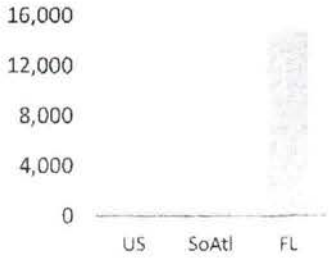


Expenditures
dollars

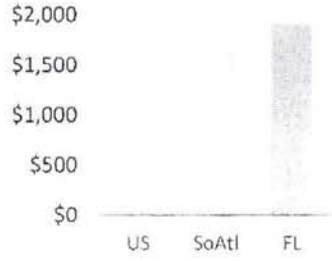


ELECTRICITY ONLY *average per household*

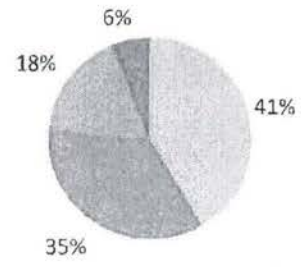
Site Consumption
kilowatthours



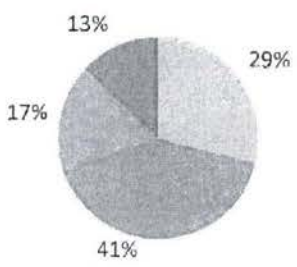
Expenditures
dollars



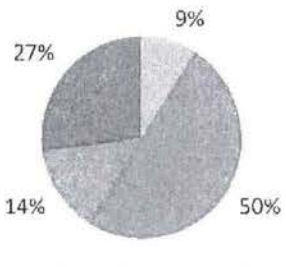
US



SoAtl



FL

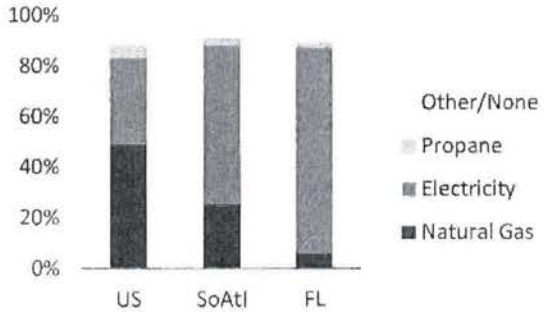


Air conditioning | Water heating | Appliances, electronics, lighting | Space heating

CONSUMPTION BY END USE

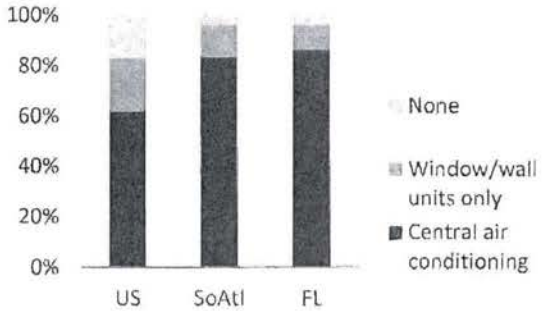
More than a quarter (27%) of the energy consumed in Florida homes is for air conditioning, which is more than four times the national average. Half of energy consumed by Florida households is for appliances, electronics, and lighting.

MAIN HEATING FUEL USED



Despite the warm climate, most Florida households still use some heating equipment during the winter, most of whom (81%) use electric furnaces or heat pumps.

COOLING EQUIPMENT USED



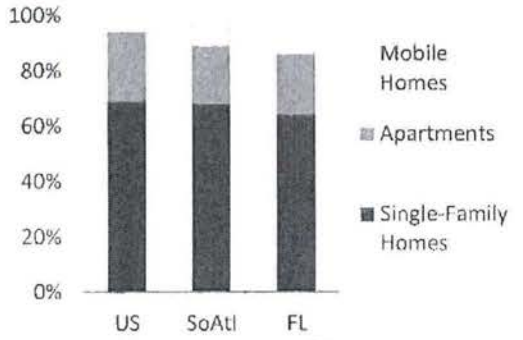
Eighty-six percent of Florida homes use a central air-conditioning system, similar to other warm weather states like Arizona (87%) and Texas (85%).

