



Renewable Energy Action Project: WHAT'S IN YOUR ENERGY PORTFOLIO?

PLANNING OVERVIEW

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Environmental Science, Ecology,
Government, Math, Fine Arts,
Language Arts

TIMING

Preparation: 1 hour

Activity: Will vary depending on
several factors, including size of
survey group and scope of research.

Estimated minimum: 5 45-minute
class periods

Summary

Students will survey adult
attitudes in their own community
in order to raise student and
public awareness about the use
of renewable energy for the
generation of electricity.

Objectives

Students will:

- Develop hypotheses regarding the possible outcomes of the class investigation.
- Determine the potential for renewable resources in their region.
- Ascertain which energy resources their local power provider(s) are currently using to produce electricity.
- Develop and conduct a renewable energy survey to assess the knowledge and attitudes of a selected target audience of adults.
- Collate survey information and interpret results.
- Prepare a summary paper of their findings, including suggestions for further action.
- Compare the actual investigation results to their earlier predictions (hypotheses).
- Formulate a conclusion and reflect on the changes in their reasoning based on the investigation findings.
- Present their findings to various audiences.
- (Extension) Report findings to a wider audience and/or conduct a vigorous public information campaign.

Materials

Per student:

Information logs. Report folders with 5–10 sheets of lined binder paper. You may also wish to copy Chapters 3, 4, and 5 Discussion sections and relevant information from the Appendix for each log.

Student handouts. Investigation Task List, Report Task List, Survey, and Cover Letter

Per survey participant:

Cover letter

Survey

Final report

Thank-you letter

General materials:

Information from electricity bills, city hall, and chamber of commerce regarding all electricity providers in your area; other resource materials such as phone books

Letter-writing materials

9" x 12" mailing envelopes:

enough for entire survey group

Other envelopes to enclose with survey: enough for entire survey group

Paper or tag board for classroom charts

Optional: Computer with printer and Internet access

Optional: Report materials: poster board, markers; overhead projector and transparencies; presentation software such as PowerPoint®, Kid Pix®, Hyper Studio®, or Inspiration®

Permission given by the Population Coalition to adapt the survey in this Activity from *Life In My Community*



Making the Link

Students may ask: "If renewable energy is so great, why isn't it already more widely used?" Now that they've gotten this far in this unit, your students will easily recognize renewable energy resources all around them. Perhaps they live in an area that is very windy or sunny. Their town may be located by a seashore with strong wave action, a roaring river, or an active geothermal area. It certainly can be puzzling why we aren't making greater use of this abundant energy.

Many reasons may be cited regarding the challenges renewable energy has faced over the years, some of which will be addressed in this activity. However, perhaps one of the most important challenges today has been a lack of public awareness regarding how our electricity is produced. Many people are still not aware of the variety of resources available for the production of the electricity we use everyday.

In this activity, students have an opportunity to survey key adults in their own lives, to present a report to them and to others, and to inform them of the renewable energy options available to them right in their own communities.

Teaching Notes

Though rigorous, activities of this type are well worth tackling with your students.

There are a number of educationally sound justifications for doing so. This activity cultivates essential critical thinking strategies. Also, class work that moves into a "real-world" context is an effective and engaging type of learning. Working cooperatively with a variety of people is a skill that not only enhances learning, but will also serve students well as future citizens. Further, students will feel empowered, not just by their own involvement, but also by the involvement of the adults who show interest in this project.

A number of skills practiced in this activity are hallmarked in the National Science Education Standards & Benchmarks for Scientific Literacy. These standards support the importance of students being able to look at and analyze evidence, deduce a conclusion, and develop an interpretation or opinion based on evidence.

When working with the results from the survey, prepare students for the fact that the survey findings may not come out the way they'd anticipated. Emphasize the importance of reporting their findings honestly and accurately.

Remind students that, when giving presentations (see Wrap-Up, page 7), it is imperative that they act maturely and keep their cool in order to be convincing. Some people may simply have no interest in the subject. Others may consider energy use and the environment to be controversial "hot button" topics. Prepare your students for the fact that a few people may ask pointed questions or behave in a confrontational manner. Remind students that they must always be professional and polite. If they don't know an answer to a question, suggest that they get back to that person with sources of information or an answer to his or her question. Make sure that students get, with permission, contact information (phone number, e-mail, address).

