

**EAI**  
catalyzing cleantech in India  
**MONTHLY DIGEST**  
**October, 2013**





Dear EAI Member

Greetings from EAI, hope you are doing well.

I would like to thank all the EAI members for having provided your valuable suggestions and feedback for the previous editions of the monthly digest, a compilation of important and interesting renewable energy updates that happened at EAI Daily for that month.

Based on your suggestions, we have tried to improve and include more sections such as videos, products etc. in the monthly digest.

Hope you will find these additions interesting.

Do let me know your feedback and suggestions to improve this digest, and thank you very much once again for being a valuable member of our community. You can send your feedback to me or to Krishna ([krishna@eai.in](mailto:krishna@eai.in)).

If you find this interesting, please feel free to forward this to your friends.

Take care and all the best!

Narasimhan Santhanam

Cofounder & Director

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## Top Stories

### Solar

#### **India adds 118 MW of PV capacity in September 2013** (Published on: 30<sup>th</sup> Sep)

India added 111 MW of grid-tied solar photovoltaic (PV) capacity and 7 MW of off-grid PV in September 2013, according to figures released by the nation's ministry of New and Renewable Energy (MNRE). This is a slight decline from the previous month but an improvement on prior months, and brings India to 2.08 GW of grid-tied and 139 MW of off-grid PV.

More: <http://bit.ly/1iqGq6i>

#### **Tamil Nadu to establish solar power transmission corridor to evacuate 3,000 MW solar power** (Published on: 3<sup>rd</sup> Oct)

Tamil Nadu is all set to establish first-of-its-kind solar power transmission corridor to evacuate 3,000 MW solar power it proposes to add to grid by 2015. The Tamil Nadu Transmission Corporation proposes to establish a separate corridor of 400 kV transmission line comprising three 400 kV substations (SS) to evacuate solar power. More: <http://bit.ly/14sCrQo>

#### **India's ultra-mega solar plant to sell power at a record-low rate** (Published on: 03<sup>rd</sup> Oct)

India plans to sell power at a record-low rate from a 4-gigawatt solar photovoltaic farm that will more than double the nation's sun-powered capacity. Six state-owned companies, including Bharat Heavy Electricals Ltd. (BHEL) and Power Grid Corp. (PWGR) of India Ltd., will form a joint venture to build the first gigawatt by the end of 2016 and sell their output at a maximum 5,500 rupees (\$89) per megawatt-hour. More: <http://bloom.bg/GAmz9h>

#### **Order confuses solar energy users in Tamil Nadu** (Published on: 28<sup>th</sup> Oct)

Domestic consumers who had installed rooftop solar photovoltaic plants have been left clueless with the energy department's order that capital subsidy of Rs 20,000 for solar systems would be provided only to those who purchased their systems through Tamil Nadu Energy Development Agency. In the govt order the energy department said that the subsidy would be given on 'first come first serve' basis by TEDA.

More: <http://bit.ly/1afM1HB>

#### **Solar power to operate Gurgaon railway station soon** (Published on: 24<sup>th</sup> Oct)

Solar power will soon run Gurgaon railway station. Minister of State for Railways Adhir Ranjan Chaudhary laid the foundation stone for 25 kW solar power plant, being undertaken under RITES' CSR and Sustainability Projects. In a first, the solar power plant will be set up on the platform's roof where the panels will be placed solar electricity generated. The project, even if small, holds large potential.

More: <http://bit.ly/1dqlxt1>

#### **India receives \$3.25 million venture funding in solar sector during Q3 of current fiscal** (Published on: 09<sup>th</sup> Oct)

India receives \$3.25 million VC funding in the solar sector during the 3<sup>rd</sup> quarter of the current fiscal. Simpa Networks has raised a \$0.25 million in VC funding. International Finance Corporation, a member of the World Bank Group, is providing a \$3 million loan to independent energy producer Azure Power for one of its subsidiaries to construct a rooftop solar project in Gujarat.

More: <http://bit.ly/16wGijQ>

<p><b>Solar unit-manufacturer Borg Energy ties up with finance firms</b> (Published on: 9<sup>th</sup> Oct)</p> <p>Borg Energy, manufacturers of solar power units for houses, has tied up with Shriram City Union Finance and Bajaj Financial Services to extend loans to Borg's customers, said R. Sivakumar, Chief Operating Officer. Borg Energy sells a range of roof-top solar power generation units with a capacity of 500 W to 2,500 W priced between Rs 50,000 to Rs 2.5 lakh. Under the financing schemes, buyers can opt for 12-18 months monthly instalment schemes with one-third of the cost as down payment.</p> <p>More: <a href="http://bit.ly/1bFcroW">http://bit.ly/1bFcroW</a></p>	<p><b>KERC announces new tariffs for grid-connected and rooftop solar plants</b> (Published on: 12<sup>th</sup> Oct)</p> <p>The Karnataka Electricity Regulatory Commission (KERC) has announced new tariffs for grid-connected solar power plants and rooftop solar plants. The approved tariff applicable for solar power generators entering into a power purchase agreements (PPA) with electricity supply companies is Rs. 8.40 for every unit of power generated from a solar PV power plant, while the tariff for power generated from a solar thermal power plant is Rs. 10.92.</p> <p>More: <a href="http://bit.ly/1f5pT8c">http://bit.ly/1f5pT8c</a></p>
<p><b>Solar power tariffs revised in Karnataka</b> (Published on: 12<sup>th</sup> Oct)</p> <p>Karnataka Electricity Regulatory Commission (KERC) announced new tariffs for grid-connected solar power plants and rooftop solar plants. According to the new order, the approved tariffs are Rs 8.40/unit for solar photovoltaic (PV), Rs 10.92/unit for solar thermal, Rs 9.56/unit for rooftop and small solar PV plants and Rs 7.20/unit for rooftop and small solar PV plants with 30 per cent government subsidy on capital costs.</p> <p>More: <a href="http://bit.ly/19P70mm">http://bit.ly/19P70mm</a></p>	<p><b>Madhya Pradesh targets 1,400MW of solar power by 2015</b> (Published on: 25<sup>th</sup> Oct)</p> <p>Madhya Pradesh will add another 1,200 MW of solar power generation capacity to its existing 202 MW of solar power by June 2015. S R Mohanty, principal secretary, Government of Madhya Pradesh, said the state had increased its solar power generation capacity from 2 MW in April 2012 to 220.15 MW in September 2013. In second quarter of 2013, 191 MW of solar capacity was added in the country, of which 145 MW was added in MP alone. More: <a href="http://bit.ly/HrnvwV">http://bit.ly/HrnvwV</a></p>
<p><b>Read more news on Solar:</b> <a href="http://bit.ly/14WjLdy">http://bit.ly/14WjLdy</a></p>	
<p><b>Wind</b></p>	
<p><b>Rate of wind power revised to Rs 4.20/unit in Karnataka</b> (Published on: 11<sup>th</sup> Oct)</p> <p>The Karnataka Electricity Regulatory Commission (KERC) fixed the rate of wind power generation at `4.20 per unit in a tariff order. The current cost of wind power is `3.70/unit and many petitioners had argued that the rate was insufficient to meet the increasing costs of setting up a new wind project. The new tariff will be applicable to Power purchase Agreements signed in the next five years.</p> <p>More: <a href="http://bit.ly/17t1yCV">http://bit.ly/17t1yCV</a></p>	<p><b>Wind energy sees some activity in India</b> (Published on: 25<sup>th</sup> Oct)</p> <p>Four large transactions in wind energy have brought back some activities in the sector in India during the quarter ended September 30, according to a report compiled by Mercom Capital Group. Nagarjuna Agrichem, an Indian agrochemicals maker, sold off its entire wind power business to an undisclosed investor for Rs30 crore (~\$5 million) as part of its strategy to consolidate on core business.</p> <p>More: <a href="http://bit.ly/18vc1OJ">http://bit.ly/18vc1OJ</a></p>

