ROCKY MOUNTAIN POWER

POWERING YOUR GREATNESS

4/20/2021

# PACIFICFICORP COMMUNICATIONS, OUTREACH, AND EDUCATION

## UTAH Program Year 2020 Activities

*Preface*

On June 11, 2009, the Commission approved the Company's proposal to implement an outreach and communications campaign. The objective of the program is to promote energy efficiency and conservation through education and increase customer awareness of and participation in the Company's DSM programs. This report presents an assessment of year 11 (calendar year 2020) of the DSM outreach and communications campaign, including an evaluation of the program in meeting its objectives and a summary of year 11 program activities.

## CUSTOMER SURVEY RESULTS

The Company has conducted customer research each year from 2010 to 2020 to determine the effectiveness of the outreach and communications campaign in increasing the awareness of and self-reported participation in DSM programs. The research methodology and findings of this survey work are included below.

### *Research Methodology*

**MDC Research** completed 1,033 residential online surveys in September 2020 and 428 business online surveys in July and August 2020. The studies were conducted using online survey methodology.

The overall objective of this research was to measure awareness and affinity for Rocky Mountain Power's energy conservation programs, particularly "being Wattsmart." Additional objectives included: to measure awareness level of Rocky Mountain Power advertisements and communications; determine awareness of Rocky Mountain Power being a resource for energy efficiency; gauging association between Wattsmart and Rocky Mountain Power; and discerning actions residential and business customers are taking to be Wattsmart.

**Escalent National Benchmarking Study** contains high-level findings regarding energy efficiency in which Rocky Mountain Power received a score of 83% among residential customers. These customers think the Company does a good job of "Providing information on how to control your energy costs," and a score of 74% among business customers for "Providing information on how to control electricity costs."

### *Key Research Findings – Residential Customers*

Eighty-three percent of residential customers say Rocky Mountain Power does a good job of having programs that help customers use energy more efficiently. Positive ratings are slightly higher than 2019 year-end findings (81%).

Advertising and communications recall

Three quarters of Rocky Mountain Power customers recall "being Wattsmart". Of those familiar with "being Wattsmart," 72% attribute the phrase to Rocky Mountain Power.

Actions taken to conserve electricity

More than half (62%) of residential customers have taken some actions to conserve energy, down from 2019 (69%). Actions around lighting are the most common with "Installing energy efficient lighting" as the leading action at 39%. Actions around heating/cooling are also top actions cited, with "adjusting thermostat settings" at 13% and "lowered use of/turned off air conditioning/use other cooling means" at 12%.

Reason for taking action

The main reasons for taking action to reduce energy use (among those who have taken action) is to save money (71%) and to protect the environment (18%). The third reason for taking action is to conserve energy (16%).

Preferred information sources

Rocky Mountain Power is the most mentioned first source for customers to turn to for energy efficiency information. Rocky Mountain Power's emails and website are the most common ways respondents learn about the Company. *(MDC Research)*

Television, email, social networking, and the internet are the top sources for information on news and current events. *(MDC Research)*

### *Key Research Findings – Commercial Customers*

Findings for 2020 regarding energy efficiency among commercial customers show the following:

- In 2020, nine in ten Rocky Mountain Power business customers believe that it's "very" or "somewhat important for utility companies to help customers conserve energy through program offerings (*MDC 2020 Business Research*).
- Additionally, more than half (66%) of business customers are familiar with "being Wattsmart". Of those familiar with "being Wattsmart," 72% attribute the phrase to Rocky Mountain Power. (*MDC 2020 Business Research*).
- In 2020, seven in ten (76%) Rocky Mountain Power commercial customers are aware of the Company "offering solutions to help them use energy more efficiently." Findings are up slightly from 2019 (75%) (*Escalent Commercial Study Wave 2 2020*).
- In addition, seven-in-ten (74%) Rocky Mountain Power customers believe their utility is doing a good job of "providing information on how to control electricity costs" compared to 75% in 2019 (*Escalent Commercial Study Wave 2 2020*).
- Approximately eight-in-ten (87%) of Rocky Mountain Power customers feel their utility company does a good job of "providing information about products and services that

are of value to them". This number has increased from 81% since 2019.

### *Conclusions*

The awareness level for being Wattsmart has remained consistent for residential customers and has decreased for business customers. Customers feel their utility is doing a good job of providing information. Customers acting is slightly down from 2019. As in years past, customers are more likely to conserve energy by using energy saving lighting than any other method. Customers are driven to conserve energy to save money, save energy and help protect the environment.

To leverage this finding, the Company continued to advertise and promote "being Wattsmart" as an expression of Rocky Mountain Power's "Powering Your Greatness" brand essence to empower customers and to highlight the benefits to a customer's wallet and/or bottom line as well as the environment when they take actions to be Wattsmart.

## CAMPAGIN ACTIVITIES

### Communications, Outreach and Education

Wattsmart is an overarching energy efficiency campaign with the overall goal to engage customers in reducing their energy usage through behavioral changes and pointing them to the programs and information to help them do it. "Rocky Mountain Power wants to help you save energy and money," remains the key message. In addition, we made a stronger connection between energy efficiency and benefits to the environment. "With simple Wattsmart steps you can make a big difference for Utah and the environment. Both now and into the future."

The Company uses earned media, customer communications, education and outreach, advertising, and program specific marketing to communicate the value of energy efficiency, provide information regarding low-cost, no-cost energy efficiency measures and to educate customers on the availability of programs, services and incentives.

In 2020, Rocky Mountain Power continued to tie the Wattsmart concept to messages about others who are being Wattsmart and the benefits they received with an emphasis on business customers while maintaining broad reach through traditional paid media and social media, earned media outreach and digital (online) tools.

Earned media is managed by the Company's external communications department in cooperation with the regional business managers located in Utah. "Earned media" generally refers to favorable television, radio, newspaper, or internet news coverage gained through press releases, media events, opinion pieces, story pitches or other communication with news editors and reporters. A list of the creative and news releases is included in Exhibit C.

### *Customer Communications*

Beyond paid media, the Company also used statement communications, email, website, social media, and news coverage. Tapping into all resources with consistent messaging has been the Company's approach and will continue to be refined. As part of the Company's regular

communications to its customers, support materials, newsletters, and the Company's website, promote energy efficiency initiatives and case studies on a regular basis. The Company uses the following tactics consistently to communicate to customers.

Website:

- rockymountainpower.net/Wattsmart (Wattsmart.com)
- URLs link directly to the energy efficiency landing page. Once there, customers can self-select their state for specific programs and incentives.

Social Media:

- Twitter feed promotes energy efficiency tips and Wattsmart programs each week.
- Facebook posts Wattsmart messages three to four times per month.

Newsletters

- *Connect* residential newsletter is sent via bill insert (and email to paperless billing customers) four times a year; each issue includes energy efficiency tips and/or incentive program information

### *Wattsmart Campaign*

Paid Media

The overall paid media plan objective is to effectively reach its customers through a multi-media mix that extends both reach and frequency. The audiences for communications were prioritized as follows:

- *PRIMARY*: Small to mid-sized businesses
- *SECONDARY*: Residential households in the Company's service area

Table 1 outlines the value provided by each communication channel.

Table 1 – Communication Channels

| Communication Channel | Value to Communication Portfolio | Placement |
|---|---|---|
| Television/OTT Media demo: Adults 25-54,<br>Primary: Small/Mid-sized businesses.<br>Secondary: residential (English and Spanish) | Due to the strength and reach of the Salt Lake City designated market area, television and OTT (over-the-top) are the most effective media channels. | May – November 2020<br>Impressions: 4,913,464(business and residential) |
| Radio | Given the cost relative to television, radio builds on communications delivered via television while providing for increased frequency of messages. | April – November 2020<br>Impressions: 7,700,785 (business and residential) |
| Magazine | Extends reach to business customers statewide | January – December 2020:<br>1,072,896 business impressions |

| Communication Channel | Value to Communication Portfolio | Placement |
|---|---|---|
| Paid Social Media | Promoted posts on social support broadcast and digital media to increase overall awareness | April – December 2020: Business/Residential impressions: 6,562,008 delivered 30,351 clicks and a .58% CTR |
| Facebook | Organic posts provide awareness regarding energy efficiency tips and creates a centralized location to share information on how to be Wattsmart, feature incentive programs and other seasonal information.<br><br>Information posted three – four times a month. | As of December 2020, there were 30,441 Facebook followers for Rocky Mountain Power |
| Twitter (@RMP_Utah) | Awareness for case studies and energy efficiency tips.<br><br>Tweets posted on a weekly basis. | As of December 2020, there were 11,802 Twitter followers in Utah. |
| Digital Display/Search | Supports the broadcast and print media while also increasing awareness for energy-saving messaging.<br><br>Search engine advertising to help customers find information they saw in the advertising. | Display advertising delivered Business/Residential impressions 8M with 14,926 clicks and a .18 CTR |

The total number of 2020 impressions for the Wattsmart campaign was 28,345,254.

Web links to the current portfolio of advertisements are included in Exhibit C of this report.

## Public Outreach

*Energy Education in Schools*

The Company offers a "Be Wattsmart, Begin at Home" school education program delivered through the National Energy Foundation ("NEF"). The program is designed to develop a culture of energy efficiency among teachers, students, and families. The centerpiece is a series of one-hour presentations with educational and entertaining video components as well as hands-on, large group activities for 5$^{th}$ grade students. This year, in response to the COVID-19 pandemic, presentations were conducted online with a digital presentation and interactive web components. Teachers are provided instructional materials, and students are sent home with a Home Energy Worksheet to explore energy use in their homes and encourage efficient behaviors.

Presentations are based on state education guidelines. In fall 2020, over 15,232 Utah students participated in the curriculum, which includes 200 schools taught by 614 teachers. Students received "Home Energy Worksheets" and were asked to audit their homes to receive LED night

lights as incentives. Teachers were eligible to receive $50 Visa gift cards for their classrooms depending on how many students completed their worksheet. A summary of NEF's 2020 activities and accomplishments is provided in Exhibit B.

*Social media Coverage for educating the next generation of energy savers*

Rocky Mountain Power uses social media to connect with the next generation of energy savers. Videos created for the school presentations are available on Rocky Mountain Power's YouTube channel and emphasize the importance of conservation and saving energy. The series of videos feature a very enthusiastic host who demonstrates behaviors to provide fifth graders with ideas on how they can save energy to both help the environment and save their parents money. Topics in the videos include turning off lights, switching to LED light bulbs, knowing what you want before opening the refrigerator, running the dishwasher only when it's full, using a fan instead of air conditioning to stay cool, and the impacts of weatherization.

Wattsmart Business Advocacy

The Wattsmart Business advocacy program is designed to create more awareness of the benefits of being a Wattsmart Business. The advocacy program is intended to generate awareness, participation, and lasting partnerships in the Wattsmart Business program.

Due to the COVID-19 pandemic, many events were canceled or postponed. Typically, additional business advocacy outreach is conducted at these events.

## PROGRAM SPECIFIC MARKETING

All energy efficiency program marketing and communications are under the Wattsmart umbrella to ensure a seamless transition from changing customer behavior to the actions they could take by participating in specific programs. Separate marketing activities administered by and specific to the programs ran in conjunction with the Wattsmart campaign.

### *Wattsmart Homes Program*

Information on the Wattsmart *Homes* program is communicated to customers, retailers, and trade allies through a variety of channels. Using a strategic approach, the Company communicates select program measures during key selling seasons and uses opportunities like home shows to help increase customer awareness of energy efficiency incentives.

*Smart thermostat promotions*

To help promote smart thermostat instant incentives, emails were sent to thousands of customers in the spring, summer and during the holiday shopping season to tie with Nest and Eco bee offers. Smart thermostat email campaigns totaled over 27,000 clicks to our online portal and had an open rate of nearly 20%. Introduction of the new Google Nest Thermostat in Q4, gives the program a new low-cost offering that will continue to be featured in Utah in 2021 and beyond.

*Cooling Campaign*

In the summer, program promoted high priority cooling measures including Evaporative Coolers and Whole House fans to customers in Utah. Initial emails were sent to segmented customers

lists and then approximately 5,000 customers who did not open or click received a similar message through direct mail.

*Weather Triggered Emails*

As part of the cooling campaign, the program sent out an email to Utah customers the same week as an impending heat wave hit the state resulting in substantially higher open and click-through rates. Based on this campaign, the Wattsmart Homes program has made this a recurring tactic for both heating and cooling season. Monitoring of inclement weather allows us to time measure messages with days or weeks that customers are most inclined to take advantage of an offer. This tactic will continue to be refined in 2021 and beyond.

*Home shows*

Wattsmart Homes program staff attended the Salt Lake Tribune's Home and Garden Festival March 6-8, 2020 at the Mountain America Expo Center in Sandy, Utah. To help drive festival attendance, social media posts and website promotions were used to increase awareness of the show. More than 85 customers used Rocky Mountain Power's online coupon code to get discounted admission to the show. The lower than typical code usage can be attributed to the mass shutdowns starting across the nation due to the pandemic. Customers who visited the booth received information about energy efficiency upgrades and renewable energy choices.

The Deseret News Home Show that is typically in October was canceled due to the COVID-19 pandemic.

*Website enhancements*

Program continued to make enhancements to the Wattsmarthomes.com website including informational landing pages on specific measures to pair with campaign activity, addition of new measure pages to reflect tariff activity, and other user-friendly features that help improve customer experience, education, and conversion.

### *Energy Insights Reports*

Thousands of print and email Energy Insights Reports were delivered to Utah residential and small business customers in 2020.

Rocky Mountain Power utilized new monthly Small Business Energy Insights Reports as an outreach tool to reach business customers struggling due to COVID-19.

Customer satisfaction and engagement with the Bidgely program demonstrated consistently positive results. Email open rates averaged 37% – nearly double the utility industry average. Email recipients also gave the email communications they received 87% "likes" via thumbs up and thumbs down voting buttons included with every message.

### *Cool Keeper*

The company uses a variety of direct outreach to keep *Cool Keeper* participants informed and encourage new customers to take part. In 2020, outreach included:

- Emails to customers who have moved into homes with existing Cool Keeper devices.
- Letters to apartment tenants.
- Reminder letters and emails to participants ahead of the Cool Keeper summer cooling season.
- A series of different emails to non-participants to encourage participation.
- A newsletter article with the utility bill to encourage participation.
- An email to participants at the end of the summer season with a link to an online survey.
- An email to participants at the end of November to thank participants and provide their Cool Keeper bill credit amount.

### *Wattsmart Business*

During 2020, Wattsmart Business communications encouraged customers to inquire about incentives for lighting with controls, HVAC upgrades, irrigation, and other energy efficiency measures.

The program was marketed with radio, newspaper, bill inserts, digital display, paid social posts, and digital paid search advertising. Radio and print ads featured case study examples from program participants which were repurposed in social media and digital advertising. A bill inserts directed customers to the Company's website, Wattsmart.com. This was in addition to direct customer contact by Company project managers and regional business managers, trade ally partners, and content on the Company website, on Facebook and Twitter.

Targeted direct mail was sent to approximately 1,998 Utah irrigation customers in the spring and fall to encourage energy-saving retrofits.

During 2020, the program garnered 21,319,218 impressions. A breakdown of impressions by media type is shown in Table 3 below.

Table 2 – Wattsmart Business Impressions by Media Type

| Communications Channel | Impressions |
|---|---|
| Radio | 9,275,490 |
| Newspaper | 2,615,922 |
| Digital display/Search | 5,571,999 |
| Social | 3,766,822 |
| Bill insert | 85,000 |
| Irrigation direct mail | 3,985 |

## OUTREACH CAMPAGIN

## BUDGET RESULTS

The 2020 budget for outreach activities was $1,500,000 as presented in Table 4 below. Expense activities are summarized by the channel of communication.

## Table 3 – 2020 Budget, Actuals, and Variance

| | Budget | Actuals | Variance |
|---|---|---|---|
| TV | $ 130,000 | $ 268,288 | $ (138,288) |
| Radio | $ 160,000 | $ 137,525 | $ 22,475 |
| Print | $ 68,000 | $ 63,789 | $ 4,211 |
| Digital/Social | $ 260,000 | $ 315,716 | $ (55,716) |
| Creative/Production/Planning | $ 295,000 | $ 136,637 | $ 158,363 |
| General PR | $ 55,000 | $ 24,380 | $ 30,620 |
| Energy Insight Reports | $145,000 | $145,000 | $ (0) |
| Wattsmart Events and Sponsorships | $ 100,000 | $ 90,154 | $ 9,846 |
| Be Wattsmart, Begin at Home School Education Program (NEF) | $ 259,000 | $ 248,932 | $ 10,068 |
| Research | $ 28,000 | $ 22,080 | $ 5,920 |
| **Total** | **$ 1,500,000** | **$ 1,452,501** | **$ 47,499** |

# Energy Efficiency Questionnaires

**Rocky Mountain Power**
**2020 Energy Efficiency Web Questionnaire**

| | |
|---|---|
| Date: | June 29, 2020 |
| Universe: | General public, Rocky Mountain Power service areas Utah, Idaho, and Wyoming |
| Sample size: | 1000 Rocky Mountain Power residential customers |
| Screener: | Head of household, most likely to contact utility company |
| Objective: | Measure the public's awareness and affinity for energy conservation programs |

**LANDING PAGE**

MDC Research is conducting a survey on behalf of Rocky Mountain Power regarding their services and programs.

This survey usually takes a few minutes. We are only interested in your opinions. We are not selling anything.

We thank you in advance for taking the time to help us serve you better. We appreciate your participation very much!

To begin the survey, please click '>>>' below.

L1. RECORD STATE FROM SAMPLE

| | | |
|---|---|---|
| 1 | Idaho | **(QUOTA: MIN 200; NO MAX)** |
| 2 | Utah | **(QUOTA: MIN 600; NO MAX)** |
| 3 | Wyoming | **(QUOTA: MIN 200; NO MAX)** |

We have a few questions to start to make sure we hear from a broad mix of Rocky Mountain Power customers.

S0 What is your gender?

1 Male
2 Female

Q1 **[Screener 1]** Is Rocky Mountain Power your electricity provider?

1 Yes
2 No → **THANK & TERMINATE**
3 Prefer not to say → **THANK & TERMINATE**

Q2 **[Screener 2]** Are you a person in your household who is likely to make decisions about your household participating in services offered by Rocky Mountain Power?

1 Yes
2 No → **THANK & TERMINATE**
3 I prefer not to answer → **THANK & TERMINATE**

Q3 Do you own or rent your home?

1 Rent
2 Own/ buying
3 Other
7 Prefer not to say

Q4 What is your age category?

1 18 to 24
2 25 to 34
3 35 to 44
4 45 to 54
5 55 to 64
6 65 or over
7 Prefer not to say

Q5 What is your HIGHEST LEVEL OF EDUCATION that you have had the opportunity to complete?

11 Less than High School
12 High School Degree
13 Some College
14 College Degree
15 Some Graduated Study
16 Post-Graduate Degree or Higher
98 Prefer not to say

Q6 During the past six months, from what electric or gas companies do you recall seeing, hearing, or reading any form of advertisements or communications?

99 RECORD: _____

**DO NOT DISPLAY, FOR CODING USE ONLY**
11 Idaho Power
12 Dominion Energy (Questar Gas)
13 Northwest Natural
14 Pacific Gas & Electric/PG&E

15 Pacific Power/PPL
16 PacifiCorp
17 Portland General/PGE
18 Rocky Mountain Power/Utah Power
99 Other, Specify
88 None

Q7 During the past six months, do you recall seeing, hearing, or reading any form of advertisements or communications from Rocky Mountain Power?

1 Yes
2 No →**SKIP TO Q8A**

Q8 What types of messages or topics do you remember from Rocky Mountain Power's advertisements or communications?

99 RECORD: _____

**DO NOT DISPLAY, FOR CODING USE ONLY**
11 Working to keep your power on
12 Electrical safety
13 Programs such as equal pay or customer guarantees
14 Energy efficiency programs
15 Using energy wisely
16 Planning for your future energy needs
17 Preparing for power outages
18 Renewable or alternative energy sources
19 System or infrastructure improvements
20 Billing or energy assistance
21 Being Wattsmart
22 Blue Sky Renewable Energy
23 Solar energy generation
24 Home Energy Report (Comparison to similar homes' energy usage)
99 Other, Specify _____
97 Don't remember/Don't know

Q8A During the past six months, do you recall seeing, hearing, or reading the phrase "being Wattsmart?"

1 Yes
2 No →**SKIP TO Q9**

Q8B Which, if any, companies are associated with the phrase "Wattsmart?"

99 RECORD: _____

Q9 In the past year, have you taken any actions or changed anything in your household to save energy?

1 Yes
2 No → **SKIP TO Q12**
3 Prefer not to say →**SKIP TO Q12**

Q10 What actions have you taken in your home to save energy?

99 RECORD: _____

**DO NOT DISPLAY, FOR CODING USE ONLY**
11 Add insulation to your attic, roof, or walls
12 Reduce heating thermostat setting
Increase cooling thermostat setting
Install smart thermostat
13 Generally conserve or use less energy
14 Install an energy-efficient air conditioner or furnace
15 Install energy-efficient appliances
16 Install energy-efficient doors or windows
17 Insulate or caulk around windows or doors
18 Insulate water heater, pipes, or air ducts
19 Tune up your furnace or water heater
20 Turn off lights when leaving a room
21 Unplug appliances when away from home
22 Use energy-saving light bulbs
23 Monitor usage based on Home Energy Report
99 Other: _____
97 Don't know

Q11 What are the main reasons you took steps to conserve energy in your home?

99 RECORD: _____

**DO NOT DISPLAY, FOR CODING USE ONLY**
11 To protect the environment
12 To reduce need for new energy infrastructure
13 To save money
14 Heard ads encouraging energy conservation
15 To make my home more comfortable
16 Needed to replace an old or broken appliance

17 To take advantage of a rebate or tax credit
99 Other: _____
97 Don't know/ none

Q12 How important is it for utility companies to offer customers programs to help conserve energy?