Warm-up

Your students may be surprised to learn just how much of a difference they can make in the way things are run in the adult world. Share the following narrative, "Students Making a Difference," which shows how one teacher and a group of students made such a difference.



Students Making a Difference

When an environmental science teacher joined the staff of a Massachusetts high school in 1990, she found a neglected solar array right behind the school. She learned that the dozens of solar panels had been installed there as part of a U.S. government study on solar energy in 1981. At the time solar PV was very expensive, but the federal government policy regarding renewables was very supportive. Then, because of changes in policy in the late 1980s, support for the project was withdrawn.

The teacher decided that this “backyard” opportunity for educating students about renewable energy was just too good to miss. So, along with the original project developer, she launched a student-based lobbying campaign. They worked hard to convince the federal government to resume funding the project.

The teacher and students were very successful. Public funding was renewed in 1994 to restore the array and keep it running. To top it off, this project also supported what was to become a nationally recognized renewable energy education program.

Interestingly, when repairs were finally made on the array, engineers discovered that only 7 out of 3,200 solar modules had failed. They found that the array

had been quietly generating electricity in spite of the lack of maintenance and the harsh New England weather. Now kept in tip-top shape, it will continue to supply both energy and education for many more years to come.

This story is just one of many examples of teachers and students affecting energy policy and management.

In the following venture, students will conduct a public information survey of adults in the community about electricity sources and report the findings. This research might raise awareness that could eventually result in some real changes in the way electricity is produced and used in their own area.

The Activity

STAGE ONE: Setting the Scene

1. Distribute an Information Log to each student (*See Materials*). Explain to students that they will be using these logs to record plans and information. Remind them to always date each entry. You may wish to have students place a title on the front cover, such as “Renewable Energy Action Project.”
2. Divide your class into groups of 3–5 students. These will be their action groups for the duration of this activity.

3. Ask each group to consider the reasons why renewable energy has not been more actively used in our country (at least not until very recently). Ask them to brainstorm and list on scratch paper what they perceive these challenges to be.

Have each group share its ideas with the rest of the class. As they do, make a master list on large chart paper. Label the list with a title such as “Barriers to Use of Renewable Energy.”

Students might list the following barriers:

- Many people may not understand about the “hidden costs” of producing energy with resources such as fossil fuels, so they may perceive that renewable energy technologies are expensive.
- People may hear that it takes a long time to make up for an investment in renewables with the savings they realize on their energy bills.
- Some renewable resources are “intermittent;” they can only be used at certain times (e.g. solar, wind).
- There are some concerns about wildlife safety with certain renewable energy technologies (e.g. wind turbines, hydropower dams).



- Some people object to power plants in their cities, rural areas, or favorite forests.
 - Some government policies — whether local, state, or federal — haven't always supported renewables, or have only supported a select few.
4. Explain to students that you would like to add other challenges to the list: first, public awareness; and second, lack of "choice." Write these on the Barriers master list. Discuss the first challenge, noting that electricity customers may not be aware of the renewable energy technologies now available to us.

For the second challenge, discuss that the electricity providers may not offer a "green energy" or renewable "customer choice" program. Once aware, adults may begin to question why their power suppliers aren't offering renewable choices. Some may even start urging their power providers to add more renewable options. Additionally, these adults may have already considered adding renewable energy technologies to their own places of work or at their homes.

5. Ask students to copy the Barriers list into their logs.
6. Tell students that they will be doing an action project to determine attitudes and raise awareness about renewables in your community. This project will be done in stages. Students will determine the policies of your power provider(s) regarding renewable energy. They will learn what the potential is in your region for various resources. They will conduct a survey on renewable energy, with the target group being their parents, teachers at the school, and other adults in their lives. They will collate, assess, and present their findings. If their findings reveal a strong interest in renewable energy, a ripple effect of interest and demand could result in eventual changes in the use of renewable resources in your area.
7. Have students get back into their groups and give their group a name. You might suggest that they choose energy-related names, such as Kilowatt Kids or The Transmitters, etc.

