

A CLEAR Look at Energy

2010-2012

To The Energy Council and Center for Legislative Energy and Environmental Research, the Arkansas Science & Technology Authority presents a comparative analysis of twelve U.S. states, four Canadian Provinces, and the country of Venezuela.

The following data has been compiled from numerous governmental sources and resource data is documented throughout.

August-September 2012

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Generator Comparisons

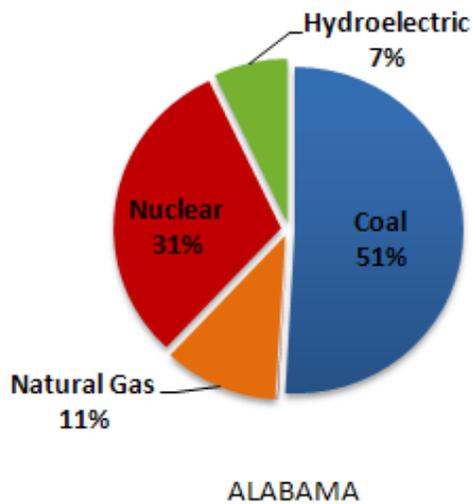
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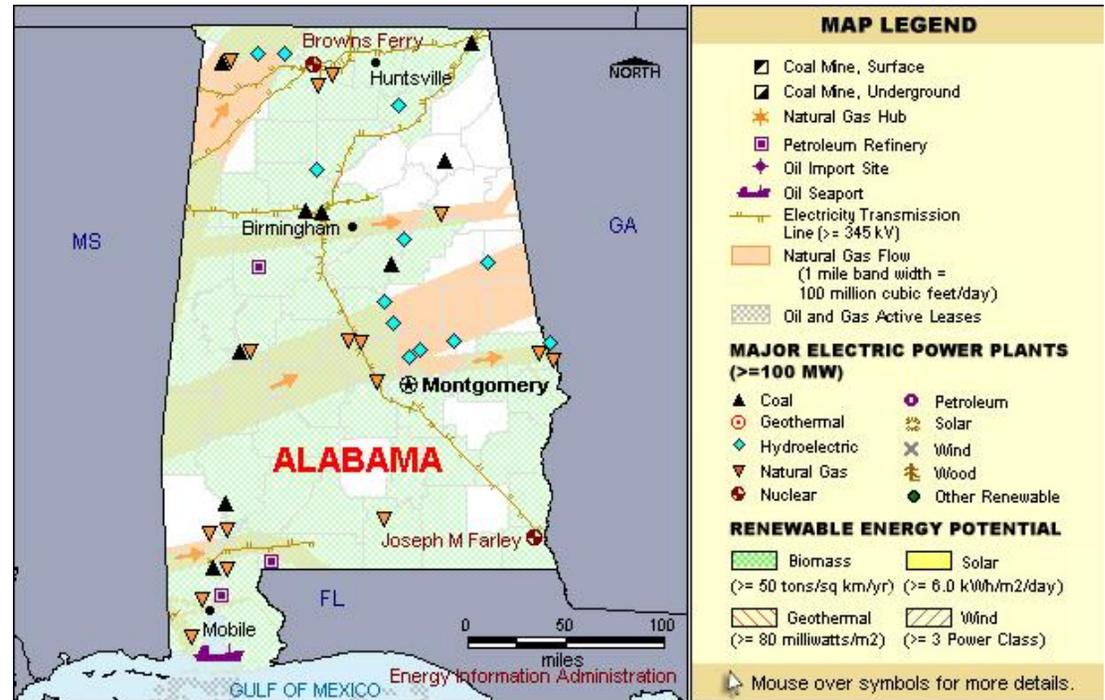
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ALABAMA

Energy Sources (%) used to Generate Electric Utilities, 2010



Energy sources used <1% not listed.



- Fossil fuels provide 2/3 of electric utilities.
- Ranked 6th in U.S. for generating electric utilities from renewable energy resources.

Power Plants:

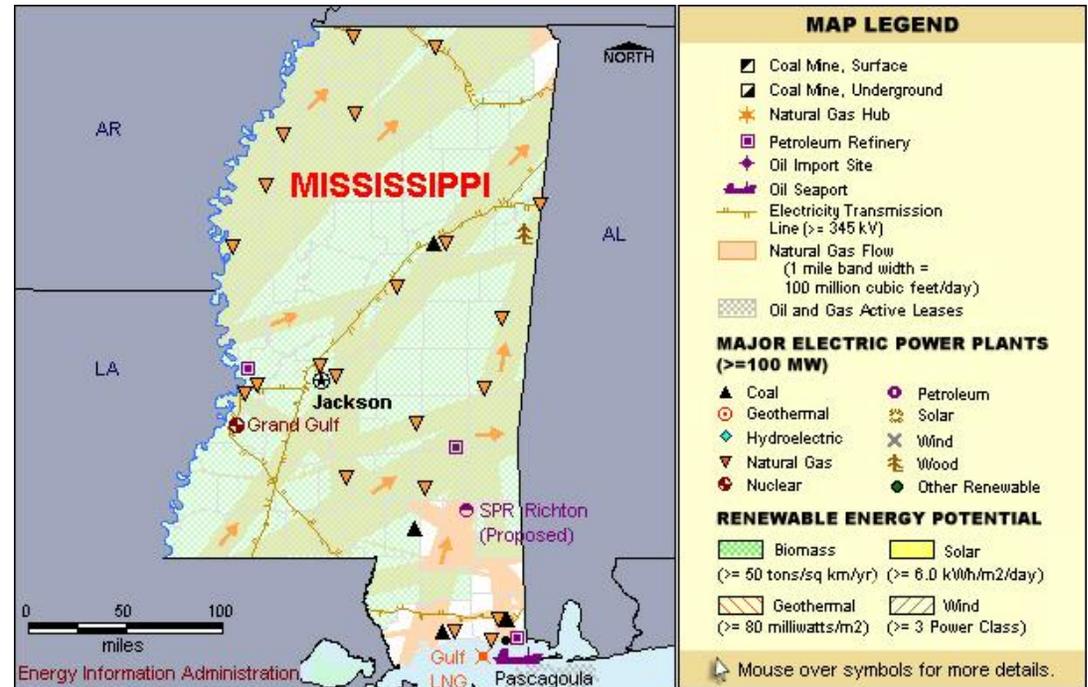
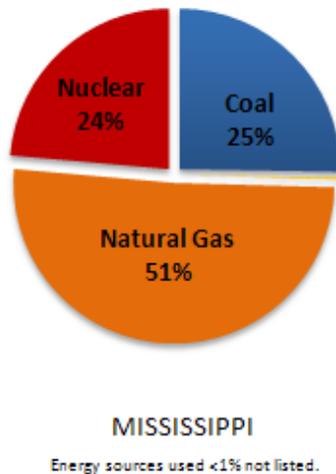
- 25 natural gas
- 24 hydro
- 11 coal
- 4 petroleum
- 2 nuclear

Pie Chart compiled from Generation_Annual spreadsheet, accessed July 24, 2012.
http://www.eia.gov/electricity/data/state/generation_annual.xls

State Energy Map accessed July 24, 2012 from:
<http://www.eia.gov/state/state-energy-profiles.cfm?sid=AL>

MISSISSIPPI

Energy Sources (%) used to Generate Electric Utilities, 2010



- Over 1/2 of electric utilities come from natural gas.
- Ranks 28th in net generation of electric utilities.

Power Plants:

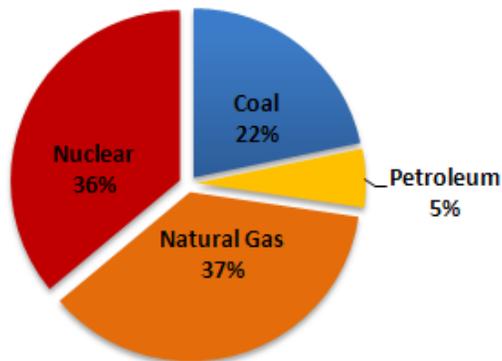
- 28 natural gas
- 4 coal
- 3 petroleum
- 1 nuclear
- 1 wood

Pie Chart compiled from Generation_Annual spreadsheet, accessed July 24, 2012.
http://www.eia.gov/electricity/data/state/generation_annual.xls

State Energy Map accessed July 24, 2012 from:
<http://www.eia.gov/state/state-energy-profiles.cfm?sid=MS>

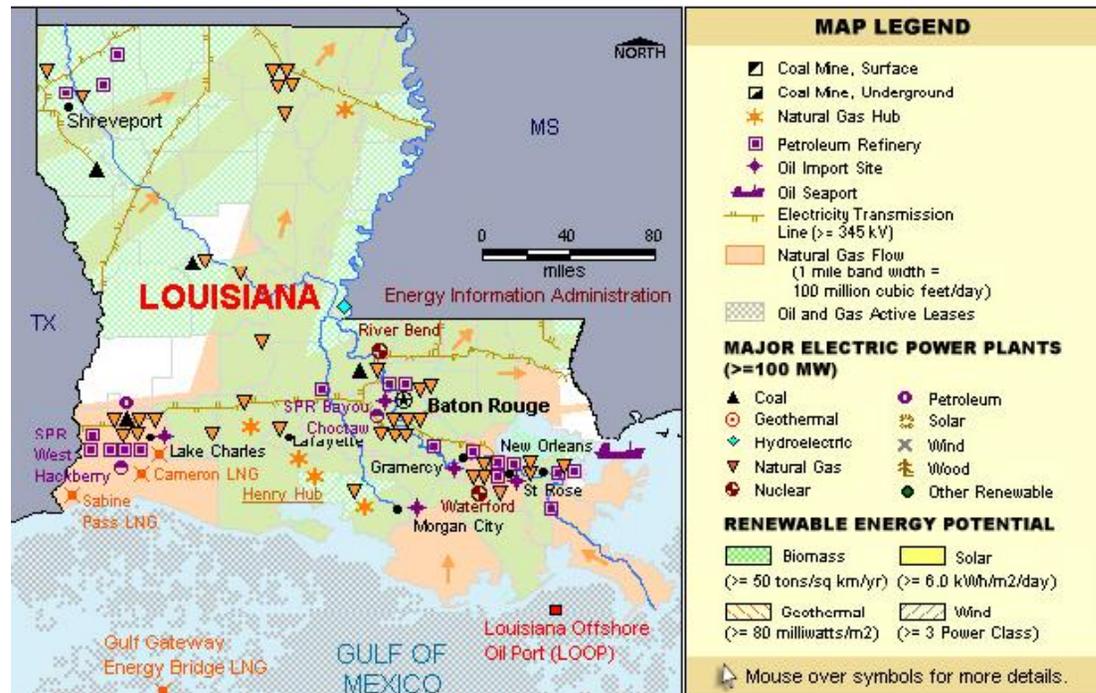
LOUISIANA

Energy Sources (%) used to Generate Electric Utilities, 2010



LOUISIANA

Energy sources used <1% not listed.



- Almost 2/3 of electric utilities from fossil fuels.
- Highest natural gas storage capacity in U.S.