1 Not at all important
2 Not very important
3 Somewhat important
4 Very important
7 Don't know

Q13 What sources do you typically rely on for information about **news and current events**?

*Select all that apply.*

11 Billboard
12 Bill insert
13 Direct mail
14 Family, friends, co-workers
15 Magazine
16 Newspaper
17 Radio
18 Social networking (e.g., blogs, Facebook, Twitter)
19 Television
20 Trade publication
21 Website (Rocky Mountain Power)
22 Website (other than Rocky Mountain Power)
23 Email
99 Other, Specify _____
97 Don't remember/Don't know

Q14 What sources do you typically rely on for information about **Rocky Mountain Power**?

*Select all that apply.*

11 Billboard
12 Bill insert
13 Direct mail
14 Family, friends, co-workers
15 Magazine
16 Newspaper
17 Radio
18 Social networking (e.g., blogs, Facebook, Twitter)
19 Television

20 Trade publication
21 Website (Rocky Mountain Power)
22 Website (other than Rocky Mountain Power)
23 Email
99 Other, Specify _____
97 Don't remember/Don't know

Q15 How interested do you think Rocky Mountain Power is about helping you save energy? Please use a 1-5 scale. One means *not at all interested*. Five means *very interested.*

1 Not at all interested
2
3
4
5 Very interested
97 Don't know

Q16 Which one of the following would you most likely turn to first for energy-efficiency information? **[ROTATE 1 – 5]**

1 Rocky Mountain Power
2 Dominion Energy (Questar Gas)
3 Home improvement retailers
4 State Department of Energy
5 Federal government
99 Other, Specify _____
97 Don't know

Q16a Which one of the following would you most likely turn to first for renewable energy information? **[ROTATE 1 – 5]**

1 Rocky Mountain Power
2 Dominion Energy (Questar Gas)
3 Home improvement retailers
4 State Department of Energy
5 Federal government
6 Solar Installer (Name: _____)
99 Other, Specify _____
97 Don't know (DNR)

Q17 Using a 0-10 scale, where 0 means not at all satisfied, and 10 is completely satisfied, how satisfied are you overall with Rocky Mountain Power? You can use any number from 0-10.

99 RECORD RATING _____

97 Don't know/refused

Q18 Compared to a year ago, has your satisfaction with Rocky Mountain Power increased, stayed the same or decreased?

1 Decreased
2 Stayed the same → **SKIP Q19**
3 Increased
97 Don't know/refused → **SKIP Q19**

Q19 And why do you say your satisfaction has **(INCREASED, OR DECREASED FROM Q18)**?

99 RECORD: _____

We are about done. We have just one more question to help us categorize your responses.

Q20 Which of the following best describes your annual household income?

11 Less than $20,000
12 $20,000 to $39,999
13 $40,000 to $59,999
14 $60,000 to $89,999
15 $90,000 to $129,999
16 $130,000 to $199,999
17 $200,000 or more
97 Prefer not to say

**EXIT**

Thank you very much for your help with this important research! We appreciate you taking the time to provide us with your feedback.

For questions about the survey or data collection, please email rockymountainpower@mdcinvite.com.

To submit your survey responses, please click the >>> button below.

**IP NOTE: DIRECT RESPONDENTS TO WWW.ROCKYMOUNTAINPOWER.NET/wattsmart**

**Rocky Mountain Power**
**2020 Energy Efficiency Web Questionnaire**

| | |
|---|---|
| Date: | July 13, 2020 |
| Universe: | General business, Rocky Mountain Power service areas Utah, Idaho and Wyoming and Pacific Power service areas in Washington |
| Sample size: | 600 Rocky Mountain Power/Pacific Power commercial customers |
| Screener: | Most likely to contact utility company |
| Objective: | Measure business customer awareness and affinity for energy conservation programs |

L1. RECORD STATE FROM SAMPLE

| | | |
|---|---|---|
| 1 | Idaho | **(TARGET: MIN 48)** |
| 2 | Utah | **(TARGET: MIN 396)** |
| 3 | Wyoming | **(TARGET: MIN 96)** |
| 4 | Washington | **(TARGET: MIN 60)** |

**LANDING PAGE**

MDC Research is conducting a survey on behalf of **[IF L1=1-3:** Rocky Mountain Power**; IF L1=4:** Pacific Power**]** regarding their services and programs.

This survey usually takes a few minutes. We are only interested in your opinions. We are not selling anything.

We thank you in advance for taking the time to help us serve you better. We appreciate your participation very much!

To begin the survey, please click '>>>' below.

We have a few questions to start to make sure we hear from a broad mix of **[IF L1=1-3:** Rocky Mountain Power**; IF L1=4:** Pacific Power**]** customers.

S0 What is your gender?

| | |
|---|---|
| 1 | Male |
| 2 | Female |

Q1 **[Screener 1]** Is **[IF L1=1-3:** Rocky Mountain Power**; IF L1=4:** Pacific Power**]** the electricity provider for your business or organization?

1 Yes
2 No → **THANK & TERMINATE**
3 Prefer not to say → **THANK & TERMINATE**

Q2 **[Screener 2]** Are you a person in your company who is likely to make decisions about your business or organization participating in services offered by **[IF L1=1-3:** Rocky Mountain Power**; IF L1=4:** Pacific Power**]**?

1 Yes
2 No → **THANK & TERMINATE**
3 I prefer not to answer → **THANK & TERMINATE**

Q21 How many locations does your business or organization have?
*Please enter your response as a whole number in the box below. Your best estimate is fine.*

Record: [Accept responses between 1 and 200]
996 More than 200
997 Unsure
998 Prefer not to say

Q22 How many people work at your business or organization at your location?

1 Less than 10
2 10-20
3 More than 20
7 Unsure
8 Prefer not to answer

Q24 What is your job title? **(ROTATE)**

*Please select the one response which best applies.*

11 Owner/Co-owner
12 Manager
13 Office Manager
14 Admin/Secretary/Receptionist
15 President
16 Director
99 Other (specify)

Q26 What is your age category?

1 18 to 24
2 25 to 34
3 35 to 44
4 45 to 54
5 55 to 64
6 65 or over
7 Prefer not to say

Q27 What is your HIGHEST LEVEL OF EDUCATION that you have had the opportunity to complete?

11 Less than High School
12 High School Diploma
13 Some College
14 College Degree
15 Some Graduated Study
16 Post-Graduate Degree or Higher
98 Prefer not to say

Q3 During the past six months, from what electric or gas companies do you recall seeing, hearing, or reading any form of advertisements or communications?

99 RECORD: _____

**DO NOT DISPLAY, FOR CODING USE ONLY**

11 Idaho Power
12 Dominion Energy (Questar Gas)
13 Northwest Natural
14 Pacific Gas & Electric/PG&E
15 Pacific Power/PPL
16 PacifiCorp
17 Portland General/PGE
18 Rocky Mountain Power/Utah Power
19 Columbia REA (Washington)
20 Cascade Natural Gas (Washington)
99 Other, Specify
88 None

Q4 During the past six months, do you recall seeing, hearing, or reading any form of advertisements or communications from **[IF L1=1-3:** Rocky Mountain Power**; IF L1=4:** Pacific Power**]**?

1 Yes

2 No →**SKIP TO Q6**

Q5 What types of messages or topics do you remember from **[IF L1=1-3:** Rocky Mountain Power**; IF L1=4:** Pacific Power**]**'s advertisements or communications?

99 RECORD: _____

**DO NOT DISPLAY, FOR CODING USE ONLY**

11 Working to keep your power on
12 Electrical safety
13 Programs such as equal pay or customer guarantees
14 Energy efficiency programs
15 Using energy wisely
16 Planning for your future energy needs
17 Preparing for power outages
18 Renewable or alternative energy sources
19 System or infrastructure improvements
20 Billing or energy assistance
21 Being Wattsmart
22 Blue Sky Renewable Energy
23 Solar energy generation
24 Intermountain Healthcare endorsement
25 Small Business Lighting– Red Iguana, Sparkle Zone, Trim Light
27 Apple King endorsement
28 Canoe Ridge Winery endorsement
29 Wray's Market fresh IGA endorsement
99 Other, Specify _____
97 Don't remember/Don't know

Q6 During the past six months, do you recall seeing, hearing, or reading the phrase "Being Wattsmart?"

1 Yes
2 No →**SKIP TO Q8**

Q7 Which, if any, companies are associated with the phrase "Wattsmart?"

99 RECORD: _____

Q8 How would you rate your level of agreement or disagreement with the statements below about **[IF L1=1-3:** Rocky Mountain Power**; IF L1=4:** Pacific Power**]**? **(ROTATE)**

**[IF L1=1-3:** Rocky Mountain Power**; IF L1=4:** Pacific Power**] …**

| | Completely disagree | | | | | | | | Completely agree | |
|---|---|---|---|---|---|---|---|---|---|---|
| A. …offers solutions to help customers use energy more efficiently | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| B. …provides information on how to control energy costs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| C. …helps your company/organization by providing cash incentives to save money on energy bills | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| D. …provides information about products and services that are of value to you and your organization | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Q9 In the past year, have you taken any actions or changed anything in your business/organization to save energy?

1 Yes
2 No → **SKIP TO Q12**
3 Prefer not to say →**SKIP TO Q12**

Q10 What actions have you taken in your business to save energy?

99 RECORD:_____

**DO NOT DISPLAY; FOR CODING USE ONLY**

11 Reduce heating thermostat setting
12 Increase cooling thermostat setting
13 Generally conserve or use less energy
14 Install an energy-efficient air conditioner or furnace
15 Install energy-efficient lighting such as LEDs
16 Install energy-efficient doors or windows
17 Added insulation
18 Installed a ceiling fan
19 Use computers or TV less often
20 Turn off lights more frequently
21 Invested in an energy management system (EMS)
22 Increased/expanded usage of energy management system (EMS)
23 Change equipment set points
24 Capital equipment upgrades
99 Other: _____

97 Don't know

Q11 What are the main reasons you took steps to conserve energy in your business/organization?

99 RECORD: _____

**DO NOT DISPLAY, FOR CODING USE ONLY**

11 To protect/help the environment
12 To reduce need for new energy infrastructure
13 To save money
14 Heard ads encouraging energy conservation
15 To make my business more comfortable
16 Needed to replace old or broken equipment
17 To take advantage of a rebate or tax credit
18 It's the right thing to do
19 To meet corporate sustainability goals
20 For marketing/promotion of business
21 To be a good corporate citizen
22 To help the community
99 Other: _____
97 Don't know/ none

Q12 How important is it for utility companies to offer customers programs to help conserve energy?

1 Not at all important
2 Not very important
3 Somewhat important
4 Very important
7 Don't know

Q28 How important is it for utility companies to offer programs to help ease demand for energy during select, high-usage periods, also referred to as Demand Response?

1 Not at all important
2 Not very important
3 Somewhat important
4 Very important
7 Don't know

Q13 What sources do you typically rely on for information about **news and current events**?
*Select all that apply.*

11 Billboard
12 Bill insert
13 Direct mail

14 Family, friends, co-workers
15 Magazine
16 Newspaper
17 Radio
18 Social networking (e.g., blogs, Facebook, Twitter, LinkedIn, Reddit)
19 Television
20 Trade publication
21 Website (**[IF L1=1-3:** Rocky Mountain Power**; IF L1=4:** Pacific Power**]**)
22 Website (other than **[IF L1=1-3:** Rocky Mountain Power**; IF L1=4:** Pacific Power**]**)
23 Email
24 News apps
99 Other, Specify _____
97 Don't remember/Don't know

Q14 What sources do you typically rely on for information about **[IF L1=1-3: Rocky Mountain Power; IF L1=4: Pacific Power]**]?

*Select all that apply.*

11 Billboard
12 Bill insert
13 Direct mail
14 Family, friends, co-workers
15 Magazine
16 Newspaper
17 Radio
18 Social networking (e.g., blogs, Facebook, Twitter, LinkedIn, Reddit)
19 Television
20 Trade publication
21 Website (**[IF L1=1-3:** Rocky Mountain Power**; IF L1=4:** Pacific Power**]**)
22 Website (other than **[IF L1=1-3:** Rocky Mountain Power**; IF L1=4:** Pacific Power**]**)
23 Email
24 News apps
99 Other, Specify _____
97 Don't remember/Don't know

Q15 How interested do you think **[IF L1=1-3:** Rocky Mountain Power**; IF L1=4:** Pacific Power**]** is in helping your business/organization save energy? Please use a 1-5 scale. One means *not at all interested*. Five means *very interested.*

1 Not at all interested
2
3

4
5 Very interested
97 Don't know

Q16 Which one of the following would you most likely turn to first for energy-efficiency information? **[ROTATE 1 – 7]**

1 **[IF L1=1-3:** Rocky Mountain Power**; IF L1=4:** Pacific Power**]**
2 Dominion Energy (Questar Gas)
6 **[IF L1=4:** Cascade Natural Gas**]**
7 **[IF L1=4:** Columbia REA**]**
3 Home improvement retailers
4 State Department of Energy
5 Federal government
6 Contractor and/or equipment supplier
99 Other, Specify _____
97 Don't know

Q16a Which one of the following would you most likely turn to first for renewable energy information? **[ROTATE 1 – 8]**

1 **[IF L1=1-3:** Rocky Mountain Power**; IF L1=4:** Pacific Power**]**
2 Dominion Energy (Questar Gas)
7 **[IF L1=4:** Cascade Natural Gas**]**
8 **[IF L1=4:** Columbia REA**]**
3 Home improvement retailers
4 State Department of Energy
5 Federal government
6 Solar Installer (Name: _____)
99 Other, Specify _____
97 Don't know

Q26 What types of assistance would you like to see from **[IF L1=1-3:** Rocky Mountain Power**; IF L1=4:** Pacific Power**]** to help you save energy? *Please select all that apply.* **(ROTATE)**

11 Information about how you can save energy in your business
12 Building energy assessment
13 Financial incentives for building retrofit measures
14 Financial incentives for high efficiency equipment
15 Discounts on energy-saving lighting and other office products
99 Other, Specify _____
88 None of these

Q17 Using a 0-10 scale, where 0 means not at all satisfied, and 10 is completely satisfied, how satisfied are you overall with **[IF L1=1-3:** Rocky Mountain Power**; IF L1=4:** Pacific Power**]**? You can use any number from 0-10.

99 RECORD RATING _____
97 Don't know/refused

Q18 Compared to a year ago, has your satisfaction with **[IF L1=1-3:** Rocky Mountain Power**; IF L1=4:** Pacific Power**]** increased, stayed the same or decreased?

1 Decreased
2 Stayed the same → **SKIP Q19**
3 Increased
97 Don't know/refused → **SKIP Q19**

Q19 And why do you say your satisfaction has **(INCREASED, OR DECREASED FROM Q18)**?

99 RECORD: _____

We are about done. We have a few questions about your company/organization to help us categorize your responses.

Q20 What industry best describes your business or organization?
*Please select the one response which best applies.*

11 Building Contractors/Developers
12 Grocery/Retail
13 Healthcare
14 Manufacturing
15 Trade/Services (e.g., lawyers, banks, etc.)
16 Public Nonprofit/Education
17 Real Estate/Property Managers
18 Restaurant/Lodging/Entertainment
19 Wholesale/Transportation
99 Some other industry **(please specify)**
97 Unsure
98 Prefer not to answer

Q23 In your best estimate, what was the total annual total gross revenue for your business in 2018?

Record: [Accept responses between 1 and 999999995]
999999996 $1,000,000,000 or more
999999997 Unsure
999999998 Prefer not to say

Q25 Which of the following best describes your business/organization's average monthly **[IF L1=1-3:** Rocky Mountain Power**; IF L1=4:** Pacific Power**]** bill?

1 $0-199
2 $200<$250
3 $250<$500
4 $500<$1000
5 $1,000<$2,500
6 $2,500<$5,000
7 $5000+
8 Prefer not to say

**EXIT**

Thank you very much for your help with this important research! We appreciate you taking the time to provide us with your feedback.

For questions about the survey or data collection, please email **[IF L1=1-3:** rockymountainpower@mdcinvite.com**; IF L1=4:** pacificpower@mdcinvite.com**]**.

To submit your survey responses, please click the >>> button below.

**IF L1=1-3: DIRECT RESPONDENTS TO WWW.ROCKYMOUNTAINPOWER.NET/wattsmart**

**IF L1=4: DIRECT RESPONDENTS TO WWW.PACIFICPOWER.NET/wattsmart**

# 2020

# NEF

## Be Wattsmart, Begin at home

## UTAH

Program Report

Prepared for:


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Rocky Mountain Power

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Suite 330

Salt Lake City, UT. 84116

Prepared by:

Patti Clark

Program Director

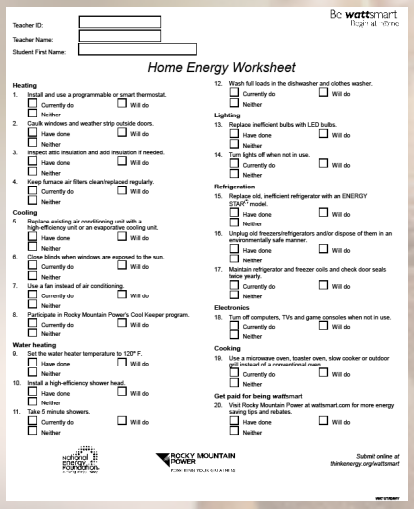
National Energy Foundation

4516 South 700 East, Suite 100

Salt Lake City, UT 84107

March 2, 2021

# Savings



Be wattsmart
Teacher ID:
Teacher Name:
Student First Name:

*Home Energy Worksheet*

**Heating**

1. Install and use a programmable or smart thermostat.
   ☐ Currently do ☐ Will do ☐ Have done ☐ Neither
2. Caulk windows and weather strip outside doors.
   ☐ Have done ☐ Will do ☐ Neither
3. Inspect attic insulation and add insulation if needed.
   ☐ Have done ☐ Will do ☐ Neither
4. Keep furnace air filters clean/replaced regularly.
   ☐ Currently do ☐ Will do ☐ Neither

**Cooling**

5. Replace existing air conditioning unit with a high-efficiency unit or an evaporative cooling unit.
   ☐ Have done ☐ Will do ☐ Neither
6. Close blinds when windows are exposed to the sun.
   ☐ Currently do ☐ Will do ☐ Neither
7. Use a fan instead of air conditioning.
   ☐ Currently do ☐ Will do ☐ Neither
8. Participate in Rocky Mountain Power's Cool Keeper program.
   ☐ Currently do ☐ Will do ☐ Neither

**Water heating**

9. Set the water heater temperature to 120° F.
   ☐ Have done ☐ Will do ☐ Neither
10. Install a high-efficiency shower head.
    ☐ Have done ☐ Will do ☐ Neither
11. Take 5 minute showers.
    ☐ Currently do ☐ Will do ☐ Neither
12. Wash full loads in the dishwasher and clothes washer.
    ☐ Currently do ☐ Will do ☐ Neither

**Lighting**

13. Replace inefficient bulbs with LED bulbs.
    ☐ Have done ☐ Will do ☐ Neither
14. Turn lights off when not in use.
    ☐ Currently do ☐ Will do ☐ Neither

**Refrigeration**

15. Replace old, inefficient refrigerator with an ENERGY STAR® model.
    ☐ Have done ☐ Will do ☐ Neither
16. Unplug old freezers/refrigerators and/or dispose of them in an environmentally safe manner.
    ☐ Have done ☐ Will do ☐ Neither
17. Maintain refrigerator and freezer coils and check door seals twice yearly.
    ☐ Currently do ☐ Will do ☐ Neither

**Electronics**

18. Turn off computers, TVs and game consoles when not in use.
    ☐ Currently do ☐ Will do ☐ Neither

**Cooking**

19. Use a microwave oven, toaster oven, slow cooker or outdoor grill instead of a conventional oven.
    ☐ Currently do ☐ Will do ☐ Neither

**Get paid for being wattsmart**

20. Visit Rocky Mountain Power at wattsmart.com for more energy saving tips and rebates.
    ☐ Have done ☐ Will do ☐ Neither

ROCKY MOUNTAIN POWER

Submit online at thinkenergy.org/wattsmart

# Home Energy Worksheets

– Returned: 6,356 –

– 42% –

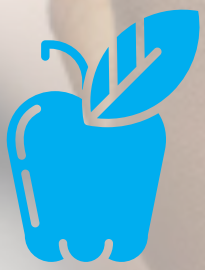
# Teacher Packets

– Returned: 342 –

# Participants

## Students

– 15,232 –



## Teachers

– 614 –

## Schools

– 200 –

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# Program Overview

## Program Description

Be Wattsmart, Begin at home, an energy efficiency education program, is a collaborative partnership between Rocky Mountain Power and the National Energy Foundation (NEF). This unique program teaches the importance of energy and natural resources and their impact on the environment. The objective is to expand and promote energy awareness through a school-based education program which encourages Utah students and teachers to change behaviors which will impact the energy consumption in their homes and community. Teachers are also provided teaching materials to support further classroom instruction on this valuable message.

The program expanded in 2020 to include an additional twenty-five Utah schools within the Rocky Mountain Power territory. This increased the total number of schools in Utah to 200 schools.

## Program Administration

Be Wattsmart, Begin at home is administered by NEF, is a 501 (c)(3) non-profit organization (established in 1976) dedicated to the development, dissemination and implementation of supplementary educational materials, programs and services relating primarily to energy, energy safety, the environment and natural resources. Our mission remains constant, to cultivate and promote an energy literate society. NEF is pleased to report on activities of the Be Wattsmart, Begin at home energy efficiency education program conducted during the 2020 - 2021 school year.

Anne Lowe, Vice President – Operations, oversees program organization. Gary Swan, Vice President – Development, oversees contract accounting. Patti Clark, Program Director, is responsible for overseeing and implementing the scope of work and Sarah Richards was responsible for scheduling the program. This year, due to the COVID-19 pandemic, we were unable to present to students and teachers in person. Instead, a team of trained and seasoned energy educators brought the program virtually to classrooms and students learning from home via a Loom presentation. Teachers were able to access a link to the presentation through a website dedicated to the Be Wattsmart, Begin at home program from September 15 through December 1, 2020.