STAGE TWO: **Investigation**

1. Use a large piece of chart paper on which to place an "Investigation Action Plan." On the page opposite is an example matrix that can be placed on the chart. Adapt this to suit your individual situation.
2. Distribute the student handout "Investigation Task List" to each student and review its contents with your class. Have students place this handout in their "Information Logs."
3. As a class, read over and discuss the various tasks, then decide which groups will be in charge of which tasks. If there is more than one power provider in your area, then assign a different group to each one. Note the name of each provider on the master chart alongside the assigned group's name. You will most likely assign each group to more than one task. Establish target dates for the completion of each task. Place all this information on the chart. Remind groups to use their "Information Logs" as the organizer for all their work on this project.
4. Pass out the sample survey and cover letter. As a class, read through each of these



| Investigation Action Plan | | | | |
|---|-----------------|--------|-------------|---------|
| Task | Who's in Charge | Action | Target Date | Results |
| Determine power providers' portfolio Assess local energy resource potential Investigate future plans for renewables Determine survey participants Analyze and adapt survey Analyze and adapt cover letter Prepare and deliver surveys Collect and record completed surveys | | | | |

and discuss any suggested changes. The group(s) assigned to make these changes should take notes during these discussions.

- Have groups meet to discuss their assigned tasks, using the handout, "Investigation Task List" (page 10). Assist groups in determining how they will go about gathering and writing up their information or making changes to existing documents (e.g., survey or cover letter).
- Ask student groups to discuss what they think their investigation will reveal, based on what they presently know about their community. Do they predict that their power provider is or isn't already using renewable energy? What types of energy resources might be available

in their region? What attitudes and knowledge about energy use will their survey uncover?

After some discussion as a group, have each student write his or her predictions in his or her log. Ask each student to form a hypothesis regarding the possible outcomes of the class investigation.

Call the class together and ask students to share their hypotheses and to explain the reasoning behind their choices.

- Allow time in future class periods for student groups to work together on their appointed tasks. If needed, allow time, too, for students to do any required research, or perhaps assign as part of their homework.
- Make enough copies of the final Cover Letter and Survey

for your survey participant group, plus extras for use in collating responses. Have students (or classroom volunteer) prepare self-addressed envelopes by placing the school address in the "To" position of the envelope. Place these along with the cover letters and surveys into the clasp envelopes. Have students deliver packets to their own survey participants. To avoid duplication, decide who will deliver surveys to adults at your school and to other parties such as district personnel.

- As surveys are returned, have the group assigned to collecting and checking them off do this on the "Survey Participant Chart." You will want to keep the surveys in a safe place until students are ready to process the information.



STAGE THREE:

Collation and Interpretation

1. When the surveys are returned, it is time to collate the information.

Divide the survey responses among the groups. Have students tally up each question's results, using the extra blank copies of the survey. Decide who will prepare a final master copy with a total of all responses.

Using a blank master copy of the survey, "tic marks" are placed by each response. Then these tic marks are totaled. Any written comments are copied down beside their respective questions or on the blank sheets to be attached to the tally sheet.

2. Make a copy of the final collated results for each student. Have them place these in their logs. Have students examine and discuss these results in their groups.
3. Then call the class together. Ask each group what their general impressions of the results are and what they think the results may mean. Explain that when they are doing this, they are "interpreting" the results.

These interpretations reflect the overall trends that you and your class see based on the responses to the survey questions. For example, in one case, your class might learn that your local power provider does not have a diverse energy portfolio that includes renewable energy resources, though your research shows that there are several such resource choices available in your area. Your survey findings might show that the majority of the participants are quite interested in having the option to get electricity from renewable energy resources and may be willing to pay a bit more for such choices. In this case, students may reasonably interpret the results to indicate that there is an indicator of community interest in further use of renewable energy sources.

In another instance, what may seem like a lack of community interest may actually be lack of knowledge. Certain questions are indicators of this lack. Perhaps the survey participants (and most likely other community members) need more information regarding the benefits of using renewable energy and the great

strides renewable energy technologies have taken in recent years. Or perhaps you may learn that your region has few renewable resources.

