

## Harry B. Gray Discusses “Powering the Planet with Solar Energy”

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Converting the entire country to solar energy is possible. The technology to use solar power is available. But cost is a major obstacle, speaker Harry Barkus Gray said during the Oct. 16 Café Scientifique in Bozeman.

"We have to get the price down," Gray told almost 100 people who gathered at Ferraro's Fine Italian Restaurant for an informal discussion of solar energy. Gray is the Arnold O. Beckman professor of Chemistry and the founding director of the Beckman Institute at the California Institute of Technology. He has published 17 books and more than 700 papers. He has received 16 honorary degrees, as well as numerous prestigious prizes including the National Medal of Science from President Ronald Reagan.



Speaking on "Powering the Planet with Solar Energy," Gray said people can already paint their houses with solar paint. Converting white paint to solar paint is cheap, and solar paint comes in a variety of colors. The drawback, though, is that solar paint degrades quickly. People who want to use it would almost have to repaint their houses every month. And to use the energy the paint collects, they'd have to rewire their existing houses or build new houses with the appropriate wiring.

"We are not here yet," Gray said. "I'm talking about the future."

Solar power is encouraged in California and supported by Gov. Arnold Schwarzenegger, Gray said. The state gives tax credits to homeowners who use solar energy. Those homeowners gather so much solar power during the day that they can sell electricity during the day and buy it back at night. Caltech is in the process of turning its parking garages into solar power stations

The cost of converting the entire planet would be about \$8 trillion, Gray said. If the United States were converted to solar power at this point, a kilowatt would cost about 25 cents, far above the 10 cents he'd like to see. But he would like to see one city convert to solar power and become a model for others.

The challenge for chemists in the 21st century is finding ways to give back to nature instead of taking from it, Gray said. Scientists will have to figure out efficient, cost-effective ways to convert sunlight and water into clean fuels and then store it. Water-splitting devices are already available that are more efficient than those found in nature, but they contain materials like arsenic and platinum.

"We have to stop. We know we have to stop," Gray said about extracting from nature." In this century, there's going to come a time, probably 50 to 60 years from now, where we have to stop taking from the environment and give back.



"Instead of putting more carbon dioxide in the atmosphere, we will suck it out," Gray continued. "That time is coming."

Asked his opinion on other sources of alternate energy, Gray said he favors "everything."

"I love the wind," he said. "I particularly love it in North Dakota... We ought to be doing wind where wind makes sense, and it makes sense in North Dakota."

Café Scientifique is co-sponsored by Montana's INBRE program and MSU's College of Letters and Science. In its fourth year at MSU, the concept started in England in 1998 and has spread to a handful of locations in the United States. Sessions begin with a short presentation by a scientific expert and continue with informal discussions involving the speaker and attendees.

By Evelyn Boswell