## Building Collaborations

The Utah State Office of Education adapted new SEEd (science with engineering education) standards in fall of 2020. These new standards aligned the content of the Be Wattsmart, Begin at home program to fourth grade students instead of the fifth grade students that have participated in the past. Teachers appreciated the collaborative efforts to align program components to their learning standards. Curriculum correlations were provided to teacher participants in the *Teacher Guide* delivered to each teacher prior to the presentation date.

## Program Implementation

During the month of August 2020 an invitation to register for the fall 2020 program was sent via email to all schools that had participated in the 2019 program. In September, a program coordinator made phone calls and emails to all unregistered schools. Teacher questions were addressed and highlights of the program content with an emphasis on how the program aligns with the new SEEd standards were reviewed.

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## Program Registration

Registration for the program was online at wattsmart.com/begin. Registered schools were checked against the qualified school list before email and phone communications were made to enroll teachers and to verify their student numbers. With authorization from Rocky Mountain Power a handful of past fifth grade teachers participated but only in schools where the fourth grade teachers were not participating.

After registration was qualified, a series of email communications with teachers, were sent automatically by the program registration website. The website calculated *Home Energy Worksheet* returns as well as earned gift card levels and communicated this information to the participating teachers. Later communications were customized through programming to be sent only to teachers needing a reminder to return their program documents.

## Be Wattsmart, Begin at home Presentation

Be Wattsmart, Begin at home presentations were designed as a keynote and filmed as a Loom with two of NEF's accomplished energy educators giving the presentation. Using this delivery method allowed students to see a real face in the corner of the presentation which added personality and brought the content to life. The presentation focused on important concepts, such as natural resources, electrical generation, the energy mix used by Rocky Mountain Power to generate electricity and tips for energy efficiency in the home. NEF believes that having energy educators inside the classroom is our most effective way of teaching students. However, given the unusual circumstances of the pandemic, this virtual delivery was an effective way of delivering science information to students.

NEF energy educators demonstrated the making of a human electrical circuit, during which they taught key core curriculum concepts such as insulators and conductors of electricity and electrical generation. All students reviewed material with an "Energy Lingo" activity at designated points throughout the presentation. To help students remember energy efficiency tips, participants viewed "Caitlynn Power" energy efficiency video vignettes produced by PacifiCorp. The videos are always well received by both teachers and students. At the end of each short video, students learned a rhyme about Caitlyn's wise energy choices to help them remember the efficiency concept.

The last portion of the presentation communicated the importance of the program take-home pieces. These documents enabled households to participate in energy education along with students.

## Program Materials

A *Parent Letter* was provided to explain the importance of Be Wattsmart, Begin at home. In addition, students were given a *Student Guide* and *Home Energy Worksheet* to share with their families. Students who returned their worksheet or completed a worksheet online, received an LED nightlight featuring the Rocky Mountain Power logo as a reward.

Educators were also given helpful energy educational materials. Each teacher participant was provided a custom Be Wattsmart, Begin at home folder. The folder contained a custom *Teacher Guide* with additional information and activities to supplement and continue energy education in the classroom. Also, in the folder were two NEF instructional posters, *Energy Efficiency* and *Renewable Energy Sources*.

A program *Implementation Steps Flier* assisted teachers in carrying out the program for students learning both at school and online. It also gave simple steps for successfully returning *Home Energy Worksheets* and the sponsor *Thanks a "Watt" Card* in the postage paid envelope. A *Rewarding Results Flier* gave information concerning the gift card teacher participants would receive for returning their student surveys. Educators received a $50 gift card for an 50% return by the December 15, 2020 deadline.


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## Program Accomplishments – Fall 2020

- 15,323 students and families reached
- 614 Utah teachers reached
- 342 Utah teachers returned packets
- 42% student *Home Energy Worksheet* surveys return
- $50 gift cards delivered to 308 Utah teachers

## Program Improvements - Fall 2020

- Updated all program materials
- New Loom delivery method for virtual presentations
- Created "Tips & Tricks" video for teachers to view implementation steps
- Added twenty-five additional schools to the program
- Added online *Home Energy Worksheet* option with teacher ID locator to website
- Amazon eGift cards were used for teacher mini-grants
- Updated the program website for teachers and students *thinkenergy.org/wattsmart/*

## Program Attachments – Fall 2020

- Fall 2020 Participating Schools
- Program Promotions
- Program Documents
    - Keynote Presentation
    - *Teacher Implementation Steps Flier*
    - *Rewarding Results Flier*
    - *Student Guide*
    - *Teacher Guide*
    - Lingo Card
    - *Parent Letter*
- *Teacher Evaluation* Compilation
- *Home Energy Worksheet*
- *Home Energy Worksheet* Summary – Rocky Mountain Power
- Wise Energy Behaviors in Rocky Mountain Power Utah Homes
- Sampling of Thanks a "Watt" Cards

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# Attachments

## Fall 2020 Participating Schools

| Participating Schools | Address | City | State | Zip |
|---|---|---|---|---|
| A Parley Bates Elementary | 850 E. 3100 N | North Ogden | UT | 84414 |
| Academy Park Elementary | 4580 S Westpoint Drive | West Valley City | UT | 84129 |
| Adelaide Elementary | 731 West 3600 South | Bountiful | UT | 84010 |
| Alpine Elementary | 400 E 300 N | Alpine | UT | 84004 |
| Altara Elementary | 800 East 11000 South | Sandy | UT | 84094 |
| Antelope Canyon | 8810 S 6400 W | West Jordan | UT | 84081 |
| Antelope Elementary | 979 North 1445 West | Clinton | UT | 84015 |
| Arcadia Elementary | 3461 West 4850 South | Taylorsville | UT | 84129 |
| Armstrong Elementary | 5194 W Highbury Park Way | West Valley | UT | 84120 |
| Bacchus Elementary | 5925 South 5975 West | Kearns | UT | 84118 |
| Beacon Heights Elementary | 1850 South 2500 East | SLC | UT | 84108 |
| Bell View Elementary | 9800 South 800 East | Sandy | UT | 84094 |
| Blackridge Elementary | 14131 Rosecrest Road | Herriman | UT | 84096 |
| Bluffdale Elementary | 14323 S 2700 W | Bluffdale | UT | 84065 |
| Bonneville Elementary | 1245 N 800 W | Orem | UT | 84057 |
| Bonneville Elementary | 1145 S 1900 E | Salt Lake City | UT | 84108 |
| Bridger Elementary | 5368 W Cyclamen Way | West Jordan | UT | 84084 |
| Brookwood Elementary | 8640 South Snowbird Drive | Sandy | UT | 84093 |
| Buffalo Point Elementary | 1924 S. Doral Drive | Syracuse | UT | 84075 |
| Burch Creek | 4300 Madison Ave | Ogden | UT | 84403 |
| Butterfield Canyon Elementary | 6860 W. Mary Leizan Lane | Herriman | UT | 84096 |
| Canyon Creek Elementary | 755 S 1100 W | Farmington | UT | 84025 |
| Canyon Creek Elementary | 755 South 1100 West | Farmington | UT | 84025 |
| Cedar Ridge | 4501 W. Cedar Hills Dr. | Cedar Hills | UT | 84062 |
| Centennial Elementary | 450 S 400 E | Orem | UT | 84097 |
| Centerville Elementary | 350 North 100 East | Centerville | UT | 84014 |
| Century Elementary | 5820 North 4800 West | Bear River City | UT | 84301 |
| Clinton Elementary | 1101 West 1800 North | Clinton | UT | 84015 |
| Columbia Elementary | 3505 West 7800 South | West Jordan | UT | 84088 |
| Columbia Elementary | 378 South 50 West | Kaysville | UT | 84037 |
| Cook Elementary | 1175 West 1350 South | Syracuse | UT | 84075 |
| Copper Canyon Elementary | 8917 Copperwood Dr | West Jordan | UT | 84081 |
| Copper Hills Elementary | 7635 West 3715 South | Magna | UT | 84044 |
| Cottonwood Elementary | 5205 S Holladay Boulevard | Holladay | UT | 84117 |
| Country View Elementary | 4650 W 4800 S | West Haven | UT | 84401 |
| Crescent Elementary | 11100 S 230 E | Sandy | UT | 84070 |
| Crestview Elementary | 2100 E Lincoln Ln | Holladay | UT | 84124 |
| Daybreak Elementary | 4544 Harvest Moon Dr. | South Jordan | UT | 84009 |
| Diamond Ridge Elementary | 6034 W Mill Valley Ln | West Valley City | UT | 84118 |
| Dilworth Elementary | 1853 South 2100 East | Salt Lake City | UT | 84108 |
| Douglas T. Orchard | 6744 West 3800 South | West Valley City | UT | 84128 |
| Doxey Elementary | 944 North 250 West | Sunset | UT | 84015 |
| Eagle Valley Elementary | 4475 N. Heritage Dr | Eagle Mountain | UT | 84005 |
| Eaglecrest Elementary | 2760 N 300 W | Lehi | UT | 84043 |

| Participating Schools | Address | City | State | Zip |
|---|---|---|---|---|
| East Elementary | 255 East College Ave | Cedar City | UT | 84720 |
| East Sandy Elementary | 8295 S. 870 East | Sandy | UT | 84094 |
| Eastlake Elementary | 4389 W. Isla Daybreak Road | South Jordan | UT | 84009 |
| Eastwood Elementary | 3305 S Wasatch Boulevard | Salt Lake City | UT | |
| Elk Meadows Elementary | 3448 West 9800 South | South Jordan | UT | 84095 |
| Elk Run Elementary | 3550 S Helen Drive | Magna | UT | 84044 |
| Ellison Park Elementary | 800 North Coldcreek Way | Layton | UT | 84041 |
| Enoch Elementary | 4701 Wagon Wheel | Enoch | UT | 84721 |
| Ensign Elementary | 775 E 1200 Avenue | Salt Lake City | UT | 84103 |
| Falcon Ridge Elementary | 6111 W 7000 S | West Jordan | UT | 84081 |
| Farnsworth Elementary | 3751 Sunnyvale Dr | West Valley City | UT | 84120 |
| Fox Hills Elementary | 3775 W 6020 S | Taylorsville | UT | 84129 |
| Fox Hollow Elementary | 6020 W. 8200 S. | West Jordan | UT | 84081 |
| Franklin Elementary | 1115 W 300 S | Salt Lake City | UT | 84104 |
| Freedom Elementary | 10326 N 6800 W | Highland | UT | 84003 |
| Fremont Elementary | 2525 North 160 West | Sunset | UT | 84015 |
| Gateway Preparatory Acad. | 201 E. Thoroughbred Way | Enoch | UT | |
| Gerarld Wright Elementary | 6760 West 3100 South | West Valley City | UT | 84128 |
| Geneva Elementary | 665 W 400 N | Orem | UT | 84057 |
| Gourley Elementary | 4905 South 4300 West | Kearns | UT | 84118 |
| Granger Elementary | 3700 S 1950 W | W Valley City | UT | 84119 |
| Grantsville Elementary | 50 South Park Street | Grantsville | UT | 84029 |
| Green Acres Elementary | 640 East 1900 North | Odgen | UT | 84414 |
| Greenwood Elementary | 50 E 200 S | American Fork | UT | 84003 |
| Gunnison Elementary | 550 S 300 E St | Gunnison | UT | 84634 |
| H. Guy Child Elementary | 655 E 5500 S | Ogden | UT | 84405 |
| Hawthorne Elementary | 1675 S 600 E | Salt Lake City | UT | |
| Hayden Peak Elementary | 5120 S Hayden Peak Dr | West Jordan | UT | 84081 |
| Heartland Elementary | 1451 W 7000 S | West Jordan | UT | 84084 |
| Heritage Elementary | 1354 West Weaver Lane | Layton | UT | 84041 |
| Heritage Elementary - Nibley | 925 West 3200 South | Nibley | UT | 84321 |
| Herriman Elementary | 13170 South 6000 W | Herriman | UT | 84096 |
| Hidden Hollow Elementary | 7447 N. Hidden Valley Pkwy | Eagle Mountain | UT | 84005 |
| Highland Elementary | 5639 W. 10680 N. | Highland | UT | 84003 |
| Hill Field Elementary | 389 S 1000 E | Clearfield | UT | 84015 |
| Hillcrest Elementary | 130 N Eccles Ave | Ogden | UT | 84404 |
| Hillsdale Elementary | 3275 W 3100 S | West Valley City | UT | 84119 |
| Hillside Elementary | 4283 South 6000 West | West Valley | UT | 84128 |
| Hobble Creek Elementary | 1145 E 1240 N | Mapleton | UT | 84664 |
| Holt Elementary | 448 North 1000 West | Clearfield | UT | 84015 |
| Hunter Elementary | 4351 S 5400 W | West Valley City | UT | 84120 |
| Jackling Elementary | 3760 South 4610 West | West Valley | UT | 84120 |
| Jeremy Ranch Elementary | 3050 Rasmussen Rd | Park City | UT | 84098 |
| John C. Fremont Elementary | 4249 Atherton Drive | Taylorsville | UT | 84123 |


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| Participating Schools | Address | City | State | Zip |
|---|---|---|---|---|
| Jordan Hills Elementary | 8892 S 4800 W | West Jordan | UT | 84081 |
| Jordan Ridge Elementary | 14207 S Prospero Lane | Herriman | UT | 84096 |
| Kanesville Elementary | 3112 S 3500 W | Ogden | UT | 84401 |
| King Elementary | 601 East 1000 North | Layton | UT | 84041 |
| Knowlton Elementary | 801 Shepard Lane | Farmington | UT | 84025 |
| Lakeside Elementary | 2941 West 800 North | West Point | UT | 84015 |
| Lakeview Elementary | 2025 West 5000 | Roy | UT | 84067 |
| Legacy Elementary | 28 E 1340 N | American Fork | UT | 84003 |
| Liberty Elementary | 1085 So. Roberta St | Salt Lake City | UT | 84111 |
| Lincoln Academy | 1582 West 3300 North | Pleasant Grove | UT | 84062 |
| Lincoln Elementary | 450 E 3700 S | Salt Lake City | UT | 84115 |
| Lindon Elementary | 30 N Main Street | Lindon | UT | 84042 |
| Lomond View Elementary | 3644 North 900 West | Pleasant View | UT | 84414 |
| Maeser Elementary | 2670 West 1000 North | Vernal | UT | 84078 |
| Magna Elementary | 3100 S 8500 W | Magna | UT | 84044 |
| Majestic Elementary | 425 West 2550 North | North Ogden | UT | 84414 |
| Mapleton Elementary | 120 W. Maple St. | Mapleton | UT | 84664 |
| Mary W. Jackson Elementary | 750 W 200 N | Salt Lake City | UT | 84116 |
| McPolin Elementary School | 2270 Kearns Blvd | Park City | UT | 84060 |
| Midas Creek Elementary | 111901 S. Park Haven Lane | Riverton | UT | 84096 |
| Midland Elementary | 3100 West 4800 South | Roy | UT | 84067 |
| Mona Elementary | 260 East 200 South | Mona | UT | 84645 |
| Monte Vista Elementary | 11121 S 2700 W | South Jordan | UT | 84095 |
| Monticello Academy | 2672 South Corp. Park Drive | West Valley City | UT | 84120 |
| Morningside Elementary | 4170 South 3000 East | Salt Lake City | UT | 84123 |
| Mount Mahogany Elementary | 618 N 1300 W St | Pleasant Grove | UT | 84062 |
| Mountain Point Elementary | 15345 S. Puma Mountain | Bluffdale | UT | 84065 |
| Mountain Shadows Elem. | 5255 W. 7000 So. | West Jordan | UT | 84081 |
| Mountain Trails Elementary | 3951 North Wood Road | Eagle Mountain | UT | 84005 |
| Mountain View Elem. | 1380 South Navajo | SLC | UT | 84104 |
| Mountain View Elementary | 2025 East 3100 North | Layton | UT | 84040 |
| Mountainville Academy | 195 South Main Street | Alpine | UT | 84004 |
| Municipal Elementary | 5775 S. 2200 W. | Roy | UT | 84067 |
| North Elementary | 550 W 200 N | Cedar City | UT | 84720 |
| North Park Elementary | 4046 S 2175 W | Roy | UT | 84067 |
| Northridge Elementary | 1660 N 50 E | Orem | UT | 84057 |
| Oak Hollow Elementary | 884 E. 14400 S. | Draper | UT | 84020 |
| Oakcrest Elementary | 8462 S. Hilltop Oak Drive | West Jordan | UT | 84081 |
| Oakdale Elementary | 1900 East Creek Road | Sandy | UT | 84093 |
| Oakridge Elementary | 4325 Jupiter Drive | SLC | UT | 84124 |
| Oakwood Elementary | 5815 S Highland Drive | Holladay | UT | 84121 |
| Odyssey Elementary | 1271 S 1870 W | Woods Cross | UT | 84087 |
| Orchard Elementary | 1035 N 800 E | Orem | UT | 84097 |
| Orchard Elementary | 205 East Center Street | North Salt Lake | UT | 84054 |

| Participating Schools | Address | City | State | Zip |
|---|---|---|---|---|
| Orchard Springs Elementary | 3300 N. 975 W. | Pleasant View | UT | 84414 |
| Orem Elementary | 450 W. 400 S. | Orem | UT | 84058 |
| Overlake Elementary | 2052 N 170 | Tooele | UT | 84074 |
| Park Lane Elementary | 9955 S Eastdell Dr | Sandy | UT | 84092 |
| Parkside Elementary | 2262 North 1500 West | Clinton | UT | 84015 |
| Peruvian Park Elementary | 1545 East 8425 South | Sandy | UT | 84093 |
| Pioneer Elementary | 250 N 1600 W | Ogden | UT | 84404 |
| Plain City Elementary | 2335 North 3600 West | Ogden | UT | 84404 |
| Plymouth Elementary | 5220 S 1470 W | Taylorsville | UT | 84123 |
| Quest Academy | 4862 W 4000 S | West Haven | UT | 84401 |
| Reading Elementary | 360 W. 2025 N. | Centerville | UT | 84014 |
| Red Cliffs Elementary | 887 N 800 E | Nephi | UT | 84648 |
| Ridgecrest Elementary | 1800 E. 7200 South | Cottonwood Hghts | UT | 84121 |
| River Heights Elementary | 780 E 600 S | River Heights | UT | 84321 |
| Riverdale Elementary | 1160 W. 4400 S. | Riverdale | UT | 84405 |
| Riverside Elementary | 8737 S. 1220 West | West Jordan | UT | 84088 |
| Rolling Meadows | 2950 W. Whitehall Dr. | West Valley | UT | 84119 |
| Rosamond Elementary | 12195 S 1975 W | RIVERTON | UT | 84065 |
| Rose Creek Elementary | 12812 S 3600 W | Riverton | UT | 84065 |
| Rose Park Elementary | 1105 W 1000 N | Salt Lake City | UT | 84116 |
| Rose Springs Elementary | 5349 N Innbrook Place | Stansbury Park | UT | 84074 |
| Rosecrest Elementary | 2420 E Fisher Lane | Salt Lake City | UT | 84109 |
| Roy Elementary | 2488 W 5600 S | Roy | UT | 84067 |
| Sand Springs Elementary | 242 North 3200 West | Layton | UT | 84041 |
| Sandy Elementary | 8725 South 280 East | Sandy | UT | 84070 |
| Santaquin Elementary | 25 S 400 W | Santaquin | UT | 84655 |
| Sharon Elementary | 525 N 400 E | Orem | UT | 84057 |
| Silver Crest Elementary | 12937 S. Elementary Drive | Herriman | UT | 84096 |
| Silver Ridge Elementary | 3340 North 3050 West | Farr West | UT | 84404 |
| Smith Elementary | 2150 West 6200 South | Taylorsville | UT | 81473 |
| South Clearfield Elementary | 901 E 700 South | Clearfield | UT | 84015 |
| South Jordan Elementary | 1168 West Douglas Drive | South Jordan | UT | 84095 |
| South Weber Elementary | 1285 Lester Drive | South Weber | UT | 84405 |
| Southland Elementary | 12675 S 2700 W | Riverton | UT | 84065 |
| Sprucewood Elementary | 12025 So. 1000 E. | Sandy | UT | 84094 |
| Stansbury Elementary | 3050 South 2700 West | West Valley | UT | 84119 |
| Stewart Elementary | 1155 North Main Street | Centerville | UT | 84014 |
| Summit Elementary | 80 West Center Street | Smithfield | UT | 84335 |
| Sunburst Elementary | 2504 W Sunburst Drive | Layton | UT | 84041 |
| Sunrise Elementary | 1542 East 11245 South | Sandy | UT | 84092 |
| Sunset Elementary | 2014 North 250 West | Sunset | UT | 84015 |
| Syracuse Elementary | 1503 S 2000 W | Syracuse | UT | 84075 |
| Taylor Canyon Elementary | 2130 Taylor Avenue | Ogden | UT | 84401 |
| Terra Linda Elementary | 8400 W. Old Bingham Hway | West Jordan | UT | 84088 |


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| Participating Schools | Address | City | State | Zip |
|---|---|---|---|---|
| Three Peaks Elementary | 1685 W Midvalley Rd. | Cedar City | UT | 84721 |
| Timpanogos Academy | 70 S 100 E | Lindon | UT | 84042 |
| Trailside Elementary | 5700 Trailside Drive | Park City | UT | 84098 |
| Twin Peaks Elementary | 5325 South 1045 E. | Murray | UT | 84117 |
| Uintah Elementary | 6115 S 2250 E | Ogden | UT | 84403 |
| Upland Terrace Elementary | 3700 S. Sunnydale Dr. | Millcreek | UT | 84109 |
| Vae View Elementary | 1750 West 1600 North | Layton | UT | 84041 |
| Valley Crest Elementary | 5240 West 3100 South | West Valley | UT | 84120 |
| Valley View Elementary | 2465 W. 4500 S. | Roy | UT | 84067 |
| Voyage Academy | 1891 N 1500 W | Clinton | UT | 84015 |
| Walker Elementary | 3751 S. 900 W. | Salt Lake City | UT | 84119 |
| Washington Elementary | 420 North 200 West | SLC | UT | 84103 |
| Washington Terrace Elem. | 20 East 4600 South | Ogden | UT | 84405 |
| Welby Elementary | 4130 W 9580 S | South Jordan | UT | 84095 |
| West Bountiful Elementary | 500 North 800 West | West Bountiful | UT | 84087 |
| West Haven Elementary | 4385 South 3900 West | West Haven | UT | 84401 |
| West Jordan Elementary | 7220 S. 2370 W. | West Jordan | UT | 84084 |
| West Point Elementary | 3788 West 300 North | West Point | UT | 84015 |
| West Weber Elementary | 4178 W 900 S | Ogden | UT | 84404 |
| Western Hills Elementary | 5190 S Heath Ave | Kearns | UT | 84118 |
| Westland Elementary School | 2925 W. 7180 S. | West Jordan | UT | 84084 |
| Westvale Elementary | 2300 W. Gardner Lane | West Jordan | UT | 84088 |
| Whittier Elementary | 1600 S. 300 E. | Salt Lake City | UT | 84115 |
| William Penn Elementary | 6699 South 1495 East | Millcreek | UT | 84117 |
| Willow Canyon Elementary | 9650 South 1700 E. | Sandy | UT | 84092 |
| Windsor Elementary | 1315 North Main | Orem | UT | 84057 |
| Woodrow Wilson Elementary | 2567 S Main Street | Salt Lake City | UT | 84116 |
| Woodrow Wilson Elementary | 2567 S Main St. | South Salt Lake City | UT | 84115 |
| Woodscross Elementary | 745 West 1100 South | Woodscross | UT | 84087 |

## Program Promotions

© 2020 Rocky Mountain Power Wattsmart is registered in the U.S. Patent and Trademark Office.