4. On large chart paper, make a master list of your class's general interpretations of the survey results. Have students copy these into their logs.

STAGE FOUR: **The Report**

1. On a large piece of chart paper, create another action plan matrix, this time for developing your final report. As before, place the task list vertically on the left side and place the following on the top horizontal: Group Name(s), Action, and Target Date.
2. Distribute the student handout, "Report Task List." Explain that they will be developing a report of their findings. It will have four sections (see "Task List"). A group will be assigned to each section. Another group will need to develop a thank-you letter to participants. The report and the thank-you letter will also need to be typed, copy-edited, and revised.



3. Encourage students to make charts and graphs displaying their numerical information (by hand or using presentation software). Once written, have different groups proof and edit each other's sections of the report, as well as the thank-you letter.
4. Decide how the report and thank-you letter will be typed up. Make enough copies for each survey participant who requested one, plus one for each student. Have students place their copies in their logs.
5. Have students individually review their original hypotheses and compare them to the actual findings of the class report. Ask them to reflect, in writing, on the reasons for their previous understandings and how they have now changed. Then, ask them to write up their own conclusion based on the investigation findings.

Have groups get together to discuss their conclusions and how they may or may not differ from their original hypotheses. Have them share things that were surprises. For

example, was it a surprise that their power provider is (or isn't) already using renewable energy. Maybe they didn't realize that a certain type of energy resource is so widely available in their region. Or, perhaps they thought that the adults surveyed would know more than they do about energy use.

Bring the entire class together and ask a spokesperson from each group to give a general summary of their group's exchange. Invite further class discussion about any interesting points that may arise and make notes of any items for future class or individual investigations.

6. Send a copy of the report (with contact information for inquiries) to your local newspaper, your community government, and chamber of commerce. Make sure that your local power provider(s) receives a copy. Discuss with your students how inquiries arising from this distribution will be handled.
7. The Energy Education Group would be very pleased to receive a copy of your students' report along with any information you'd like to share about the outcome of this activity.

Please send to: Energy Education Group, 664 Hilary Drive, Tiburon, CA 94920, or, if electronically produced, to energyforkeeps@aol.com.

Wrap-up

Prepare a presentation in which your class will tell an audience about its findings and its recommendations. As a class, choose selected portions of the report to give orally or use in a visual format. You might consider presentation software, overheads, or other visuals such as charts and posters. Discuss the students' purpose in giving the report. For example, do they wish to persuade consumers, such as their parents, to ask their utility to use more renewable resources? Would they like your school board to consider installing solar panels on school buildings or to provide information to the school's power provider about diversifying its energy resource portfolio? Whatever the purpose or audience, steer students away from making strident demands.



If charts and other visuals are to be made or presentation software (see Materials) will be used, assign various sections to different groups.

Determine who will deliver the presentation. It might be a representative from each student action group.

First practice the presentation by giving it to another class at your school, or to an audience of the parents of your class. Invite your district's school board members to attend. Afterwards entertain questions. Based on the audience response, revise your presentation.

If the students' presentation is impressive, consider inviting a local power provider to send a representative to visit. In preparation, have students meet in their groups to discuss their opinions about the provider's policies. Then have the class meet to share and discuss each group's opinions. Make a class decision about the purpose of giving their presentation to the power provider. Will it be to applaud their efforts, to raise their awareness, or possibly to encourage a policy change?

Discuss the nature of persuasion and the different ways to promote one's point of view without being demanding. Once

the presentation has been given, allow the representative time to digest and pass the information on to his colleagues. Then encourage follow-up contacts. Ideally, class members might continue an ongoing dialogue with the company. The results in the long run could be quite positive.

Assessment

Students will have had the opportunity to:

- Organize and maintain an information log.
- Do research concerning the potential for and attitudes about use of renewable resources for electricity in their community.
- Collate and interpret survey results.
- Develop a summary report of research findings and recommendations.
- Formulate hypotheses and conclusions regarding anticipated and actual investigation results.
- Prepare and deliver a presentation of findings.

Extensions

- Publish results to a wider audience. Contact regional TV and radio stations. Ask for display space in your community's library. Send a copy of your report to your federal and state officials.