<p><b>Southern Railway plans to set up windmills in Nellai district</b> (Published on: 30<sup>th</sup> Oct)</p> <p>The Southern Railway is toying with the idea of setting up windmills in the district in a bid to draw on alternative energy to trim its annual electricity bill. General Manager, Southern Railway, Rakesh Mishra said that a comprehensive project report on installing windmills was under preparation. The Integrated Coach Factory decided to go in for the non conventional energy programme in 2007 and installed seven wind mills at a cost of over Rs.66 crore. More: <a href="http://bit.ly/1aKQImv">http://bit.ly/1aKQImv</a></p>	<p><b>Tata Power developing 160 MW wind projects in India</b> (Published on: 28<sup>th</sup> Oct)</p> <p>Augmenting its renewable energy portfolio, Tata Power is developing wind projects having total generation capacity of over 160 MW in the country. The private power producer already has an installed wind energy generation capacity of 398 MW with projects across Maharashtra, Rajasthan, Gujarat, Tamil Nadu and Karnataka. Besides wind, the company has also presence in solar and hydro power generation. More: <a href="http://bit.ly/1cpgeaN">http://bit.ly/1cpgeaN</a></p>
<p><b>Read More News on Wind:</b> <a href="http://bit.ly/122BE7j">http://bit.ly/122BE7j</a></p>	
<h2 style="text-align: center;">Hydro</h2>	
<p><b>NHPC plans joint ventures with pvt players</b> (Published on: 01<sup>st</sup> Oct)</p> <p>State-run NHPC plans to join hands with private sector players for developing hydel power projects. In this regard, the company has held preliminary discussions with various independent power producers. The country's largest hydro power producer is also diversifying into thermal, solar and wind energy projects. Currently NHPC has an installed power generation capacity of 5,702 MW. More: <a href="http://bit.ly/18J2V2O">http://bit.ly/18J2V2O</a></p>	<p><b>Tata Power starts work on 400 MW hydro power project in Georgia</b> (Published on: 4<sup>th</sup> Oct)</p> <p>Tata Power said it has commenced construction work for the first phase of its joint venture 400 MW hydro power project in Georgia. The ground breaking ceremony for construction of the first phase Shuakhevi project, having a generation capacity of 185 MW, was recently performed by Georgian Prime Minister Bidzina Ivanishvili. More: <a href="http://bit.ly/1aflp9J">http://bit.ly/1aflp9J</a></p>
<p><b>Alstom to equip 850 MW-hydropower plant in India</b> (Published on: 07<sup>th</sup> Oct)</p> <p>Indian conglomerate GVK Power and Infrastructure Ltd. has awarded Alstom a contract worth around \$135 million to equip the 850 megawatt-Ratle hydropower plant with turbines. Under the contract, Alstom will supply the hydropower plant with four Francis turbines that are rated at 205 MW each, and one Francis turbine rated at 30 MW. More: <a href="http://bit.ly/17QxPrS">http://bit.ly/17QxPrS</a></p>	<p><b>Jaiprakash Power Ventures to sell two hydro power plants to Taqa</b> (Published on: 22<sup>nd</sup> Oct)</p> <p>Jaiprakash Power Ventures Ltd. (JPVL) is in talks to sell two hydropower plants to Abu Dhabi National Energy Co. (TAQA). The plants in Himachal Pradesh, which generate a combined 1,300 megawatts of power, may fetch about 130 billion rupees (\$2.1 billion) including debt. More: <a href="http://bit.ly/GDSTas">http://bit.ly/GDSTas</a></p>
<p><b>Read more news on Hydro:</b> <a href="http://bit.ly/15aRwrc">http://bit.ly/15aRwrc</a></p>	

## Biomass, Biofuels & Waste to Energy

### **Kerala to have an e-waste management policy soon** (Published on: 08<sup>th</sup> Oct)

Kerala will soon have an e-waste management policy to ensure the collection and safe disposal of discarded electrical and electronic products that could contaminate natural resources and pose a public health hazard. The policy, being formulated by the Kerala State Information Technology Mission (KSITM), will be on the lines of the e-Waste (Management and Handling) Rules, 2011, notified by the Union Ministry of Environment and Forests. More: <http://bit.ly/1dRgnYt>

### **ONGC in pact with Finland's Chempolis for ethanol production** (Published on: 15<sup>th</sup> Oct)

India's state-run explorer Oil and Natural Gas Corp. Ltd (ONGC) and Finland's Chempolis Ltd, a green technology specialist, signed a preliminary collaborative pact for the production of the bio-fuel ethanol. The in-principle agreement was signed in the presence of visiting Finnish minister for European affairs Alexander Stubb and India's minister of state for petroleum and natural gas Panabaka Lakshmi in New Delhi.

More: <http://bit.ly/1hTOLkz>

### **Biomass power plants cut output in Tamil Nadu** (Published on: 16<sup>th</sup> Oct)

Since the middle of August when Tamil Nadu government lifted the restrictions, about a dozen biomass power plants, which were till then meeting energy requirements of many HT consumers substantially, have scaled down their production drastically, as the demand has virtually vanished. More: <http://bit.ly/GTluYD>

### **Dead chicken turn into valuable bio-diesel source** (Published on: 17<sup>th</sup> Oct)

Dr. John Abraham, a research scholar in the Veterinary College and Research Institute (VC&RI) in Namakkal of Tamil Nadu has developed processes that can extract bio-diesel from poultry carcasses in a cost-effective manner. The project for his Ph.D. won four gold medals.

More: <http://bit.ly/16dqZHY>

### **BBMP to introduce a web-enabled database solution for solid waste management** (Published on: 03<sup>rd</sup> Oct)

The Bruhat Bangalore Mahanagara Palike (BBMP) will introduce a web-enabled database solution which can help it keep a tab on solid waste management. Nav Sustain, developed by Navigem Data Pvt Ltd, is based on software as service (SAS) model and helps BBMP assess the performance of garbage contractors and collection of waste.

