Aloha!
ACTIVITY BOOK





Kid-friendly pages for learners of all ages

Energy exercises, power-up puzzles, creative coloring *and more!*

From the local energy experts at:

Hawaiian Electric

Word Search

Hawaiian Electric

Locate all 15 of the words below in this grid.

Words are hidden horizontally, vertically or diagonally.

P P G U I C H R T L G W B I O M A S S U
H A W A I I P O W E R E D V X D W I M I
L M H C C V P H W Q O G R I D S C A L E
Z F X D E C A R B O N I Z A T I O N Q I
W T G N Q O M Z E L J N D R G V I T S E
I K B W K O I D O A H M X O S K J Y D F
N S R R O X D Z Z F W G W Q U K M L C F
D D W Y B I O F U E L B Q T S C O J O I
P G R I D P L A N N I N G H T M V Y M C
Y I M T X Z P D G A Z K P K A V U R M I
H L P C P M D Y L T B X L H I Y W E U E
K P J Z G E O T H E R M A L N R M N N N
Q X T H Y D R O E N E R G Y A B T E I C
R Z N E H G L B F Q W R T N B V J W T Y
U L E R A T P Y I G A S I E I T H A Y D
J U H N S N Y H W L H G Y I L H T B U H
M F X U R G T N O K U S V M I Z U L X E
Y T M E B K K S Z B Q E X U T E X E E G
L Q N Y K L J O R N W O W G Y W G N I L
R E S I L I E N C Y J F Z P Q S A C E U

WORD LIST

☐ **HAWAII POWERED**
Our vision for using 100% local, clean energy and finding solutions for a clean energy future right here in Hawai'i

☐ **COMMUNITY**
A group of people, as well as a feeling of togetherness

☐ **RENEWABLE**
Energy produced from sources that are naturally replenished and do not run out, like solar and wind

☐ **SUSTAINABILITY**
Meeting current needs without compromising the needs and resources available for future generations

☐ **RESILIENCY**
Ability and capacity to recover quickly from events and challenges like natural disasters

☐ **DECARBONIZATION**
Reducing, offsetting or eliminating all sources of carbon emissions contributing to climate change

☐ **GRID PLANNING**
The process of building a resilient and reliable energy grid from local, renewable energy sources

☐ **GRID SCALE**
Large generation facilities and transmission infrastructure like wind turbines and solar facilities, as well as electric substations, poles and wires

☐ **EFFICIENCY**
Reducing the overall amount of electricity consumed through actions and the use of energy-efficient appliances like LED bulbs

☐ **SOLAR**
Energy from the sun that's converted into heat or electricity through solar thermal systems or solar panels

☐ **WIND**
The motion of the wind captured and converted to electricity by turbine generators

☐ **BIOMASS**
Biomass (plants, algae, restaurant grease, forestry or farming waste) can be burned to create steam for heat or to power a turbine and produce electricity

☐ **BIOFUEL**
A majority of biofuel is locally produced using natural vegetable oils and fats and is intended to be used as a replacement for petroleum diesel fuel

☐ **GEOTHERMAL**
Energy that comes from volcanic heat stored beneath the earth's surface like underground reservoirs of water heated by volcanic activity that can be tapped for steam to generate electricity

☐ **HYDRO ENERGY**
Flowing water can be diverted out of a running stream, river or irrigation ditch and piped into a turbine which generates energy

Megawatt Calculator

Hawaiian Electric

Data underlies many utility decisions. *Complete all 5 example calculations below.*

1. A new renewable energy project generates 8 megawatts of energy. If 1 megawatt can power 1,000 homes, how many homes can this project power?

CALCULATE: 8 × 1,000 = ?

ANSWER:

2. There are 5 power lines that are able to carry 7 megawatts at a time. Will the 5 lines be able to carry 60 megawatts total?

CALCULATE: 60 ÷ 5 = ?

ANSWER:

HINT: *Is the number greater or less than 7?*

3. A new solar project will generate 33 megawatts. If a power line can carry 5.5 megawatts at a time, how many power lines are needed to transmit the full 33 megawatts?

CALCULATE: 33 ÷ 5.5 = ?