Power Plants:

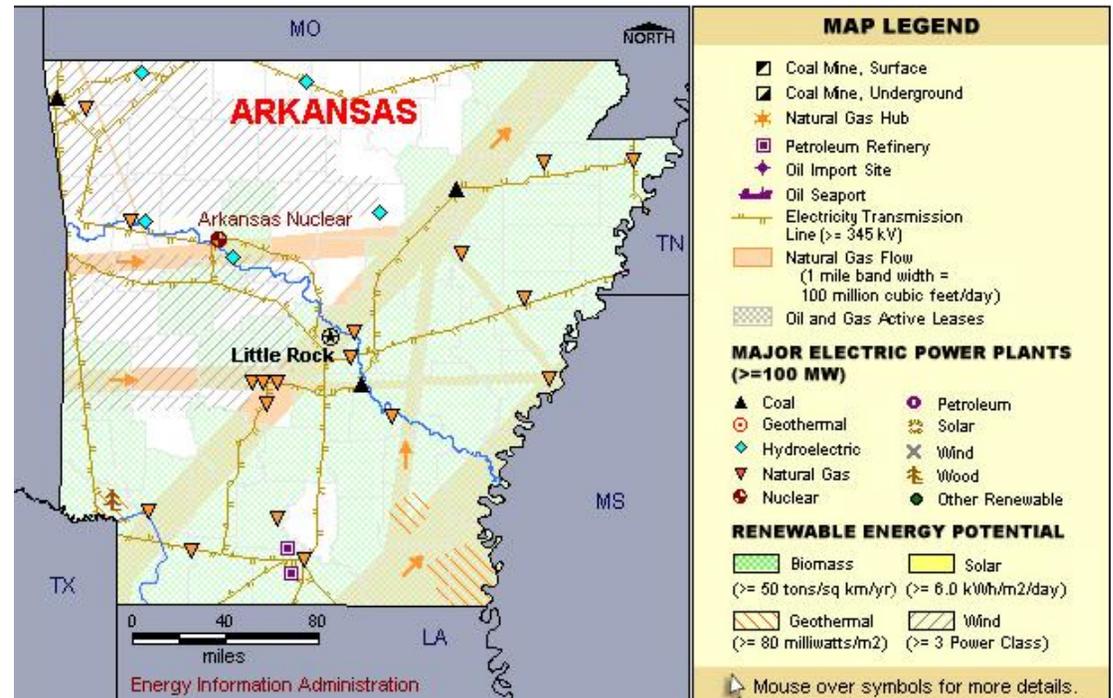
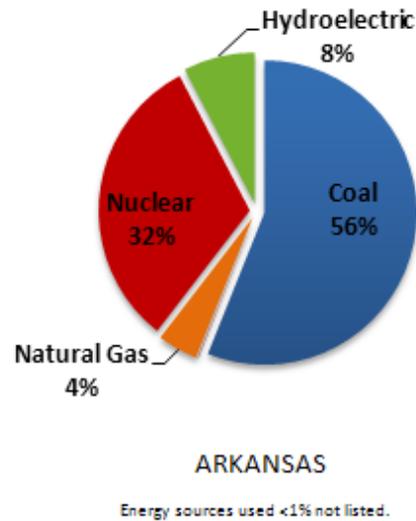
- 51 natural gas
- 7 petroleum
- 4 coal
- 2 nuclear
- 1 hydro

Pie Chart compiled from Generation_Annual spreadsheet, accessed July 24, 2012.
http://www.eia.gov/electricity/data/state/generation_annual.xls

State Energy Map accessed July 24, 2012 from:
<http://www.eia.gov/state/state-energy-profiles.cfm?sid=LA>

ARKANSAS

Energy Sources (%) used to Generate Electric Utilities, 2010



Power Plants:

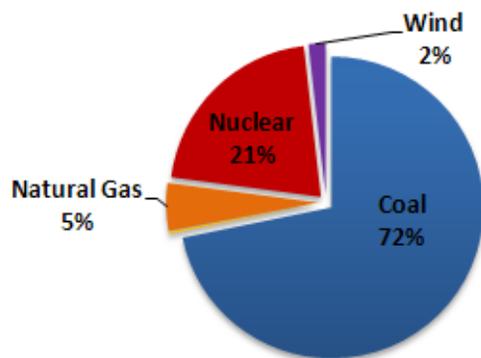
- Fossil fuels supply almost 2/3 of electric utilities.
- Coal & nuclear are the dominant energy sources for utilities.
- 19 hydro
- 14 natural gas
- 4 petroleum
- 4 coal
- 2 wood
- 1 nuclear

Pie Chart compiled from Generation_Annual spreadsheet, accessed July 24, 2012.
http://www.eia.gov/electricity/data/state/generation_annual.xls

State Energy Map accessed July 24, 2012 from:
<http://www.eia.gov/state/state-energy-profiles.cfm?sid=AR>

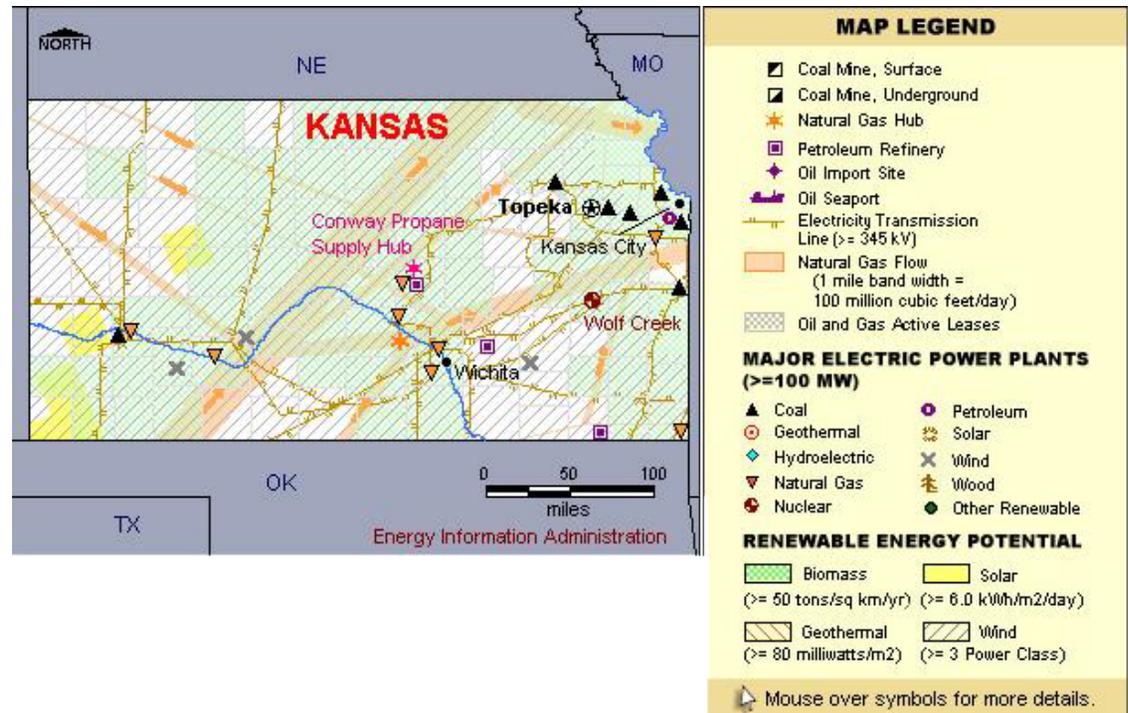
KANSAS

Energy Sources (%) used to Generate Electric Utilities, 2010



KANSAS

Energy sources used <1% not listed.



- Fossil fuels supply almost 2/3 of electric utilities
- Coal & nuclear are the dominant energy sources for utilities

Power Plants:

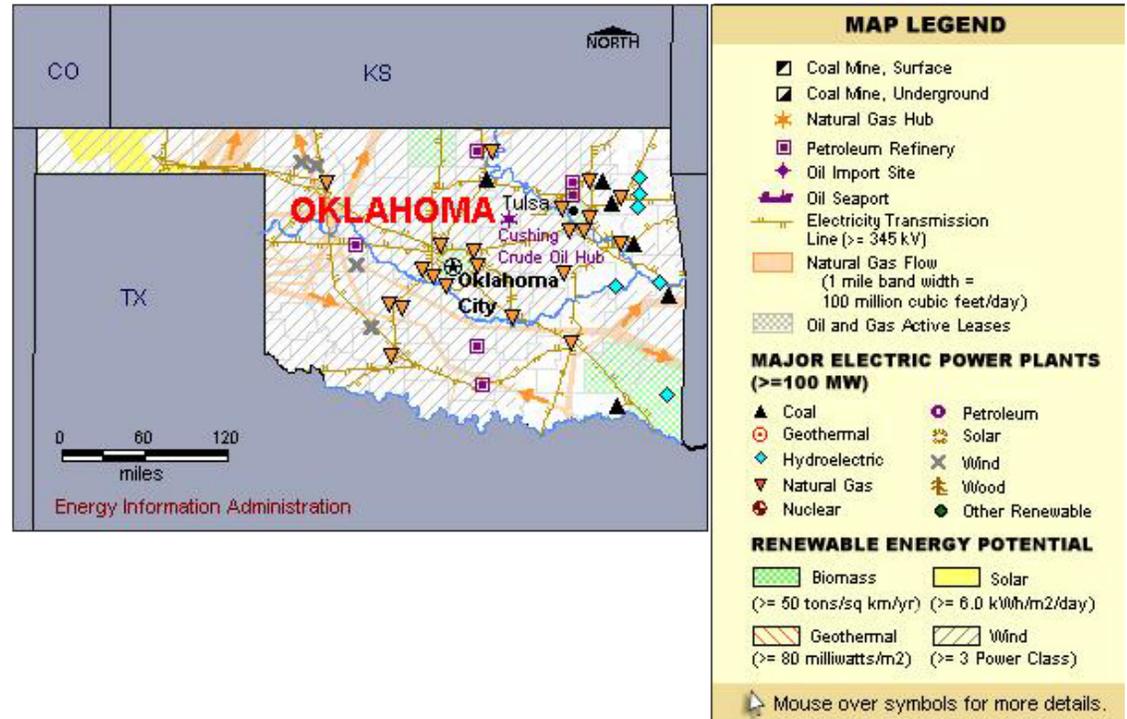
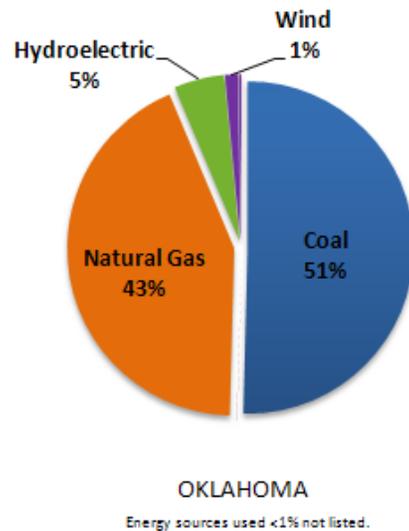
- 42 petroleum
- 23 natural gas
- 8 coal
- 3 wind
- 1 nuclear

Pie Chart compiled from Generation_Annual spreadsheet, accessed July 24, 2012.
http://www.eia.gov/electricity/data/state/generation_annual.xls

State Energy Map accessed July 24, 2012 from:
<http://www.eia.gov/state/state-energy-profiles.cfm?sid=KS>

OKLAHOMA

Energy Sources (%) used to Generate Electric Utilities, 2010



- Over 90% of electric utilities derived from coal & natural gas.
- Of the 100 largest natural gas fields in the U.S., 12+ are in Oklahoma.

