



Energy

MODULE SPONSOR:



Part I: Educate

Let's begin with some background information to provide foundational energy knowledge to your team.

Directions:

PART I: Research and answer questions 1-5 within your team. Answer in **200 words or less** per question.

PART II: Contact your campus facilities department and ask a representative questions 6-10. You may share the question list with them ahead of time so they can prepare. Answer in **200 words or less** per question.

After you have answered the primary question, use extra writing space to explore the *Student Considerations* question.

PART I:

1. With the passing of landmark legislation in California State Bills 100 and 350 (SB 100 and SB 350), California is paving the way to a clean energy Grid. Research SB100 and SB 350 and provide a brief summary on each piece of legislation.
2. Energy comes in many forms, renewable and nonrenewable. It is sourced by various players.

Renewable Energy: In California, there are five energy sources that qualify as renewable energy under the California Renewable Energy Portfolio Standard

- Wind
- Solar
- Geothermal
- Eligible Hydroelectric
- Biomass/Biowaste

Carbon-Free: These forms of energy do not emit carbon, but may have an environmental footprint. These include Nuclear, and Large Hydroelectric energy.

Nonrenewable Sources: Forms of energy that will run out and do not replenish. These include fossil fuels like natural gas, coal, and petroleum.

Sourcing & Delivery: Completed by different kinds of organizations and agencies known as load serving entities (LSE):

- Investor-owned utilities

- Community Choice Aggregators
- Energy Service Providers (Direct Access energy providers)
- Publicly-owned or municipal-owned utilities

Within your group, research a municipal utility and a Community Choice Aggregator. Compare and contrast the two. Next, research the cities in Orange County that are currently served by a municipal utility. Provide at least one example. Finally, research the cities in Orange County that are currently served by a Community Choice Aggregator. Provide at least one example.

3. LSEs report the sources of the energy they source to the California Energy Commission (CEC). Look up “Power Content Label”. Can you find the power content label for your school’s energy provider? What do you notice about their Energy Resources breakdown?

4. Four primary regulatory and legislative bodies shape California’s utilities. They are listed below with a brief description of their role:

California Energy Commission (CEC): As the state's primary energy policy and planning agency, the Energy Commission plays a critical role in creating the energy system of the future - one that is clean, is modern, and ensures the fourth largest economy in the world continues to thrive.

California Independent System Operator (CAISO): The California ISO manages the flow of electricity across high-voltage, long-distance power lines, operates a competitive wholesale energy market, and oversees transmission planning. If you'd like to track energy usage in California, you can download the ISO Today app on your phone!

California Public Utilities Commission (CPUC): The CPUC regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies, in addition to authorizing video franchises.

California Air Resources Board (CARB): CARB is charged with protecting the public from the harmful effects of air pollution and developing programs and actions to fight climate change.

Follow each link with your team members and write at least one sentence about what you see on each webpage.

Student Considerations: Why are renewable energy resources important? What are some of the drawbacks of nonrenewable energy sources? Why is it important to focus on decarbonizing the energy sector?

5. Look up “what is a Community Choice Aggregator” and summarize what you discover in two sentences. You can start by visiting the www.cal-cca.org website. What sources does a Community Choice Aggregator (CCA) prioritize when they negotiate for and purchase energy? In Orange County, who is the CCA? What piece of legislation first authorized the creation of CCAs? When was it passed? Write one sentence about the legislation.

Student Considerations: At home, ask your parent or guardian if they know what a Community Choice Aggregator is. If they are unfamiliar, share your findings! What did they tell you about CCAs?

PART II:

6. Who provides electricity and gas to our campus? Ask to view your campus bill. Take a look at usage depending on the time of day. When is it highest?

Student Considerations: At home, ask your parents to view their electricity and gas bills. Look at your home’s usage. What behaviors can you change to reduce your usage during peak demand?

7. What steps are taken to ensure energy is not being wasted? Does the campus support any energy savings measures staff and students can take (turning off lights/computers at the end of the day, providing on/off power stripe for multiple cords, etc?).

