

State Heating Oil and Propane Program: Program Discussion



2016 SHOPP Workshop

July 13, 2016 | Washington, DC

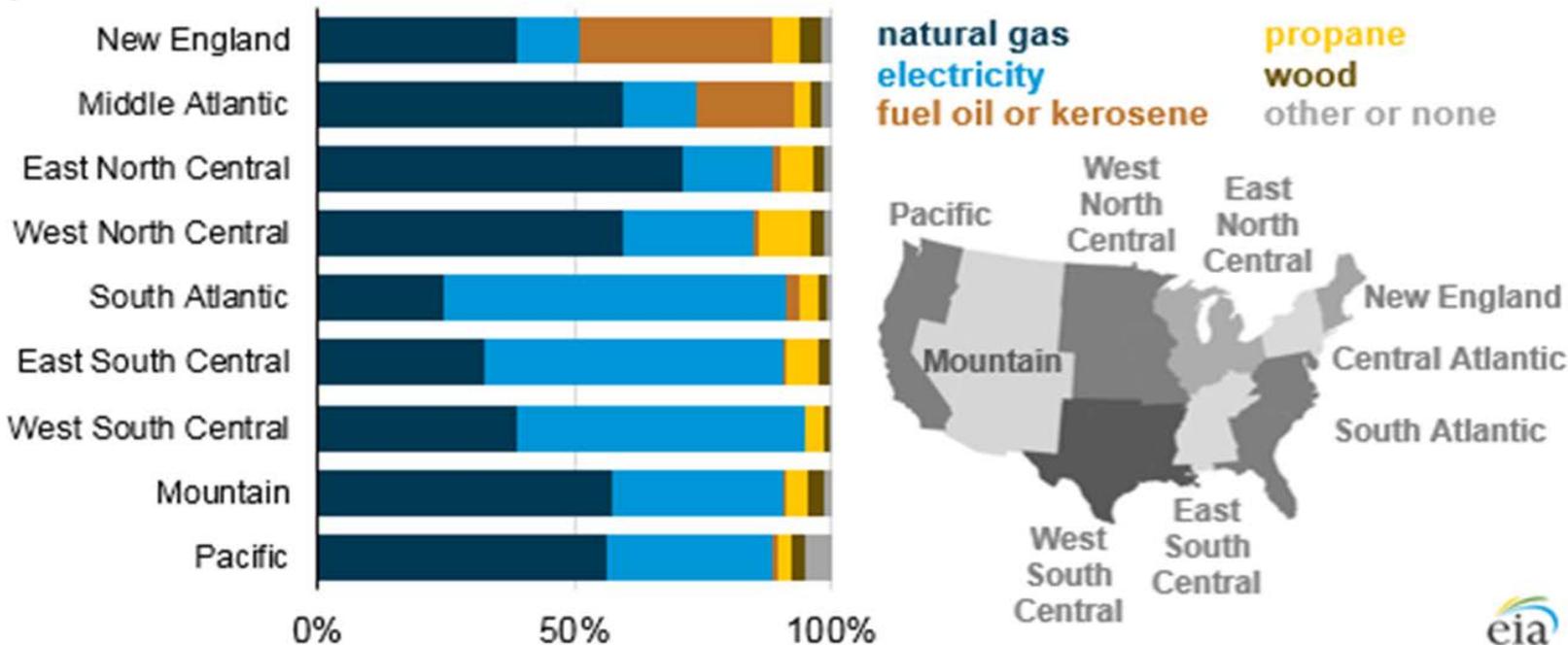
Marcela Rourk, SHOPP Survey Manager

Key Topics

- Overview of statistical methodology used for sample selection
- Current SHOPP activities
- Resources for State Energy Offices

