



ACTIVITY 9

Real-World Energy Decisions

READING

9: REAL-WORLD ENERGY DECISIONS

GUIDING QUESTION

What can support successful group decision-making?

INTRODUCTION

Making a plan that satisfies all members of a community, whether it is a renewable energy plan or something else, can be difficult. Making a group decision for the future may involve a compromise. A **compromise** is when each side gives up something they want in order to reach an agreement. A compromise is an important tool to reconcile the values held by different stakeholders. In this activity, you will read about groups making real-life decisions about renewable projects that depended on working out tension between stakeholders.

CONCEPTUAL
TOOLS



PROCEDURE

- 1 Read about two communities on the following pages. Use the Read, Think, and Take Note strategy as you read.

READ, THINK, AND TAKE NOTE GUIDELINES

Stop at least three times during each section of the reading to mark on a sticky note your thoughts or questions about the reading.

As you read, use a sticky note from time to time to:

- explain a thought or reaction to something you read.
- note something in the reading that is confusing or unfamiliar.
- list a word from the reading that you do not know.
- describe a connection to something you've learned or read previously.
- make a statement about the reading.
- pose a question about the reading.
- draw a diagram or picture of an idea or connection.

After writing a thought or question on a sticky note, place it next to the word, phrase, sentence, diagram, drawing, or paragraph in the reading that prompted your note.

After reading, discuss with your partner the thoughts and questions you had while reading.

- 2 After you complete the reading, work with a partner to complete Student Sheet 9.1, "Group Decisions Based on Stakeholder Values," for each community.
- 3 Compare and discuss your findings with the rest of your group. Be ready to share your thoughts with the class about what can make group decision-making more successful.

MATERIALS LIST

FOR EACH STUDENT

- 2 STUDENT SHEET 9.1
"Group Decisions Based
on Stakeholder Values"

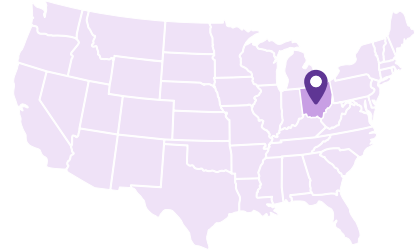
READING

COMMUNITY 1 THE TOWN OF WILLIAMSPORT

In late 2022, a state committee rejected a plan to build a new solar farm in the small town of Williamsport, Ohio. The decision was difficult for Mark Shein. He was a landowner who had agreed to have part of the solar farm on his land. “I’m disappointed, and there are a couple people here in the community I don’t think I’ll speak to for the rest of my life,” he said, speaking about neighbors who worked to stop the project.

The plan for the project had been presented to the community of Williamsport the year before. A solar company called EDF Renewables wanted to build the Chipmunk Solar Farm in different parts of the town. The farm was going to generate 400 MW of renewable electricity and send power to over 75,000 homes in other parts of the state. After 30 years, the company would remove the panels, and the land could be used for farming again. Four other similar solar farms had recently been approved or were under construction in nearby areas.

Mark Shein supported the project because he wanted to financially support his family. He signed an agreement with EDF Renewables to rent out his land for solar panels. The payments he would get from the solar farm were five times what he could make from renting out



Farmer Mark Schein stands in front of his field in Pickaway County, Ohio.

the land for farming. About a dozen landowners had also agreed to lease their land to the solar company. This included Mark Shein's friend Doug Steck who wanted a more stable source of income and to reduce his dependence on farming.

Other stakeholders also supported the project. The mayor and some citizens approved of the plan because it would generate money for the town. Taxes paid by the solar company and utilities would make \$100 million that could be used to fund schools, build a new firehouse, and upgrade the town's sewer system. The electricians' union supported the plan because it would create 600 jobs during construction and 8 full-time jobs afterward. Other groups endorsed the project because it would help their state meet their goals of reducing greenhouse gases. Electricity from the Chipmunk Solar Farm could provide energy to the large city of Columbus, Ohio, where residents had voted to get 100% of their electricity from wind or solar. The new project would also help utility companies follow a state law that required them to generate at least 8.5% of their energy from renewables.

But this was all before Mark Shein's neighbors heard more about the project.

One of those neighbors was Chris Weaver, a local carpenter. "I'm here to ask you to resign," he said to the mayor at a Williamsport town meeting. He was upset that the mayor was supporting the Chipmunk Solar Farm project. Weaver worried that a new electrical facility built next to his house would give off noise. Other local families were concerned with how the project would change the look and use of the countryside. They wanted to keep the land for farming and wildlife.



Signs opposing the solar project could be found throughout Williamsport, Ohio.

Doug Steck could understand why some of his neighbors might feel this way. They valued keeping their backyard views free of solar panels, and the project would cover the size of almost 2,700 football fields. However, Steck worried about other claims of fact that were being used as arguments against the plan. Some stated that the project would harm animals, people, or the land. For example, one claim of fact said that some of the elements in the solar panels, such as cadmium, would leak into the ground and water. Others said that the solar panels would lower real-estate values of their homes.

