



**EPA Workshop  
for  
Environmental Justice Communities on the Clean Power Plan**

**Virtual Field Trip of Electric Utility Generating Stations**



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**Port Arthur, Texas**  
**November 4, 2015**

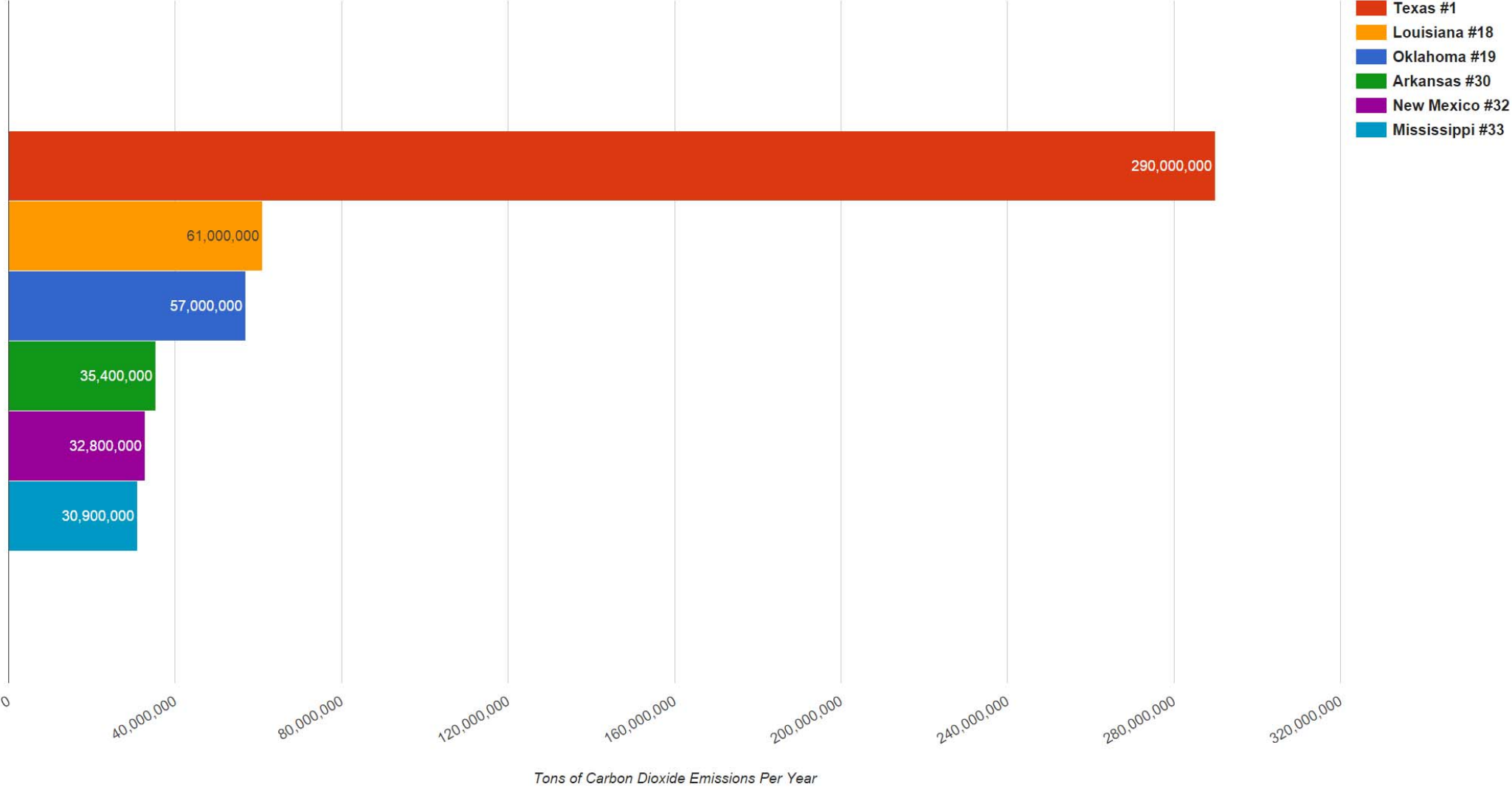
# Clean Power Plan



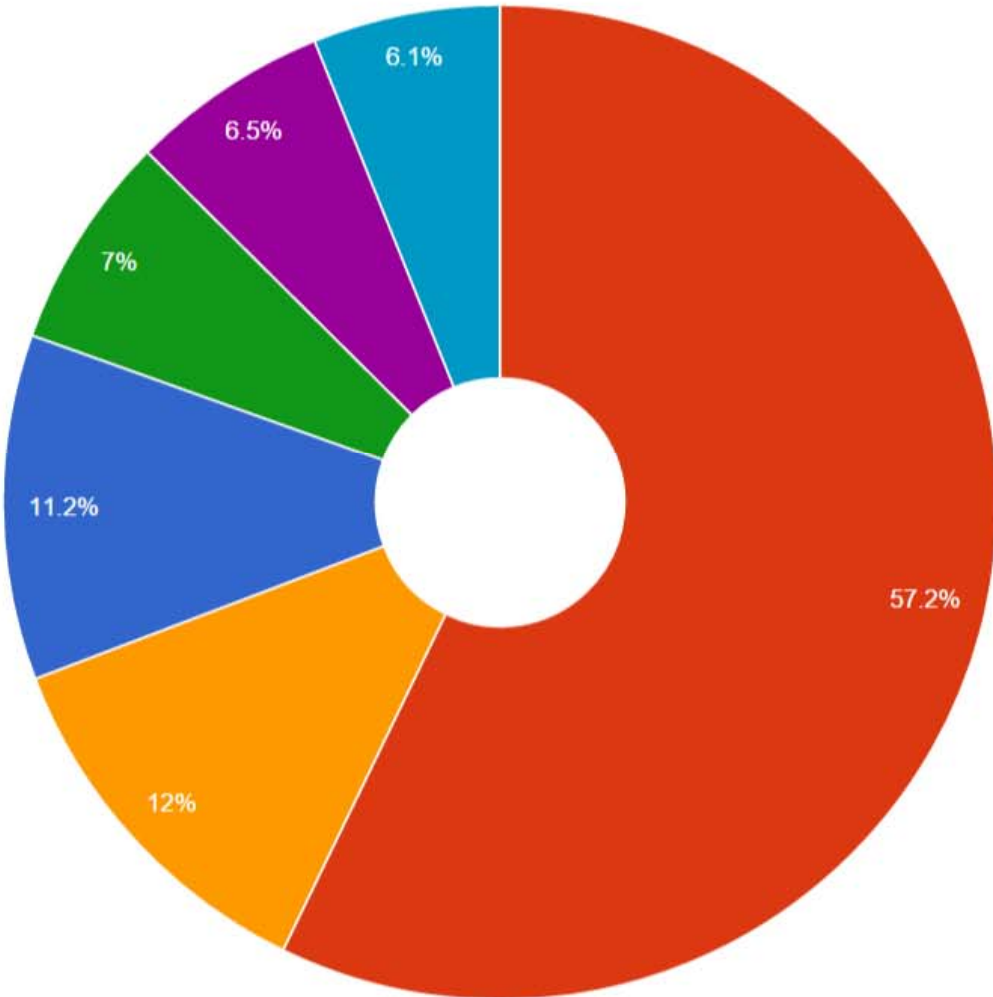
The EPA Clean Power Plan is designed to reduce Carbon Dioxide (CO<sub>2</sub>) emissions from existing coal fired and natural gas fired power plants to address climate change.

- Power plants are America's largest source of pollution driving climate change.
- Fossil fuel fired power plants are the largest source of Carbon Dioxide emissions in the United States.
- The fossil fuel fired power plants account for 31% of US total greenhouse gas emissions. Greenhouse gas pollution results in long lasting changes in our climate.

