The browser you are currently using does not support Discover's photo galleries. Supported browsers include recent versions of Mozilla Firefox, Microsoft Internet Explorer (version 7 or later), Google Chrome, and Apple Safari.

If you have any questions or feedback, please email webmaster@discovermagazine.com. Thank you for reading Discover, and we apologize for the inconvenience.

Lizzie Buchen; published February 25, 2008

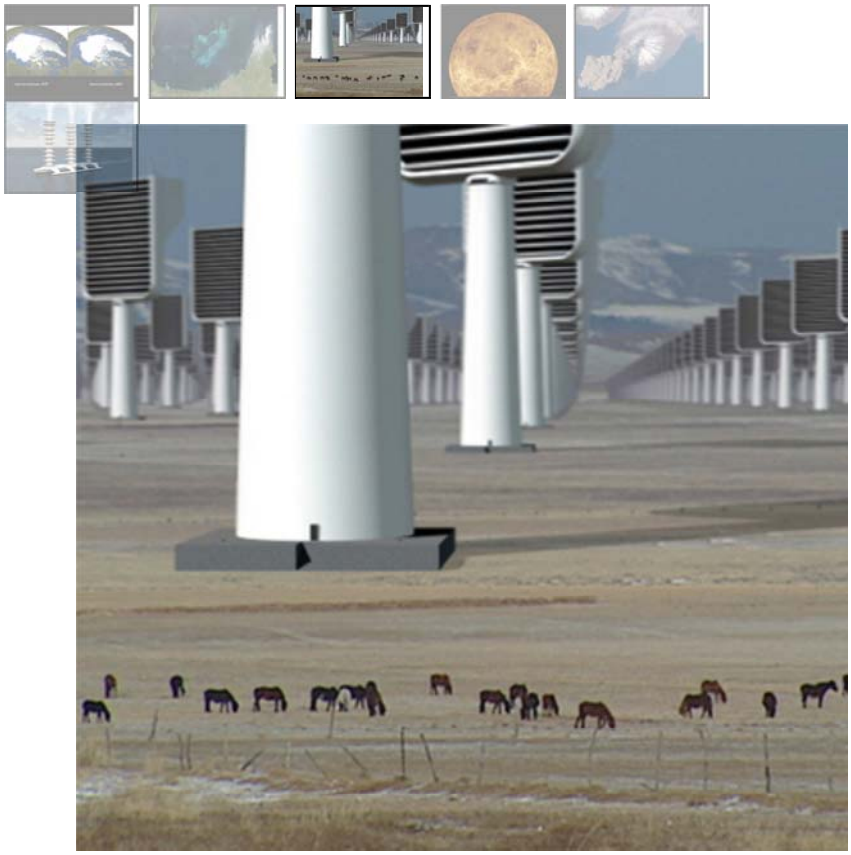


Image courtesy of The Great Warming.

BUILD CO_2-GUZZLING SUPERTREES

How it works: Sure, real trees are pretty. But when it comes to sucking CO_2, we could do so much better. In a system designed by Klaus Lackner, a physicist at the Earth Institute at Columbia University, giant treelike filters would bind airborne CO_2 molecules with a chemical like sodium hydroxide or calcium hydroxide. The solution would then pass through a filter, where CO_2 would be removed and disposed of or recycled in some way, perhaps even as synthetic gasoline or diesel fuel.

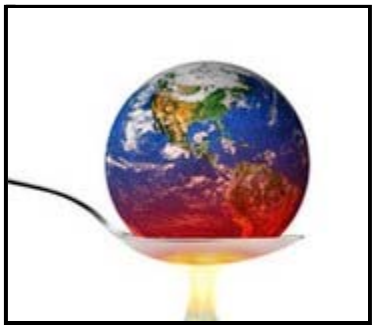
Pros: Lackner has calculated that one of his synthetic trees, measuring 200 feet high and 165 feet wide, could remove about 90,000 tons of carbon dioxide in a year--a thousandfold improvement on the natural behavior of a real, living tree. Take that, nature.

Cons: The technology isn't completely worked out--it may not be easy to separate CO_2 from the binding chemicals, and the process may even require energy from fossil fuels. Even with the acceleration of global warming, CO_2 is pretty dilute in the air, so the scale of the project would have to be large (though a couple of orders of magnitude smaller than what would be required to completely replace fossil fuels with wind or solar energy). In order to capture enough CO_2 to offset human production, you'd need to blanket these "wind scrubbers" over an area at least the size of Italy. Mama mia!

More Galleries

The 100 Top Science Stories of 2010

Every year DISCOVER sorts through the scientific accomplishments of the past 12 months, and assembles a list of the coolest experiments, most brilliant discoveries, and most world-changing events. As you page through the countdown to the #1 science story, we think you'll come to the same conclusion we did: 2010 was quite a year.



7 Visions of Our Hot, Awful Future

A bounty of 2010 books predict the future in a globally warmed world. Among the forecasts: boom town Detroit, abandoned Miami, an Arctic black gold rush, and a weirdly strong dried fruit market.

8 Keys to Deciphering Ancient Climates

Our lives extend only decades, so how do scientists study climate going back thousands and millions of years? Ancient pollen, clam shells, columns of sheer ice, and more.