eia

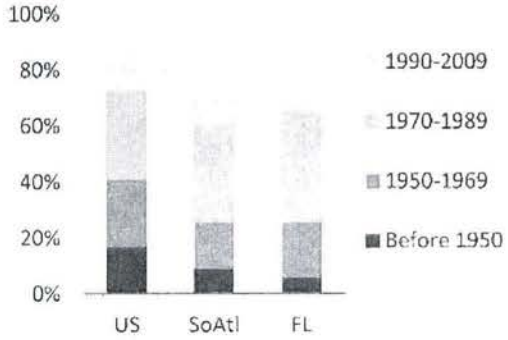
More highlights from RECS on housing characteristics and energy-related features per household...

US = United States | SoAtl = South Atlantic | FL = Florida

HOUSING TYPES



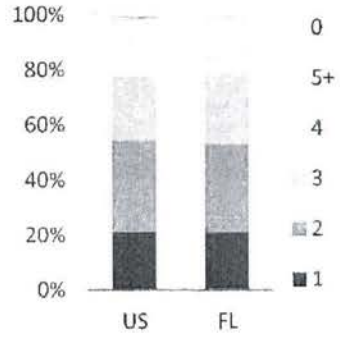
YEAR OF CONSTRUCTION



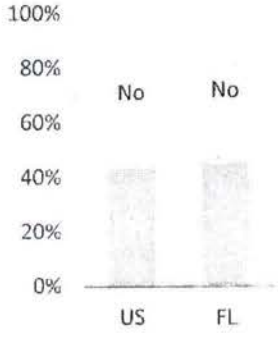
AVERAGE SQUARE FOOTAGE

US	1,971
SoAtl	1,944
FL	1,668

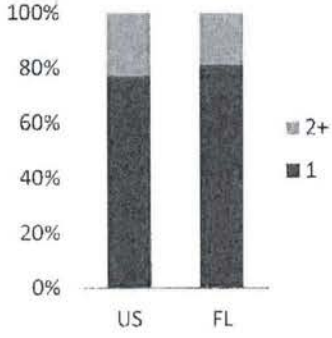
NO. OF TELEVISIONS



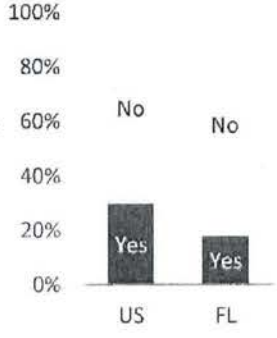
HAVE A DVR



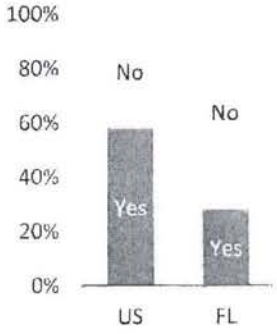
NO. OF REFRIGERATORS



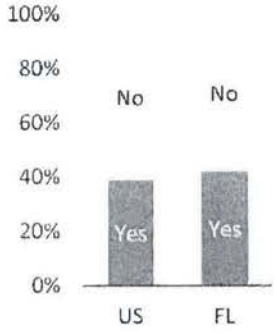
HAVE A SEPARATE FREEZER



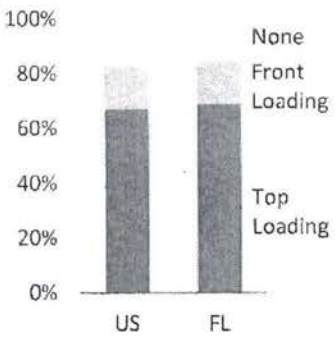
HAVE DOUBLE/TRIPLE PANE WINDOWS



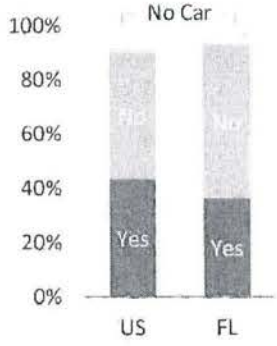
HAVE A PROGRAMMABLE THERMOSTAT



TYPE OF CLOTHES WASHER



CAR IS PARKED WITHIN 20 FT OF ELECTRICAL OUTLET



About the Residential Energy Consumption Survey (RECS) Program

The RECS gathers energy characteristics through personal interviews from a nationwide sample of homes, and cost and consumption from energy suppliers.