# Carbon Dioxide Emissions Released by State in 2007



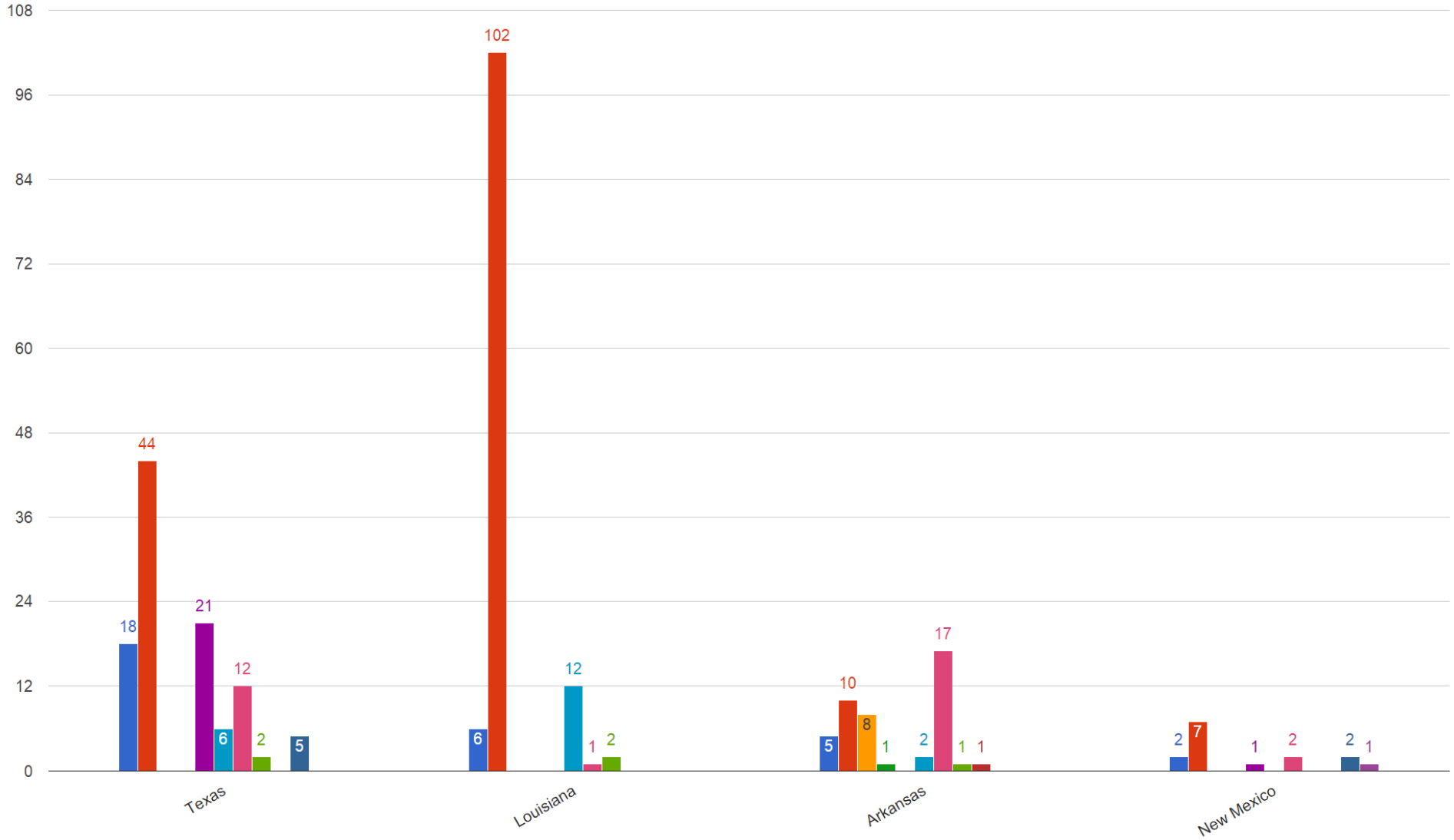
Tons of Carbon Dioxide Emissions Per Year



- Texas #1
- Louisiana #18
- Oklahoma #19
- Arkansas #30
- New Mexico #32
- Mississippi #33

# Fuel Source Makeup By State

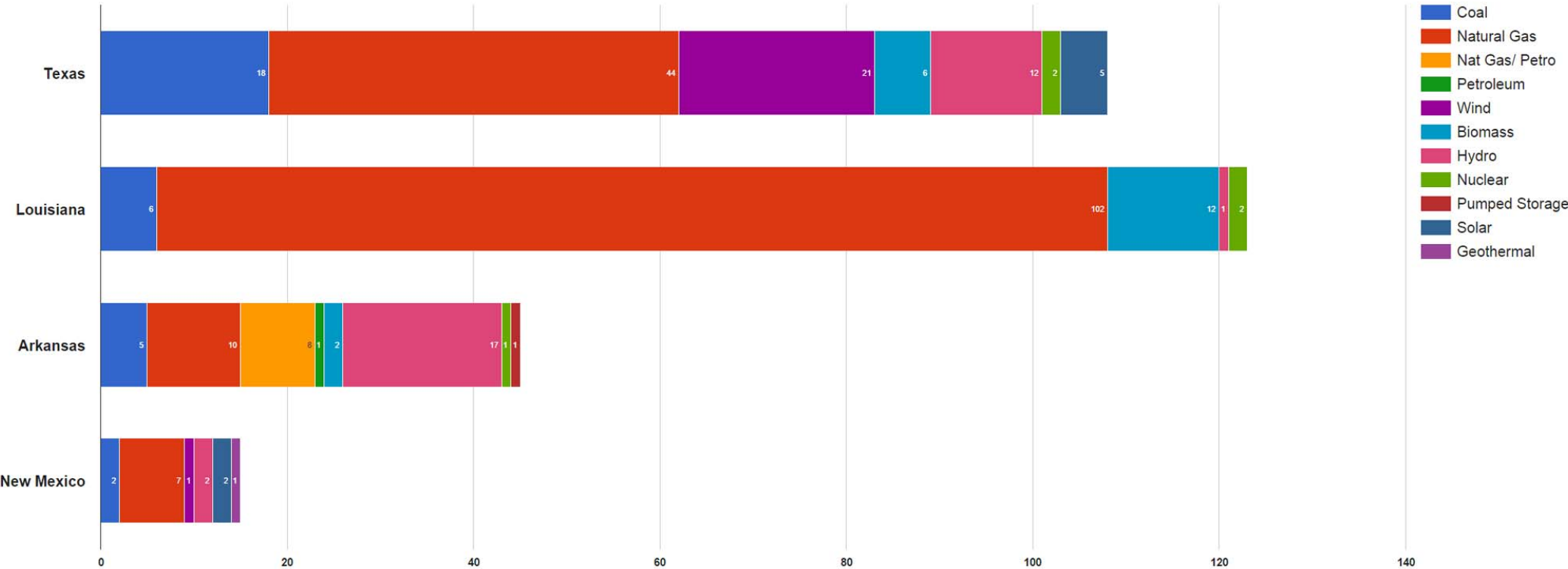
■ Coal 
 ■ Natural Gas 
 ■ Nat Gas/ Petro 
 ■ Petroleum 
 ■ Wind 
 ■ Biomass 
 ■ Hydro 
 ■ Nuclear 
 ■ Pumped Storage 
 ■ Solar 
 ■ Geothermal



