Energy Data Overview

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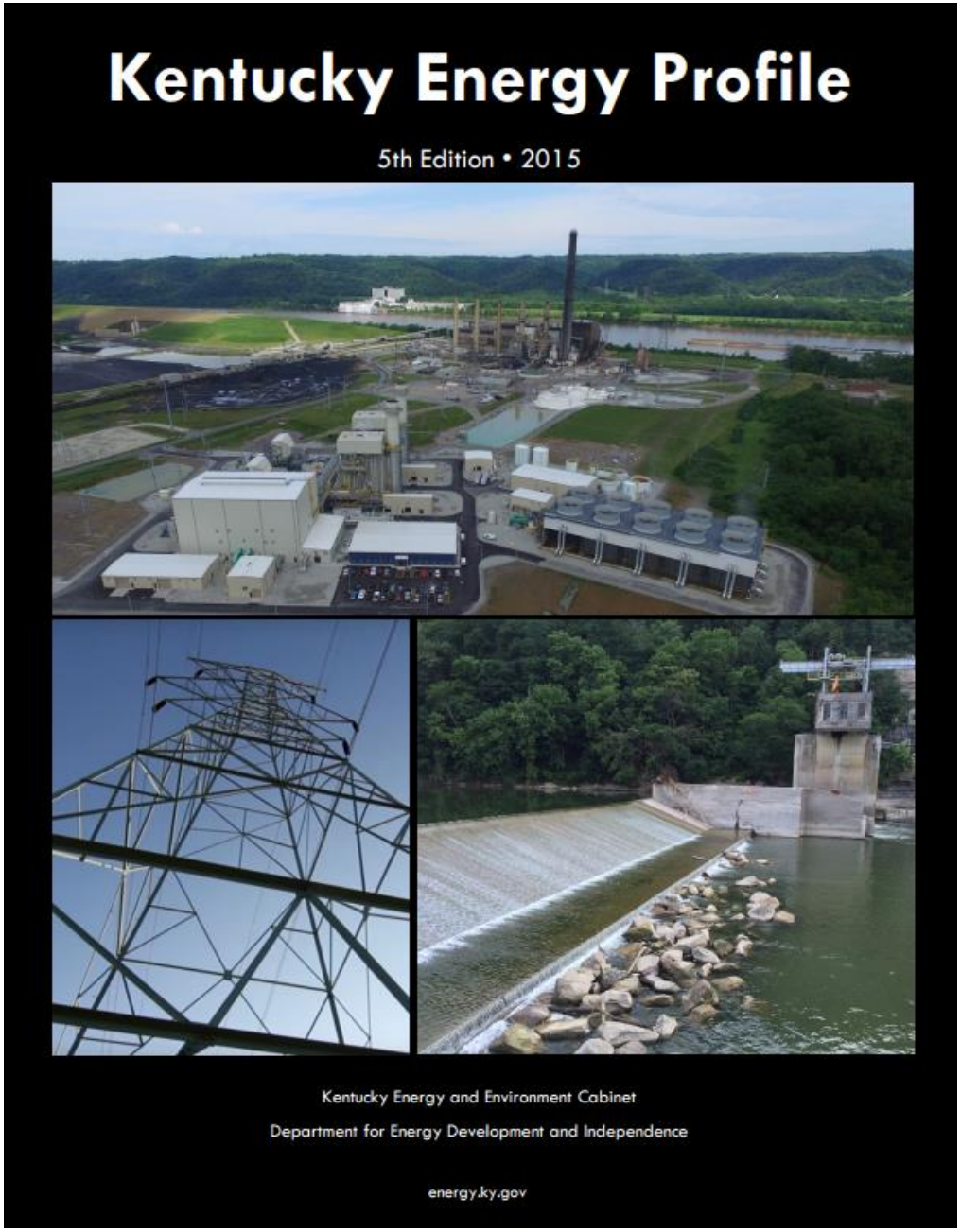
January 29th, 2016

Energy Resources Management Board
Emergency Support Function – 12 – Energy Supply
Kentucky Emergency Management Operations Center

Kentucky Energy and Environment Cabinet
Department for Energy Development and Independence

energy.ky.gov

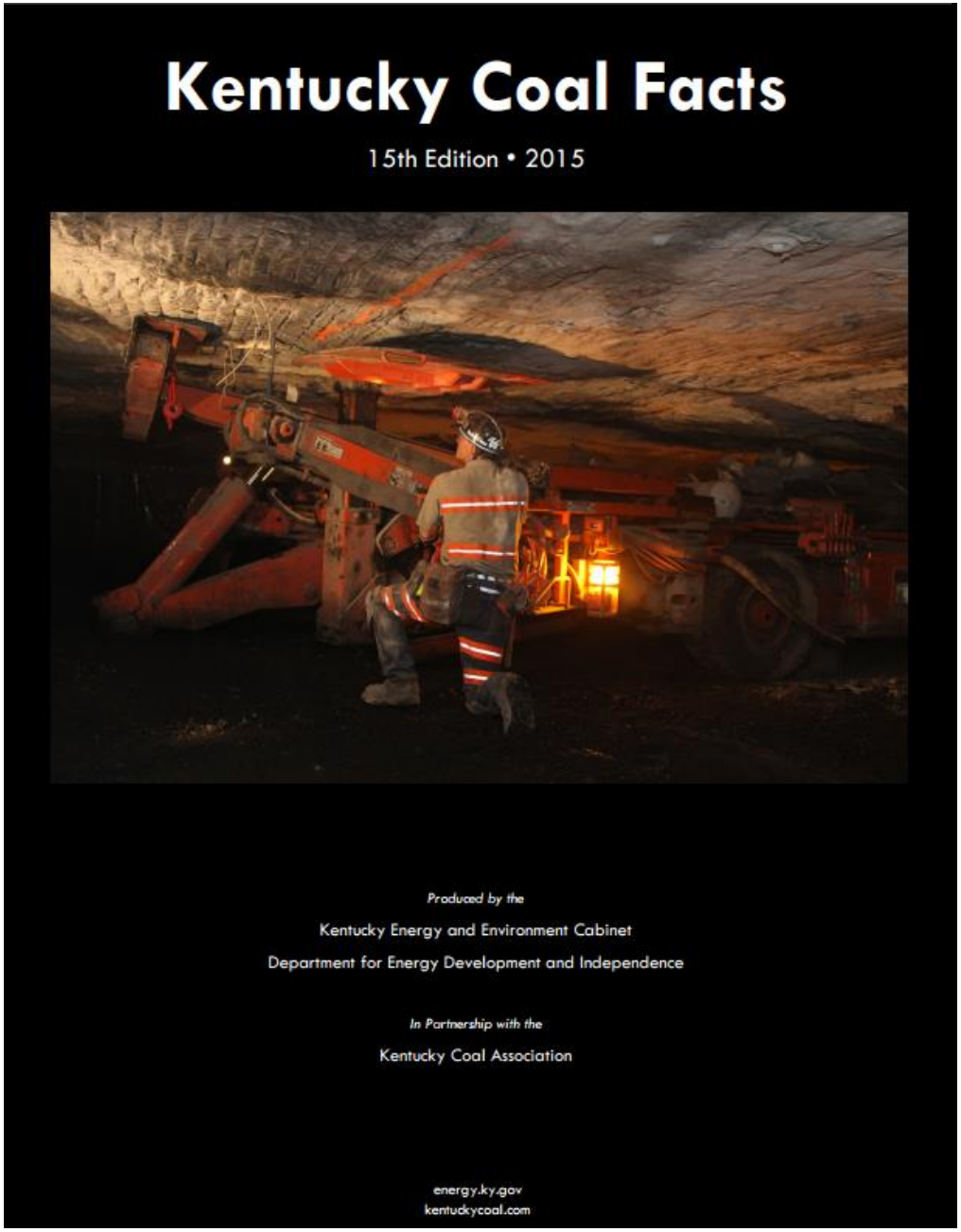


Download at:
http://energy.ky.gov/Pages/Profile.aspx

Purpose:
Comprehensive Report on Energy Production, Energy Consumption, and Energy Dynamics within the Commonwealth of Kentucky

Contains:

- Energy Commodity Prices and Expenditures
- Energy Production and Consumption
- Energy Consumption, Expenditures, and Intensity by Sector
- Electricity Generation, Consumption, Prices, Generation Infrastructure, Rates, and Service Areas
- Profiles of Electricity Utilities in Kentucky
- Profiles of Coal-Fired Power Plants in Kentucky
- Coal Production and Consumption
- Natural Gas Consumption and Production
- Crude Oil Production and Liquid Fuel Consumption
- Renewable Energy Production, Generation, and Potential



Download at:
http://energy.ky.gov/Pages/CoalFacts.aspx

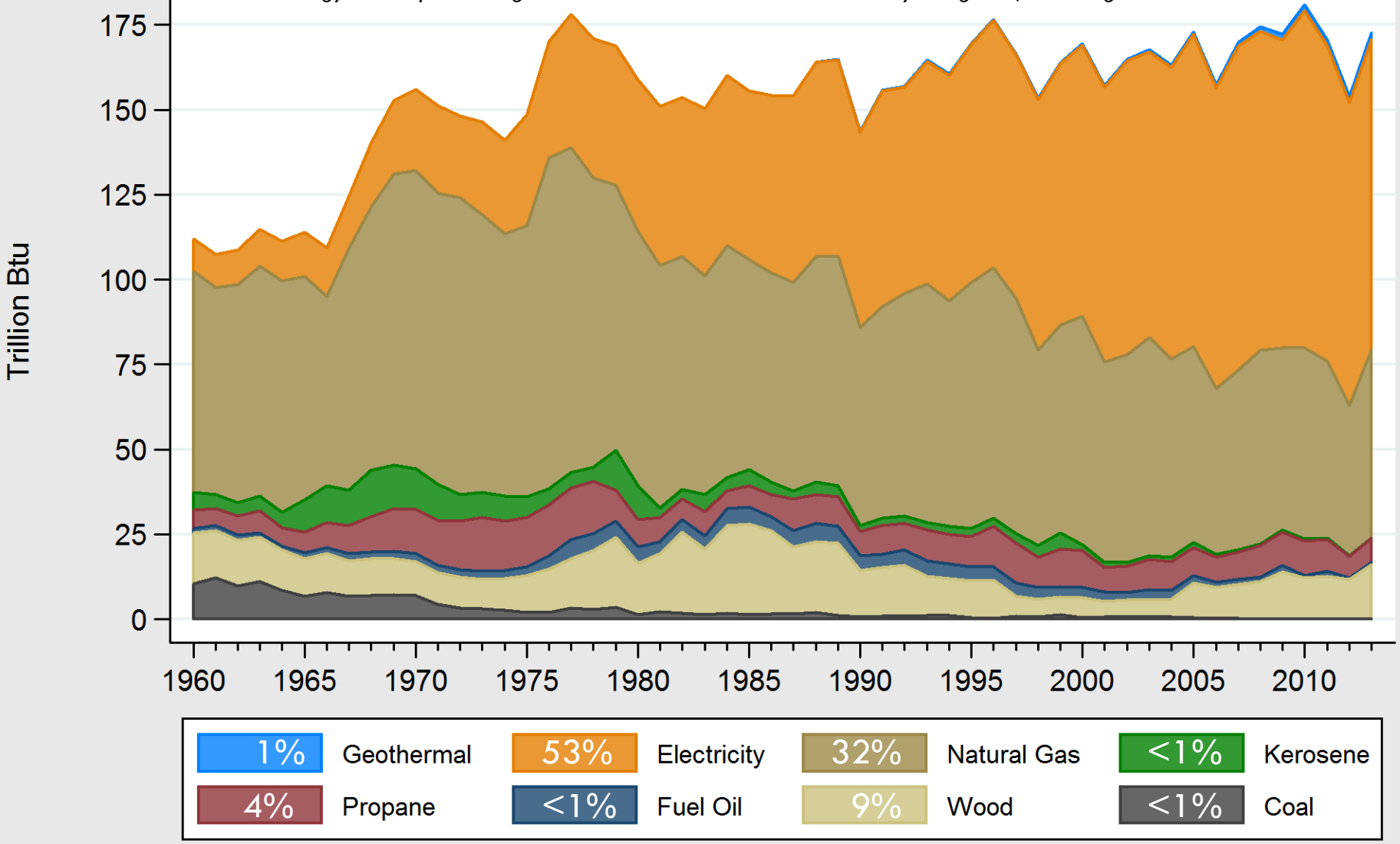
Purpose:
A detailed overview of the coal industry in Kentucky, focusing on mining and production, employment, and the markets for Kentucky coal.