The 2009 RECS is the thirteenth edition of the survey, which was first conducted in 1978.

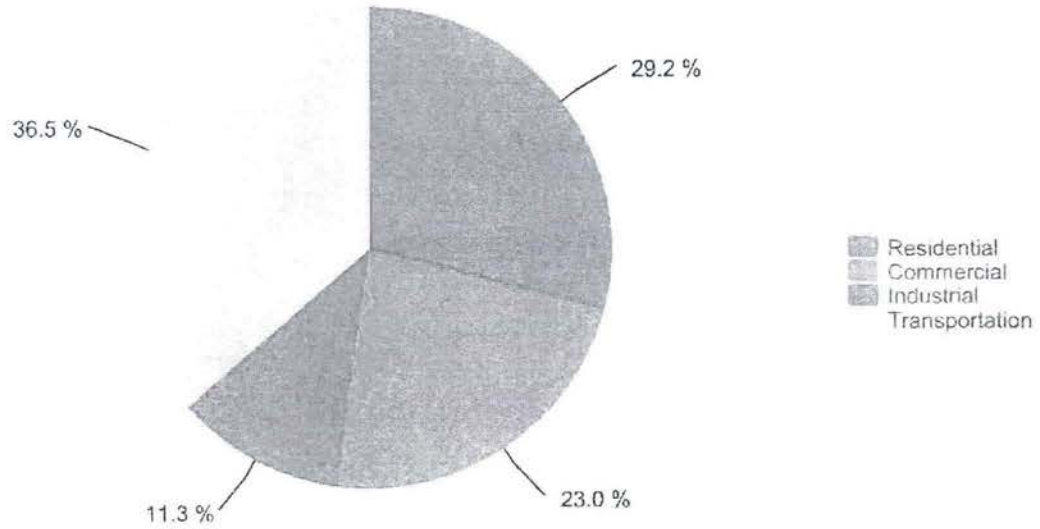
Resulting products include:

- Home energy characteristics
- Average consumption & cost
- Detailed energy end-use statistics
- Reports highlighting key findings
- Microdata file for in-depth analysis