- Contact established organizations that may share a common purpose. Share your report findings with them. Discuss the possibility of a working together to develop a more extensive public information campaign on renewable energy.

Additional Culminating Activity Suggestions

Civics Simulations. Have your class simulate a civics decision-making process. Here are two ideas, which you can adapt to meet your specific educational goals:

1. Your class might establish a "town council," made up of five or six students with various assumed identities. The rest of the class can act out the roles of various citizen groups who want their form of energy resource to be used for a proposed power plant in their community. Be sure to include all the resources that would apply to your area (including fossil fuels and nuclear). Groups can meet to prepare for the town council, and appoint a representative to speak for their group at the meeting. Consider having "representatives" of renewable



energy power providers, an oil company, a nuclear power facility, environmentalist groups, home owners, business owners, college professors and students, people who will be living right near the plant, and so on.

While these groups are meeting, the town council can meet to establish whether future power needs can be generated in the region or must be purchased from elsewhere, what they perceive the needs of the community might be, and some guidelines for the council meeting discussion.

Students can make up their own names and identities, or you can develop some and pass them out randomly. Invite a member of your local town/city council to come and advise students about the town/city council decision-making process, or, if possible, have your class (or representatives from your class) attend a town/city council meeting.

2. If you have been studying state or national government, you can adapt the above activity by changing it to a state or federal legislative

“hearing” on energy. Each student (or small group with a spokesperson) would be a member of Congress testifying before the rest of his or her peers, advocating a particular type of resource to be supported by Congress to meet future energy needs.

Once all have testified, then the entire “Congress” would vote on a 10 to 20-year energy plan (or whatever). One or two students may wish to assume the Congressional leadership role to moderate the discussion.

Not only will students need to study their energy resource in preparing for the hearing, they will also need to learn how the governing body they are simulating conducts its meetings. You may wish to watch a broadcast of a Congressional hearing or invite your local representative to advise the class.

Forecast the Future. Assign a different energy resource to each student group. Ask them to brainstorm what they think the future would be like if that resource replaced fossil fuels as the most widely used energy resource. Select a time period such as 50 or 100 years in the future.

Have them consider all aspects of an industrial society: agriculture, transportation, factories, high tech businesses, service industries, schools and universities, recreation, national parks and wilderness areas, and so forth. What would cities and towns be like? How about air and water quality? What about the value of open space and having an enjoyable view? What role do they picture the government having?

Have groups develop a method to present their forecasts to the rest of the class. You might consider offering these choices: poster with report; play, puppet show, or “news hour broadcast;” computer presentation; travel log or travel brochure.

Ecological Footprints. Explore the idea of Ecological footprints more extensively. One way to do this is by going online. Students can compute their own “eco footprint” and learn how to shrink it by visiting the “Redefining Progress: Sustainability Program” website (see page 31).



What's in Your Energy Portfolio? INVESTIGATION TASK LIST

Assess Local Energy Resource Potential

Find out what energy resources are abundant in your local area. For many resources there is information available online. Several good places to start are the U.S. Department of Energy, your state's energy department, and possibly your local power provider.

Review Local Power Providers' Energy Portfolios

First, learn who your local power providers are (there may be only one in some cases). Then investigate their energy portfolios. Find out what percentage of the total electricity produced is coming from each renewable source (if any). Disclosure regulations in many areas should make this information readily available. With some power providers, this information will be online. Otherwise, call or write to ask their community relations department.

Investigate Future Plans for Renewables

Contact each power provider's community relations department. If they aren't currently using any renewables, ask what their plans are for adding renewables in the future. If they are already using renewables, ask them what their plans are for adding more, if possible. Get specific information regarding which types and what percentage of the total electricity produced they estimate each will be.

Ask their community relations department what they consider the barriers to more extensive use of renewables to be. Urge them to be specific. Use your list of "Barriers" to assist in the conversation. Remember to be courteous!