Power Plants:

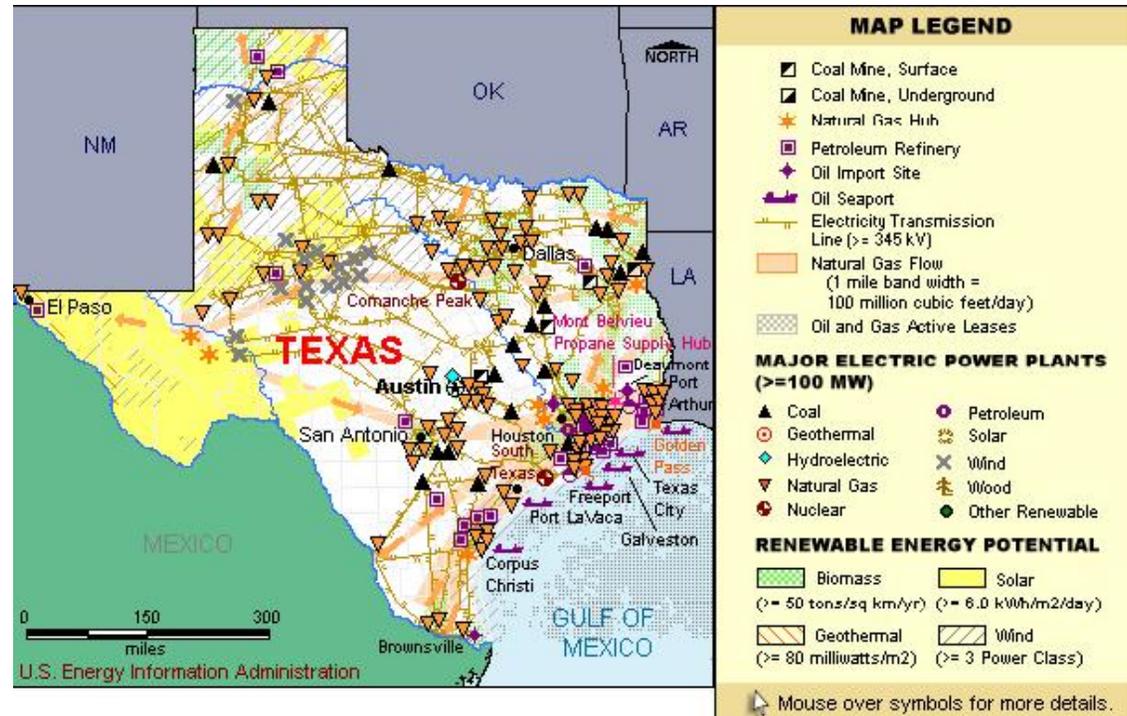
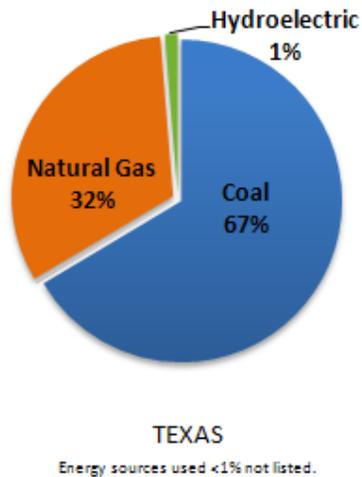
- 25 natural gas
- 13 petroleum
- 11 hydro
- 7 coal
- 2 wind

Pie Chart compiled from Generation_Annual spreadsheet, accessed July 24, 2012.
http://www.eia.gov/electricity/data/state/generation_annual.xls

State Energy Map accessed July 24, 2012 from:
<http://www.eia.gov/state/state-energy-profiles.cfm?sid=OK>

TEXAS

Energy Sources (%) used to Generate Electric Utilities, 2010



Power Plants:

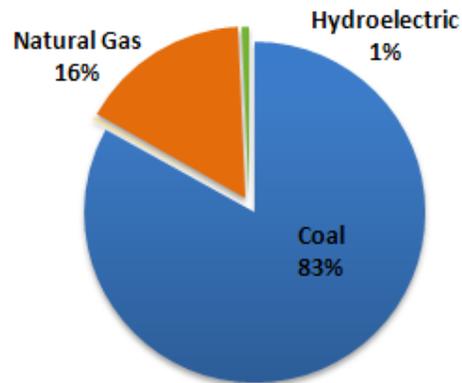
- 99% of generated electric utilities come from coal & natural gas.
- Texas produces and consumes more electricity than any other state.
- 146 natural gas
- 23 hydro
- 20 coal
- 4 petroleum
- 2 nuclear
- 2 wind

Pie Chart compiled from Generation_Annual spreadsheet, accessed July 24, 2012.
http://www.eia.gov/electricity/data/state/generation_annual.xls

State Energy Map accessed July 24, 2012 from:
<http://www.eia.gov/state/state-energy-profiles.cfm?sid=KTX>

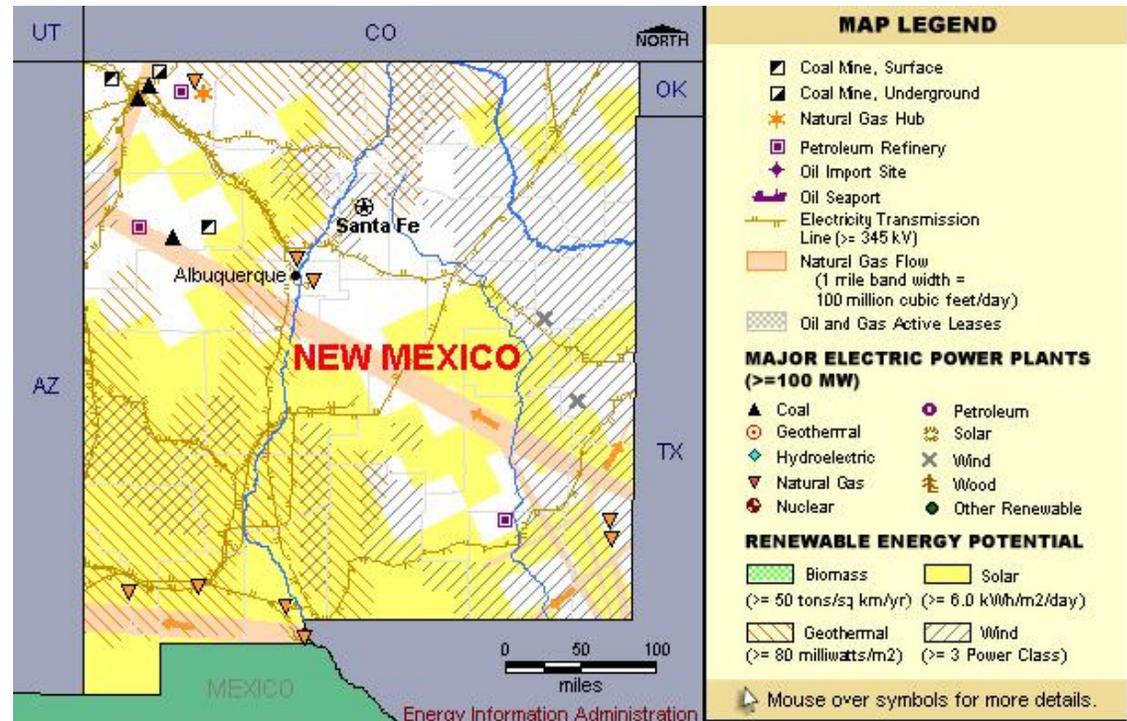
NEW MEXICO

Energy Sources (%) used to Generate Electric Utilities, 2010



NEW MEXICO

Energy sources used <1% not listed.



- 99% of generated electric utilities come from fossil fuels.
- San Juan Basin in the northwest, is the largest field of proved natural gas reserves in the U.S.

Power Plants:

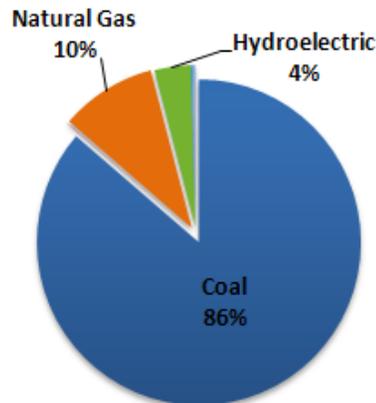
- 17 natural gas
- 5 hydro
- 3 coal
- 3 solar
- 1 petroleum

Pie Chart compiled from Generation_Annual spreadsheet, accessed July 24, 2012.
http://www.eia.gov/electricity/data/state/generation_annual.xls

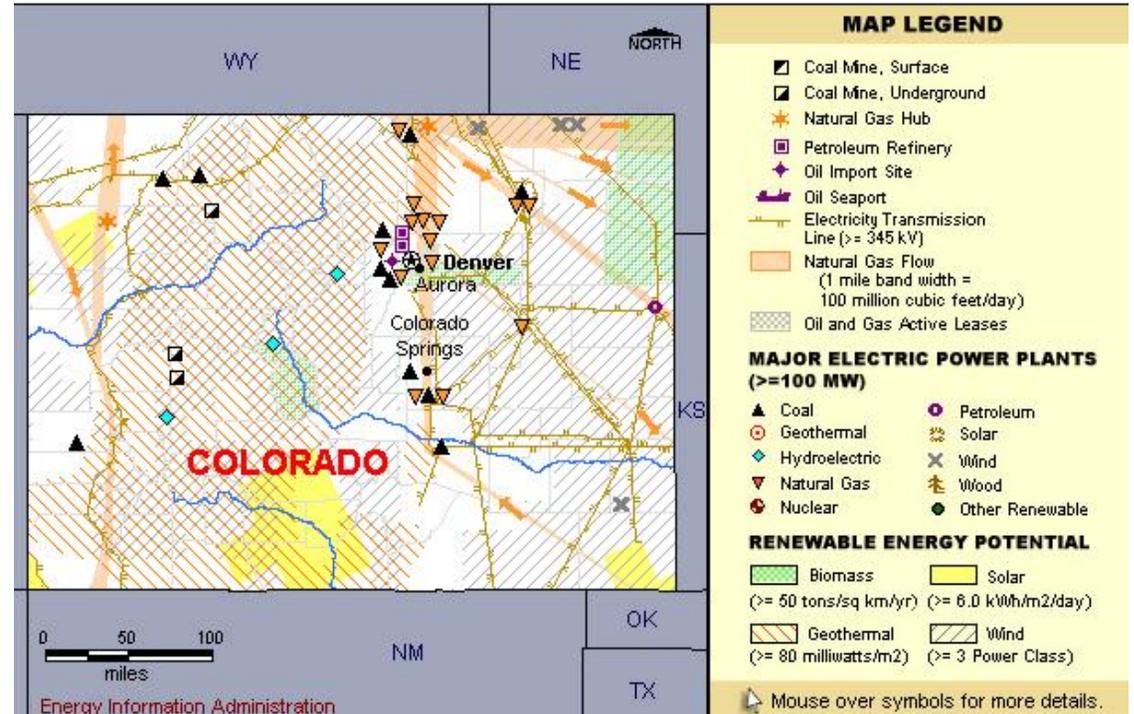
State Energy Map accessed July 24, 2012 from:
<http://www.eia.gov/state/state-energy-profiles.cfm?sid=NM>

COLORADO

Energy Sources (%) used to Generate Electric Utilities, 2010



COLORADO
Energy sources used <1% not listed.



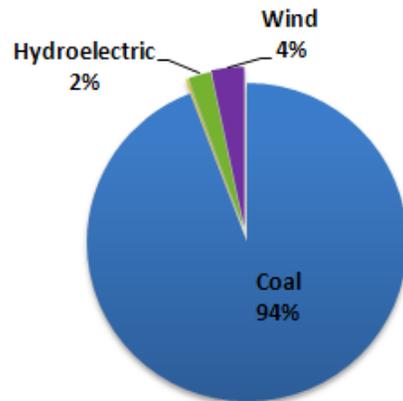
- Over 95% of electric utilities derived from fossil fuels.
- Accounts for >5% of U.S. natural gas production.

