Nebraska Energy Quarterly

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June 2022

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ESFs 10 and 12 participate in radiological emergency exercise

by Doris Jansky
Statistical Analyst and ESF 12 Coordinator, NDEE

Photo by Amanda Woita, NDEE

Emergency Support Function (ESF) 12 team members Bryce Puck (left) and Ed Holbrook participate in a Radiological Emergency Preparedness dress rehearsal on April 5. The dress rehearsal and an earlier exercise help prepare ESFsin case of a radiological emergency.

The Emergency Support Function (ESF) 10 and 12 teams from the Nebraska Department of Environment and Energy (NDEE) recently participated in the Nebraska Emergency Management Agency's (NEMA) radiological emergency exercise and dress rehearsal for Cooper Nuclear Station.

The Nuclear Regulatory Commission (NRC) requires Cooper Nuclear Station to have a dress rehearsal along with evaluated exercises in case of a radiological emergency. Off-site response organizations (OROs), such as government agencies, are required to participate in these exercises by the Radiological Emergency Preparedness (REP) program, which is administered by the Federal Emergency Management Agency (FEMA).

ESFs focus on different aspects of critical infrastructure. They can be activated by NEMA to help coordinate emergency responses. ESF 10 supports environmental quality issues and ESF 12 supports energy issues.

NEMA, as the lead ORO agency, conducted a practice exercise on March 15 to prepare state personnel, local emergency management agencies and county departments for the upcoming evaluation period. Routine turnover dictates that personnel are identified and trained to fill their area(s) of responsibility (AORs), should a radiological incident, accident or event occur.

During the March 15 exercise, NEMA alerted the ESF 10 and 12 teams to deploy to their stations at the State Emergency Operations Center (SEOC). Both ESFs began discussions and assessments. ESF 12 contacted relevant people, agencies and government offices to alert and provide information. Two laptops were in use; one to WebEx into the State's communication platform with the SEOC to hear and participate in briefings and another laptop logged into Knowledge Center, NEMA's emergency management platform, to read and write logs pertaining to the incident.

ESF 10 reported to the SEOC and worked from their assigned station. They coordinated with program staff at NDEE's headquarters to gather and provided needed information to NEMA. As the day went on, the Emergency Classification Levels continued to elevate until NEMA determined that the response and exercise objectives were satisfied.

This practice exercise was followed by a dress rehearsal on April 5. The dress rehearsal scenario had a different reason for shutting down Cooper Nuclear Station, but otherwise, the response on ESF 12's part was nearly the same. With

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the reason being two earthquakes, ESF 12 focused on pipelines in addition to Cooper Nuclear Station shutting down and causing a power outage. ESF 10 focused on hazardous material and livestock facilities within the exercise area surrounding the plant.

Both the March 15 exercise and the April 5 rehearsal were intended to prepare state and local emergency responders for the evaluated exercise set for May 24.

Nebraska Public Power District owns and operates Cooper Nuclear Station, the largest, single-unit electrical generator in Nebraska. It generates 810 megawatts of electricity. This would be enough power to supply approximately 324,000 homes during their highest summer usage period. Cooper Nuclear Station is approximately three miles north of Brownville, Nebraska.

Photo by Amanda Woita, NDEE

Emergency Support Function 12 team member Shawna Orth makes a phone call during a Radiological Emergency Preparedness dress rehearsal April 5.

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Nebraska businesses receive REAP funds

Information from USDA Rural Development

Photo by Mariana Proenca on Unsplash

The U.S. Department of Agriculture Rural Development awarded funding to six energy-saving projects in Nebraska, including a project to install solar arrays at a hog farm. In total, rural Nebraska businesses received $68,500.

In honor of Earth Day on April 22, Agriculture Secretary Tom Vilsack announced that the U.S. Department of Agriculture (USDA) is investing nearly $800 million in climate-smart infrastructure in 40 states, Puerto Rico and the Northern Mariana Islands. These investments will strengthen the health and livelihoods of people across rural America. They include funding for 165 projects to expand access to safe water and/or clean energy for people living in disadvantaged communities.