Determine Survey Group

Each student should list people he or she knows and trusts in the community who may be willing to participate in the survey. The group assigned this task should then gather all these names from each student and create a master list of participants. Additionally, the class should add other key adults to this list, including your school's administrator(s), office manager, teachers, librarian, custodian, as well as school district personnel. This list of survey participants should be posted. The group

assigned this task is responsible for making sure that enough cover letters and surveys are copied. They are also responsible for following up to see that most (or all, if possible) of the surveys are returned (see below) and are checked off on the list.

Develop or Adapt Survey

A sample survey is provided. You may want to use it as it stands or adapt it. Or, your class may wish to create one entirely on your own, based on your individual circumstances. Your teacher should conduct a class discussion to brainstorm any changes to the sample survey. Your group should take notes of these suggestions and then make the changes to the survey.

Analyze and Adapt Cover Letter

Your teacher will conduct a class discussion regarding ideas for revising the sample cover letter. Your group should take notes during this discussion, then make the needed changes to the letter.

Collect and Check Off Surveys

See "Determine Survey Group" above. Once the surveys are checked off, give them to your teacher.



REPORT TASK LIST

SECTION ONE: Our Area's Energy Resource Potential. This section reports on findings regarding your region's potential for various energy resources.

SECTION TWO: What's in Our Power Provider's (Providers') Energy Portfolio(s)? This section reports your findings regarding what energy resources your local power providers are currently using to produce electricity, along with whether they offer a "green energy" or other customer choice program.

SECTION THREE: Survey Findings. This section reports the findings and interpretations of your survey.

SECTION FOUR: Summary and Recommendations. This section includes a summary, as well as recommendations for further action. The recommendations should be based on the opinions of all the groups.

Edit Report. Several or all groups should help proof and edit the report, with the teacher and/or volunteer's guidance.

Thank-you Letter. This letter should contain a thank-you to the participant, a recap of the investigation's purpose, a very brief overall summary of what is found in the report, and possibly a paragraph stating future hopes and expectations of the class.

Type Report. You may want to have an adult or high school/college student volunteer to type the report in order to save time.

Prepare and Deliver Report and Letter. Stuff clasp envelopes with the thank-you letter and report; each student delivers to his or her own key adults; mail, or otherwise arrange to deliver, the remainder to those who requested the report.

COVER LETTER

(Date)

(School address)

Dear Survey Participant,

_____ grade students from _____ class at _____ School, _____ District, have been studying the use of renewable energy. We have explored the many interesting choices available in different locations for the production of electricity.

We are now conducting a study on electricity production and energy use in our local community. We are investigating the potential for using renewable energy resources in this region. We are also learning what energy resources our local power providers are using to produce electricity. We have explored what the possible barriers, or challenges, have been to a more extensive use of renewable energy sources in our area.

We would like to learn community attitudes about renewable energy and are asking you to take a few minutes to fill out this survey. The questions are about:

- Your general feelings about the quality of life in our community.
- What you think is important regarding electricity production and energy use in our community.
- What you already know about the renewable energy choices we do have available.
- Whether you think it is important to be using more renewable energy for the production of electricity and what you would be willing to change in order for this to happen.

We are gathering and collating this information in order to gain an overall impression of adult awareness of and interest in these issues. Your individual responses will be completely anonymous.

The information from this survey will be collated with other respondents' answers and used as part of a report on energy production and use in our community. You will be sent a copy of our final report if you wish.

We plan to present our findings to various audiences, including fellow students and teachers, as well as school board members. We also might deliver a presentation to one of our local power providers.

Please return this survey to _____ class, _____ School, by _____.
A self-addressed return envelope is enclosed for your convenience. (date)

Thanks so much for helping us with this project,

Sincerely,

(Name of class)

(Name of school)

SURVEY: Renewable Resources for Electricity in our Region

A ABOUT QUALITY OF LIFE IN OUR COMMUNITY

Using the scale shown below, please indicate your answer to questions 1-4 by circling one of the letter abbreviations.