More: <http://bit.ly/1iwuyzW>

### **Madurai all set to adopt BARC's solid waste management technology Nisarguna** (Published on: 24<sup>th</sup> Oct)

Madurai is all set to adopt Nisarguna, a solid waste management technology devised by BARC, to convert biodegradable waste collected from households in rural areas into methane and organic manure. The District Rural Development Agency (DRDA) has begun the process of identifying sites for establishing Nisarguna biogas plants. More: <http://bit.ly/17r40hQ>

**Read More News on Biomass:** <http://bit.ly/11kzvlJ>

**Biofuel:** <http://bit.ly/1bd1hpV>

**Waste to Energy:** <http://bit.ly/HIkZD1>



## Energy Efficiency and Conservation

### **Save energy is the new mantra at Nagpur Central Railway!** (Published on: 03<sup>rd</sup> Oct)

Energy conservation is the new mantra at Nagpur Central Railway! The division has set an example for their counterparts in other divisions by taking up 'Urja Saurakshan' project under which it saved power consumption and saved Rs 5 crore. The Nagpur Central Railway is observing 2013 as 'Energy Conservation Year'. On May 31, it launched the mega project to save energy, especially from freight trains which consumes most of the power.

More: <http://bit.ly/18LELPe>

### **Energy-efficient appliances help save 4 Cr units in Mumbai** (Published on: 03<sup>rd</sup> Oct)

Mumbai suburban residential consumers of Reliance Power saved over four crore units of electricity by switching over to energy-efficient appliances, since 2007. Rlnfra is the largest power distribution licensee in Mumbai, which serves about 28 lakh consumers spread over 400 sq. km. Rlnfra runs periodic exchange schemes for its consumers offering them energy-efficient home appliances in association with leading manufacturers. More: <http://bit.ly/1gfKrfH>

### **India to have one lakh green buildings by 2025** (Published on: 08<sup>th</sup> Oct)

At a time when climate change and environment have become crucial topics of discussion, the number of green buildings is expected to increase manifold. Built with an intention to protect the environment by using non-toxic materials like solar panels, wind turbines, rainwater harvesting systems, composting systems etc, and green buildings are said to help in energy conservation.

More: <http://bit.ly/HedDXo>

### **First home to get IGBC nod** (Published on: 23<sup>rd</sup> Sep)

Energy and water efficiency specialist U.V. Krishna Rao's home at Madipakkam in Chennai does not even have a municipal water connection, yet has acquired the distinction of being India's first platinum rated green home certified by the Indian Green Building Council (IGBC). Of the three houses across the country, the Chennai building, Viswa Syamalam, is the first house to have earned an IGBC certification. More: <http://bit.ly/1gRS8pL>

**Read more news on Energy Efficiency:** <http://bit.ly/10uTIto>

## Cleantech – Beyond Renewable Energy

### **Bicycle-sharing system to come up in Chennai soon** (Published on: 01<sup>st</sup> Oct)

A bicycle-sharing system, like the ones in London and Paris, is expected to come up in Chennai soon, with the Tamil Nadu government planning to provide residents the low-cost, eco-friendly mode of transport. In the first phase of the "Chennai Cycle Sharing" project, more than 3,500 cycles will be made available for public use at 170 stations across the city. More: <http://bit.ly/19G52al>

### **India to set up agency for monitoring water efficiency** (Published on: 9<sup>th</sup> Oct)

India, where water availability per person has shrunk by 70 percent in six decades, will set up a monitoring agency for government, industry and private users to help meet its target of cutting leaks and waste by a fifth. Improved water use will help India save 500 billion rupees (\$8 billion), M. Satyanarayana, adviser to India's water ministry, said. More: <http://bit.ly/19owjfs>



**Mumbai, Chennai may reach climate tipping point by 2034** (Published on: 17<sup>th</sup> Oct)

Around 20 years from now, Mumbai and Chennai could routinely start witnessing temperatures hotter than the two cities have experienced in 150 years, an alarming new University of Hawaii study predicting the climate 'tipping points' of various cities around the world has warned. By 2045, Pune, Surat, Jaipur, Bangalore and Ahmedabad would have joined the ranks of cities showing such climate departures. More: <http://bit.ly/1bPMVBX>

**Smart grid: Pilot project shows promise** (Published on: 10<sup>th</sup> Oct)

After close to a year of trials, the Puducherry Electricity Department, Power Grid Corporation of India and 57 other service providers that worked on the country's first pilot 'smart grid' project know one thing: It works. In the heartening results of the Puducherry pilot lie the possibilities of a pan-nation technology leapfrog — an intelligent electricity grid system.

More: <http://bit.ly/1csacKA>

**Tertiary water treatment plant in Surat to be ready by December** (Published on: 17<sup>th</sup> Oct)

The 40 million litre per day (MLD) capacity tertiary water treatment plant at Bamroli in Surat could become operational from January 01, 2014. This would be the country's first such plant to be owned and built by a civic body. The civil work of the Rs 85.10 crore plant is almost complete whereas 70 per cent of electrical - mechanical work is over. More: <http://bit.ly/19Uu2tM>

**Punjab panel to look into plan to recycle agriculture waste** (Published on: 17<sup>th</sup> Oct)

Punjab Chief Minister Parkash Singh Badal constituted a committee to study the feasibility of utilising recycled agriculture waste as alternative fuel. The committee, headed by Agriculture department secretary K S Pannu, will find ways to implement the project in the state in collaboration with a private firm. The Chief Minister asked Pannu to study all aspects of the projects.

More: <http://bit.ly/1csacKA>

Read More Stories on Renewable Energy from [here](#)

## Innovations



**University creates "world's first walkable solar panel pathway"**

We typically see photovoltaic panels up on roofs, as they're broad, open surfaces that receive a lot of sunlight. You know what else spends a lot of time in the scorching sun, though? Sidewalks. With that in mind, a team at Washington DC's The George Washington University has created what is claimed to be "the first walkable solar-paneled pathway in the world."

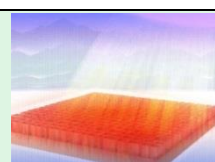
More: <http://bit.ly/1bI2Cv8>



**Scottish university makes battery breakthrough**

The University of St Andrews in Scotland appears to have made a significant breakthrough in the advancement of lithium-air batteries. As part of a report in the journal Nature Materials, a report from researchers at the university suggests that titanium carbide may be a viable, stable cathode for the batteries. Currently, lithium-air batteries are attracting a great deal of interest as they boast high theoretical specific energy.

More: <http://bit.ly/GAx4ta>



### **Scientists' new approach improves efficiency of solar cells**

An international team of scientists, led by researchers from the Universities of York and St Andrews, has developed a new method to increase the efficiency of solar cells. The new approach achieves highly efficient broad-band light trapping in thin films, with more light captured in the film in order to maximise absorption and electricity generation.

More: <http://bit.ly/1gMUnjs>



### **Indian solar invention drastically reduces food waste**

A group of Indian graduate students have come up with a solution that addresses key shortages faced by rural Indians - food, electricity and income. Vaibhav Tidke, Shital Somani and Aditya Kulkarni used their different scientific backgrounds to develop a solar conduction dryer which dries out fruits and vegetables, enabling farmers to preserve and sell the food for a higher price.

