

ENERGIZING POLICIES

introduction

Energy consumption plays a role in many environmental challenges, including **climate change**. Societies need energy to function, but to live in a sustainable world, strategies for providing adequate energy resources worldwide must be combined with reducing the harmful impact of carbon dioxide emissions.

Some countries use more energy than others and the amount of energy use is not always proportional to population size. Although the United States and Canada comprise less than 5 percent of the world's population, the two countries consume nearly 19 percent of the world's energy.¹ The United States and Canada's dependence on oil and other non-renewable resources has resulted in increased **greenhouse gas** emissions for decades.

The **Paris Agreement** was adopted at the UN Paris Climate Conference in December of 2015, with 195 countries adopting a universal, binding global climate deal with ambitious language and goals. Some of the highlights of the agreement are a limit on the global average temperature increase to under 2°C and an undertaking of rapid reductions in greenhouse gas emissions. In addition to the agreement, countries submitted individual climate action plans. In 2021, U.S. President Biden set a goal to reduce greenhouse gas emissions by 50 to 52 percent below the 2005 level by 2030, and to achieve net-zero greenhouse gas emissions by 2050.² Similarly, Canada released a plan to reach a 30 percent reduction in greenhouse gas emissions before 2030, and ultimately achieve net-zero greenhouse gas emissions by 2050.³ Meeting these goals will most certainly require an assessment of current energy issues and an exploration of future options.

Vocabulary: climate change, greenhouse gas, Paris Agreement

materials

- Assignment Sheet (provided)

procedure

1. Display the two graphs on the next page. The graphs show total energy consumption, by fuel type, for the United States and Canada.

EARTH matters

Studies For Our Global Future

concept

Developing modern energy policies can help a country meet its energy needs while reducing its greenhouse gas emissions.

objectives

Students will be able to:

- Conduct research on a specific energy issue in the United States or Canada.
- Write a paper outlining both sides of an energy issue and stating their position based on evidence.

subjects

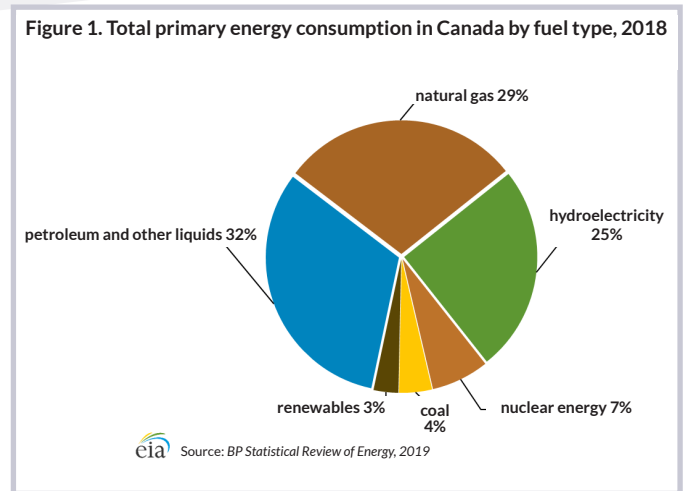
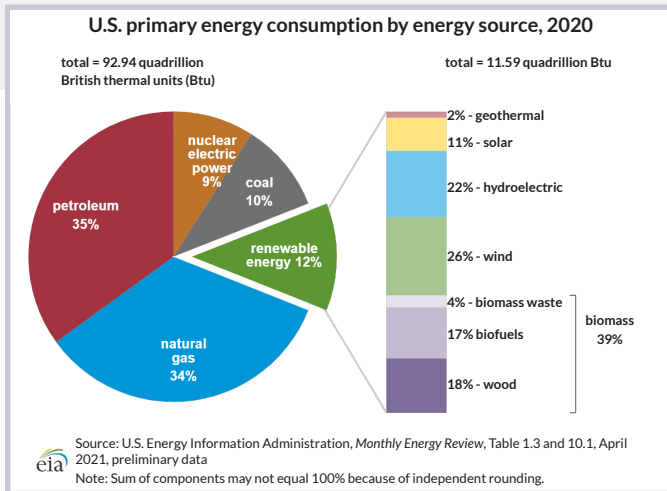
Environmental Science (General and AP), AP Human Geography, Geography, Economics, Government, English Language Arts

skills

Critical thinking, analyzing costs and benefits, researching, persuasive writing, defending a position using evidence

method

Students research an energy-related topic in the United States or Canada and consider possible alternatives, weighing costs and benefits in order to formulate a recommendation for the future.