Contains:

- Coal Production
- Mining Employment and Productivity
- Severance Revenue, Coal Prices, and Chemical Properties
- Coal Distribution and Markets
- Electricity Generation, Emissions, and Prices
- History of Coal in Kentucky
- Mine Safety, Licensing, and Reclamation
- County Level Production, Employment, and Markets

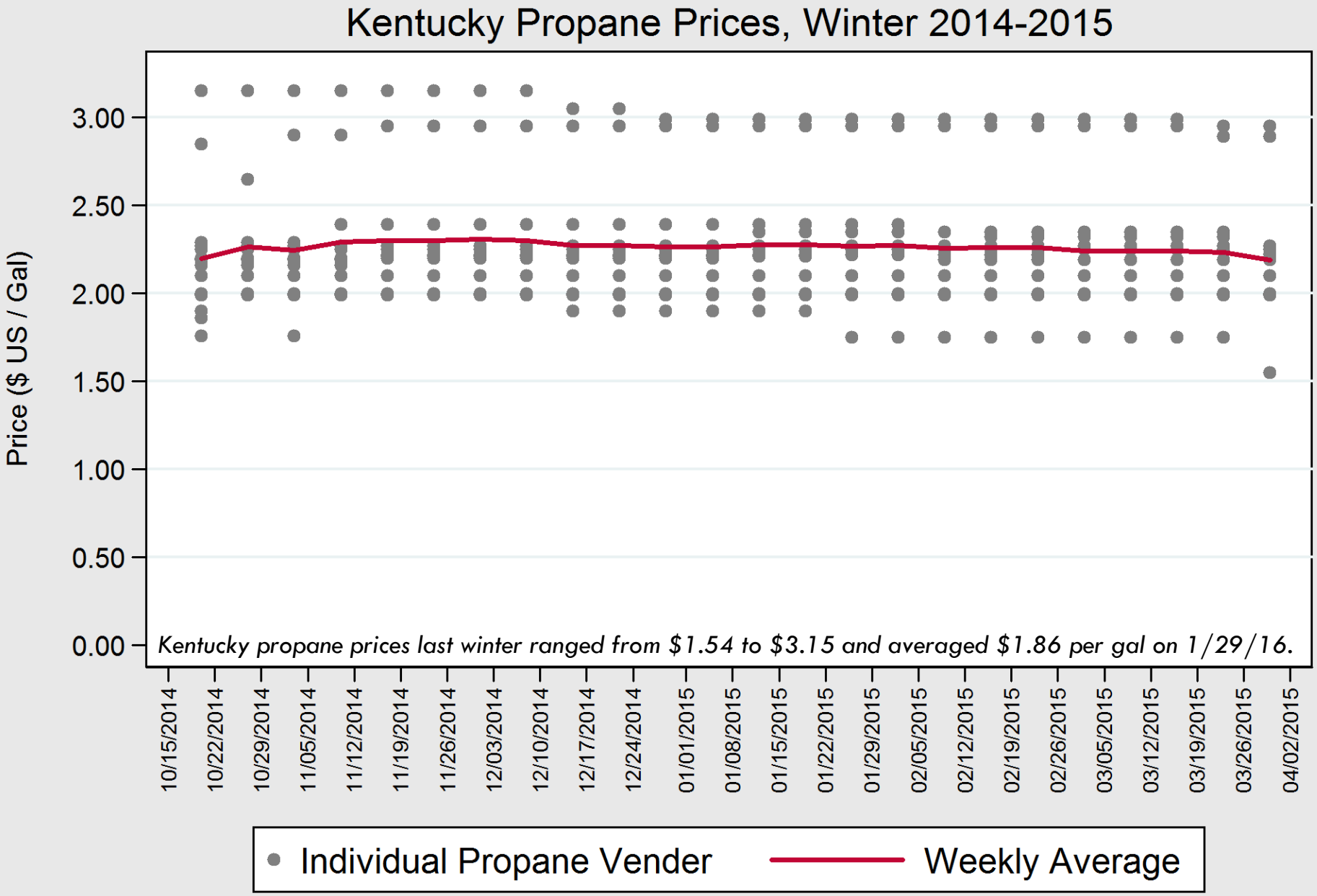
Kentucky Residential Energy Consumption by Fuel, 1960-2013

Residential energy consumption has grown little since the late 1970s. Electricity has grown, natural gas has declined.

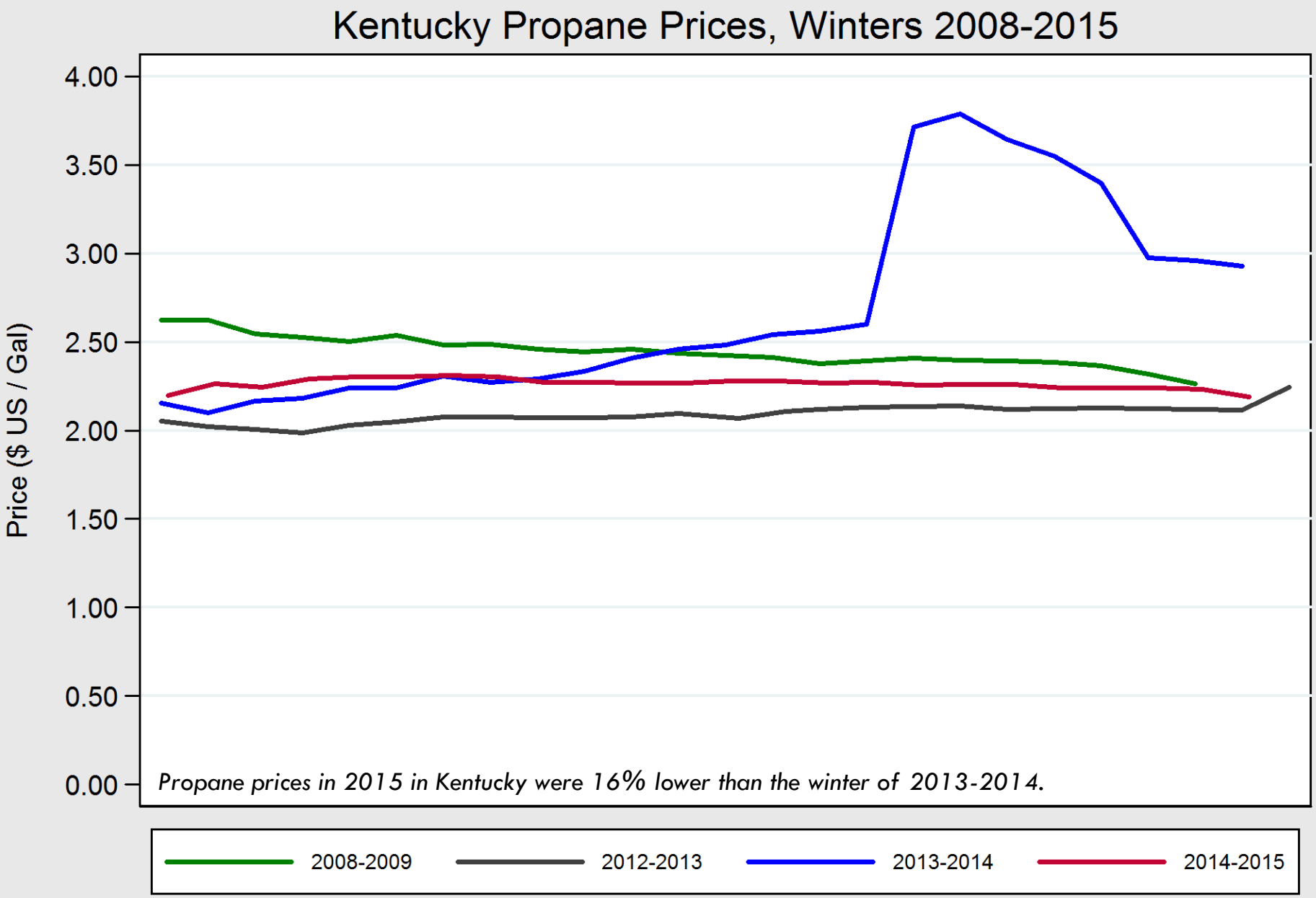


Kentucky Energy Database, EEC-DEDI, 2015

Data Source: EIA-SEDS



Kentucky Energy Database, EEC-DEDI, 2015 Data Source: EEC-DEDI Weekly SHOPP Survey



Kentucky Energy Database, EEC-DEDI, 2015 Data Source: EEC-DEDI Weekly SHOPP Survey

Map of Kentucky Propane Storage Tanks, 2016

Confidential information has been deleted. Please direct all inquiries to 502-564-7192.