VS = Very satisfied

S = Satisfied

N = Not sure

D = Dissatisfied

ED = Extremely dissatisfied

- | | | | | | |
|---|----|---|---|---|----|
| 1. How satisfied are you with the overall quality of life in our community? | VS | S | N | D | ED |
| 2. How satisfied are you with each of the following conditions of our community? | | | | | |
| a. Physical environment (Consider, for example, parks/wilderness/open space vs. areas of buildings and pavement.) | VS | S | N | D | ED |
| b. Air quality | VS | S | N | D | ED |
| c. Water quality | VS | S | N | D | ED |
| d. Economic conditions | VS | S | N | D | ED |
| e. Cleanliness | VS | S | N | D | ED |
| 3. Our government representatives are responsive and proactive about reducing air pollution. | VS | S | N | D | ED |
| 4. I am happy with our community's waste management program. | VS | S | N | D | ED |

Check the statements that apply to the following question.

5. Our community's waste management program includes these features:

- Green waste (yard waste) is collected in a separate container and placed at our curbside.
- Recyclables (paper, newspaper, glass and plastic containers, plastic bags, aluminum foil, Styrofoam, etc.) are collected altogether in one container and placed at our curbside.
- We separate our recyclables by type and place them at our curbside.
- We separate our recyclables by type and take them to a recycling center.
- We collect and place our garbage in a separate container at the curbside
- None of the above. Describe _____

B ABOUT RENEWABLE ENERGY IN GENERAL

Place a check mark by as many answers as you feel apply to the following question.

6. The following energy resources are considered to be renewable resources:

- Coal
- Oil
- Natural Gas
- Nuclear energy
- Biomass
- Solar energy
- Wind energy
- Geothermal energy
- Storage-type (dam) hydropower
- Run-of-river hydropower
- Hydrogen
- Wave energy
- Tidal energy
- Not sure

Using the scale shown below, please indicate your answers to statements 7-9 by circling one of the following letter abbreviations.

SA = Strongly agree

A = Agree

N = Not sure

D = Disagree

SD = Strongly disagree

- | | | | | | |
|--|----|---|---|---|----|
| 7. Renewable resources are generally environmentally friendly. | SA | A | N | D | SD |
| 8. It is important to produce electricity with locally available, renewable resources so that we can be more energy independent. | SA | A | N | D | SD |
| 9. It is important to protect the environment and our health by reducing the amount of polluting resources we use for energy. | SA | A | N | D | SD |

C ABOUT ELECTRICITY PRODUCTION IN MY REGION

Check the box beside each answer you feel applies to the following three questions.

10. The electricity we are using in our region is currently being produced with the following resources:

- Coal
- Oil
- Natural gas
- Nuclear energy
- Biomass
- Solar energy
- Wind energy
- Geothermal energy
- Storage-type (dam) hydropower
- Run-of-river hydropower
- Hydrogen fuel (for example, hydrogen fuel cells)
- Wave energy
- Tidal energy
- Not sure

11. In our region, we have the potential for, but aren't necessarily using, the following energy resources to produce electricity:

- | | |
|---|--|
| <input type="checkbox"/> Coal | <input type="checkbox"/> Geothermal energy |
| <input type="checkbox"/> Oil | <input type="checkbox"/> Storage-type (dam) hydropower |
| <input type="checkbox"/> Natural gas | <input type="checkbox"/> Run-of-river hydropower |
| <input type="checkbox"/> Nuclear energy | <input type="checkbox"/> Hydrogen (for example, hydrogen fuel cells) |
| <input type="checkbox"/> Biomass | <input type="checkbox"/> Wave energy |
| <input type="checkbox"/> Solar energy | <input type="checkbox"/> Tidal energy |
| <input type="checkbox"/> Wind energy | <input type="checkbox"/> Not sure |

12. Renewable resources provide about what percentage of electricity in the United States? (Check one.)

- | | |
|-------------------------------------|---|
| <input type="checkbox"/> 2 percent | <input type="checkbox"/> 25 percent |
| <input type="checkbox"/> 5 percent | <input type="checkbox"/> 50 percent or more |
| <input type="checkbox"/> 10 percent | <input type="checkbox"/> Not sure |
| <input type="checkbox"/> 15 percent | |

Using the scale below, indicate your answer to statements 13 – 17 by circling one of the following letter abbreviations:

SA = Strongly agree

A = Agree

N = Not sure

D = Disagree

SD = Strongly disagree

- | | | | | | |
|---|----|---|---|---|----|
| 13. Our region has an adequate supply of electricity. | SA | A | N | D | SD |
| 14. Our electricity is reasonably priced. | SA | A | N | D | SD |
| 15. My local power provider(s) offers me a "green energy" option. In other words, I can choose to get some of my electricity from clean and/or renewable energy sources. | SA | A | N | D | SD |
| 16. Although my local power provider(s) does not offer a green energy program, I would like to be offered more choices of how my electricity is produced. | SA | A | N | D | SD |
| 17. I would be willing to pay a bit more on my energy bill for an option to get some or all of my electricity from renewable energy. | SA | A | N | D | SD |

D ABOUT SAVING AND PRODUCING RENEWABLE ELECTRICITY AT MY HOME AND WORKPLACE

My Home

18. According to my electricity bill, last month, which is the month of _____, our household used _____ kilowatt-hours (kWhr) of electricity.

Using the scale below, indicate your answer to each statement by circling one of the following letter abbreviations:

- SA = Strongly agree**
- A = Agree**
- N = Not sure**
- D = Disagree**
- SD = Strongly disagree**

Please answer the questions in this section whether you are a homeowner or not. If you aren't, answer them as you would if you did own your home or as they may apply to the place you occupy (apartment, student housing, shared rental home, etc.).

19. We are willing to pay more for energy efficient lightbulbs and appliances such as Energy Star appliances. SA A N D SD

20. My household would be interested in producing some of our own electricity with a renewable energy system (such as solar panels). SA A N D SD

21. If you agreed to Item 20, then list the renewable energy systems you would be most likely to use:

22. We already have a renewable energy electrical generation system installed at our home. SA A N D SD

If you agreed to Item 22 above, then please answer the following three items. If not, then skip to Item 27.

23. List the type of renewable energy system(s) you have installed at your home:

24. We are participating in a "net metering" plan, in which we have remained connected to the electrical grid and can sell any excess electricity that we generate back to our utility. SA A N D SD

25. We are satisfied with our renewable energy electrical generation system. SA A N D SD

26. Why or why not? _____

My Workplace

27. My work associates and I may be interested in producing some of our own electricity with a renewable energy system installed at our workplace. SA A N D SD

28. If you agreed to Item 27, then list the one(s) you would be most likely to use:

29. A renewable energy electrical generation system is already installed at my workplace. SA A N D SD

If you agreed with Item 29, then please answer the following three items.

30. List the type of renewable energy system(s) you have installed at your workplace:

31. My workplace is participating in a "net metering" plan, in which we have remained connected to the electrical grid and can sell any excess electricity that we generate back to our utility. SA A N D SD

32. People at my workplace are satisfied with its renewable energy electrical generation system(s). SA A N D SD

33. Why or why not? _____

E ABOUT OUR HOUSEHOLD (OPTIONAL)

34. Including yourself, how many of your household members are in the following age categories. (Write the number of people for each category.)

- ____ Birth to 5 years old
- ____ 6-17
- ____ 18-64
- ____ 65 or older

35. How long have you lived in our community? ____ years

36. Why did you come to our community? (Check as many as apply.)

- | | |
|---|--|
| <input type="checkbox"/> Born here | <input type="checkbox"/> Reputation |
| <input type="checkbox"/> Employment | <input type="checkbox"/> Geographic location |
| <input type="checkbox"/> Health reasons | <input type="checkbox"/> To live in a bigger city |
| <input type="checkbox"/> Friends/Relatives here | <input type="checkbox"/> To live in a smaller city |
| <input type="checkbox"/> Physical environment | <input type="checkbox"/> Other _____ |

37. Is your workplace or school in another community? Yes No

For the following question, check as many as apply.

38. To get to work or school, do you:

- Drive Take public transportation
- Walk Bicycle

39. What is your main occupation? _____

40. Do you own or manage a business in our local area? Yes No

41. Are you involved in the civic government of our community? Yes No

42. If you answered yes to the above question, please describe your involvement:

43. Please remember to enter your ZIP code on the first page of this survey. Thank you.

44. If you would like to receive a summary report of our findings, please complete the following:

Name: _____

Address: _____

E-mail (optional): _____