Power Plants:

- 25 hydro
- 21 natural gas
- 15 coal
- 7 petroleum
- 2 wind

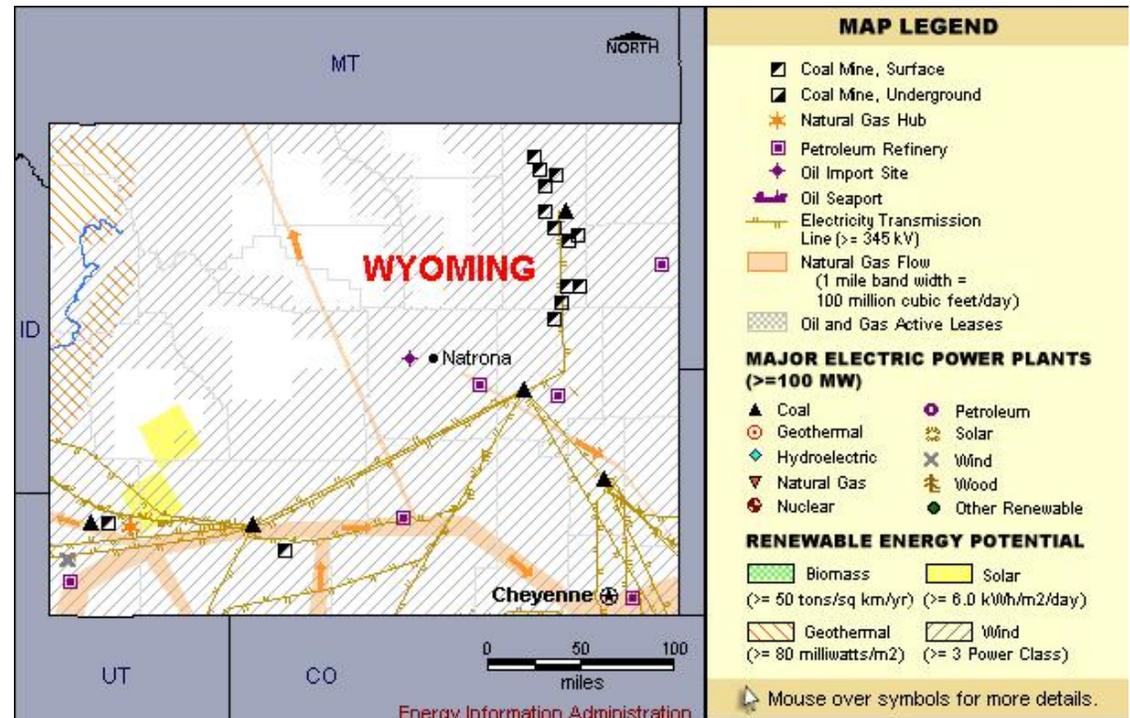
WYOMING

Energy Sources (%) used to Generate Electric Utilities, 2010



WYOMING

Energy sources used <1% not listed.



- Roughly 94% of generated electric utilities are from coal.
- In 2011, 35 States received coal from Wyoming mines.
- 8 states bought more than 90% of their coal from Wyoming.

Power Plants:

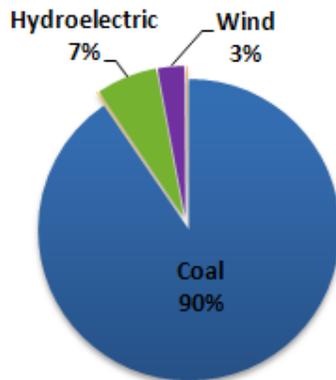
- 15 hydro
- 12 coal
- 9 natural gas
- 7 wind

Pie Chart compiled from Generation_Annual spreadsheet, accessed July 24, 2012.
http://www.eia.gov/electricity/data/state/generation_annual.xls

State Energy Map accessed July 24, 2012 from:
<http://www.eia.gov/state/state-energy-profiles.cfm?sid=WY>

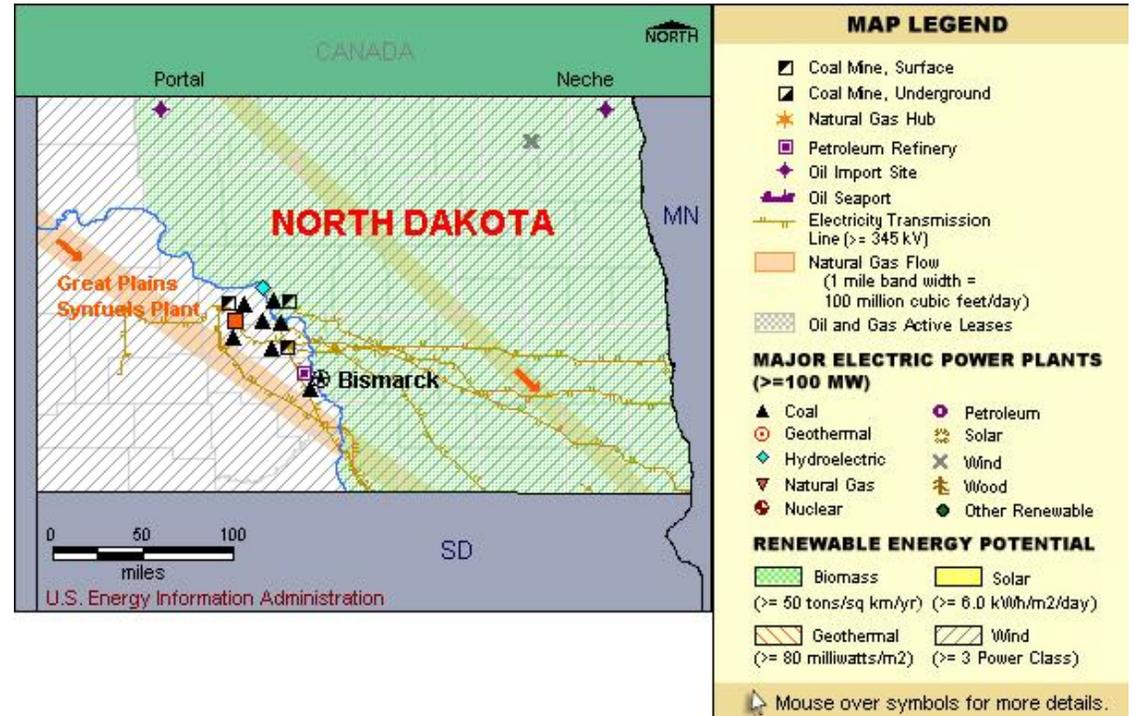
NORTH DAKOTA

Energy Sources (%) used to Generate Electric Utilities, 2010



NORTH DAKOTA

Energy sources used <1% not listed.



- Coal is primary source of generated electric utilities.
- Leads U.S. in wind power potential.
- 20+ operational wind power projects.

Power Plants:

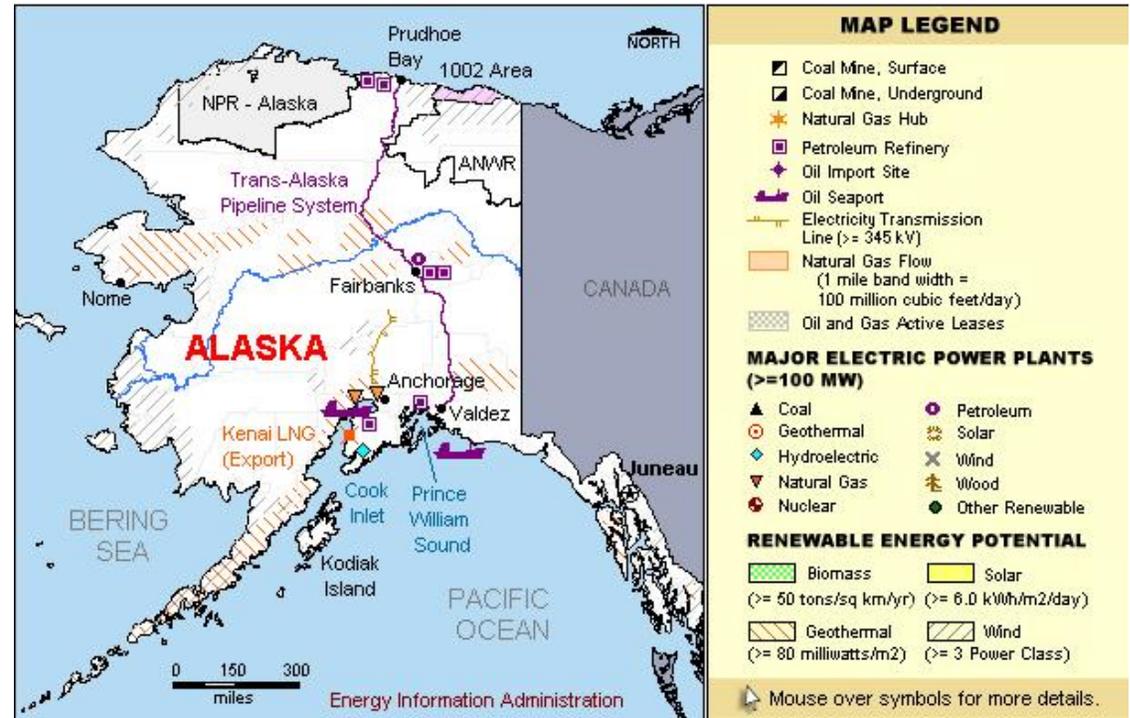
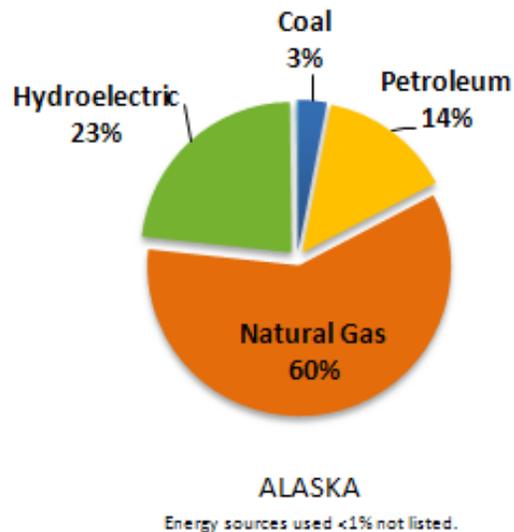
- 10 coal
- 7 wind
- 3 petroleum
- 1 natural gas
- 1 hydro

Pie Chart compiled from Generation_Annual spreadsheet, accessed July 24, 2012.
http://www.eia.gov/electricity/data/state/generation_annual.xls

State Energy Map accessed July 24, 2012 from:
<http://www.eia.gov/state/state-energy-profiles.cfm?sid=ND>

ALASKA

Energy Sources (%) used to Generate Electric Utilities, 2010



- One of the highest natural gas generating states.
- In 2011, 1 of only 8 U.S. states generating electricity from geothermal energy sources.

Power Plants:

- 64 petroleum
- 29 hydro
- 10 natural gas
- 5 coal
- 2 wind

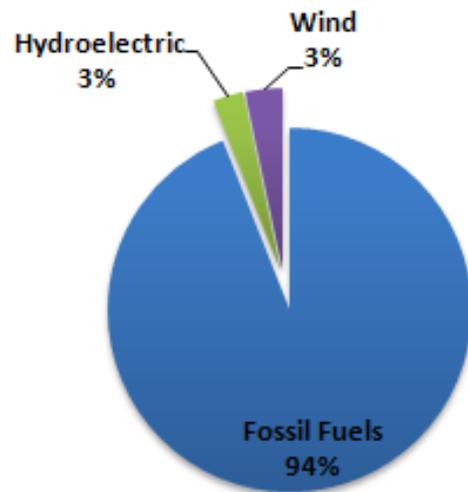
Pie Chart compiled from Generation_Annual spreadsheet, accessed July 24, 2012.
http://www.eia.gov/electricity/data/state/generation_annual.xls

State Energy Map accessed July 24, 2012 from:
<http://www.eia.gov/state/state-energy-profiles.cfm?sid=AK>

ALBERTA

- One of the highest natural gas generating states.
- In 2011, 1 of only 8 U.S. states generating electricity from geothermal energy sources.