The USDA has awarded $68,500 in Nebraska through its Rural Energy for America Program (REAP). These funds go toward renewable energy infrastructure to help agricultural producers, rural small business owners and residents lower energy costs and make energy efficiency improvements.

Through REAP, the Department is helping 157 rural businesses and agricultural producers get access to clean energy, while reducing their carbon footprint to make their business operations more cost-effective.

Loan and grant recipients and projects in Nebraska include:

- Niewohner Grandchildren's Limited Partnership – $11,087 for the installation of two 34.2 KW solar arrays at a hog farm.
- Marilee Niewohner – $17,320 for the installation of a 34.2 kW solar array at a hog farm.
- MSJM Properties Partnership – $20,000 for the installation of two 34.2 kW solar arrays at a hog farm.
- Valley Foods Cooperative – $5,705 for the installation of energy-efficient coolers, freezers and lighting.
- Spady Buick Pontiac GMC Inc. – $4,388 for the installation of energy-efficient LED lighting.
- Alan G. Preister – $10,000 for the installation of an energy-efficient grain dryer.

"People in rural America are experiencing the impacts of climate change in many ways. This includes more severe droughts, more frequent wildfires, and more destructive and life-threatening storms," Vilsack said. "When we invest in infrastructure in rural communities, we are investing in our planet, and we're also investing in the peace of mind families will have when kids are drinking clean and safe tap water in their homes. USDA is proud to celebrate Earth Day and the many ways we are addressing climate change and investing in locally-driven solutions to bring safe water and renewable energy to people in rural areas everywhere."

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Other USDA initiatives that awarded funds include:

Advancing Equity in Rural Communities
USDA Rural Development is prioritizing projects that advance the Biden-Harris Administration's key priorities of investing in rural communities to ensure people have equitable access to critical resources and to combat the climate crisis. Investments in these communities will make an impact for generations to come.

Clean Energy Infrastructure and Energy Efficiency Improvements
USDA is investing $787 million in renewable energy infrastructure in 36 states to help agricultural producers, rural small business owners and residents lower energy costs and make energy-efficiency improvements. The Department is making the investments under the Electric Loan Program and REAP.

The Electric Program funding includes nearly $67 million for smart grid technologies that improve system operations and monitor grid security.

Infrastructure Improvements for Communities Hit by Severe Weather
USDA is investing $12 million to help rural communities hit by severe weather. The funds will benefit people living in 17 states, the Northern Mariana Islands and Puerto Rico. The Department is making the investments under the Community Facilities Disaster Grants program and the Water and Waste Disposal Disaster Loan and Grant Program.

The funds will help communities build back better by mitigating health risks and increasing access to safe, reliable drinking water and sanitary waste disposal services. Funds also will purchase emergency response equipment to help communities be better prepared and more resilient in the face of disaster.

To read the USDA's full press release, visit the Department's website.

If you'd like to subscribe to USDA Rural Development updates, visit the USDA's GovDelivery subscriber page.

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NDEE to provide rebates for replacing diesel vehicles and irrigation engines

Nebraska Department of Environment and Energy Director Jim Macy announced on Feb. 23, 2022, that the 2021 Nebraska Clean Diesel Program is awarding approximately $1.3 million in rebates to schools, refuse companies and farmers across the state to aid in the replacement of older diesel vehicles and engines.

Rebates were awarded in three project categories:

- 30 farmers will replace diesel irrigation engines with electric motors.
- 12 school districts and one school bus contractor will replace older diesel school buses with cleaner diesel, propane or gasoline buses.
- Three refuse companies will replace five older diesel trucks with cleaner diesel or compressed natural gas trucks.