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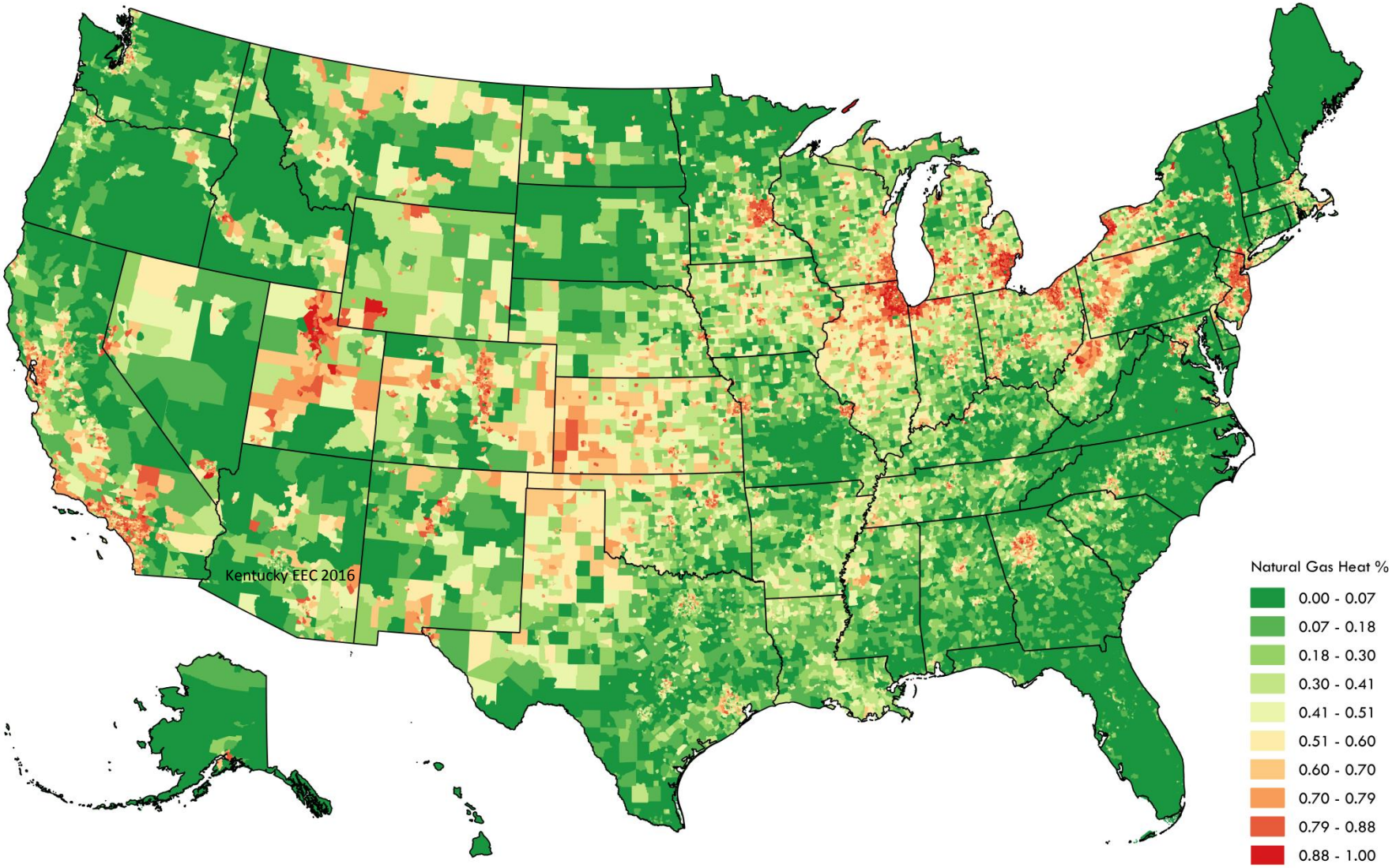
United States Natural Gas Use for Home Heating, 2014

