



Energy Headlines

ENERGY NEWSLETTER OF MNIT, JAIPUR



This Issue

Solar Updraft Tower	P.2	Eminent Energy Personality	P.2
Green World, Clean World	P.3	Reader's Column	P.3
Conferences Alert	P.4	Comic Sense	P.4

RENEWABLE FUEL FROM SEAWEED



One of the biggest criticisms leveled at biofuels that are derived from crops such as wheat, corn and sugar cane, is that they result in valuable land being taken away from food production. For this reason there are various research efforts underway to turn seaweed into a viable renewable source of biomass. Now a team from Bio Architecture Lab (BAL) claims to have developed a breakthrough technology that makes seaweed a cost-effective source of biomass by engineering a microbe that can extract all the major sugars in seaweed and convert them into renewable fuels and chemicals. Because of its high sugar content, the fact it doesn't require arable land or freshwater to grow, and is environmentally friendly, seaweed is seen as an ideal global feedstock for the commercial production of biofuels and renewable chemicals. According to BAL, less

than three percent of the coastal waters globally is all that's required to produce enough seaweed capable of replacing over 60 billion gallons (227 billion liters) of fossil fuel annually. The BAL team's breakthrough, which could help make this underutilized resource much more economically attractive, centers around an enzyme that is able to unlock and metabolize the polysaccharides within the seaweed. "About 60 percent of the dry biomass of seaweed are fermentable carbohydrates, and approximately half of those are locked in a single carbohydrate - alginate," said Daniel Trunfio, Chief Executive Officer at Bio Architecture Lab. "Our scientists have engineered an enzyme to degrade and a pathway to metabolize the alginate, allowing us to utilize all the major sugars in seaweed, which therefore makes the biomass an

economical feedstock for the production of renewable fuels and chemicals." BAL was a co-recipient of an award for the development of a process to convert sugars from seaweed into iso-butanol from the U.S. Department of Energy's new Advanced Research Projects Agency - Energy (ARPA-E). "BAL's technology to ferment a seaweed feedstock to renewable fuels and chemicals has suggested an entirely new pathway for biofuels development, one that is no longer constrained to terrestrial sources," says ARPA-E Program Director Dr. Jonathan Burbaum. "When fully developed and deployed, large scale seaweed cultivation combined with BAL's technology promises to produce renewable fuels and chemicals without forcing a tradeoff with conventional food crops such as corn or sugarcane."

Source: www.gizmag.com



SOLAR UPDRAFT TOWER-EFFICIENT TO MAKE PLANET HEALTHY

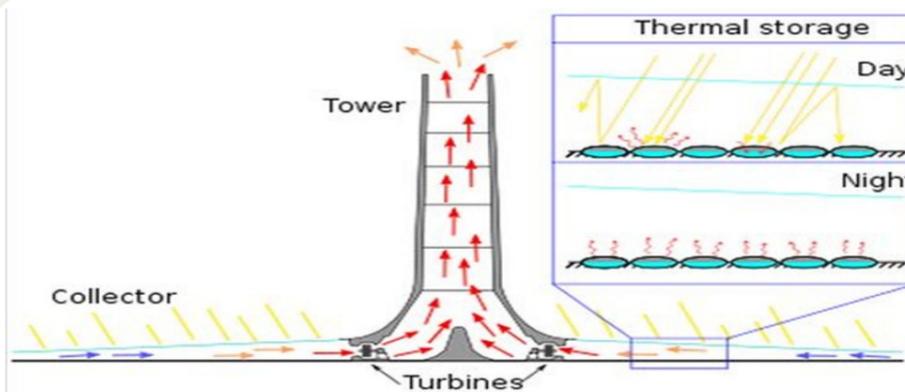


"It is time for a sustainable energy policy which puts consumers, the environment, human health, and peace first."

-Dennis Kucinich

There are many ways to produce clean, unlimited energy that we can use to start making the planet healthy again. One of the various ways is the solar updraft tower. This could replace the unsafe nuclear plants and the dirty burning of coal. Solar updraft towers are efficient and easy to build.

2,625 ft. solar updraft tower (only 30 ft. short of Burj Khalifa) to be constructed at Arizona to generate 200 MW of electricity.



A solar updraft tower is made mostly of concrete and glass. The tower is constructed of reinforced concrete which is surrounded by a circle of glass at the bottom, which captures heat which rises through the tower while turning turbines to produce electricity. An updraft tower can be built large enough to put out the same amount of electricity as a conven-

tional electric plant without burning any fuel. They are inexpensive to build compared to a conventional or nuclear plant, and the maintenance is very low. There is no danger of a meltdown, explosion, or a fire. Living next to a solar updraft tower is much safer than living near a nuclear plant. Remote villages could have power now instead of waiting years for the electric lines to come through.

In the near future, these towers could

replace all the power plants in the country while automobiles have been converted to mostly electric. This will cut our oil dependence and boost the economy by creating jobs to build these towers. We need to make a decision that now is the time to stop using our limited resources to pollute the planet. Switch to green energy now and keep our planet healthy the way it should be.