The diesel vehicles and engines being replaced must be scrapped in order to eliminate their harmful pollutant emissions. Nitrogen oxides emitted by diesel engines can have direct adverse effects on respiratory health as well as contributing to the formation of harmful ground-level ozone. The projects in this year's program are expected to reduce nitrogen oxide emissions by over 19 tons annually.

"The Clean Diesel Program funds allow the department to provide financial assistance to reduce harmful diesel emissions across the state," Macy said. "We received more applications than we had available funds, so we balanced the funding across all three project categories while prioritizing projects that would achieve the greatest emissions reductions."

Nebraska's Clean Diesel Program is funded by an annual grant from the U.S. Environmental Protection Agency, supplemented by funds from Nebraska's share of the Volkswagen Diesel Emissions Mitigation Trust for State Beneficiaries, Puerto Rico, and the District of Columbia (VW State Trust). Applications for this year's program were accepted from October 1, 2021, through January 13, 2022. NDEE's web page for the Clean Diesel Program is at http://dee.ne.gov/NDEQProg.nsf/OnWeb/NCDGP.

Below are lists of 2021 Clean Diesel Rebates in each of the three categories.

2021 Refuse Truck Rebate Recipients

Recipient	County	Replacement	Rebate
Abe's Trash Service	Washington	2 Diesel Trucks	$138,600
Gretna Sanitation	Sarpy, Douglas	1 CNG Truck	$120,000
Papillion Sanitation (Waste Connections of NE)	Sarpy	2 Diesel Trucks	$140,000
Total			**$398,600**

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2021 School Bus Rebate Recipients

Recipient	New Bus Fuel	Rebate
Arlington Public School	Diesel	$21,000
Bloomfield Community School	Diesel	$21,000
Broken Bow Public Schools	Diesel	$21,000
Doc Holiday Express (Grand Island)	Propane	$33,000
Elmwood-Murdock Public Schools	Diesel	$21,000
Falls City Public Schools District 56	Diesel	$21,000
Maywood Public Schools	Propane	$33,000
Palmyra Schools District OR-1	Diesel	$21,000
Pleasanton Public Schools	Propane	$33,000
South Central USD #5 (Fairfield)	Gasoline	$16,569
Wakefield Community Schools	Diesel	$21,000
Wausa Public Schools	Propane	$33,000
Waverly Public Schools #145	Diesel	$21,000
Total		**$316,569**

2021 Irrigation Engine Electric Replacement Rebate Recipients

Recipient	County	Rebate
CKS Farms Inc.	Hall	$12,908
Clark, Rod	Wheeler	$20,000
CLM Enterprises - Paul Troyer	Holt	$20,000
Fanning, Craig	Chase	$20,000
Goertz Family Farms LLC	Keith	$20,000
Goertzen, Danny	Perkins	$20,000
Goertzen, Wendel	Perkins	$20,000
Kallhoff, Alice Rev. Trust	Antelope	$20,000
Kerkman Sandhills Farms	Holt	$20,000
Krieger, Lowell	Holt	$19,997
Laird, Barbara E.	Wheeler	$20,000
Larson, Tamara	Wheeler	$20,000

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2021 Irrigation Engine Electric Replacement Rebate Recipients (continued)

Recipient	County	Rebate
LDP Inc.	Perkins	$20,000
MTC Properties	Lincoln	$20,000
Nelson Agri Corp	Keith	$20,000
O & W Dairy Farm	Antelope	$20,000
OBrien, Dale	Hayes	$20,000
Oeltjen, Charles	Greeley	$19,238
Olson, L.R. and Sons Inc	Jefferson	$20,000
Olson, Ron	Jefferson	$19,995
Peaster, Bruce L	Perkins	$20,000
Plejdrup, Harold	Hall	$20,000
Reiman, James B. Farms Inc	Boyd	$20,000
Riley, James	Buffalo	$20,000
Schrader, David	Antelope	$16,317
Sehi Farms Inc.	Antelope	$18,969
Williby, Neil	Antelope	$14,840
Z Brothers LLC	Antelope	$9,248
Zuhlke, Derek	Antelope	$13,943
Zuhlke, Dillan	Antelope	$13,754
Total		**$559,209**

