

Energy Data Jam Answer Key

Goal - Examine New Mexico energy consumption data, and then design a creative project that explains one part of these data to a non-scientist audience. A good Data Jam project is:

Clear: Represent the data accurately and in a way that is understandable to non-scientists. Make sure to include a legend explaining how you represent the data (e.g., one light bulb picture represents 1% of total residential energy use).

Creative: Use your imagination! This could be a song, demonstration, physical model, poem, skit, newscast, infographic, dance, rap, etc.

Concise: Keep it short and to the point. Focus on one important trend in the data.

Project Directions

1. Decide if you would like to work alone or with one or two other students to complete your Energy Data Jam project.
2. Fill out the Planning and Brainstorming Notes section below.
3. Create your Energy Data Jam project (infographic, skit, etc.).
4. Fill out the Presentation Summary section on page 4.
5. Practice your presentation.

Planning and Brainstorming Notes

1. Look at both datasets carefully and list trends you might like to explain to your audience.

Possible trends include (but are not limited to):

- ***New Mexico consumes far more nonrenewable resources (711.4 trillion Btu) than renewable resources (46.8 trillion Btu).***
- ***Natural gas and coal are the primary sources of New Mexico's energy, comprising 62% of the total energy consumed in the state.***
- ***Transportation and residential use of energy in New Mexico are two sectors where the public can make a difference. These two sectors use 48% of the total energy consumed in the state.***

2. List some possible ways to present the data (song, rap, interpretive dance, etc.). Think about the time it would take to complete.

This will vary by student group, but possible projects could include:

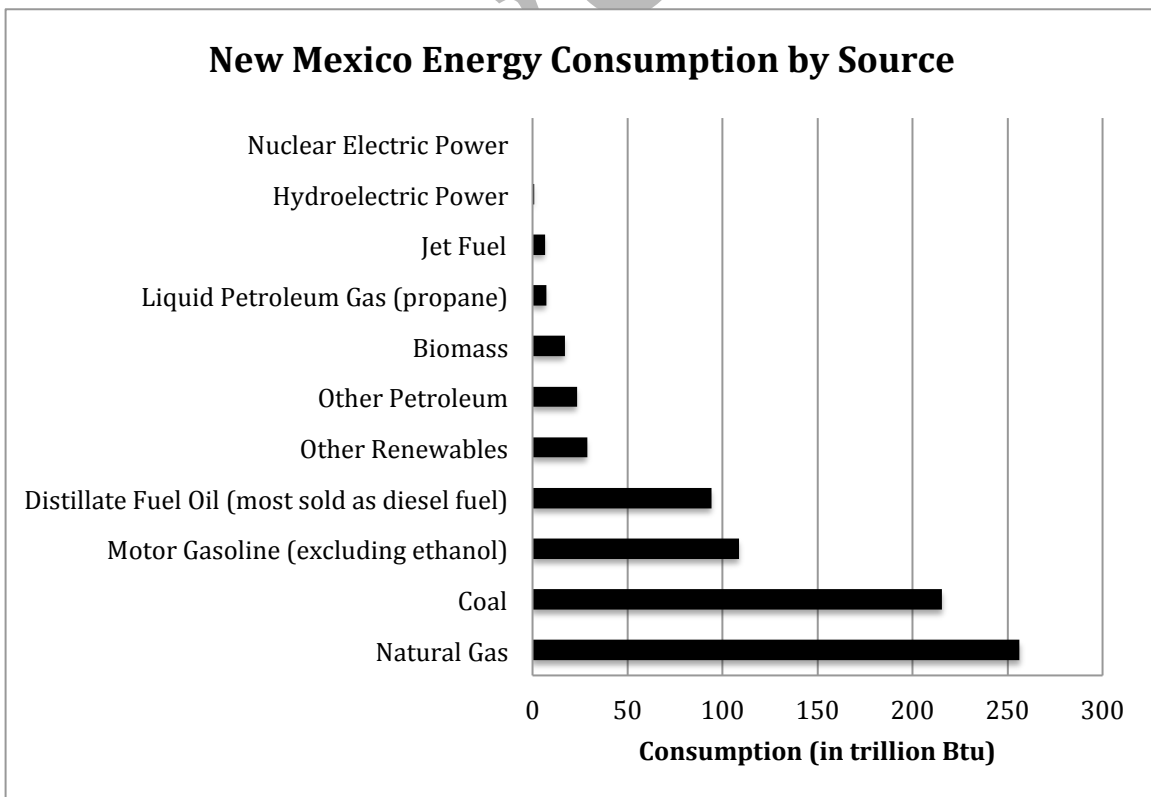
- ***Physical model comparing the use of natural gas and coal to all other energy sources.***
- ***Newscast explaining the different sectors' use of energy with "breaking news" on how students are making a difference.***
- ***Song to the tune of "You Are My Sunshine" comparing nonrenewable and renewable energy use in New Mexico.***

Data: New Mexico Energy Consumption by Source

These data were compiled by the U.S. Energy Information Administration (eia.gov). Consumption estimates are presented in trillion British Thermal Units (Btu). A Btu is the quantity of thermal energy required to raise the temperature of one pound of water by one degree Fahrenheit.