More: <http://bit.ly/17zbzDe>



### **Manz secures 20.8% CIGS cell technology**

The Baden-Württemberg Center for Solar Energy and Hydrogen Research (ZSW) has announced the production of a world record efficiency 20.8% CIGS cell. Equipment supplier Manz has secured exclusive rights to the technology in its CIGSfab. Conversion efficiency gains are widely accepted to be one of the key ways in which PV manufacturers and developers can bring down the cost per watt of PV. The latest efficiency record to be announced has been achieved by the ZSW, with a 20.8% CIGS cell. More: <http://bit.ly/1csfAgT>



### **Indore: A skyscraper that generates its own energy using solar, wind and water power**

Imagine living in a skyscraper that generates its own energy using solar, wind and water power. To top it up, the building itself will be made of eco-friendly material like wood. Two students of Indore Professional Studies (IPS) Academy have conceptualised such an eco-friendly 'future building' and have even made a thermocol model to demonstrate this concept.

More: <http://bit.ly/HCKtG4>



### **Swiss village hosts world's first-of-its-kind solar-powered ski lift**

The tiny Swiss town of Tenna has put itself on the eco-map by building an innovative solar-powered ski lift. The solar lift is one of the world's first of its kind, and utilizes a "cable car system" where the solar panels are integrated directly into the lift. Approximately 80 solar panels are incorporated into a 450-meter system that is suspended above the ski lift. More: <http://bit.ly/zYhgJc>



### **The Capsule Bedside Lamp soaks up daytime rays for a soft evening glow**

Designed by Teng Shao, the compact table lamp has built-in solar panels to draw in the sun's rays during the day. This becomes the electrical source by which the device can illuminate each night, so that it doesn't require a cord. Keep the capsule bedside lamp off in its position and turn it on by raising its cap. More: <http://bit.ly/1hmZ3aJ>

## Upcoming Tenders

Location	Organisation	Description	Link	Deadline
Himachal Pradesh	SJVN Ltd.	Hiring of Services / Consultancy of Designated Independent Agency / Experts Empanelled by CERC for Vetting of Capital Cost of Rampur Hydro Electric Project as per the CERC Regulations	<a href="http://bit.ly/17BrrHD">http://bit.ly/17BrrHD</a>	15.11.2013
Himachal Pradesh	Himachal Pradesh Energy Development Agency (HIMURJA)	Supply, Installation and Commissioning of 2 kWp SPV Solar Power Plants	<a href="http://bit.ly/1beWtAi">http://bit.ly/1beWtAi</a>	19.11.2013
Maharashtra	Maharashtra Energy Development Agency (MEDA)	"Rate Contract" of Supply, Installation and Commissioning of Energy Efficient Street Light Fittings	<a href="http://bit.ly/1fofmoS">http://bit.ly/1fofmoS</a>	21.11.2013
Jharkhand	Jharkhand Renewable Energy Development Agency (JREDA)	Third Party Verification Work of Installed Solar Systems (Solar Home Lighting Systems/Solar Street Lighting systems) in Remote Villages of W.Singhbhum, Palamu, Latehar & Garhwa Districts of Jharkhand.	<a href="http://bit.ly/1amiegy">http://bit.ly/1amiegy</a>	25.11.2013
Jharkhand	Jharkhand Renewable Energy Development Agency (JREDA)	Design, Manufacture, Testing, Supply, Installation & Commissioning of Indigenious Solar Photovoltaic Power Plants and Associated Work for Village Electrification Including Five Years CMC on Turnkey Basis of Different Capacities in Two Villages of Jharkhand.	<a href="http://bit.ly/HvWxEq">http://bit.ly/HvWxEq</a>	25.11.2013
Jharkhand	Jharkhand Renewable Energy Development Agency (JREDA)	Rate Contract for Supply, Installation & Commissioning of Solar Water Heating System in the State of Jharkhand.	<a href="http://bit.ly/1b5YWNr">http://bit.ly/1b5YWNr</a>	26.11.2013

## EAI's Intelligence Series

EAI has published a series of reports on various aspects of renewable energy and clean technology.  
This section is dedicated to some top-selling reports of EAI.

**Replacing Diesel to Solar Report - A** detailed report that provides a detailed picture on solar based captive power generation. **A must read report for** industries and companies both large and small keen on setting up captive power for their power consumption.

This report contains comprehensive inputs and in-depth insights on:

- Captive solar PV technology and components
- Government incentives and regulations
- Inputs on capital and operational costs and financial scenario analysis
- Case studies for those businesses that already use solar for captive power
- Financing options
- Vendors, component suppliers and system integrators
- List of solar PV captive power plant systems all over India

Publication Date: September 2013

# Of Pages: 186

Report Link: [http://www.eai.in/ref/reports/captive\\_power.html](http://www.eai.in/ref/reports/captive_power.html)

Price: INR 42,750/-

Contact Sindhuja Ramar to order a copy of your report now - +91 – 8489663663, [sindhu@eai.in](mailto:sindhu@eai.in)

**Algae Fuels Report - Processes, Technologies, Trends and Challenges\_-** A comprehensive report that provides insights on the processes, technologies, key challenges and risks involved in the algae fuel business. Oilgae comprehensive report has been designed for entrepreneurs and investors keen on investing in this exciting domain. If you are in the algae fuel industry or you are wishing to venture into this exciting industry, this report will be an indispensable guide for you.



Publication Date: January 2013

# of Pages: 775

Report Link: <http://www.oilgae.com/ref/report/report.html>

Price: INR 94,050

Contact Sindhuja Ramar to order a copy of your report now - +91 – 8489663663, [sindhu@eai.in](mailto:sindhu@eai.in)

**Oilgae Waste Water Treatment Guide** – The most detailed and comprehensive guide for treating industrial and municipal wastewater using algae. It uses critical data and information from a wide variety of expert sources and market studies, and distills these inputs and data into intelligence and a roadmap that you can use. This is a must read for professionals in the waste water treatment and bioremediation industries.



Publication Date: January 2013

# of Pages: 477

Report Link: [http://www.oilgae.com/ref/report/wastewater\\_treatment/wastewater\\_treatment.html](http://www.oilgae.com/ref/report/wastewater_treatment/wastewater_treatment.html)

Price: INR 57,000

Contact Sindhuja Ramar to order a copy of your report now - +91 – 8489663663, [sindhu@eai.in](mailto:sindhu@eai.in)