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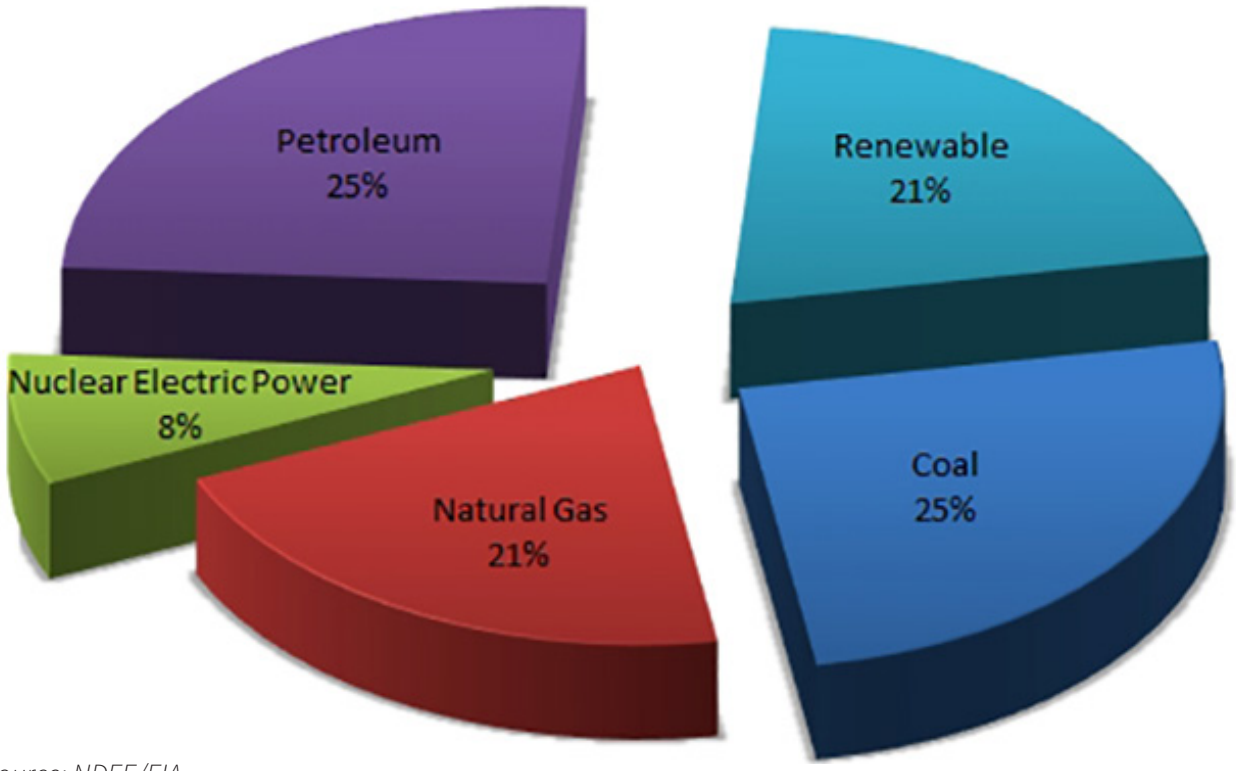
Update on solar generation in Nebraska

Sources of energy for Nebraska are changing. According to the Nebraska Department of Environment and Energy's 2021 annual energy report, renewable fuel production peaked in 2019 and made up 21% of Nebraska's total energy consumption that same year.

NDEE is keeping up with this changing energy landscape by updating its wind and solar community generation maps. These maps show communities with wind facilities and solar energy generation across the state. As renewable energy changes, these maps will be updated.

The solar map can be seen below, and a wind map can be seen in the March 2022 NEQ. Both the wind and solar maps are available online, and more energy information can be found on our statistics webpage.