Source: www.energyhack.com

AL GORE-THE ECO VICE PRESIDENT

Albert Arnold "Al" Gore, Jr. (born March 31, 1948) served as the 45th Vice President of the United States (1993–2001), under President Bill Clinton.



Gore is currently an author and environmental activist. He has founded a number of non-profit organizations, including the Alliance for Climate Protection, and has received a Nobel Peace Prize for his work in climate change activism. Al Gore was previously an elected official for 24 years, representing Tennessee in the U.S. House of Representatives (1977–85), and later in the U.S. Senate (1985–93), and finally becoming

Vice President in 1993. In the 2000 presidential election, Gore won the popular vote by a margin of more than 500,000 votes. However, he ultimately lost the Electoral College to Republican George W. Bush when the U.S. Supreme Court settled the legal controversy over the Florida vote recount by ruling 5-4 in favor of Bush.

Al Gore is the founder and current chair of the Alliance for Climate Protection, the co-founder and chair of Generation Investment Management, the co-founder and chair of Current TV, a member of the Board of Directors of Apple Inc., and a senior adviser to Google. Gore is also a partner in the venture capital firm, Kleiner Perkins Caufield & Byers, heading its climate change solutions group. He has served as a visiting professor at Middle Ten-

nessee State University, Columbia University Graduate School of Journalism, Fisk University, and the University of California, Los Angeles.

Gore has received a number of awards including the Nobel Peace Prize (joint award with the Intergovernmental Panel on Climate Change) (2007), a Grammy Award for Best Spoken Word Album (2009) for his book *An Inconvenient Truth*, a Primetime Emmy Award for *Current TV* (2007), and a Webby Award (2005). Gore was also the subject of the Academy Award-winning (2007) documentary *An Inconvenient Truth* in 2006. In 2007 he was named a runner-up for Time's 2007 Person of the Year.

Source: www.wikipedia.com





25 oz. bottle of petroleum based dishwashing liquid if replaced with a 25 oz. vegetable based product. 81,000 barrels of oil can be saved.

GREEN WORLD, CLEAN WORLD- DISHWASHING SOAP INITIATIVE

Now more than ever, people around the world are putting every aspect of their lives under scrutiny, looking for ways to minimize their carbon footprint. Whether it is holding a plastic-free birthday party for your child, not purchasing pesticide-covered flowers and blood diamonds for Valentine's Day or building an eco-friendly house, everything from the food we eat to the clothes we wear to the furnishings that fill our home, use resources and have a carbon footprint. Our choices matter!!!

Let's start with a simple example: the humble bottle of dishwashing liquid. Most common dishwashing liquid bottles are made from petroleum, a non-renewable resource. Each time we buy a bottle of dishwashing soap and 'recycle' the bottle, it takes resources and energy to reconstitute the plastic back into another plastic bottle - if indeed it can be made into another bottle since often the recycled material is downgraded in the recycle process. Making the simple choice to utilize a reusable service like a

soap co-op or household product refill station can have significant impact in saving resources, energy and preventing waste from ending up in the landfill. Most household dishwashing liquids contain dyes, non-biodegradable chemicals, petroleum and even some toxic ingredients including ethanol, ammonia, phosphates, benzyl acetate and ethyl acetate, to name just a few. Many cities and towns have inadequate sewage treatment systems and what we pour down the drain or flush down the toilet often ends up in our oceans and rivers.



Many mainstream household products have their ingredients, substances like dyes or perfumes, tested on animals.

Switching to natural vegan or non-animal tested products helps to ensure you are not complacent in a system of animal cruelty. Global Action Network reports Arm & Hammer, Aim, Brillo, ArmorAll, Glad, Liquid Plumber, Pine-Sol, Soft Scrub, SOS, Tilex, Ajax, Fab, Palmolive, Easy-Off, Lysol, Mop & Glo, Spray 'N Wash, Drano, Glade, OFF!, Pledge, Shout and Windex, are all manufactured by companies that conduct animal experiments and tests, even though they are not required to do so by law.

Suddenly, a simple thing like a humble bottle of dishwashing soap has long-reaching, multi-layered ramifications. Now if you look around your home, office or school, you can see that each and every choice we make has environmental, social and often political implications.

It is time to start greening our world and we can start with the dish soap.

Source: www.greenmuze.com

FROM READER'S PEN - OUR ENVIRONMENT, OUR DEEDS



Though everyone knows that developed countries are primarily responsible for global temperature shoot up, but being in a country crowded by a billion plus 10 crore people, we can't deny the fact that we can't help the cause by controlling our activities.

Not talking in numbers, still India's position in the world green countries' list gives a frown on our heads. Even Bangladesh was positioned better. It's not that we are not doing anything to improve. There are many campaigns and social messages being spread throughout to help the Indian environment grow better, but this all can't help unless we decide helping it. Only switching off lights on time and using public transport can't help. We need to switch to better

ideas and ways to protect and help our environment.



Mawlynnong, located in Meghalaya, India, is titled as the cleanest village of Asia.