## Upcoming Events

Start Date	Sector	Name of the Event	Venue	Link
13.11.2013	Smart Grid	International Smart Grid Colloquium 2013	Mysore	<a href="http://bit.ly/17BrMtY">http://bit.ly/17BrMtY</a>
14.11.2013	Organic Farming	Biofach India	Bengaluru	<a href="http://bit.ly/1cyXwBR">http://bit.ly/1cyXwBR</a>
15.11.2013	Waste Management	Award for Excellence in Solid Waste Management	Hyderabad	<a href="http://bit.ly/15R203K">http://bit.ly/15R203K</a>
15.11.2013	Climate Change	One Day Workshop on Understanding Climate Change	Shimla	<a href="http://bit.ly/1hGCj8G">http://bit.ly/1hGCj8G</a>
19.11.2013	Solar Energy	Solar Energy Liveweek 2013	Delhi	<a href="http://bit.ly/16KDlec">http://bit.ly/16KDlec</a>
19.11.2013	Bio Energy	Bioenergy Liveweek	Delhi	<a href="http://bit.ly/17f8fZb">http://bit.ly/17f8fZb</a>
19.11.2013	Geothermal Energy	Geothermal Energy Liveweek 2013	Delhi	<a href="http://bit.ly/1giWsB1">http://bit.ly/1giWsB1</a>
19.11.2013	Wind Energy	Wind Energy Liveweek 2013	Delhi	<a href="http://bit.ly/19tObJn">http://bit.ly/19tObJn</a>
20.11.2013	Water	Seminar on Sustainable Water Management	Lucknow	<a href="http://bit.ly/HvXaOg">http://bit.ly/HvXaOg</a>
21.11.2013	Cities	6th EuroIndia Summit & Mission – ‘Greening Cities’	Hyderabad	<a href="http://bit.ly/1cFf7nt">http://bit.ly/1cFf7nt</a>
21.11.2013	Water	India Water Expo	Chennai	<a href="http://bit.ly/1e3sOh6">http://bit.ly/1e3sOh6</a>
21.11.2013	Hydro	Seminar on Sustainable Development of Hydropower in India	New Delhi	<a href="http://bit.ly/16zbXAX">http://bit.ly/16zbXAX</a>
27.11.2013	Renewable Energy	International Congress on Renewable Energy	Odisha	<a href="http://bit.ly/1bC5GJ6">http://bit.ly/1bC5GJ6</a>
27.11.2013	Energy Efficiency	Energy Security Conference 2013	New Delhi	<a href="http://bit.ly/17H8nFD">http://bit.ly/17H8nFD</a>
28.11.2013	Solar/Biomass	International Conference on Solar and Biomass Energy 2013	Chennai	<a href="http://bit.ly/1dGRfRC">http://bit.ly/1dGRfRC</a>



28.11.2013	Nuclear	India Nuclear Energy 2013	Mumbai	<a href="http://bit.ly/184dWut">http://bit.ly/184dWut</a>
28.11.2013	Rooftop Solar	Short Term Course on Grid Connected Rooftop PV Power Plants	Mumbai	<a href="http://bit.ly/1cyYSMY">http://bit.ly/1cyYSMY</a>
28.11.2013	Waste Management	Waste Management Summit 2013	Bengaluru	<a href="http://bit.ly/1hcGU4R">http://bit.ly/1hcGU4R</a>
30.11.2013	Biodiesel	Global Algae Biodiesel World 2013	Jaipur	<a href="http://bit.ly/1hGEcCr">http://bit.ly/1hGEcCr</a>
02.12.2013	Energy Efficiency & Conservation	Hands-on Practical Training in Industrial Furnace & Waste Heat Recovery	Chennai	<a href="http://bit.ly/17Z8D35">http://bit.ly/17Z8D35</a>
04.12.2013	Electric Vehicle	8th SAEINDIA International Mobility Conference & 1st Commercial Vehicle Engineering Congress India 2013	Chennai	<a href="http://bit.ly/1e9Sqfe">http://bit.ly/1e9Sqfe</a>
04.12.2013	Energy Storage	India's First Conference & Exhibition on Energy Storage & Micro Grids	Mumbai	<a href="http://bit.ly/1iGCEjc">http://bit.ly/1iGCEjc</a>
05.12.2013	Energy Efficiency	Energy Expo & Conference 2013	Ahmedabad	<a href="http://bit.ly/1aWFmXg">http://bit.ly/1aWFmXg</a>
05.12.2013	Renewable Energy	International Conference on Renewable Energy and Sustainable Energy	Coimbatore	<a href="http://bit.ly/18RRuny">http://bit.ly/18RRuny</a>
11.12.2013	Solar Energy	Conference on Solar Power Generation	Chennai	<a href="http://bit.ly/HEnGV6">http://bit.ly/HEnGV6</a>
12.12.2013	Green IT	ICGCE - 2013	Thiruvallur	<a href="http://bit.ly/1a2eXGn">http://bit.ly/1a2eXGn</a>
18.12.2013	Solar Energy	Short course on "Techno-Economics of Solar Power"	Delhi	<a href="http://bit.ly/18RRPXR">http://bit.ly/18RRPXR</a>
18.12.2013	Waste Management	Waste to Resources India 2013	Mumbai	<a href="http://bit.ly/184eArE">http://bit.ly/184eArE</a>
27.12.2013	Renewable Energy	International Conference on Emerging Trends in Renewable Energy	Bhubaneswar	<a href="http://bit.ly/171Gji1">http://bit.ly/171Gji1</a>

## Renewable Energy/Sustainability Products

Name of the Product	Description	Link
Sun & Cloud No Battery Camera	This camera doesn't need any batteries, nor does it need to be plugged in to get power, this camera is a self-sufficient device. A large solar panel on the top takes in natural energy from the sun, causing little harm to the environment. But what if it's a cloudy day, you ask? Well never fear because this no battery camera comes with a backup plan; a hand crank that you turn manually in order to power it up.	<a href="http://bit.ly/16QXwrd">http://bit.ly/16QXwrd</a>
SunnyBot Solar Tracker	The 'SunnyBot' solar tracker is a robot that projects natural light onto a target. SunnyBot tracks the movement of the sun throughout the sky and directs sunlight onto an object. It works just like a task light but it doesn't need to be plugged in and emits a warm, natural glow onto objects instead of using artificial light.	<a href="http://bit.ly/12VOQyh">http://bit.ly/12VOQyh</a>
Zeoform	Australian company Zeo has developed and patented a glue-free process that creates a strong, versatile new building material out of just cellulose and water. The resulting hardwood-like material known as Zeoform can then be sprayed, molded or shaped into a range of products.	<a href="http://bit.ly/17p9jiR">http://bit.ly/17p9jiR</a>
WaterBean	WaterBean is a portable water filter which "purifies" tap water. The word "purifies" is in quotation marks because WaterBean will not turn a dirty puddle into water you'd want (or be advised) to drink. Rather than being designed as a system for people in developing countries to use to make dirty water clean enough to drink, WaterBean is designed to persuade people who currently buy endless bottles of water to stick with one bottle for a long time.	<a href="http://bit.ly/13SfVmE">http://bit.ly/13SfVmE</a>

