



RENEWABLE ENERGY: HAWAII AND THE WORLD

LEARNING GOALS

- To understand global trends relating to the adoption of renewable energy and reliance on fossil fuels.
- To learn about renewable energy projects, policies, and challenges in Hawaii.
- To practice drawing connections between local challenges and global contexts and best practices.

ASSIGNMENT

Estimated Time: ~23 min

- Read: "[Will Hawaii Lead The Renewables Revolution? - Honolulu Civil Beat](#)" (~12 min.)
- Watch: "[Government aid declines for renewable energy](#)" (5:32)
- Read: "[5 Global Trends Shaping Our Climate Future](#)" (~5 min)

TERMINOLOGY

- **Renewable Energy** - Refers to energy created from natural resources that cannot be depleted. Renewable energy sources include solar, hydroelectric, and wind energy.
- **Green Energy Economy** - Refers to Hawaii's 2015 pledge to become the first U.S. state to be completely reliable on renewable energy by the year 2045.
- **Wind Farms** - Refers to a group of wind turbines concentrated in the same area used to generate electricity. Notably, wind farms can be found on the North Shore on the island of Oahu.
- **Solar Farms** - A large-scale photovoltaic system using solar panels to generate power into an electricity grid.
- **Subsidies** - Refers to direct or indirect payments to individuals or businesses from the government. Subsidies may be given to offset the costs of a good or business venture the government wishes to promote or develop.

KAHOOT QUIZ

- Go to Kahoot.it or use the Kahoot mobile app and enter the pin 06948406
- Or, use [this link](#)



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DISCUSSION QUESTIONS

- How has Hawaii set an example for the possibilities of renewable energy throughout the country? What are some of the challenges regarding total reliance on renewable energy?
- How do you think the state of Hawaii can still advance its goal of being completely reliable on renewable energy by 2045, while still being culturally and environmentally respectful of communities and native species? What local actors (community members, researchers, engineers, etc.) might the state include in its planning and decision-making process when working toward its goals?
- Given the drop in cost to produce renewable energy, do you think governments (both in the U.S. and throughout the world) should support the continued growth of renewable energy with incentives, or allow these sources to independently compete with fossil fuels in the market economy? Why?
- What are some limitations for wind and solar energy? How might these limitations make renewable energy less competitive in a market economy that is traditionally reliant on fossil fuels for production?
- How does the U.S. compare to European countries with regard to its reliance on renewable energy? What policies have helped European countries decrease their reliance on fossil fuels?
- Aside from governments, what have businesses (like Google, mentioned in the video) done, and what can they do in the future to further support renewable energy initiatives?
 - Why might it be easier or more feasible for larger, national corporations to commit to using renewable energy sources than smaller, local businesses?
- What can we do as concerned citizens to promote renewable energy and reduce reliance on fossil fuels...
 - By government? (local and national)
 - By businesses?
 - By people in daily life?
- The New York Times notes that advances in technology, such as the growth of electric cars and offshore turbines, can help to decrease countries' reliance on fossil fuels. Do you think that continued innovations in the clean energy sector will be enough to effectively combat climate change? Why or why not?
- Do you think that individual/local efforts to reduce energy use and change consumption patterns are more or less important than corporate decisions to increase reliance on renewable energy sources and promote certain environmentally-friendly goods (such as electric cars over S.U.V.s)? How much responsibility do businesses, governments, and individuals have to adopt environmentally-friendly practices?

ADDITIONAL RESOURCES

- [“How Humans Could Halt Climate Change By 2050 : Goats and Soda”](#)
An article by NPR explaining how we could stop climate change by 2050, namely by increasing our reliance on clean energy and decreasing our reliance on fossil fuels in the transportation sector.
- [“China, hero or villain? | A New Climate”](#)
A video by Sky News explaining China’s contradictory devotion to and investment in renewable energy and its continual reliance on coal in its factories.



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ADDITIONAL RESOURCES (continued)

- [“Race to renewable: five developing countries ditching fossil fuels”](#)
An article by The Guardian outlining Costa Rica, Afghanistan, China, India, and Albania's policies to increase their reliance on renewable energy sources such as solar panels, wind turbines, and batteries.
- [“Morocco turns the Sahara desert into a solar energy oasis”](#)
A video by PBS NewsHour explaining Morocco's initiative to create a \$9-billion energy plant to maximize its natural resource of solar energy.
- [“Challenges and opportunities beyond 2021 – Renewable energy market update – Analysis”](#)
An article by the IEA on the projected development and resilience of renewable energy during the Covid-19 pandemic.
- [“Three countries are leading the renewable energy revolution”](#)
An article by WeForum on China, India, and Denmark's initiatives to increase their reliance on solar and wind energy.
- [“Can 100% renewable energy power the world?”](#)
A video by TED-Ed explaining the feasibility of and challenges to transitioning from fossil fuels to renewable energy.
- [“This is how people in Europe are helping lead the energy charge”](#)
An article by the World Economic Forum explaining how “energy citizens” and communities in Europe are taking greater leadership and ownership of renewable energy projects.

IDEAS FOR ACTION

Easier

- Research how other countries have encouraged consumers to change their patterns of consumption and purchase goods which use cleaner forms of energy or are more energy efficient (such as electric cars or LED light bulbs). What policies did these governments implement, and how did they work with producers, engineers, economists, and other nongovernmental actors to promote change? Create a presentation and report on your findings to your class.
- Governments are often considered the main driving force for decreasing countries' reliance on fossil fuels and investing in the technology needed for renewable energy. However, consumers and everyday citizens can also play a role in the commitment to clean energy. Research the changes your household can make to increase its reliance on renewable energy or become more energy efficient. Make a pamphlet or flier with your proposed changes.
 - For inspiration: [Energy Saver Guide: Tips on Saving Money and Energy in Your Home \(English\)](#)

Medium

- The Hawaii State Energy Office has compiled a [database](#) with existing and ongoing renewable energy projects. Choose a project on any island and write a news article on the logistics of the project, as well as its costs and benefits. Also include community opinions, concerns, and support in your article, if possible. Share your article with your class.



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IDEAS FOR ACTION (continued)

Hard

- The State of Hawaii offers the free Hawaii Green Business Program, which recognizes businesses that have adopted environmentally-friendly practices. Working in groups, find a local business that is currently not certified under the program, and write a mock proposal detailing reasonable changes the business could make to meet the program's standards. In particular, try and find ways in which the businesses can increase their reliance on clean energy. For background research, you may want to go to the business' website, or even contact and interview the owners, if they are willing!
 - General information on the program: [Green Business Recognition](#)
 - Checklists for different types of businesses: [Hawaii Green Business Program | Apply](#)

HAWAII DOE SUBJECT STANDARDS LINKS (High School)

Hawaii Core Standards for Social Studies (HCSSS)

- Content Standard [SS.WH.8.12.1](#)
- Content Standard [SS.US.12.16.2](#)
- Content Standard [SS.US.12.8.1](#)
- Content Standard [SS.MHH.4.9.1](#)
- Action Projects link to [SS.PID.5.7.1](#)

This lesson was created by Megan Tagami.