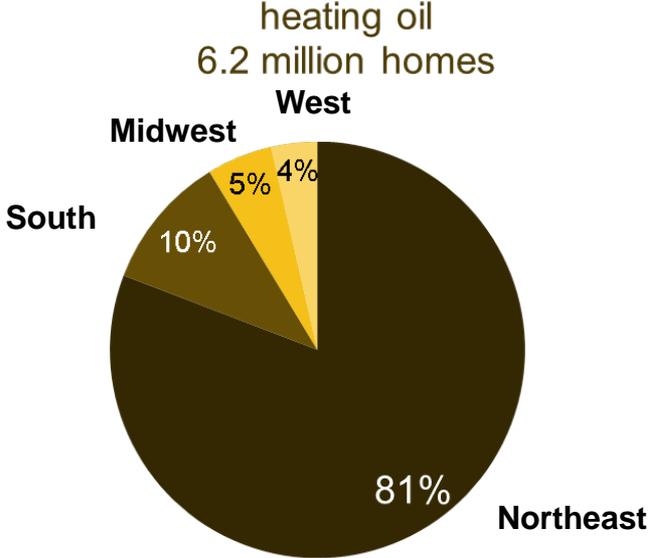
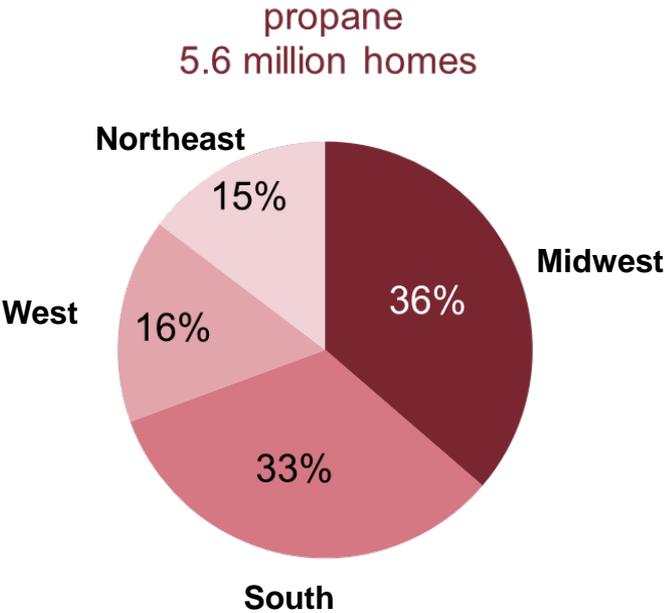
Distribution of primary home heating sources by region

U.S. household heating fuel shares in each Census Division, 2014
percent of division total



