

BioenergizeME Infographic Challenge

2016 Annual Update

“Exploring the Future American Energy Landscape”



The 2016 Annual Update contains the deadlines and prompts for the 2016 BioenergizeME Infographic Challenge. In this challenge, student teams research, interpret, apply, and then design an infographic that responds to one of four bioenergy topics. Their infographics are submitted to the U.S. Department of Energy’s Bioenergy Technologies Office (BETO) for a chance to compete in a national social media campaign. Selected infographics are promoted on the challenge website. The winners will present their infographic at Bioenergy 2016, BETO’s ninth annual conference, in Washington, D.C. BETO will provide travel, lodging, meals, and conference registration fees for the team and their chaperones.

Download the [BioenergizeME Toolkit](#) for more information about the challenge structure and resources.

CHALLENGE DEADLINES

September 30, 2015

5:00 p.m. Central Time

Submission and Registration period opens

February 4, 2015

5:00 p.m. Central Time

Registration deadline

March 4, 2016

5:00 p.m. Central Time

Submission period closes

April 5, 2016

5:00 p.m. Central Time

Selected infographics are posted online

April 11, 2016

5:00 p.m. Central Time

Social media campaign time period starts

April 22, 2016

5:00 p.m. Central Time

Social media campaign time period ends

RESEARCH TOPICS AND PROMPTS

TOPIC AREA 1 - BIOENERGY HISTORY

1. How has the use of biomass in energy production changed over time? How have technological breakthroughs improved bioenergy efficiency? What technologies are expected to have an impact on bioenergy efficiency in the future?

*Possible subject headings/key words:
history of biomass; history of
bioenergy; low-carbon future*

2. Research and create a timeline of U.S. bioenergy policy/lawmaking. Include details on the purpose and goals of a bioenergy-related policy or law, such as the Energy Independence and Security Act of 2007, the National Bioeconomy Blueprint, or the renewable energy provisions of the 2014 U.S. Farm Bill. Describe how this policy may affect you in the future.

*Possible subject headings/key words:
U.S. Energy Independence and
Security Act of 2007; Renewable Fuel
Standard; National Bioeconomy
Blueprint; greenhouse gas reduction*

*Possible subject headings/key words:
photosynthesis; energy from biomass;
cellulosic ethanol; pyrolysis oil,
gasification; algae biofuel*

TOPIC AREA 2 - WORKFORCE AND EDUCATION

1. What are some fields of study that could lead to a career in bioenergy? Be sure to consider both technical and non-technical backgrounds.

*Possible subject headings/key words:
bioenergy/biofuels careers; STEM
education and bioenergy; non-
traditional bioenergy careers;
communications and bioenergy;
policy analyst and bioenergy; other
disciplines and bioenergy*

2. Research a bioenergy-related higher education program or job training institution in your state. Highlight how the skills or knowledge gained from this program/institution can apply to a career in the bioenergy industry.

*Possible subject headings/key words:
bioenergy research institutes; training
a bioenergy workforce; bioenergy and
land-grant universities*

TOPIC AREA 3 - SCIENCE AND TECHNOLOGY

1. How do plants capture and store energy from the sun? Describe how this energy can be converted into sustainable transportation fuels. Highlight the strengths and challenges being addressed to make the conversion process feasible for widespread public adoption.

*Possible subject headings/key words:
cellulosic energy crops such as
switchgrass and miscanthus;
plantation-grown woody energy crops
such as southern pine, poplar, or
willow; and aquatic species such as
algae and cyanobacteria*

2. Explore a second-generation (advanced) technology for harvesting sustainable transportation fuels from biomass. Include a block or flow diagram of the process and a comparison to a fossil-based resource such as petroleum or coal. Include energy density in the comparison.

*Possible subject headings/key words:
advanced biofuel conversion; second-
generation conversion*

3. What are the common types of biomass being explored in the United States to produce biofuels? What characteristics do biomass producers and biorefineries look for when selecting the types of biomass to use as feedstocks for biofuels?

*Possible subject headings/key words:
bioenergy feedstock; turning waste to
energy; future biomass feedstocks*

4. Research one type of energy crop and describe its availability, along with the benefits and challenges that are being addressed, or that need to be addressed, to encourage its broad use as a bioenergy feedstock. How will these considerations change in the future?

TOPIC AREA 4 - ENVIRONMENTAL IMPACTS

1. Compare and contrast the environmental impacts of bioenergy and fossil energy, such as greenhouse gas emissions, water usage, energy balance, soil productivity, biodiversity, etc.

*Possible subject headings/key words:
life-cycle analysis, bioenergy systems
cradle-to-grave*

2. Explore the role of our current transportation system as it relates to energy consumption, environmental conditions, and the national/global economy. Is it sustainable?

*Possible subject headings/key words:
oil consumption; transportation
energy; climate effects transportation;
sustainability transportation*

3. How would you define sustainable transportation? How can sustainable bioenergy technologies help meet sustainable transportation goals?

*Possible subject headings/key words:
sustainable transportation biofuels;
environmental benefits bioenergy;
environmental bioenergy benefits
forestry; environmental benefits
bioenergy agriculture; landscape
design bioenergy ecosystem services*

4. How are researchers and scientists addressing concerns about the potential environmental impacts of bioenergy in the future?

*Possible subject headings/key words:
getting biofuels right; bioenergy
research centers, bioenergy
sustainability*

ENERGY

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