“I’m a firm believer in property owners being able to do what they want with their property. I really am,” Chris Weaver said, “until it defaces my property [and] quite possibly destroys my health.”

Doug Steck looked for credible sources and found out that some of these claims of fact were not accurate. Researchers had shown that solar panels don’t contain enough cadmium to cause health and environmental problems. Other studies found that real-estate values are unlikely to decrease from being located near solar panels. Steck hoped to bring this information to the next town meeting. He also wanted to share how the project would help him and other farmers who wanted to rent their land to the project. However, there were so many people already against the project that Mark Shein and Doug Steck felt others were not open to hearing their views.

The solar company offered compromises to try to win support for the plan. They agreed to put up fences and to plant trees in “visually sensitive locations” around the project. They also offered to work with farmers to avoid breaking underground water pipes. To address the safety of the panels, the company planned to carefully remove the solar panels after the lease period was over. But it was too little, too late. Some stakeholders did not trust the company. They were upset that their concerns were not considered earlier in the process, and they formed an opposition group. Posts against the project grew on social media and anti-solar signs were printed and put up around town. Some residents started accusing Mark Shein of being greedy or stupid for supporting the solar project.

In the end, the compromises were not enough. Some groups thought the other side was unwilling to consider their values. The project did not have enough support from a variety of stakeholders to be approved. Shein realized that it was difficult to stay friends with other families that were against the project. Without a decision-making process that was open to all the stakeholders from the beginning, the community felt divided long after the final decision was made.

COMMUNITY 2 THE NATION OF URUGUAY

In 2007, Uruguay was facing a major energy problem. As a small country in South America, Uruguay did not have its own supply of oil, coal, or natural gas. The country relied on a large hydroelectric dam for over 80% of its electricity. However, droughts over the past 10 years had reduced the amount of electricity the dam could produce. Without enough electricity, Uruguay had to limit the amount of power that people could use, and prices for energy increased.

“It was difficult for us to cope,” resident Ramón Méndez Galain remembers. “It was difficult to get electricity. For some time, we were beginning to have blackouts.”

To deal with the problem, Uruguay started to buy fossil fuels from nearby countries to generate more electricity. A new pipeline was built to bring in natural gas from nearby Argentina. But importing more fossil fuels into the country had its own problems. This made Uruguay dependent on other countries for energy. It also made them vulnerable to higher prices or sudden stops in the supply of energy.

Méndez Galain was a scientist from Uruguay who began looking for a different solution. Although he was trained to study the physics of atoms, he wanted to learn more about energy systems. He talked with energy experts around the world and researched different options. Then he designed a national plan to provide energy to the entire country by adding wind and solar farms.



Uruguay President Jose Mujica (2010-2015) sits outside his home.

“When you are trained as a scientist,” he said, “you are trained to see an unsolved problem and [to try] to find an explanation and a solution. So, I used, if you wish, my scientific skills I had developed in order to face this difficulty with the same strategy.”

To make the plan work, Méndez Galain needed the help of a new leader named Jose Mujica. Mujica was elected as the president of Uruguay in 2009 and was not a typical politician. He has been described as “the world’s humblest head of state” because of his simple lifestyle and his ability to relate to ordinary citizens. As president, he donated 90% of his salary to charities and lived on a small farm instead of in the presidential palace.

President Mujica thought that Mendez Galain’s plan was a better way to transform the nation’s energy system. For the plan to be accepted and successful, he needed to address the values of many different stakeholders in the country.

Some stakeholder groups did not support the plan from the beginning. Some members of the labor unions were concerned about the risk of losing jobs to a new industry. They and others were also worried that wind power would be too unreliable from day to day. To resolve these concerns, a compromise was proposed and accepted. The aging hydroelectric dam could be upgraded to serve as a backup for the wind turbines. Also, workers would be trained on how to install and service the wind-turbine technology. Both compromises would allow a smoother transition to the new renewable energy system.



Green technology and livestock share a field in Maldonado, Uruguay.

Another challenge came from citizens who were worried about the cost of electricity. They feared that if a private company owned the distribution network, the electricity would become too expensive—especially for those that are least able to afford it. Since these stakeholders are often left out of group decisions, Méndez Galain adjusted the plan so ownership was shared. The private companies would own and run the wind turbines to make electricity, but the utility, which is owned by the government, would run the electrical grid. However, this idea worried the private power companies. They needed to recover the cost to build and set up the wind turbines. The businesses and lawmakers worked together to find yet another compromise. The government utility agreed to buy all the energy from the wind turbine companies for the next 20 years.