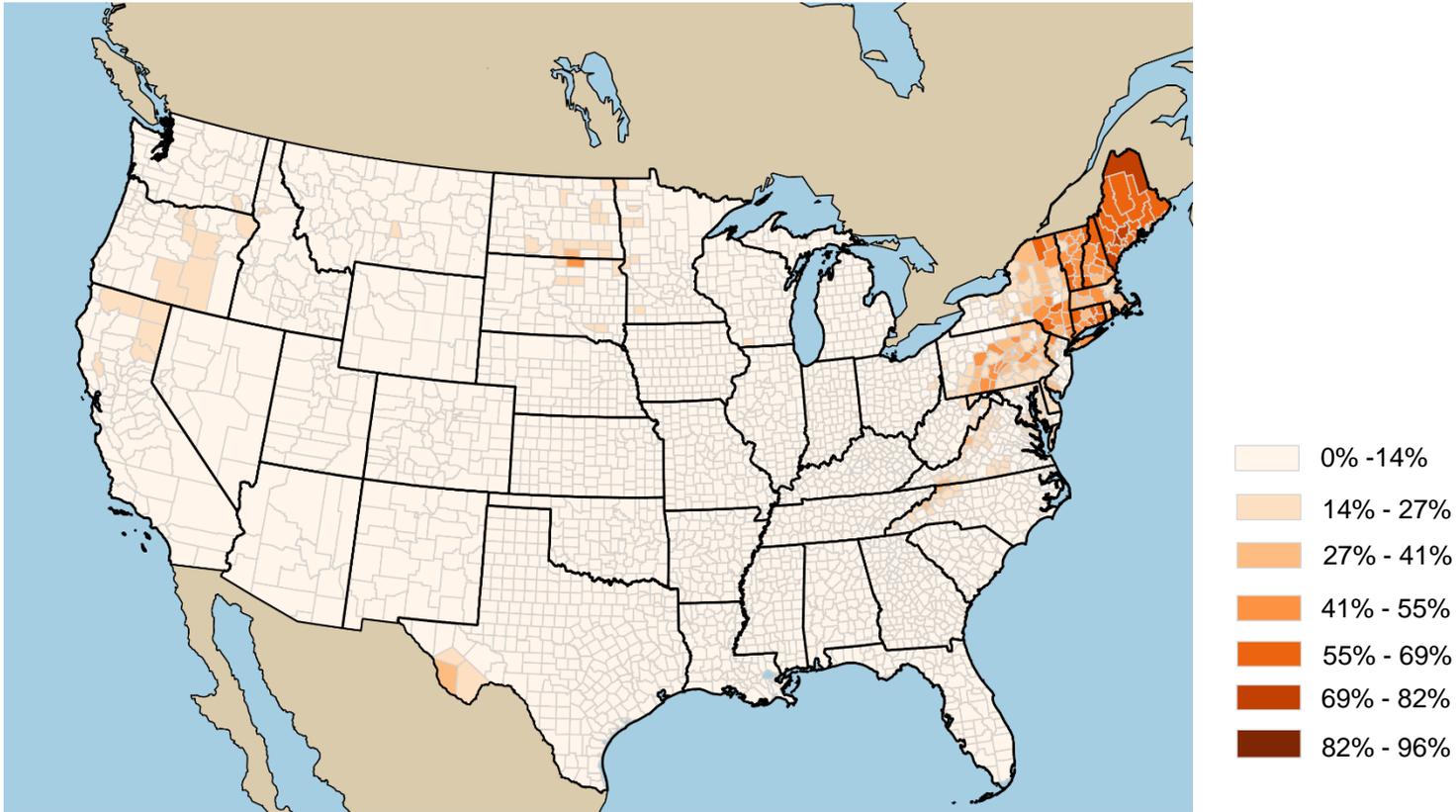
Source: EIA, *Today in Energy*, April 25, 2016

Distribution of primary home heating sources by region



Source: U.S. Census Bureau, 2014 American Community Survey

Percentage of homes heated primarily by heating oil



Source: Data from American Community Survey, 2015, U.S. Census Bureau

Residential heating oil sample selection

Company State Unit (CSU)	Residential Volumes	Percentage of state total
MA Company A	1,000	10.0%
MA Company B	500	5.0%
MA Company C	450	4.5%
MA Company D	100	1.0%
...		