ANSWER:

What's a "megawatt"?

A **megawatt** is a unit of power equal to a million watts! Compare that to a refrigerator, which uses between ***300 and 800 watts*** of electricity.

4. Using the table below, answer the following questions:

4a. What's the total number of megawatts the projects will generate?

CALCULATE: 40 + 33 + 35 + 39 + 30 + 38 = ?

ANSWER:

4b. Select a pair of projects that will generate a combined total of 68 megawatts.

ANSWER:

PROJECT	TOTAL MEGAWATTS
Solar A	40
Solar B	33
Wind A	35
Wind B	39
Biomass	30
Hydro power	38

5. The school and hospital need 18 megawatts to function at full capacity. They currently receive 6 megawatts from a solar project and 8 megawatts from wind project, how many more megawatts are needed?

CALCULATE: 18 - (6 + 8) = ?

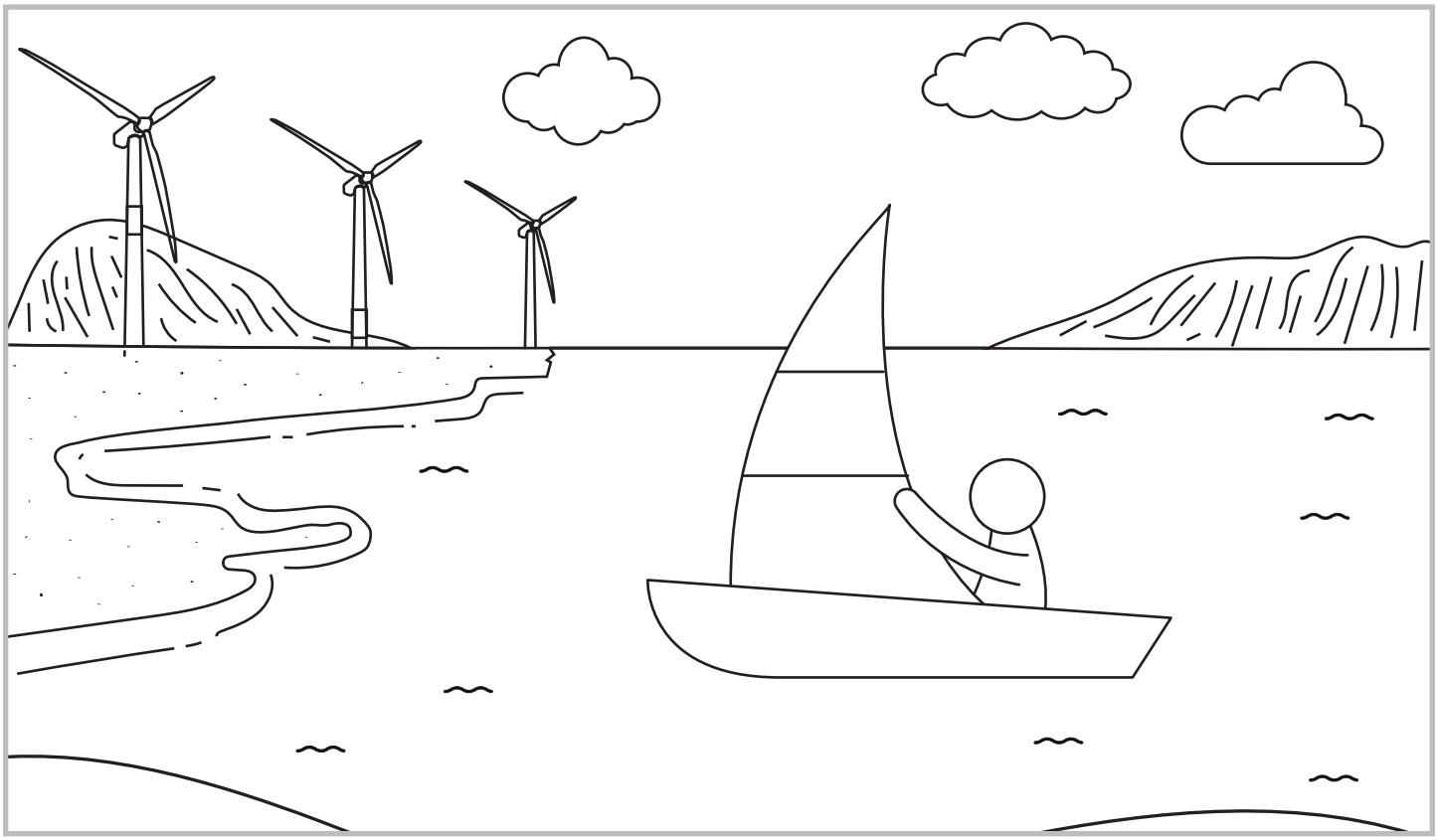
ANSWER:

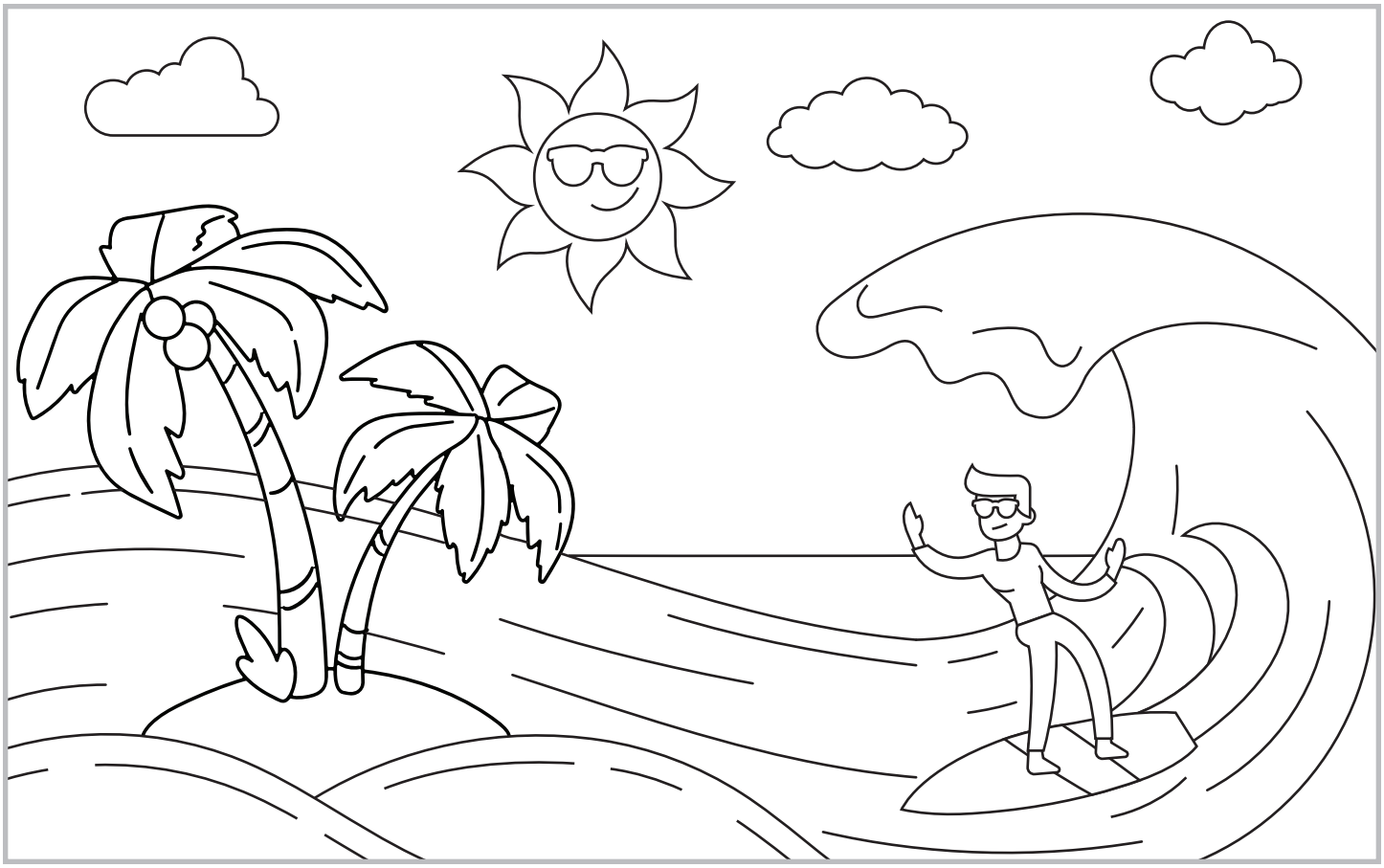
ENERGY FUN FACT

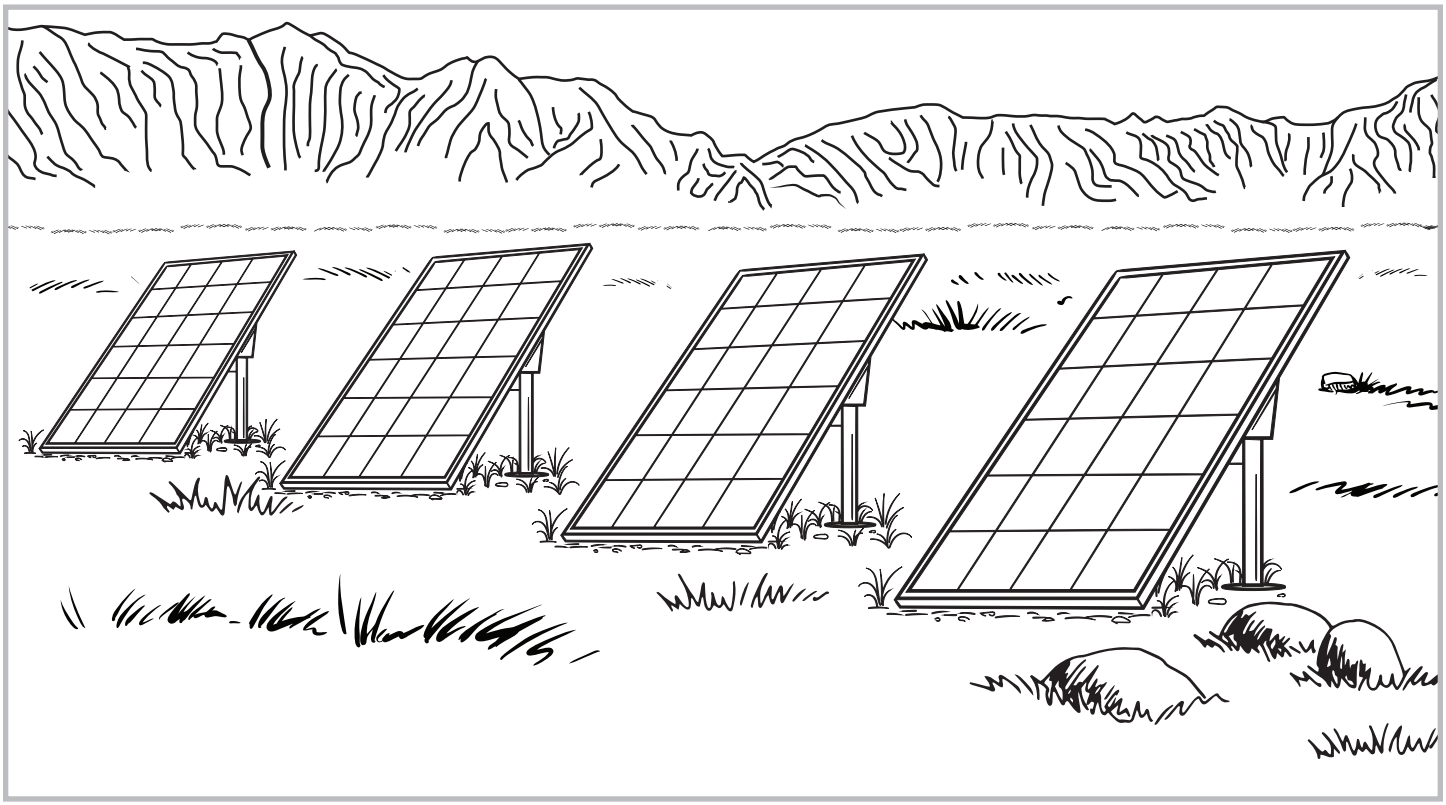
Light Emitting Diode (LED) bulbs use about 6 to 8 watts, but produce the same amount of light as a 60-watt incandescent light bulb!

