A Transition Toward a Sustainable Energy System Ⅱ

Let's join the session!

The followings are questions based on the contents of the session. Watch the session and answer each question.

[1] Explain the difference between a fuel cell and a battery.

- A battery is a device for storing electricity, whereas a fuel cell is a device used to produce electricity from hydrogen. The operation is the opposite of water electrolysis.

[2] Why can't we install solar generation systems in large cities?

- The electricity from solar panels is so small that it can't supply enough electricity for a large city.
- The number of solar panels needed to supply electricity to a large city would take up an immense amount of space, but it is impossible to get that much space in a city.

[3] A transition from fossil fuel to hydrogen needs new infrastructure for energy consumption. How can we push forward such a transition which will incur additional costs? State your opinion about the transition to renewable energy.

- I think it is necessary for every country in the world to make use of its resources and climate to produce a stable supply of renewable energy. For example, hot countries can utilize solar power, and windy countries can utilize wind power.

- I think it is necessary to promote technological development that enables large-scale production of renewable energy at a low cost.

- I think we need a system in which every country in the world pays money based on its electricity consumption. We should use the money to create international organizations to promote the use of renewable energy. I think that these organizations should use the money to proceed with infrastructure development systematically.

- I think that the time to try to solve energy problems only in our own countries is in the past. International organizations should manage and operate the supply and consumption of electricity around the world.

Wrap up the session!

[1] The following is the summary passage of the session. Write down the appropriate words in the following blanks of the summary.

Solar power generation is a clean energy that does not (emit) CO_2. When the amount of power (generated) on sunny days (exceeds) demand, it is possible to (store) the excess electricity as hydrogen using a water electrolyzer and a (fuel) (cell). We can use (hydrogen) as a fuel for vehicles and industry, and (replace) fossil fuel with hydrogen. However, the energy (conversion) efficiency of solar panels is so small that it requires a (vast) area of land to obtain sufficient electricity. Solar power generation is difficult in countries like Japan, where the country is small and the electricity (demand) is very high. However, it is possible to (install) solar panels in large countries like Australia and (export) CO_2-free hydrogen in some forms. CO_2-free hydrogen that comes from overseas is (essential) to make it possible for our country to be powered by renewable energy.