After these compromises were made, the national energy plan was adopted in 2010. Mujica and others had worked to get the support of many stakeholders, including the opposing political party. Within 10 years, Uruguay made a dramatic shift to renewable energy. The country is now generating 98% of its electricity from renewables, and it is one of the world leaders in wind-power production. Uruguay is also proud to be selling its excess electricity back to Argentina, the country it used to depend on for oil imports.

Three important factors made this group decision possible. The stakeholders used information from experts, were involved early in the process, and were willing to find a compromise. In the end, a majority of stakeholders not only accepted the plan but wanted to work together to make it a reality.

BUILD UNDERSTANDING

- ① For each of the two communities you studied, which values were conflicting? Explain why it made it more difficult to agree on a decision.
 - a Williamsport
 - b Uruguay
- ② Which of the two communities—Williamsport or Uruguay—had a more successful group decision-making process? Describe why.
- ③ Stakeholders can fail to reach a decision because of disagreement over values, claims of fact, or both. Describe an example from the first reading in which different stakeholders disagreed about a claim of fact.
- ④ How are the real-world situations in the readings similar to:
 - a the energy situation in Vanwick?
 - b the energy situation around the world?
- ⑤ In the Uruguay case, part of the success of the decision-making process included addressing the values of those who were previously underrepresented. Think about decisions in your school or community. Who are other stakeholders that may be underrepresented when group decisions are being made?

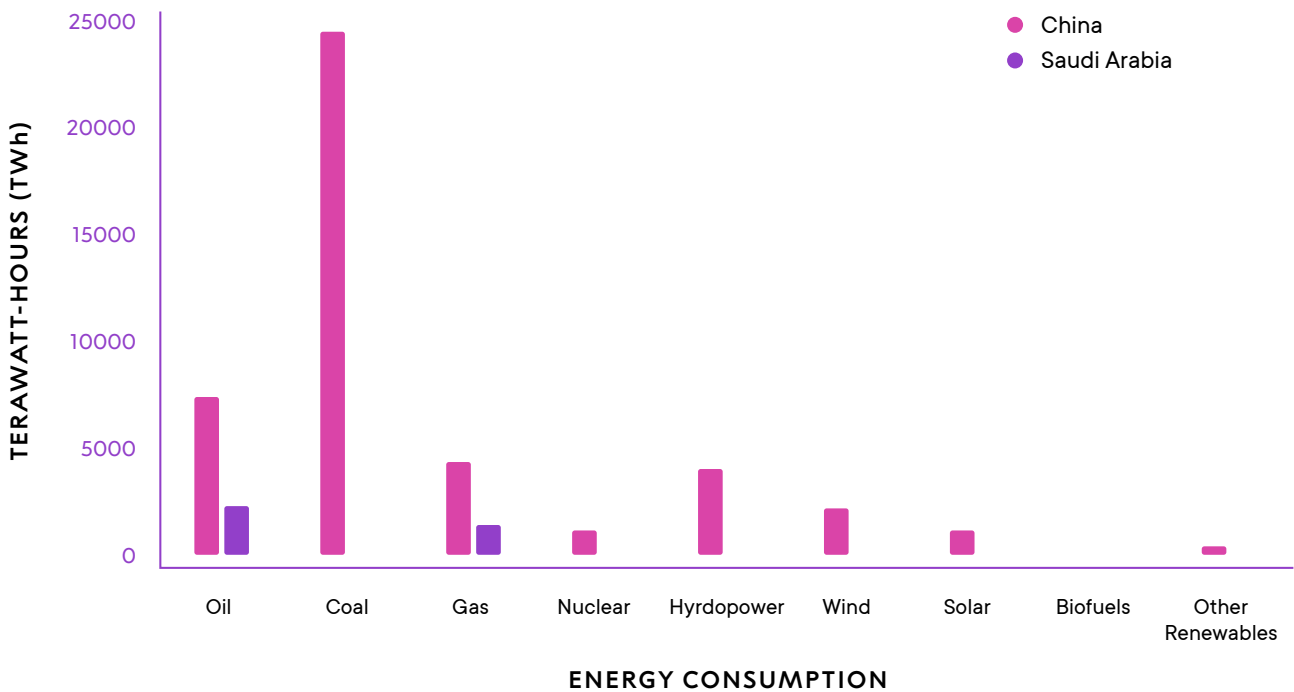
CONNECTIONS TO EVERYDAY LIFE

- ⑥ Think about a time you disagreed about what to do with someone at school or at home. It could have been a friend or someone related to you. How did you cope with this conflict between the values of pleasing the other person and your own values? Describe the situation and how a compromise might have resolved it (or did resolve it).

EXTENSION

Investigate another country's energy-infrastructure system to understand its energy problems and possible solutions. Use credible sources to investigate the key stakeholders for that country, facts and values related to the energy situation, and what compromises might be possible. Share your findings with the class.

FIGURE 9.1
Energy consumption of China and Saudi Arabia in 2022



KEY SCIENTIFIC TERMS

compromise