**Electricity Collected from the Air Could Become the Newest Alternative Energy Source**

**Озаглавьте текст Прочитайте текст и выпишите фразы о новых способах использования электроэнергии**

Imagine devices that *capture* electricity from the air ― much like *solar cells* capture sunlight ― and using them to light a house or *recharge* an electric car. Imagine using similar panels on the rooftops of buildings to prevent lightning before it forms. Strange as it may sound, scientists already are in the early stages of developing such devices, according to a report *presented* at the 240th National Meeting of the American Chemical Society (ACS).

"Our *research* could pave the way for *turning* electricity from the atmosphere into an alternative energy source for the future," said study leader Fernando Galembeck, Ph.D. His research may help explain a 200-year-old scientific riddle about how electricity is *produced* and discharged in the atmosphere. "Just as solar energy could free some households from paying electric bills, this promising new energy source could have a similar effect," he *maintained.*

"If we know how electricity builds up and spreads in the atmosphere, we can also *prevent* death and damage caused by lightning strikes," Galembeck said, noting that lightning causes thousands of deaths and injuries worldwide and millions of dollars in property damage.

The notion of *harnessing* the power of electricity formed naturally has tantalized scientists for centuries. They noticed that sparks of static electricity formed as steam escaped from boilers. Workers who touched the *steam* even got painful electrical shocks. Famed *inventor* Nikola Tesla, for example, was among those who dreamed of capturing and using electricity from the air. It's the electricity formed, for instance, when *water vapor* collects on microscopic *particles* of dust and other material in the air. But until now, scientists lacked adequate knowledge about the processes involved in formation and release of electricity from water in the atmosphere, Galembeck said.

Scientists once believed that water droplets in the atmosphere were electrically neutral, and remained so even after coming into contact with the electrical charges on dust particles and droplets of other liquids. But new evidence suggested that water in the atmosphere really does pick up an electrical charge.

Galembeck and colleagues confirmed that idea, using laboratory experiments that simulated water's contact with dust particles in the air. They used tiny particles of silica and aluminum phosphate, both common airborne substances, showing that silica became more negatively charged in the presence of high humidity and aluminum phosphate became more positively charged. High humidity means high levels of water vapor in the air ― the vapor that condenses and becomes visible as "fog" on windows of air-conditioned cars and buildings on steamy summer days.

"This was clear evidence that water in the atmosphere can accumulate electrical charges and transfer them to other materials it comes into contact with," Galembeck explained. "We are calling this 'hydroelectricity,' meaning 'humidity electricity'."

In the future, he added, it may be possible to develop collectors, similar to the solar cells that collect the sunlight *to produce* electricity, to capture hydroelectricity and route it to homes and businesses. Just as solar cells work best in sunny areas of the world, hygroelectrical panels would work more efficiently in areas with high humidity, such as the northeastern and southeastern United States and the humid tropics.

Galembeck said that a similar *approach* might help prevent lightning from forming and striking. He envisioned placing hygroelectrical panels on top of buildings in regions that experience frequent *thunderstorms*. The panels would drain electricity out of the air, and prevent the building of electrical charge that is released in lightning. His research group already is testing metals to identify those with the greatest potential for use in capturing atmospheric electricity and preventing lightning strikes.

"These are fascinating ideas that new studies by ourselves and by other scientific teams suggest are now possible," Galembeck said. "We certainly have a long way to go. But the benefits in the long range of harnessing hydroelectricity could be *substantial."*

(“*Science Daily*”, August 2010**)**

**Practice 1. Кем представлена статья?**

**Practice 2. Выберите фразу отражающую главную мысль текста**

1. Lightning is a dangerous natural phenomenon killing a lot of people.

2. Galembeck’s idea that water in the atmosphere can accumulate electrical charges and transfer them to other materials it comes into contact with turned out to be true.

3. Modern scientists are trying to find ways of harnessing hydroelectricity for the benefit of people.

4. Scientists found new evidence that water in the atmosphere picks up an electrical charge.

**Practice 3. Поставьте предложения в логической последовательности**

1. Developing the idea of hydroelectricity collector might help prevent lightning from forming and striking;

2. Thinks it may be possible to develop collectors to capture hygroelectricity and route it to homes and businesses.

3. Gamelbeck thinks that it’s not so easy and quick to solve the problem of harnessing hydroelectricity but he is sure it will benefit people.

4. Galembeck and colleagues confirmed the idea that water droplets in the atmosphere weren’t electrically neutral using laboratory experiments.

5. Scientists have been trying to find the way of harnessing electricity for centuries.

6. Fernando Galembeck is trying to understand how electricity is produced and discharged in the air.

**Practice 4. Опишите прибор ,который сможет накапливать энергию из естественных источников**