>=5% of total, so automatically included in sample

<5% of total, so goes to next stage

Residential heating oil sample selection, next stage

- Remaining CSUs are stratified into three groups by volumes

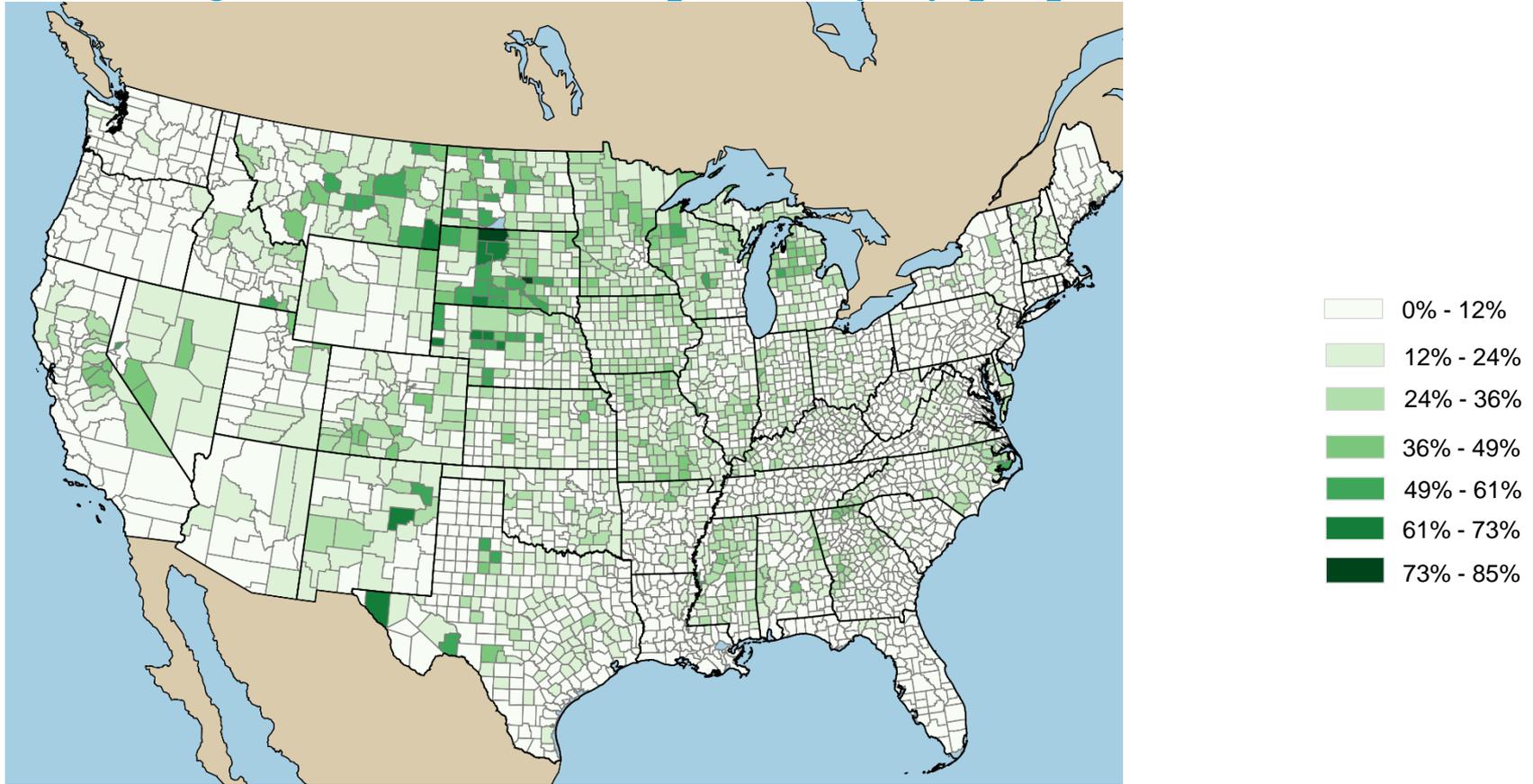
CSU	Residential Sales Volumes	
MA Company C	450	High-volume stratum
MA Company D	100	
MA Company E	80	Medium-volume stratum
MA Company F	75	
MA Company G	60	
MA Company H	45	Low-volume stratum
MA Company I	10	

Residential heating oil sample selection, final stage

- CSUs chosen high-, medium-, and low-volume strata to minimize the error in the estimate
- To calculate the average and account for the difference in probabilities, respondent prices are weighted

MA Sample	Selection Group	Selection Method
MA Company A	Certainty	$\geq 5\%$ MA sales volume
MA Company B	Certainty	$\geq 5\%$ MA sales volume
MA Company D	High-volume stratum	Simple random sample
MA Company E	Medium-volume stratum	Simple random sample
MA Company H	Low-volume stratum	Simple random sample

Percentage of homes heated primarily by propane



Source: Data from American Community Survey, 2015, U.S. Census Bureau

Residential propane sample selection

- The propane sample is selected using a different methodology
- Suppose California has 900,000 gallons sold to residential customers

Company State Unit (CSU)	Zip code	Residential Volumes
CA Company A	95494	40,000
CA Company B	90001	100,000
CA Company C	96151	7,000
CA Company D	94901	20,000
...		