You have the *power* to be Wattsmart®

Enroll your fourth- or fifth-grade science students in our free, engaging energy education program.

**BE WATTSMART, BEGIN AT HOME**

National Energy Foundation

ROCKY MOUNTAIN POWER
POWERING YOUR GREATNESS

WATTSMART®
BEGIN AT HOME

The Be Wattsmart, Begin at home program reinforces electricity learning standards in an engaging and interactive assembly. Participating teachers receive free energy education posters, activities and student materials as well as the chance to receive a Visa® gift card of up to $50, depending on participation.

Presentations begin in September 2020. Reserve your classroom's spot today at **Wattsmart.com/begin**.

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## Program Documents

Keynote Presentation

WATTSMART®

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What is
**ENERGY**?

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**ENERGY** is the ability to do **WORK**.

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Potential Energy

Kinetic Energy

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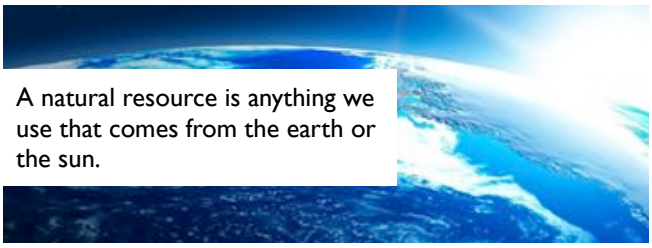
## Natural Resources



A natural resource is anything we use that comes from the earth or the sun.

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## Renewable Resources




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## Nonrenewable Resources




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It's time to play Lingo!

There are many ways to _ _ _ _ _.

energy


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## natural gas

The blue flame of n_ _ _ _ _ _ _ is a nonrenewable resource.

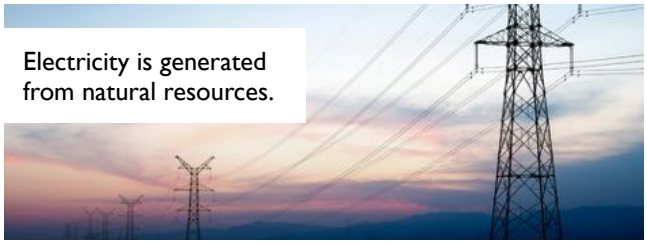
## natural resource

Anything we use that comes from the earth or the s_ _ _ _ _ _ _ n_ _ _ _ _ _ r_ _ _ _ _ _ _.




## Electricity

Electricity is generated from natural resources.





## Rocky Mountain Power

Electric generation by energy source

Coal 56%

Renewables 19%

Natural gas 15%

Other sources 10%



**How many people does it take to turn on a light bulb?**



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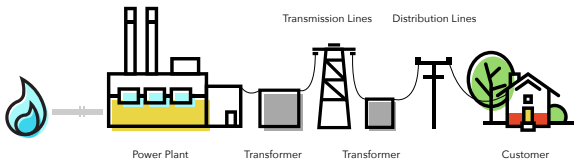
## Electric Generation

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## Transforming Energy with Circuits

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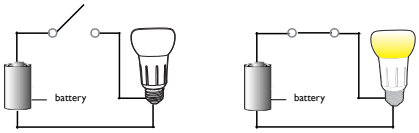
## Let's make a circuit.

What things do we need to make an electrical circuit?

**energy source** | **conductor** | **load**




Open circuit:
No electricity can flow

Closed circuit:
Electricity can flow

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## Transforming Energy

**Conductors**
allow electricity to flow through them.

**Insulators**
resist the flow of electricity.

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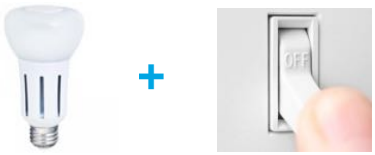
## Energy Efficiency

Using less energy to accomplish the same amount of work.



Technology + Behaviors

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**It's time to play Lingo!**


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**Energy efficiency**

E_ _ _ _ _
e_ _ _ _ _ _ _ _ _ _ is
to do the same amount
of work.

**Renewable**

R_ _ _ _ _ _ _ _ _ _
naturally replaced.

**Nonrenewable**

N_ _ _ _ _ _ _ _ _ _ _ _
or not at all.

**Oil**

urce used to produce
e. O_ _

Caitlynn Power

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Caitlynn Power

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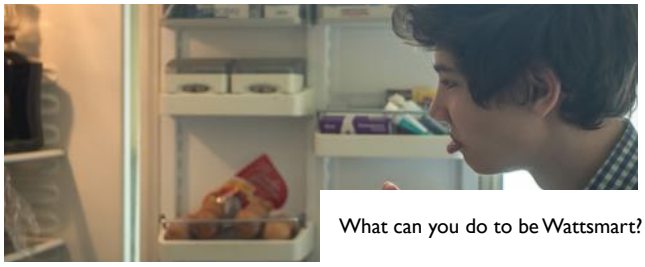
## Home Efficiencies



What can you do to be Wattsmart?

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## Be the Energy Expert in your home.


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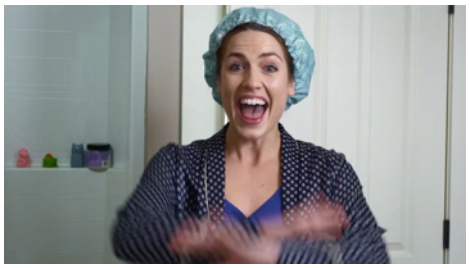

Caitlynn Power

POWERING YOUR GREATNESS

## Water Efficiencies

What can you do to be Wattsmart?

- Take shorter showers.
- Turn off the **water** when brushing teeth.
- Make sure your dishwasher or clothes washer has a **full load** before you push start.
- Install an energy-efficient shower head.

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## What else can you do to be Wattsmart?

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It's time to play Lingo!

**LED**

A light that can last 25 [illegible] longer than an incandescent. L _ _

**Phantom Load**

Electricity consumed by an electronic device [illegible] turned off but in standby mode. P_ _ _ _ _ _ L _ _ _

**full load**

Make sure you have a f_ _ _ _ load before starting your dishwasher.

**water**

Turn off the w_ _ _ _ when brushing your teeth.

## What have we done today?

- **Learned** why energy is important.
- **Discussed** energy and where it comes from.

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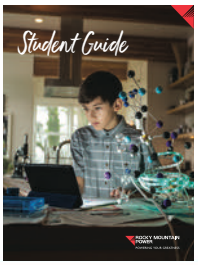
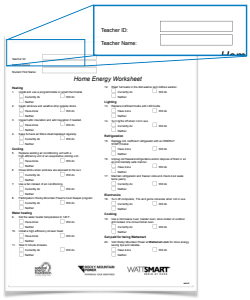
# **Engage** in energy efficiency

1. Review your **Be Wattsmart, Begin at home** booklet with your family.





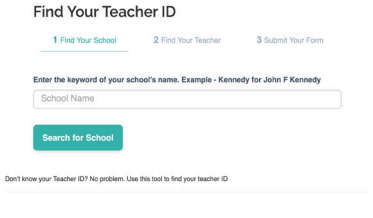

2. Complete the *Home Energy Worksheet.*

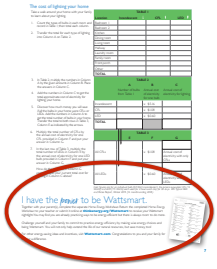





## Online Worksheet

*ThinkEnergy.org/**Wattsmart/***





3. Receive your very own Rocky Mountain Power LED nightlight.




**YOU** have the *power to* be Wattsmart!

# Implementation Steps

**1** Verify you have received:

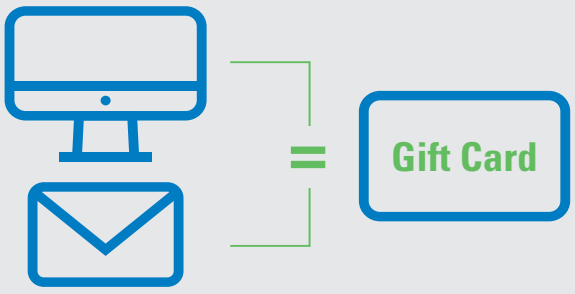
- *Teacher Materials Folder*
- Your **Be Wattsmart, Begin at home** *Teacher Guide*
- *Home Energy Worksheets* for you and your students
- **Be Wattsmart, Begin at home** student booklets
- Set of *Parent Letters*
- Wattsmart nightlights (student incentive for completing the *Home Energy Worksheet*)

**2** After the presentation, distribute to each student a:

- **Be Wattsmart, Begin at home** student booklet
- *Home Energy Worksheet*
- *Parent Letter*

**3** Final steps:

- Reward students with a Wattsmart nightlight when they complete their worksheet on paper or online at **thinkenerg.org/Wattsmart**.
- Have each student sign the *Thank You Card* to Rocky Mountain Power.
- *Home Energy Worksheets* submitted online can be verified through the teacher portal (nef1.org/programs/teacher-lookup) with your Teacher ID.
- Mail all completed paper *Home Energy Worksheets* and the *Thank You Card* in the postage-paid envelope (found in your materials folder) by December 15, 2020.




WATTSMART® BEGIN AT HOME

National Energy Foundation® cultivating energy literacy

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UT , ID, WY

# Implementation Options 2020

Rocky Mountain Power and the National Energy Foundation (NEF) prefer to present the Be Wattsmart, Begin at Home program in your school with our energy educators. However, to be profusely cautious this fall, we have prepared online delivery options that can be done in your classroom or with students at home.

## 1 If students are in school –

a) At your convenience, show students the prerecorded interactive presentation from the website **thinkenergy.org/Wattsmart**. The password is BeWattsmart and the presentation is approximately 40 minutes.

b) Use the online chat option following your presentation if students have questions (the link is found on the same website).

c) After the presentation, distribute a student booklet, *Home Energy Worksheet* and *Parent Letter* to each student to take home.

d) To ensure you get credit toward the Amazon eGift Card or Visa® gift card, have students write your teacher ID on the top of their *Home Energy Worksheet* before it goes home.

e) Have students complete the worksheets either online at **thinkenergy.org/Wattsmart** or return papers to you.

f) Students can also use our online lookup tool on the website to find your ID.

g) Reward your students with a nightlight when they return their worksheet or complete it online.

h) Return any papers in the postage paid envelope from your folder along with the signed *Thank You Card.*

## 2 If students are learning from home or a school closure is likely –

a) Send home a student booklet, *Home Energy Worksheet, Parent Letter* and a nightlight with each student.

b) Have students watch the prerecorded interactive presentation from the website **thinkenergy.org/Wattsmart**. The password is BeWattsmart.

c) Provide your students with your teacher ID or they can use our online lookup tool to find it on the same website.

d) Have students complete the worksheets online at **thinkenergy.org/Wattsmart**.

e) To ensure you qualify for the Amazon eGift Card or Visa® gift card, you can track your students' worksheets by going to **nef1.org/programs/teacher-lookup**.

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UT , ID, WY



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Attention Teachers
Return your student *Home Energy Worksheets* and receive a **$25 – $50** Amazon eGift Card or Visa® gift card for classroom use, depending upon participation. Students may submit worksheets online or return the completed survey to you. See the *Implementation Steps* for additional *Home Energy Worksheet* online information.
80% or greater return of registered students' *Home Energy Worksheets* = $50
50 – 79% return of registered students' *Home Energy Worksheets* = $25
Postmark due date:
**December 15, 2020**
Offer open only to teachers participating in Be Wattsmart, Begin at home. Certain restrictions may apply. Good while grant funding is in place. *Home Energy Worksheets* must be completed for eligibility. For more information, contact your Educational Service Representative.
ID - Megan Hirschi at megan@nef1.org
UT & WY - Sarah Richards at sarah@nef1.org
NEF
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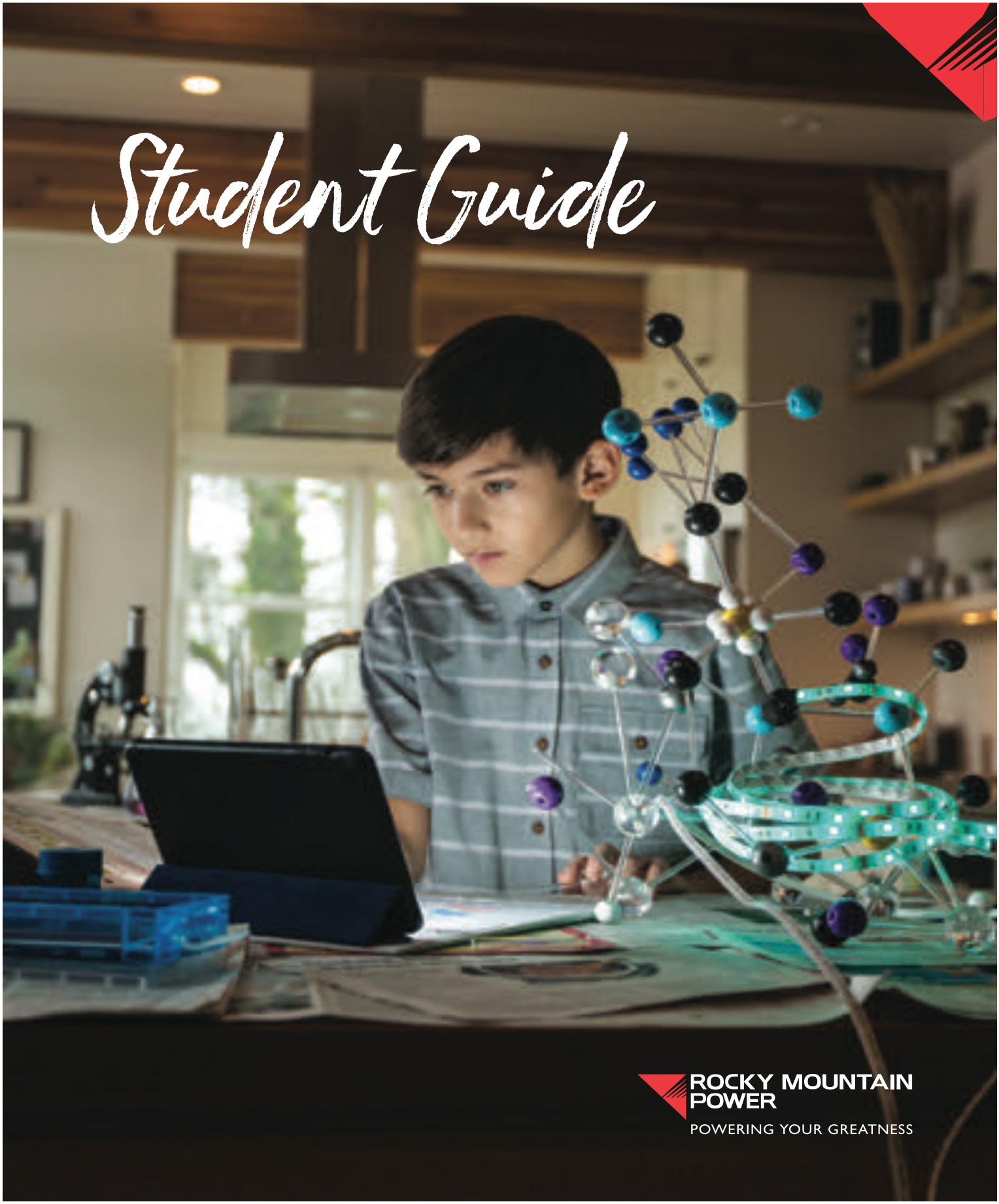



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## Dear Parents,

The **Be Wattsmart, Begin at home** program assists teachers and students to learn about energy, discuss important energy topics and engage in energy efficiency actions now. Your child has participated in a presentation addressing natural resources, energy basics and energy efficiency. Your participation in this program will help you be Wattsmart, enhance energy efficiency in your home and help save money on your utility bills. Here are three simple ways that you can help:

- Review this **Be Wattsmart, Begin at home** booklet with your child.
- Assist your child with completing the activities on Page 7.
- Have your child complete the ***Home Energy Worksheet*** online at **thinkenergy.org/Wattsmart** or return it to your child's teacher.

Thank you for being Wattsmart and for your participation!

# What's inside?

This booklet is divided into three sections that will give you the power to:

1. Learn about sources of energy, how they get to your home and why they are important in your life.
2. Discuss Wattsmart energy efficiency tips that will help you use energy wisely and save money.
3. Engage in energy efficiency by determining how energy can be saved in your home through a simple audit activity and the *Home Energy Worksheet*.

### About Rocky Mountain Power

Rocky Mountain Power is committed to the delivery of reliable electric service that's safe, low-cost and increasingly from clean, renewable resources. Serving more than 1 million customers in Utah, Idaho and Wyoming, the company is one of the lowest cost energy producers in the nation. Rocky Mountain Power is moving toward a sustainable energy future that includes increased use of solar, wind and other renewable resources; and provides customers with more choices to meet their energy needs.

### About the National Energy Foundation

The National Energy Foundation (NEF) is a 501 (c)(3) nonprofit organization, founded in 1976. It is dedicated to increasing energy literacy through the development, distribution and implementation of educational programs and materials. These resources relate primarily to energy, natural resources, energy efficiency, energy safety and the environment. Concepts are taught through science, math, art, technology and writing. NEF recognizes the importance of educating individuals about energy so they can make informed decisions about energy issues and use.

## I have the *power* to be Wattsmart.

- Being Wattsmart is all about taking steps to save energy – which in turn can help you save money.
- You have the power to become more energy efficient. Rocky Mountain Power can help with Wattsmart programs and incentives for homes and businesses. Saving energy also saves money and is good for the environment.



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# I have the power to *learn.*

## The importance of energy:

Energy is the ability to do work or produce change. Virtually everything we do or use at work and home uses energy.

- Heating and cooling systems
- Computers
- Electronic equipment such as gaming and entertainment systems and TVs
- Charging electronic tablets, music players and cell phones
- Appliances
- Lights
- Food storage and preparation
- Security systems

## Where does energy come from?

Our energy comes from natural resources. There are two general categories of natural resources – nonrenewable and renewable. A nonrenewable resource is not capable of being renewed, replaced or takes a very long time to replace. A renewable resource is capable of being renewed or replaced.

**Primary natural resources** are used to convert energy into electricity. They can be either nonrenewable or renewable.

**Nonrenewable** examples are:

**Coal** is the most abundant nonrenewable energy source in the world. The United States has more coal reserves than any other country in the world, but the reserves are shrinking.

**Oil** can be both refined and unrefined. Refined oil is transformed into petroleum products and unrefined oil remains as crude oil.

**Natural Gas** is usually captured alongside oil deposits and is a major source for electrical generation.

**Uranium** is the fuel most widely used by nuclear plants. Nuclear energy is the energy inside the nucleus (core) of the atom of uranium.

**Renewable** examples are:

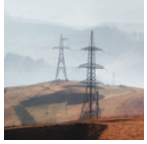
**Solar** is energy from the sun.