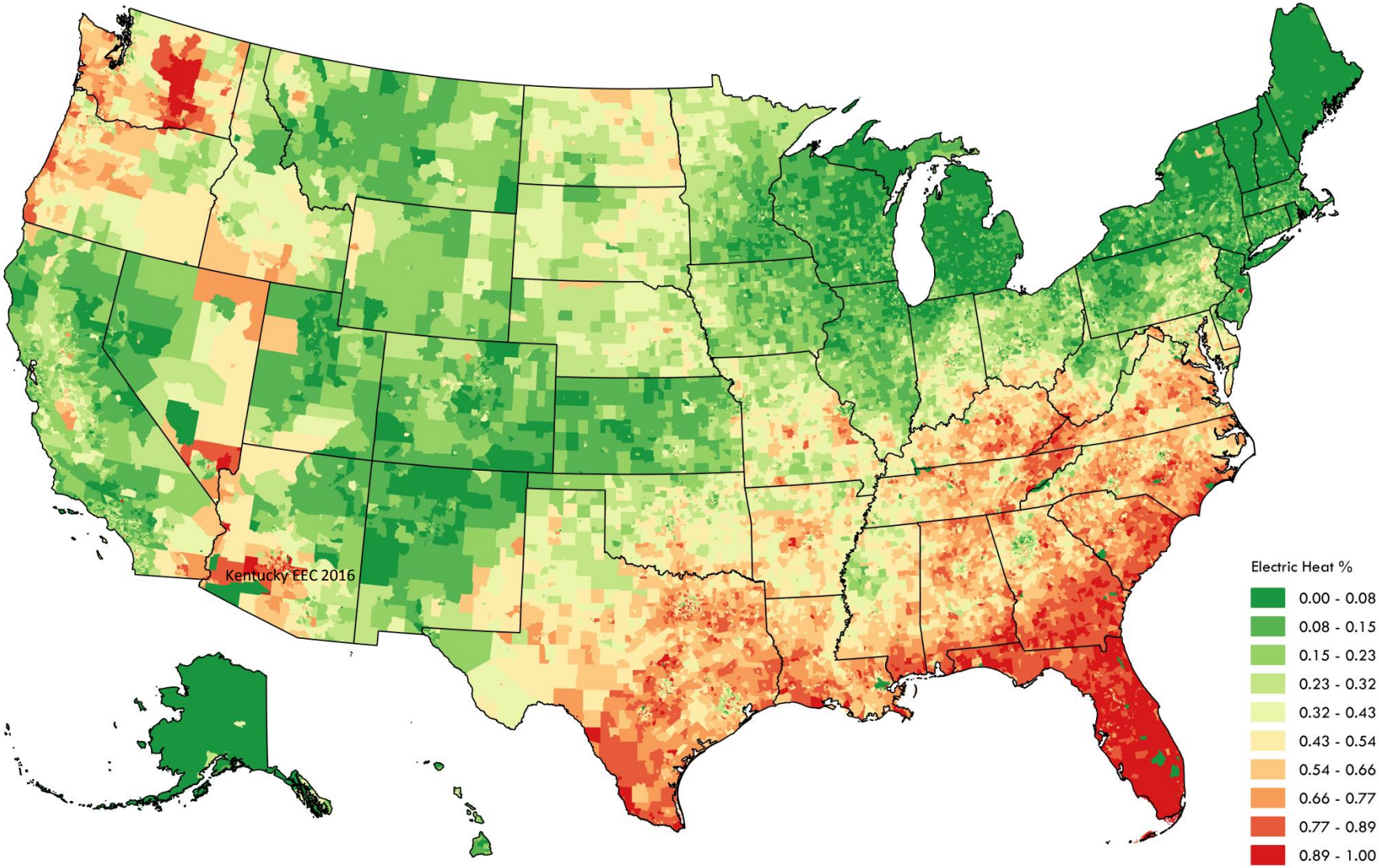


Data Source: United States Census Bureau, American Community Survey

Kentucky Energy Database, EEC-DEDI, 2015

56.8 Million (49%) of American Families Heat with Natural Gas

United States Electricity Use for Home Heating, 2014

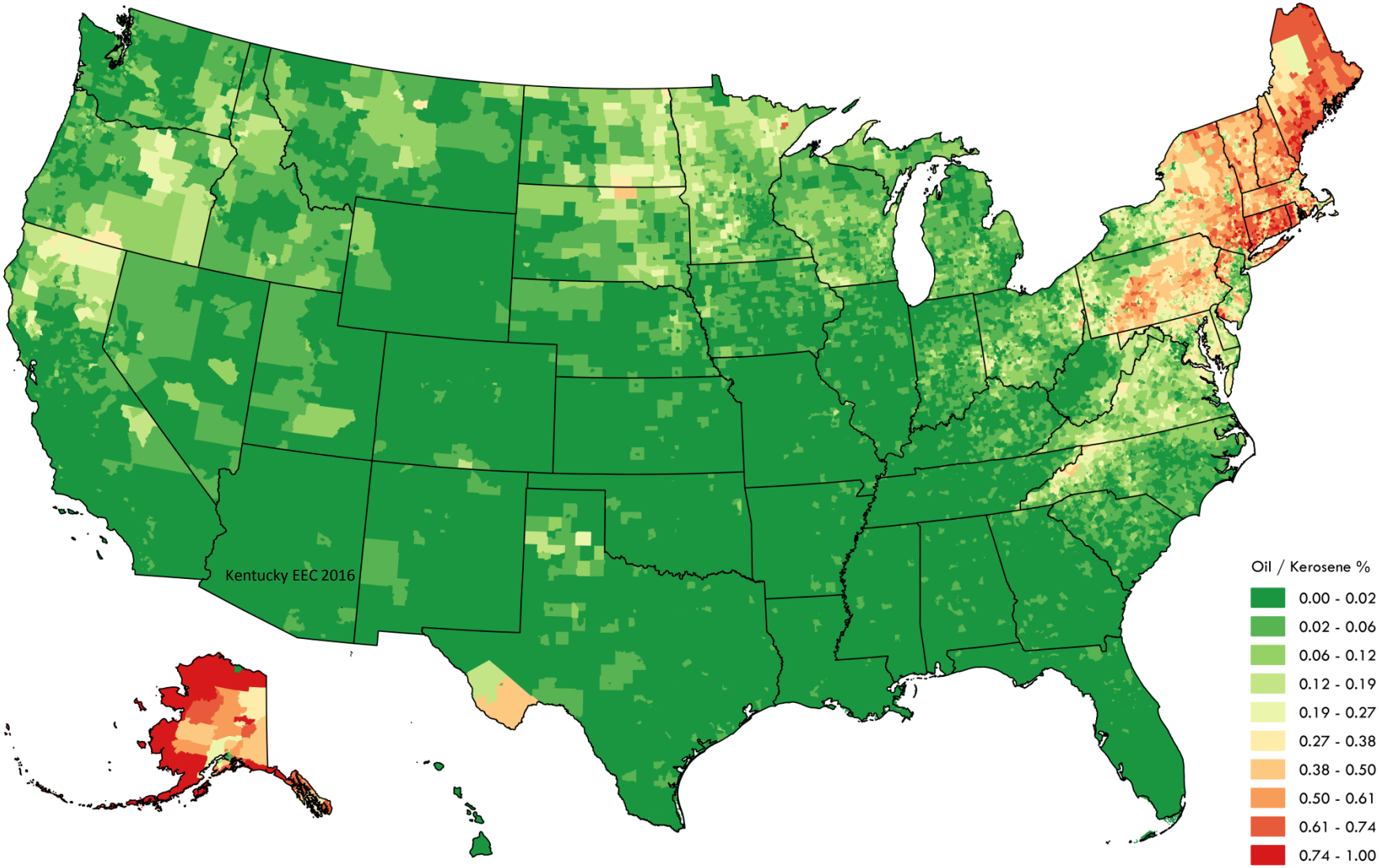


Data Source: United States Census Bureau, American Community Survey

Kentucky Energy Database, EEC-DEDI, 2015

42.6 Million (37%) of American Families Heat with Natural Gas

United States Fuel Oil & Kerosene Use for Home Heating, 2014

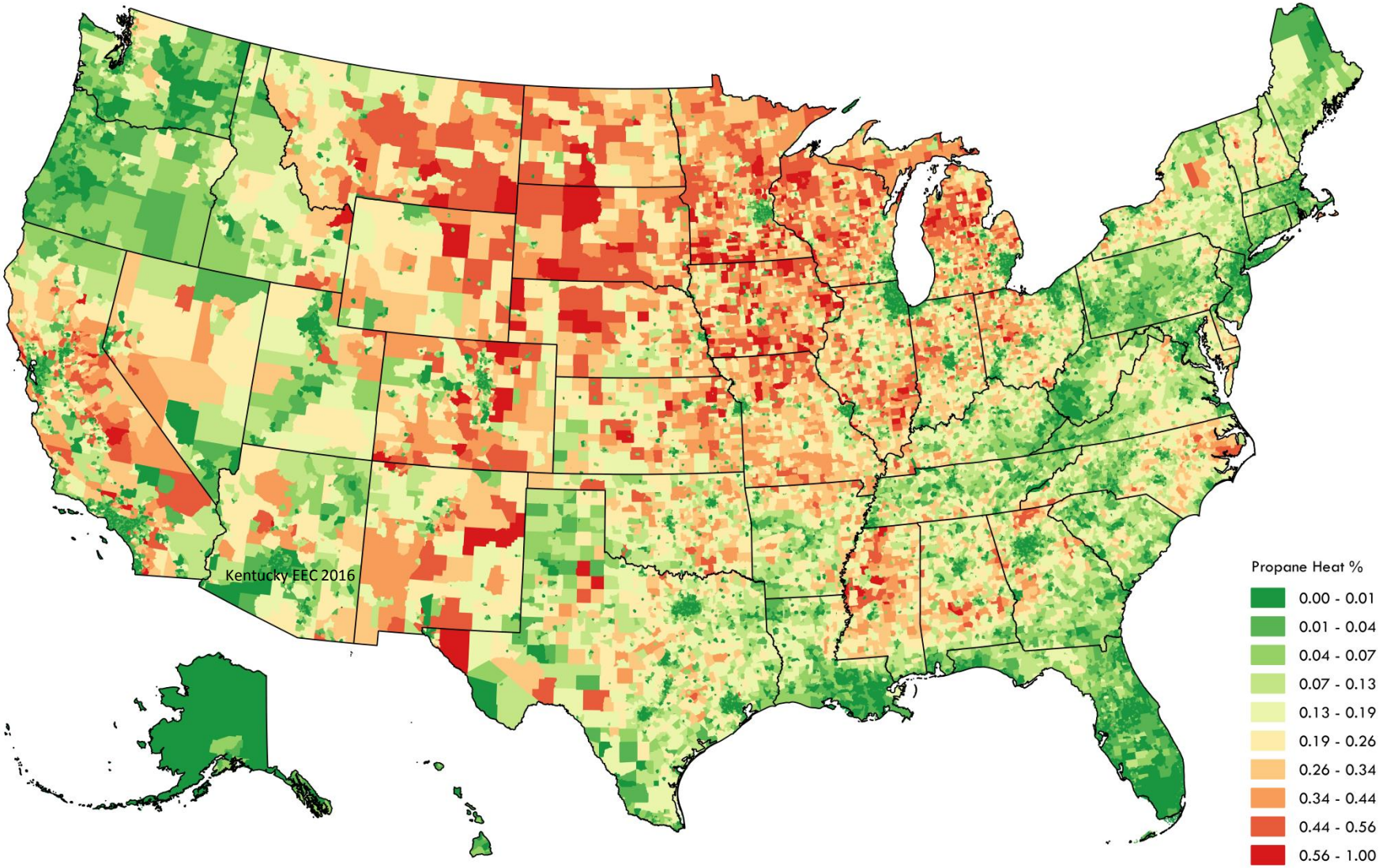


Data Source: United States Census Bureau, American Community Survey

Kentucky Energy Database, EEC-DEDI, 2015

6.8 Million (6%) of American Families Heat with Fuel Oil or Kerosene

United States Propane Use for Home Heating, 2014

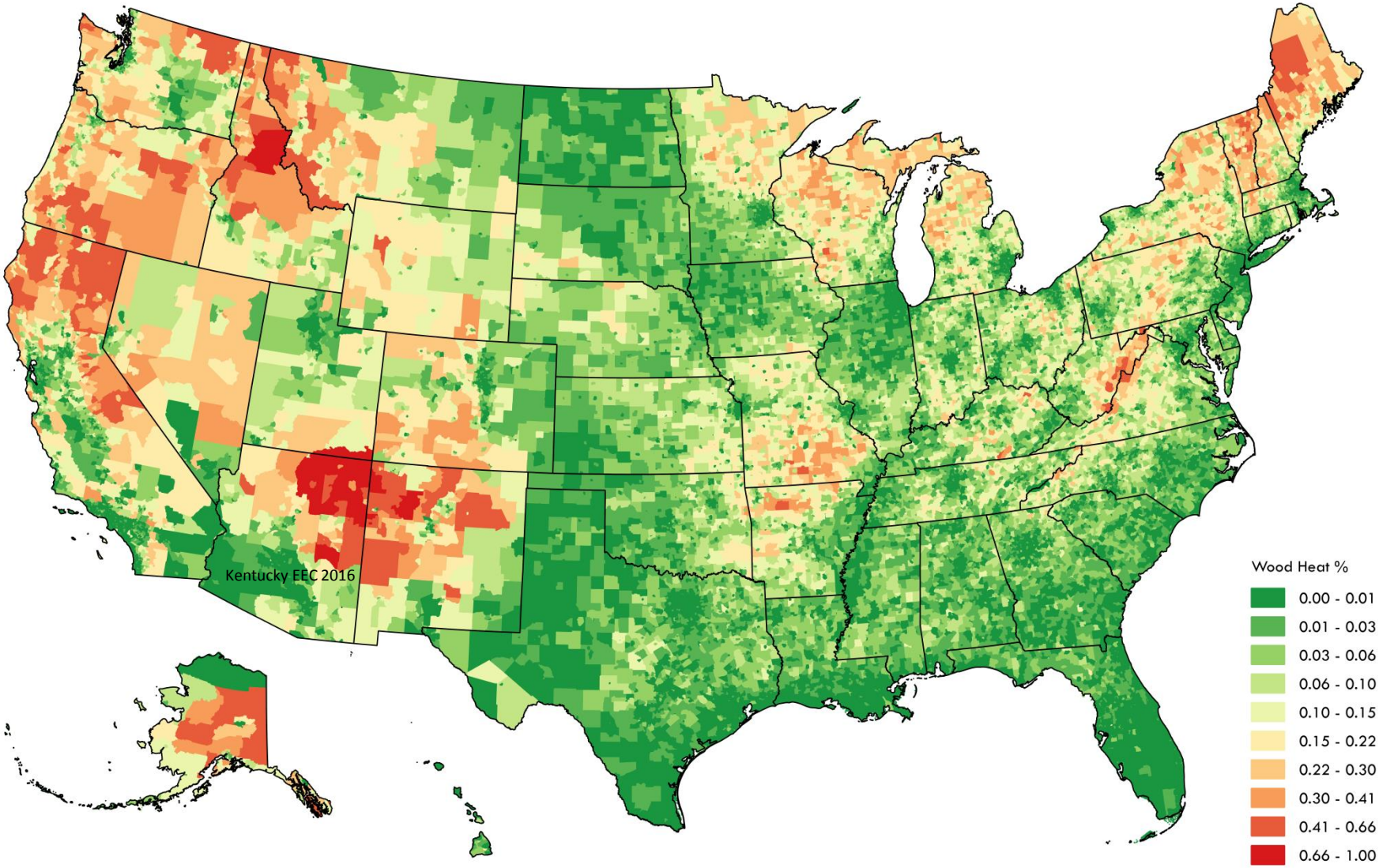


Data Source: United States Census Bureau, American Community Survey