Energy Sources (%) used to Generate Electric Utilities, 2011

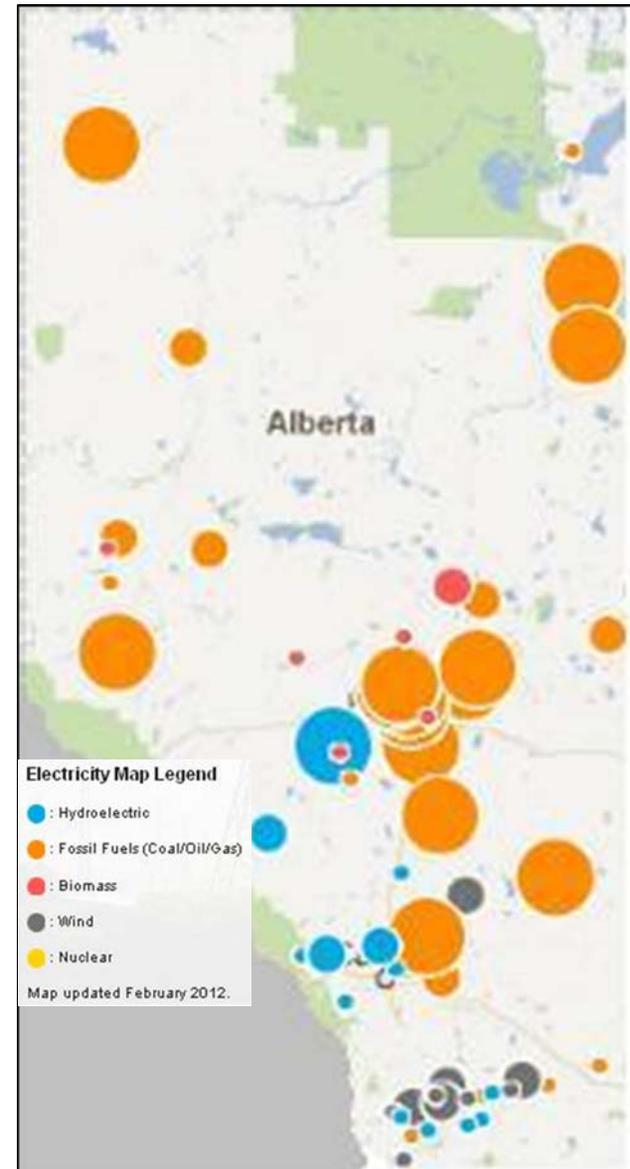


ALBERTA

Energy sources used <1% not listed.

Power Plants:

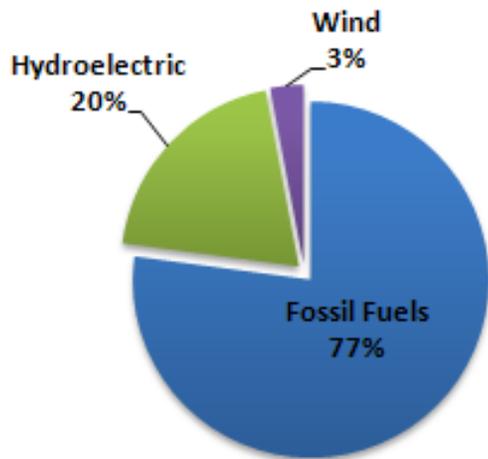
- 29 hydro
- 10 natural gas
- 5 coal
- 2 wind



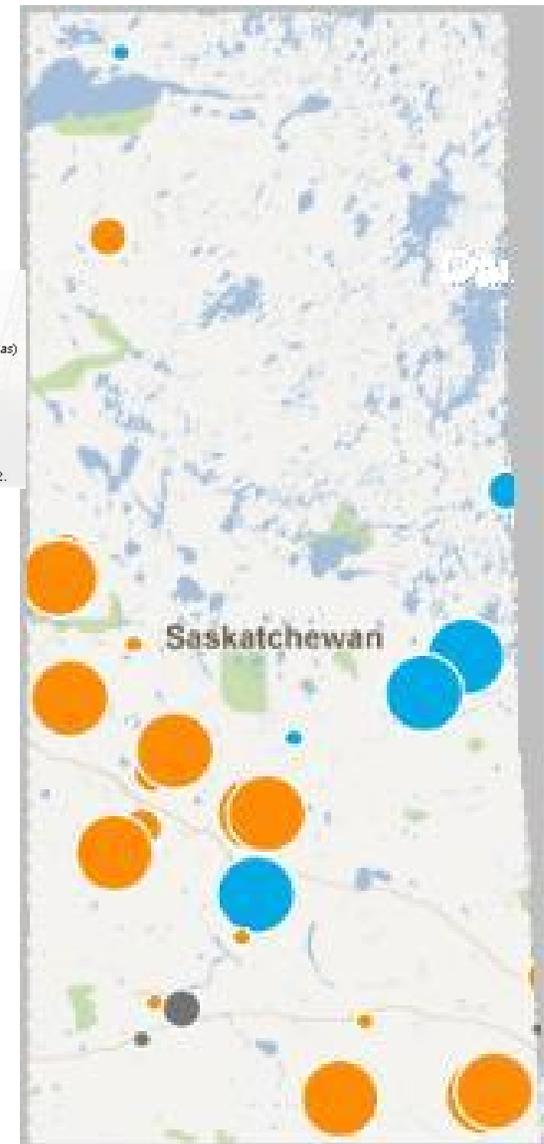
SASKATCHEWAN

- 2nd largest oil producer in Canada.
- 6th largest oil producer among all American states & Canadian provinces.
- Canada's 3rd largest producer of coal & natural gas.

Energy Sources (%) used to Generate Electric Utilities, 2011



SASKATCHEWAN
Energy sources used <1% not listed.



Power Plants:

- 15 natural gas
- 7 hydro
- 4 wind
- 3 coal

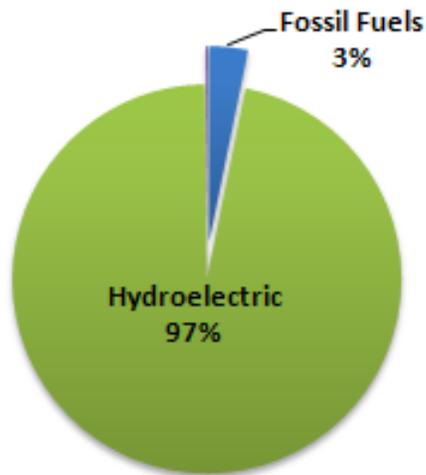
NEWFOUNDLAND & LABRADOR

- Hydroelectricity supplies nearly 100% of electric utilities.
- Challenging geography has led to many off the grid power plants.

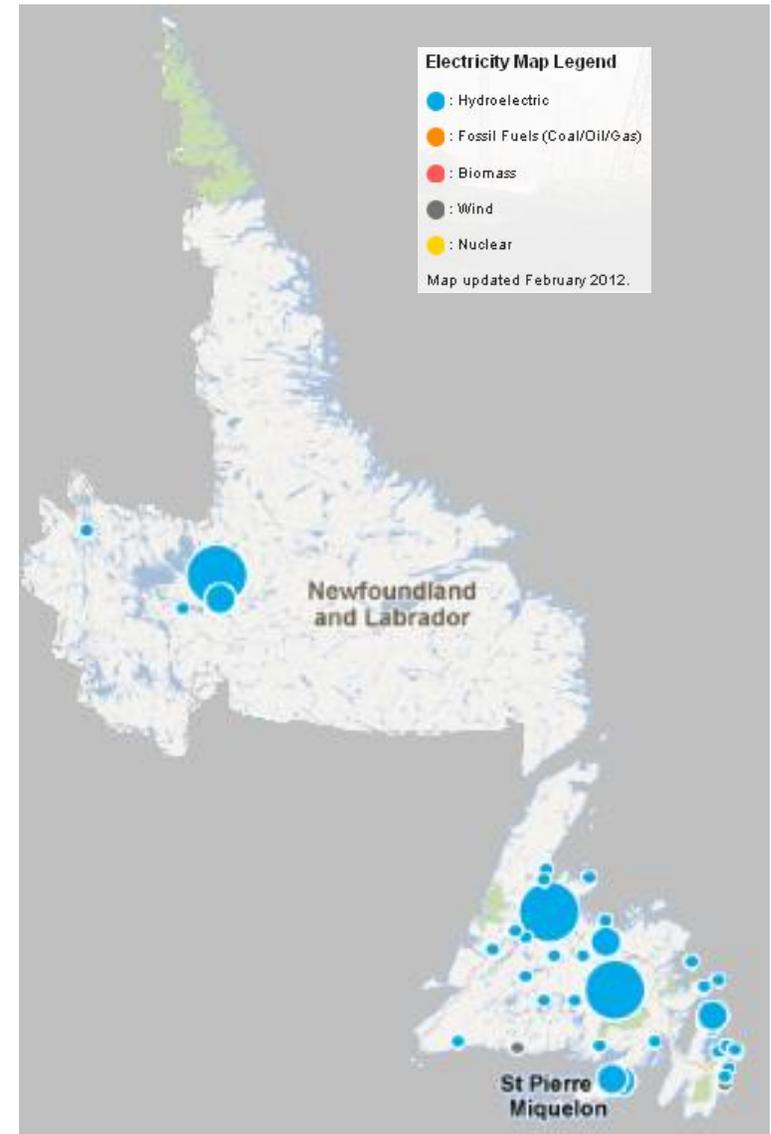
Power Plants:

- 40+ hydro
- 30 petroleum
- 6 natural gas
- 3 wind
- 1 biomass

Energy Sources (%) used to Generate Electric Utilities, 2011



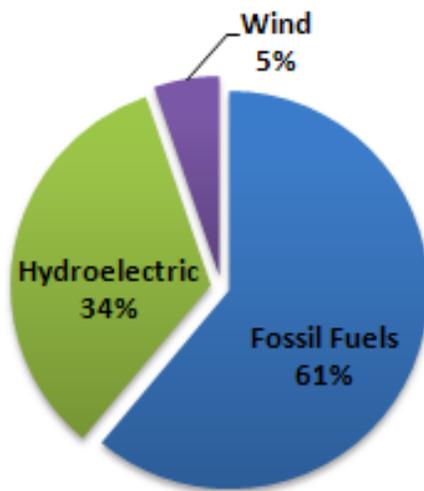
NEWFOUNDLAND & LABRADOR
Energy sources used <1% not listed.



NEWBRUNSWICK

- Fossil fuels supply over 60% of electric utilities.
- Nearly 40% of remaining utilities from renewable resources.

