



## Conserving Energy

Solar Reserve's Crescent Dunes Solar Energy Plant in Nevada is visible from many miles away. There's a 640-foot-tall tower surrounded by over 10,000 mirrors arranged in a circle nearly 2 miles across. These mirrors, heliostats, direct heat from the sun to the top of the tower, which glows white-hot. But generating heat from the sun is one thing — storing it so that it can serve a power grid is another. Engineers at Solar Reserve figured out an ingenious way to solve the storage problem. This power plant uses salt to generate electricity from stored solar energy up to 10 hours after sunset. Molten salt (450°F) is light, liquid, and can be heated to temperatures high enough to produce steam (1,050°F). The heliostats directing heat from the sun cause this rise in temperature. The steam is then channeled to generators for producing electricity when it is most needed, after dark. "This is really the first utility-size project of this type in the world," says Solar Reserve CEO Kevin Smith. At full capacity the plant generates enough electricity to power 75,000 Nevada homes.

## Improving Sanitation

Imagine you're a typical child growing up in India. You may have access to food, housing, and education, but one basic thing you lack is a toilet. Unfortunately, that's the reality for millions of children in South Asia and Africa today. Half the population of India continue to relieve themselves outside, a practice going back hundreds of years which not only spreads deadly diseases as drinking water becomes contaminated by human waste, but also disproportionately impacts girls and women. One fourth of Indian girls drop out of school at the onset of puberty due in part to a lack of good sanitation options during menstruation. Also, women forced for the sake of privacy to relieve themselves after dark can become victims of crime. Engineers at Duke University and RTI International are committed to solving this problem. With a grant from the Bill & Melinda Gates Foundation, they have developed a special stand-alone toilet that does not require piped-in water, a sewer connection or outside electricity. The toilet converts human waste into burnable fuel and water that can be used for hand-washing or agriculture. The engineers are testing the toilets in both South Asia and Africa and hope to improve the lives, health, safety and dignity of all people.

