National Farmers Union

"Renewable Energy: Sustainable, Responsible, Affordable"

College/University

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Lesson 1: A Renewable Energy Audit Exercise

Unit Objective: Students will conduct an energy audit in cooperation with stakeholders and make recommendations to decision makers and users to implement renewable energy and conservation practices.

Grades: College

Length: Variable. One hour for the initial meeting, one hour for the mid-project evaluation meeting, one hour for the concluding meeting and formulation of recommendations. Plus, time to conduct the audit and also to present the findings to decision makers and possibly monitor the outcome during the school year.

Materials Needed: Access to the Internet, Facebook, printed copies of **Washington State University Energy Audit** and the **Audit Checklist,** appropriate **Thank You cards.**

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Preparation Needed: In advance, identify possible partners that might provide technical assistance and also entities that may need to grant permission or offer sponsorship prior to conducting an audit. Partners may include municipal utilities or a rural electric cooperative, a university department or city administration, a newspaper, or companies involved in renewable energy. Your lessons will be held in a standard classroom setting, preferably using round tables to allow students in work in groups.

Background: Renewable energy and conservation are not new. During the Great Depression of the 1930s, World War II in the 1940s, and the Energy Crisis of the 1970s Americans had to learn to do with without, do with less, or to develop substitutes for commonly used consumer goods. Economic difficulties and shortages force people to become both thrifty and innovative. Changes are also driven by culture and technology. In the 1960s, the American culture embraced recycling thanks to grassroots movements to address pollution. In the 1990s, technological improvements in computer aided design and manufacturing helped make many renewable forms of energy feasible, practical, and convenient. Expanding America's renewable energy options depends on technological advancements, favorable economics, and especially building a culture of acceptance by way pf educational efforts. This activity will use educational activities to build awareness of the value of using renewable energy on an achievable scale.

Teaching Strategy:

1. *What is a resource?* Allow your students time to answer this question. You may want to list their responses on a white board.
2. *In many ways, resources are assets. We use resources to build our nation: to provide for economic growth and security. Civilization is build on resources that range from iron ore and coal to timber and farmland. Sometimes, resources are less tangible. Favorable climate is a resource. Navigable rivers and lakes providing water and supporting transportation are resources. In simple terms resources are the things that already exist that we use to make our lives better.*
3. *We use some resources such as farmland and rivers year after year. These are renewable resources. Other resources are consumed or used in processes that convert them to sources of energy. What can happen to resources over time?* Listen to the responses from your students. *Over time, resources run low or become more difficult and costly to obtain. In addition, many nations lack natural resources and depend on imports from other nations. Due to political or economic reasons, resources may not be available to nations and their citizens , especially during times of shortages during natural disasters or military actions*.
4. *In countries where resources are plentiful, people and policies may encourage maximum use of those resources to build stronger economies, provide for national security, and create a higher standard of living. Resources in the U.S. have also been depleted without a clear plan of what comes next. Early lumber operations cut down vast areas of trees in mountain areas. When the trees were gone lumbering companies moved on to the next mountain. It can take 20 or more years for trees to grow back. And, the environmental damage created long term challenges for wildlife.*
5. *How do we waste our resources?* Ask your students to come up to the white board and write down one way people waste resources? Lead a group discussion on solutions to address wasting resources. The top solution should be conservation and intelligent use of resources. Refer to the **Discussion Guide** for insights on this topic.
6. *Many of you have experienced what it is like when the power is out. Our lives come to a complete stop. Power outages are rare and often short in duration. What happens when we do not have enough energy? America uses more energy than it can produce. This means we buy energy from other countries. Much of this energy is in the form of oil, and a lot of that oil comes from the Middle East. In 1973 the Arab members of OPEC (Organization of the Petroleum Exporting Countries) decided to embargo the amount of oil it would sell to the U.S. This drove prices sharply higher and led to shortages.*
7. *Higher fuel prices led to an economic shock and rapidly increasing inflation. Right now, inflation is of minimal concern. In the 1970s, inflation rapidly approached 20 percent annually. Put another way, if you were earning $10,000 a year, that income would have the buying power of only $8,000 one year later. Companies kept increasing prices to keep up with cost of inflation, which rippled through the economy. Less money was available for non essentials ranging from concerts and cars. The essentials such as food and rent and fuel quickly used up the cash available to many families.*
8. *Gasoline rationing was implemented to stretch limited supplies of fuel and discourage wasteful trips. When it comes to rationing, should limited supplies of fuel go to farmers, or to trucking companies, railroads, and airlines, or hospitals and nursing homes, or to the military? In addition to rationing, the government promoted conservation.*
9. *The good news is the energy crisis led to much better energy conservation and better fuel economy in cars. Construction of new buildings placed greater emphasis on using insulation to reduce heat loss and cooling requirements. Congress in 1975 enacted the first fuel economy standards for automobiles. President Carter in 1977 formed the Department of Energy. The result was that oil prices ultimately moderated and then fell in the early 1980s as supplies increased and the U.S. used conservation methods and economy cars to reduce energy needs.*
10. *Conservation and renewable fuels go hand in hand. Each plays a critical role in reducing our use of and dependence on the fossil fuels of coal, oil, and natural gas. Burning fossil fuels creates significant air pollution and releases carbon dioxide which is a greenhouse gas.*
11. *Conservation is nothing new. During the Great Depression of the 1930s, economic conditions forced people to get by with much less. The standard of living declined for many people. During the 1940s, World War II demanded fuel, food, and manufacturing capacity for the war effort. Again, people had to conserve resources or do without. Worth noting here is that Japan and especially Germany developed alternative fuels and synthetic materials as they lost access to resources beyond their borders. During the 1960s, recycling and conservation were driven by grassroots cultural changes that focused on reversing environmental damages caused by human activities. This was the first serious modern "green" movement and was not inspired by economics or supply disruptions. It is when a broad-based culture of sustainability took root. In the 1970s, the Energy Crisis forced another round of conservation. And this time, the federal government got serious about using its resources to both encourage and mandate research and implementation of conservation technology. Technological advances in design and materials have made conservation much more affordable and practical.*
12. Pass out copies of the **Washington State University Energy Audit Workbook**. *For the next 20 minutes review this sample energy audit. We will adapt it to our project. We will choose a building on campus or in the community for an energy audit. During this process we will learn more about energy conservation and also explore opportunities to use sources of renewable energy from passive solar heat to generating electricity*.
13. After 20 minutes call the class back to attention. (Allow more time if necessary, less if the group is done early). *This project will require two additional meetings, plus time to conduct the audit and present it to the administration or city or county government. We will choose a building on campus (or in the community) through discussion and consensus*. NOTE: If you choose a community building this will work best if it is a public building such as a City Hall, Courthouse, Library, Rec Center or small school.
14. Lead the discussion by asking your students to brainstorm over possible buildings that would benefit from an energy audit. Have your students narrow their options to three buildings. Write these three buildings on the white board. Ask your students to come up to the white board and write "1" behind the building they most prefer, "2" for their second choice, and "3" for their third choice. When they are done, add up the numbers for each selection, which will reveal the building that has the most overall support. This process will help encourage group "buy in" for the audit.