Number of power plants by fuel type

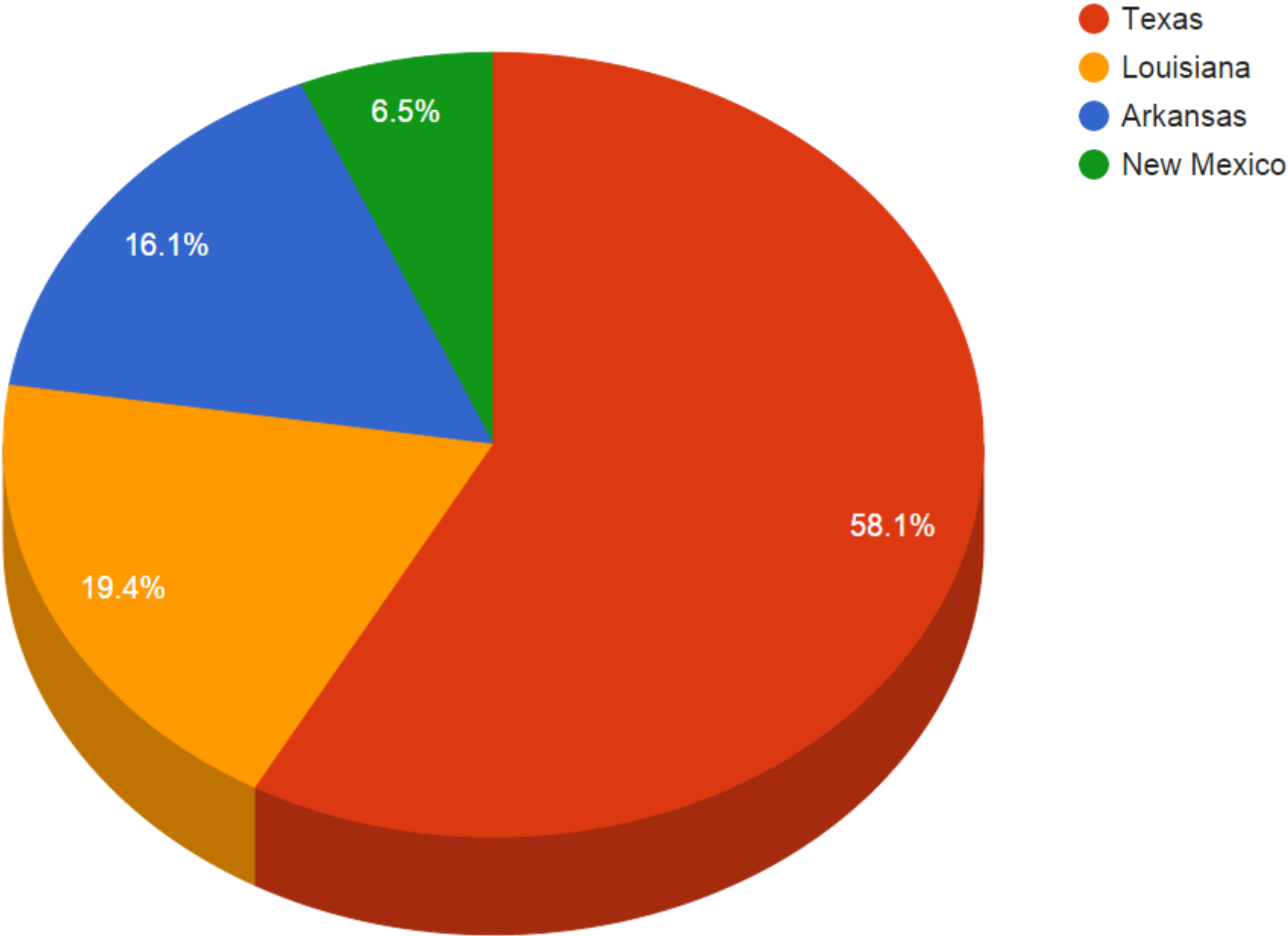
State	Coal	Natural Gas	Nat Gas/ Petro	Petroleum	Wind	Biomass	Hydro	Nuclear	Pumped Storage	Solar	Geothermal
Texas	18	44			21	6	12	2		5	
Louisiana	6	102				12	1	2			
Arkansas	5	10	8	1		2	17	1	1		
New Mexico	2	7			1		2			2	1

