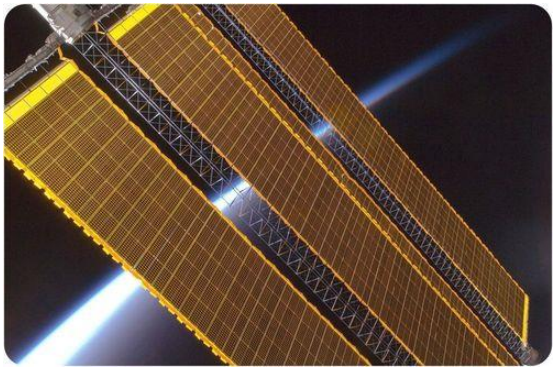
Solar Power

Solar Energy

- Energy from the Sun 2 hydrogen atoms fusing together to create a helium atom
  - Nuclear fusion on the Sun releases tremendous amounts of solar energy
  - Energy travels to the Earth mostly as visible light
  - Light carries energy through space as **radiation**
- Unlike energy from fossil fuels, solar power can be harnessed locally
  - Scientists and engineers are actively researching new ways to harness energy from the Sun more efficiently
- Solar power plants
  - Use a large group of mirrors to focus sunlight on one place, called a receiver
  - A liquid, such as oil or water, flows through receiver and is heated to a high temperature by the focused sunlight
  - Heated liquid transfers its heat to a nearby object through **conduction**
  - Energy conducted by the heated liquid is used to make electricity
- Solar energy has many benefits:
  - Extremely abundant, widespread, and will never run out
- Widespread use of solar power also has some disadvantages:
  - Sunlight must be present; solar power is not useful in locations that are cloudy or dark. Storage technology is currently being developed
  - Technology needed for solar power is expensive
  - Solar panels require a lot of space, but solar panels can be placed on any rooftop to supply at least some of the power required for a home or business

Study Tip

Remember that the vast majority of the energy we use comes from the Sun – either directly or indirectly. Thus, solar energy is one of the most environmentally favorable energy resources available.



Solar panels supply power to the International Space Station.

This solar power plant uses mirrors to focus sunlight on the tower in the center. The sunlight heats a liquid inside the tower to a very high temperature, producing energy to make electricity.

Concept Check

- How is solar power collected on a large scale?
- What are some of the downsides of depending on solar energy?
- What are some of the positive sides of using solar energy?