Kentucky Energy Database, EEC-DEDI, 2015

5.6 Million (4.9%) of American Families Heat with Propane

United States Wood Use for Home Heating, 2014

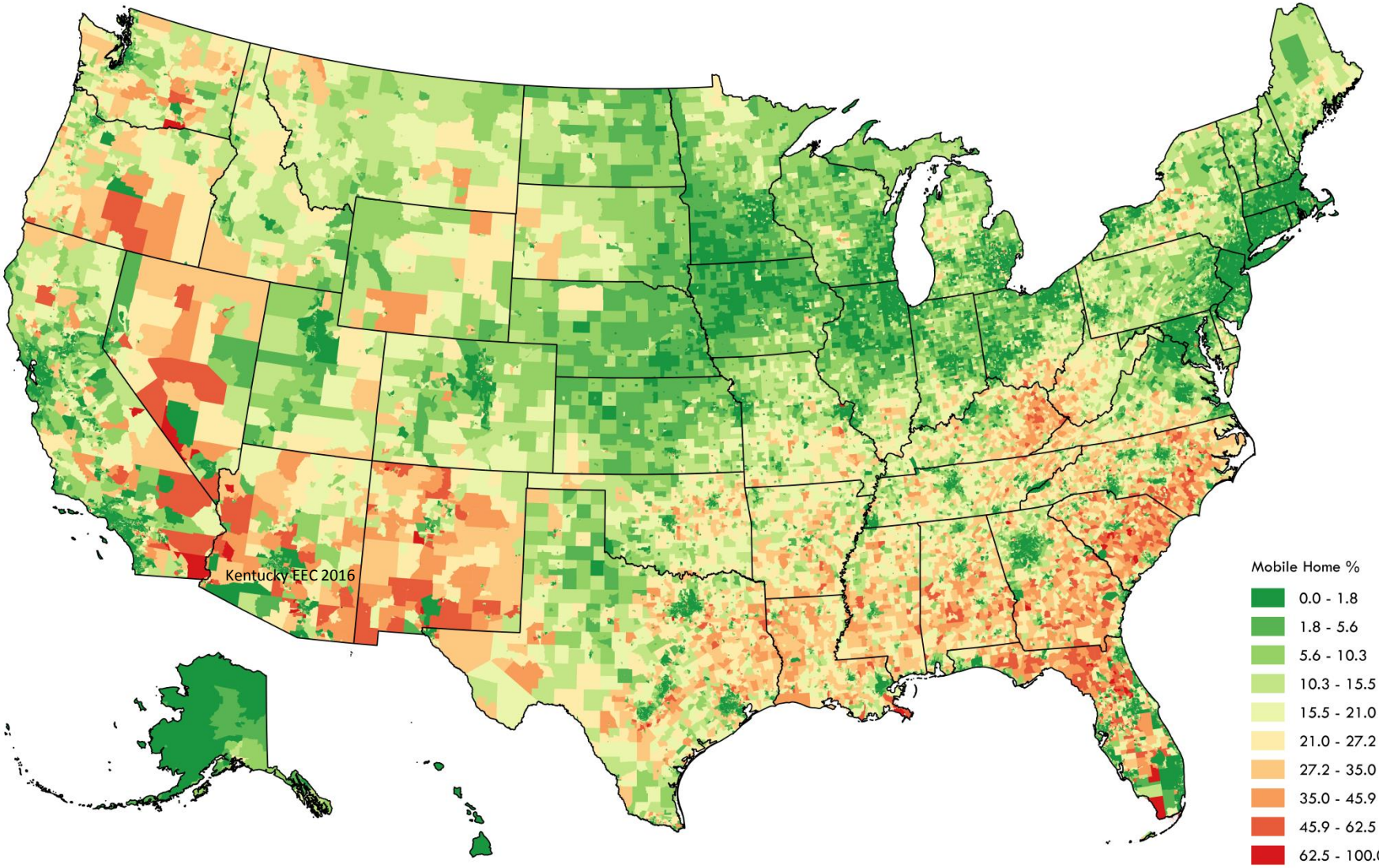


Data Source: United States Census Bureau, American Community Survey

Kentucky Energy Database, EEC-DEDI, 2015

2.5 Million (2.1%) of American Families Heat with Propane

United States Mobile Home, 2014

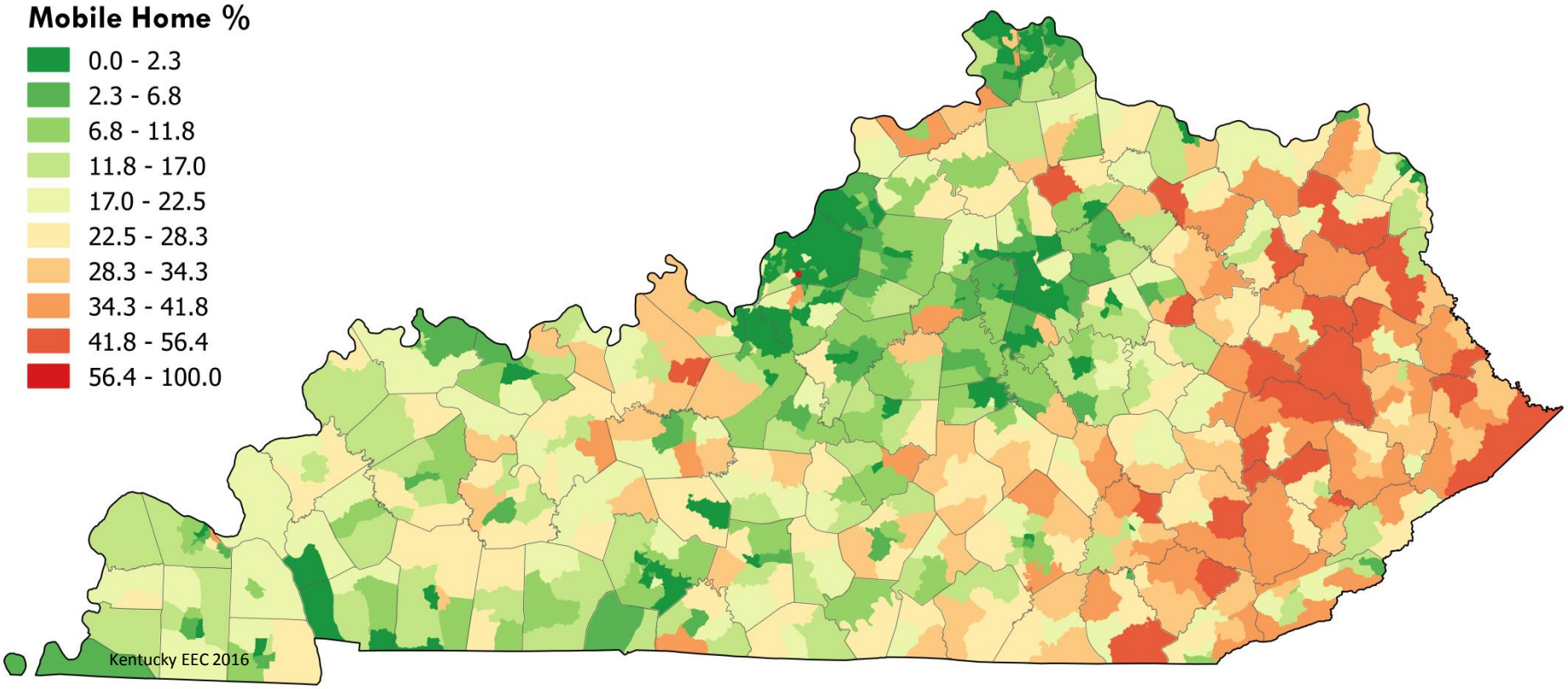


Data Source: United States Census Bureau, American Community Survey

Kentucky Energy Database, EEC-DEDI, 2015

8.1 Million (7%) of American Families Live in Mobile Homes

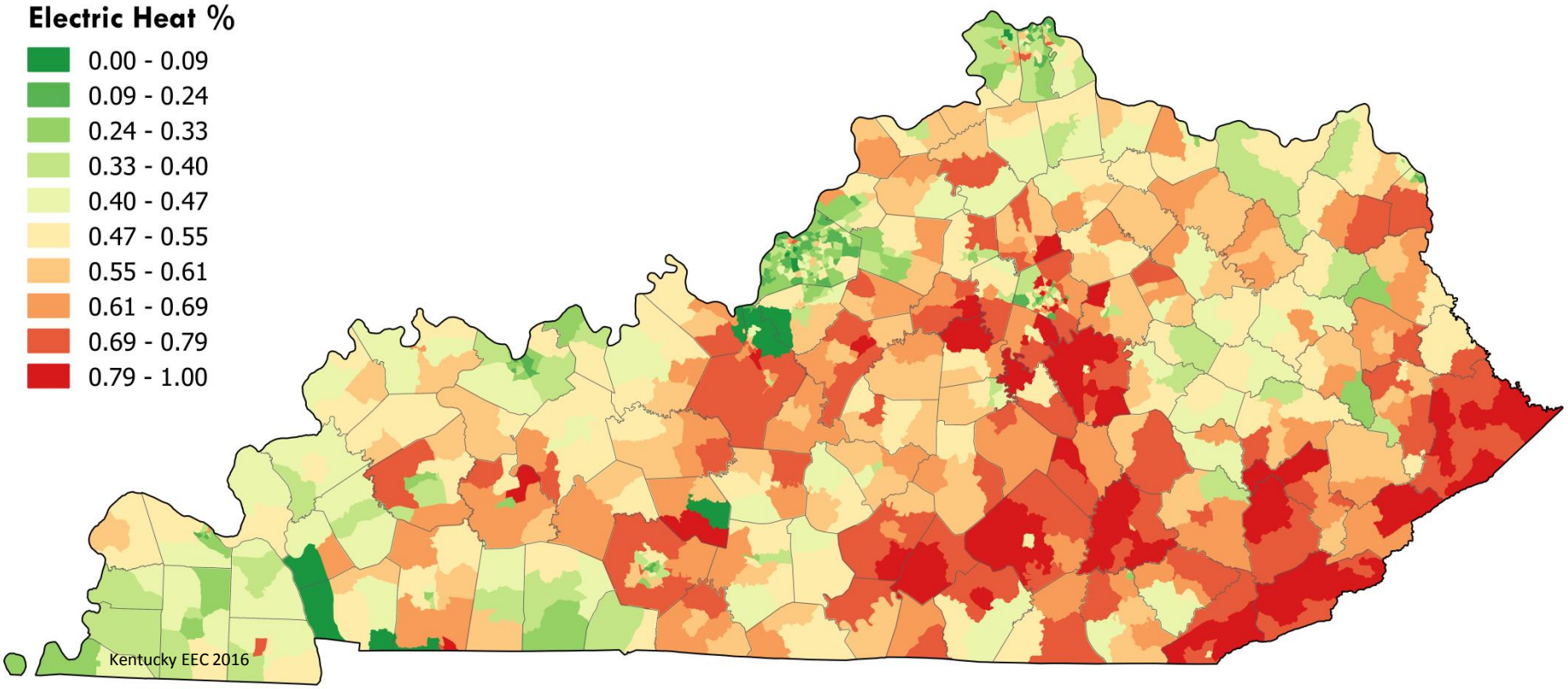
Kentucky Mobile Homes, 2014



Kentucky Energy Database, EEC-DEDI, 2016

251,753 (13%) of Kentucky Families Live in Mobile Homes

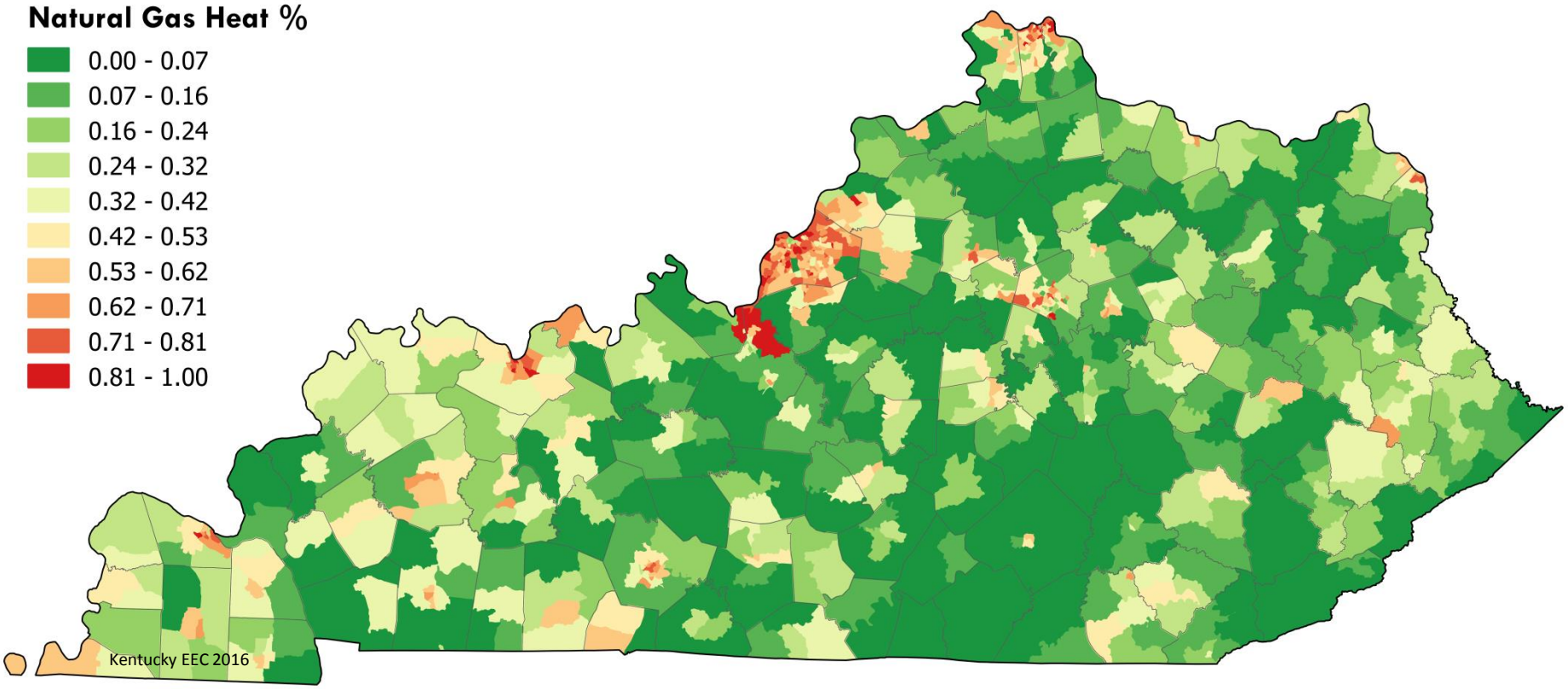
Kentucky Homes Heating with Electricity, 2014