# Fuel Source Makeup By State



Total Number of Power Plants

# Which State Has The Most Coal Fired Power Plants?



# Clean Power Plan



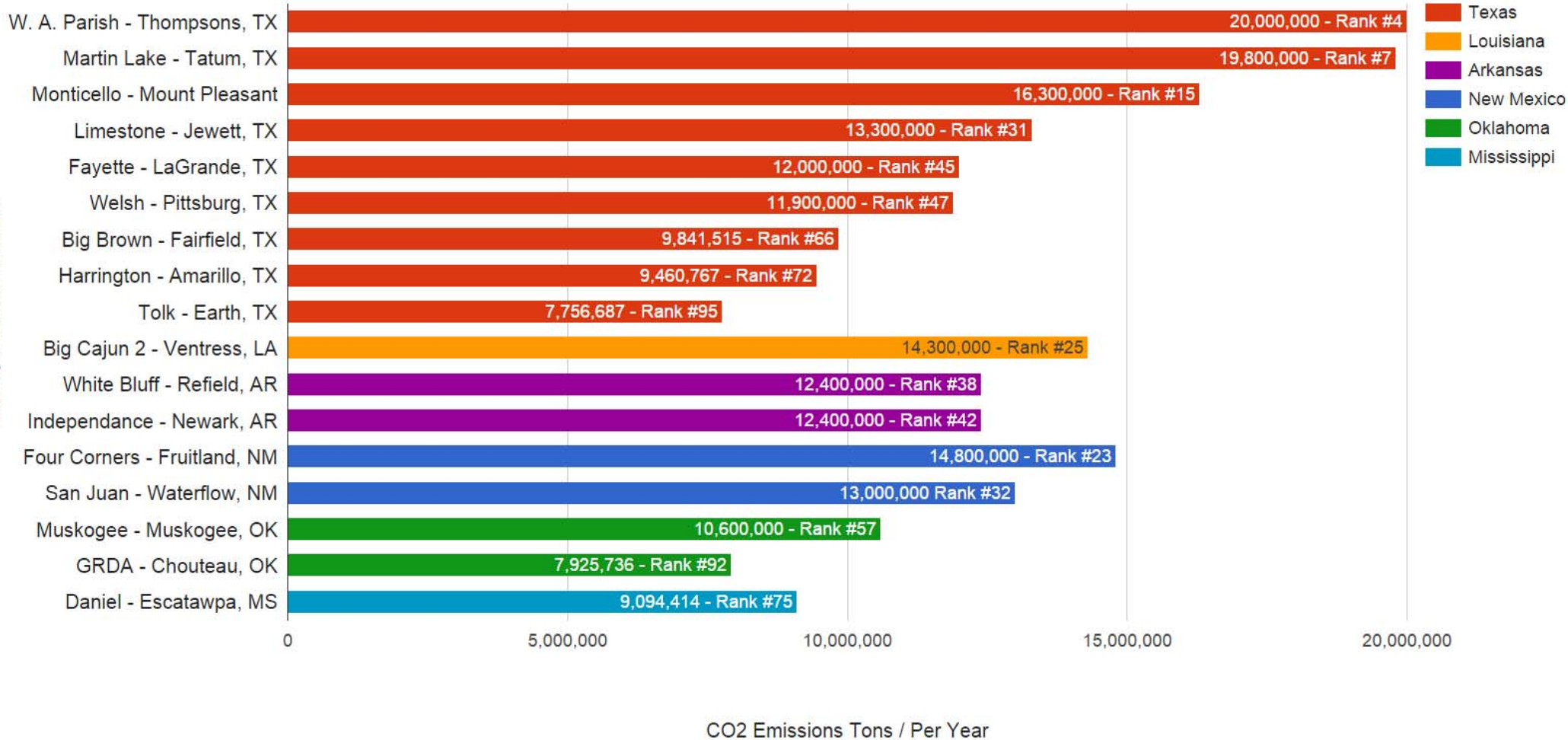
The Clean Power Plan focuses on Carbon Dioxide Emissions from coal and natural gas power plants.

Based on data from 2007, the Center for Global Development identified the top 100 Carbon Dioxide emitting power plants in the United States.

By state, the power plants that were in the top 100 Carbon Dioxide emitters are presented. All of the power plants listed in the following tables were coal fired power plants.