8. How much of campus energy is dedicated to lighting and HVAC (heating, ventilation, and air conditioning) alone? Estimate the square footage of conditioned spaces. Are there any measures to reduce HVAC use or utilize more energy efficient lighting, LED, utilize automatic sensors, or smart thermometers?

9. Does your campus have any on-site energy solutions? Are there plans to install solar panels or battery storage? Who would be the decision makers regarding this topic?

Student Considerations: Think about places on your campus that you could install solar energy or storage? What is the advantage of having both solar energy and storage?

10. Is your school within a Community Choice Aggregation (CCA) member city? If so, does your school receive its energy from the CCA (check the bottom of the school energy bill)? If so, what is the breakdown of the energy resources? If not, is there any evidence your city has ever considered participating?

Student Considerations: Is your home in an MU or CCA city? If so, does your household receive energy from the MU or CCA?

Part II: Assess

Welcome to the audit portion of the Energy Module! This section will challenge you to perform a hands-on assessment of your campus infrastructure.

Directions: Complete the below Energy Audit, provided by The Energy Coalition (TEC). Examine two different classrooms, paying attention to the HVAC system, lighting, and electronics use.

Classroom #1

List the date of assessment and describe what activities are happening in the room.

Space Conditioning		
Score:	5	Air conditioning or heating is OFF, and doors and windows are OPEN
	3	Air conditioning or heating is ON, and doors and windows are CLOSED while the room is occupied
	0	Air conditioning or heating is ON, doors and windows are CLOSED, and the room is unoccupied. Or, air conditioning or heating is ON, and doors and windows are OPEN.

Lighting		
Score:	5	All lights are OFF, and natural light from windows or skylights is used, if available.
	3	Half of the lights are on, and using natural light from windows or skylights, if available
	0	All of the lights are on, and the room is unoccupied.

Electronic Used Daily		
Score:	5	All daily electronics are turned off when not in use and not just in standby mode.
	3	Most electronics are turned off when not in use or standby mode.
	0	Most electronics are turned on, even when not in use.

Electronics Not Used Daily		
Score:	5	Most electronics are turned on, even when not in use.
	3	Three or fewer items that are not used daily are plugged in or are in standby mode.
	0	Four or more items that are not used daily are plugged in or are in standby mode.

Observations #1

Please summarize your Space Conditioning, Lighting, Electronics Used Daily, and Electronics Not Used Daily observations in **200 words or less**. Which area(s) are in need of the most improvement? What behavioral changes can you encourage your peers and teachers to consider?

***Repeat for Classroom #2**

Part III: Survey

This last section of the Energy Module asks you to survey your peers with a set of questions related to so-called “energy vampires”. Teams should survey a minimum of 15 students and 5 campus staff although a greater sample size is encouraged. These questions are meant to challenge your peers' perceptions.

You can complete this portion by creating and distributing a survey submission link or by filming a "questions on campus" video, similar to what might be seen on TikTok, Reels, or YouTube. Feel free to be creative!

See the question list and submission form below. If you are quizzing your peers in a live format, feel free to share answers so everyone can learn!

QUESTION LIST:

1. Have you ever heard the term “energy vampire” as it relates to infrastructure?
2. Estimate how much power in your home is used up by this idle load energy?
 - A: Experts estimate that 20-30% of household energy use is taken up by the idle load. You are paying for completely unnecessary energy!
3. Do you utilize power strips in your home? Have you ever considered turning them off when you leave your house? Why or why not?
4. Think about the types of appliances you leave plugged in without a second thought. List three.
 - A: Top “energy vampires” include chargers, televisions, printers, computers in “sleep” mode, toasters, coffee makers, smart speakers, etc.
5. Have you ever heard of Energy Star? What do you think it is?
 - A: A joint program of the U.S. Environmental Protection Agency (EPA) and Department of Energy (DoE) that provides consumers with a label identifying products, homes, and buildings that are more energy efficient.
6. Why is it important to keep energy consumption low?
 - A: Energy generation processes can have adverse environmental effects and overusing energy is expensive.
7. Does your parent or guardian lecture you for forgetting to turn your lights off? Will you challenge your family members at home and personal friends to unplug “energy vampires”?