Residential propane sample selection

- Companies are ordered by zip code to account for geographic location

Company State Unit (CSU)	Zip code	Residential Volumes
CA Company B	90001	100,000
CA Company D	94901	20,000
CA Company A	95494	40,000
CA Company C	96151	7,000
. . .		

Residential propane sample selection

- Companies at the state level are chosen using a Probability Proportional to Size (PPS) method
- Since we choose 30 companies in each state, we divide the total residential propane volumes for CA (900,000) by 30 to get 30,000

Company State Unit (CSU)	Residential Volumes	Cumulative Volumes
CA Company B	100,000	100,000
CA Company D	20,000	120,000
CA Company A	40,000	160,000
CA Company C	7,000	167,000
...		

Residential propane sample, first-stage selection

- We start at a random number, say 20,000
- Then we add to that number in increments of 30,000
 {20,000, 50,000, 80,000, 110,000, 140,000, 170,000, . . ., 890,000}

Company State Unit (CSU)	Residential Volumes	Cumulative Volumes	Times chosen
CA Company B	100,000	100,000	3
CA Company D	20,000	120,000	1
CA Company A	40,000	160,000	1
CA Company C	7,000	167,000	0
...			

20,000, 50,000 and 80,000 are between 0 and 100,000 so B is chosen 3 times

110,000 is between 100,000 and 120,000 so Company D is chosen once

140,000 is between 120,000 and 160,000 so Company A chosen once

Company C is not chosen since there's no selected number between 160,000 and 167,000

Residential propane sample, second-stage selection

- Next, a simple random sample of outlets is selected from each company based on the number of times it was chosen

Company State Unit (CSU)	Residential Volumes
Outlet B1	?
Outlet B2	?
Outlet B3	?
Outlet D1	?
Outlet A1	?
...	

Advantages of using these sampling methodologies

- Both ensure that companies with a substantial residential market share will be included in the sample
 - $\geq 5\%$ state market share for heating oil
 - $\geq 3.33\%$ state market share for propane
- Heating oil sampling methodology also includes a way to ensure we sample companies with a range of sales volumes
- Propane sampling methodology provides a good estimate of the state average without having to sample a large number of outlets

Sampling methodology issues to explore

- Sample sizes were chosen to minimize data collection and respondent burden but we need to investigate whether some samples could be expanded to improve accuracy in some states
- Some states have expressed interest in an EIA sample that covers more of the state geographically
- Residential sales volumes of propane are no longer collected at the company level after the discontinuation of the EIA-863 and EIA-782B in 2011