15. Your next step will be to assign students to working groups. The **Audit Checklist** shows the specific tasks do be done. Assign students to these tasks based on their abilities and interests. As this project will vary significantly from school to school across the U.S., and because the purpose to challenge students to think for themselves, no standard cover letter or press release template is included with this lesson. The students themselves will need to work as a group to accomplish these tasks. Depending on the number of students, you may ask all of them to work on each task, or you may need to assign smaller groups to some tasks, larger groups to others.
16. Once the working groups are selected, ask each one to explain what it will do before the next meeting, who will be responsible for getting the tasks done, and the time line for completion. This is both a "team building" and "buy in" activity.
17. As the instructor, you can and should review the letter to the administration and press release and offer appropriate recommendations. Make sure your students know when and where the next meeting will take place.
18. BREAK UNTIL NEXT MEETING: During this time stay in touch by email with your students regarding their progress on the **Audit Checklis**t tasks.
19. Welcome all your students back. This session will need to be more fluid in its structure. Your role will be to facilitate their discussions, in effect transferring the role of "taking charge" of the project status to them. Ask your students to report their progress on each task. If challenges come up, redirect questions back to them: *How could you handle this? Is there a different way to make this work?* Offer your insights only if needed to get the group back on track. You will want your students to determine how to revise the project to handle unexpected challenges, make appropriate adjustments, and move forward.
20. Use a laptop computer to review the Facebook page. Invite comments on how this page may be used generate interest in energy conservation and renewable energy among students. Take a digital photo of your students and upload it to the Facebook page.
21. Complete this session by again asking your students what tasks remain to be done, who will do them, and by when. Make sure your students know when and where the next meeting will take place. The most important task to be completed will be the audit. If possible, have the students who participate in the audit take a few digital photos and post them to the Facebook page. Once the audit is complete, it will need to be sent out in advance or made available as a PDF file. Advise your students they will need to review the copy of the audit before the next meeting. It is important they take time to do this without distractions.
22. BREAK UNTIL NEXT MEETING: During this time stay in touch by email with your students regarding their progress on the **Audit Checklist** tasks.
23. Welcome your students back for the final meeting. *You have had time to review the audit. Today we will develop five recommendations to present to the school administration. Also, we will need to write a cover letter explaining our findings. In addition, we will highlight efforts already taken by the school to make this building or the campus more energy efficient. We will close the letter by suggesting opportunities to use or increase the use of renewable forms of energy. Working in groups at your tables, develop a list of ten ways energy conservation or renewable energy could be used to make our target building more green.*
24. Allow your students 30 minutes (adjust this time based on their progress) to discuss the energy audit and identify key areas of need and opportunities for improvement. You will act as a facilitator to keep the discussions moving forward. The group should reach general consensus on what needs to be done, what can be done, and what will have the most benefit or return on investment. Remind your students that some improvements may be impractical due to costs, competition for resources, or even due to historic integrity priorities.
25. Have your students write their top recommendations on a white board. Then ask your students to return to the white board and rank their preferred recommendations, putting a "1" by their favorite, and continue place "2, 3, 4, and 5" in descending order in support of their top five favorite recommendations. Have a student tabulate the results to reveal what the top five recommendations are based on overall numerical value. *We will need to work together to develop these top five recommendations into narrative form. One example would be to prepare one page briefs for each recommendation. These briefs would include an introductory paragraph outlining the recommendation and need for it, followed by bulleted talking points and benefits supporting the action*. I need a volunteer or volunteers to draft a cover letter to explain these five recommendations. Have this person(s) work on the cover letter during the same 20 minute period.
26. Allow them time to develop rough drafts of five recommendations.
27. Close the meeting by setting the date when you will review the cover letter and five recommendations for final revisions before submitting them to decision makers.
28. BREAK UNTIL NEXT MEETING: During this time stay in touch by email with your students regarding their progress on the **Audit Checklis**t tasks. Remind them of when and where the next group meeting will be held during which they will review and revise the final action plan. Before the next meeting, prepare **Thank You cards** for your participants. Let them know you appreciate the work they have put into this project.
29. Be sure you are at the meeting room early. Put the **Thank You cards** you prepared in advance on a table and invite them to select their cards and read them as they arrive. Open the fourth meeting by asking each participant what he or she learned through this process. This will be a round robin activity allowing everyone to participate. Encourage dialogue between the participant. This activity should reveal your students have learned colleges and communities already are reducing energy usage and using renewable energy and sustainable practices as they update buildings. They may also have learned renewable energy and reducing energy use can be both complex and deeply interwoven in practice. Have them write down three things they have learned through this exercise. Have them post their comments to the Facebook page using their smartphones, e-readers, or laptops.
30. *Since the last time we met, you have had time to consider revising the top five recommendations. And, you have begun work on the cover letter. Let's begin with the cover letter. How do we introduce ourselves? What does it need to say? How do we recommend a call to action?* Use your role as a facilitator to help them refine the cover letter that will accompany the five recommendations. Then repeat this exercise to review those five recommendations. Ask for volunteers to draft the final recommendations and cover letter. This needs to be completed within a week.
31. *The last thing we will do tonight is sign and send Thank You cards to our sponsors.* Be sure to have enough appropriate thank you cards on hand. Pass out the cards and be sure that all your students sign them.
32. The Thank You cards should include a copy of the cover letter, the five recommendations, and the time and place of the presentation to decision makers. This means you will have to collect and keep the cards until all this information is ready. At that time (and before the presentation meeting) be sure to seal and mail the cards.
33. *On behalf of this group, I will ask for time to present our recommendations to a department head, the facilities management, or another decision making group such as the administration or board. I will let you know when this meeting will take place and I expect all of you to attend. Until then, we will continue to keep in touch using email. You have accomplished a lot as a group. I am relieved that our future is in such good hands. Please continue to keep an interest in sustainable living and renewable fuels*.
34. Present the cover letter and the five recommendations to the appropriate decision makers. Ask for a meeting with them and your students or ask to be put on the agenda to make a presentation. Once you have confirmation of this, make a note of it in the **Thank You cards** for sponsors and mail them. Then let your students know by email when the meeting will take place. Using email, arrange to have one student each speak to the five recommendations. Be sure to attend this meeting: you will need to explain the overall project and introduce the students (as a group). In turn, each student will introduce himself or herself as he or she explains the assigned recommendation.
35. Ask the decision makers to advise you if any or all of the recommendations will result in action. Make sure they have your contact information. Also, invite them to look at the Facebook page your students developed and are maintaining.
36. After a suitable amount of time, follow up to check on the status of the recommendations. When any of the recommendations are being implemented, be sure to obtain a photo, if possible, and also a brief description. Post this to the Facebook page. Before the end of the school year, you may want to coordinate a final Facebook update. This recap can be prepared using email or by holding a final, brief group meeting.

Lesson 2: Renewable Energy in the Real World

Unit Objective: Students will organize a renewable energy fair and also arrange for panel of guest speakers to discuss the current state of renewable energy.

Grades: College

Length: Flexible. There initial meeting will take approximately one hour. Follow up meetings will take from 30 minutes to an hour, depending on the size of your group and the scope of the activities. The energy fair will be an estimated three hours in length, while the panel presentation may be up to 90 minutes in length.

Materials Needed: For the initial meeting, a classroom or meeting room setting with a white board. You will need copies of the worksheets listed below. This project will vary from location to location, so a standard list of materials will vary as well. Read through this lesson carefully and then draw up a list of what materials you will actually need for your students and yourself.

Preparation Needed: This activity will require project management skills as you oversee the actions of your students to organization a Renewable Energy Fair and arrange for a panel of speakers who will review the current state of renewable energy. You will need to print enough of the following handouts for your students: **Begin by Brainstorming, Take Action And Make Things Happen, Renewable Energy Fair Checklist**, and **Renewable Energy Panel Guide**. You will need both space and permission to hold these events. You may also need a sponsor, such as a student organization or educational department already established on campus. And, you may need a sponsor willing to extend liability insurance to cover these events. Finally, you may want to secure an initial sponsor willing to pay for postage and printing costs during the first planning steps of this project. Depending on your approach to teaching, you may want to identify a second sponsor who would be willing to provide pizzas, sub sandwiches or other refreshments for each meeting to help encourage participation by students.

