Solar Thermal Energy

Using the sun to heat water

The simplest solar technology

Solar water heating (also called solar thermal energy) is the simplest of the technologies.

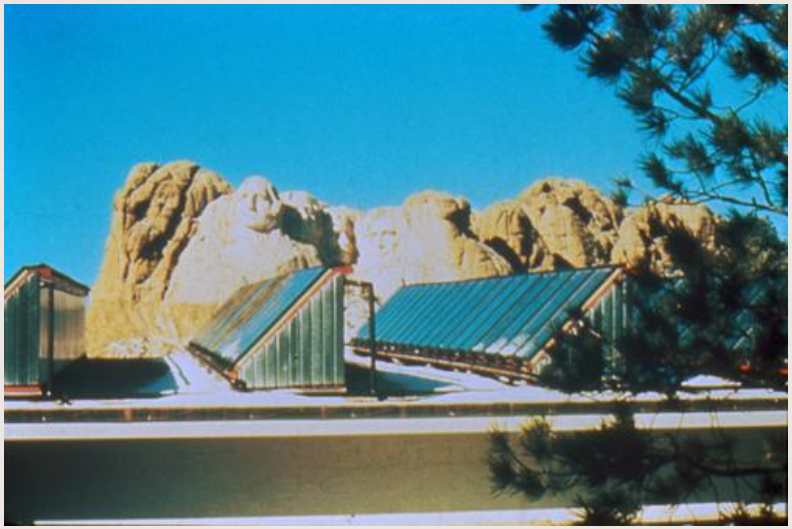
This includes heating water for use in our homes for cooking, bathing and cleaning, or for heating swimming pool water, or even providing space heating in winter. These systems have been refined and improved and widely used over the years to the point where they pay for themselves in energy savings while making people's lives more comfortable and lowering their energy bills.

There are many commercial as well as residential uses of solar water heating.

The rooftop solar collectors on this office building provide hot water. Solar water heating is one of the oldest and most reliable renewable energy technologies.

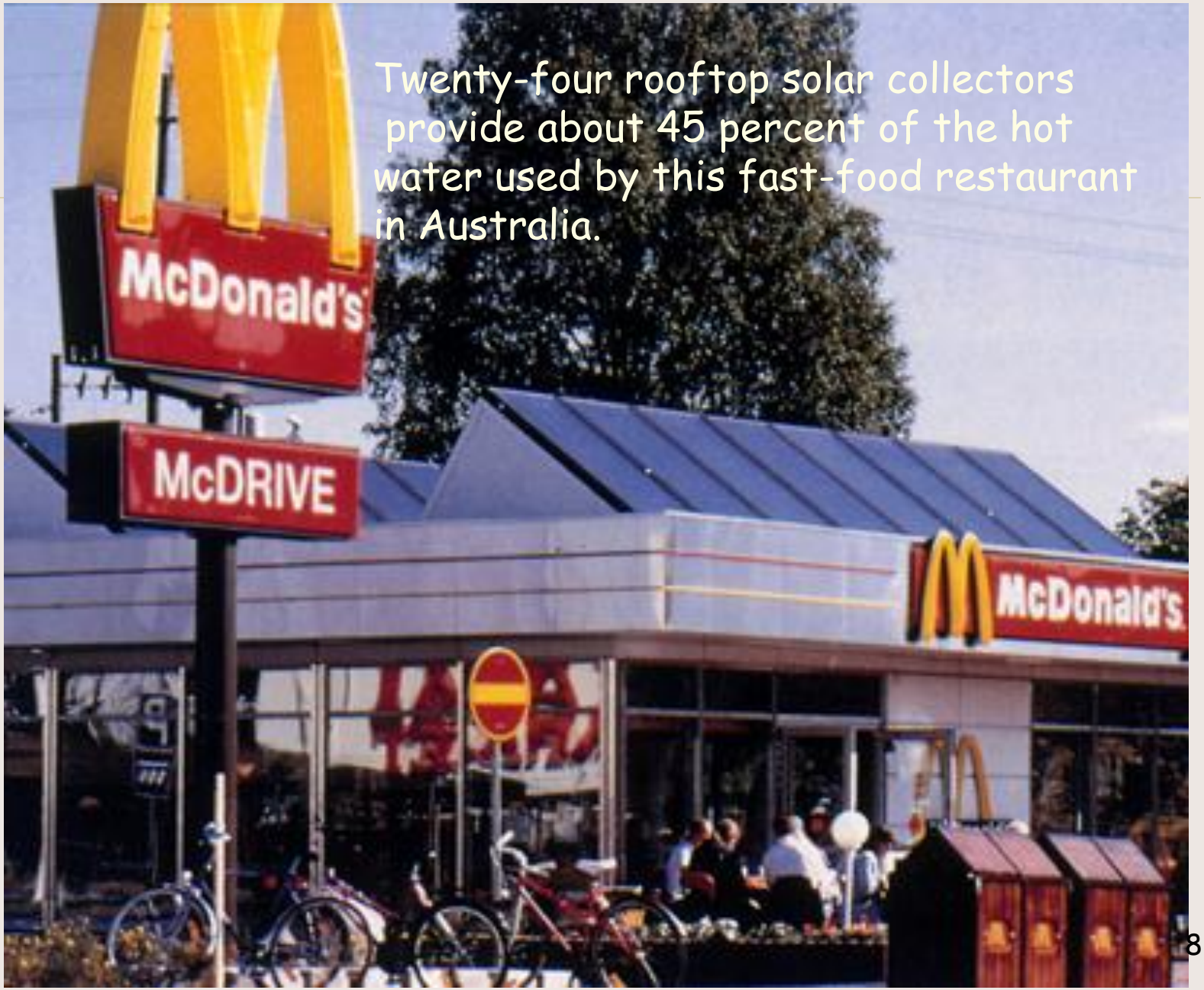
Popular applications in the United States include facilities that use a great deal of hot water, such as this army laundry in Massachusetts.