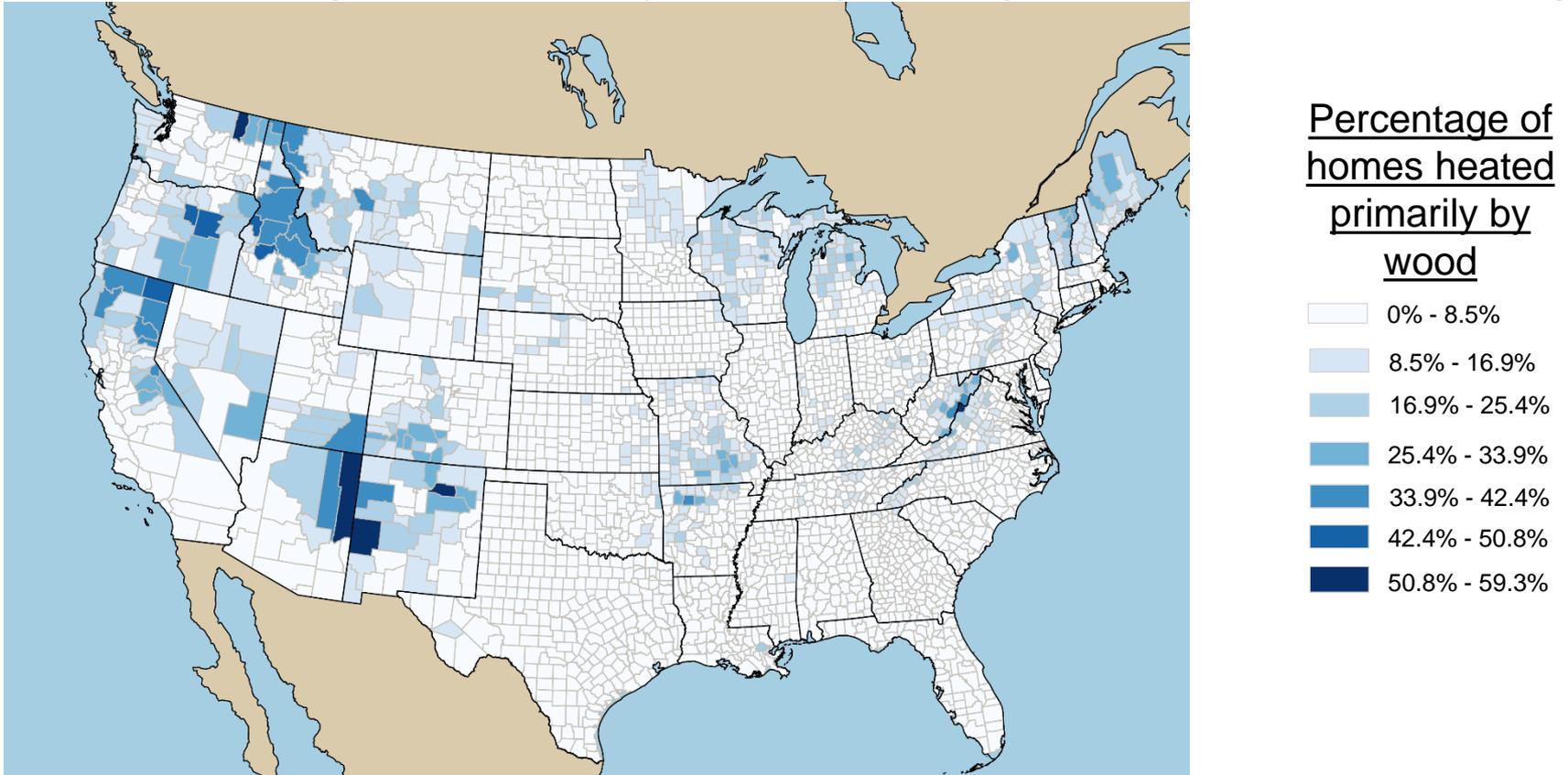
SHOPP Activities and Improvements

- SHOPP survey form will be released on the Federal Register Notice in February 2017 and open for comments
 - EIA can make survey form changes during this time
 - EIA can request changes in total respondent burden
- EIA is discussing adding monthly summer data collection and publication
- EIA is looking into collecting respondent annual sales volumes as stated on the survey form
- EIA is researching other sources of sales volumes for use in updating the sample
 - Are there state sources of heating oil and propane sales volumes?

SHOPP Activities and Improvements

- EIA is in the process of adding additional OPIS wholesale propane prices for publication at the state level
- Continued analysis of prices from large companies
- EIA has started cognitive testing via telephone of residential heating oil and propane respondents
 - This should help us determine what changes to make on the survey form
 - Respondents are also being asked about their ability to report annual sales volumes