Background: Today's renewable energy industry is growing hand-in-hand with the "green" movement. Cultural changes are underway to reduce the use of fossil fuels and their subsequent impact on the environment. By holding a renewable energy fair, your students will raise awareness of the current products and options available to support sustainable living.

Teaching Strategy

1. Enthusiastically welcome your students.
2. F*or many of you, your grandparents grew up during the 1960s and 1970s. In the 1960s, a grassroots movement occurred that demanded more responsibility when it comes to the environment. The mantra of that era was "Reduce, Reuse, Recycle." People were worried that we were literally burning through our natural resources and causing significant damage through mining refining, and using fossil fuels. By this time air pollution had become a serious and growing problem in major U.S. cities.*
3. I*n 1974, the U.S. was hit hard by an energy crisis. The easy-going philosophy of sustainable living gave way to the hard economic and environmental facts. As a nation we were too dependent on fossil fuels as a form of energy. Burning coal resulted in toxic emissions from smokestacks that ultimately caused acid rain, increasing carbon dioxide in the upper atmosphere, and a blanket of haze that led to health problems for those who lived downwind. Using crude oil for home heating and refined gasoline to fuel cars similarly caused numerous environmental problems. The American way of life came to a crashing halt due to the energy crisis. For decades, Americans used more energy than they produced at home. The Middle East was (and continues to be) a global source of crude oil. A number of these oil exporting nations formed a cartel and reduced the supply of oil to both drive up prices and hurt the U.S. economy because of America's support of Israel. The result was a severe shortfall of energy and a huge shock to the U.S. economy.*
4. *Every transition in technology had fits and starts. New ways of doing things seldom go easy. Many people prefer to hang on to the status quo, finding comfort in consistency and reliability. Renewable energy was not taken seriously before the energy crisis simply because fossil fuels were well established, readily available, and relatively affordable. Private industry, public investment, and energy policies supporting renewable energy were lacking at every level. Virtually overnight motorists were waiting in long lines to get as little as ten gallons of gas.*
5. *A second energy crisis in 1979 was a result of political unrest in the Middle East which led to supply concerns. The U.S. was, to put it bluntly, over a barrel because our economy runs on oil. Cut the supply of oil and our economy crashes. Other nations could (and in fact attempted to) use this leverage to influence U.S. foreign policy.*
6. *One obvious and quick solution was to reduce energy use. In 1975 Congress passed and the President signed a legislation known as the Corporate Average Fuel Economy, or CAFE, act. The law called for doubling the average fuel economy of American made passenger cars to 27.5 miles per gallon by 1985. Car companies in the 1960s were building large, heavy cars that required high horsepower engines to deliver performance. The family car was a gas hog, going as little as 8 to 12 miles on a gallon of fuel. But when gas is 33 cents a gallon, no one really cared. Today, fuel economy, even for vans and some SUVs, is in the range of 30 miles to the gallon. Significant improvements in fuel economy are a result of using fuel injection instead of carburetors, computer controlled engine management, four-speed overdrive automatics, and lighter weight bodies.*
7. *The environmental problems caused by fossil fuels were initially addressed with the Clean Air Act of 1970. This legislation took the initial steps in requiring coal-fired power plants and automobiles from pumping hazardous pollution into the air. It is worth noting that America's thirst for energy meant we led the world in creating air pollution. It is also worth noting that air pollution does not stay within the borders of the United States. Our air pollution was concentrated here, yet it also was accumulating worldwide.*
8. *One other step taken by the government to address air pollution was the creation in 1977 of the U.S. Department of Energy. This department was charged with coordinating and implementing the nation's energy policies, including specific emphasis on developing renewable energy and promoting energy efficiency.*
9. Pause, here, for your students to consider your comments. *As a society, Americans both wanted to reduce pollution, reduce reliance of foreign oil, and increase options for sources of energy. Thanks to this attitude and real financial support for research, renewable energy has gone through its growing pains and today is integrated into our energy generation infrastructure. Your parents grew up during this time. They saw the first serious wind farms being erected. They saw the widespread instillation of solar panels. They saw homes built with more insulation, better windows, and high efficiency furnaces and air conditioning units. They began using biofuels in their cars.*
10. *Renewable energy is fascinating stuff if you are a chemist, an engineer, a biologist, a project manager, or are employed in any of tens of thousands of careers that focus on renewable energy. The question for us is, how do we make renewable energy interesting for students on campus? Think about this: for the most part, other people are responsible for heating, cooling, lighting, and powering your world. Whether you are living in a dorm or apartment, someone else has made decisions on your energy use. College is a time of intelligent discovery about the world, your community, and yourself. You are preparing for the future. You are planning the future.*
11. *The good news is the future of renewable energy is here, today. We as a group are going to plan two events. One will be a renewable energy fair. The other will be a panel discussion on the current status of renewable energy and the future possibilities.*
12. Pass out the **Begin By Brainstorming** worksheet. *Working within the group at your table, begin brainstorming on these topics. To plan, coordinate, and implement these two projects, you will need to first discuss and answer these questions*.
13. This should take from 20 to 30 minutes. Walk around to gauge the progress of this activity. Serve as a sounding board or reference, as needed. As each project will take on different approaches to accommodate local resources, along with the individual interests and abilities of your students, you will need to develop a unique template for your renewable energy fair and panel discussion. Also, this project is intended to develop cooperative teamwork.
14. Ask for a student to serve as the recording secretary. Facilitate a discussion with each group on how they answered these questions. Next, facilitate an overall discussion to decide which answers to each question is a priority and which is secondary. This consensus building activity helps build both "buy in" by your students and an understanding of all tasks being undertaken by the different planning groups.
15. NOTE: Depending on the time, you may wish to take a five minute break, or continue with this session to its

conclusion.

