

New Device Generates Electricity from Temperature Change

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Category : Technology/Innovations

Unlocking Word Meanings

Read the following words/expressions found in today’s article.

- 1. ***harness*** / 'hɑː nɪs / (v) – to make use of something
Example: The new device can ***harness*** solar energy.
- 2. ***fluctuation*** / ˌflʌk tʃuː ɛɪ ʃən / (n) – constant change from one condition to another
Example: I got sick because of temperature ***fluctuations***; it was cold at one point, then hot all of a sudden.
- 3. ***suffice*** / səˈfaɪs, -ˈfaɪz / (v) – to be enough
Example: The amount of energy we have generated will ***suffice*** for one day.
- 4. ***kinetic energy*** / kɪˈnɛt ɪk, kaɪ- ˈɛn əɹ dʒi / (n) – a type of energy gained from movement
Example: The ball produces ***kinetic energy*** as it rolls along the floor.
- 5. ***remote*** / rɪˈmout / (adj) – located in a distant area
Example: The new technology can monitor our ***remote*** workers overseas.

Article

Read the text below.

Engineers from the Massachusetts Institute of Technology (MIT) have invented a new system that can produce energy from changes in temperature.

The new innovation, called the thermal resonator, **harnesses** energy from temperature **fluctuations** between day and night. Despite the absence of sunlight, wind, and batteries, the device is still capable of producing energy because it relies on temperature differences alone.

The thermal resonator is ideal for harsh environments, which may have limited sources of energy, such as the Arctic or outer space.

According to the researchers, the device can generate moderate levels of energy. During a sample test that involved a 10-degree Celsius gap between day and night, the thermal resonator was able to generate 1.3 milliwatts of power and 350 millivolts of potential energy, or stored energy. These figures would **suffice** in operating small systems like environmental sensors and devices for communication.

The thermal resonator is composed of heat-absorbing materials such as metal foam, octadecane—a wax that changes from solid to liquid as the temperature fluctuates—and graphene, a thin layer of pure carbon.

Aside from the thermal resonator, another innovation has also been developed to generate energy. The Lightning Pack—a backpack that produces energy as the wearer walks or runs—makes use of **kinetic energy** while lightening the wearer’s load at the same time. The amount of energy produced depends on the wearer’s pace—the faster the pace, the more energy will be generated. In addition, the technology can also make renewable energy accessible to those taking part in disaster-relief operations in **remote** areas.

Viewpoint Discussion

Enjoy a discussion with your tutor.

Discussion A

- Between the two energy-generating innovations, which one do you find more practical? Why?

- What possible difficulties can one encounter with these innovations? Discuss.

Discussion B

- Is sustainable energy accessible and affordable in your country? Explain.

- Do you think sustainable energy can permanently replace traditional energy in the future? Why or why not?

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