Table 1: New Mexico Energy Consumption Estimates 2014

Category	Nonrenewable (N) or Renewable (R)	Consumption Estimates (in trillion Btu)
Natural Gas	N	256.1
Coal	N	215.3
Motor Gasoline (excluding ethanol)	N	108.6
Distillate Fuel Oil (most sold as diesel fuel)	N	94.1
Other Renewables	R	28.7
Other Petroleum	N	23.5
Biomass	R	17.2
Liquid Petroleum Gas (propane)	N	7.2
Jet Fuel	N	6.6
Hydroelectric Power	R	0.9
Nuclear Electric Power	N	0

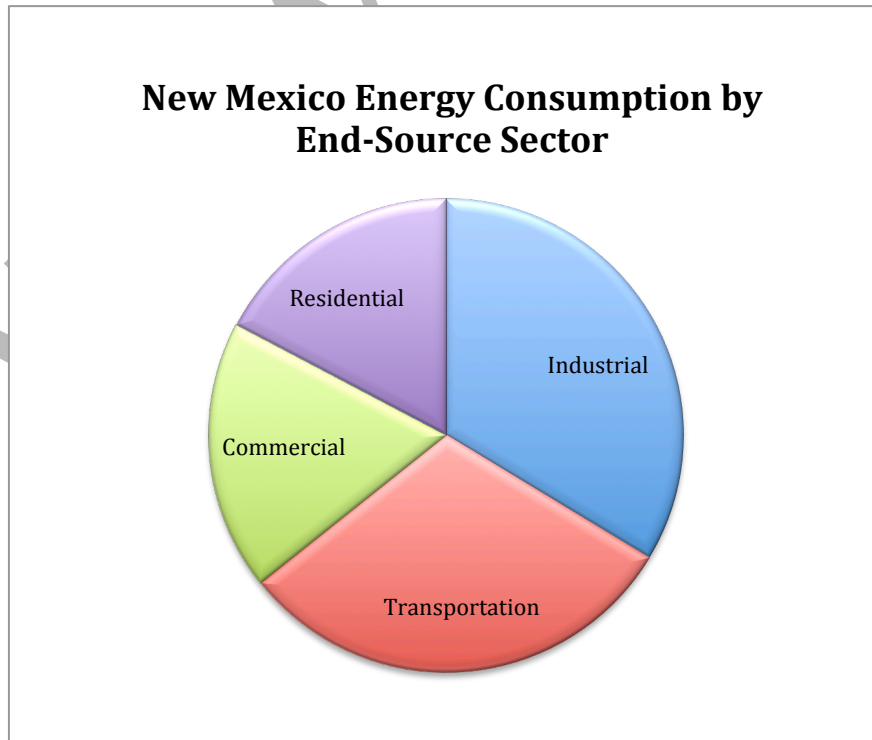


Data: New Mexico Energy Consumption by End-Sector Use

These data were compiled by the U.S. Energy Information Administration (eia.gov). Consumption estimates are presented in trillion British Thermal Units (Btu). A Btu is the quantity of thermal energy required to raise the temperature of one pound of water by one degree Fahrenheit.

Table 2: New Mexico Energy Consumption by End-Use Sector

Sector	Definition	Consumption (in trillion Btu)	Percent of Total Use
Industrial	Manufacturing establishments or those engaged in mining or other mineral extraction as well as consumers in agriculture, forestry, and fisheries. Also includes generators that produce electricity and/or useful thermal output primarily to support the above-mentioned industrial activities.	228.6	34%
Transportation	All vehicles whose primary purpose is transporting people and/or goods from one physical location to another. Includes automobiles, trucks, buses, motorcycles, trains, subways, aircraft, ships, and barges.	208.0	31%
Commercial	Nonmanufacturing establishments or agencies primarily engaged in the sale of goods or services. Includes hotels, restaurants, wholesale and retail stores, and other service enterprises.	125.2	18%
Residential	Private dwellings, including apartments.	117.4	17%



Energy Data Jam Presentation Summary

Each group will have a **maximum of 3 minutes** to present their Data Jam project to the rest of the class. During these presentations, you will “show” your project. This will look different depending on your project. For example, you may act out your skit, read your poem, or show and discuss your physical model. While these presentations will vary depending on your project, the components listed below should be included in all presentations. Use this page to write answers that will help as you plan and prepare your presentation.

1. Introduce all of the students who worked on the project.

Student answers will vary.

2. Give the title of your project. Make sure it is descriptive.

Titles should relate to the creative project and the data trend chosen.

3. Explain the data trend you are trying to get across in your project.

See list of possible data trends on page 1.

4. Showcase your project. For example, read your poem, act out your play, or give a tour of your physical model. Make sure to explain your legend (how the data is represented). Work with your teammates to decide how to best show your project to the audience. Practice!

Students should write down a brief description of how they are going to present their Data Jam project. For example:

- ***Maia will read the first part of the poem, and then Kathryn will read the second part of the poem.***
- ***Kirk will introduce the group, while Jessica explains the idea behind the physical model and Derek explains the scale and the data trend.***

5. How might increases in New Mexico’s human population affect the trend you identified?

Student answers will vary depending on the data trend they chose.

As New Mexico’s population increases, total energy consumption will likely increase. If the source of New Mexico’s energy stays the same, we will continue to deplete natural gas and coal resources faster than they can be replenished. The percentages of energy use by sector will probably stay the same, but all of the sectors will probably use more energy.