16. Have a copy of a school calendar. Look for opportunities to hold the event, possibly in conjunction with an appropriate activity on campus. Keep in mind participants in the energy fair may include auto dealerships, which means either arranging for an outdoor setting, or using an indoor space that can accommodate vehicles. Any date you choose will be tentative pending approval by facilities management, the school administration, and other decision makers as is required. The renewable energy panel should be held the same day as the renewable energy fair and also in close proximity. A recommendation is to hold the renewable energy fair in the morning with the panel in the early afternoon. Or, as an option, hold the energy fair from 10 a.m. to 4 p.m. with the panel from 1-2:30 in conjunction with the event. Likely places to hold the event will be the student union, a central parking lot, or in front of an appropriate classroom complex.
17. We will need a team to handle each of these areas: Resources, Sponsors, Partners, Green Businesses, Panelists, and Publicity. I would like volunteers for each working group, based on your interests and abilities. You may need or want to serve on more than on team. Employers call this cross training. The more you know about a project beyond your own area of responsibility, the better prepared you are to contribute to the overall effort. Specifically, each group needs a leader and someone to take notes and distribute them by email. Before the next meeting you will need to draw up an action plan to address your group's assigned are of focus. Although you can do much of this by email, you will at least once want to meet in person. Please keep this in mind as we develop our deadlines.
18. Set the next meeting date and location. Stress the importance of attending this meeting, and of being ready to present an action plan. In order to maintain momentum, the next meeting should be held within ten days. Be certain to collect the names, email addresses, and phone numbers of your students.
19. BREAK UNTIL NEXT MEETING: During the interim, email your students to thank them for their participation and remind them of the next meeting time and location. Call, if necessary, to leave reminders.
20. Be early for the next meeting. Enthusiastically welcome your students. Ask each group to report on their respective action plans. Lead group discussion to refine each action plan. Be willing to serve as a devil's advocate to explore possible weaknesses, but temper this approach by also highlighting items that have good potential. These are problem solving challenges for your students. Let them figure out what need to be accomplished and how rather than providing them answers.
21. Pass out copies of the **Take Action And Make Things Happen**. *The world is full of dreamers and doers. We have to be both. Your goal today is to develop an action plan for each focus area. You will need to draft letters, for example, to obtain permission to hold these events. Once that is achieved, we will draft letters to potential exhibitors, sponsors, potential partners, and likely panelists. I will want to review these before they are sent out. The first and most important tasks to accomplish are to set a date, choose a location, and obtain permission to hold the fair and panel. Once that is obtained, we can approach partners and sponsors willing to participate. Then we will work on promotional and organizational tasks. As a group, we will develop one Action plan for each area of focus that includes deadlines on what needs to be done by whom. These tasks will need to be done in advance of our next meeting.* Facilitate the discussion on these focus areas, one by one.
22. Close the meeting by thanking them for their contributions. Express confidence that these events will be worthwhile and are on track for becoming reality. Encourage them to stay in touch with you on their progress.
23. BREAK UNTIL NEXT MEETING: During the interim, email your students to thank them for their participation and remind them of the next meeting time and location. Call, if necessary, to leave reminders.
24. At this meeting your group will need to approve the date, location, and list of decision makers whose permission you need to hold the event. As in the previous meeting, ask your teams to report on their progress, placing specific attention on the date, location, and permission letter(s). As a group, finalize the letter(s) requesting permission. Ask your students to put themselves in the place of the decision makers (facilities management, school administration) and consider what they will want to know. Your letter should reassure them you have considered their concerns and questions and are willing to address them.
25. If possible, have a computer, printer, envelopes and address labels in advance so the letter(s) can be signed at and then mailed immediately after the meeting. Include a self-addressed and self-stamped envelop to assure a quick response. Use yourself as the contact person and let your students know of the response as soon as you receive it. Also include your phone number with the letter should they have questions, and offer to have your students meet with them in person.
26. NOTE: Discuss a Plan B should your group not receive permission to hold the event. You may partner with a car dealership, utility company, civic group or community or government entity to host this event at their location.
27. *We are in a holding pattern now until we receive permission to move forward. It is possible we will have to fill out forms and answer additional questions. It is possible we may have to find an alternative location, which means repeating this step. I will let you know what I hear as soon as possible. We will plan our next meeting within a week of receiving a response.*
28. BREAK UNTIL NEXT MEETING: During the interim, email your students to thank them for their participation and remind them of the next meeting time and location. Call, if necessary, to leave reminders. As soon as you receive a response, let your students know what it was and schedule the next meeting. If you have forms to fill out, bring them to the next meeting. If you did not receive permission, use the next meeting to focus on Plan B: a second location at which to hold the event. Call a meeting to draft a new letter and again wait for the response. In effect, repeat the activities of the last meeting and mail out another letter. To use your time efficiently, you may want to identify two possible locations and mail out two letters. Should both result in a favorable response, your class will need to decide which location works best based on strategic value and convenience.
29. Once you have permission to hold the event, schedule your next meeting as soon as possible. At this meeting you will want to have the location, date, and permission in hand. This meeting, then, will be to discuss specific activities. Using a white board, draw out the dimensions of the room you have available for the event. You may need to draw several possible plans as you consider the locations of booths, cars, exhibits, and especially the flow of traffic. This is a project for your students, and the first time they will "see" the event as a real possibility. Use their enthusiasm to make the transfer from dreamers to doers. *When guests and students come in, do we want them to register for door prizes? If so, who can we call on to provide door prizes? Should we have fun activities, such as using an electric grill rather than gas? Will we need volunteers wearing name tags to answer questions and welcome people? What about music?* Facilitate an open brainstorming discussion on these and all other topics as they come up. Do not do the work for them. Choose to let them introduce the possibilities and then decide whether they are practical. When necessary, inject comments should some ideas actually take them aware from the true mission of the renewable energy fair. Remember, one objective of this activity is to encourage a group of people to work cooperatively and figure out for themselves what needs to be done.
30. Also at this meeting you will want to draft, sign, and send letters to all potential sponsors and partners, again providing self-addressed and self-stamped envelopes to be returned to you. *Letters for partners will focus on those concerns who will want to have booths, exhibits, or otherwise be active participants. Sponsors may or may not be partners. Sponsors are those who are willing to contribute cash or in-kind contributions to underwrite the cost of the events.* Your promotion and marketing team should weight in on this. If you do accept cash you will need financial accountability: who accepts the contributions, where are they deposited, who approves expenditures? You will need checks and balances to make sure all transactions have to have at least two people responsible for ingoing and outgoing resources. You yourself will also want to take part in these steps. *The letter to sponsors will focus on what you need the support for, and how it will be used. Will you buy ads, print posters, have t-shirts made for volunteers, provide refreshments?*
31. Once the final drafts of letters to sponsors and partners are complete, print them and mail them. Ask the partners how much space they will need, if they need electricity, and if they will have someone staffing the event. Ask both participants and sponsors how they want their logo and name to be used in promotional materials. Ask your students to conduct follow-up calls with personal invitations. You may want to have students prepare a "call script" as a guide for these calls. *At the next meeting we will should have a good idea of the number of participants in our energy fair and a sense of the financial or in-kind resources to make it happen. At our next meeting we will take a look at promotional efforts and whether we may need volunteers to help with the event. Also, we will sent letters to potential panelists, so give some thought to the types of people who would have valuable and relevant viewpoints on renewable energy.*
32. BREAK UNTIL NEXT MEETING: During the interim, email your students to thank them for their participation and remind them of the next meeting time and location. Call, if necessary, to leave reminders.