Total Energy Consumption by Fuel Type in 2019



Source: NDEE/EIA

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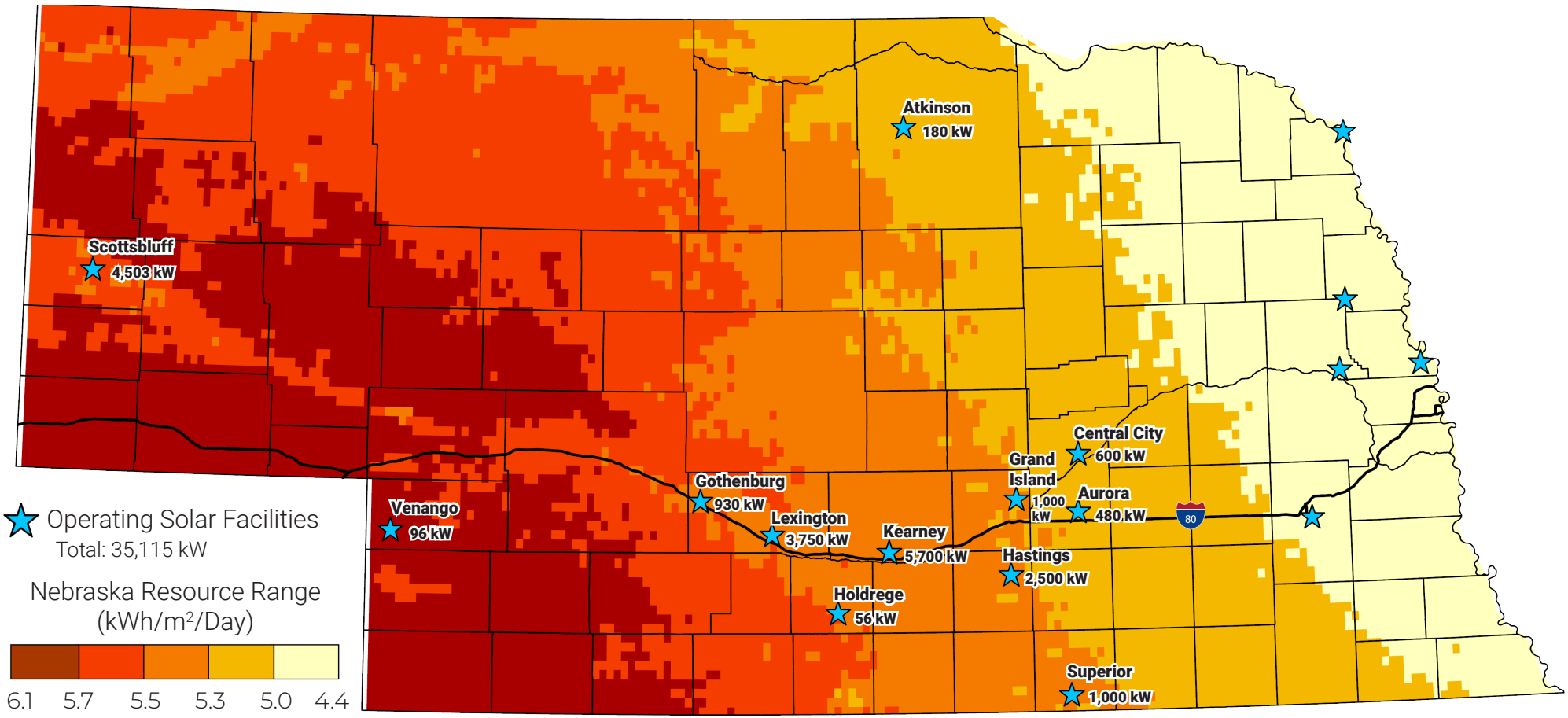
Nebraska Community Solar Power Generation



Solar facilities as of July 2021.
All solar facilities are in AC power.