EIA is looking more closely at the growing use of wood in heating



Source: Data from American Community Survey, 2015, U.S. Census Bureau

TODAY IN ENERGY

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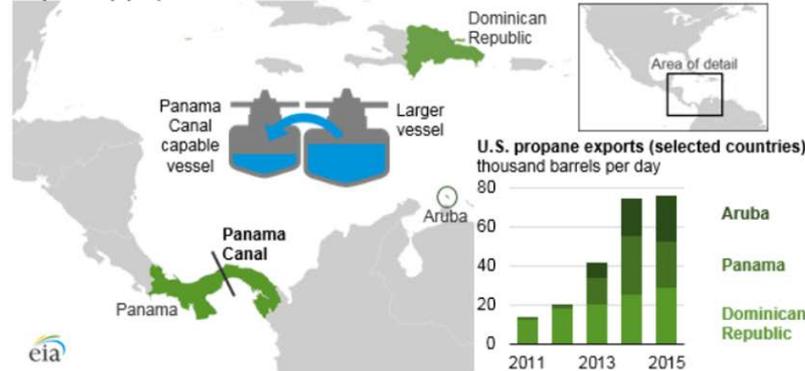
Have a question, comment, or suggestion for a future article? Send your feedback to todayinenergy@eia.gov

[Archive](#)

APRIL 27, 2016

Logistical challenges result in ship-to-ship transfers of U.S. propane exports

Ship-to-ship propane transfers and the Panama Canal



Source: U.S. Energy Information Administration, *Petroleum Supply Monthly*

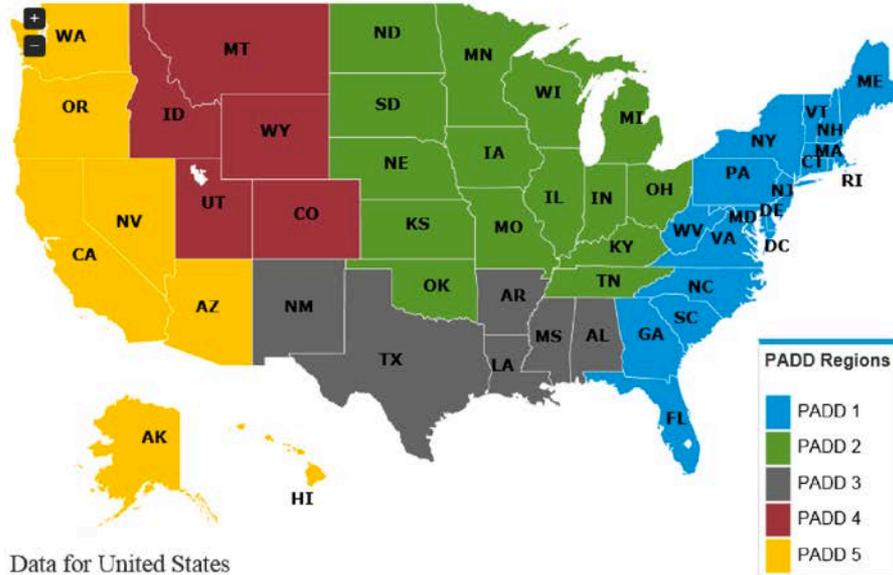
U.S. propane exports have increased significantly over the past three years, but only after market participants worked to overcome several challenges in transporting propane to export customers. After largely overcoming the

Source: EIA, Today in Energy, April 25, 2016

Winter Fuels Page

WINTER HEATING FUELS

Click on the map to view state specific heating fuels data below | [click to reset to U.S. values](#)



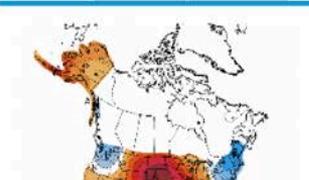
Presentation

[Propane Situation Update](#) 
(presentation updated each Wednesday)

[Short-Term Energy and Winter Fuels Outlook](#)
October 6, 2015
presented by Howard Gruenspecht,
Deputy Administrator