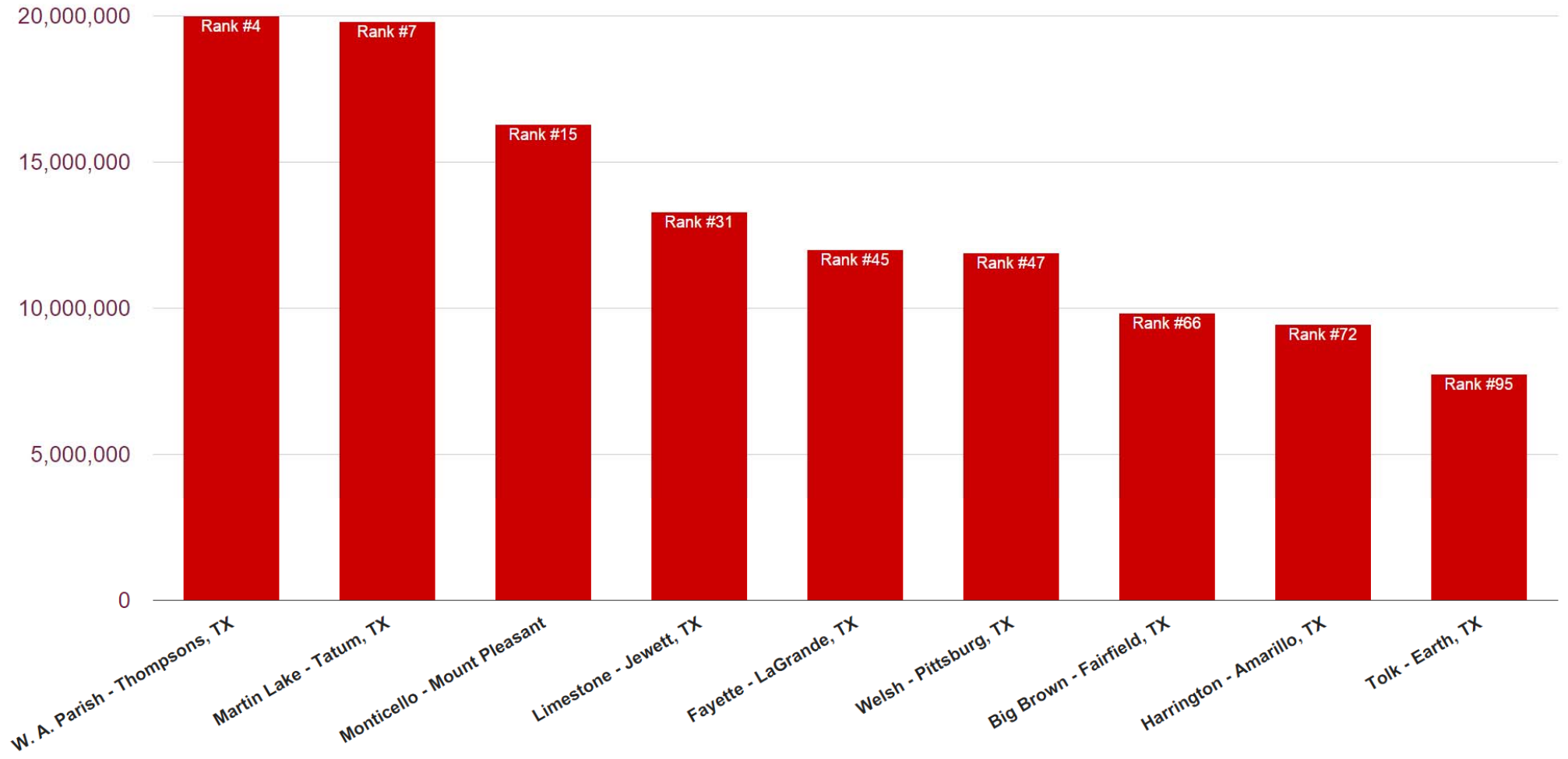


## Top Highest Carbon Dioxide Emitting Power Plants. Based on 2007 Data (All Are Coal Fired Power Plants)



### Top Highest Carbon Dioxide Emitting Power Plants in Texas Based on 2007 Data (All Are Coal Fired Power Plants)

CO2 Emmissions Tons/year

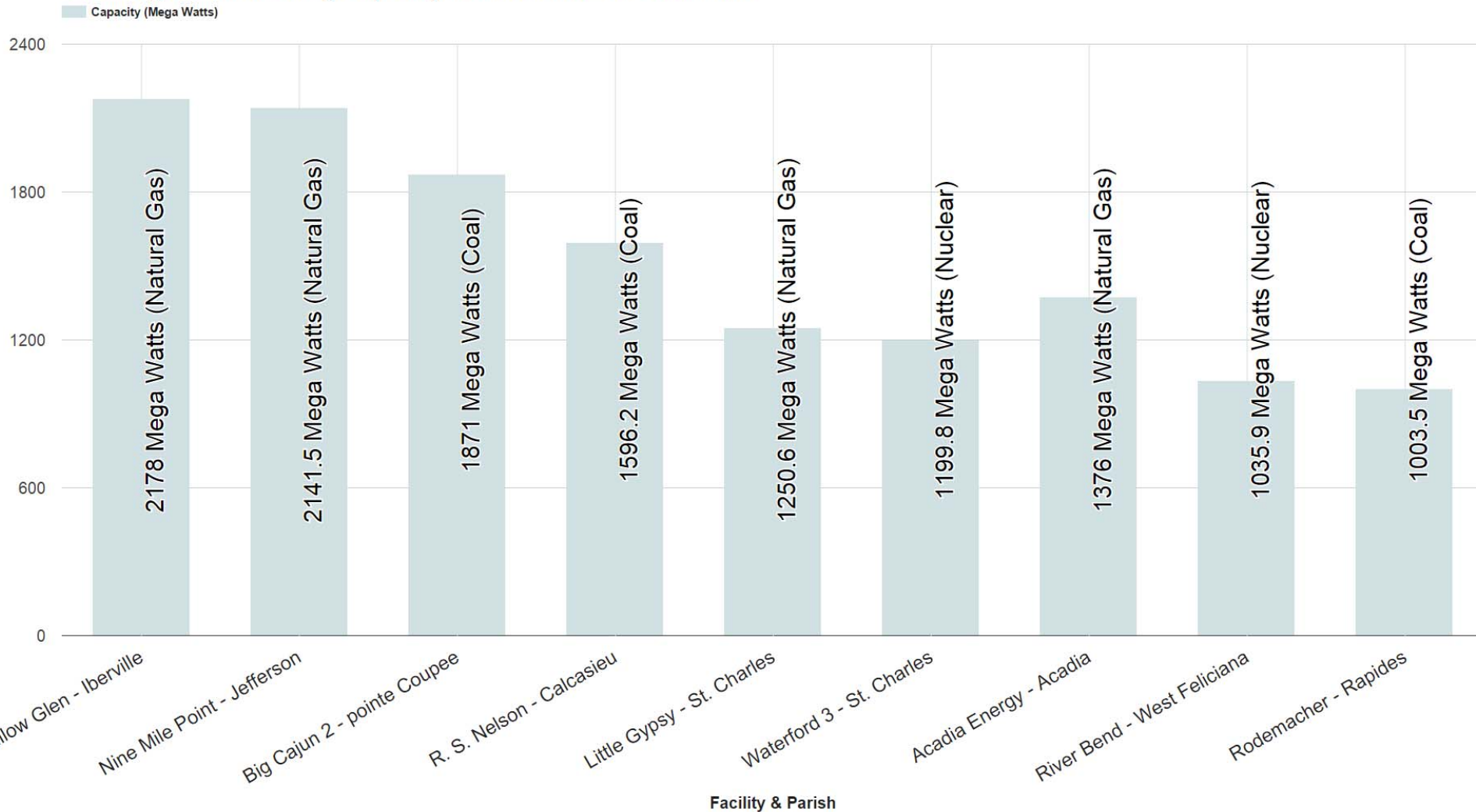


# Louisiana Generates Power from a Number of Sources of Fuel

In 2012, Louisiana generated:

- 58% of its energy from natural gas
- 21% from coal
- 15% from nuclear
- 3% from petroleum coke
- 2.3% from biomass

### The Largest Generating Capacity Power Plants in Louisiana







*Nucor Steel (Convent, LA) Direct Reduction Iron (DRI) Plant Consumes 30 Million mmbtus/year of natural gas.*

In Louisiana and Texas, a large number of heavy industrial facilities have their own electric generating capacity. These facilities use natural gas and some chemical feed stock and chemical waste streams to power the electric generating units.



## History of Fueling of Power Plants in Louisiana



Waterford 3, St. Charles Parish

### Natural Gas

Natural gas was the fuel of choice over the history of electric generating in Louisiana. Natural gas was readily available from production in Louisiana and the Offshore Continental shelf.

With the increase in natural gas prices and the demand for more electricity, nuclear and coal fired power plants were constructed to address the needs for electricity.

### Nuclear

The two nuclear power plants in Louisiana (River Bend in West Feliciana Parish and Waterford in St. Charles Parish), as well as Grand Gulf Nuclear Station in Mississippi were built on the Mississippi River due to the need for large quantities of cooling water.

### Coal

Three of the coal powered plants were located in areas with access to transportation infrastructure to bring in Powder River Basin coal from Wyoming to fuel the coal fired plants.

The Dolet Hills lignite power plant was located adjacent to lignite deposits which were mined to supply all the fuel needed for the plant.



Brame Energy Center (Rodemacher)

### Industrial Coke

The Rodemacher Madison Unit in Rapides Parish was designed and constructed to utilize industrial coke as a fuel source. The addition of industrial coke was to diversify fuel sources and insure the ability to have access to fuel under varying economic conditions.