There are remote applications like this water heating system on the visitors center at Mt. Rushmore in South Dakota.

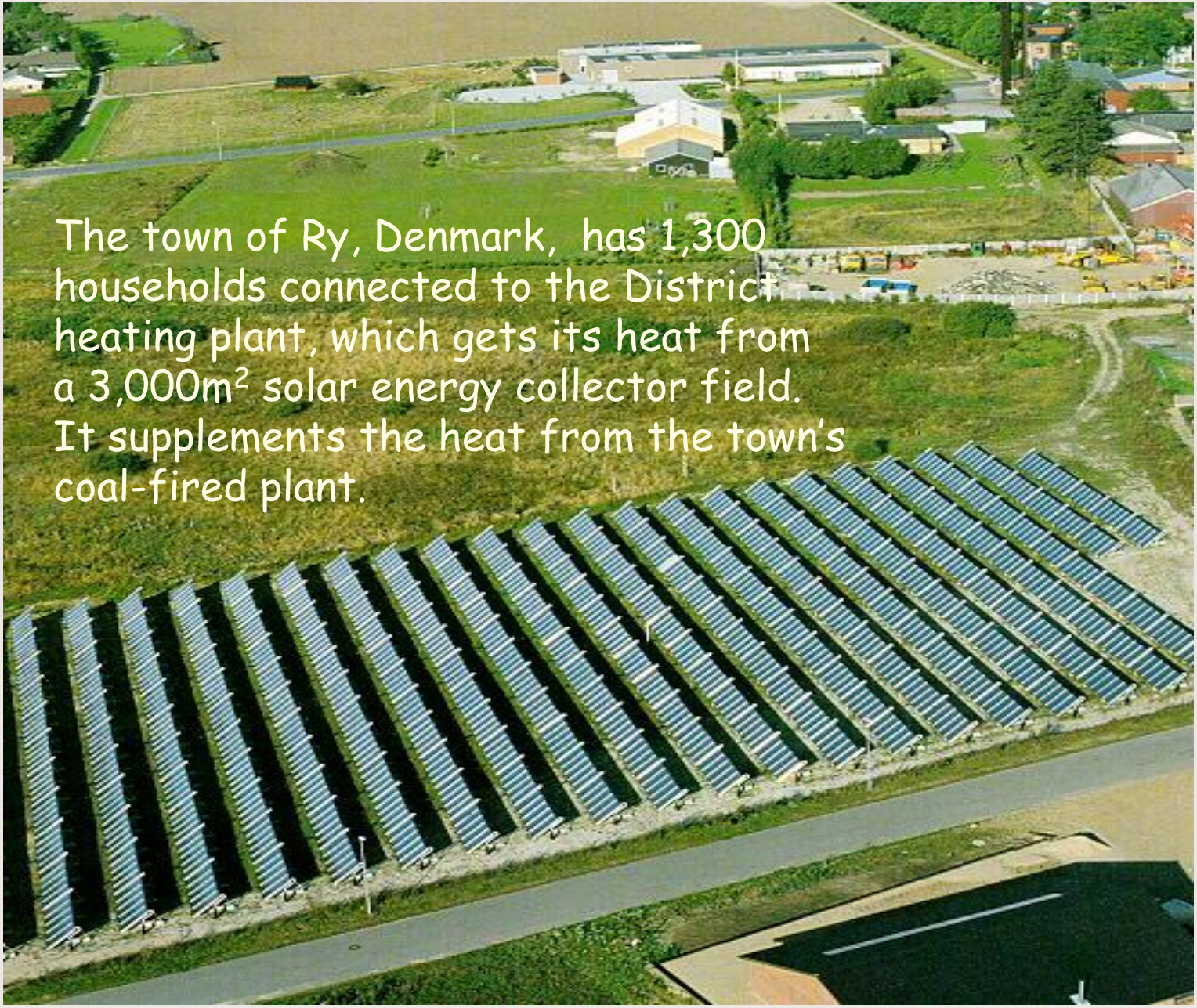


The solar water heater on the roof of this house in Israel is typical of the systems used in many parts of the world. It consists of a solar panel that heats the water and a tank that stores it.

Simple solar water heaters are also very common in China. Note that the storage tank is mounted horizontally on the roof of this home in Beijing. The system operates the same, but is configured differently.



Twenty-four rooftop solar collectors provide about 45 percent of the hot water used by this fast-food restaurant in Australia.


The town of Ry, Denmark, has 1,300 households connected to the District heating plant, which gets its heat from a 3,000m² solar energy collector field. It supplements the heat from the town's coal-fired plant.

A new solar energy system – the "Solar Energy Roof" – is integrated into the roof of the Gullbring Centre in Telemark, Norway. This is the first large-scale solar energy application for swimming pools in Norway. It was installed in 1994, and provides heat for two swimming pools.

This solar thermal pump in Serpong, Indonesia, provides villagers with hot water.

Solar energy heats the water for this hospital in Tennessee.

This community swimming pool in California has heated water all year long for the use of local residents.

Simple solar cookers like this woman is using in El Progreso, Guatemala, have had a huge impact on the way people in remote parts of the world live today. These cookers are easy to use and allow people to heat meals and water.

Discussion Questions

- What do you see as the most important reasons to use solar water heating for homes or businesses in your community?
- What are the drawbacks?
- What are the potential economic benefits of using solar water heating on a home or business? How much money could be saved?