33. Welcome your students as they arrive for this meeting. Write "Renewable Energy Fair" in large letters on a white board. Below add the date and location. Also write in sponsors and participants based on the responses you have received to date. *Congratulations. You started out as dreamers, now you are doers. In the business world, you have become the movers and shakers who make things happen. At this meeting we need to plan our media and marketing efforts, and invite our panelists. And, we are going public so now is the time to set up a Facebook page for the upcoming event*.
34. *Let's begin by writing our first press release. As a reminder, press releases need to answer the who, what, where, why, and how questions. They also need to have contact information, and a quote from someone involved in the activity. A release is a good time to mention sponsors, partners, and participants, although that information will be a little farther down from the lead*. Work with the students to develop a good press release. Have a student agree to format and write the release. This can be submitted by email or in person to the school newspaper, the community newspaper, and radio stations. Copies should be sent to your sponsors, your participants, and the decision makers who provided permission for you to hold the event.
35. *We will set up a Facebook page for this event. Our publicity and marketing team will take the lead on this task. What might we want to put on the Facebook page in terms of photos, information, and links?* Your students should have a good idea of how to set up a page and understand content value. Allow them time as a group to discuss the page content and who will set up and maintain the page. This project can be done during this session if someone has a computer and Internet access.
36. How will we promote this page? With posters around campus, links to our own Facebook pages, word of mouth? Invite your students to consider ways to promote the Facebook page. T*his discussion brings up a bigger question: how will we promote the event itself?* Are there other organizations or businesses that might help us get out the word? Allow your students time to consider this aspect of planning. Refer to the Begin By Brainstorming sheets they worked on at the initial organizational meeting. Develop your promotional and marketing activities, deadlines, and assignments for immediate action.
37. *This will be our first media release, allowing people time to mark their calendars. Will send out a second release and update our Facebook page once we have chosen our panelists. Which means, we have to choose our panelists. What individuals or company representatives do we want to have participate in our panel? The invitation letters can be based, in part, on the press release. Invitees will want to know when and where the event will be held, why they are being invited to speak, and who to contact for more information. A panel of three to five speakers will work well. Allow each one to speak up to ten minutes (no more) on their area of expertise. Also allow a Q&A period. The total panel should take no more than 90 minutes from beginning to end. To have the most value, each panelist should talk about a different topic regarding renewable energy.* Lead the discussion on whom to invite, along with the effort to draft the invitation letters. If possible, print out the letters, sign them, and arrange for mailing the same night. You will be the contact person.
38. *We also have to make phone calls or personally visit our potential partners, sponsors, and participants to let them know we are serious about this renewable energy fair. Who will take care of this?* Allow them to volunteer for this assignment. That about does it. Does anyone else have anything they want to talk about? If so, continue the discussion. If not, adjourn until the next meeting. Set the date of the next meeting to take place about 30 days before the renewable energy fair and panel.
39. BREAK UNTIL NEXT MEETING: During the interim, email your students to thank them for their participation and remind them of the next meeting time and location. Call, if necessary, to leave reminders. NOTE: Each meeting results in you shifting more and more responsibility for planning, discussing, agreeing, and taking action to your students. This is the intent for two reasons: one, a one-size-fits-all template may not agree at all with local conditions; two, one objective of this event is for students to work as a team and gain practice in self-directed projects.
40. Attendance and participation at the next meeting is critical. Begin this meeting by updating your students on the most recent sponsors, partners, and participants. Then let them know who has responded to be on the panel. If you need additional panelists, you will need to invite them in person first, with a follow-up confirmation letter as time to secure the panel is running short.
41. We have a couple of tasks that need our attention. Pass out the **Renewable Energy Fair Checklist**. *One, will we need volunteers to help with these events, or do we have enough people in this room to manage this event? If we need volunteers we will have to decide how many and how best to recruit them and then train them to handle any responsibilities we choose to delegate. Let's walk through the checklist and consider our next move. Review the list as a group and decide in volunteers may be needed to help. If so, can they be sourced from a student group such as a fraternity or sorority, or other student associations.* Identify potential groups and assign someone to contact them with your request. This too should be done at least three to four weeks before the event.
42. If you have the panelists determined, prepare a second media release based on the first one. This release will focus on the panel participants and then repeat the information explaining the Renewable Energy Fair. Although the target audience is college students, the event should be open to the community as well. Developing the media draft will be a group project, which encourages participation by all and assures that everyone understands the current state of the project planning. Be sure someone takes responsibility for delivering the release to news outlets. NOTE: The release may have to be held for a few days if you have to confirm any panelists.
43. If you have funding from sponsors, discuss how to best use your resources to promote the event, to provide materials and/or refreshments at the event, and whether you may have other expenses, say for printing and postage. Make sure one person is responsible for having a banner or large poster made that property recognizes the sponsors. If you decide on preparing hands-outs, be sure to list the participants and sponsors on these materials. Hand-outs could include tips and on renewable energy, careers in renewable energy, and websites that have additional information. This is a research and development project for your marketing team.
44. *Are there any other concerns, questions, or observations we need to consider?* By now, your students will have invested a lot in this project and may see or think of things that are unique considerations for the environment in which they are holding this event. Let them explore and resolve these topics.
45. *Our next meeting will be the last meeting before the renewable energy fair and panel. Most of the work has been done. It takes a lot of preparation to accomplish an event like this. It will be educational for those who attend and those who participate. More importantly, is has been an educational experience for you. We will fine tune our event, make any adjustments for unexpected circumstances, and be ready to celebrate when the event is over. Please stay in touch with each other and with me between now and our next meeting.*
46. BREAK UNTIL NEXT MEETING: During the interim, email your students to thank them for their participation and remind them of the next meeting time and location. Call, if necessary, to leave reminders.
47. If you have the banner listing the participants and sponsors available, display it in the meeting room. *We have just a few things to touch base on tonight before the main event. You have worked hard to organize the renewable energy fair and panel. Let's begin by revisiting the* ***Renewable Energy Fair Checklist.*** Go over the checklist to see what has been done and what needs to be done. Make sure your students take the necessary steps to address any last minute tasks.
48. *Specifically, we need to decide on if we need volunteers. If so, we need someone to coordinate that aspect of the show. Volunteers need to wear recognizable name tags. Any training they need can be done 30 minutes before the Renewable Energy Fair opens. Also, we need a team to set up the area, make sure any refreshments are set up as well, and work with exhibitors to get them in the correct spaces. We can use the white board to draw out the exhibitor space assignments.* Make a paper copy of the diagram once it is finalized. *Consider the flow of guests and the special needs of exhibitors who have larger displays*. Work through these tasks as required.
49. *We will want to call ahead to invite media to attend this even. We will want them to know about the panel, the fair, and that these events were organized by volunteers. How is this going to be handled, and by whom?*
50. Go over ***Renewable Energy Panel Guide***, making sure each step is discussed and covered.
51. We are down to the event itself. Does anyone have any comments or observations for tonight? Check to see if anyone has anything to share. Okay, I will see you at the renewable energy fair. You all have your assignments between now and then, and your assignments for the day of these events. Good luck. Oh, one more thing, we will hold a post-event meeting to evaluate how things went. Take care.
52. BREAK UNTIL THE FINAL MEETING
53. This last meeting will be much more relaxed. Hold a round table discussion. Ask your students what worked, what did not work, and what they would do differently.
54. Prepare and sign handwritten thank you cards tailored to your sponsors, participants, and school officials. Prepare another thank you card for National Farmers Union for providing this lesson plan.

55. Make sure your Facebook account has been or will be updated.
56. Decide how to handle any left over cash or in-kind contributions. Your students may choose to contribute cash to the college for a "green" project as one example. Also, you may want to use the funds to provide pizza, sub sandwiches, or other suitable refreshments for the final meeting.
57. *Renewable energy will become more important to you in the coming years. Sustainable living calls for using more and more renewable energy here, across America, and worldwide. You are the leaders who are making this happen. Good for you. Please stay in touch as your schedules allow. And please continue to update cool information to the Facebook page. I am proud of you*.
58. Following the last meeting, make sure the thank you cards are mailed. Also, write your own thank you cards to the participants and mail or deliver them. Also, write a one page letter to the school crediting these students for their accomplishments. Monitor the Facebook page for six months. If there is no activity, close it down. If it has had some activity, let it continue as long as it has usage.

Lesson 3: Creating the Culture

Unit Objective: Students will develop and erect a wall-size U.S. energy map for display in the campus civic center. And, students will hold two "What's My Carbon Footprint" events to build awareness of sustainable living and renewable fuels. The first Carbon Footprint will set the baseline and the second will measure whether students on campus have changed their behaviors to reduce their carbon input through conservation and the use of renewable fuels.

Grades: College

Length: Flexible. There initial meeting will take approximately one hour. Follow up meetings, if needed, will take from 30 minutes to an hour, depending on the size of your group and the scope of the activities. At least one follow up meeting will be required. The Carbon Footprint and Energy Map event will take an estimated two hours for set up. The Carbon Footprint activity will run from two to six hours, while the second carbon footprint event will match the first in length of time.

Materials Needed: White craft paper (enough to cover a wall (approximately 8 feet high by 15 feet long).You will also need permission to use a wall in the Student Center or Library, at least four computers connected to the Internet for students to participate in the carbon footprint activity, plenty of **My Carbon Footprint** and **Energy: Let's Map it Out** handouts, black Sharpies, masking tape, appropriate thank you cards.