## History of Rodemacher Power Station, Also Known as Brame Energy Center in Rapides Parish



Nesbitt Unit – 440 mw unit built in 1975 – fueled by natural gas

Rodemacher Unit – 523 mw unit build in 1982 – fueled by coal and natural gas

Madison Unit – 641mg unit built in 2010 – fueled by petroleum industrial coke

# History of Coal Fired Power Plants in Louisiana

6 power stations at 4 locations – all built in the 1980's

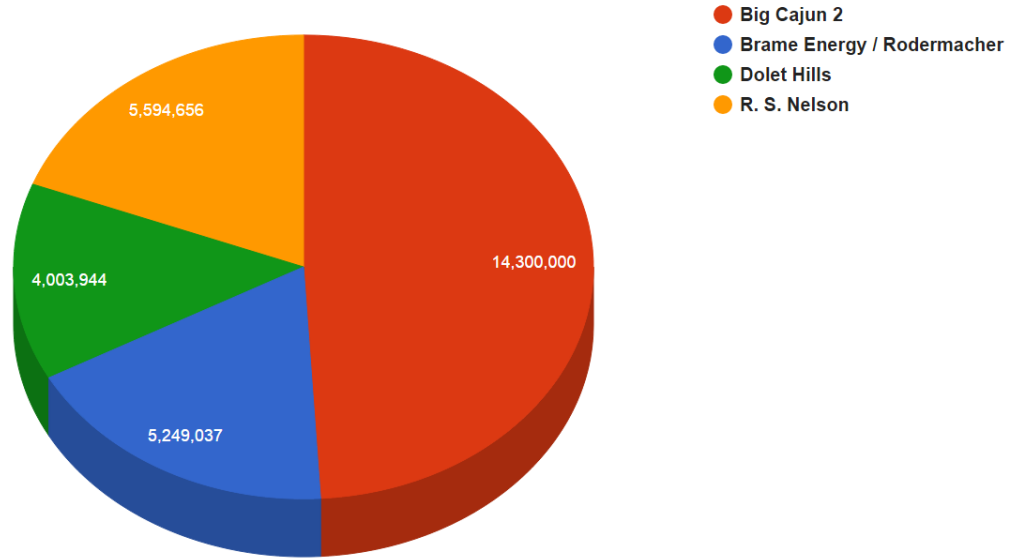
**Big Cajun 2**, Pointe Coupee Parish - Units built in 1981, 1982 & 1983  
**2006 Carbon Monoxide Emissions 14,300,000 tons**  
**2013 Mercury Releases 678 Pounds** (Ranked 2<sup>nd</sup> in the state)

**Roy S.Nelson Generating Plant**, Calcasieu Parish - Built in 1982  
**2006 Carbon Monoxide Emissions 5,249,037 tons**  
**2013 Mercury Releases 250 Pounds** (Ranked 7<sup>th</sup> in the state)

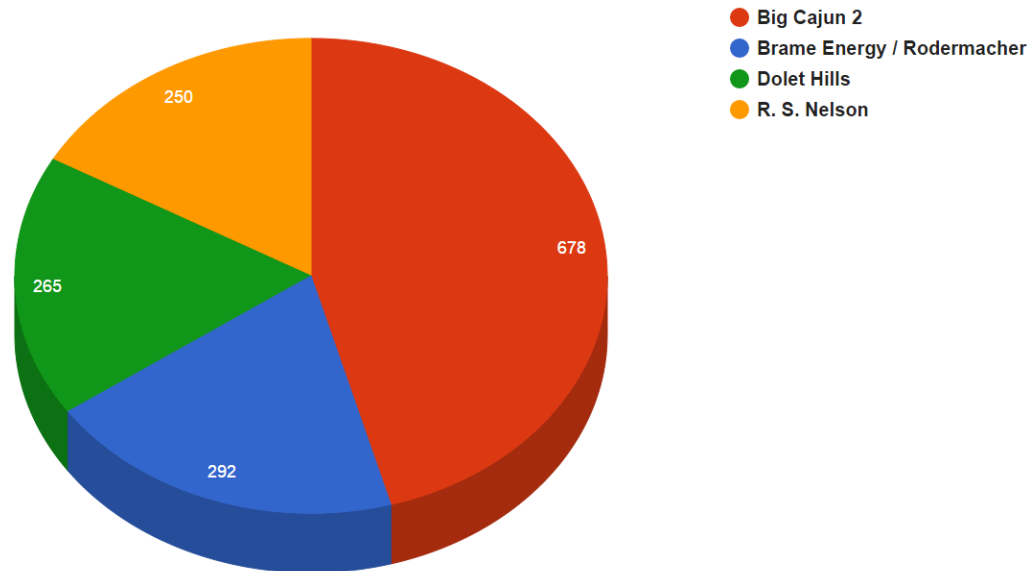
**Rodemacher Power Station**, Rapides Parish - Built in 1982  
 Burns 1.75 to 2.1 million tons of coal per year  
**2006 Carbon Monoxide Emissions 4,003,944 tons**  
**2013 Mercury Releases 292 Pounds** (Ranked 5<sup>th</sup> in the state)

**Dolet Hills Power Station**, Desoto Parish - Built in 1986  
 Powered by lignite from adjacent Dolet Hills and Oxbow lignite mine  
 7 mile conveyor system to transport lignite from the mine -  
 to the power plant  
 Burns 3.5 to 4 million tons of lignite per year  
**2006 Carbon Monoxide emissions 5,594,656 tons**  
**2013 Mercury Releases 265 Pounds** (Ranked 6<sup>th</sup> in the state)

CO2 Emissions in Tons (2006)



Mercury Releases in Pounds (2013)







W.A. Parish Power Plant in Thompsons TX  
Proposed Carbon Capture Facility and Cogeneration Plant for the Carbon Capture System



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