SolSource	SolSource harnesses the sun's heat. It can cook anything you would put on a regular grill. SolSource looks much like a satellite dish. The user points the metallic surface towards the sun, and it reflects the heat back to the cooking surface, thus making it hot enough for cooking.	<a href="http://bit.ly/17Wamqp">http://bit.ly/17Wamqp</a>
Window Cling Solar Charger	The Window Cling Solar Charger may very well replace the need for traditional smartphone chargers. As its name so clearly states, it is a charger that uses solar energy to power devices.	<a href="http://bit.ly/RZVrUj">http://bit.ly/RZVrUj</a>
FOR A Solar Combo	The FORA Solar Combo from Benson Lee and Roy Chen is an eco-friendly device that lets you get more out of your music player for less. The FORA is a combination music player and LED lamp that runs solely off of solar power.	<a href="http://bit.ly/jev5OS">http://bit.ly/jev5OS</a>
Power Pack	The Ultimate Power Pack, designed by Luke Mastrangelo, is able to charge your phone, tablet or other electronic device through its in-built 4,000mAh solar charger. The bag directs stored energy from the Power Pack's solar panel, located at the top of the bag, to any device it is connected to.	<a href="http://bit.ly/17PoYV5">http://bit.ly/17PoYV5</a>
Uji Shower Head	It essentially shames people into taking shorter showers. By installing the Uji Shower Head in one's home, it will actively encourage people to be more aware of their water usage by turning different colors depending on how long they have been in the tub.	<a href="http://bit.ly/17YiV0c">http://bit.ly/17YiV0c</a>
The Tank	The Tank is a show of your shower conservation techniques, as well as what temperature you like to take your showers in. The shower monitoring system, designed by Charles Skender, measures the amount of water a person uses every time they enter the shower, and also presets temperatures so there is no fiddling and meddling around with what is already good in the world.	<a href="http://bit.ly/1a3Dnhf">http://bit.ly/1a3Dnhf</a>

## Technical Papers

Sector	Title	Link
Hydrogen	A review on production, storage of hydrogen and its utilization as an energy resource	<a href="http://bit.ly/1gmktZv">http://bit.ly/1gmktZv</a>
Hydro	Renewable energy and hydropower utilization tendency worldwide	<a href="http://bit.ly/17Hb9Lh">http://bit.ly/17Hb9Lh</a>
Solar PV	Financial analysis of utility scale photovoltaic plants with battery energy storage	<a href="http://bit.ly/1cz1omr">http://bit.ly/1cz1omr</a>
Water	Sustainable airport environments: A review of water conservation practices in airports	<a href="http://bit.ly/1a2gXhP">http://bit.ly/1a2gXhP</a>
Biodiesel	Process system engineering in biodiesel production: A review	<a href="http://bit.ly/1a2j1Xn">http://bit.ly/1a2j1Xn</a>
Off-grid Solar	Off-grid solar lighting systems: A way align India's sustainable and inclusive development goals	<a href="http://bit.ly/1a2jad9">http://bit.ly/1a2jad9</a>
Electric Vehicle	Business model innovations for electric mobility – What can be learned from existing business model patterns?	<a href="http://bit.ly/1hGK3rm">http://bit.ly/1hGK3rm</a>
Electric Vehicle	Geodemographic analysis and estimation of early plug-in hybrid electric vehicle adoption	<a href="http://bit.ly/1cz3Fho">http://bit.ly/1cz3Fho</a>
Biofuel	Review of evolution and sustainability assessment of biofuel production	<a href="http://bit.ly/1dGZjlm">http://bit.ly/1dGZjlm</a>
Renewable Energy	Allocating subsidies to R&D or to market applications of renewable energy? Balance and geographical relevance	<a href="http://bit.ly/18RYock">http://bit.ly/18RYock</a>
Bio Energy	Stakeholder dynamics in bioenergy feedstock production; The case of Jatropha curcas L. for biofuel in Chhattisgarh	<a href="http://bit.ly/1aWPRdl">http://bit.ly/1aWPRdl</a>

## RE/Sustainability Books

Name of the Book	Author	Publication Date	Description	Link
Industrial Composting: Environmental Engineering and Facilities Management	Eliot Epstein	11-Mar-11	Designed for composting professionals and supported by extensive quality references, this book covers Facilities Planning and Design; Odor Management; Design, Material, Energy and Water Balances; Economics of Product Marketing and Sales.	<a href="http://amzn.to/1cqbzlj">http://amzn.to/1cqbzlj</a>
Green Wizardry: Conservation, Solar Power, Organic Gardening, and Other Hands-On Skills From the Appropriate Tech Toolkit	John Michael Greer	3-Sep-13	John Michael Greer proposes a modern mage for uncertain times; one who possesses a startling array of practical skills gleaned from the appropriate tech and organic gardening movements forged in the energy crisis of the 1970s. From the basic concepts of ecology to a plethora of practical techniques such as composting, green manure, low-tech food preservation and storage, small-scale chicken and rabbit raising, solar water heating, alternative energy sources, and more, Green Wizardry is a comprehensive manual for today's wizard-in-training.	<a href="http://amzn.to/Hw9i1O">http://amzn.to/Hw9i1O</a>
Let It Shine: The 6,000-Year Story of Solar Energy	John Perlin, Amory Lovins	10-Sep-13	With thirteen new chapters, Let It Shine is a fully revised and expanded edition of A Golden Thread, Perlin's classic history of solar technology, detailing the past forty years of technological developments driving today's solar renaissance. This unique and compelling compendium of humankind's solar ideas tells the fascinating story of how our predecessors throughout time, again and again, have applied the sun to better their lives — and how we can too.	<a href="http://amzn.to/172iUwM">http://amzn.to/172iUwM</a>

Sustainable Energy: Choosing Among Options	Jefferson W. Tester, Elisabeth M. Drake, Michael J. Driscoll, Michael W. Golay, William A. Peters	28-Sep-12	Human survival depends on a continuing supply of energy, but the need for ever-increasing amounts of it poses a dilemma: How can we find energy sources that are sustainable and ways to convert and utilize energy that are more efficient? This widely used textbook is designed for advanced undergraduate and graduate students as well as others who have an interest in exploring energy resource options and technologies with a view toward achieving sustainability on local, national, and global scales. It clearly presents the tradeoffs and uncertainties inherent in evaluating and choosing sound energy portfolios and provides a framework for assessing policy solutions.	<a href="http://amzn.to/1aYl0Ly">http://amzn.to/1aYl0Ly</a>
Solar Energy Essentials for the Homeowner: Common Questions about Solar Energy for the Home	Blake Webster	13-May-12	Explore commonly asked questions about solar energy for the home that include topics ranging from basic installation to money saving approaches, turning back the meter, solar batteries, energy efficiency and more. Whether you want to reduce your utility bill or get off the grid, Solar Energy Essentials for the Homeowner offers practical advice on achieving energy independence.	<a href="http://amzn.to/16zBSIS">http://amzn.to/16zBSIS</a>
Green Series: Environmentalists in Action: Profiles of Green Pioneers	Blake Webster	9-Mar-11	The ten interviewees in this book offer insight and inspiration for those looking to make planet-friendly changes. Their message is clear: Start with baby steps, one change at a time. Eliminate plastic bags today; responsibly dump your toxic cleaning products next week. The environmentalists profiled here have devoted their lives to forging a better world, now and for future generations. May their words spur you to action.	<a href="http://amzn.to/1fedoal">http://amzn.to/1fedoal</a>