Preparation Needed: Print out enough copies of **Energy: Let's Map It Out** for all your students. Survey Monkey account, Facebook account, permission from student center to put up a display and host an activity

Background: College students are growing up in a world that embraces renewable energy as a way of life, rather than the novelty it was one generation earlier. To raise awareness of renewable fuels and what a carbon footprint is, students will develop and display a U.S. energy map as a wall display and invite students to calculate their carbon footprint. They will repeat this activity one month later to see if behavior can be shifted toward reducing the carbon footprint of participants.

Teaching

1. Enthusiastically welcome your students. Engage them right away by asking them to raise their hands if they can answer yes to the following questions.
2. *How many of you believe it is important to use more renewable fuels and less fossil fuels?* Expect most of your students to raise their hands.
3. *How many of you actually go out of your way to use renewable energy and support businesses that use green or sustainable operations?*
4. *Are you trend-setters or followers? Meaning, do you want to change the world, or adapt to the world as it changes around you?*
5. *Why is it easier to believe in something than to take action to support it?* Use this question to lead a general discussion on how an individual's personal values are only good if they result in actions. See **Discussion Guide** for more information on how to proceed.
6. *Living green is no longer a novelty. It is a way of life. Today, communities and companies are using sustainable operations as a viable marketing value. Consumers are asking,—actually expecting—new buildings, new homes, and new infrastructure to use less energy, use renewable energy, and be less damaging to the environment. In fact, there is a magazine called Living Green. Car companies actually promote how much of their vehicles can be recycled rather than letting them rust in a junk yard at the end of their usefulness.*
7. *Changing the culture of society can be done from within and from without. In 1974, America suffered an energy crisis. We used more oil than we produce in America, which means we have to import it. When we depend on other nations for a critical, essential resource, it can and does lead to trouble. In 1974 our supply of oil was drastically cut back. It*

helped cause an economic recession that left people unemployed and others struggling to get by. Another energy crisis hit in 1979 for similar reasons. These energy shortages forced us to change our way of life. These are examples of a change from without. And here is an example of a change from within. In the 1960s if you rode a bike to work you might have been called a hippie. Hippies were on the fringe of society. In the 1980s if you rode a bike to work you might have been called a yuppie. Yuppies were also on the fringe of society, just a lot more upscale. Today if you ride a bike to work you are no longer considered unusual. Adult bicycling has become mainstream. Public transportation systems are designed to accommodate people whose primary vehicle is a bicycle. The acceptance of bikes as a viable mode of transportation was accomplished from the inside. The culture changed, albeit over time, because enough individuals shifted the perception of who uses bikes and why.

8. Pause a moment for your students to consider your comments. Ask them to offer a few examples of how American culture has been changed either from the outside, or from the inside. Examples might include how watching programs on television is being replaced by watching programs on mobile devices; how on-line shopping is competing with stores; and how social media is changing the way friendships develop. Do not let this discussion continue too long or spin out of control. It is part of the student engagement process and subtly introduces group cooperation.
9. *NASA astronaut and commander of the Apollo 13 mission Jim Lovell said, "There are people who make things happen, there are people who watch things happen, and there are people who wonder what happened. To be successful, you need to be a person who makes things happen." We are going to make things happen. Specifically, we are going to put renewable energy on the map, and I mean literally. And, to use a trendy phrase, we are going to move the needle when it comes to changing the culture. At least I hope we do.*
10. *This group will research where in America renewable energy is being generated, where fossil fuels are being mined and burned, and how much energy is imported. We are going to put all of this on a big map of the United States and display it in the Student Center. Next, we are going to invite students to determine their carbon footprint and display their numbers on a wall-size poster. We will encourage everyone on campus to take on on-line survey to learn more about our sustainable living habits, and a month later we will invite those who took the Carbon Footprint quiz to do it again and see if they are cutting their footprint down to size.*
11. *Let's start with the map.* Hand out the **Energy: Let's Map it Out** worksheet. Walk the students through the map concept as listed on the worksheet. Have one or more students draw a sample on a white board. *This will take research and development time between now and when we put it up in the Student Center. The actual map will use rolls of craft paper taped to the wall and then add the map boarders using paint and brushes. If anyone is willing, we could use a projector to, well, project the map on the craft paper and trace it so it is accurate. Otherwise, we will have to do this by hand. And where do we get the information? Since we will identify the source of our information, let's be sure to use good sources. The following websites are good places to start are the websites for the U.S. Department of Energy, the U.S. Energy Information Administration, and the CIA World Factbook. When you look for top U.S. businesses, I suggest you look at the Forbes website. And for the Top 10 cities, consider a Google search. You will find real realtor associations, environmental organizations, civic groups, and news outlets all have their findings, many of which overlap.*
12. *We will need several working groups to handle key assignments between now and the next meeting. In today's business world, self-directed groups are commonplace in numerous work settings. Who is willing to work on the map project? Your charge will be to develop a conceptual map for us to review. This should take from two to four people.* Write down the names of the volunteers. *If you have questions as you work on this, please contact me by email or call me.*
13. *On the day we put up the energy map, we will set up a bank of computers and invite students to take an on-line survey to see what their carbon footprint is. We will hand out ways to reduce one's carbon footprint and repeat this activity one month later to see if we helped change the behavior of people by making them more carbon conscious. I need a team to evaluate one of three on-line carbon footprint websites and choose one for our project. Consider the inputs and how the final results are reached. The websites are: myfootprint.org, nature.org, or whatsmycarbonfootprint.com. Who will serve on this group?*
14. We need two more groups to handle two important tasks. One group will work on planning the promotion and obtaining the permission. The other group will develop handouts and prepare questions for a Survey Monkey project. Our planning and promotion group needs to obtain permission from the Student Center (or Library) to host our event. *It is possible we made need an official student organization to sponsor our event. We will need access to at least four laptop or desktop computers to conduct the My Carbon Footprint activity, along with tables and chairs. The event could run from 11 to 2 p.m., or longer depending on the number of volunteers available to greet people and staff the event. We will need to set up our map at least two hours before the event, and this will take coordination of at least six of you. Think of what you will need in terms of a ladder, paint, brushes, and enough rolls of craft paper. Just as importantly, you will want to draft a press release for the school and community newspapers. You will have one more very important charge: contact potential sponsors for our event. We need one sponsor to pay for the craft paper, paint, and brushes, plus any posters we make to promote the event. We would like a second sponsor who might be willing to pay for sub sandwiches to hand out free during the event to people who participate in the Carbon Footprint activity. I recommend you have a draft of the poster to take with you when contacting potential sponsors. It will be most effective if you work in teams of two. Potential sponsors will include companies involved in renewable energy and civic groups.*
15. *Our last working group will work on handouts, set up a Facebook page for this event, and develop questions relating renewable energy to post on Survey Monkey. The questions need to be entertaining yet educational. We will use our Facebook page to promote the event, post the results, and update the results following the second Carbon Footprint activity. Our posters and informational handouts will encourage people to go to Survey Monkey and respond to our questions.* NOTE: It is up to the students to determine the types of questions. If they were provided questions in advance to ask, it would greatly reduce the learning value of this exercise, not to mention removing the value of being innovate and responding to the regional and local needs. *At our next meeting please have ready a draft of the handout, a template for the Facebook page, and a list of questions for Survey Monkey. Of course, you will need to look at the Survey Monkey site to understand its features and limitations. This will not be a scientific survey, just a gauge of what people may know about renewable energy, and what myths need to be revealed. The handout*
16. *Does anyone have any questions? Allow time for your students to make observations. Okay, our next meeting will be held (give time, date, and location). Before you leave, I want each team to go up to the white board, write down who is one the team, when it will meet, and what you have to accomplish at that meeting. Use your camera to take a photo of your team. Before you leave, please make sure I have the best email address and phone number for you in case I send out any updates. Here is my email address and phone number should you want to call me with any questions.*
17. BREAK UNTIL NEXT MEETING: During the interim, email your students to thank them for their participation and remind them of the next meeting time and location. Call, if necessary, to leave reminders.
18. This project is straightforward and will move quickly The second meeting will consist of setting a date for the first event and reports from the working groups. Begin with the working groups. Your task is to facilitate discussion among your students and help them reach consensus.
19. Open with an optimistic, *How are we doing on the energy map?* Allow this group to report on its findings. Encourage other students to weigh in with their recommendations and observations. This meeting is for revising and refining the concept so it can be successfully transferred to a wall. Will the map appear cluttered? Is the information confusing? Is it too simple? Can one person stand in front of it and explain clearly what everything means? Use the group feedback to fine tune the map content and appearance. Be sure to acknowledge the work done by this team. Ask them what changes they will make and why.
20. *We are off to a great start. Let's move on to a report from the group that evaluated the carbon footprint calculators and see what recommendation they reached.* Listen to this team's report on which on-line carbon footprint calculator they prefer to use and why. Invite other students to offer their comments and recommendations. *It sounds like you have chosen a good model to use. We will use the same website for both the first and second Carbon Footprint events. During the event, participants will determine their carbon footprint value, use a marker to write it down on a My Carbon Footprint sheet, and then place it on a My Carbon Footprint sheet on the wall next to or across from the energy map. This sheet will be made from craft paper with a "My Carbon Footprint" billboard lettering, and a range of likely values with the baseline at the left and the top end of the scale at the right. The results of this activity will be a visual graphic that offers a sense of where we stand in using energy. When we repeat this activity in a month, the footprints hopefully will shift toward the left, indicating we had an impact in educating campus students and adjusting their behavior to be more conscious of not wasting energy.*
21. *Promotion and permission will be critical to the success of what we want to accomplish. What have we discovered so far? Will we get a free lunch?* Give this group time to report. Have the entire group work through any challenges to find practical solutions, especially relating to finding sponsors for the event.