**Wind** is energy from the wind captured by a group of wind turbines (generators).

**Geothermal** is energy derived from the heat of the earth.

**Hydropower** is energy from water that generates electricity.

**Secondary energy resources** are created by using nonrenewable and renewable resources of energy.



**Electricity** is the most abundant **secondary energy resource** used. It is the flow of electrical power or charge. It occurs in nature as lightning and static electricity. A generator uses energy resources to create mechanical energy that is then converted into electrical energy.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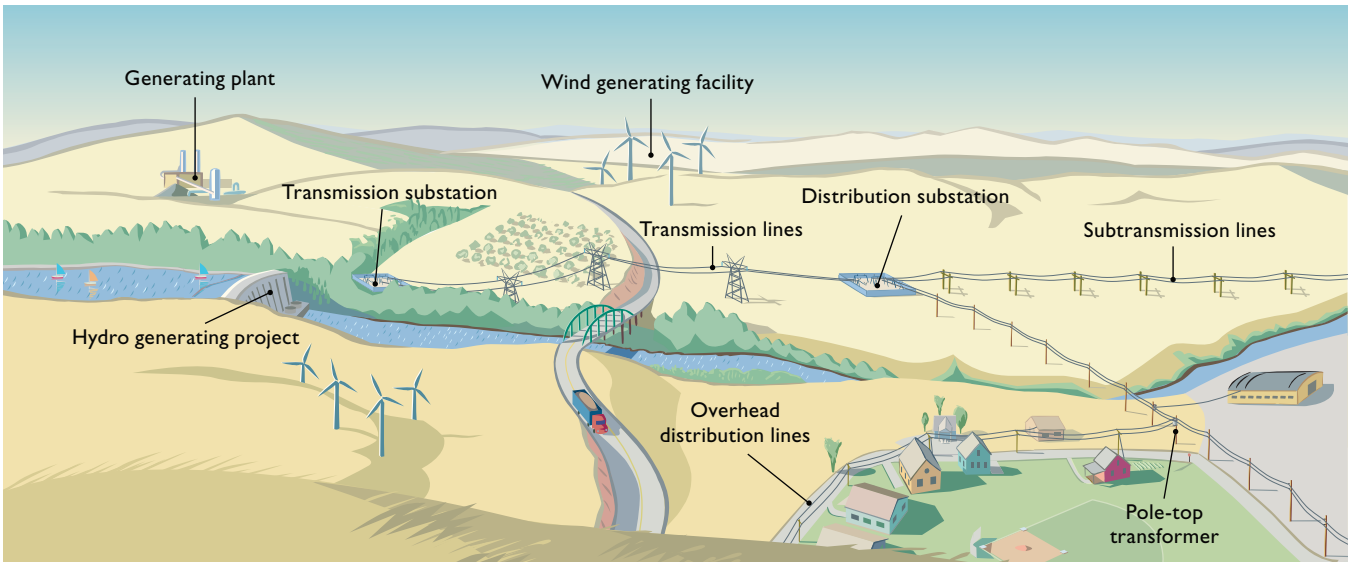
## Energy efficiency

Energy efficiency is using less energy to accomplish the same amount of work – we call it being Wattsmart. There are many technologies we can use today that decrease the amount of energy needed to do work. Good examples are ENERGY STAR® products and LED lighting.

You can save even more money if you start thinking about using energy wisely. Try turning off the lights when you leave the room, take shorter showers or turn off your electronics when you are not using them.

## Using electricity




For more than 100 years, electricity has made our homes more comfortable and industries more productive. Today electricity is powering a world of electronics.

How is electricity generated? It begins with a fuel that heats water and turns it to steam. The steam drives the turbine that turns the generator motor to produce electricity.

How is electricity transmitted? Once the electricity is produced, the current flows from the generator to the power plant transformer where the voltage is increased to boost the flow of the electric current through the transmission lines. The transmission lines transport the electricity to Rocky Mountain Power's substations where the voltage is decreased. Power lines then carry the electricity from the substations to be used in our homes and businesses.

| ELECTRICAL GENERATION | | |
|---|---|---|
| Energy Source | Rocky Mountain Power (2019 Basic Fuel Mix)* | United States (U.S. EPA, 2019 data) |
| Natural Gas | 15.44% | 35.1% |
| Coal | 56.39% | 27.5% |
| Nuclear | 0.00% | 19.4% |
| Petroleum | 0.00% | .6% |
| Other/misc. | 9.75% | .5% |
| Renewables (total) | 18.42% | 16.9% |
| Hydropower | 5.15% | 6.9% |
| Wind | 8.80% | 6.5% |
| Biomass | 0.34% | 1.6% |
| Solar | 3.79% | 1.5% |
| Geothermal | 0.34% | 0.4% |

**This information is based on Federal Energy Regulatory Commission Form 1 data. The Rocky Mountain Power "basic fuel mix" is based on energy production and not resource capability, capacity or delivered energy. All or some of the renewable energy attributes associated with wind, solar, biomass, geothermal and qualifying hydro facilities in Rocky Mountain Power's basic fuel mix may be: (a) used in future years to comply with renewable portfolio standards or other regulatory requirements, (b) sold to third parties in the form of renewable energy credits and/or other environmental commodities or (c) excluded from energy purchased. Rocky Mountain Power's basic fuel mix includes owned resources and purchases from third parties.*



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# I have the power to *discuss* energy use to help save money.

Saving energy happens in two ways. First, you can use less energy through wise behaviors that conserve energy. Second, you can install energy-efficient products, appliances and devices that use less energy to accomplish the same task. Let's talk about the following areas of your home that have the largest potential to save energy.

## Home heating and cooling

- Install a programmable thermostat or smart thermostat. Set your thermostat to 78F or higher in the summer and 68F or lower in the winter.
- Make sure your house is properly insulated. If you have less than 6 inches of insulation in your attic, you would benefit from adding more.
- You can save 10% or more on your energy bill by reducing the air leaks in your home with caulking and weather-stripping.

- To help your furnace run more efficiently and cost-effectively, keep your air filters clean.
- For windows with direct sunlight, close your blinds in the summer to keep the heat out. Open them on winter days to let the warmth in.
- Small room fans are an energy-efficient alternative to air conditioning.
- For information about energy-saving programs and cash incentives, visit **Wattsmart.com**.

## Water and water heating

- Check your faucets for leaks that can cost you hundreds of dollars each year.
- Install a water-efficient shower head and save as much as $50 in utility bills and more than 2,300 gallons of water per year.
- Set the water heater at 120F.
- Install faucet aerators to decrease water use.

## Lighting

- Let the sun shine in. Use daylight and turn off lights.

- Replace your incandescent bulbs with LEDs (light-emitting diodes) and save $5 to $8 per year per bulb. These bulbs use up to 80% less energy than incandescent bulbs and last much longer.
- Use lighting controls such as motion detectors and timers.
- Turn off lights when you leave the room.
- Always use the lowest wattage bulb that still gives you the light you need.
- Keep your light bulbs clean. It increases the amount of light from the bulb and reduces the need to turn on more lights.

## Electronics

- Turn off your computer and game consoles when not in use.
- Home electronics are made to turn on and off many times. Always turn them off to save energy.
- Electronics with the ENERGY STAR® label use as much as 50% less energy while providing the same performance.
- Beware of phantom loads which continue to draw electricity when they are plugged in but not in use. Examples are telephone chargers, electronic games and television sets.
- Use advanced power strips for household electronics. One button will turn off multiple appliances, which conserves electricity.


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### Refrigerators and freezers

- When looking to replace your old refrigerator, do so with an ENERGY STAR® model, which requires approximately 40% less energy than conventional models and provides energy savings without sacrificing the features you want.
- Clean door gaskets with warm water or a detergent that leaves no residue.

### Dishwashers

- Only run dishwashers when full and use the "air-dry" or "no heat dry" settings.
- ENERGY STAR® dishwashers use less energy than the federal minimum standard for energy consumption.
- Try running your dishwasher before 3 p.m. or after 8 p.m. to avoid peak demand.

### Laundry

- Buy a moisture sensitive dryer that automatically shuts off when clothes are dry.
- Use a drying rack whenever possible.
- To avoid peak demand, wash and dry clothing before 3 p.m. or after 8 p.m. when possible.

### Cooking

- Use a microwave oven, toaster oven or slow cooker instead of a conventional oven.
- Use the right-sized pan for the stove top element.
- Cover pans with lids to keep heat from escaping.

### Reduce

- Use less.
- Purchase products with little packaging.

### Reuse

- Use something again.
- Reuse a box or a grocery bag.

### Recycle

- Make something into another new item.
- Participate in the recycling programs in your community.


# I have the power to *engage* in energy efficiency.

## Parents, be Wattsmart and watch the energy savings add up.

An individual with a combined electric and heating fuel bill of $2,500 per year could save 20% or $42/month by using these and other energy efficiency tips. That is like getting a pay raise without having to work harder or longer.



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## The cost of lighting your home

Take a walk around your home with your family to learn about your lighting.

1. Count the types of bulbs in each room and record in Table 1; then total each column.
2. Transfer the total for each type of lighting into Column A on Table 2.

**TABLE 1**

| Location | Incandescent | CFL | LED |
|---|---|---|---|
| Bedroom 1 | | | |
| Bedroom 2 | | | |
| Kitchen | | | |
| Dining room | | | |
| Living room | | | |
| Hallway | | | |
| Laundry room | | | |
| Family room | | | |
| Front porch | | | |
| Other | | | |
| **TOTAL** | | | |

3. In Table 2, multiply the numbers in Column A by the given amounts in Column B. Place the answers in Column C.
4. Add the numbers in Column C to get the total approximate cost of electricity for lighting your home.
5. Discover how much money you will save if all the bulbs in your home were CFLs or LEDs. Add the numbers in Column A to get the total number of bulbs in your home. Transfer the total to both rows in Table 3, Column E as indicated by the arrows.
6. Multiply the total number of CFLs by the annual cost of electricity for one CFL provided in Column F and put your answer in Column G.
7. In the last row of Table 3, multiply the total number of LEDs in Column E by the annual cost of electricity for one LED bulb provided in Column F and put your answer in Column G.

   How do the amounts in Column G compare with your current total cost for lighting in Column C above?

**TABLE 2**

| | A<br>Number of bulbs from Table 1 | B<br>Annual cost of electricity for one bulb | C<br>Annual cost of electricity for lighting |
|---|---|---|---|
| Incandescent | | × $5.16 | |
| CFL | | × $1.08 | |
| LED | | × $0.60 | |
| **TOTAL** | | | |

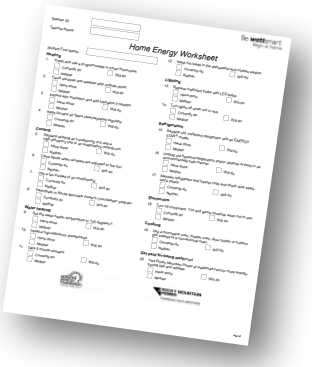
**TABLE 3**

| | E | F | G |
|---|---|---|---|
| All CFLs | | × $1.08 | Annual cost of electricity with only CFLs |
| All LEDs | | × $0.60 | Annual cost of electricity with only LEDs |

*Cost figures are for an individual bulb (60 Watt incandescent), the lumens equivalent CFL (13 Watts) and LED (7.5 Watts) each used for 2 hours each day for 30 days. EEI Typical Bills and Rates Report, Winter 2019 (12 months ending 2018).*

# I have the *power* to be Wattsmart.

Together with your parent(s), complete the separate *Home Energy Worksheet*. Return the completed *Home Energy Worksheet* to your teacher or submit it online at **thinkenergy.org/Wattsmart** to receive your Wattsmart nightlight. You may find you are already practicing ways to be energy efficient but there is always room to do more.




Challenge yourself and your family to commit to practice energy efficiency by making wise energy choices and being Wattsmart. You will not only help extend the life of our natural resources, but save money, too!

For other energy-saving ideas and incentives, visit **Wattsmart.com**. Congratulations to you and your family for making a difference.

7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WATTSMART®
BEGIN AT HOME

National Energy Foundation®
cultivating energy literacy

ROCKY MOUNTAIN POWER
POWERING YOUR GREATNESS

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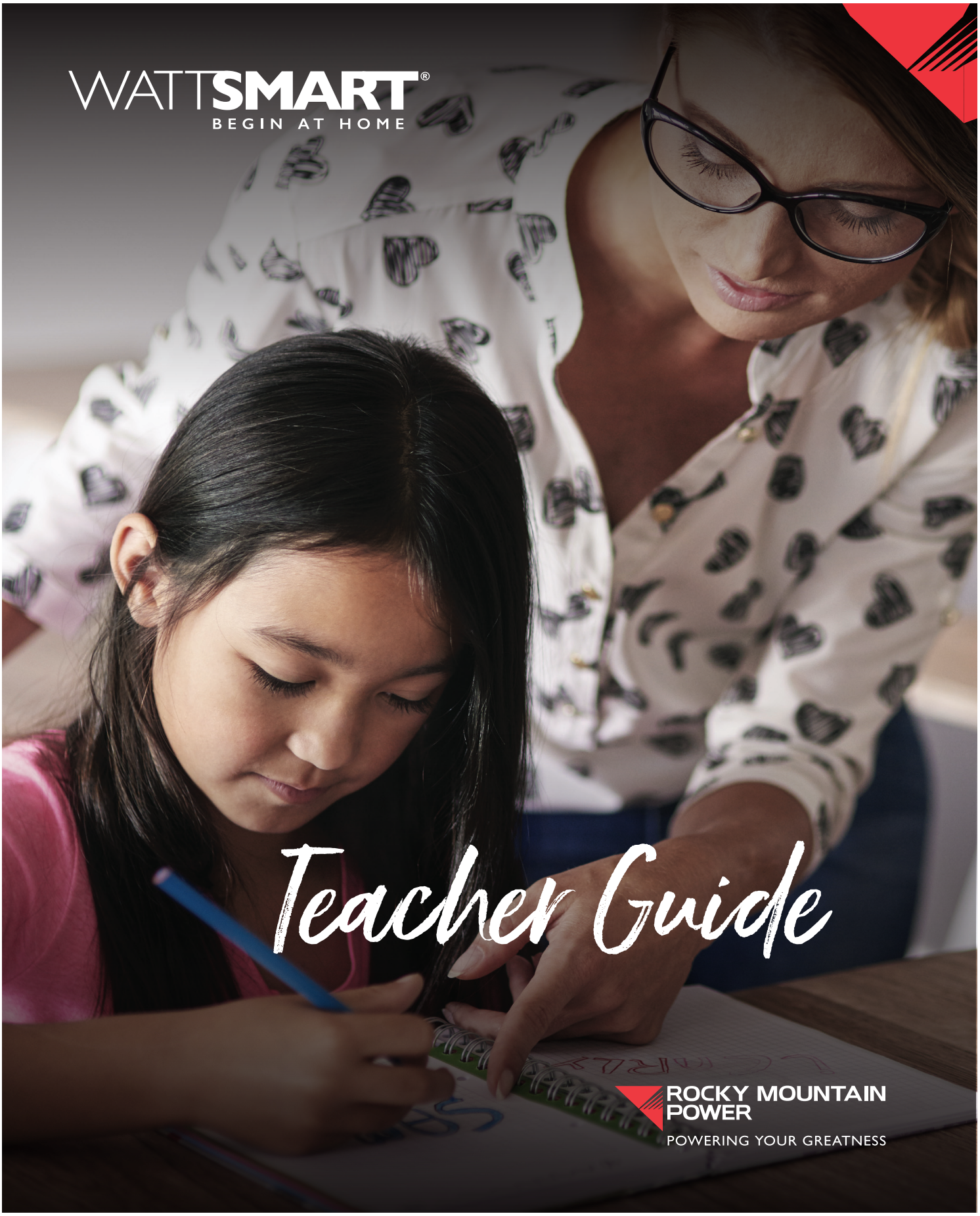



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# Welcome to Be Wattsmart, Begin at home

This program teaches the importance of energy and assists students and their families in saving energy in their homes. For teachers, Be Wattsmart, Begin at home reinforces important electrical concepts from your curriculum.

This *Teacher Guide* was designed to supplement program instruction. A variety of tools have been provided to allow you to format Be Wattsmart, Begin at home to meet your instructional needs. These tools include:

- General guidelines and activity suggestions
- Classroom activities to further the impact of lessons
- Additional fun and interesting activities for students
- Activities containing STEM-correlated curriculum for your classroom

## About Rocky Mountain Power

Rocky Mountain Power is committed to the delivery of reliable electric service that is safe, low-cost and increasingly from clean, renewable resources. Serving more than 1 million customers in Utah, Idaho and Wyoming, the company is one of the lowest cost energy producers in the nation.

## About the National Energy Foundation

The National Energy Foundation (NEF) is a 501 (c)(3) nonprofit organization, founded in 1976. It is dedicated to increasing energy literacy through the development, distribution and implementation of educational programs and materials. These resources relate primarily to energy, natural resources, energy efficiency, energy safety and the environment. Concepts are taught through science, math, art, technology and writing. NEF recognizes the importance of educating individuals about energy so they can make informed decisions about energy issues and use.

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WATTSMART BEGIN AT HOME

# STEM Connections

| Activity | Science | | | | Technology | | | | Engineering | | | | | Math | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Science as Inquiry | Energy Sources, Forms and Transformations | Science and Technology | Personal and Social Perspectives | Productivity Tools | Communication Tools | Research Tools | Problem-solving and Decision-making Tools | Historical Perspective | Design and Modeling | Invention and Innovation | Test Design and Troubleshooting | Use and Maintain | Numbers and Operations | Measurement | Data Analysis and Probability | Connection to the Real World |
| Pass the Sack | | • | | • | | | | | | | | | | | | | |
| The Search for Energy | • | • | • | • | | | | | | | | | | • | | • | • |
| A Bright Idea! | • | • | • | • | • | • | • | • | • | • | • | • | • | | | | |
| The Art of Circuits | • | • | • | | | | | • | | • | • | • | | | | | • |
| Shine a Light on History | | • | • | • | | • | • | • | • | | • | | | | | | |
| Layered Lunch | • | | • | | | | | | | • | | | | | | | |
| How Do You Rate? | • | • | | • | | • | • | | | | | • | • | | • | | • |
| Energy in Math | | | | | | | | | | | | | | • | • | • | • |
| Be Wattsmart, Begin at home Poster | | • | | • | | | • | • | | | | | | | | | • |



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# Activity: Pass the Sack

### Objective
Students will demonstrate the difference between renewable and nonrenewable resources and the need for conservation of resources.

### Curriculum Focus
Science
Social Studies

### Materials
- Two different kinds of candy or other objects students find desirable
- Sack to hold candy, such as a gallon size plastic bag

### Key Vocabulary
Nonrenewable resource
Renewable resource

### Next Generation Science Correlations
4-ETS1 – 2
4-ESS3 – 1-2
4-ESS3.A
5-ETS1 – 2
5-ETS1 – 1
5-ESS3 – 1
MS-ESS3 – 4
MS-ESS3.A

## Introduction

Statistical research confirms world consumption of natural resources is increasing every year. Continued population growth ensures that demand for renewable and nonrenewable energy resources necessary to maintain our way of life will continue to increase. This creates problems for future availability of nonrenewable resources. Nonrenewable resources are just that, resources that cannot be renewed. For example, a resource used at our present rate might last about 100 years. Factor in population growth and increasing reliance on technology, and that resource may last only 79 years.

In this activity, two different types of candy (or other objects students would like) will represent resources. One type of candy will represent renewable resources and the other will represent nonrenewable resources.

## Procedure

1. Before class, count out enough candy so there is one piece per student (some of each type of candy – less of one so it will run out faster). Put it in the sack or bag. Save the remaining candy. If you have a very polite class, count enough candy for half of the class. **You want the contents to run out before everyone gets candy!**
2. Tell students you will be demonstrating how resources get used over time by playing "Pass the Sack." Show students the sack and explain that when they get the sack, they should take some energy and pass the sack to the person next to them.
3. Before passing the sack to the first student, review renewable and nonrenewable resources. Have students give examples of each as you hand the sack to a student.
4. While this discussion is taking place, allow students to pass around the bag of candy without any rules about how many pieces students may take. Occasionally, add four or five pieces of **one** type of candy you are using, this will be your renewable resource. The sack will be empty before it reaches all the students.
5. Ask students who did not get any candy how they might obtain energy from other students. What if each student represented a country? How do countries obtain resources, trade, barter (trade for goods), buy (trade for currency), invade and take or go to war? What effect did the availability of candy have on relationships between students? What effect might the availability of natural resources have on the relationship among nations, provinces, states, people, standards of living and quality of life?


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6. Explain how our resources are like the candy. Which type was the nonrenewable? How could you tell? (No more was added to the bag once it was being passed around.) Which type was renewable? How could you tell? (It was added periodically to renew it.)

7. Point out that resources have limits just like the candy. Emphasize that many resources, such as fossil fuels, are nonrenewable and are being consumed faster than they are being replaced by nature. Discuss the fact that it would be more difficult for students to eat the candy if they had to search the room to find it instead of just taking it from the sack. Energy companies must seek resource deposits and obtain rights to drill or mine for them; they do not just magically appear.

8. Point out that renewable resources can also have limitations. They may not generate electricity as reliably as nonrenewable sources and the amount of energy produced may vary with weather and location.

9. Plan how to pass out the remaining candy.

## Discussion

- Should rules be established to determine how the candy is distributed?
- Do oil, coal and natural gas companies have rules/regulations that must be followed to find resources?
- Should there be rules and regulations on how much oil, coal and natural gas people use?
- How do the class' social decisions influence the availability of candy?

## To Know and Do More

Go to **eia.gov/kids** to access games, tips and facts for kids to learn about renewable energy and energy efficiency.

Discuss whether or not it is possible to run out of a renewable resource. Wood and fresh water are examples of renewable resources that can be used faster than nature can replace them.



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# Activity: The Search for Energy

### Objective

Students will learn the difference between renewable and nonrenewable resources.

### Curriculum Focus

Math
Science
Social Studies

### Materials

- 1/2 bag popcorn or other small item to represent solar energy
- Small pieces of ripped paper to represent approximate U.S. nonrenewable energy reserves
  - 164 black - coal
  - 22 red - uranium
  - 8 green - natural gas
  - 2 blue - oil
- Large sheet or tarp to place paper and popcorn on for easy clean up (optional)
- Copies of "Data Table and Graph"

### Key Vocabulary

Nonrenewable resources
Renewable resources

### Next Generation Science Correlations

4-ESS3-1
4-ESS3.A
5-ESS3 - 1
MS-PS1 - 2
MS-LS2 - 1
MS-ESS3.A

## Introduction

Fossil fuels are extremely useful energy sources. Our society has adopted them because they can be readily available and economical. In the early part of the 20th century, a fledgling solar industry took root but was ultimately displaced by less expensive energy sources such as fossil fuels. Today some fossil fuels are harder to find and increasingly more costly. The sun, on the other hand, is just as plentiful as it was 100 years ago. It is a renewable resource that could become our most widely used source of energy.

