

Should the BLM Approve One or More Solar Facilities?

This activity addresses the following essential question:

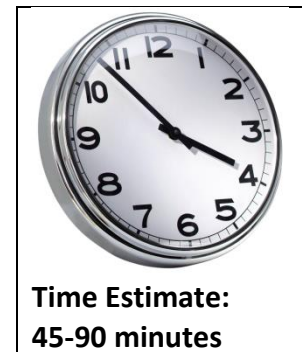
- How do public land managers balance tradeoffs as they make decisions about solar energy projects?

Overview

This activity encourages students to grapple with the decisions that public land managers face as they balance the benefits of renewable energy with preserving cultural resources, wildlife habitat, and scenic quality. The choice in the activity is whether to approve zero, one, or two solar electricity-generating facilities on public lands. Small groups of students represent different interest groups and explain to BLM decisionmakers how the options may affect heritage areas, scenic views, tourism, desert tortoise habitat, and bird safety.

Learning Objectives

Students will be able to (1) identify interest groups involved in disputes over permitting new solar facilities; (2) synthesize and defend positions based on the views of an interest group; and (3) explain how the BLM balances diverse perspectives about land use decisions concerning new solar facilities.



Preparation

1. Read the Background Information.
2. Make enough copies of Handout 1 for each student.
3. Make copies of Handout 2; there is a unique version of the handout for each interest group.

Background Information

When deciding a land use question, such as whether and where to issue permits for solar electricity generating facilities, public land managers must balance different values and uses of the public lands,

such as recreation, conservation, federal and local goals, and economic growth. It is crucial for public land managers to listen to a variety of opinions representing a wide range of interests.

People who depend on the hospitality industry want high levels of tourism activity and often support decisions that promote recreation. Outdoor enthusiasts who enjoy hiking, rock climbing, fishing, and mountain biking in scenic areas also usually want to see decisions that accommodate recreation. Tribal leaders, historic preservationists, and conservationists often speak in favor of minimizing human impact on the land, even if that may mean limiting renewable energy and recreation. Local business leaders and groups concerned about climate change may argue for constructing as many solar facilities as possible right away. Land use managers may be called on to decide the best way to promote renewable energy, preserve biodiversity, maintain balanced habitats, attract visitors to the public lands, promote economic activity, and ensure that future generations can enjoy cultural resources and recreational opportunities.

It is essential that students understand there is no right answer for the dilemma in this activity. Even the mitigation measures in the scenario can only reduce, but not eliminate, the impact of facilities. Students should appreciate the tradeoffs that land managers face when weighing the pros and cons of choices that may partially satisfy most interest groups but are unlikely to fully satisfy everyone.

Procedure

1. **Introduction:** Explain that public land managers make important decisions that can have long-lasting impacts, such as whether to approve solar facilities, and they hold public meetings to hear from everyone who could be affected before making such decisions. This activity will model the BLM's public meeting process and represent some of the opinions heard when the BLM makes decisions about solar energy facilities.
2. **Form interest groups:** Divide students into seven roughly equal-size groups, in which they will prepare and deliver a presentation to BLM decisionmakers. Distribute Handout 1; ask students to read the scenario; and explain that their job is to develop arguments for the choice that best suits the interests of their group. Distribute the appropriate role sheet (from Handout 2) to each group. Ask each group to select a spokesperson. Provide about 20 minutes for the groups to develop their arguments. Provide any clarification for questions they may have and emphasize that there is no overall right answer.
3. **Form a BLM group:** Select one student from each interest group (someone other than the spokesperson) to form a new group: the BLM decisionmakers. Explain to the BLM decisionmaker group that their roles will change (they are no longer part of the "save the birds" or "preserve the desert tortoise habitat," for example). From this point forward, as the BLM group, they will listen to each interest group's presentation, take notes on each presentation, and ask each spokesperson any questions they may have.

4. **Interest group presentations:** Invite the spokesperson from each group to present his or her case to the BLM representatives. At the end of each presentation, have the BLM representatives ask the spokesperson any questions they may have.
5. **Discussion:** Once all groups have presented their positions, briefly lead students in a general discussion. Make sure students see that all groups have valid concerns and that tradeoffs will be necessary regardless of the final choice.
6. **Rearrange the groups:** While the BLM group is deciding which, if any, facilities to approve, rearrange the rest of the class into new groups made up of one person from each interest group. Ask students to argue for their own personal viewpoints rather than for the position of the interest groups they represented in Step 2. Have these groups decide what they think the BLM ought to do, and select a spokesperson.
7. **Reports from groups:** Once all groups have made a decision, ask the spokesperson from each to briefly share the group's decision. Call on the BLM decisionmaking group last.
8. **Report from the BLM:** The BLM group's spokesperson will then explain the BLM's decision to the class, including the reasoning behind the decision and any mitigation measures that will be required.
9. **Discussion:** Ask students about the process: How hard was it to decide and to advocate? Did they personally agree with the position of their interest group? What are the tradeoffs for solar facilities, and are the benefits worth it?