22. *Our marketing team looked at setting up a Facebook page, drafting an information handout, and crafting questions for a Survey Monkey activity.* How are things progressing? Listen to the team report and continue in your role as a facilitator. Encourage when appropriate, applaud their efforts when possible. Ask the marketing team to prepare an appropriate sign recognizing sponsors.
23. Ask your group if they believe they need to meet again to review the final changes. Alternatively, the changes can be accomplished via email using pdf files, or using another type of file sharing/viewing option.
24. Before you break be sure each working group knows its final responsibilities and are ready to respond to any requests. Reviews and recommendations can be done by email. You will have to give the final okay, so be prepared to proofread and also apply an overall analytical approach to each item to assure it meets the requirements for the project. For example, will the handouts compliment or contradict the map?
25. BREAK UNTIL THE EVENT: During the interim, email your students to thank them for their participation remind them when they will meet prior to the event. Call, if necessary, to leave reminders.
26. EVENT ONE: Meet at least two hours before the event to put up and prepare the map, set up tables and computers, establish that the Survey Monkey and My Carbon Footprint on-line activities are ready for use, and discuss how to welcome, engage, and encourage student participants. Your students will put up a separate wall-size sheet of craft paper on which My Carbon Footprint participants will place their sheets showing their respective numerical values. If someone needs to pick up refreshments (including sandwiches or other donated items), make sure this person is on top of this. Sandwiches may be transported and kept in a cooler. Your students will have prepared themselves to conduct this event thanks to the time they invested in planning it. Not all students will need to help with this event. You will need at least four to set up and prepare the map. You will need four to handle the My Carbon Footprint activity (more if you anticipate a lot of participants, which also will necessitate more computers). Depending on the length of the event, your students can work in shifts.
27. *Will will need to print out enough full page "**My Carbon Footprint"** sheets. Each student who participates in this event will use a marker to write down their number in the footprint and place it on the large My Carbon Footprint sheet next to or across from the Energy Map. Footprints should not overlap. They can be clustered or stacked if they are similar in value.*
28. One of your students will need to take photos of this event in order to update the Facebook page, with specific emphasis on the My Carbon Footprint wall graphic at the close of the day.
29. At the close of the event, verify that the computers are returned to their owners (individuals or the college), be sure the tables and chairs are returned to storage (or that facilities management is on site to do so), and that the map is removed (or will be if the Student Center or Library is willing to leave it up for a week as an educational tool).
30. Schedule a brief interim meeting to review how the activity went and what needs to be done prior to the next event. Lead the discussion with these questions: *Are students on this campus well versed in sustainable and renewable energy? Are students concerned about their carbon footprint? Are students eager to learn more about how they use energy? This discussion is meant to be reflective and encourage your students to consider the attitudes of those who may be less interested in or even aware of renewable fuels. What kind of questions did students ask. Should we develop a new handout for the second event?*
31. W*hat do we have to do to prepare for the second event? We again have to secure and set up computers connected to the Internet. We need permission, tables, and chairs. We need to promote the event to secure participation*. In your earlier meetings you set the example of how to address and answer these questions. So, this time allow your students to take charge as a self-directed group to decide what needs to be done, by when, and by whom. You will serve in the role as a moderator and advisor. If this is successful, they themselves will make assignments and have a plan to assure the tasks are being accomplished.
32. *Have we updated Facebook with details on the first My Carbon Footprint results? What can we do to promote Survey Monkey to students?*
33. *Let's stay in touch between now and the next meeting. Until then, call or email as the need occurs.*
34. BREAK UNTIL THE FINAL EVENT: During the interim, email your students to thank them for their participation remind them when they will meet prior to the event. Call, if necessary, to leave reminders.
35. EVENT TWO: For the final event, meet early enough to set up another My Carbon Footprint wall display using craft paper. Set up the tables, place the computers and make sure they are connected to the Internet. As this is not a scientific survey, it is not critical that exactly the same people take the survey. In reality, this event is to provide educational awareness of carbon-based fossil fuels as they relate to renewable fuels. This event will focus on remeasuring carbon footprints for individuals, and making a final call to go to Survey Monkey and answer the questions. After this event, be sure to clean up, put the tables and chairs away, and make sure the computers are returned to their respective owners.
36. It is critical that you have a student take a photo of the My Carbon Footprint wall from the same angle as the first. You will be able to compare this photo to the one from the first event and visually determine if carbon footprints overall were the same, larger, or smaller. You can convert this to mathematical values by adding up all the values from the first and second events and dividing by the number of participants.
37. Schedule a final meeting to review the results, make sure the concluding Facebook updates have been made showing the My Carbon Footprint and Survey Monkey results.
38. Encourage your students to discuss what your they learned from this project. This will be an open discussion.
39. *I think we should work with the college newspaper to develop a story about how the changing American culture is embracing renewable energy for both practical and personal reasons. Be sure to say this was an educational, not scientific, project whose focus was to inspire people to think about renewable energy and their actual energy usage. Who will want to talk to the paper about our project, what we learned, and the final results?*
40. *We have to write and sign a few thank you cards for our sponsors, and others who helped make this project possible. This will be our final action as a group. From my perspective, I am proud of all you accomplished, what you have learned, and what you helped others learn through this process. I trust this will help you in the days and months and years ahead.* Pass out the thank you cards.
41. Prepare another thank you card for National Farmers Union for providing this lesson plan.
42. Collect the thank you cars and be sure they are mailed within a day or two.
43. Following the last meeting, make sure the thank you cards are mailed. Also, write your own thank you cards to the participants and mail or deliver them. Also, write a one page letter to the school crediting these students for their accomplishments. Monitor the Facebook page for six months. If there is no activity, close it down. If it has had some activity, let it continue as long as it has usage.