The following activity is a simulation game in which students learn the difference between renewable and nonrenewable resources. The game reflects society's use and exhaustion of nonrenewable fuels and the eventual transition to renewable technologies.

## Procedure

1. Divide the class into five equal groups. Each group will be a company going after a particular resource (coal, uranium, natural gas, oil or the sun). The paper and popcorn represent reserves of the various energy resources. Pass out copies of the student sheet "Data Table and Graph" to each group or have students create their own data tables on paper.
2. Have students gather in a large circle. Scatter the papers plus a handful of "solar" popcorn so they are well spread out in the center of the circle. You can do this on a sheet for easier clean up. Explain that this exercise demonstrates how the availability of resources changes over time. You may want to designate certain places as protected areas, where the resources are off limits to protect the environment.


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3. Tell students you will do several trials and look to see how the types of resources that are available change after each trial. Tell each group that they will have 30 seconds to pick up as many papers or popcorn as they can of their assigned type. Start timing.

   After 30 seconds have the groups stop and count the items they have gathered. Have each group announce their results to the class and record every count in their data table. If some groups have collected all of their available resource, point out that the resource is now depleted and they are unemployed.

4. Scatter another handful of "solar energy," helping students realize that since the sun is a renewable resource, there is the same amount of it each time you look, whereas the nonrenewable fuels are being depleted. Repeat the search period so students can get more papers or popcorn.

5. Stop after 30 seconds and have the group count and record the papers and popcorn collected again. Note that there are fewer nonrenewable fuels found in the second round. Students have to look harder to find what is left. The solar count is slowly catching up with the nonrenewable fuels. Repeat with additional trials as needed.

6. Have groups create a bar chart or, for more advanced students, a multiline graph of the number of papers and popcorn collected each trial.

## Discussion

- Why does the solar line differ from the others? Why does it go up rather than down?
- How do improvements in technology affect the extraction of resources from the earth?
- How do improvements in technology affect our usage of renewable resources?
- In the real world, can we extract ALL of a resource? Why do some deposits go unused?

## To Know and Do More

Add wind and water to the activity. Lead a discussion to be sure the students understand why you continued adding more sun, wind and/or water after each trial, but did not add more of the other papers. As a class, come up with a general outline of how to more effectively manage the resources that are available to us.



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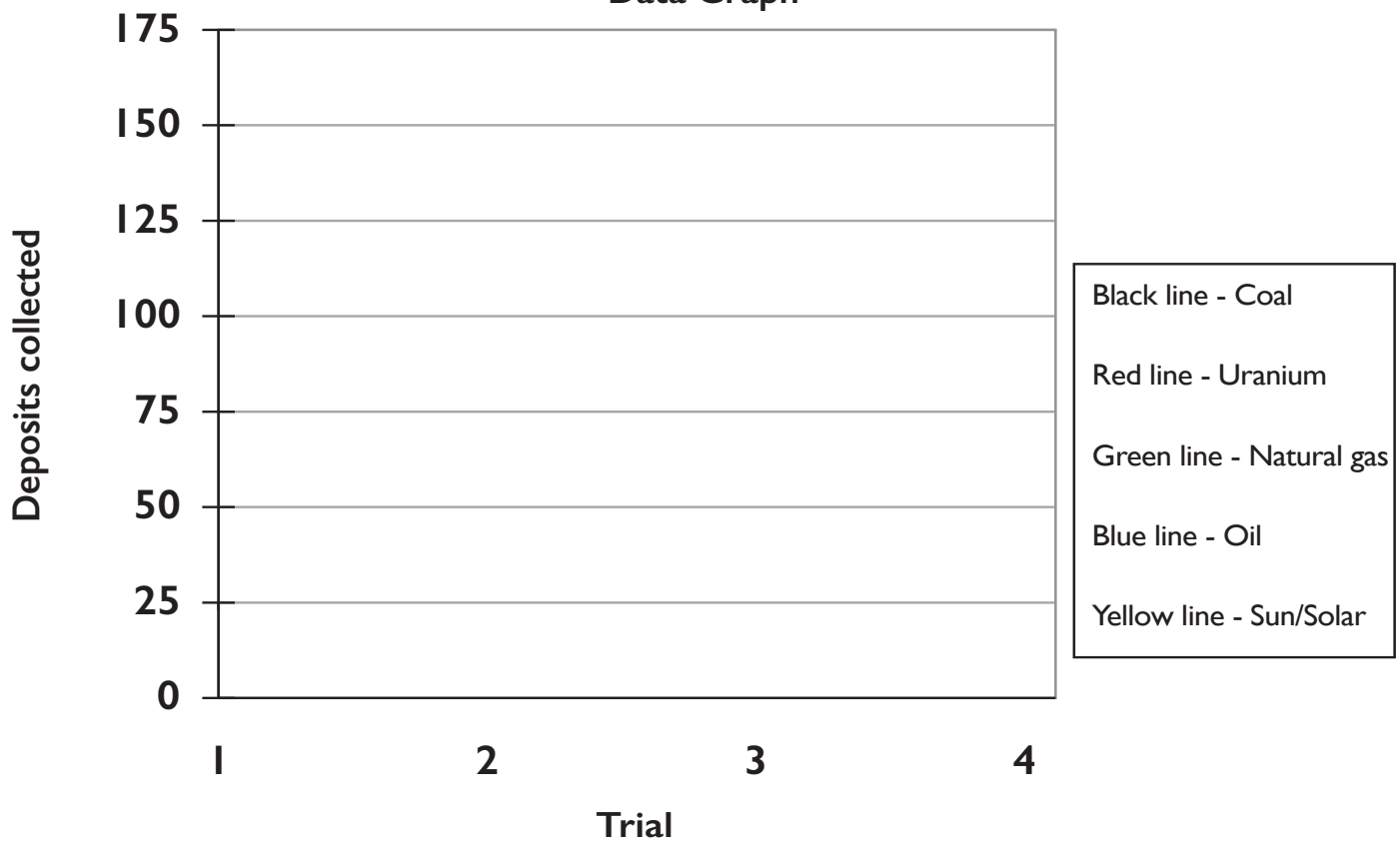
# Student Sheet: Data Table and Graph

**Data Table**

| Search Period | Coal (Black) | Uranium (Red) | Natural Gas (Green) | Oil (Blue) | Sun/Solar (Popcorn) |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| Totals | | | | | |

**Data Graph**





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WATTSMART BEGIN AT HOME

# Activity: A Bright Idea!

### Objective
Students will study an example of potential energy converted to energy in the forms of heat and light.

### Curriculum Focus
Science

### Materials
- Several general purpose C dry cell batteries
- A string of holiday lights, cut apart and stripped at the ends or small bulbs and sockets with wires
- Battery operated toy and batteries
- Small flashlight bulbs and sockets
- Copies of "A Bright Idea!"

### Key Vocabulary
chemical energy, circuit, closed circuit, current, electrode, electrolyte, kinetic energy, open circuit, parallel circuit, potential energy, radiant energy, series circuit, thermal energy, transformation, voltage

### Next Generation Science Correlations
4-ETS1 – 1-2
4-PS3 – 2-4
4-ESS3 – 1
5-PS1.B
5-ESS3 – 1
5-ESS3.C
MS-PS3 – 3
MS-PS3.B
MS-LS2 – 1
MS-ESS3.A

## Introduction

Alessandro Volta, an Italian physicist, made the first battery in 1799. Volta placed two different metal electrodes in an electrolyte solution (a chemical mixture which will conduct an electrical current). The chemical reaction caused an electromotive force. A common misconception is that batteries store electrical energy. This is not really true; batteries convert chemical energy to electrical energy. They store chemical energy that can be released during a chemical reaction. By using metals or carbons that have different chemical properties and an acid or base that will allow the movement of electrical charges, an electric current can be produced.

## Procedure

1. Demonstrate a battery operated toy with and without the battery. Explain that energy is the ability to do work or cause change, such as moving the toy or powering a light bulb.
2. Discuss:
   - How do we know the energy from the battery is working?
   - What kind of energy is the toy giving off? (possible answers include kinetic energy, mechanical, light, sound and heat)
   - The battery converts chemicals (chemical energy) to electricity (electrical energy) and the toy converts electricity to many possible forms of energy, including mechanical energy, heat (thermal energy), light and sound.
3. Have students use the materials provided to experiment with simple circuits by following the guided inquiry activity on the student sheet. As the students do the activity, have them note the light and heat energy given off.
4. Give students examples of types of potential and kinetic energy.

   Kinetic energy – a person riding a bike, a fire in a woodburning stove, a person running

   Potential energy – a lump of coal, a sandwich, a rock at the top of a hill



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## Discussion

Write the word choices on the board. Read the statements to the students and have them fill in the blanks using the words.

1. A battery converts chemical energy into _____ energy.
2. Electricity is a form of _____ energy.
3. The light bulb converts electrical energy into _____ and _____ energy.
4. A battery contains _____ energy.

### Word choices:

potential electrical heat kinetic light

### Answers:

1. electrical 2. kinetic 3. light, heat 4. potential

## To Know and Do More

Ask students if they believe batteries are important to our way of life today. Have students make a list of all the items they used yesterday that contained a battery. Their list might include:

| | |
|---|---|
| Wristwatch | Tablet |
| Automobile | Video game controller |
| Cell phone | TV remote control |

To continue this, have students add to the list all of the items they can think of that use batteries. Are your students surprised at how many items today depend on batteries to operate and how many battery operated items they depend on daily?

## Career Awareness Activity

Search the internet for a company that produces batteries. Discover the various job opportunities and careers within that company. Your list might include: scientists, chemists, research analysts, accountants, purchasing agents and administrative assistants.


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WATTSMART BEGIN AT HOME

# Student Sheet: A Bright Idea!

Alessandro Volta, an Italian physicist, made the first battery in 1799. Volta put sheets of two different types of metal in a jar of water with a chemical that could carry electricity (an electrolyte). The chemical reaction between the electrolyte and the metal plates caused electrons to move when the plates were connected with a wire. The flow of electrons moving in a wire is called an electric current, or electricity.

**Using one battery and one light, make the bulb light up. Congratulations, you have made an electrical circuit!**

1. What did you have to do to get the light to come on and complete the circuit? How was it touching the battery?

2. What do you have to do to make the light bulb turn off and then back on?

3. What do you think the electrical terms "open circuit" and "closed circuit" mean?

4. How do you think a light switch works?

5. What type and form of energy is in the battery?

6. The battery's energy was transformed into what other forms of energy?

## Using one battery, try to light up two lights.

1. Sketch how the wires are connected to the battery when you light two lights.



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2. Are the lights the same brightness as when you lit only one or are they dimmer?

3. A series circuit has only one path that electrons can follow as they are pushed from one side of the battery to the other. A parallel circuit has more than one path and the electrons can go more than one way to get from one end of the battery to the other. Which type of circuit did you make and draw?

4. Experiment with multiple batteries connected together, placing the positive end of one battery touching the negative end of another battery. What effect does the number of batteries have on the brightness of the bulbs?

5. If you leave the battery connected to a bulb long enough, you will feel the wire and the ends of the battery getting warm. What do you think is causing this?

6. Can that heat be useful? Can it be dangerous? Give an example to prove your point.

7. Wash your hands when you are finished.


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WATTSMART BEGIN AT HOME

# Activity: The Art of Circuits

### Objective

Students will learn about conservation of energy and energy transfer by experimenting with electrical circuits.

### Curriculum Focus

Science
Social Studies
Language Arts
Art

### Materials

- Playdough® or homemade salt dough
- 9V batteries
- 9V battery clips with red and black cables
- 2V LED miniature light bulbs
- Insulating material - cardboard, packaging plastic or dough made from sugar, not salt (optional)

### Key Vocabulary

Energy transfer
Electric current
LED (light-emitting diode)
Electric circuit
Insulator
Conductor

### Next Generation Science Correlations

4-PS3 - 2
4-PS3 - 4
4-PS3.A-B, D
4-ETS1 - 1
4-ETS1.A
5-ETS1 - 1
5-ETS1.A
MS-PS3 - 3
MS-PS3.A-B
MS-ETS1 - 1
MS-ETS1.A

## Introduction

Materials that allow a flow of electric current to pass through them more easily are called conductors. Aluminum, silver, copper and water are examples. Insulators block the flow of electricity. Nonmetallic materials, such as rubber, plastic, wood, cloth and dry air are insulators. An electrical circuit is a path of conductors through which electric current flows. Energy can be transferred from place to place by electric current.

In this activity, students will use salt dough, which is a conductor, to design circuits which will transfer electrical energy. If they are successful, the electricity will be transformed to light and heat energy in a miniature LED bulb.

## Procedure

1. Introduce students to their materials:
   a. Attach the battery to a battery clip with red and black cables. The red lead is the positive terminal and the black lead is the negative terminal.
   b. Examine the LED bulb. Two wires (or legs) extend from the bulb. The longer wire is the positive side of the LED and the short wire is the negative side. The LED should only be connected to dough, never directly to the battery terminals, which will cause the bulb to burn out.
2. Tell students that electricity can only go through the circuits they will create in one way. The positive terminal of the battery (red lead on battery clip) must be nearest a positive (long) leg of the LED. A battery pushes electricity around the circuit through the positive leg and out the negative (short) leg, then repeating through the next positive leg (if there is more than one LED in the circuit).
3. Explain that electricity will take the path of least resistance. It is easier for electricity to travel through the dough than through the LED, so if two pieces of dough are touching, the LED will not light.
4. Challenge students to design a simple circuit like the ones on the next page.



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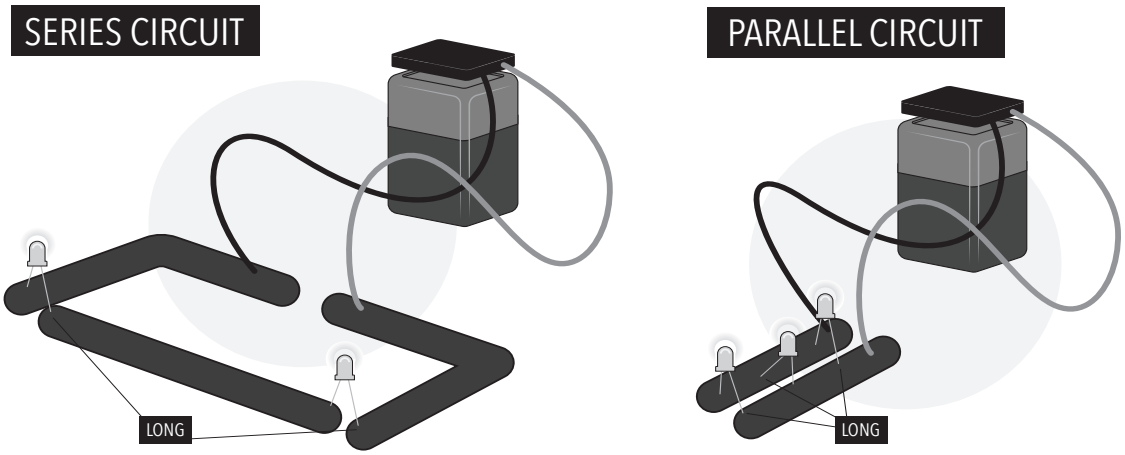
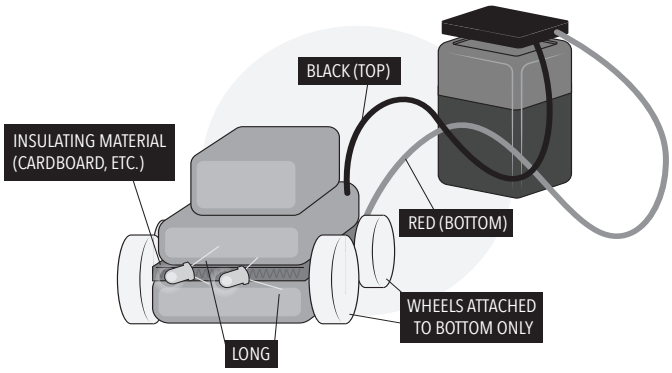



If time allows, have students create a circuit work of art like the one below. Since the conductive dough cannot touch, use insulating material between layers.

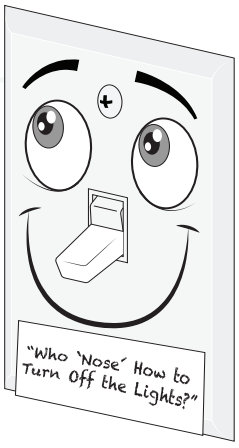



## Discussion

- How does your dough circuit light the LED compared to the circuits at your home?
- In a series circuit with multiple LEDs, what happens to the brightness of the LEDs that are further from the battery? Why?

## To Know and Do More

When a light switch is off, the electrical pathway to a bulb is not complete and electricity cannot flow to light that bulb. When you flip the switch on, you close the circuit and the light turns on. If light is not needed, it is important not to waste the natural resources used to generate the electrical power that is being transformed to light. Have students create characters without noses to put over light switches at school or home. The art should help remind them to turn lights off!





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WATTSMART BEGIN AT HOME

# Activity: Shine a Light on History

### Objective

Students will gather details and make inferences from text to explain historical events related to electricity. They will use their knowledge to write information text to support an opinion.

### Curriculum Focus

Language Arts
Social Studies
Science

### Materials per student group

- Copies of "Edison v. Holonyak"

### Key Vocabulary

LED (light-emitting diode)
Incandescent bulb
Filament
Electric meter
Inference
Persuasive
Lumen
Watt

### Next Generation Science Correlations

4-PS3 - 2
4-PS3.A-B
MS-PS3 - 3

## Introduction

Thomas Edison and Nick Holonyak are two famous lighting inventors. They both made major contributions that changed the way people lived. Thomas Edison patented the incandescent bulb in the late 1870s. Since that time, people have enjoyed the convenience of using electricity for light. Nick Holonyak created the first practical, visible spectrum LED which revamped lighting as we know it.

In this activity, students will study the contributions of these two inventors. They will gather details to form an opinion about which man was more influential in history.

## Procedure

1. Pass out copies of "Edison v. Holonyak" and have students read about each. If time allows, they can use the internet, or other sources, to find additional information.
2. Have students fill out the research cards for each inventor. Using that information, they should decide which inventor was more influential in history and write a persuasive paragraph, with details from their research to support their opinion.
3. Challenge students to practice reciting their paragraph and then present it to another student(s) in an attempt to change a differing opinion.



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## Discussion

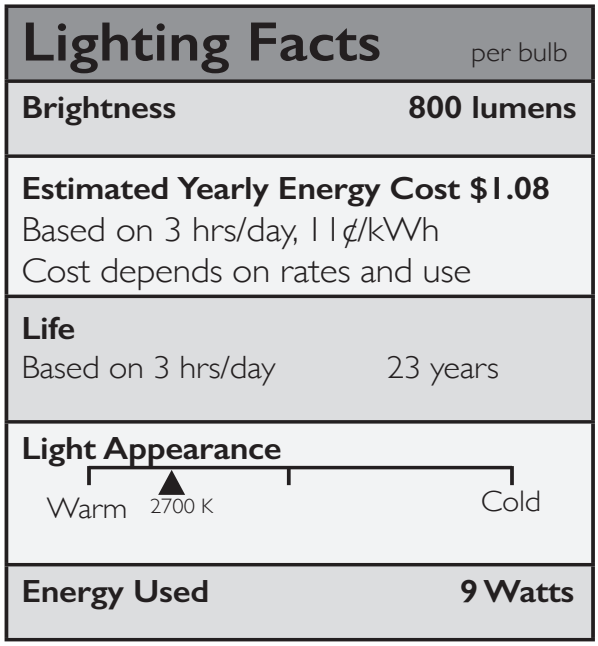
- What kinds of light bulbs are used in your home? How do they affect the way you live and work?
- What do you think the next great electrical invention will be?
- Thomas Edison said, "Genius is one percent inspiration and ninety-nine percent perspiration." What did he mean? How does his quote apply to you?

## To Know and Do More

A light bulb package has a lighting facts label that contains different numbers.

- The light output in lumens.
- The power used by the bulbs, measured in Watts. The higher the wattage, the more energy the bulb uses.
- A measure of how warm or cool the light from that bulbs looks, measured in Kelvin (K). Low numbers are warmer light hues (orange or yellow). High numbers are cooler hues (blue or green).

When buying new bulbs, we should shop by lumens, not wattage. We save energy by finding bulbs with the lumens we need, then choosing the lowest wattage possible for that number of lumens.





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WATTSMART BEGIN AT HOME

# Activity: Layered Lunch

### Objective

Students will understand that natural gas deposits are trapped and held by certain types of geologic formations.

### Curriculum Focus

Science
Art

### Materials

- Slices of bread
- Almond butter or other thick spread (e.g. cream cheese)
- Honey
- Plastic wrap or wax paper
- Plastic knife

### Key Vocabulary

Permeable
Impermeable
Source rock

### Next Generation Science Correlations

4-ETS1 - 1
4-ETS1.A
5-ETS1 - 1
5-ETS1.A
MS-LS4 - 1
MS-LS4.A
MS-ESS1 - 4
MS-ESS1.C
MS-ETS1 - 4
MS-ETS1.B

## Introduction

How do we find natural gas? Try this activity to get an idea of the type of rock formations and characteristics geologists look for when locating natural gas deposits.

As natural gas molecules form, they migrate from shale "source rock" into more porous areas such as sandstone. Porous or permeable layers are much like a sponge with little pockets throughout the rock. The natural gas continues to move to either the earth's surface (where it escapes into the atmosphere) or it is trapped when nonporous or impermeable rock layers block its path.

## Procedure

Using bread, almond butter and honey, create some edible models of rock layers. (In place of almond butter you could use peanut butter, nutella or even thick frosting depending on allergies within the classroom.)