2. Ask students to identify the two major sources of energy for the two countries. (Answer: Petroleum (oil) and natural gas.)

What are some problems with these major sources? (Answer: They contribute to CO₂ emissions and climate change, they are non-renewable resources, and they are creating other pollutants such as smog.)

- Distribute copies of the Assignment Sheet, one per student, and go over the assignment with the class.
- Discuss the different kinds of information sources the students should seek out during their research. Explain why information from some sources may carry a bias, and discuss how to identify that bias based on the source – industry groups, advocacy groups, or governmental groups. A list of Suggested Resources has been provided, however, encourage students to research beyond the organizations on this list.

Note: If students request information from organizations, advise them to contact the groups well in advance. Much of the information they seek will be available on organizations' websites.

discussion questions

1. Was it easy for you to identify which side of your chosen issue you agreed with? Why or why not?

Answers will vary. Because energy issues have many perspectives, students may find it hard to “pick a side” after considering all of the environmental, economic, and social implications.

2. What obstacles might you face if you attempted to implement your recommendation for the country?

Answers will vary. Depending on their recommendation, students may mention facing resistance from oil and energy companies, environmental groups, local governments, concerned citizens, manufacturing companies, First Nations, Inuit and Métis (FNIM) peoples, etc. Students may also consider the challenges of developing new infrastructure, changing public mindset, lack of funding, etc.

assessment

Assess student papers for depth and accuracy of research, clarity of thought, persuasive argumentation, and critical thinking skills.

follow-up activity

As a class, create a comprehensive proposal for the United States' or Canada's energy policy and send it to lawmakers. Working in groups based on their paper topics, students should decide on a position and provide evidence to support it as the best course of action. Their proposal may include several recommendations, but it is important to be as specific as possible, giving a full explanation as to why this particular plan would be best for the country.

Informing students of this follow-up activity at the beginning of the lesson may be useful in minimizing the need for further research during this stage. After each group has written its proposal, compile the group papers into a comprehensive energy policy proposal with each group's section representing a separate chapter. The class should work together to develop an introduction and conclusion to the proposal. The final proposal should then be sent to lawmakers for consideration.

Office of the President

The White House
1600 Pennsylvania Ave. NW, Washington, DC 20500
Email: president@whitehouse.gov

Representative

The U.S. House of Representatives, Washington, DC 20515
Who is my representative? www.house.gov

Senator

The U.S. Senate, Washington, DC 20510
Who is my senator? www.senate.gov

Office of the Prime Minister

Office of the Prime Minister
80 Wellington St., Ottawa, ON K1A 0A2
Submit an online form here: <https://pm.gc.ca/en/connect/contact>

Member of Parliament

House of Commons, Ottawa, ON K1A 0A6
Who is my member of Parliament? www.parl.ca

¹ Ritchie, H. and Roser, M. (2020, November 8). *Canada: Energy Country Profile*. Our World in Data. Retrieved from <https://ourworldindata.org/energy/country/canada>

² The United States Government. (2021, April 22). *FACT SHEET: President Biden Sets 2030 Greenhouse Gas Pollution Reduction Target Aimed at Creating Good-Paying Union Jobs and Securing U.S. Leadership on Clean Energy Technologies*. The White House. Retrieved from <https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies/>

³ Government of Canada. (2021, March 3). *Progress towards Canada's greenhouse gas emissions reduction target*. Canada.ca. Retrieved from <https://www.canada.ca/en/environment-climate-change/services/environmental-indicators/progress-towards-canada-greenhouse-gas-emissions-reduction-target.html>

ENERGIZING POLICIES | assignment sheet

The U.S. and Canada are two of the largest consumers of energy per capita, and their primary sources of energy are nonrenewable fossil fuels. Are these countries on the right track? Are there better energy options that would meet energy demands while limiting damage to the environment?