***Answers:** 1. 8,000 2. No 3. 6 4a. 215 4b. Solar B, Wind A (33+35) or Biomass, Hydro power (30+38) 5. 4*

Color & Play







Unscramble all 7 words below

UNS

NSDA

AOENC

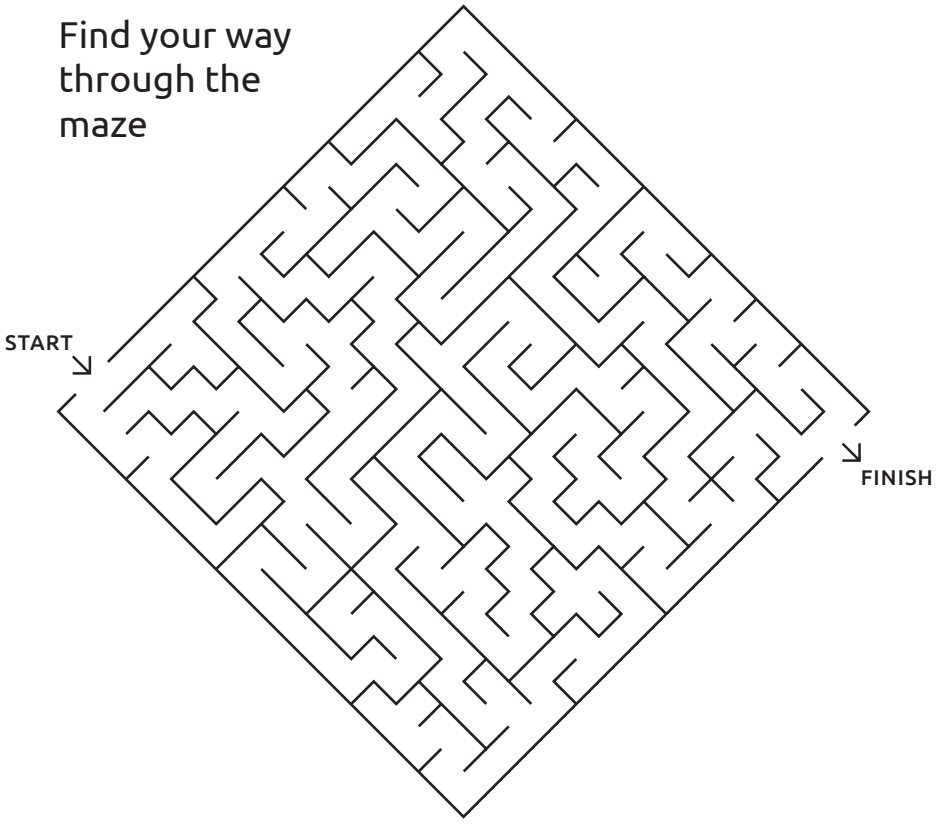
SIADLN

EBNWEERAL

TSNBUAYIASTILI

RDAZEIIANBOTCNO

Find your way through the maze



Answers: *Sun Sand Ocean Island Renewable Sustainability Decarbonization*

Hawai‘i Powered

Clean energy for Hawai‘i, by Hawai‘i

“Hawai‘i Powered” is our vision for using 100% local, clean energy. It celebrates finding solutions for a clean energy future right here in Hawai‘i.

GO ONLINE

Visit our public participation website for more information

Scan this code with a smartphone camera

- **Sign up for email updates** about our latest progress and opportunities to get involved.
- **Take a short online survey** to help us better understand you and your energy needs.
- **Request a presentation** from Hawaiian Electric staff to learn more and answer questions at your next community meeting or event.
- **Read "Plugged In" blog posts** for energy insights and stories.

Explore our Inputs & Assumptions Data Dashboard!

This interactive online tool presents...

- Future energy scenarios and forecasts
- Data downloads for each island
- Insights on energy efficiency, electrification of transportation and distributed energy resources
- Customer impacts and resources
- Public input and involvement opportunities

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