1. Spread thick layers of almond butter then honey on a slice of bread. Top it with another slice of bread.
2. Make a second sandwich just like the first, or gently cut the sandwich in half.
3. Now put one sandwich (or one half) with the almond butter layer above the honey and the other sandwich (or other half) with the honey on top of the almond butter.
4. Next spread a thick layer of only honey on a slice of bread, adding another slice on top.
5. Cover your sandwiches with wax paper or plastic wrap and gently press down on them for about three seconds, representing millions of years of pressure.
6. Cut the sandwiches in half and observe what has happened.



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## Discussion

1. What do you think the honey represents?

2. Which layer do you think represents porous rock?

3. Which layer is the nonporous rock?

4. Did the honey seep into both slices of bread? Why or why not?

5. What do you predict would happen with a sandwich made with only almond butter?

6. How might the ingredients you used affect your results?

7. Draw the layers of your sandwich and use colored pencils or crayons to distinguish the different layers and write labels for each layer that includes: impermeable, permeable, natural gas, nonporous rock and porous rock.

## Answers

The honey represented natural gas or a fossil fuel. The bread was the porous rock where the honey or natural gas gets into the little pockets or air spaces. Almond butter acted like a nonporous rock layer blocking the honey from seeping into the slice of bread above the almond butter. The results may be different depending on your ingredients: denser bread – less seepage, creamier almond butter may be less impermeable or thicker honey may not fill the little pockets as easily.

## To Know and Do More

Assign students to further investigate how natural gas is trapped in rock formations. Have them draw pictures of a formation and the trapping of oil and natural gas in the earth.

Visit a natural history museum and look for prehistoric life forms and rock formations.


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WATTSMART BEGIN AT HOME

# Activity: How Do You Rate?

### Objective
Students will conduct a home survey to determine how they can use energy more efficiently by changing their habits and improving conditions and thereby improve the environment in which they live.

### Curriculum Focus
Language Arts
Science
Social Studies

### Materials
- Copies of "How Do You Rate?"

### Key Vocabulary
Conservation
Efficiency
Environment
Natural resources
Quality of life

### Next Generation Science Correlations
4-ESS3 – 1
5-ESS3 – 1
5-ESS3.C
MS-LS2 – 1
MS-ESS3 – 3
MS-ESS3.A



## Introduction

We use natural resources every day. Sometimes we use them just as they come from earth or the atmosphere. At other times we alter their makeup to fit our needs. For instance, we use the sun just as it is to dry clothes, but we use photovoltaic cells to capture the sun's energy and convert it to electricity, a secondary energy source. We use coal just as it comes to us from the earth to make electricity, or we use coal to provide coke for steel manufacturing. Many natural resources we use every day are nonrenewable, once we use them they are gone; others are renewable, they can be replaced through natural and/or human processes.

It is responsible to use all resources efficiently and wisely. When we do, we reduce energy use, save money and preserve the environment. Making wise decisions today will have a positive impact on our future.

Imagine the difference we could make if we all used energy more efficiently. We would conserve natural resources for the future and enjoy better air quality and a better life. Each one of us can truly make a difference. All it takes is knowledge and action.

## Procedure

Using energy efficiently and conserving our natural resources are responsible and easy actions that students can take today to show they respect the environment and have a desire to protect and preserve it.

1. Pass out "How Do You Rate?" Discuss the actions that may apply to the school (e.g., windows and doors have weather stripping; drapes or blinds are open on cold, sunny days and closed on hot days; thermostats are adjusted at night; lawns are only watered early or late in the day). As you discuss each action, write a T for true or F for false on the board to see how the school rates. What can the students do to improve energy use at school?
2. Decide on several actions the students can take at school to help save energy and protect the environment. One action might be to use both sides of their paper and then recycle. If a room is empty during lunch or at other times, they can be sure lights are turned off and computers are on sleep mode.
3. Have the students take the survey home and complete it with their parent's or guardian's help. Explain to students that it is important to record their true energy use and not mark what they think they should be doing.
4. How did the students' homes rate? Discuss the results of the home survey. Help students to become enthusiastic about conserving natural resources and using energy more efficiently.



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5. Prepare a graph to show the results of the energy efficiency survey. Which efficiency tips are already practiced by most students? Which were least used? Graph the number of students marking true for each item.
6. Find the mean, median, mode and range of the data on the home survey.

## Discussion

Discuss the benefits of energy conservation. How will our energy use impact our future? Compare the benefits and possible inconveniences and their correlation to our quality of life.

## To Know and Do More

Why do you think people do not practice all of the energy efficiency tips on the survey? Are there false assumptions that affect people's behavior? (Believing that turning things on and off uses more energy than leaving them on, for example.)

Discuss how people in other geographic areas and cultures would rate. Does everyone have a car, dishwasher or an air conditioner?

## Career Awareness Activity

Have the students think of some careers that could have a big impact on your community's energy usage. Some areas to consider: teachers — impact energy usage through education and by example; utility workers — through education and incentives; government regulators — through restrictions and rewards, such as financial benefits or tax breaks.


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WATTSMART BEGIN AT HOME

# Student Sheet: How Do You Rate?

How energy efficient is the building you live in? Together with your parents or guardians, answer the following questions to rate your home or apartment.

Circle T if the statement is true, F if the statement is false or NA if the statement does not apply to your living situation.

## Heating and Cooling

Windows and doors have good weather-stripping. T F NA

Window coverings are open on cold, sunny days and closed on hot days. T F NA

Window coverings are closed at night when heat is on. T F NA

Thermostat is set at 68 F (20 C) or lower in winter. T F NA

Air conditioning is set at 78 F (26 C) or higher in summer. T F NA

Ducts are insulated in unheated/uncooled areas. T F NA

Garage is insulated. T F NA

Air filters on furnace and air conditioner are cleaned and changed regularly. T F NA

Thermostat is adjusted at night. T F NA

Fireplace damper is closed when fireplace is not in use. T F NA

## Water

A pitcher of water is kept in the refrigerator for drinking. T F NA

Faucets and toilets do not leak. T F NA

Showers and faucets are fitted with energy-efficient shower heads and aerators. T F NA

Showers last no longer than 5 minutes. T F NA

Toilets are low flow, or tanks use water displacement devices. T F NA

Hot water heater is set at 120 F (49 C). T F NA
- If someone in your household has a compromised immune system, consult your physician.

Hot water pipes from water heater are insulated. T F NA

If located in an unheated area, hot water heater is wrapped in an insulation blanket. T F NA

Broom, not hose, is used to clean driveways and sidewalks. T F NA

Faucet is shut off while brushing teeth and shaving. T F NA

## Appliances

Dishwasher is usually run with a full load. T F NA

Automatic air-dry is used with the dishwasher. T F NA

Washing machine is usually run with a full load. T F NA

Cold water is used in washing machine most of the time and is always used for rinses. T F NA

Clothes dryer is usually run with a full load. T F NA

Clothes are often hung up to dry. T F NA

Refrigerator is set no lower than 37 F (3 C). T F NA

Lids are usually put on pots when boiling water. T F NA

Oven is preheated for only 10 minutes (if at all). T F NA

## Lighting

Lights are turned off when not in use. T F NA

LED bulbs are used in at least one room. T F NA

Security and decorative lighting is powered by solar energy. T F NA

Light bulbs are kept dusted and clean. T F NA

Sunlight is used whenever possible. T F NA



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## Trash

| | | | |
|---|---|---|---|
| Glass, cans and newspapers are recycled. | T F NA | Overpackaged products are usually avoided. | T F NA |
| Plastic is separated and recycled. | T F NA | Reusable bags are used for groceries, or bags are recycled. | T F NA |
| Old clothes are often given to charities, secondhand clothing stores, etc. | T F NA | Rechargeable batteries are used when possible. | T F NA |
| Food scraps and organic waste are composted. | T F NA | Food is often bought in bulk. | T F NA |
| | | Products made of recycled materials are favored. | T F NA |

## Transportation

| | | | |
|---|---|---|---|
| Car is properly tuned and tires properly inflated. | T F NA | Public transportation is used when possible. | T F NA |
| Family drivers obey speed limit on the highway. | T F NA | Family members often walk or ride a bike for short trips. | T F NA |
| Family drives an electric vehicle. | T F NA | Kids and parents carpool when possible. | T F NA |

## Yard and Workshop

| | | | |
|---|---|---|---|
| Lawns are watered early or late in the day. | T F NA | Cutting edges on tools are kept sharp. | T F NA |
| Grass is mowed to a height of 2 to 3 inches (5 to 8 cm). | T F NA | Electrical tools are maintained and gas equipment is kept tuned and serviced. | T F NA |
| Hand tools, like pruners and clippers (rather than power tools) are used whenever possible. | T F NA | | |

Score 1 point for True, 0 points for False and 0 points for Not Applicable (NA).

## Total Points: _____

Discuss the results of this survey with your family.
What can you and your family do to raise your score?


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WATTSMART BEGIN AT HOME

# Activity: Energy in Math

**Objective**
Students will interpret and evaluate numerical expressions as they solve word problems.

**Materials**
- Student Worksheet
- Individual White Boards (optional)

**Key Vocabulary**
Watt

**Common Core Correlations**
Numbers and Operations

Data Analysis and Probability

Connection to the Real World

Measurement

## Introduction:

In this activity, students will complete the problem set found on the bottom of Page 22 within an allotted time (10 minutes). Students will solve the mathematical problems making connections to real world situations.

## Procedure:

1. Instruct students on the importance of learning to solve real world problems using their math skills. You may want to review some steps to solving word problems before beginning the first problem. The following questions might be useful to review:
   - Can you draw something to help you?
   - What can you draw?
   - What conclusions can you make from your drawing?
2. Pass out the worksheet.
3. Model the problem.

   Have a pair of students work at the board while the others work independently or in pairs at their seats.

   As students work, circulate. Reiterate the questions above. After several minutes, have the demonstrating students receive and respond to feedback and questions from their peers if necessary.
4. Calculate to solve and write a statement.

   Give everyone two minutes to finish work on that question, sharing their work and thinking with a peer. All should write their equations and statements of the answer.
5. Assess the solution for reasonableness.

   Give students one to two minutes to assess and explain the reasonableness of their solution.



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## Discussion/Debrief

The student debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the problem set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed. Then guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- What did you notice about this word problem?
- What is different in the problem?
- What are we trying to find out?
- How can we represent this part of the story? (draw, write a number, use manipulatives)
- What would help us organize our thinking and our work? (answers may vary: draw it out, act it out, write an equation, etc.)
- What strategies can we use to solve this problem?

## To Know and Do More

Have your students turn in their worksheet showing their work to solve each problem. This will help you to assess your students' understanding of the math concepts presented in the lesson.

1. Jessie saved more energy than Michael. Michael saved more energy than Maggie. Maggie saved less energy than Jessie. Karen saved more energy than Jessie. List the kids' names in order of how much energy they saved, least to most:
   - Jessie, Karen, Maggie, Michael
   - Maggie, Michael, Jessie, Karen
   - Michael, Jessie, Maggie, Karen
   - Maggie, Karen, Michael, Jessie
2. The Maher family used 57,000 gallons of water a year, costing them $525 to heat it. Estimate how much money they would save in a year if they cut their hot water use by 30,820 gallons.
   - $100
   - $240
   - $284
   - $525
3. If each person in a house uses a 60 Watt bulb in their own bedroom 4 hours a day, and there are three people living there, how many Watts will be used a day to light the bedrooms?
   - 20 Watts
   - 240 Watts
   - 650 Watts
   - 720 Watts
4. For every 10 degrees the water heater setting is turned down, you can save 6% of the energy used. If Charles turns his water heater down by 15 degrees, about what percent savings in energy will he save?
   - 6%
   - 9%
   - 12%
   - 15%

Answers: 1. Maggie, Michael, Jessie, Karen; 2. $284; 3. 720 Watts; 4. 9%


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# Activity: Be Wattsmart, Begin at home Poster

### Objective
Students will make their own energy-efficient choices that can be practiced at home to help future societies.

The students will also learn how they can be part of the solution to save energy and natural resources.

### Materials
- House poster found on the following page
- Colored markers or pens

### Key Vocabulary
Carbon footprint
Recycle
Energy efficient

### Common Core Correlations
Energy Sources, Forms and Transformation

Personal and Social Perspectives

Research Tools

Problem-solving and Decision-making Tools

Connection to the Real World

## Introduction:

This is a fun project for students to create after they have studied energy, energy efficiency and renewable and nonrenewable resources. Using the poster given, students will add or color the items listed below to create a house that is eco-friendly and energy efficient. You can help your students answer questions about what types of energy they can use and how it will work in the house to create efficiency and save energy.

## Procedure:

1. Add or color the items listed below. You may want to do different items each day as you cover different topics: electricity, natural gas, water, etc.
    - Add a bicycle.
    - Add recycling bins in the garage.
    - Add trees to shade the house.
    - Add a ceiling or floor fan to the home for cooling.
    - Put a blue star (for ENERGY STAR® products) on the refrigerator, television and furnace.
    - Color the energy-efficient shower head, red.
    - Color all items that use electricity, yellow.
    - Color the thermostat, brown.
    - Color the furnace filter that is being changed, orange.
    - Draw a purple water drop next to all items in the house that use water.

## To Know and Do More

- Have your students write a brief description of the things their family has done to improve energy efficiency at home. Have your students add any items that will encourage their families to be energy efficient in the future.
- Choose a natural resource used for energy and create a Venn diagram comparing the positive and negative effects of the use of this resource on the physical environment.



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Lingo Card

| L | I | N | G | O |
|---|---|---|---|---|
| Water Heater | Natural Gas | Natural Resource | Incandescent | Reduce |
| Reuse | Phantom Load | Oil | Coal | ENERGY STAR® |
| Renewable | Energy | Be ***watt***smart Begin at home | Turn It Off! | Uranium |
| Energy Efficiency | LED | Recycle | 68 Degrees | Embodied Energy |
| Cooking | 78 Degrees | Solar | Programmable or Smart Thermostat | Electricity |

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| L | I | N | G | O |
|---|---|---|---|---|
| Reuse | Natural Gas | Phantom Load | LED | 78 Degrees |
| Cooking | Electricity | Renewable | Recycle | 68 Degrees |
| Natural Resource | Water Heater | Be ***watt***smart Begin at home | ENERGY STAR® | Nonrenewable |
| Embodied Energy | Coal | Energy Efficiency | Heating | Incandescent |
| Programmable or Smart Thermostat | Reduce | Oil | Solar | Uranium |

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| L | I | N | G | O |
|---|---|---|---|---|
| Coal | Natural Gas | Solar | Turn It Off! | Renewable |
| Water Heater | Nonrenewable | Phantom Load | Electricity | Reuse |
| Energy | Oil | Be ***watt***smart Begin at home | 68 Degrees | Cooking |
| Programmable or Smart Thermostat | Incandescent | Recycle | Uranium | Natural Resource |
| Reduce | 78 Degrees | Embodied Energy | LED | Energy Efficiency |

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| L | I | N | G | O |
|---|---|---|---|---|
| Natural Resource | Water Heater | Natural Gas | Programmable or Smart Thermostat | 78 Degrees |
| Turn It Off! | Reduce | Oil | Embodied Energy | Cooking |
| Phantom Load | ENERGY STAR® | Be ***watt***smart Begin at home | Uranium | Recycle |
| Energy | LED | 68 Degrees | Energy Efficiency | Heating |
| Electricity | Renewable | Incandescent | Reuse | Solar |

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# Dear Parents,

Today your child participated in the **Be Wattsmart, Begin at home** program sponsored by Rocky Mountain Power. In this engaging presentation, your child learned key science curriculum concepts as well as important ways to be more efficient with energy use at home.

As part of the **Be Wattsmart, Begin at home** program, your child received a:

- **Be Wattsmart, Begin at home** booklet
- *Home Energy Worksheet*

Please take a moment to read through this informative booklet with your child. Then, fill out the *Home Energy Worksheet* in one of two ways:

- Visit **thinkenergy.org/Wattsmart** and fill out an online worksheet. You will need to enter the teacher ID found on the paper worksheet. If you do not have the teacher ID, you can find it by searching for the teacher's name on the website.

  or

- Fill out the paper worksheet and return it to your child's teacher. To thank you, Rocky Mountain Power will provide your child with a Wattsmart nightlight.

We appreciate your efforts to reinforce important **Be Wattsmart, Begin at home** energy knowledge and efficiency actions in your home!

WATTSMART® BEGIN AT HOME

National Energy Foundation® cultivating energy literacy

ROCKY MOUNTAIN POWER
POWERING YOUR GREATNESS

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UT-ID-WY



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# Estimados padres,

Su hijo ha participado en el programa **Ser Wattsmart, Empieza en casa**, patrocinado por Rocky Mountain Power. En esta presentación atractiva, su hijo aprendió conceptos claves de su plan de estudios de ciencias, así como formas importantes para ser más eficiente con el uso de energía en el hogar.

Como parte del programa de **Ser Wattsmart, Empieza en casa**, su hijo recibirá:

- El folleto de **Ser Wattsmart, Empieza en casa**
- *Verificación de Energía Doméstica*

Tome un momento para leer el folleto informativo con su hijo. Luego, complete la *Verificación de Energía Doméstica* de una de estas maneras:

- Visite **thinkenergy.org/Wattsmart** para rellenar el formulario en línea. Necesitará entrar el número de identificación de su profesor que se encuentra en el formulario de papel. Si no tiene la identificación del maestro, puede encontrarla buscando por el nombre del maestro en el sitio web.

  o

- Complete el formulario y devuélvalo al profesor de su hijo. Para agradecerle, Rocky Mountain Power le proporcionará a su hijo una luz de noche.

Apreciamos sus esfuerzos para reforzar la importancia del **Ser Wattsmart, Empieza en casa** de la energía y los acciónes eficientes en el hogar.

WATTSMART® BEGIN AT HOME

National Energy Foundation® cultivating energy literacy

ROCKY MOUNTAIN POWER
POWERING YOUR GREATNESS

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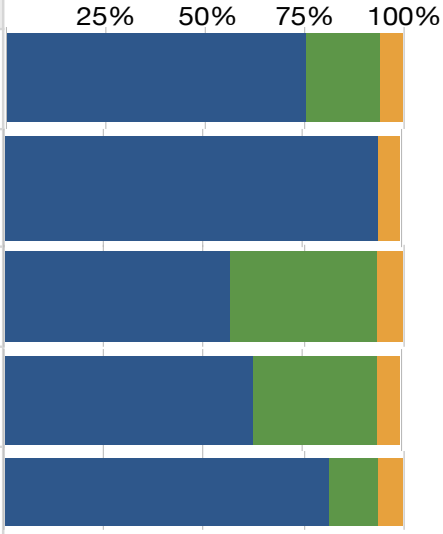
UT-ID-WY

# *Watt*smart **Rocky Mountain Power Utah program**

Program Evaluation Summary

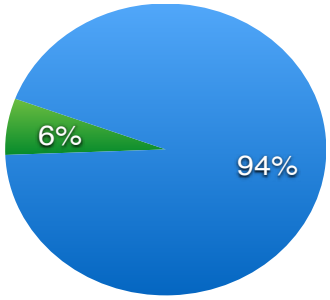
## Educators' impressions of the program from 16 educators.

| | Excellent | Good | Fair | Poor |
|---|---|---|---|---|
| Teaching materials | 12 | 3 | 1 | 0 |
| Flexible options to accommodate COVID-19 | 15 | 0 | 1 | 0 |
| Student engagement | 9 | 6 | 1 | 0 |
| Content | 10 | 5 | 1 | 0 |
| Overall program | 13 | 2 | 1 | 0 |



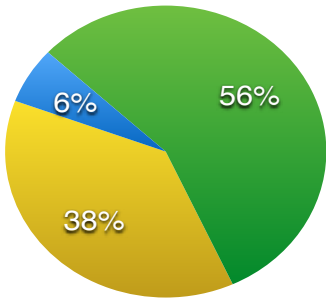

## Was the educational mini-grant a good incentive to participate in the program?

| | Yes | No |
|---|---|---|
| Mini-grant | 15 | 1 |




## Where did your students participate with the presentation?

| | Home | School | Both |
|---|---|---|---|
| Mini-grant | 1 | 9 | 6 |





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| Please share your experience or feedback on the electronic/online learning you used. |
| --- |
| Easy to use. The students enjoyed it and they liked the night lights. |
| Easy to use. The students enjoyed it and they liked the night lights. |
| I thought it was extremely user friendly and easy to teach. |
| It was done very well! |
| It was fine. |
| It was good for the kids that were at home. |
| It was great to have access to the online present and be able to work through it at our own pace. |
| It was super easy! I loved that it didn't take much teacher preparation at all. The materials were well packaged. Getting to the presentation was also easy with just a few clicks. |
| It was very easy to navigate |
| The materials were easy to use and understand. |
| The online learning video was super easy to show to my students who are an online class. |
| The program was very easy to use. Thank you for the materials to supplement the online program. My students really enjoyed LINGO. |
| Very easy to use. |
| We had a great time. |

| What additional activities did you or will you use from the Teacher Guide? |
| --- |
| All of them. |
| Circuit building, but that will come later in the year with our science curriculum |
| I haven't used any additional activities. With COVID and Friday being a distant learning day, all of our time is limited. I would love to participate again next year and hopefully have more time to use other activities. |
| I mostly refer to the materials discussed in the presentation as it comes up in science or other topics of study. |
| none as yet |
| Not sure yet |
| not sure yet. |
| The posters that came with the materials |
| the videos |
| Tied it into our new science core |


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## What would you tell other teachers about the program?

| |
|---|
| It was so good. They should try it! |
| Great way to help students understand conservation of resources. |
| I think it’s an awesome program with a great incentive. |
| It's a fun way to get the kids excited about electricity. |
| Worth the time and effort |
| Not sure. |
| It is a good segway to energy and energy transfer |
| That it is super fun and super easy to participate in. |
| It’s well worth your time. The kids enjoy it and it makes them think about using their resources wisely. It ties in to the water strand of science in fifth grade when we discuss using resources wisely. |
| The program was engaging, educational, and easy to use. My students enjoyed it. The content alligned with our science instruction about Energy. |
| I loved that it was a virtual option so that I could incorporate it into my plans when I had time. The Lingo game was a fun way to keep kids interested and watching. |
| It was a very good program. |
| That is was engaging and informational, goes right along with our curriculum |