www.eia.gov/consumption/residential/

Florida Energy Consumption by End-Use Sector, 2011

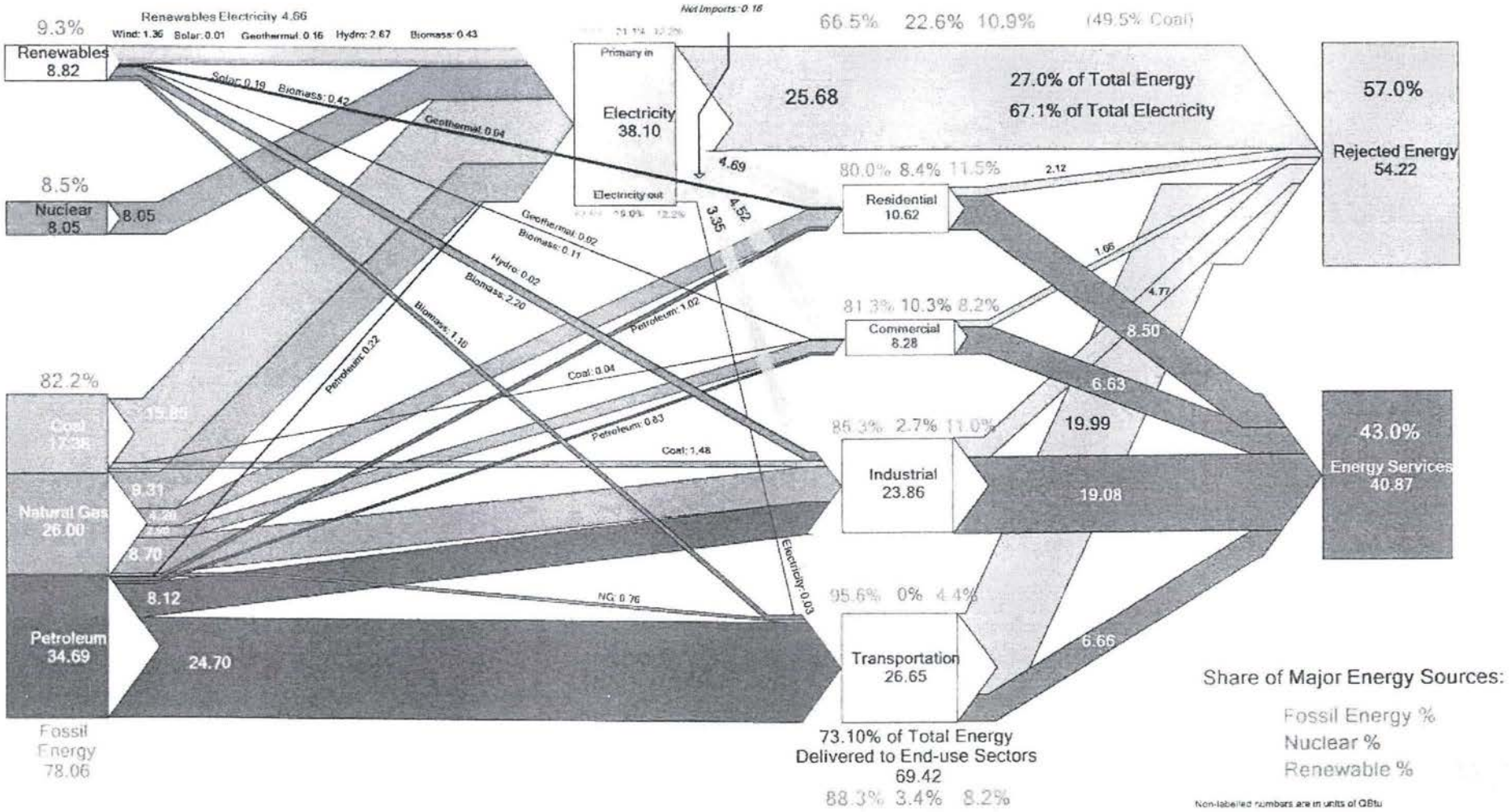
Back up Documentation PSC Q.3-B



eia Source: Energy Information Administration, State Energy Data System

Estimated U.S. Energy Use in 2012: 95.1 Quads

Contributions of Major Energy Sources



Reference: Lawrence Livermore National Laboratory (2010), Data is based on DOE/EIA-0035(2013/05);
Rearranged to segregate and accumulate totals by major energy source

NATIONAL ENERGY TECHNOLOGY LABORATORY

SEAP 5/6/2013

FREQUENTLY ASKED QUESTIONS

How much electricity is lost in transmission and distribution in the United States?

According to EIA data, national, annual electricity transmission and distribution losses average about 7% of the electricity that is transmitted in the United States.

EIA has estimates for total annual losses related to electricity transmission and distribution (T&D) and other losses in the State Electricity Profiles.

National level data are in the U.S. Total Profile (see link a bottom left of the Profiles page). The data are in "Table 10: Supply and Disposition of Electricity" of each Profile; scroll down each Profile page to find Table 10 and see the row for Estimated Losses in the Table.

To calculate T&D losses as a percentage, divide Estimated Losses by the result of Total Disposition minus Direct Use. Direct Use electricity is electricity that is generated at facilities that is not put onto the electricity transmission and distribution grid, and therefore does not contribute to T&D losses.