Tomorrow's Table: Organic Farming, Genetics, and the Future of Food	Pamela C. Ronald, R.W. Adamchak	8-Jan-10	This book is for consumers, farmers, and policy decision makers who want to make food choices and policy that will support ecologically responsible farming practices. It is also for anyone who wants accurate information about organic farming, genetic engineering, and their potential impacts on human health and the environment.	<a href="http://amzn.to/15cG9R4">http://amzn.to/15cG9R4</a>
Prefabulous + Almost Off the Grid: Your Path to Building an Energy-Independent Home	Sheri Koones	1-Oct-12	Prefabrication offers a simple path to the green home of your dreams, and in her latest book, Prefabulous author Sheri Koones highlights the many ways of using prefabrication to create almost-off-the-grid homes—houses that are not only environmentally friendly but often operate at nearly zero annual energy cos.	<a href="http://amzn.to/16zG4Z6">http://amzn.to/16zG4Z6</a>
Bioenergy and Biofuel from Biowastes and Biomass	Samir K. Khanal, Rao Y. Surampalli, Tian C. Zhang, Buddhi P. Lamsal, R. D. Tyagi, C.M.Kao	30-Apr-10	The 21 chapters of this book provide state-of-the-art reviews, current research, and technology developments with respect to 1st, 2nd, and 3rd generation biofuels and bioenergy. The book focuses on the biological/biochemical pathway, as this option has been reported to be the most cost-effective method for biofuel/bioenergy production.	<a href="http://amzn.to/1a4DElG">http://amzn.to/1a4DElG</a>
Sustainable Excellence: The Future of Business in a Fast-Changing World	Aron Cramer, Zachary Karabell	12-Oct-10	In Sustainable Excellence, Aron Cramer and Zachary Karabell tell the stories of the companies who are transforming themselves by responding to these paradigm shifts and in the process shaping the future. From their work with these Global 1000 companies, Cramer and Karabell know firsthand how business can successfully grapple with big-picture issues like resource scarcity, supply chain complexities, and the diverse expectations of government and the public.	<a href="http://amzn.to/19xipd0">http://amzn.to/19xipd0</a>



# Cleantech/Sustainability Videos

## 15 Fascinating Videos of Cleantech/Sustainability

<p>1. <b>The Detailed Universe</b> – From nano-meters to billions of light years, this video takes you through an awesome transition. Just a few minutes for you to realize how small and unimportant a speck our earth is (and consequently we are) in the universe. - <a href="http://www.eai.in/360/videos/pages/284">http://www.eai.in/360/videos/pages/284</a></p>
<p>2. <b>Animation of Eagle Mountain Pumped Storage Facility</b> – You will be surprised to know that little known pumped storage systems represent perhaps the largest storage facilities for electricity in the world, providing an elegant avenue to use hydropower at the most appropriate time. Get to know how this system works.- <a href="http://www.eai.in/360/videos/pages/317">http://www.eai.in/360/videos/pages/317</a>.</p>
<p>3. <b>Ice Energy: Discover the Power of Ice Energy Storage</b> – Similar to pumped hydro, storing energy in phase change materials (ice/water for instance) provides an elegant way of utilizing energy (especially for heating / cooling purposes) at a convenient time. Storing energy in ice especially can provide energy for air-conditioning during off-peak hours, thus shaving peak demand for utilities. - <a href="http://www.eai.in/360/videos/pages/315">http://www.eai.in/360/videos/pages/315</a>.</p>
<p>4. <b>The History of Climate Change Negotiations in 83 seconds</b> - Two's company, three is a crowd. Imagine what happens when over 100 countries get together to take decisions. You guessed it right – Nothing! Even on such an important topic as saving the earth. This brief animation captures the theme perfectly. - <a href="http://www.eai.in/360/videos/pages/310">http://www.eai.in/360/videos/pages/310</a>.</p>
<p>5. <b>Vandana Shiva: Traditional Knowledge, Biodiversity and Sustainable Living</b> - An Interview with Dr Vandana Shiva, one of the world's foremost environmentalists, anti-GM activist and an advocate of ecological farming and sustainable agriculture as a solution to climate change, food security, hunger and peace. Vandana is someone all Indians should know about, and be proud of. <a href="http://www.eai.in/360/videos/pages/311">http://www.eai.in/360/videos/pages/311</a>.</p>
<p>6. <b>World's Largest Dam</b> – A detailed video of Three Gorges, the world's largest dam. You see awesome force and power over here. 20,000 MW from just one facility. Of course, you might not agree that such large dams are the way forward to protect our environment, but there's no denying the feeling of awe one gets while watching this impressive video. - <a href="http://www.eai.in/360/videos/pages/309">http://www.eai.in/360/videos/pages/309</a>.</p>
<p>7. <b>The LED – a tour</b> - Take a tour through the world of the light-emitting diode and learn - who invented it, how to use it, and how to make your own. <a href="http://www.eai.in/360/videos/pages/301">http://www.eai.in/360/videos/pages/301</a>.</p>
<p>8. <b>SMT Rail - Smart Mass Transit</b> – A rather innovative (and cool looking) way of transportation. Appears that it is still in concept/pilot stage, but looks really impressive. <a href="http://www.eai.in/360/videos/pages/293">http://www.eai.in/360/videos/pages/293</a>.</p>

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| <p>9. <b>Eight to eighty, people of all ages cycling in the Netherlands</b> – People of all ages cycle in the Netherlands. Older people and children are everywhere. In fact the typical cyclists in other countries (fit males aged 20-35) are underrepresented in the Netherlands, and other age groups are far more visible. The Dutch are crazy, but for the right reason! <a href="http://www.eai.in/360/videos/pages/292">http://www.eai.in/360/videos/pages/292</a>.</p>  |
| <p>10. <b>Masdar, the World's First Eco city:</b> What will the city of the future look like? Carbon-neutral, no waste, no cars, and a city that relies entirely on renewable energy sources. This is a visionary project that is now becoming reality. In the desert of Abu Dhabi urban planners, architects and researchers are building the world's first eco city: Masdar City. Get to know more from this video. - <a href="http://www.eai.in/360/videos/pages/290">http://www.eai.in/360/videos/pages/290</a>.</p> |
| <p>11. <b>The Cardboard Bike: Inventor Thinks Outside the Box</b> - You'd be mad to ride a bike on Israel's roads. But not as mad as one man, who's made a road-worthy bike out of cardboard. Now he wants to mass-produce it. - <a href="http://www.eai.in/360/videos/pages/288">http://www.eai.in/360/videos/pages/288</a>.</p>  |
| <p>12. <b>Organic gardening: How to grow an organic vegetable garden</b> – What does it mean to grow vegetables organically? Scott Meyer, editor of Organic Gardening magazine shows how to plant and nurture an organic vegetable garden. <a href="http://www.eai.in/360/videos/pages/280">http://www.eai.in/360/videos/pages/280</a>.</p>  |
| <p>13. <b>Waste plastic to kerosene fuel</b> - A brief description of a small scale processor that uses catalytic pyrolysis to convert mixed waste plastics into a kerosene type fuel. <a href="http://www.eai.in/360/videos/pages/282">http://www.eai.in/360/videos/pages/282</a></p>   |
| <p>14. <b>Hydrogen - A Promising Storage for Wind Power</b> – An innovative solution for one of the biggest challenges in the energy puzzle: storage. Now, technologies are fast emerging to store excess electricity from renewables especially in the form of hydrogen. <a href="http://www.eai.in/360/videos/pages/314">http://www.eai.in/360/videos/pages/314</a></p>  |
| <p>15. <b>Organic Rankine Cycle for biomass cogeneration</b> – This video shows how organic rankine cycle for biomass cogeneration works. - <a href="http://www.eai.in/360/videos/pages/305">http://www.eai.in/360/videos/pages/305</a>.</p>   |