Begin by Brainstorming

Resources (what talents/abilities do we have in our group?)

- Photographers/writers
- Event planners
- Public spokespeople
- Social media
- Project managers
- Developing matrix or measuring tools
- Other

Sponsors (who can provide financial or in-kind support?)

- Regional or State Renewable Energy departments
- Economic Development councils
- Extension Service located on land grant universities
- All of the Green Business examples listed below
- Other

Partners (From whom do we need permission and cooperation?)

- Student organizations on campus
- Student government
- The President's office
- Educational Departments
- All of the Green Business examples listed below
- Other

Green Businesses (What businesses embrace green technology and want to showcase it)

- Electric Utility companies including municipally owned or cooperatives
- Solar installation companies
- Wind turbine manufacturers
- Ethanol & biofuels producers
- Manufacturing facilities
- Public schools
- City and County government agencies
- Companies that promote their efforts to be green
- Other

Panelists (Who will be willing to talk about different forms of green energy)

- University researchers
- Industry representatives
- Elected officials
- Directors of city, state or national departments
- Representatives of companies that promote green operations
- Other

Publicity (How can we promote these events in advance and obtain coverage of them as they happen?)

- School Newspaper
- Community Newspaper
- Bulletin boards
- Radio
- Television
- Social Media including Facebook, Twitter, and blogs
- On campus newsletters and announcements
- Other

Working Groups

- What needs to be done?
- By whom?
- By when?
- How?

Take Action And Make Things Happen

What needs to be done?

By whom?

By when?

How?

Renewable Energy Fair Checklist

Before

_____Permission: Secured from all required entities?

_____Liability Insurance: Is coverage required? If so, is a sponsor, partner or the college willing to do so?

_____Volunteers: Do we need additional help and if so, what training may they need?

_____Project Manager: Someone who will oversee this event, anticipate needs, and adjust accordingly

_____Space: Adequate, accessible, and logical for this event?

_____Promotion: News releases, social media, posters and a banner or poster listing participants and sponsors

_____Contact newspaper/radio/television to arrange coverage

During

_____Pre-meeting to go over logistics of event: include facilities management

_____Arrange space during set-up time, including tables, refreshments, signs

_____Train volunteers during set-up time so they know what to do and for how long

_____People to direct and assist exhibitors with set up

_____People to greet guests and answer questions

_____Photographer and writer assigned to update your own Facebook page

_____Assure safe access to electricity

After

_____Clean up

_____Assist participants with tear-down

_____Secure area in cooperation with facilities management

_____Accounting for funds (possible disbursement for emergency home heating or similar cause)

_____Thanks yous to partners, sponsors, panelists, participants, decision makers and volunteers

_____Update Facebook page with coverage of event

_____Post press release (if necessary)

Energy: Let's Map It Out

Draw in the borders for the 50 states, plus Alaska and Hawaii.
Using large and colorful graphics of wind turbines, dams, oil wells, solar panels, coal drag lines, nuclear cooling towers and others as appropriate, place them on the map in appropriate locations (including drilling platforms off shore). Here are the sources of energy you need to find. Focus only on the major sources: small coal mines, dams, and wind farms are not critical for this map. The important thing is to convey to students where fossil fuels and renewable fuels are at these days.

Forms of Fossil Fuels
• Oil
• Natural Gas
• Coal

Sources of Renewable Energy
• Biofuels (ethanol and biodiesel refineries)
• Hydroelectric (including dams and tidal)
• Wind
• Geothermal
• Solar
• Biomass (converting garbage, wood chips, and other refuse to energy)

Other Factors
• Nuclear (not renewable exactly, nor a fossil fuel)

Just for Fun
- Top 10 Green or Sustainable Cities
- Top 10 Green or Sustainable Companies

Also, place graphics of ships and power lines showing how much net energy is imported into the U.S. as measured in barrels of oil and kilowatts of electricity.

Renewable Energy Panel Guide

_____Room secured in advance: Scheduled and unlocked by facilities management
_____Chairs, tables: Head table and chairs, additional chairs for audience
_____Sound system and check: Single microphone? One for each speaker? One for audience? Sound technician?
_____Name tags and name tents: For panelists, for emcee, for special guests
_____Emcee: Someone from the planning group to welcome panelists as they arrive and then lead the discussion
_____Greeting host: Someone from the planning group to welcome guests to the event
_____Cards for guests to write down questions, or remote mic for the greeting host to take to audience members
_____Invitation to media
_____Photographer/writer to cover the event for the purpose of updating the Facebook page
_____Group Photo: This is important to arrange so you can use it on Facebook and in the school newspaper

Script:

The emcee will open with a welcome and self-introduction based on the text below. Tailor this to reflect the individual's personal and professional interest in renewable energy.

Welcome to the Renewable Energy Fair and especially to this event at which our panelists will update us on the latest successes and future trends in renewable energy. I am NAME, a member of the group of students who volunteered to organize this event. I am a (major) here at (school), and my hometown is (city). Renewable energy has come a long way during our lifetimes. Indeed, it is a way of life. We are hosting this energy fair and panel to learn more about where renewable energy is today, and where it is going. Each panelist will have up to ten minutes to speak. After all panelists have spoken, we will open the conversation to accept questions from you. Please write down any questions you have and be prepared to ask them. Also, I want to thank our sponsors (name), and our participants (name), and especially (decision makers who had to approve) who made this event possible.

Keep the introductions of each panelist brief, as in no more than one minute. You should mention them by name, where they earned their degree, where they currently work, and what they do as it relates to renewable energy.

After each panelist is done, thank them by name and immediately move on to the next introduction. Keep the transitions smooth and lively.

After the last panelists has spoke, move to the Q&A phase, based on reading from cards collected from the audience or allowing audience to use a roving mic. Be sure to repeat the question being asked so everyone can hear and understand it. Questions may be directed to an individual or the panel, however, the latter will take more time. If questions (or questioners) are argumentative, suggest those discussions can be held after the panel event is over and move on with the next question. Let people know when you have time for just one or two more questions. End on time.

In closing, thank each panelist by name and then lead the applause. Offer a call to action regarding renewable energy. As in, asking people to explore how they can use renewable energy in their everyday lives, or to support community, state and federal policies to support renewable energy. Thank the audience for attending and invite them to visit the renewable energy fair.

Energy Audit Checklist

_____Select a building: Preferably one in need of energy updates and a building well known by people on campus (or in the community)

_____Contact by letter the school administration (or city or county commission) and the appropriate facilities management asking for permission to conduct the audit. Explain that your group subsequently will analyze the audit and offer a no-obligation list of recommendations to make the building more energy efficient. Follow up with a phone call or in person visit.

_____Sponsors: Seek an energy company or other entity that may provide financial or in-kind resources to assist with the cost of printing materials.

_____Develop a story and submit it to the school or community newspaper: Include a photo of building and description of the audit process. Make it interesting, not technical.

_____Arrange and conduct a walk through of the building with the facilities manager to fill out the audit report.

_____Set up Facebook page to share information within the group and ultimately to share the final report (link to NFU).

_____Draft a report including a copy of the audit, a cover letter and five specific recommendations.

_____Deliver the report to the school administration or other governing body.

_____Post the final report on Facebook and publicize it, inviting comments.

_____Prepare a final story for the school newspaper and possibly community newspaper and put up posters promoting the Facebook page.