Energy Sources (%) used to Generate Electric Utilities, 2011

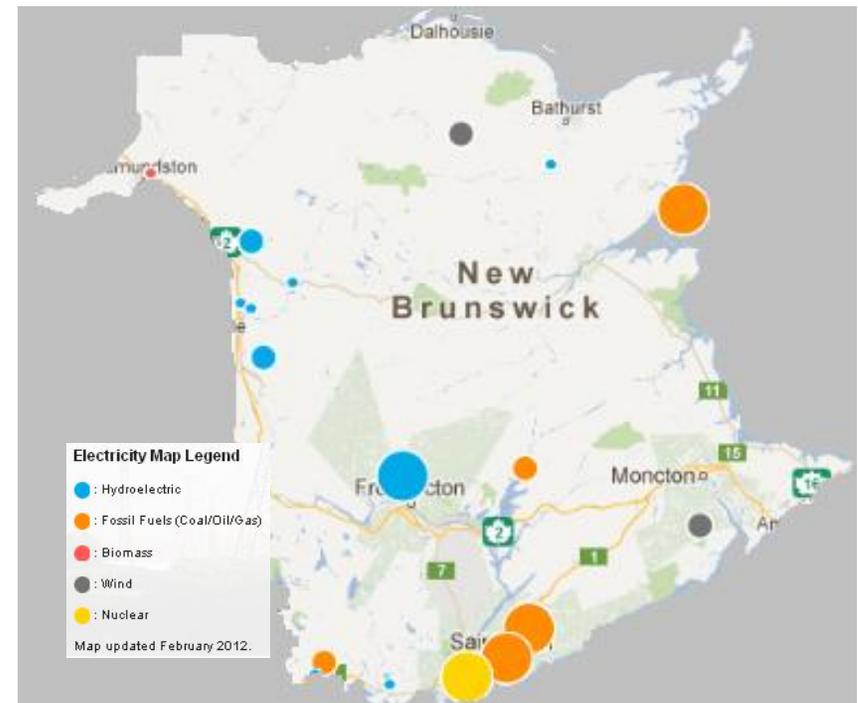


NEW BRUNSWICK
Energy sources used <1% not listed.

Power Plants:

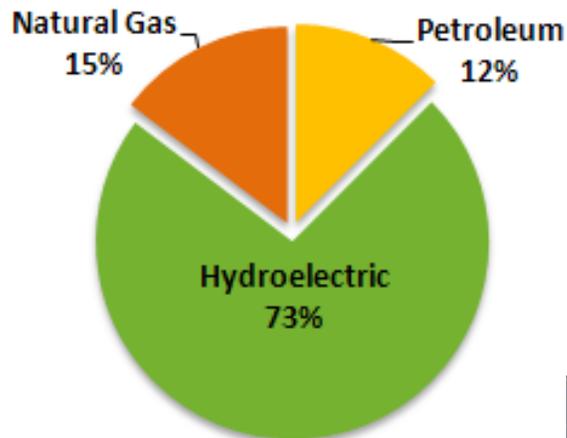
- 9 hydro
- 4 wind
- 2 gas
- 1 nuclear*
- 5 petroleum
- 2 coal
- 1 biomass

*Off line since May 2008 for refurbishment, expected re-start Fall 2012



VENEZUELA

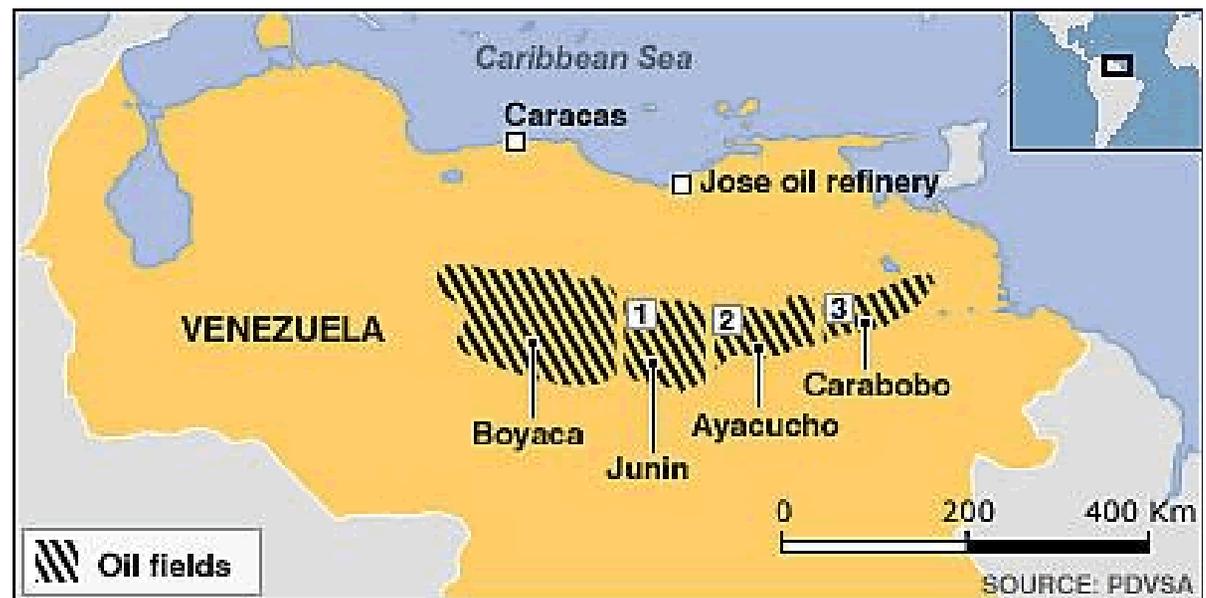
Energy Sources (%) used to Generate Electric Utilities, 2010



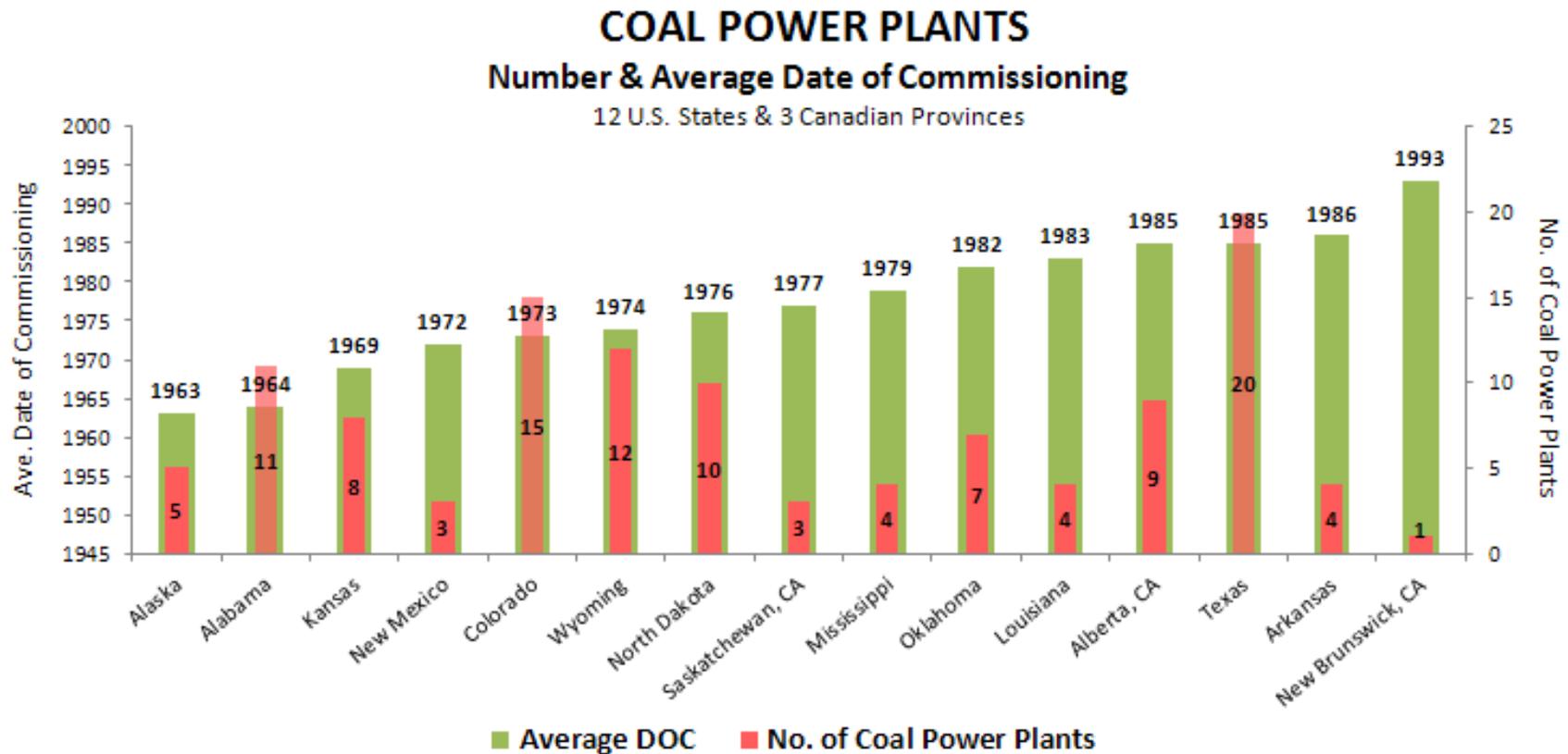
VENEZUELA
Energy sources used <1% not listed.

- Hydroelectricity generates over 70% of electric utilities.
- 2nd largest natural gas reserves in Western Hemisphere.
- Over 90% of natural gas reserves are associated* with oil reserves.