Your assignment is to research one of the issues below and write a research paper which covers the following:

1. Describe the current state of this issue in the United States or Canada.
2. Identify one debate related to your issue and clearly outline both sides of the argument. Be sure to examine the issue from an environmental, economic, and social perspective.
3. Based on your research, decide which side of the debate you think is the best choice for the country and formulate a recommendation for the future. Explain your thinking and defend your position with evidence.
4. Be sure to use multiple sources. A list of resources has been provided to help you get started, but you should look for additional sources as well (make sure they are reputable!). Please follow appropriate formats for citations.

Possible Energy Topics

Sources of Fuel for Vehicles: research could cover fuel consumption, reliance on gasoline, ethanol, electric cars, subsidies, taxes, laws mandating fuel efficiency, etc.

Oil Sources: research could include domestic versus imported oil, off-shore drilling, drilling locations (Native American reservations, First Peoples' land, the arctic, etc.)

Hydraulic Fracturing (fracking): research could investigate methods, locations, pros and cons, prevalence of fracking, etc.

Energy Justice: research could investigate the goal of achieving equity in the energy system, or rectifying policies that have historically harmed minority groups, etc.

Energy Sources: research could look into use of oil, coal, natural gas, nuclear energy, development of solar, wind, hydropower, impact on jobs and the economy, etc.

Transportation: research could cover highways, public transit, vehicle production and consumption, urban bike lanes, government funding, policies promoting one form of transit over another, etc.

Oil Exploration: research could include drilling, oil sands, oil transport, etc.

Energy Use: research could investigate energy use of households or businesses, individual consumption habits, energy use within a specific sector (agriculture, textile industry, etc.)

Energy Subsidies: research could explore who receives subsidies, the use of subsidies to promote one energy source over another, etc.

Carbon Pricing: research could investigate the effect of raising the price of Carbon (in Canada), or implementing a Carbon tax (in the U.S.)

Energy and Water Linkage: research could explore how to decrease the amount of energy needed for water resources and vis a versa, how water and energy might become less dependent on each other, how to conserve water and energy, etc.

Suggested Resources

U.S. Government Agency Websites:

U.S. Department of Energy - www.energy.gov

Energy Information Administration - www.eia.gov

Nation Clean Cities Contacts - <https://cleancities.energy.gov/contacts/>

National Alternative Fuels Hotline - <https://permanent.access.gpo.gov/lps1740/hotline.html>

Canadian Websites:

Canada Energy Regulator - www.cer-rec.gc.ca

Canadian Environmental Network - www.rcen.ca

Energy Council of Canada - www.energy.ca

First Nations Power Authority - <https://fnpa.ca>

Natural Resources Canada - www.nrcan.gc.ca

International Agency Websites:

International Energy Agency - www.iea.org

United Nations Framework Convention on Climate Change - <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

Green Climate Fund - www.greenclimate.fund

Industry Websites:

American Clean Power Association - <https://cleanpower.org>

American Gas Association - www.aga.org

American Petroleum Institute - www.api.org

Biomass Power Association - www.usabiomass.org

Electric Power Research Institute - www.epri.com

Interstate Natural Gas Association of America - www.ingaa.org

National Energy Education Development Project - www.need.org

American Hydrogen Association - <https://www.clean-air.org/>

Nuclear Energy Institute - www.nei.org

Renewable Fuels Association - www.ethanolrfa.org

Solar Energy Industries Association - www.seia.org

Public Interest Group Websites:

350.org - www.350.org

Alliance to Save Energy - www.ase.org

American Council for an Energy Efficient Economy - www.aceee.org

Energy Policy Tracker - www.energypolicytracker.org/country/canada

Public Citizen - www.citizen.org

Union of Concerned Scientists - www.ucsusa.org

World Resources Institute - www.wri.org