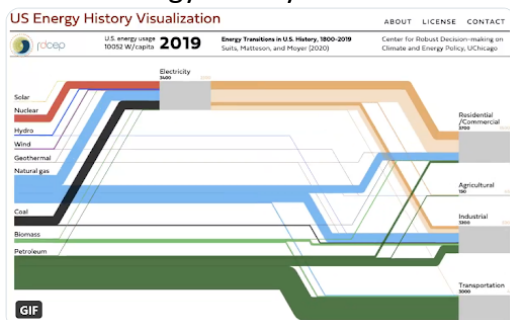


## Changes in U.S. Energy Sources Since the 1800s

By Anne Skinner, Cowan Museum of History and Science

A. Watch the U.S. Energy History Visualization at <https://us-sankey.rcc.uchicago.edu/>.



<http://www.sankey-diagrams.com/u-s-energy-history-1800-2019/>

B. Move the slider on the timeline underneath the diagram to further explore the history and answer the questions below.

- If you click on the black dots below the timeline, you can read about the energy history on that date.
- You can use the triangle below the timeline to start the simulation or use the pause button to stop on a certain date.
- To watch changes over time between 2 dates, click on one date on the timeline and then click on the other date. The visualization simulation on the graph will run from the first date to the second date.
- To move the slider more slowly, click on one date and hold it down while sliding the mouse.
- The diagram shows the relative amount of energy produced by each source (petroleum, biomass, coal, natural gas, geothermal, wind, hydro, nuclear, solar) at a particular time on the left side of the diagram. It shows the relative amount used in different sectors (transportation, industrial, agricultural residential/commercial) on the right side of the diagram.
  - A *thin*, colored line on the left shows a *small* amount of that energy source is being produced and a *thick* line shows a *large* amount is being produced.
  - A *thin*, colored line on the right shows a *small* amount of that energy source is being used and a *thick* line shows a *large* amount is being used.

C. Use the visualization and timeline to answer the questions below:

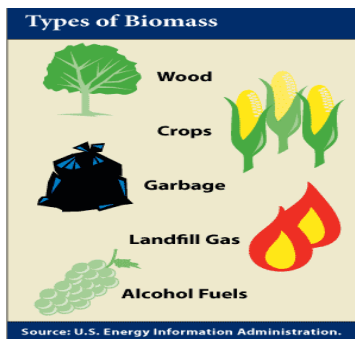


[https://www.cidrap.umn.edu/sites/default/files/public/styles/detail/public/media/article/1918\\_pandemic\\_st.\\_louis-wikimedia.jpg?itok=2\\_D0L\\_S2](https://www.cidrap.umn.edu/sites/default/files/public/styles/detail/public/media/article/1918_pandemic_st._louis-wikimedia.jpg?itok=2_D0L_S2)

1. During the 1918 flu pandemic, what was the main source of energy people used in their homes?



2. In 1815, what was the main source of energy people used in their homes, agriculture, and industry: hydropower, wind, natural gas, coal, geothermal energy, biomass, or petroleum?



<https://energyforums.net/alternative-energy/biomass-energy/>

3. What type of biomass was the main type used in 1800?

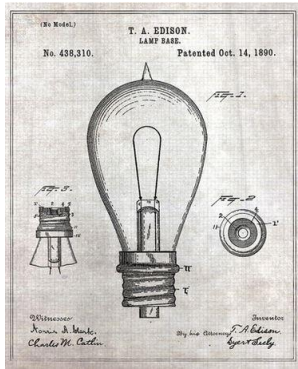


<http://www.americanyawp.com/text/wp-content/uploads/Steamship-e1469977380321.jpg>



[http://www.americanyawp.com/text/wp-content/uploads/South\\_Street-c18271.jpg](http://www.americanyawp.com/text/wp-content/uploads/South_Street-c18271.jpg)

4. Which type of boat made greater use of wood for energy in 1807: river boats or ocean-going ships?



<https://www.gatewaymacon.org/top-5-lists/top-5-macon-firsts.cms>

5. When electricity first began to be available for public use in the U.S. in the late 1800s, what two energy sources were used to generate electricity?



<https://www.bygonely.com/new-york-city-1905/>

6. a) In 1905, what was the main energy source that was being used in transportation?
- b) You can't run a car with that energy source, so how do you suppose it was used in transportation? In other words, what type of transportation might have used that energy source in 1905?



<https://orangebeanindiana.com/2019/12/11/indiana-coal-mining/>

7. There used to be a lot more coal mining in the past. It reached its peak or maximum production and then started to decline. In what year was the most coal produced and used in the U.S.?



<https://fiftiesweb.com/pop/info-family/>

8. In the 1950s, which energy source was being used the most?



<https://thecoalhub.com/coal-prices-related-markets-buoy-api-2-despite-slack-demand.html>

9. Coal was used mainly for which use: generating electricity, farming, industry, or transportation?
- a) In 1950, after World War II?
- b) In 2005?



<http://www.worldwar2facts.org/when-did-world-war-2-end.html>

10. What relationship do you see between coal usage and natural gas usage in the U.S. since the end of World War II in 1945?



<https://phys.org/news/2020-01-climate-related-weather-conditions-disrupt-power.html>

11. What are the three main energy sources used to generate electricity now (assuming it's fairly similar to 2019)?





<https://www.aoghs.org/petroleum-discoveries/>

12. The first oil well was drilled in Pennsylvania in 1859. Was petroleum production increasing, decreasing, or staying the same during each of the periods below?
- a) 1859 – 1929
  - b) 1929 – 1933
  - c) 1933 – 1973
  - d) 1978 – 2019
- e) Which historical event might account for the change in production in 1929-1933? (A) World War II (B) The Great Depression (C) The Civil War (D) The invention of the Ford Model T



<https://www.facebook.com/NYPAAEnergy/photos/a.533932283310901/1983711261666322/?type=3&theater>

13. a) What were the 4 main energy sources used to generate electricity in 1978?
- b) Which one of those 4 energy sources was used to generate only a small amount of electricity by 2019?



<http://static1.squarespace.com/static/54d36ac7e4b08a196ac7572d/54d3851ae4b0afe41ce88e67/5ad369f0758d46ce631c14bf/1523811021256/renewable+energy+%232.png?format=1500w>

14. Coal, oil (petroleum), and natural gas are nonrenewable fossil fuels. Name some renewable sources of energy shown on the diagram that are used to generate electricity. Don't include nuclear since the uranium (or similar material) used to generate nuclear power is nonrenewable.

Extension:

Click on "Insights" in the upper right corner of the diagram.



<https://www.hurriyetdailynews.com/1-500-electric-vehicles-on-roads-150035>

15. Read about "Energy Transitions In U.S. History", "How Much Energy Do We Use?", and "Lessons About Energy Transition". Then write your thoughts about the future of electric vehicles in America and include some supporting statements or information from the reading.

*This lesson was developed by the Cowan Museum of History and Science. Teachers may obtain a key by emailing [info.museum@duplincountync.com](mailto:info.museum@duplincountync.com).*