Real-time weather outlook from NOAA

6-10 days | 1 month | 3 months



www.eia.gov/special/heatingfuels

State Energy Profiles

OKLAHOMA



State Profile and Energy Estimates

CHANGE STATE/TERRITORY ▾

OVERVIEW

DATA ▾

ANALYSIS

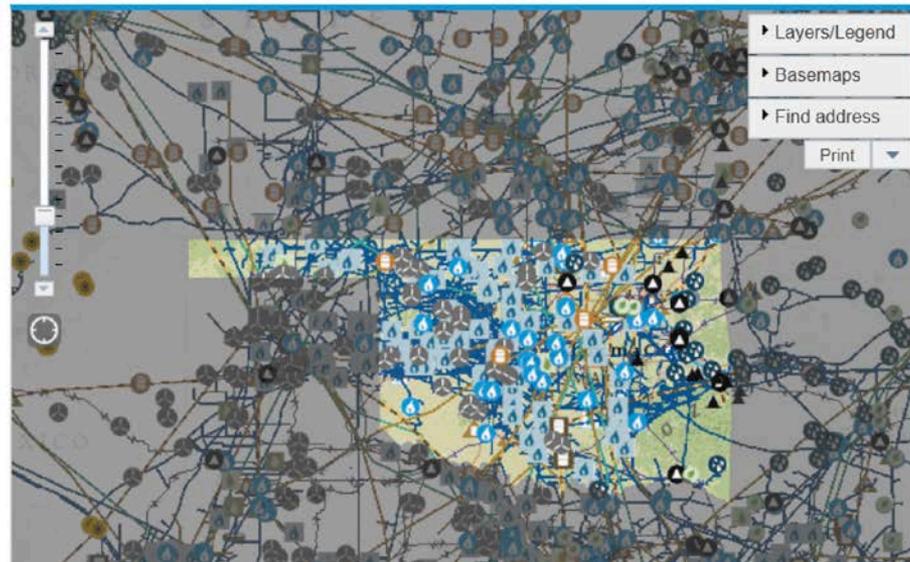
RANKINGS

COMPARE

FIND

? HELP

Profile Overview



 [Print State Energy Profile](#)
(overview, data, & analysis)

Oklahoma, U.S. Rankings

Consumption

Total Energy per Capita 10

Expenditures

Total Energy per Capita 17

Production

Total Energy 5

Crude Oil 6

Natural Gas 3

Coal 21

Electricity 24

Prices

Natural Gas 42

State Energy Data System

U.S. STATES

U.S. STATES



State Profiles and Energy Estimates

CHANGE STATE/TERRITORY ▾

OVERVIEW

DATA ▾

ANALYSIS

RANKINGS

COMPARE

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About SEDS

The State Energy Data System (SEDS) is the source of the U.S. Energy Information Administration's (EIA) comprehensive state energy statistics. EIA's goal in maintaining SEDS is to create historical time series of energy production, consumption, prices, and expenditures by state that are defined as consistently as possible over time and across sectors for analysis and forecasting purposes.

Dimensions of SEDS estimates

Consumption

- by state and for the United States
- by energy source
- by sector
- in physical units and Btu
- annual time-series back to 1960

Prices & expenditures

- by state and for the United States
- by energy source
- by sector
- prices in current dollars per million Btu and expenditures in current dollars
- annual time-series back to 1970

Production

- by state and for the United States
- by energy source
- in physical units and Btu
- annual time-series back to 1960

For more information

U.S. Energy Information Administration home page www.eia.gov

This Week in Petroleum (TWIP) <http://www.eia.gov/oog/info/twip/twip.asp>

Heating Oil and Propane Update (HOPU) <http://www.eia.gov/petroleum/heatingoilpropane/>

FAQs for SEOs: http://www.eia.gov/petroleum/heatingoilpropane/faq_stateofficials.cfm

Weekly Petroleum Status Report (WPSR)

http://www.eia.gov/oil_gas/petroleum/data_publications/weekly_petroleum_status_report/wpsr.html

Short-Term Energy Outlook (STEO) <http://www.eia.gov/forecasts/steo/>

Winter Heating Fuels <http://www.eia.gov/special/heatingfuels>