## What would you like us to tell the program sponsor about the program?

| |
|---|
| Thank you for supplying this for us. |
| Thank You! |
| Thank you! |
| Thank you! |
| Thank you |
| NOt sure. |
| Thank you! |
| That it is very helpful to get the students thinking about how they use energy. |
| Thank you for offering alternative ways to present the program. It has helped us feel more normal this year. |
| Thank you for sponsoring this program. The content fit with our instructional goals. The program was engaging and enjoyable for my class. |
| Thank you for making this available to students virtually. We all appreciate the extra effort to keep kids learning in a safe environment. |
| Please keep sponsoring this. |
| Thank you for a fun program |


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## Additional comments and recommendations:

| |
|---|
| nothing |
| Thank you for providing this for us. |
| The instructions for LINGO were a little confusing. My students thought they were playing LINGO during the presentation and were listening for the terms on their card. It kept them engaged. We played again when it was time for the LINGO game. |
| The turn around time for the incentive grant is long. Still haven’t received mine. |
| The turn around time for the incentive grant is long. Still haven’t received mine. |

Submit online at
**thinkenergy.org/Wattsmart**

Teacher ID: _____

Teacher Name: _____

Student First Name: _____

# *Home Energy Worksheet*

### Heating

1. Install and use a programmable or smart thermostat.
   ☐ Currently do ☐ Will do ☐ Neither
2. Caulk windows and weather-strip outside doors.
   ☐ Have done ☐ Will do ☐ Neither
3. Inspect attic insulation and add insulation if needed.
   ☐ Have done ☐ Will do ☐ Neither
4. Keep furnace air filters clean/replaced regularly.
   ☐ Currently do ☐ Will do ☐ Neither

### Cooling

5. Replace existing air conditioning unit with a high-efficiency unit or an evaporative cooling unit.
   ☐ Have done ☐ Will do ☐ Neither
6. Close blinds when windows are exposed to the sun.
   ☐ Currently do ☐ Will do ☐ Neither
7. Use a fan instead of air conditioning.
   ☐ Currently do ☐ Will do ☐ Neither
8. Participate in Rocky Mountain Power's Cool Keeper program.
   ☐ Currently do ☐ Will do ☐ Neither

### Water heating

9. Set the water heater temperature to 120 F.
   ☐ Have done ☐ Will do ☐ Neither
10. Install a high-efficiency shower head.
    ☐ Have done ☐ Will do ☐ Neither
11. Take 5 minute showers.
    ☐ Currently do ☐ Will do ☐ Neither
12. Wash full loads in the dishwasher and clothes washer.
    ☐ Currently do ☐ Will do ☐ Neither

### Lighting

13. Replace inefficient bulbs with LED bulbs.
    ☐ Have done ☐ Will do ☐ Neither
14. Turn lights off when not in use.
    ☐ Currently do ☐ Will do ☐ Neither

### Refrigeration

15. Replace old, inefficient refrigerator with an ENERGY STAR® model.
    ☐ Have done ☐ Will do ☐ Neither
16. Unplug old freezers/refrigerators and/or dispose of them in an environmentally safe manner.
    ☐ Have done ☐ Will do ☐ Neither
17. Maintain refrigerator and freezer coils and check door seals twice yearly.
    ☐ Currently do ☐ Will do ☐ Neither

### Electronics

18. Turn off computers, TVs and game consoles when not in use.
    ☐ Currently do ☐ Will do ☐ Neither

### Cooking

19. Use a microwave oven, toaster oven, slow cooker or outdoor grill instead of a conventional oven.
    ☐ Currently do ☐ Will do ☐ Neither

### Get paid for being Wattsmart

20. Visit Rocky Mountain Power at **Wattsmart.com** for more energy saving tips and rebates.
    ☐ Have done ☐ Will do ☐ Neither

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## *Home Energy Worksheet* (Spanish)

Enviar en línea a
**thinkenergy.org/Wattsmart**

Identificación del profesor(a): _____

Nombre del profesor(a): _____

Primer nombre del estudiante: _____

# *Verificación de Energía Doméstica*

**Calefacción**

1. Instalar y usar un termostato programable o termostato inteligente.
   ☐ Lo hago ☐ Lo haré ☐ Ninguno
2. Calafatear ventanas e instalar burletes en el exterior de las puertas.
   ☐ Lo he hecho ☐ Lo haré ☐ Ninguno
3. Inspeccionar el aislamiento del ático y agregar aislamiento si es necesario.
   ☐ Lo he hecho ☐ Lo haré ☐ Ninguno
4. Mantener los filtros de aire de la calefacción limpios/reemplezarlos regularmente.
   ☐ Lo hago ☐ Lo haré ☐ Ninguno

**Enfriamiento**

5. Reemplazar la unidad de aire acondicionado existente por una unidad de alta eficiencia o un enfriador evaporativo.
   ☐ Lo he hecho ☐ Lo haré ☐ Ninguno
6. Cerrar las persianas cuando las ventanas están expuestas al sol.
   ☐ Lo hago ☐ Lo haré ☐ Ninguno
7. Usar un ventilador en lugar del aire acondicionado.
   ☐ Lo hago ☐ Lo haré ☐ Ninguno
8. Participar en el programa “Cool Keeper” de Rocky Mountain Power.
   ☐ Lo hago ☐ Lo haré ☐ Ninguno

**Calentadores de agua**

9. Programar el calentador de agua a 120 F.
   ☐ Lo he hecho ☐ Lo haré ☐ Ninguno
10. Instalar un cabezal de ducha de alta eficiencia.
    ☐ Lo he hecho ☐ Lo haré ☐ Ninguno
11. Tomar duchas de 5 minutos.
    ☐ Lo hago ☐ Lo haré ☐ Ninguno
12. Lavar cargas llenas en los lavaplatos y las lavadoras de ropa.
    ☐ Lo hago ☐ Lo haré ☐ Ninguno

**Iluminación**

13. Reemplazar los focos ineficientes con focos LED.
    ☐ Lo he hecho ☐ Lo haré ☐ Ninguno
14. Apagar las luces cuando no estén en uso.
    ☐ Lo hago ☐ Lo haré ☐ Ninguno

**Refrigerador**

15. Reemplazar el refrigerador viejo e ineficiente con un modelo de ENERGY STAR®.
    ☐ Lo he hecho ☐ Lo haré ☐ Ninguno
16. Desenchufar refrigeradores/congeladores viejos y/o desecharlos de una manera ambientalmente segura.
    ☐ Lo he hecho ☐ Lo haré ☐ Ninguno
17. Mantener las bobinas del refrigerador y del congelador e inspeccionar el sello de las puertas dos veces al año.
    ☐ Lo hago ☐ Lo haré ☐ Ninguno

**Electrónicos**

18. Apagar computadoras, televisores y consolas de juegos cuando no estén en uso.
    ☐ Lo hago ☐ Lo haré ☐ Ninguno

**Cocinar**

19. Usar un horno microonda, un horno eléctrico, un olla de cocimiento lento o una parrilla al aire libre en lugar del horno convencional.
    ☐ Lo hago ☐ Lo haré ☐ Ninguno

**Reciba paga siendo Wattsmart**

20. Visite Rocky Mountain Power en **Wattsmart.com** para obtener más consejos y rebajas de ahorro de energía.
    ☐ Lo he hecho ☐ Lo haré ☐ Ninguno

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EMPIEZA EN CASA

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# *Home Energy Worksheet* Summary – Rocky Mountain Power

| Energy Efficient Activity | Currently do/Have done | Will do | Neither |
|---|---|---|---|
| 1. Install and use a programmable or smart thermostat. | 71% | 14% | 16% |
| 2. Caulk windows and weather strip outside doors. | 67% | 19% | 14% |
| 3. Inspect attic insulation and add insulation if needed. | 60% | 18% | 22% |
| 4. Keep furnace air filters clean/replaced regularly. | 84% | 11% | 5% |
| 5. Replace existing air conditioning unit with a high-efficiency unit or an evaporative cooling unit. | 56% | 16% | 27% |
| 6. Close blinds when windows are exposed to the sun. | 77% | 11% | 12% |
| 7. Use a fan instead of air conditioning. | 56% | 15% | 29% |
| 8. Participate in Rocky Mountain Power's Cool Keeper program. | 18% | 26% | 56% |
| 9. Set the water heater temperature to 120 degrees F. | 61% | 20% | 19% |
| 10. Install a high-efficiency shower head. | 52% | 19% | 28% |
| 11. Take 5 minute showers. | 37% | 27% | 37% |
| 12. Wash full loads in the dishwasher and clothes washer. | 92% | 4% | 4% |
| 13. Replace inefficient bulbs with LED bulbs. | 80% | 14% | 7% |
| 14. Turn lights off when not in use. | 84% | 13% | 3% |
| 15. Replace old, inefficient refrigerator with an ENERGY STAR model. | 64% | 16% | 21% |
| 16. Unplug old freezers/refrigerators and/or dispose of them in an environmentally safe manner. | 58% | 17% | 25% |
| 17. Maintain refrigerator and freezer coils and check door seals twice yearly. | 43% | 38% | 19% |
| 18. Turn off computers, TVs and game consoles when not in use. | 79% | 15% | 6% |
| 19. Use a microwave oven, toaster oven, slow cooker or outdoor grill instead of a conventional oven. | 70% | 14% | 16% |
| 20. Visit Rocky Mountain Power at wattsmart.com for more energy-saving tips and rebates. | 18% | 55% | 27% |


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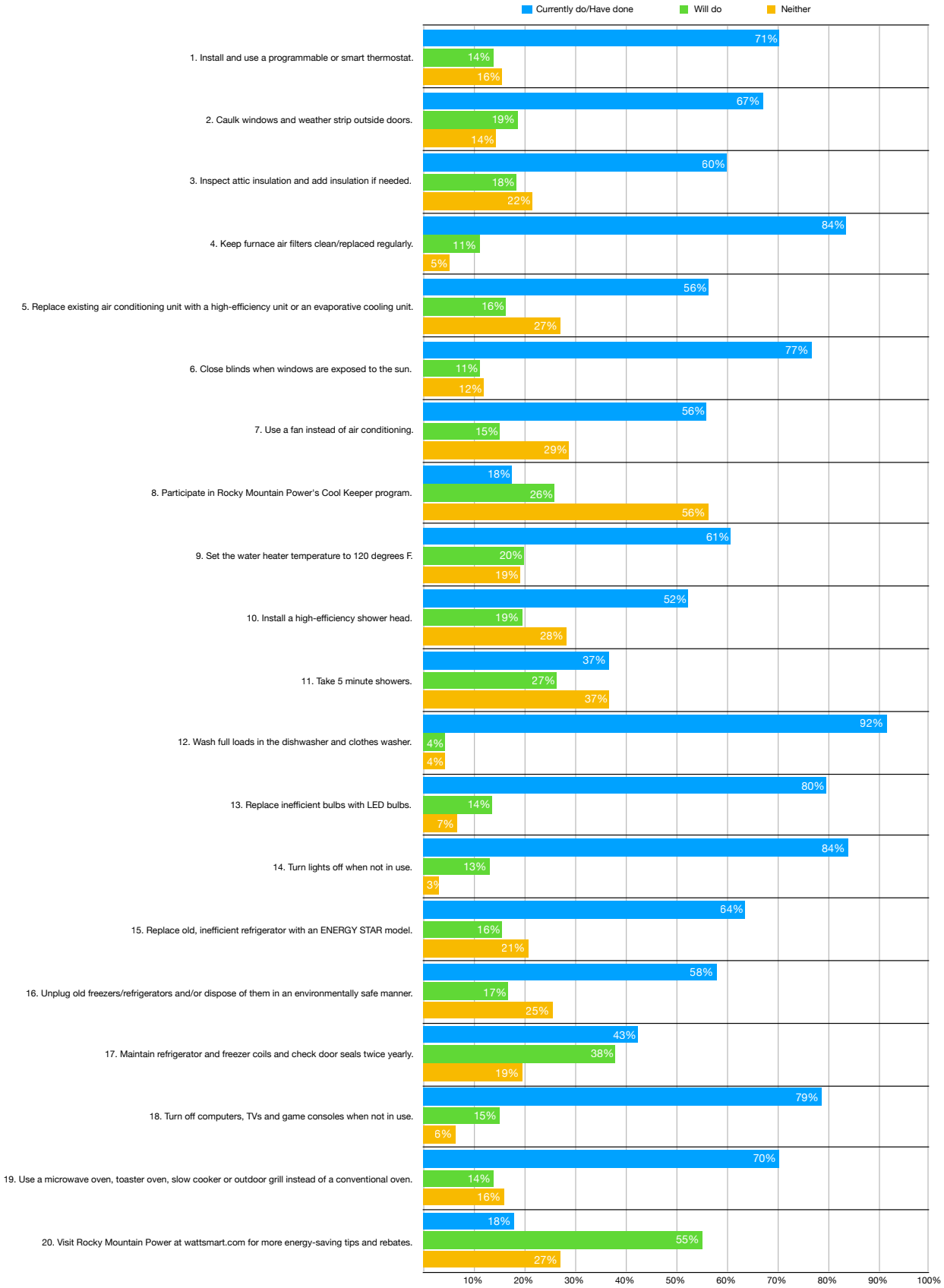


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Data Numbers

| Energy Efficient Activity | Currently do/Have done | Will do | Neither | Total Responses |
|---|---|---|---|---|
| 1. Install and use a programmable or smart thermostat. | 4433 | 867 | 981 | 6281 |
| 2. Caulk windows and weather strip outside doors. | 4188 | 1162 | 897 | 6247 |
| 3. Inspect attic insulation and add insulation if needed. | 3747 | 1147 | 1345 | 6239 |
| 4. Keep furnace air filters clean/replaced regularly. | 5248 | 696 | 324 | 6268 |
| 5. Replace existing air conditioning unit with a high-efficiency unit or an evaporative cooling unit. | 3514 | 1023 | 1687 | 6224 |
| 6. Close blinds when windows are exposed to the sun. | 4798 | 708 | 755 | 6261 |
| 7. Use a fan instead of air conditioning. | 3500 | 954 | 1798 | 6252 |
| 8. Participate in Rocky Mountain Power's Cool Keeper program. | 1097 | 1615 | 3483 | 6195 |
| 9. Set the water heater temperature to 120 degrees F. | 3792 | 1244 | 1193 | 6229 |
| 10. Install a high-efficiency shower head. | 3278 | 1212 | 1764 | 6254 |
| 11. Take 5 minute showers. | 2292 | 1662 | 2316 | 6270 |
| 12. Wash full loads in the dishwasher and clothes washer. | 5734 | 268 | 264 | 6266 |
| 13. Replace inefficient bulbs with LED bulbs. | 4991 | 850 | 415 | 6256 |
| 14. Turn lights off when not in use. | 5216 | 813 | 186 | 6215 |
| 15. Replace old, inefficient refrigerator with an ENERGY STAR model. | 3981 | 979 | 1294 | 6254 |
| 16. Unplug old freezers/refrigerators and/or dispose of them in an environmentally safe manner. | 3600 | 1044 | 1583 | 6227 |
| 17. Maintain refrigerator and freezer coils and check door seals twice yearly. | 2650 | 2376 | 1206 | 6232 |
| 18. Turn off computers, TVs and game consoles when not in use. | 4942 | 946 | 390 | 6278 |
| 19. Use a microwave oven, toaster oven, slow cooker or outdoor grill instead of a conventional oven. | 4409 | 873 | 991 | 6273 |
| 20. Visit Rocky Mountain Power at wattsmart.com for more energy-saving tips and rebates. | 1118 | 3440 | 1686 | 6244 |


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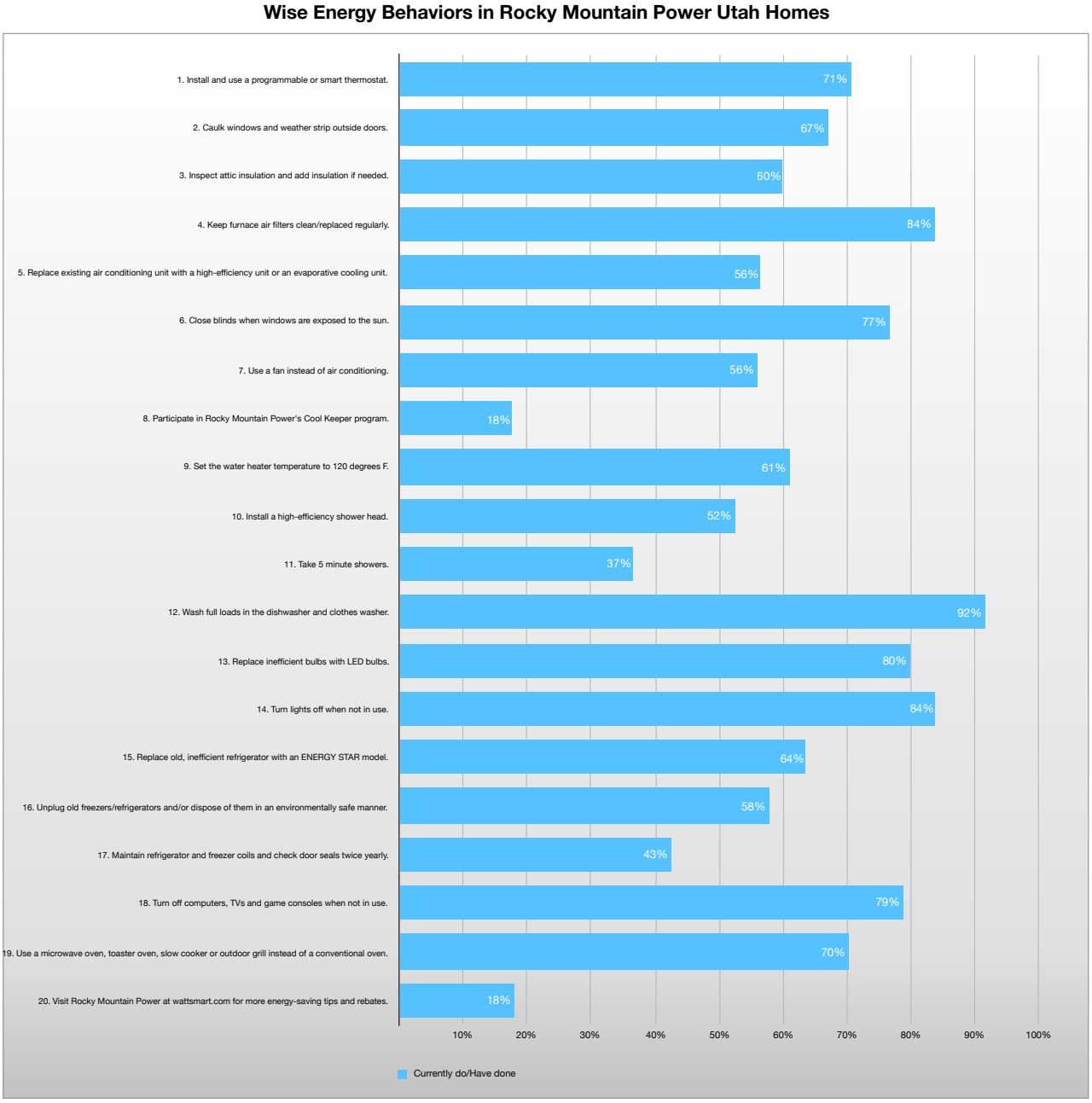
# Wise Energy Behaviors in Rocky Mountain Power Utah Homes

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# Thanks a "Watt!"

Thank you for providing the **Be Wattsmart, Begin at home** program to our school. We learned how to make a difference and use energy wisely and had fun doing it.

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# Creative and News Releases

**Wattsmart TV**

- Good for Utah – Spanish 78-degrees
- Good for Utah – Summer 78-degrees
- Intermountain Healthcare :30
- Red Iguana :30

**Wattsmart radio**

- Utah Thrive :60
- Utah Thrive (Spanish) :60
- Intermountain Healthcare :60
- Red Iguana :60

**Wattsmart Print**

- Thank you, ad,
- Partners in Innovation color
- Intermountain Healthcare – color
- Red Iguana – B/W

**Digital & Social**

- Good for Utah – Social – English/Spanish
- Good for Utah – Digital
- Intermountain Healthcare Social
- Red Iguana Social
- Red Iguana Digital
- Intermountain Healthcare Digital

**Direct mail**

- Irrigation letter | LESA flyer and application – Spring
- Irrigation letter | Energy Savings flyer and application – Fall

**Email**

- Smart Thermostat Black Friday Email
- Cool Keeper Survey Email
- Cool Keeper Gift Card Email
- Cool Keeper Holiday Email
- Cool Keeper Summer Email
- Heat Pump Water Heater Email
- Cooling Campaign Email
- Smart Thermostat Summer Email

**Collateral**

- Cool Keeper Handout
- Wattsmart Ways to Save Handout
- Wattsmart Business Brochure
- Wattsmart Business Lighting Catalog
- Wattsmart Business Small Business Enhanced Handout
- Wattsmart Business Utah Overview

**Connect Newsletters**

- February 2020 – Save smart/A bright 2020 starts at home
- May 2020 – Help keep Utah cool/Ways to save
- July 2020 – Cool ways to save/Whole family comfort
- October 2020 – Easy comfort, effortless savings

**Bill Inserts**

- Savings to make your day brighter – residential
- Savings to make your day brighter – business

**News Releases**

- Commercial building owners and managers focusing on ways to reduce the spread of workplace illness while maintaining energy efficiency
- Rocky Mountain Power's customized Home Energy Reports help customers manage summer power use
- Rocky Mountain Power hosting virtual reality tour of renewable resource at Home and Garden Show

**Photos from** 2020 Salt Lake Tribune Home & Garden Festival