We do know about earth hour, all we need to do is observe the earth hour every day or at least once a week. Just imagining how much electricity can be saved if 20 crore Indian families switch off lights for an hour every day is enough to freak someone out. Moreover, on the governmental level, policies like ground water level management and rain water harvesting need to be applied properly and by properly means we also paying heed to it, not simply leaving it on the officials alone. States

like Meghalaya and in fact Rajasthan too are getting ample rain water supply these years. Having such policies will not only conserve water, it will also solve water and electricity management problems. Apart from this government even offers tax rebate for installing solar power to homes to encourage people for doing so, but we are so busy in money-making and saving that we never care of saving the environment as well. Hope we can contribute to India's environment and ultimately the world's on a time, when frankly, our government isn't getting time for.

Submitted by-
Shubham Choudhary
VI semester, Electronics and Communication Engineering



100 WAYS TO SAVE THE ENVIRONMENT

... In continuation with the last issue

Ways to Use Less Water

73. Check and fix any water leaks.

74. Install water-saving devices on your faucets and toilets.

75. Don't wash dishes with the water running continuously.

76. Wash and dry only full loads of laundry and dishes.

77. Follow your community's water use restrictions or guidelines.

78. Install a low-flow shower head.

79. Replace old toilets with new ones that use a lot less water.

80. Turn off washing machine's water supply to prevent leaks.

Ways to Protect Our Water

81. Re-vegetate or mulch disturbed soil as soon as possible.

82. Never dump anything down a storm drain.

83. Have your septic tank pumped and system inspected regularly.

84. Check your car for oil or other leaks, and recycle motor oil.



85. Take your car to a car wash instead of washing it in the driveway.

86. Learn about your watershed.

Create Less Trash

87. Buy items in bulk from loose bins when possible to reduce the packaging waste.

88. Avoid products with several layers of packaging when only one is sufficient. About 33 of what we throw away is packaging.

89. Buy products that you can reuse.

90. Maintain and repair durable products instead of buying new ones.

91. Check reports for products that are easily repaired and have low breakdown rates.

92. Reuse items like bags and containers when possible.

93. Use cloth napkins instead of paper ones.

94. Use reusable plates and utensils instead of disposable ones.

95. Use reusable containers to store food instead of aluminum foil and cling wrap.



96. Shop with a canvas bag instead of using paper and plastic bags.

97. Buy rechargeable batteries for devices used frequently.

98. Reuse packaging cartons and shipping materials. Old newspapers make great packaging material.

99. Compost your vegetable scraps.

100. Buy used furniture - there is a surplus of it, and it is much cheaper than new furniture.

COMIC SENSE



Identify the company's logo and send the answer to win a Parker pen.

Answer to the last QR code "Energy triggers everything"

Winners

1. Abhinav Prakash
2. Shreyansh Bengani

CONFERENCES ALERT

Conferences Abroad

2012 2nd International Conference on Future Environment Energy (ICFEE 2012)

website: www.icfee.org

Date: February 26-28, 2012

Location: Singapore

2012 Green Energy Summit & Exposition

website: www.greenenergysummit.us

Date: March 7-10, 2012

Location: Milwaukee, Wisconsin, USA

Conferences within India

The Solar Future India II

website: www.thesolarfuture.in

Date: February 29- March 1, 2012

Location: Jaipur, Rajasthan

Renergy 2012- International Conference and Expo on Renewable Energy

website: www.renergy2012.com

Date: March 12-13, 2012

Location: Chennai, Tamil Nadu

QUIZ

1. Which is the biggest solar plane in the world?
2. Name India's largest wind power production facilities?
3. Burning biofuel instead of gasoline produces less greenhouse gases. True or False?
4. The biggest tidal farm soon to open in 2012 is in which country?

Send your entries to mnit.energyheadlines@gmail.com

Answers to the Quiz in Volume 5 Issue 01

1) One Earth Headquarters Suzlon Energy, Pune

2) Columbia University

3) Berkeley Lab with an efficiency of 33.9%

4) Leadership in Energy and Environment Design

Unfortunately, we didn't receive any correct entries this time. Sorry guys you need to work upon your searching skills !!!!

Disclaimer: This newsletter is for internal circulation within MNIT. All information/articles have been compiled from newspapers, technical magazines and other sources.

For suggestions, feedback and any other article you want to read on some particular topic or want us to publish in our reader's column then mail us to

mnit.energyheadlines@gmail.com or write to us on our blog <http://theehblogmnit.blogspot.com>

Also follow us on our Facebook page <https://www.facebook.com/EH.MNITJaipur.in>



credits

Shubham Khandelwal (6th Sem, Mech Engg)
 Anshul Sharma (6th Sem, Mech Engg)
 Ankur Kumar (6th Sem, Mech Engg)
 Soumya Mukherjee (6th Sem, Comp. Engg)
 Sahil Dave (6th Sem, Civil Engg)
 Navdeep Agrawal (4th Sem, Mech. Engg.)
 Saurabh Mittal (8th Sem, Mech Engg)
 Dr. -Ing. Jyotirmay Mathur, Coordinator,
 Centre for Energy and Environment