*they occur alongside oil reserves



POWER PLANT COMPARISONS

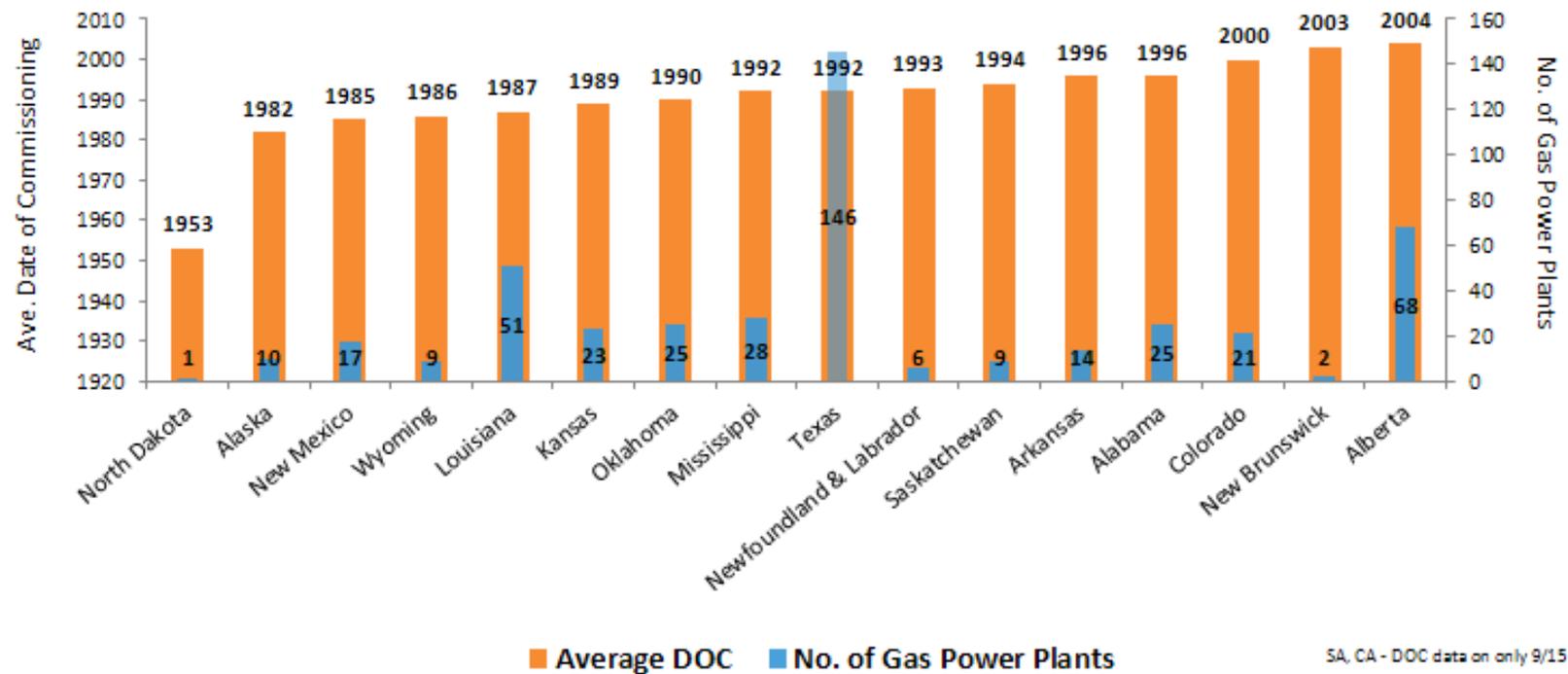


POWER PLANT COMPARISONS

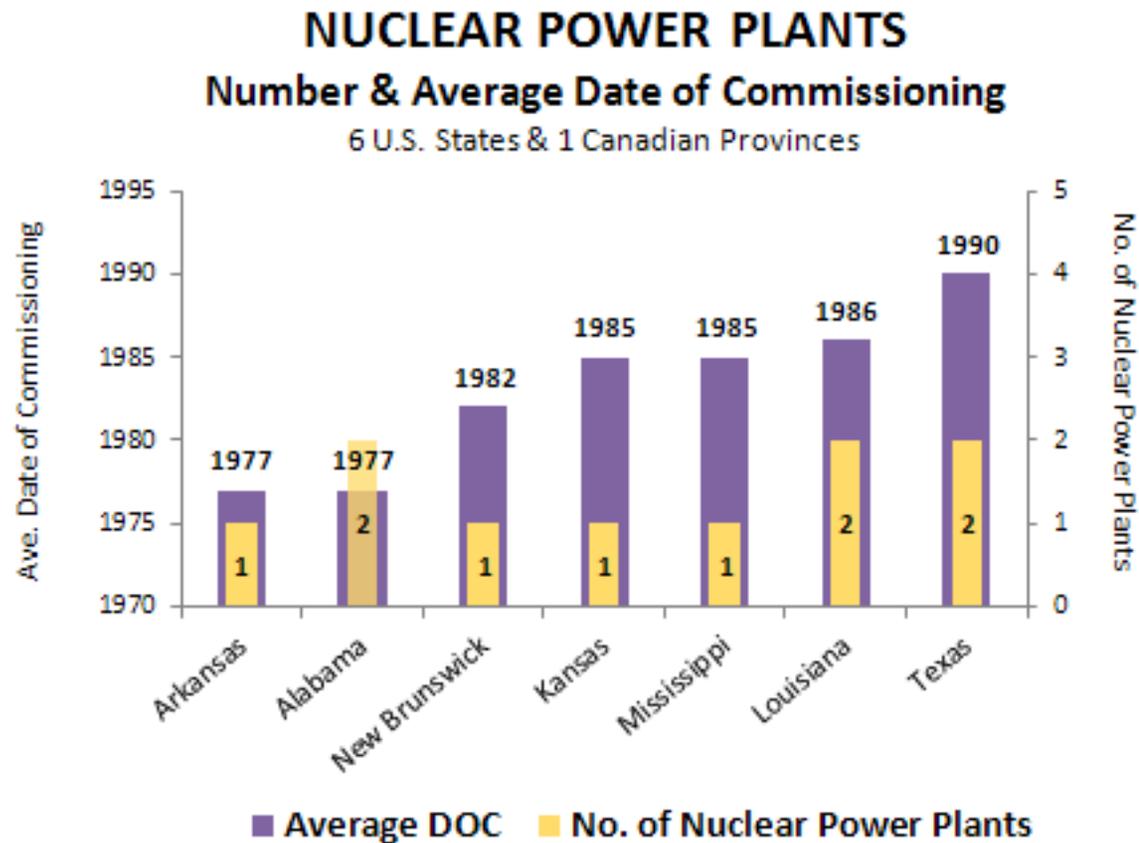
GAS POWER PLANTS

Number & Average Date of Commissioning

12 U.S. States & 4 Canadian Provinces



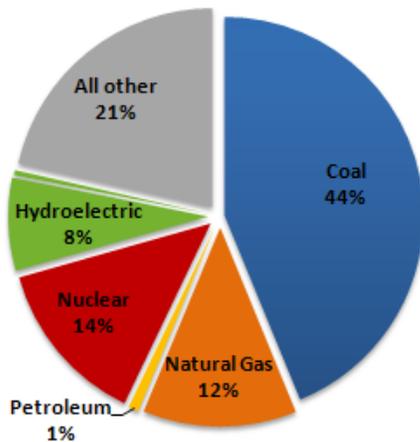
POWER PLANT COMPARISONS



COMPARING NATIONAL PERCENTAGE TOTALS

2010 United States Totals

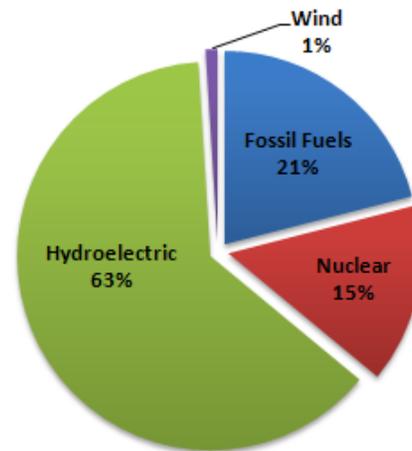
Electric Utility Generation by Energy Source



Fossil Fuels: **57%**

2011 Canadian Totals

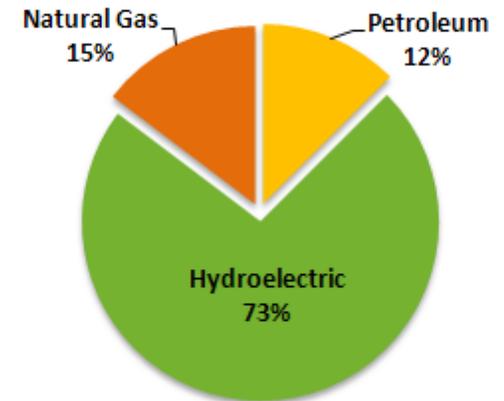
Electric Utility Generation by Energy Source



Fossil Fuels: **21%**

2010 Venezuelan Totals

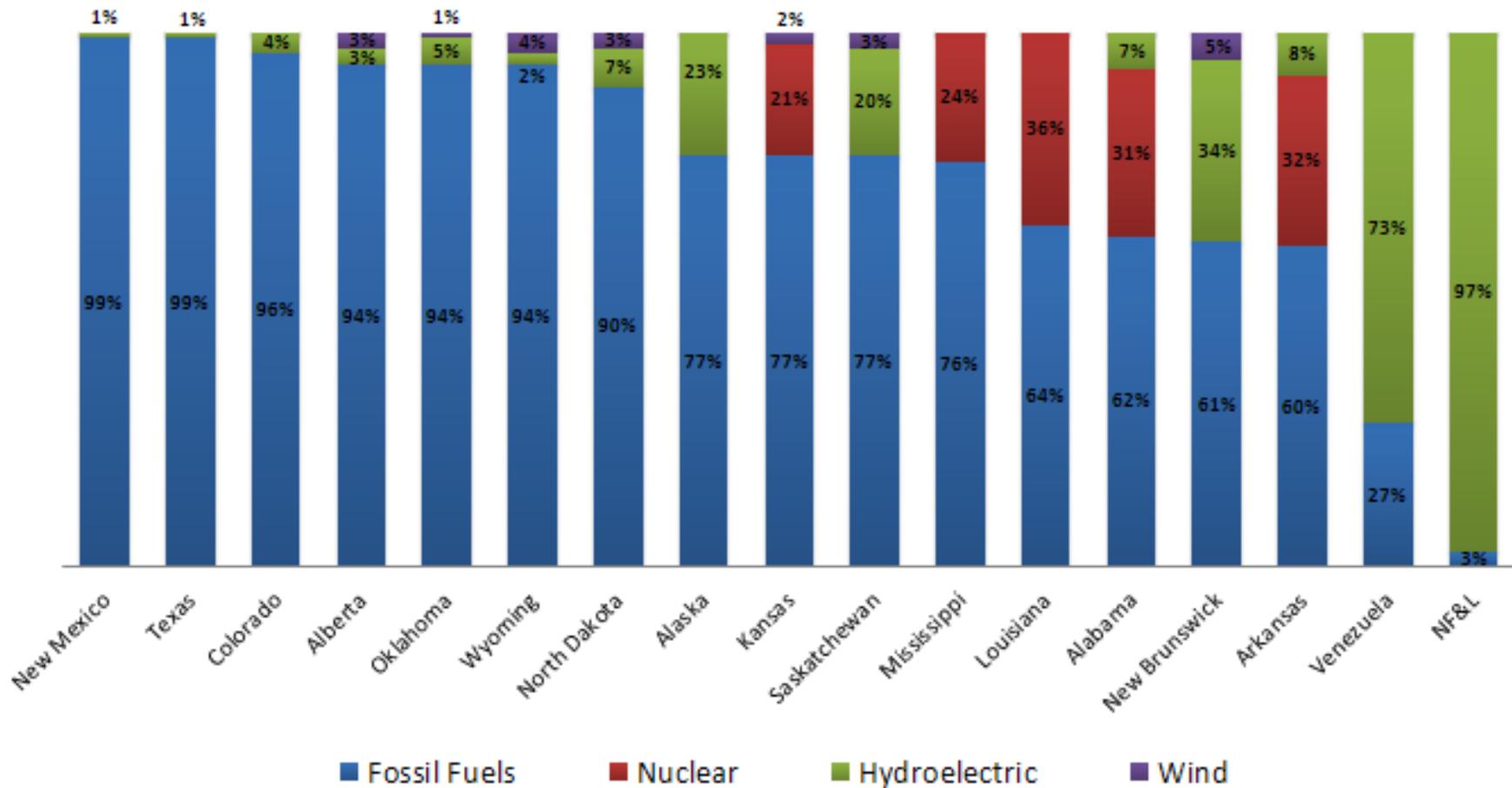
Electric Utility Generation by Energy Source