Last updated: July 9, 2012

OTHER FAQS ABOUT ELECTRICITY

Can I choose the electricity supplier where I live?
Can I generate and sell electricity to an electric utility?
Does EIA have city or county-level energy consumption and price data?
[illegible]
[illegible]
Does EIA have data on peak and hourly electricity demand?
[illegible]
Does EIA have electricity prices by state?
Does EIA have information on the service territories of U.S. electric utilities?
Does EIA have maps or information on the location of electric power plants and transmission lines in the United States?
Does EIA publish electric utility rate, tariff, and demand charge data?
How is electricity used in U.S. homes?
How many and what kind of power plants are there in the United States?
How many nuclear power plants are in the U.S. and where are they located?
How many smart meters are installed in the U.S. and who has them?
How much coal, natural gas, or petroleum is used to generate a kilowatt-hour of electricity?
How much does it cost to build different types of power plants in the United States?
How much does it cost to generate electricity with different types of power plants?
How much electricity does a typical nuclear power plant generate?
[illegible]
[illegible]
[illegible]
How much electricity is used for lighting in the United States?
How much energy is consumed in the world by each sector?
How much of U.S. carbon dioxide emissions are associated with electricity generation?
How much of world energy consumption and electricity generation is from renewable energy?
How old are U.S. power plants?
What is U.S. electricity generation by energy source?
What is a capacity factor?
What is the difference between electricity generation capacity and electricity generation?
What is the efficiency of different types of power plants?
What is the outlook for home heating fuel prices this winter?

On This Page:
Coal
Conversion & Equivalents
Crude Oil
Diesel
Electricity
Environment
Gasoline
General Energy
Natural Gas
Nuclear
Prices
Renewables

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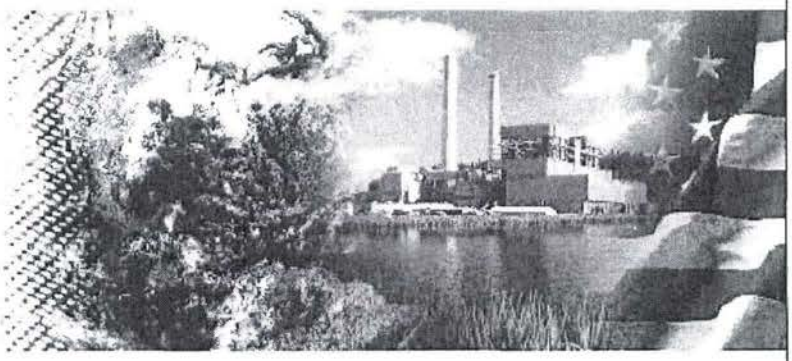
What types and amounts of energy are produced in each state?

Back up Documentation PSC Q.3-B

NATIONAL ENERGY TECHNOLOGY LABORATORY



Cost and Performance Baseline for Fossil Energy Plants

Volume 1: Bituminous Coal and Natural Gas to Electricity

Revision 2, November 2010

DOE/NETL-2010/1397

U.S. DEPARTMENT OF ENERGY

COST AND PERFORMANCE BASELINE FOR FOSSIL ENERGY PLANTS
VOLUME 1: BITUMINOUS COAL AND NATURAL GAS TO ELECTRICITY

DOE/2010/1397

Final Report (Original Issue Date, May 2007)

Revision 1, August 2007

Revision 2, November 2010

NETL Contact:

James Black
Combustion Systems Lead
Office of Systems, Analysis and Planning

National Energy Technology Laboratory

www.netl.doe.gov

PERFORMANCE

Energy Efficiency

The net plant efficiency (HHV basis) for all twelve cases is shown in Exhibit ES-3. The primary conclusions that can be drawn are:

- The NGCC with no CO_2 capture has the highest net efficiency of the technologies modeled in this study with an efficiency of 50.2 percent.
- The NGCC case with CO_2 capture results in the highest efficiency (42.8 percent) among all of the capture technologies.
- The NGCC with CO_2 capture results in a relative efficiency penalty of 14.7 percent (7.4 absolute percent), compared to the non-capture case. The NGCC penalty is less than for the PC cases because natural gas is less carbon intensive than coal, and there is less CO_2 to capture and to compress for equal net power outputs.
- The energy efficiency of the IGCC non-capture cases is as follows: the dry-fed Shell gasifier (42.1 percent), the slurry-fed, two-stage CoP gasifier (39.7 percent) and the slurry-fed, single-stage GEE gasifier (39.0 percent).

Source: http://www.netl.doe.gov/energy-analyses/pubs/BitBase_FinRep_Rev2.pdf