

Renewable energy can power the world

Renewable energy could account for almost 80% of the world's energy supply within four decades - but only if governments pursue the *policies* needed to promote green power, according to a *landmark* report published on Monday.

The Intergovernmental Panel on Climate Change, the body of the world's leading climate scientists *convened* by the United Nations, said that if the full range of renewable technologies were *deployed*, the world could keep greenhouse gas concentrations to less than 450 parts per million, the level scientists have predicted will be the limit of safety beyond which climate change becomes catastrophic and irreversible.

Investing in renewables to the extent needed would cost only about 1% of global **GDP*** annually, said Rajendra Pachauri, chairman of the IPCC.

Renewable energy is already growing fast – of the 300 gigawatts of new electricity generation capacity added globally between 2008 and 2009, about 140GW came from renewable sources, such as wind and solar power, according to the report.

Ramon Pichs, co-chair of one of the key IPCC working groups, said: "The report shows that it is not the *availability* of [renewable] resources but the public policies that will either expand or *constrain* renewable energy development over the coming decades. Developing countries have an important *stake* in the future – this is where most of the 1.4 billion people without access to electricity live yet also where some of the best conditions exist for renewable energy deployment."

Sven Teske, renewable energy director at Greenpeace International, and a lead author of the report, said: "This is an invitation to governments to initiate a radical *overhaul* of their policies and place renewable energy centre stage. On the *run up* to the next major climate conference, COP17 in South Africa in December, the *onus* is clearly on governments to step up to the mark."

He added: "The IPCC report shows overwhelming scientific evidence that renewable energy can also meet the growing demand of developing countries, where over 2 billion people lack access to basic energy services and can do so at a more cost-competitive and faster rate than conventional energy sources. Governments have to kick start the energy revolution by implementing renewable energy laws across the globe."

Abridged and adapted from "www.guardian.co.uk"

***GDP** Gross Domestic Product: prodotto interno lordo

1 Match the words to the correct Italian equivalent

1. Policies	B. Riuniti
3. Landmark	D. Posta
5. Convened	F. Limitare
7. Deployed	H. Onere, obbligo
9. Availability	J. Importante, miliare
11. Constrain	L. Periodo prima (di un evento)
13. Stake	N. Riorganizzazione, revisione
15. Run up	P. Schierate
17. Onus	R. Politiche
19. Overhaul	T. Disponibilità

2 Write a summary of the passage (about 100 words)





Inside the Solar-Hydrogen House: No More Power Bills--Ever

Mike S. has not paid an electric, oil or gas bill--nor has he spent a nickel to fill up his Mercury Sable--in nearly two years. Instead, the 51-year-old civil engineer makes all the fuel he needs using a system he built in the capacious garage of his home, which employs photovoltaic (PV) panels to turn sunlight into electricity that is harnessed in turn to extract hydrogen from tap water.

Although the device cost \$500,000 to construct, the civil engineer says it is priceless in terms of what it does buy: freedom from ever paying another heating or electric bill, not to mention keeping a lid on pollution, because water is its only by-product.

"The ability to make your own fuel is priceless," says the man known as "Mr. Gadget" to his friends. He boasts a collection of hydrogen-powered and electric vehicles, including a hydrogen-run lawn mower and car as well as an electric racing boat, and even an electric motorcycle.

"I'm a self-sufficiency guy," he adds. Mr S. has been interested in alternative energy sources since 1997 when he began working on vehicles fueled by alternative means during his tenure with the New Jersey Department of Transportation.

His house, north of Trenton is the nation's first private hydrogen-powered house, which he now shares with his wife, two dogs and a cat. (His two daughters and son, all in their 20s, have left the nest.) It has been running entirely on electricity generated from the sun and stored hydrogen since October 2006, when S. built an off-grid energy system. His personalized home-energy system consists of 56 solar panels on his garage roof, and housed inside is a small electrolyzer (a device, about the size of a washing machine, that uses electricity to break down water into its component hydrogen and oxygen).

On a typical summer day, the solar panels drink in and convert sunlight to about 90 kilowatt-hours of electricity. They consume about 10 kilowatt-hours daily to run the family's appliances, including a 50-inch plasma television, along with his three computers and stereo equipment, among other modern conveniences.

The remaining 80 kilowatt-hours recharge the batteries--which provide electricity for the house at night--and power the electrolyzer.

"I can make fuel out of sunlight and water--and I don't even use the water," he notes. "If it's raining, it's fuel. If it's sunny, it's fuel. It's all fuel."

The modular home--built in 1991--looks like a typical suburban house and the facade hides the hydrogen-powered clothes dryer and geothermal system for heating and cooling.

"Geothermal is another piece of free energy," he says; in summer he can use the lower temperatures underground to cool his entire house, and in winter he can capture those warmer temperatures, supplementing them with a heat pump powered by electricity from hydrogen. "Nothing goes to waste."

Of course, hydrogen is a highly flammable gas, but its quick escape eases Mr S.'s fears that it might ignite or explode. It "disperses faster than any other gas," he notes. "Hydrogen won't sit around waiting for a flame."

(adapted from www.scientificamerican.com)

1 Read the passage and summarise it.

2 Imagine you could build a Solar-Hydrogen House, how would you plan it?