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For questions or comments on this map, contact neo.energy@nebraska.gov.
For more information, visit: https://neo.ne.gov/programs/stats/inf/198.htm

Sources: Base map provided by National Renewable Energy Laboratory for U.S. Department of Energy (2017).
Facility locations provided by the Nebraska Department of Environment and Energy (2021).

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Nebraska Community Solar Power Generation

Operating Solar Projects	Year of Commercial Operation	Total kW (AC Power)
Lincoln	2016	3,600
Aurora	2017	480
Central City	2017	600
Holdrege	2017	56
Kearney	2017	5,700
Lexington	2017	3,750
Scottsbluff	2017 and 2020	4,503
South Sioux City	2017	2,000
Venango	2017	96
Fremont	2018	2,320
Grand Island	2018	1,000
Superior	2018	1,000
Atkinson	2019	180
Ft. Calhoun	2019	5,000
Gothenburg	2019	930
Hastings	2019	2,500
Burt and Dodge counties	2021	1,400
Total		**35,115**

Note: Projects with more than one year listed have multiple facilities that began operations in different years.

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Do-it-yourself savings project: lower water heating temperature

Information from the U.S. Department of Energy

Although some manufacturers set water heater thermostats at 140°F, most households usually only require them to be set at 120°F, which not only slows mineral buildup and corrosion in your water heater and pipes, but also improves safety. Water heated at 140°F can be scalding.

Savings resulting from turning down your water heater temperature are based on reducing standby losses (heat lost from water heater into surrounding area). Set too high, or at 140°F, your water heater can waste anywhere from $36 to $61 annually in standby heat losses. Additional savings will be realized by the lower temperature for consumption (from water demand or use in your home, such as clothes washing, showers, and dishwashing). These may amount to more than $400.

If you have a dishwasher without a booster heater, it may require a water temperature within a range of 130°F to 140°F for optimum cleaning. And while there is a very slight risk of promoting legionellae bacteria when hot water tanks are maintained at 120°F, this level is still considered safe for a majority of the population. If you have a suppressed immune system or chronic respiratory disease, you may consider keeping your hot water tank at 140°F. However, this high temperature significantly increases the risk of scalding. To minimize this risk, you can install mixing valves or other temperature-regulating devices on any taps used for washing or bathing.

Photo by Steven Pavlov, Wikimedia Commons, licensed under the Creative Commons Attribution-Share Alike 4.0 International License

Turning down the temperature on your water heater not only reduces the risk of scalding, it can also save money.

This video provides step-by-step instruction on how to successfully lower the temperature of your water heater, saving you energy and money.

Before you adjust

- Consult your water heater owner's manual for instructions on how to operate the thermostat.
- You can find a thermostat dial for a gas storage water heater near the bottom of the tank on the gas valve. Electric water heaters, on the other hand, may have thermostats positioned behind screw-on plates or panels.
- As a safety precaution, shut off the electricity to the water heater before removing/opening the panels.

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• Keep in mind that an electric water heater may have two thermostats—one each for the upper and lower heating elements.

Shopping list

- Thermometer for testing the water temperature.
- Marker to mark the setting on your thermostat

Step-by-step instructions

1) Find the current temperature.

Measure the beginning temperature of your hot water using a thermometer at the tap farthest from the water heater. Thermostat dials are often inaccurate.

2) Mark the setting, then turn down the thermostat.

Mark the beginning temperature on your water heater thermostat with a marker, and then turn the thermostat down.

3) Measure and adjust.

Wait a couple of hours, and then measure the water temperature again at the farthest tap from the water heater. Several adjustments may be necessary before you get the temperature you desire.

4) Mark the new temperature.

If you are satisfied with the temperature, mark the new temperature on the water heater thermostat with a marker, so that you can make adjustments in the future if necessary.

5) Turn down or off when away.

If you plan to be away from home for extended periods, turn the thermostat down to the lowest setting or completely turn off the water heater. To turn off an electric water heater, switch off the circuit breaker to it. For a gas water heater, make sure you know how to safely relight the pilot light before turning it off.

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