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Trending

- The solar power tariff fell to an all-time low, with Finland based energy firm 'Fortum Finnsurya Energy' quoting ₹ 4.34 a unit to bag the mandate to set up a 70 MW solar power plant in Rajasthan.
- San Francisco Becomes The First City to Ban Sale of Plastic Bottles to reduce the huge amount of waste from the billion-dollar plastic bottle industry.
- The rarest of the black rhino subspecies, the West African black rhinoceros, has been declared extinct by the IUCN.

Source: Internet



Red Alert - An Invitation to the Disaster



It has been well said by Robert Orben that there is so much pollution in the air now that if it weren't for our lungs there would be no place to put it all. On 30, November 2015 the air quality index that measures dangerous particles in the air hit 666 in Beijing. To give you some context, in the US, anything above 300 is considered capable of causing the entire population serious health problems.

With an air quality index (AQI) of more than twenty times the level recommended by the World Health Organization, the city was shrouded in the thick sepia-toned air. Chinese officials finally admitted that the country has been emitting nearly 1 billion tonnes more CO₂ and burning 17 percent more coal each year than it's previously disclosed.

Beijing has ordered 2,100 factories to suspend or reduce production as part of its "red alert" measures to deal with smog, the government has said, as the city remained shrouded in a toxic haze.

Amidst this disaster, a Canadian startup found Beijing as their most promising

market. Vitality Air sold their batch of 500 canisters filled with fresh air from the Rocky Mountains town of Banff within two weeks. Now they are taking pre-orders. A 7.7 Litre can of crisp air taken from Banff National Park in the majestic Rocky Mountains range sells for roughly 100 yuan, which is 50 times more expensive than a bottle of mineral water in China.

Today it's the Beijing which is witnessing such crisis but tomorrow it may be any other city which would be at the receiving end. It seems that we are heading towards an age where there will be refugee crisis due to the migration caused by the air pollution.

It's very a tough time for the human race. We will have to figure out the ways to tackle this demon. A collective effort needs to be put up by Government and individuals to cope up with this situation, otherwise the scene may be more frightening.

Source: Sciencedirect.com

Waste to Valuable: Eco Friendly Business Venture

When we enter any religious place, the first thing we probably notice is the abundance of flowers. Once they've wilted, people discard them in rivers, lakes and other water bodies without realising that they are choking the water body with pesticides and chemical fertilisers.

Two young innovators Karan and Ankit from Kanpur have founded eco-friendly business venture 'Help us green' with the aim of utilizing the disposed flowers and turning them into excellent bio-fertilisers and lifestyle products. They started research in 2012 and the brilliant idea had taken shape by 2014 after several experiments.

The duo picks up flowers from different places of worship every day – approximately 500 kg of them. The flowers are then mixed with cow dung and treated with about 17 natural components like coffee



residue, corn cobs, etc. After a few days, earthworms are added to the mix. These worms consume the mixture and lead to the formation of vermicompost after 60 days. In this process, earthworms ingest the organic waste and then excrete it in a digested form. The excreta, called worm cast, is a dark, odourless and nutrient rich material. Worm cast or vermicompost is a ready-to-use fertilizer. It helps improve soil texture for the better growth of plants. While 80% of the flowers are used to make

vermicompost, the rest are crushed and made into natural incense sticks and havan items. For manufacturing these items, they have employed 85 women from different self-help groups in villages around Kanpur, thus providing them with a source of income.

Their most brilliant idea is "Plant the packaging & share the joy". People usually don't throw away packets that have pictures of gods and goddesses on them. So they pack the havan/yajna items in seed paper that is embedded with tulsi seeds. The discarded packets will grow into beautiful plants when they come into contact with soil.

While most of us leave it to the gods to take, kudos to Ankit and Karan for turning, at least, a part of the offerings into such amazing and environment-friendly products.

Source: www.thebetterindia.com

New Glass Coating leads to Omnidirectional Solar Panels

The researchers at King Abdullah University of Science and Technology (KAUST) in Saudi Arabia and Taiwan's National Central University have developed a special glass coating for solar cells that capture sunlight from almost any direction and increase efficiency by as much as 46 percent. As a bonus, the glass coating also repels dust which enables the solar panels to stay cleaner much longer than traditional panels.

The efficiency of solar panels can be boosted by increasing the amount of the solar energy harnessed by each photovoltaic cell. This is achieved when the panels are perpendicular to the solar rays.

Solar Tracking is a way to increase the efficiency. It enables the array of solar panels to follow the sun by



minimizing the angle of incidence between the incoming sunlight and the photovoltaic cells. Thus solar panels are always facing the sun, and maximum amount of solar energy can be attracted. However, in case of a larger array, mechanism of rotation becomes more difficult. Installation of tracking devices increases the total cost of the configuration.

The new coating is made of a fused silica packaging glass that features both tiny nanorod structures and large

honeycomb shaped nanowalls. Effect of subwavelength feature of the nanorods combined with an efficient scattering ability of the nanowalls make it possible for the solar cells to harvest the sun's energy from multiple angles. That capability yields a boost of 5.2 to 27.7 percent in cell efficiency, depending on the angle of the light. Researchers believe that the efficiency enhancement could be up to 46 percent, during the long-term use.