Hope this collection makes a difference to your perspectives and/or motivation. Your suggestions and feedback are welcome. (You can find many more such videos from EAI Videos section - [www.eai.in/360/videos](http://www.eai.in/360/videos))

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## Cleantech Perspectives

*Contributed by Raja Manuel Muthayya*

**Good enough to eat** – Imagine buying packaged food and eating the package as well as the food – milk comes in a strawberry-flavoured pouch that you wash and then eat. It would save us the huge amounts of packaging material that is now used by making it edible. This might sound like science fiction but David Edwards, the man who invented [breathable coffee](#), has turned this into reality by considering how nature protects fruits with tough skins that are edible.

The technology is called [WikiCells](#) and (this is the best part) if you are in Paris you can walk into the [WikiBar](#) and buy the [WikiPearl](#) ice cream in 3 different flavours and skins. That's one more good reason to visit Paris, and those of us who aren't that lucky can drool over the pictures in the website and look forward to the day when eating an ice cream can help save the environment.

**Fast Forward to the Past** – Respect for elders is ingrained in many of our cultures as they are supposed to be wiser than us but even our culture vultures would be surprised to hear that prehistoric man practised recycling (and would doubtless come up with excuses not to do it). This wisdom from our past was highlighted at a recent conference in Israel where archaeologists discussed the [origins of recycling](#) and shared their findings on the recycling habits of cavemen. Recycling was apparently a survival strategy for our distant forefathers.

If cavemen would recycle, why not us? Perhaps we would, too, if we had to make all the products we consumed and were therefore aware of the amount of energy and resources that go into even the simplest of products. Unfortunately we don't, but we don't need to let that stop us from emulating our ancestors. We don't need a time machine to learn from them, we can just employ all the means the internet age provides us to understand the impact of consumption on future generations. Recycling is just as much a survival strategy for us today as it was in prehistoric times, and it would be a shame if we can bring dinosaurs back to life someday, but do nothing to prevent our own doom.

**Green starts at home** - Being eco-friendly, like charity, should begin at home. A good example of this is Viswa Syamalam, India's first platinum-rated green home at Chennai. The house does not have a municipal water connection (rain water is stored and water is recycled), does not use utility power from sunrise to sunset thanks to cross ventilation and solar power, and [many other interesting features](#). While some of these might result in additional expenditure, cross-ventilation and natural lighting can be incorporated at the design stage with no or limited additional investment.

**CDs for the planet** – Pitbull's heart might skip a beat like a scratched CD, but researchers have found better uses for old Compact Discs than inspiration for cheesy lyrics. Scientists

from Taiwan have invented a device [that uses CDs](#) on which zinc oxide is grown to treat wastewater when exposed to UV light. 95% of contaminants broken down in 60 minutes at the rate of 150ml of water a minute can mean the difference between life and death for those who don't have access to clean water.

While solving the problem of CDs in landfills, the linked article points out that we are still left with resistance from consumers to drinking treated sewage. While I agree that this is a problem that needs to be solved, I think such issues will not hold back the adoption of waste water treatment in countries like India where there is a large demand for treated water from industries. While the CD treatment plant is meant for domestic consumers who require small quantities of water, it can also be extended to small and micro businesses that need water, and can therefore help rural employment as well.

**Green Celebrations** - [China has a mooncake problem](#). Specifically, mooncakes made for the Moon festival are gifted which brings the twin environmental issues of packaging and food waste. 280,000 tons of mooncakes are sold in China, 2.5 billion yuan is spent on packaging, and 2 million mooncakes were thrown away in Hong Kong alone! China has responded with laws to limit packaging and limits on corporate gifting. Pakistan, similarly, has a [one-dish law for weddings](#) to limit conspicuous consumption.

**The Green Trip** - Toyota recently gave a test drive of its [hydrogen powered concept](#) to a few lucky auto journalists, and fuel cells are again in the public eye. The car by itself is quite interesting – both range and performance can put typical electric cars to shame – and it rekindles the debate on how clean your vehicle actually is. If hydrogen for the fuel cell comes from natural gas, electricity for your electric car comes from coal, and manufacturing the batteries causes a great deal of pollution, can we really say that our vehicles are green?

This is where renewables can play a large role as both battery charging and hydrogen generation can be achieved using renewable energy sources. In addition, there are other interesting [clean ways](#) of generating hydrogen as well. There are still many questions to be answered and wrinkles to be ironed out, such as conversion efficiencies and safety, but the future looks bright for (fairly) guilt free personal transport – assuming that personal transport itself has much of a future.

And speaking of the performance of electric vehicles, the BRD's RedShift electric motorcycle (a competition supermoto) [outperforms its nearest KTM](#) rival because it's designed to profit from the advantages of an electric motor over the internal combustion engine. It is a performance motorcycle that happens to be green, which sounds like a compelling way to sell environment friendliness.

## EAI (almost) Daily - October

Date	Title	Link
Oct 2	India May Announce 750 MW Solar Auction in October, TN Govt to Unveil Solid Waste Management Policy, Breakthrough Energy Storage Tech and Many More	<a href="http://bit.ly/1b8ttDs">http://bit.ly/1b8ttDs</a>
Oct 4	Tamil Nadu to Establish Solar Power Transmission Corridor, Mytrah to Double Wind Generation Capacity, Biofuel Symposium in Mysore and Many More	<a href="http://bit.ly/19xobeu">http://bit.ly/19xobeu</a>
Oct 7	Delegation to Study Feasibility of Aurangabad's Solar Projects, Chicken Poo Can Be Used to Reduce Electricity Bills and Many More	<a href="http://bit.ly/18UZi8a">http://bit.ly/18UZi8a</a>
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Oct 11	Borg Energy Ties up with Finance Firms, World's First Walkable Solar Panel Pathway, Mumbai and Chennai May Reach Climate Tipping Point by 2034...	<a href="http://bit.ly/17656l0">http://bit.ly/17656l0</a>
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EAI (almost) Daily is India's largest and most popular renewable energy newsletter, delivered to over 35,000 industry professionals' mailbox, three days a week - Monday, Wednesday & Friday. EAI (almost) Daily comprises of news from various sectors of renewable energy, innovations, technical papers, videos, upcoming renewable energy events and jobs, interviews and green community stories.

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Energy Alternatives India (EAI) was formed to provide consulting, promotion and business support to the fast growing renewable energy industry in India. Started by a team of professionals from IITs and IIMs having prior experience in the alternative energy industry, we are at the forefront of industry research, management consultancy, education, learning and business promotions in India with a focus on the renewable energy sector.

The vision of EAI is to promote widespread and increased adoption of renewable energy sources in India. The EAI team is based out of Chennai, India.

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