Kentucky Energy Database, EEC-DEDI, 2016

859,587 (50.5%) of Kentucky Families Heat with Electricity

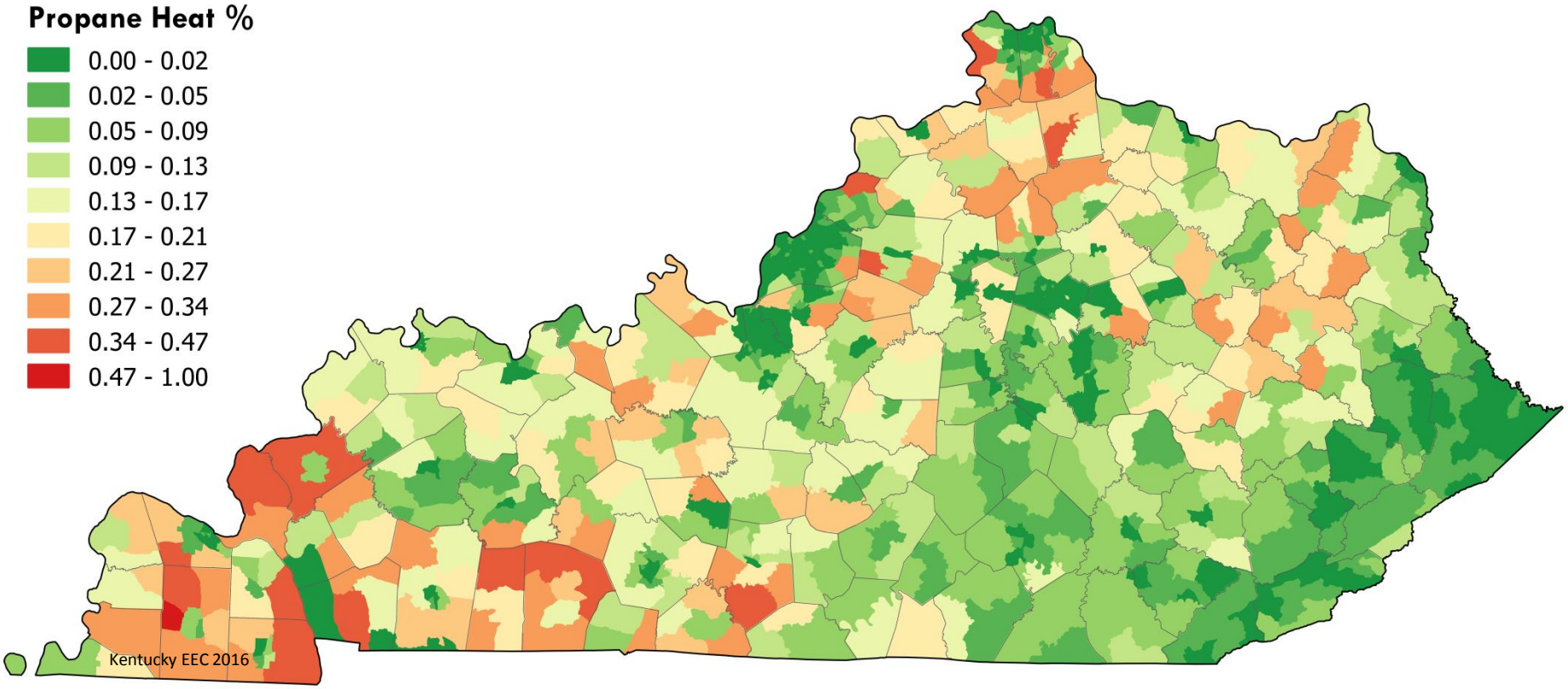
Kentucky Homes Heating with Natural Gas, 2014



Kentucky Energy Database, EEC-DEDI, 2016

650,672 (38%) of Kentucky Families Heat with Natural Gas

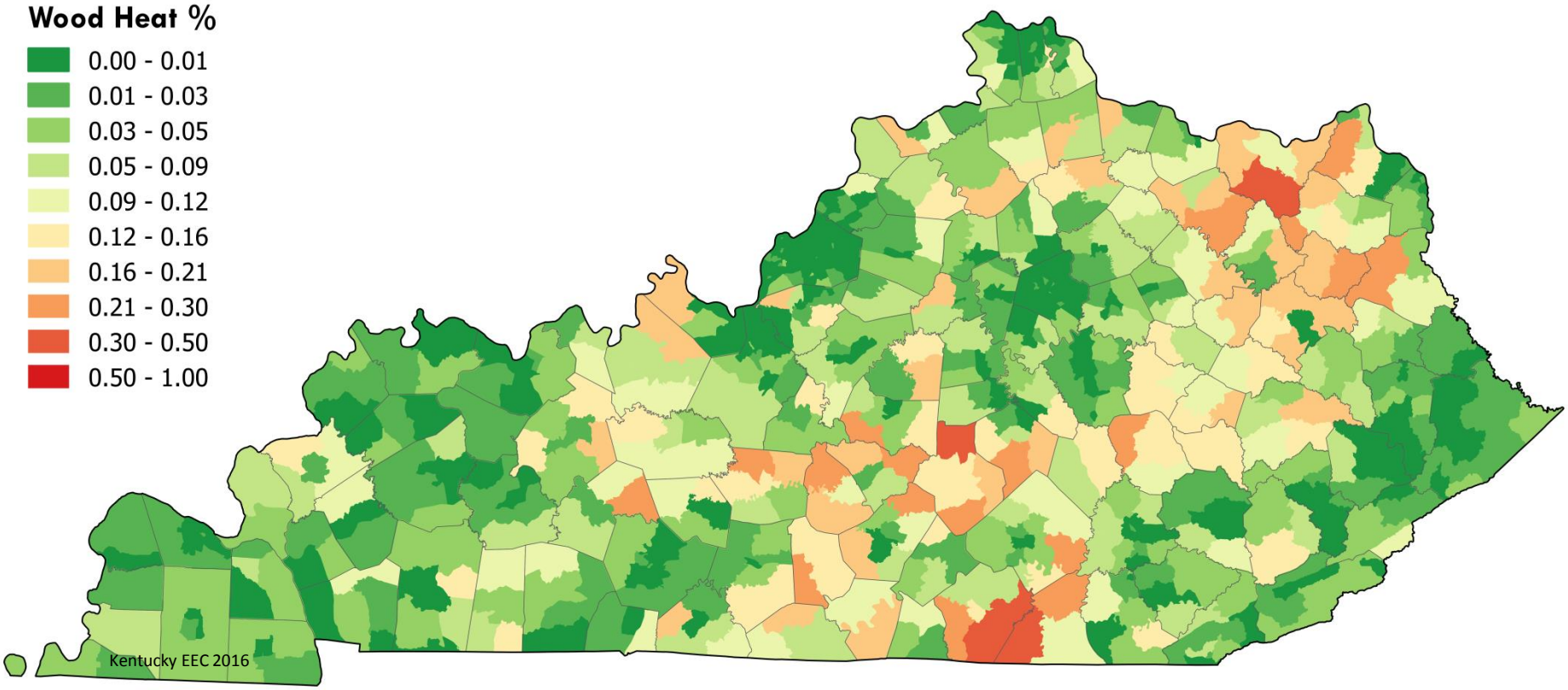
Kentucky Homes Heating with Propane, 2014



Kentucky Energy Database, EEC-DEDI, 2016

50,270 (6.5%) of Kentucky Families Heat with Propane

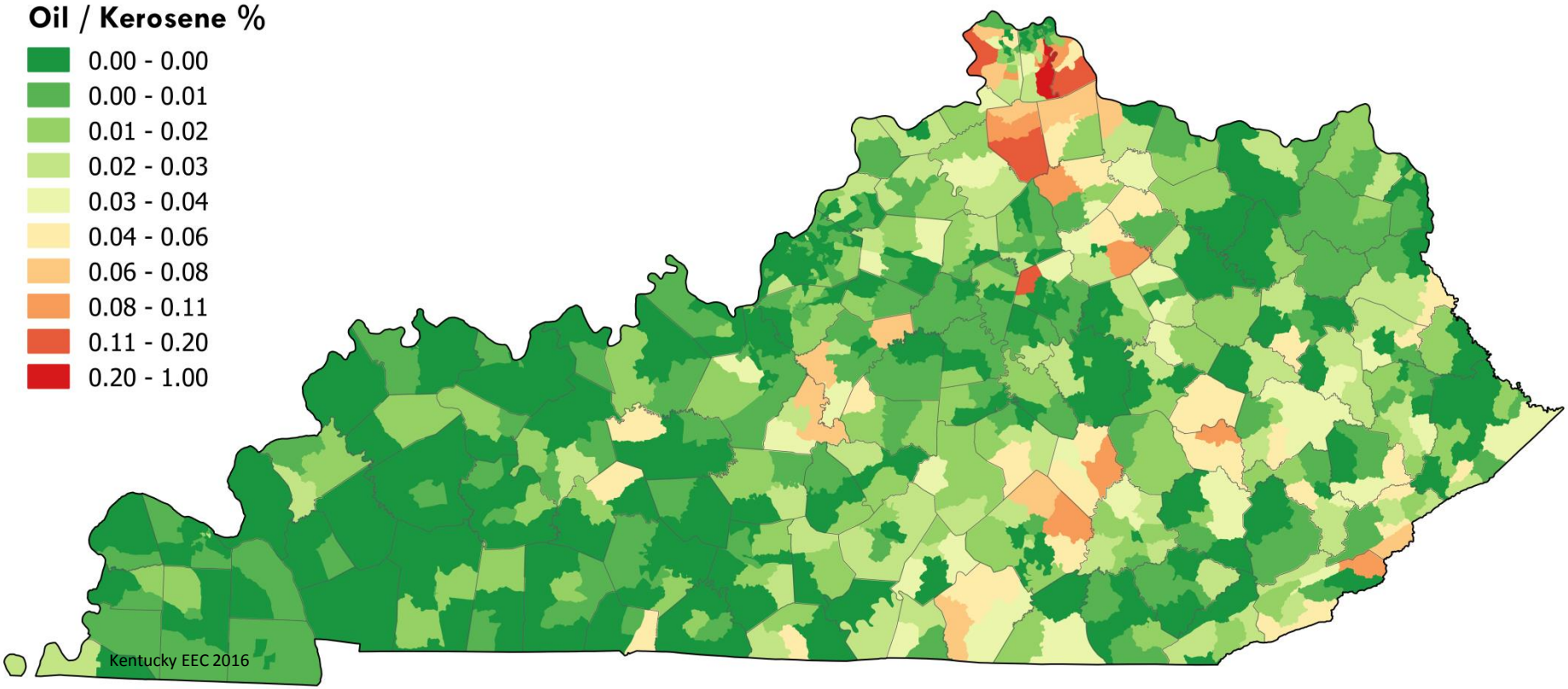
Kentucky Homes Heating with Wood, 2014



Kentucky Energy Database, EEC-DEDI, 2016

50,270 (2.9%) of Kentucky Families Heat with Wood

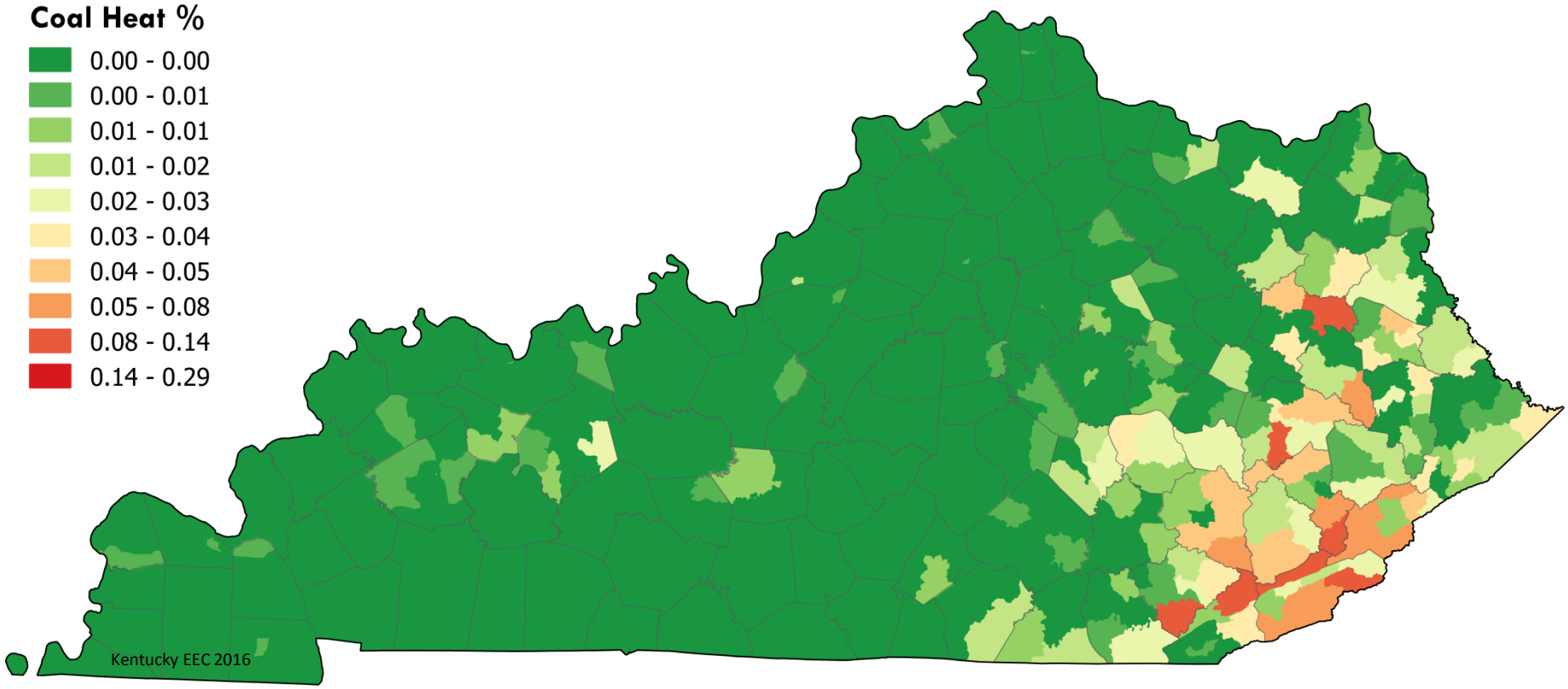
Kentucky Homes Heating with Fuel Oil or Kerosene, 2014