Progress Check

Ask students to advise the BLM on how best to engage the public on issues that are contested by some groups.

Pressed for Time?

- If needed, skip steps 6 and 7.

Handout 1: Should There Be Solar Facilities on Public Lands?

Instructions

- Read the scenario, and compare the two possible solar facility sites.
- Consider the proposed solar facilities from the point of view of the interest group you represent. Read the group's description and interests, and discuss the factors that are of greatest interest to your group.
- Identify the mitigation measures (steps that may reduce the negative impacts), if any, that you want to see carried out in the event that the "BLM group" approves either or both projects.
- Select a spokesperson for the group who will present to the BLM group that is making the final decision. Present the following information:
 1. Your group's choice.
 2. The main reasons for that choice.
 3. Possible responses to arguments of those who oppose your group's position.
 4. What, if anything, you might be willing to give up or change about your position.
 5. How difficult it was to decide.
 6. The key tradeoffs your group discussed.

Scenario

The Bureau of Land Management (BLM) is the federal agency that manages the lands where two solar facilities are being proposed. The BLM is considering whether to approve neither, one, or both of the solar facilities. The sites are in the same state and are ideally suited to year-round solar electricity generation because they feature:

- A sunny desert climate (more than 325 days of sun per year).
- Thousands of acres of flat land (sloping at only 2-3%).

The state has goals for renewable and solar energy. However, the two sites are different when it comes to:

- Desert tortoise habitat.
- The amount of electricity they would generate.
- The number of birds placed at risk.
- Easy access to transmission lines.
- The presence of Native American heritage sites.

The BLM land managers have four options:

- Do not approve either solar site.
- Approve only Site 1, the photovoltaic facility.
- Approve only Site 2, the concentrating solar power facility.
- Approve both sites.

The Sites

Site 1 Characteristics

- A 300-megawatt photovoltaic facility that can power 108,000 homes at a cost of \$125/MWh.
- About 3 miles from an interstate highway.
- Not visible from the highway but visible from nearby hiking trails.
- Nearly 2,300 acres of land that has never before been developed, so the impact on the environment is likely to be greater than at Site 2.
- Estimated number of desert tortoises that will have to be relocated: 125.
- Expected to have almost no impact on birds.
- About 8 miles from the city where homes and businesses will use the electricity.
- Will connect to an existing substation and use existing transmission lines.
- No known cultural or historical resources on the site.

Site 2 Characteristics

- A 475-megawatt concentrating solar power facility that can power 171,000 homes at a cost of \$220/MWh.
- Less than 1 mile from an interstate highway.
- Visible from the highway and from nearby hiking trails.
- Nearly 4,600 acres of land that has been previously used for agriculture, so the impact on the environment is likely to be less than at Site 1.
- No desert tortoises expected to have to be relocated.
- Likely to be responsible for killing at least 2,000 birds each year, a number that should drop over time as managers try new mitigation methods to keep birds away.
- About 45 miles from the city where homes and businesses will use the electricity, so the facility will connect to new transmission lines that must be built for this project.
- In part considered culturally important by the local tribal nation.

Possible Mitigation Measures

- No artifacts have been found in either project area, but the solar companies will order all work to stop temporarily if any are uncovered, which will increase the cost.
- If more desert tortoises than expected are found, the companies will pay extra to relocate the tortoises to a suitable new habitat, which will increase the cost.
- The operator of the concentrating solar power facility will play recordings of the birds' predators, which some studies say helps keep birds from flying close to the concentrated sunlight.

Handout 2: Different Interest Groups' Perspectives

Preserve the Desert Tortoise

You strongly oppose Site 1 and are not sure whether to support Site 2 given that some tortoises might be found there once construction crews start digging and building. Come up with all the arguments and reasons to oppose Site 1, and decide whether to support Site 2. Once you have decided about Site 2, come up with arguments and reasons, and prepare your presentation to the BLM managers. Discuss how the projects might affect tortoise conservation goals, such as preserving habitat, working to slow or stop climate change, and not disturbing land that has never been developed.

Other things to keep in mind: The state has set a requirement that by the year 2020, 33% of the energy used in the state needs to come from renewable resources. The solar facilities would be a step toward reaching this goal, and reducing the effects of climate change should be good for tortoises. Constructing the facilities would bring in new revenue for the state government, some of which may be used for wildlife protection. The solar facilities should create new jobs in nearby communities. The people hired for these jobs would then buy items at stores in those communities, and many of the items purchased would have a state sales tax.

What other factors might be of interest to your group regarding the proposed solar facilities? Be prepared to respond to arguments opposing your group's position or reasoning. What might you be willing to give up or change about your position? What mitigation measures (steps that may reduce the negative impacts) do you want to see implemented in the event that the projects are approved?