Further to its impressive harvesting ability at multiple angles, the glass also proved to be rather adept at keeping itself clean. It repelled dust and pollution well enough to maintain 98.8 percent of its efficiency after six weeks of outdoor use.

Source : www.inhabitat.com

Battle of Zero-emission Cars: Hydrogen or Electric

There is a race taking place in the automobile industry between the powerful camps to decide what will propel the cars of the future. On one side, sit some of the big names of car making: Japanese giant Toyota, its domestic rival Honda, and their Asian neighbour Hyundai, who are all betting big on the potential of hydrogen power.

The other camp, smaller, but more vocal, is being led by tech visionary Elon Musk, who is convinced that electric cars powered by batteries represent the future and is sticking with them for his Tesla cars.

Hydrogen fuel cells work by using a “fuel stack” to mix outside air with the hydrogen they carry in pressurized tanks in a chemical reaction which creates electricity, with the only emission being water. This electricity is used to charge a



battery or drive electric motors to power the car, known as a fuel cell electric vehicle (FCEV).

But the problem with FCEV is that hydrogen is an energy storage mechanism, it's not a source of energy. A primary energy source like the sun, coal, etc. is required to generate the power needed to extract hydrogen via steam methane reformation or electrolysis of water. The complexity of whole process makes it inefficient. HFCV can't

be called a green technology till hydrogen is produced from a renewable energy source.

On the contrary, electric vehicles (EVs) run on a battery powered electric motor. Unlike most cars on the road today, it lacks an internal combustion engine and uses electricity as its fuel rather than gasoline. The power conversion is quite simpler as compared to HFCV resulting in three times more energy efficiency than HFCV. EVs powered solely by batteries have shorter ranges and charging them takes longer, but the cost of refuelling is 10 times lesser as compared to its counterpart due to available infrastructure of electricity transmission.

We would be wondering about the type of future cars but it's a wait and watch situation.

Source : www.telegraph.co.uk

Storage of solar energy in UAE desert sand

According to researchers at Masdar Institute, the desert sand in (United Arab Emirates) UAE could be used in concentrated solar power (CSP) facilities as Thermal energy storage (TES) material to store thermal energy up to 1000°C. The research project called 'Sandstock' has been seeking to develop a sustainable and low-cost gravity-fed solar receiver and storage system, using sand particles as the heat collector, heat transfer and thermal energy storage media. Thermal energy storage (TES) refers to the technology that allows the transfer and storage of heat energy or. The TES material allows excess thermal energy to be collected for later use, hours, days or many months later. This method is built into new technologies that complement energy solutions such as solar and hydro.



Currently, the process is costly since it requires thermal energy storage (TES) materials as well as a solar absorber, let alone their transportation to the solar plants, usually located in the world's deserts. But the UAE sand could work as both.

The sand's chemical composition has been analyzed by the X-ray fluorescence (XRF) and X-ray diffraction (XRD) techniques, which reveal the dominance of quartz and carbonate materials. The sand's

radiant energy reflectiveness was also measured before and after a thermal cycle, as it may be possible to use the desert sand not only as a TES material but also as a direct solar absorber under concentrated solar flux.

The usual heat storage materials in current TES systems are synthetic oil and molten salts. Replacing the typical heat storage materials used in TES systems with inexpensive sand can increase plant efficiency due to the increased working temperature of the storage material and therefore, reduces costs. A TES system based on natural material like sand represents a new sustainable energy approach to push world towards clean & green solar energy.

Source : Masdar Institute



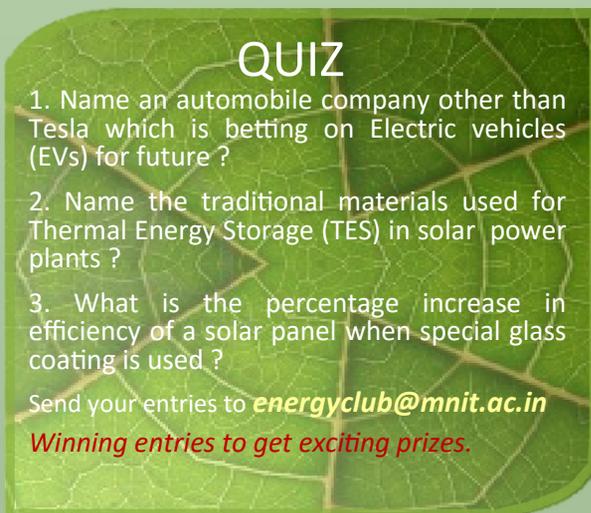
8th India Power Award

Energy Club has been conferred 8th India Power Award (2015) by the Council of Power Utilities in the category "Establishment of Societies/Clubs to promote Energy Efficiency and Conservation".



6th Rajasthan Energy Conservation Award

Energy Club has been honoured with Rajasthan Energy Conservation Award (RECA-15) by the Department of Energy, Government of Rajasthan for sincere efforts towards environment.



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