Kentucky Energy Database, EEC-DEDI, 2016

17,504 (1%) of Kentucky Families Heat with Fuel Oil or Kerosene

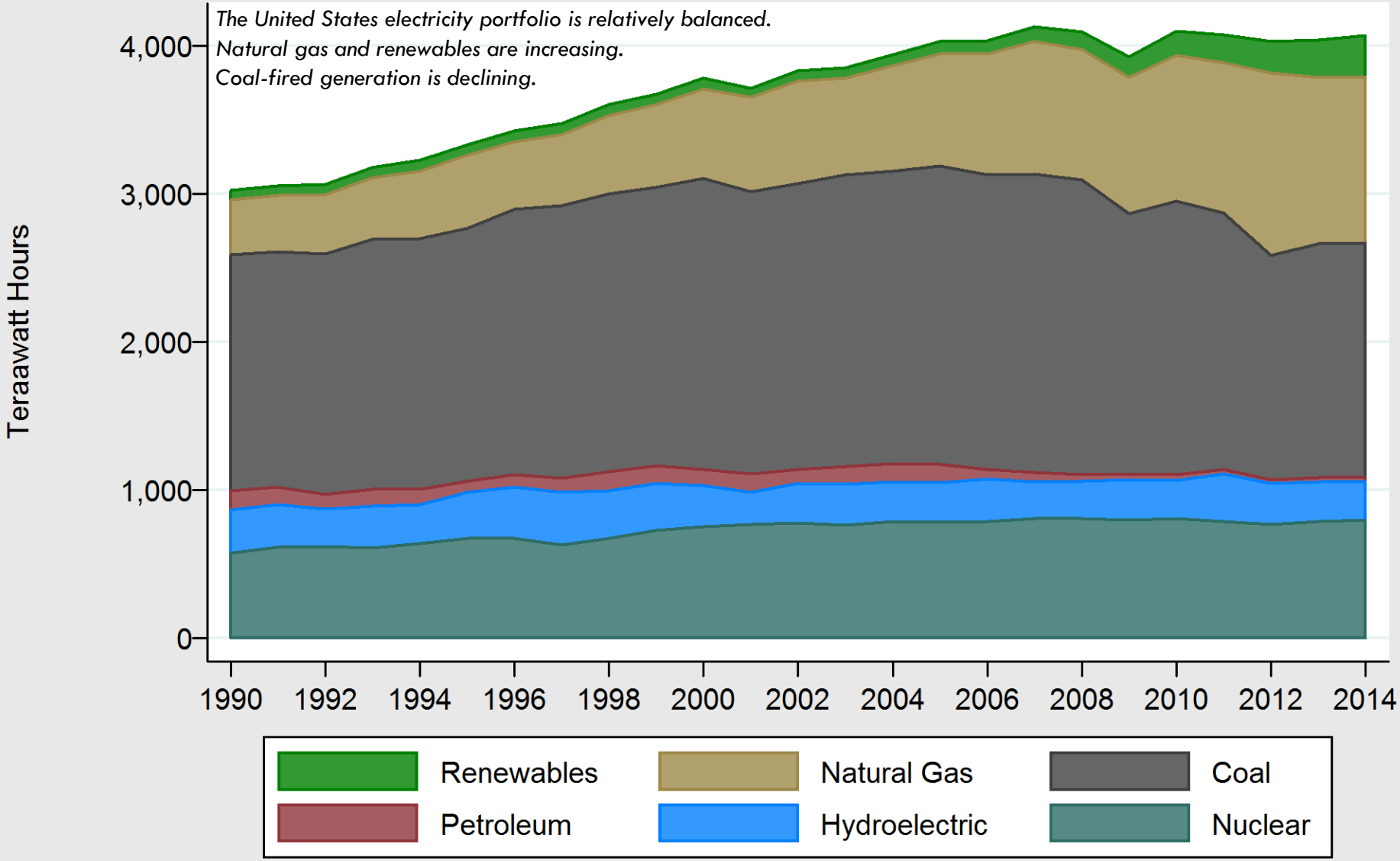
Kentucky Homes Heating with Coal, 2014



Kentucky Energy Database, EEC-DEDI, 2016

4,317 (0.3%) of Kentucky Families Heat with Coal

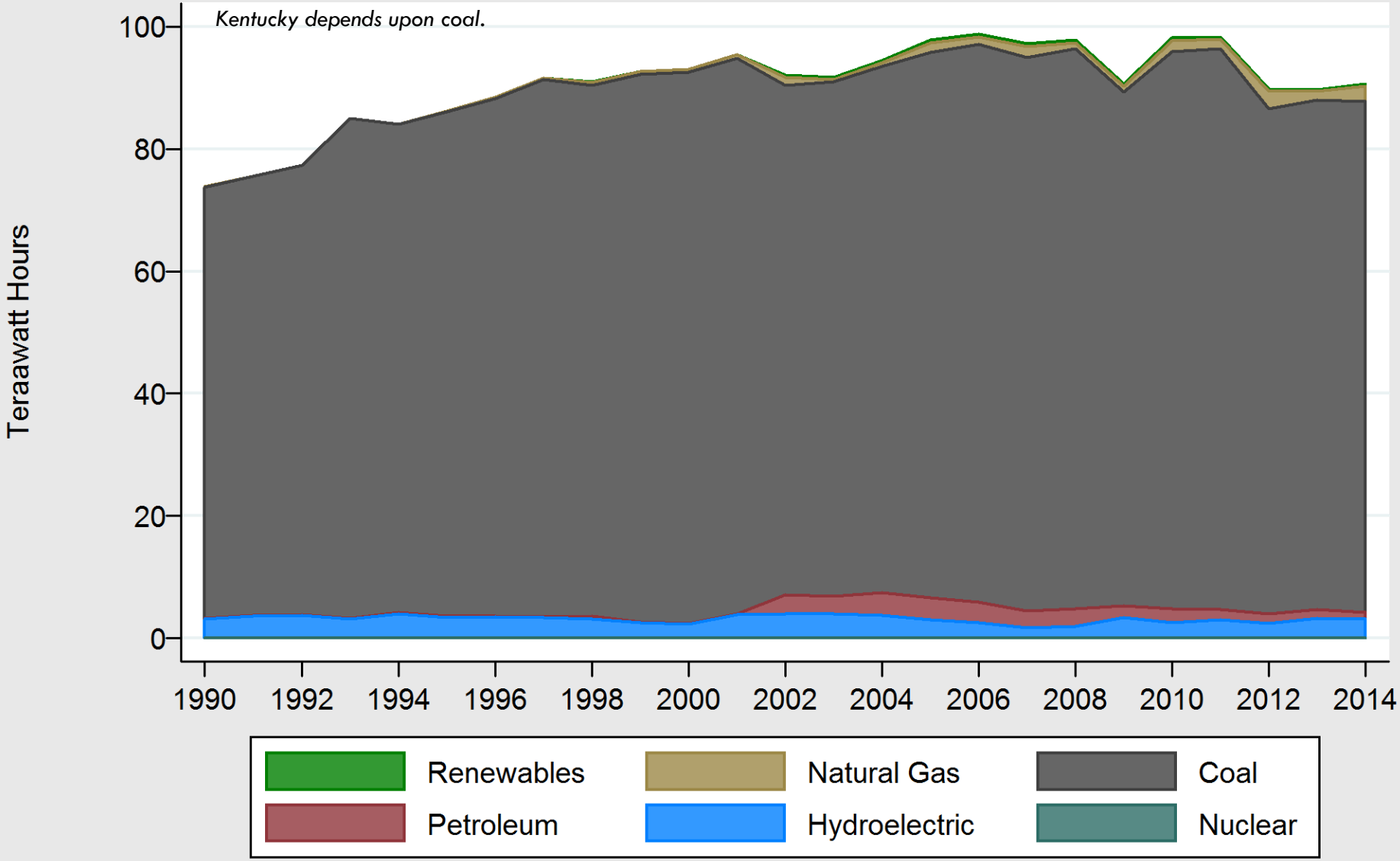
United States Electricity Generation by Fuel, 1990-2014