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Handout 2: Different Interest Groups' Perspectives

Coalition for Carbon-Free Energy

You support both Site 1 and Site 2. Come up with arguments and reasons to show your support for both sites, and prepare your presentation to the BLM managers. Discuss how the projects might support clean energy goals, such as reducing carbon emissions from electricity generation; promoting "green" jobs; and promoting the health of residents, habitats, and ecosystems. The state has set a requirement that by the year 2020, 33% of the energy used in the state needs to come from renewable resources. The solar facilities would be a step toward reaching this goal.

The number of birds that would die each year from flying into solar facilities would be much smaller than the number of birds that die in the country from flying into buildings or from being hunted by cats. Generating carbon-free electricity would help the desert tortoise by reducing the impact of climate change, which affects tortoise habitat. Constructing the facilities would bring in new revenue for the state government. The solar facilities would create new jobs in nearby communities, and these workers would then buy items at stores in the area.

What other factors might be of interest to your group regarding the proposed solar facilities? Be prepared to respond to arguments opposing your group's position or reasoning. What might you be willing to give up or change about your position? What mitigation measures (steps that may reduce the negative impacts) do you want to see implemented in the event that the projects are approved?

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Handout 2: Different Interest Groups' Perspectives

Save the Birds

You oppose Site 2 and are not sure whether to support Site 1. Come up with all the arguments and reasons to oppose Site 2, and decide whether to support Site 1. Once you have decided about Site 1, come up with arguments and reasons, and prepare your presentation to the BLM managers. Discuss how the projects might affect bird conservation goals, such as preserving habitat and working to slow or stop climate change.

Other things to keep in mind: The state has set a requirement that by the year 2020, 33% of the energy used in the state needs to come from renewable resources. The solar facilities would be a step toward reaching this goal, and reducing the effects of climate change should be good for birds. Constructing the facilities would bring in new revenue for the state government, some of which might be used for wildlife protection. The solar facilities would create new jobs in nearby communities. The people hired for these jobs would then buy items at stores in those communities, and many of the items purchased would have a state sales tax.

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Handout 2: Different Interest Groups' Perspectives

Desert Beauty and Recreation Association

You strongly oppose both Site 1 and Site 2. Come up with arguments and reasons to show your opposition to both sites, and prepare your presentation to the BLM managers. Discuss how the projects might threaten the interests of people you represent: hikers, all-terrain vehicle riders, land sailers, hunters, climbers, and campers who use the recreation resources of the desert. How might the roads, facilities, transmission lines, construction traffic, and noise affect the area's scenic views and other recreational values? While constructing the facilities would bring in new revenue for the state government, the area would lose some money from a huge decline in tourism, causing a drop in state sales tax revenue.

What other factors might be of interest to your group regarding the proposed solar facilities? Be prepared to respond to arguments opposing your group's position or reasoning. What might you be willing to give up or change about your position? What mitigation measures (steps that may reduce the negative impacts) do you want to see implemented in the event that the projects are approved?

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Handout 2: Different Interest Groups' Perspectives

State Governor's Office

You support both Site 1 and Site 2. Come up with arguments and reasons to show your support for both sites, and prepare your presentation to the BLM managers. Discuss how the projects might support state goals such as: promoting jobs, tourism, and businesses; funding public services; promoting the health of citizens; and promoting the health of the environment, habitats, and ecosystems. The state has set a requirement that by the year 2020, 33% of the energy used in the state needs to come from renewable resources. The solar facilities would be a step toward reaching this goal.

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Handout 2: Different Interest Groups' Perspectives

Construction Workers Union

You support both Site 1 and Site 2. Come up with arguments and reasons to show your support for both sites, and prepare your presentation to the BLM managers. Discuss how the projects might support union goals such as: promoting jobs, tourism, and businesses; funding public services; promoting the health of citizens; and promoting the health of the environment, habitats, and ecosystems. The state has set a requirement that by the year 2020, 33% of the energy used in the state needs to come from renewable resources. The solar facilities would be a step toward reaching this goal.

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Handout 2: Different Interest Groups' Perspectives

Tribal Council Spokesperson

You oppose Site 2 and are not sure whether to support Site 1. Come up with all the arguments and reasons to oppose Site 2, and decide whether to support Site 1. Once you have decided about Site 1, come up with arguments and reasons, and prepare your presentation to the BLM managers. Discuss how the projects might affect cultural preservation goals, such as preventing people from entering sacred areas.

Other things to keep in mind: The state has set a requirement that by the year 2020, 33% of the energy used in the state needs to come from renewable resources. The solar facilities would be a step toward reaching this goal, and reducing the effects of climate change should be good for birds and desert tortoises. Constructing the facilities would bring in new revenue for the state government, some of which might be used for wildlife protection and cultural preservation. The solar facilities would create new jobs in nearby communities. The people hired for these jobs would then buy items at stores in those communities, and many of the items purchased would have a state sales tax.

What other factors might be of interest to your group regarding the proposed solar facilities? Be prepared to respond to arguments opposing your group's position or reasoning. What might you be willing to give up or change about your position? What mitigation measures (steps that may reduce the negative impacts) do you want to see implemented in the event that the projects are approved?