Fossil Fuels: **27%**

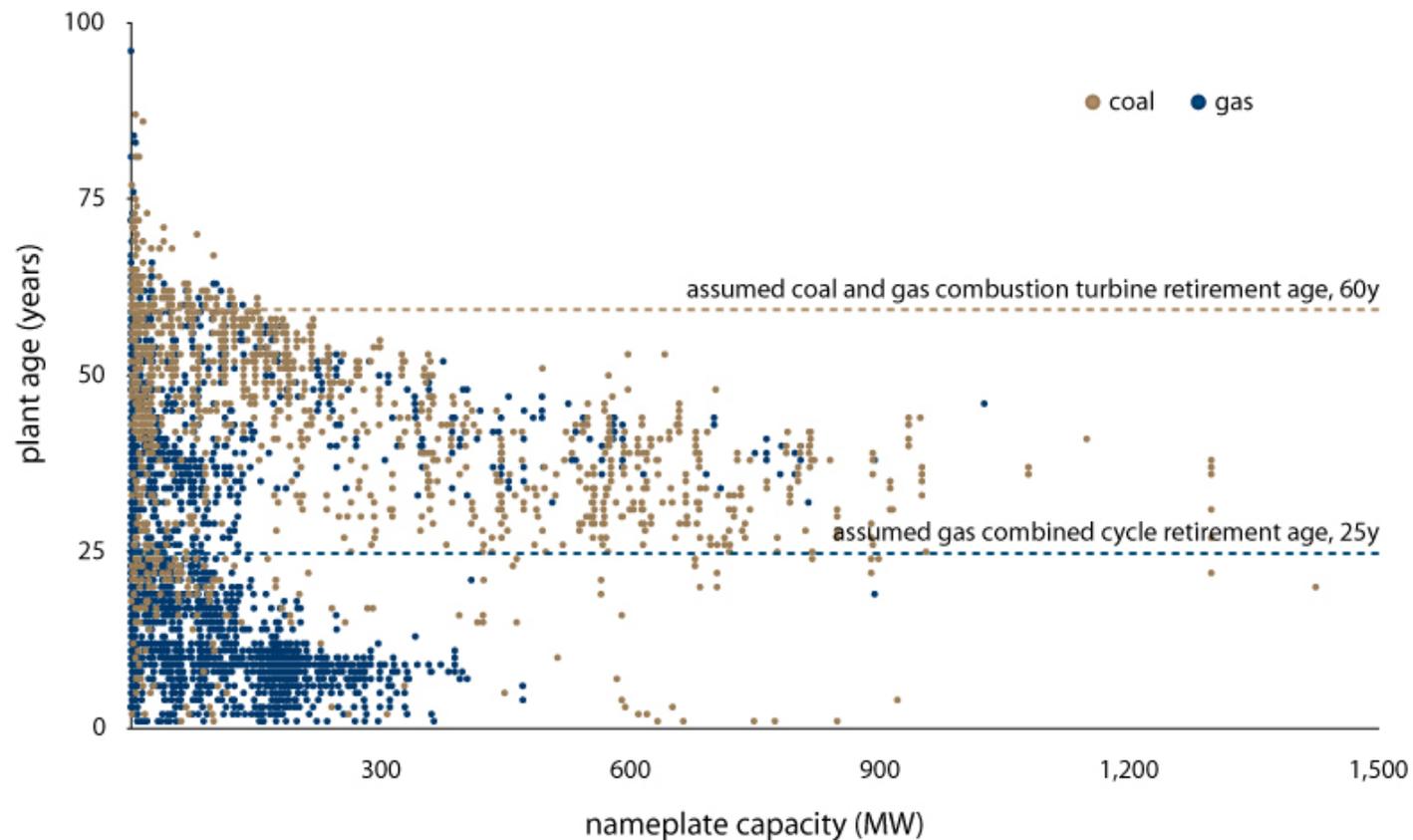
GENERATION COMPARISON

% of Electric Utilities by Energy Source, 2010-2011



GENERATOR COMPARISON: AGE & CAPACITY of COAL & GAS

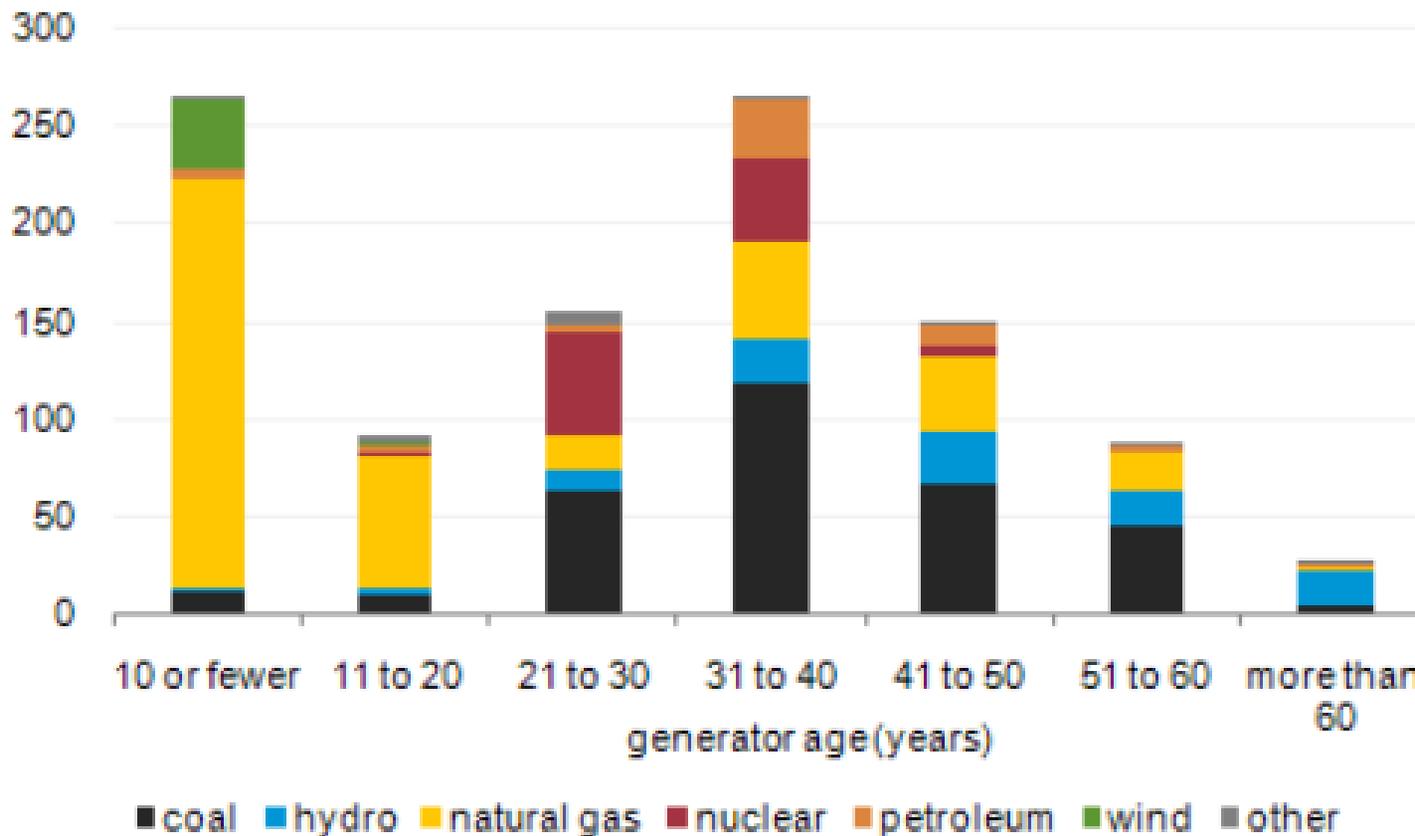
Age and capacity of operating U.S. coal- and gas-fired generators, fall 2011



Rocky Mountain Institute © 2011. For more information see www.RMI.org/ReinventingFire.

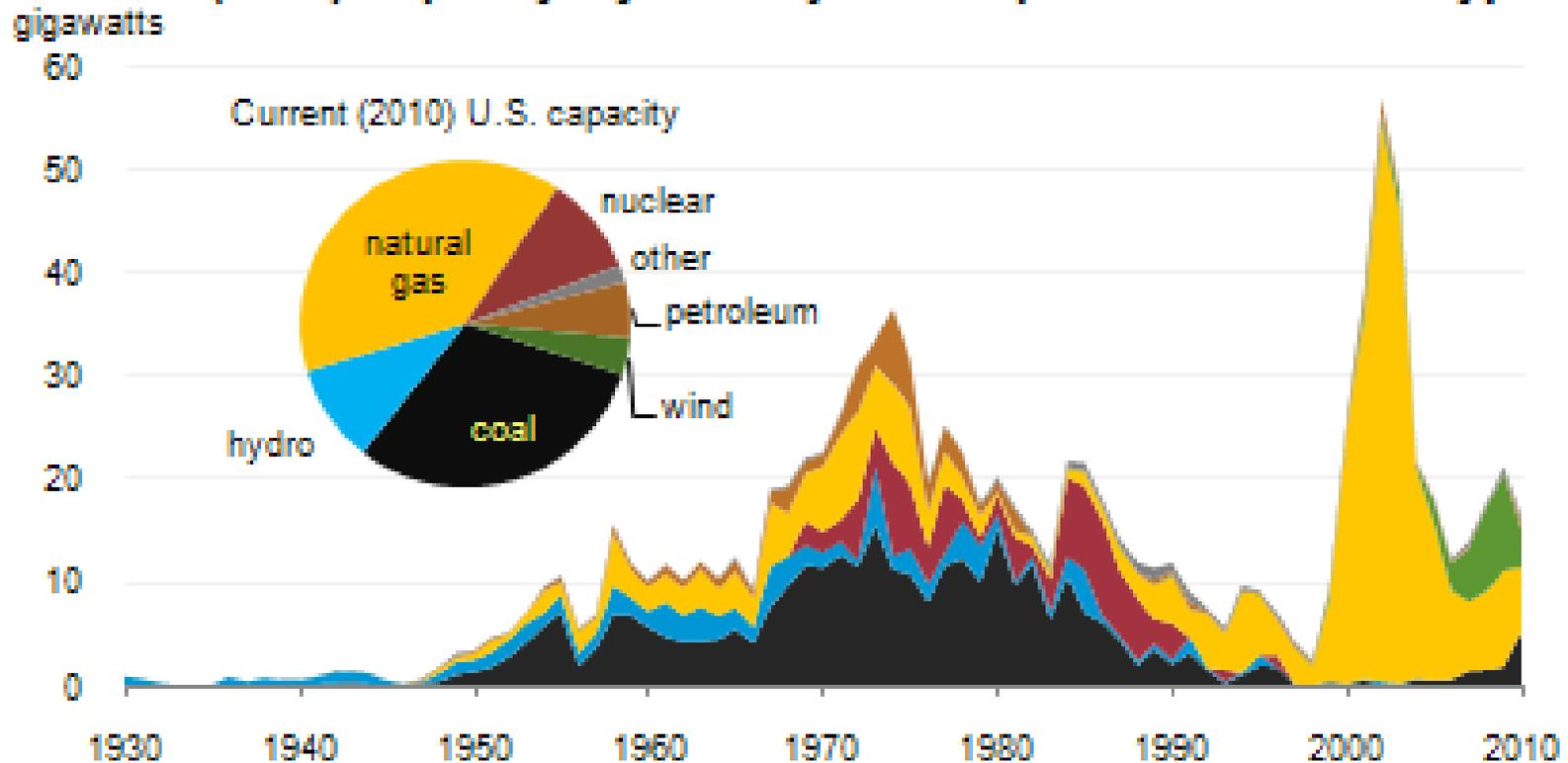
GENERATOR COMPARISON: AGE & CAPACITY of ALL FUELS

Age and capacity of electric generators by fuel type, as of year-end 2010
gigawatts



GENERATOR COMPARISON: CAPACITY BY DOC & FUELS

Current (2010) capacity by initial year of operation and fuel type



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SOURCES

UNITED STATES INFORMATION:

- www.eia.gov
- <http://www.eia.gov/state/>
- <http://www.eia.gov/electricity/data/eia860/index.html>
- http://www.eia.gov/electricity/data/state/generation_annual.xls

CANADIAN INFORMATION:

- www.centreforenergy.com
- <http://knowyourpower.ca/electricity-map/>
- <http://www.eia.gov/countries/cab.cfm?fips=CA>
- <http://www.energy.gov.ab.ca/Electricity/681.asp>
- http://www.auc.ab.ca/market-oversight/Annual-Electricity-Data-Collection/Documents/Total_Generation.pdf
- <http://www.centreforenergy.com/Documents/AboutEnergy/ByTheNumbers/SASK-bythenumbers.pdf>
- <http://www.ir.gov.sk.ca/Fact-Sheets>
- <http://www.nr.gov.nl.ca/nr/energy/electricity/index.html>
- http://www.nr.gov.nl.ca/nr/energy/plan/pdf/energy_report.pdf
- <http://www.centreforenergy.com/FactsStats/Statistics.asp?Template=5,7>
- <http://www.gnb.ca/0085/pdf/EnergyCommFinal%20Report%20English.pdf>

VENEZUELAN INFORMATION:

- <http://www.eia.gov/countries/cab.cfm?fips=VE>
- <http://www.tradingeconomics.com/venezuela/electric-power-consumption-kwh-per-capita-wb-data.html>