Kentucky Energy Database, EEC-DEDI, 2015

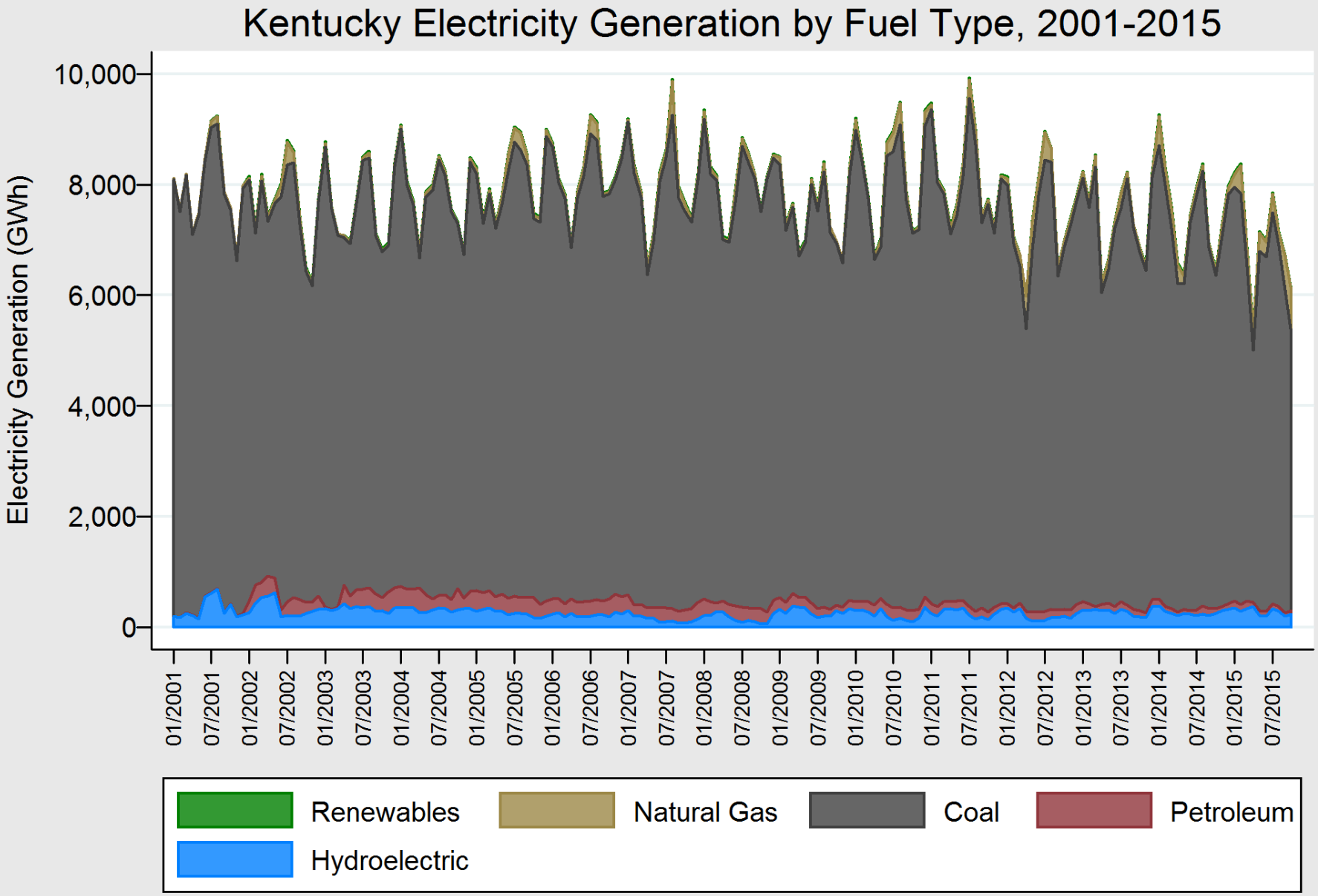
Data Source: EIA Electric Power Annual

Kentucky Electricity Generation by Fuel, 1990-2014



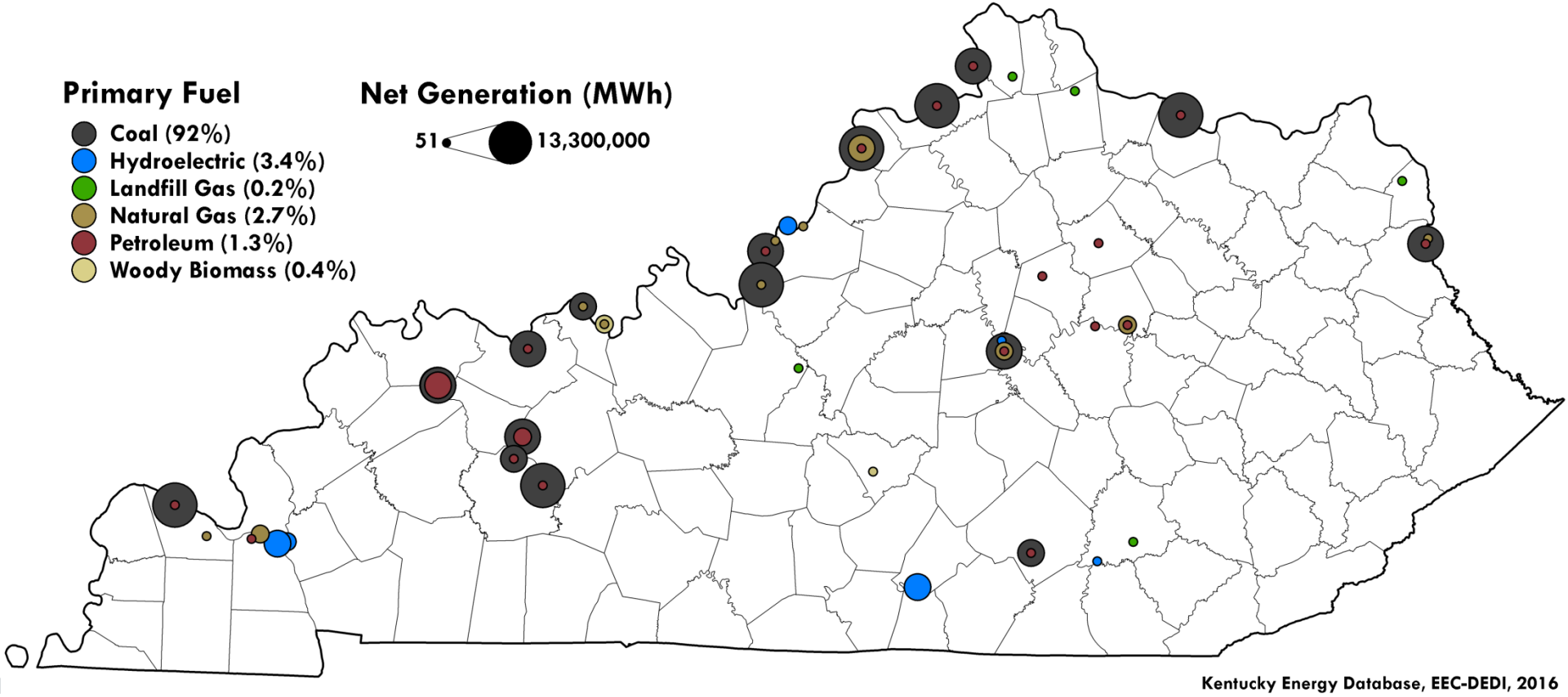
Kentucky Energy Database, EEC-DEDI, 2015

Data Source: EIA Electric Power Annual



Kentucky Energy Database, EEC-DEDI, January 2016

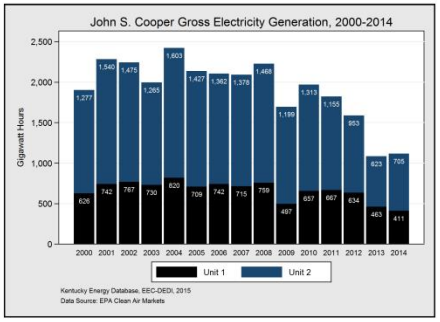
Power Plants in Kentucky, 2014

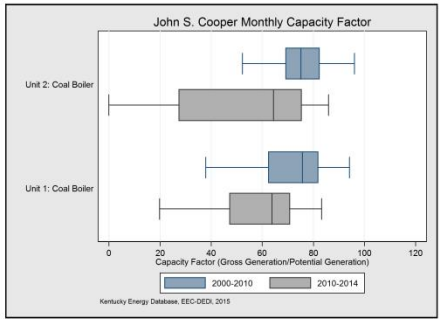


Kentucky Energy Database, EEC-DEDI, 2016

Example

John S. Cooper Power Station



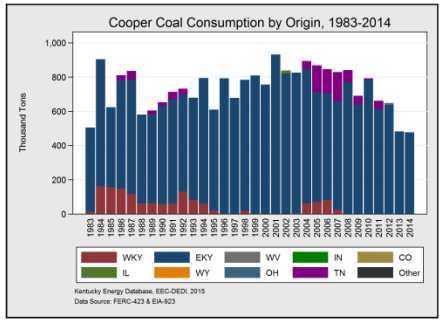


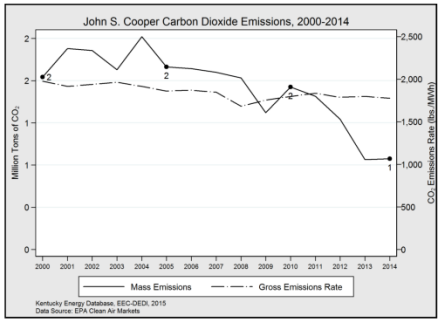
Unit Number	Online Year	Retire Year	Fuel	Capacity (MW)	Capacity Factor* (%)	Gross Generation* (GWh)	Net Generation* (GWh)	CO_2 Rate* (lbs./MWh)	SO_2 Rate* (lbs./MWh)	NO_x Rate* (lbs./MWh)
Plant	**1965**		**Coal**	**341**	**37%**	**1,116**	**1,030**	**1,777**	**7.75**	**1.55**
1	1965		Coal	116	40%	411	381	1,787	13.04	2.27
2	1969		Coal	225	36%	705	649	1,772	4.66	1.12

The John Sherman Cooper Power Station, located in Pulaski County, is 50 years old and consists of two coal-fired electricity generating units. The units came online in 1965 and 1969, respectively. The plant has a total nameplate capacity of 341 MW. In 2014, the plant generated 1.1 GWh of electricity and had a plant-wide capacity factor of 37 percent. A scrubber was installed on unit 2 in 2012 to lower sulfur dioxide emissions and a baghouse. Unit 1 is in the process of being tied into the Unit 2 controls. Cooper sourced all of its coal from eastern Kentucky in 2014 from Perry, Leslie, Bell, Estill, Rockcastle, and Knox counties. John S. Cooper Power Station is owned and operated by East Kentucky Power Cooperative. *Photo courtesy of EKPC.*

*2014

John S. Cooper Power Station

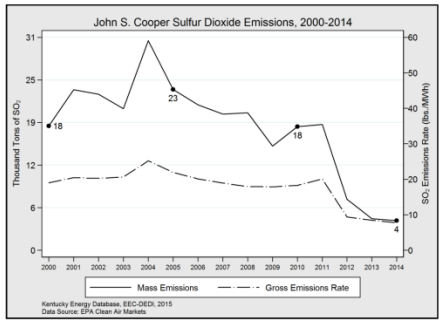


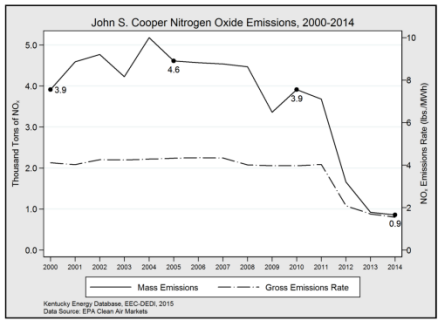


State	2014 Tons	Percentage
Total	477,513	100%
Eastern Kentucky	477,513	100%

Carbon Dioxide	2014 Value	Since 2000
Emissions (Tonnage)	991,943	-47%
Rate (lbs./MWh)	1,777	-10%

The John S. Cooper Power Station emitted 992 thousand tons of CO_2 in 2014, a decrease of 47 percent from 2000 levels. The rate of CO_2 emissions decreased by 10 percent during that period and is the lowest of all Kentucky coal plants.





Sulfur Dioxide	2014 Value	Since 2000
Emissions (Tonnage)	4,324	-76%
Rate (lbs./MWh)	7.75	-59%

The John S. Cooper Power Station emitted 4,324 tons of SO_2 in 2014, a decrease of 76 percent since 2000. The rate of SO_2 emissions reduced by 59 percent during that period.

Nitrogen Dioxide	2014 Value	Since 2000
Emissions (Tonnage)	863	-78%
Rate (lbs./MWh)	1.55	-62%

The John S. Cooper Power Station emitted 863 tons of NO_x in 2014, a reduction of 78 percent since 2000. The rate of NO_x emissions decreased by 62 percent during that period.

Map of Kentucky Natural Gas Transmission Infrastructure, 2016

Confidential information has been deleted. Please direct all inquiries to 502-564-7192.

Pipeline Diameter
- 38 - 48 (in)
- 26 - 36
- 14.5 - 24
- 6.5 - 14

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Map of Kentucky Electricity Transmission Infrastructure, 2016

Confidential information has been deleted. Please direct all inquiries to 502-564-7192.

- Less than 100kV
- 115kV - 161kV
- 220kV - 315kV
- 345kV - 450kV
- 500kV - 525kV
- 735kV - 765kV

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Kentucky Energy and Environment Cabinet
Department for Energy Development & Independence
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